

# CITY OF SAN DIEGO



# STANDARD DRAWINGS

DOCUMENT NO. AEC701042

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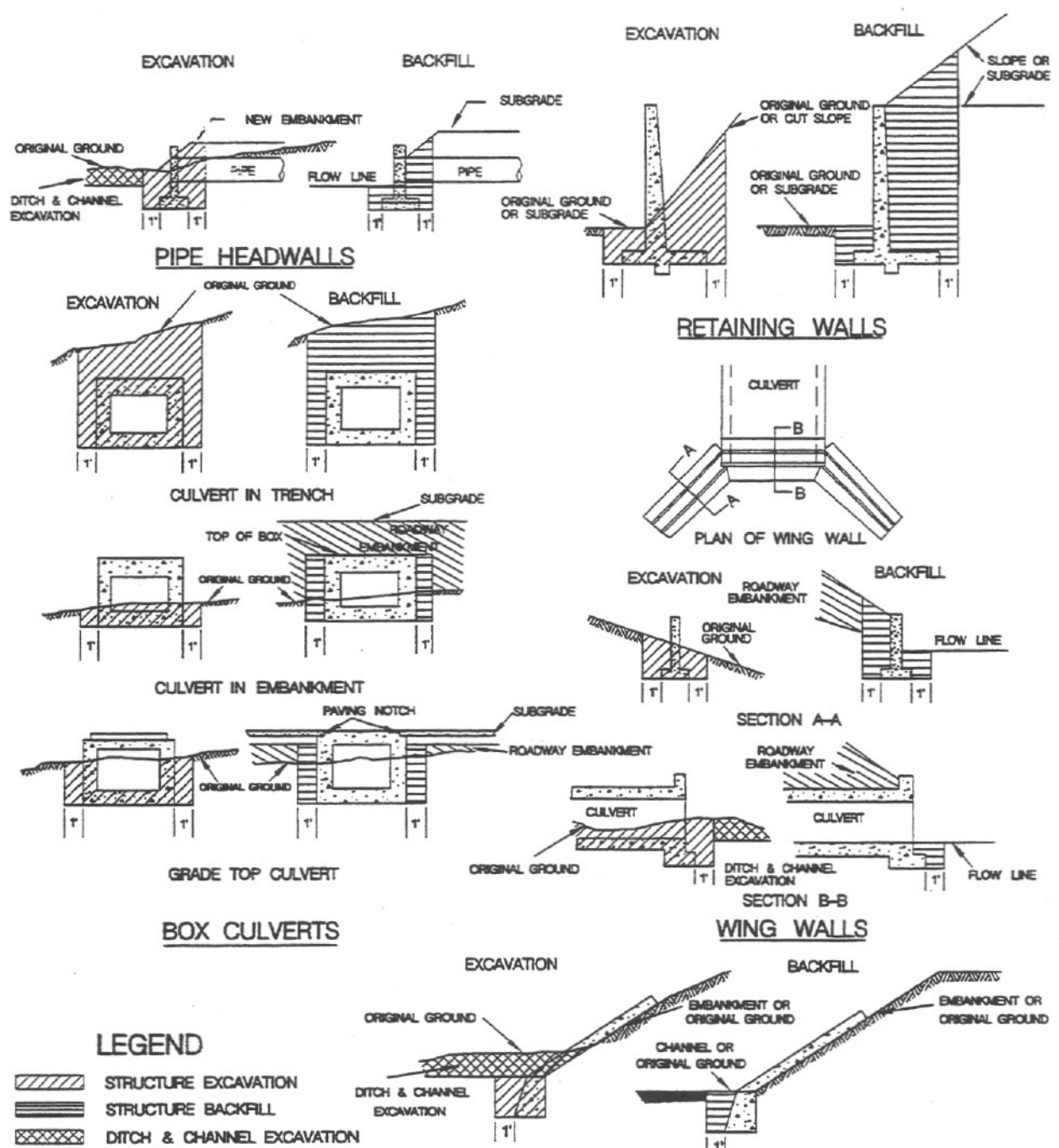
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# CONCRETE STRUCTURES

C

CONCRETE STRUCTURES



**LEGEND**

- STRUCTURE EXCAVATION
- STRUCTURE BACKFILL
- DITCH & CHANNEL EXCAVATION
- ROADWAY EMBANKMENT
- ROADWAY EXCAVATION

NOTE: SUBGRADE SHALL BE LOWEST SUBGRADE AS DEFINED IN THE STANDARD SPECIFICATIONS

TOP LIMIT OF STRUCTURE EXCAVATION AND BACKFILL IS ORIGINAL GROUND IF CHANNEL IS NOT EXCAVATED

Revision	By	Approved	Date
ORIGINAL		J.P. Casey	6-3-83

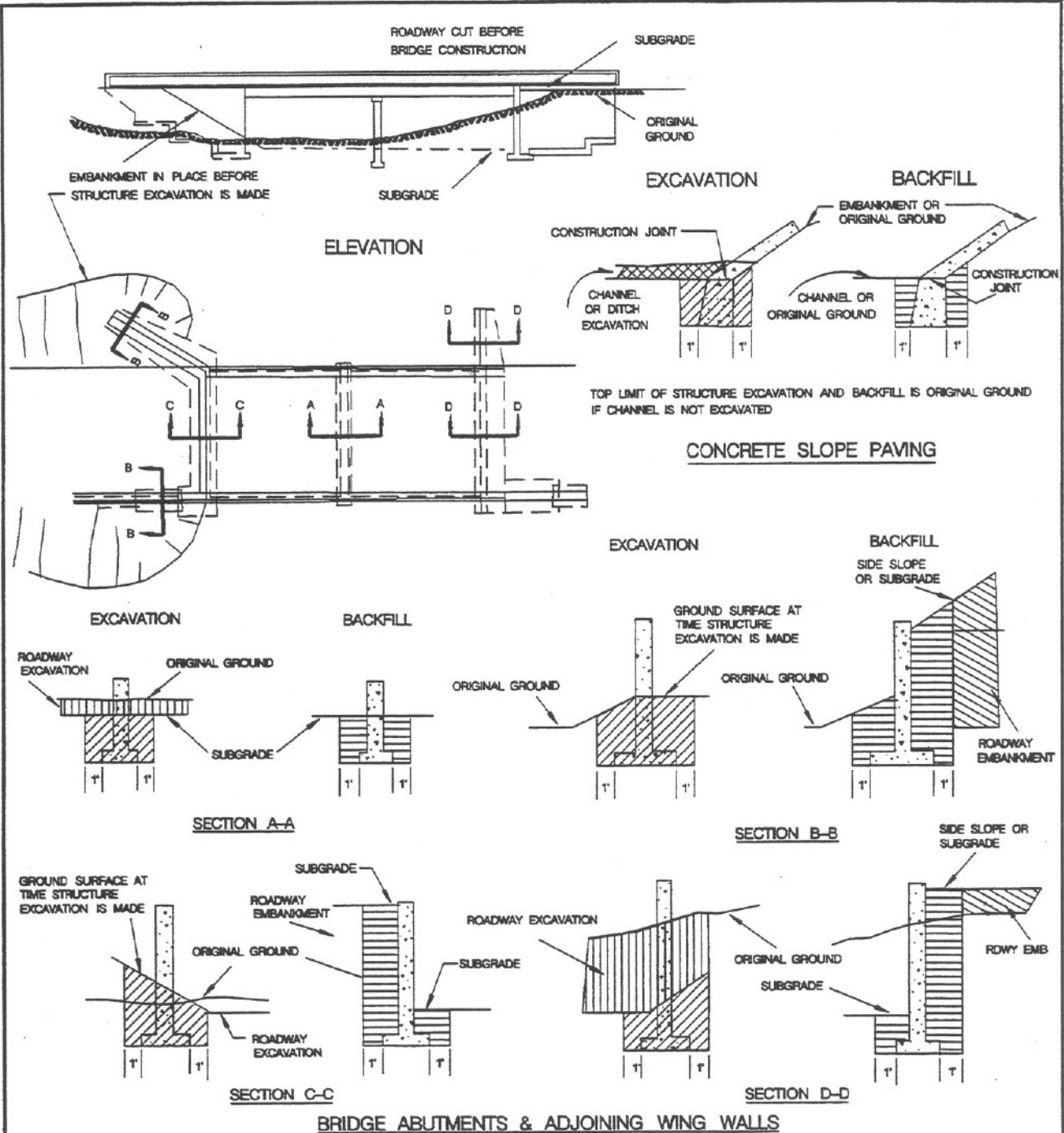
**CITY OF SAN DIEGO - STANDARD DRAWING**

**STRUCTURE EXCAVATION & BACKFILL**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*[Signature]* 2-7-95  
COORDINATOR R.C.E. 25902 DATE

DRAWING NUMBER **SDC-103**



LEGEND

- STRUCTURE EXCAVATION
- STRUCTURE BACKFILL
- DITCH & CHANNEL EXCAVATION
- ROADWAY EXCAVATION
- ROADWAY EMBANKMENT

NOTE: SUBGRADE SHALL BE LOWEST SUBGRADE AS DEFINED IN THE STANDARD SPECIFICATIONS

SEE ALSO STD. DWG. SDC-103

Revision	By	Approved	Date
ORIGINAL		J.P. Casey	6-3-83

**CITY OF SAN DIEGO - STANDARD DRAWING**

**STRUCTURE EXCAVATION & BACKFILL**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

2-7-95  
 COORDINATOR R.C.E. 25902 DATE

DRAWING NUMBER **SDC-104**

# DRAINAGE SYSTEMS

DRAINAGE SYSTEMS

D

SUPPLEMENTAL TO REGIONAL STANDARD DRAWING ( "D" SERIES )  
DRAWINGS D-1, D-2, D-3, AND D-4

REQUIRES the use of SDG-110

DRAWING D-12

NOTES

Amend note 3 to read: "When curb inlet opening height (H) exceeds 8 inch, install 1 inch diameter steel protection bar."

Amend note 4 to read: "Install additional bars at 3-1/2 inch clear spacing above first bar when opening exceeds 16 inch."

DRAWING D-19

NOTES

Add 3. Slotted drain installations shall be encased with 6 inch PCC (520-C-2500) all around and shall be poured monolithically with the curb and gutter.

DRAWING D-40

SECTION B-B

Amend 1/2D min. to read: "1D min." In addition, show riprap and concrete channel drawn even with top of pipe.

NOTES

Amend note 1.B) to read: "Filter blanket material."

Amend note 3 to read: "Riprap shall be placed over a geotextile filter fabric. Filter blanket material shall be placed under the fabric when specified."

DRAWING D-40, D-41A, and D-41B

Add the following:

Design Velocity (Ft./Sec)*	Rock Classification
6-10	No. 2 Backing
10-12	1/4 Ton
12-14	1/2 Ton
14-16	1 Ton
16-18	2 Ton

SECTION OF RIP RAP

\* over 18 fps requires special design

**SHT. 1 OF 2**

Revision	By	Approved	Date	<b>CITY OF SAN DIEGO - STANDARD DRAWING</b>	CITY OF SAN DIEGO STANDARDS COMMITTEE <i>James F. Rollinger</i> 2-7-95 COORDINATOR R.C.E. 25902 DATE
ORIGINAL		M. V. Rollinger	5-20-92		
NOTES	SM	D. Clafre	12-9-03	SUPPLEMENTAL TO REGIONAL STANDARD DRAWING ( "D" SERIES )	DRAWING NUMBER <b>SDD-100</b>

DRAWING D-63

NOTES

Amend note 3 to read: "The O.D. of smaller pipe shall not be more than two-thirds (2/3) the size of the larger pipe's I.D."

DRAWING D-70, D-71, D-74, D-79A, D-79B, D-80A, & 80B

NOTES

"Channel fencing is required. Unless otherwise shown on the plans a chain link fence (per Standard Drawings M-5 and M-6) six feet (6') in height, with a top rail set at six inches (6") inside easement boundary lines shall be constructed on both sides, including box culverts or any other structure at the end of the channel. Access points shall be provided on both sides at 500' maximum intervals. Two ten foot (10') gates or one twenty foot (20') gate for vehicular access are required at a maximum of 1000' intervals and may be placed on either side. The remaining access points shall be four-foot (4') gates."

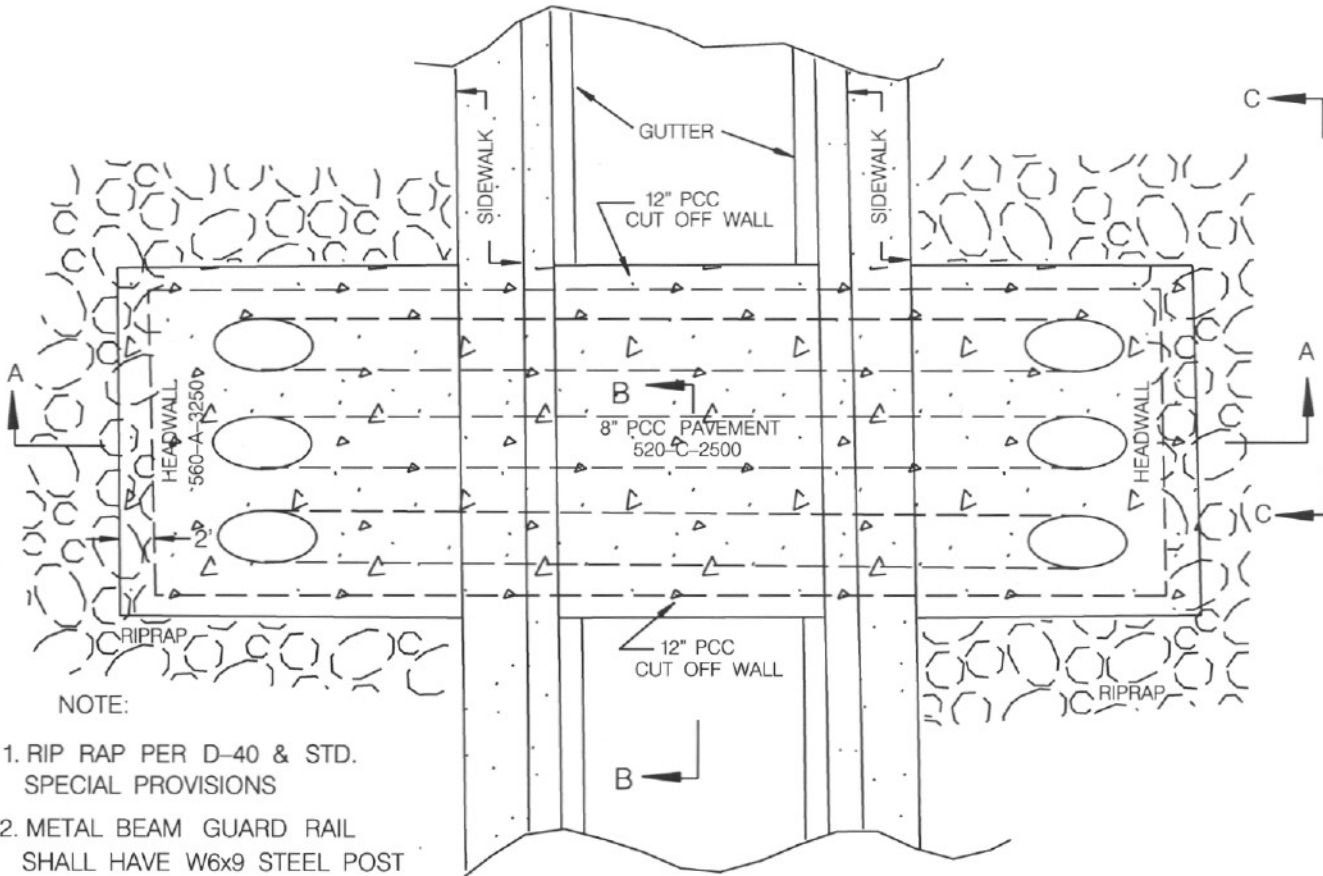
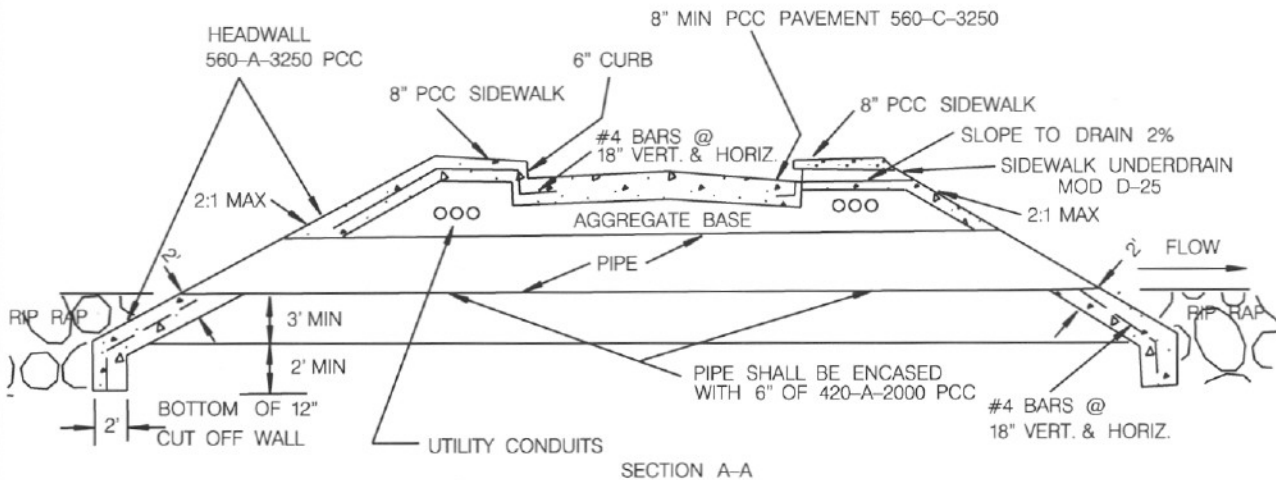
DRAWING D-75

NOTES

Add: 3. Stucco netting shall be galvanized and shall have one and one-half inch (1-1/2") cover.

**SHT. 2 OF 2**

Revision	By	Approved	Date	<b>CITY OF SAN DIEGO - STANDARD DRAWING</b>	CITY OF SAN DIEGO STANDARDS COMMITTEE
ORIGINAL		M. V. Rollinger	5-20-92		
				SUPPLEMENTAL TO REGIONAL STANDARD DRAWING ("D" SERIES )	DRAWING NUMBER <b>SDD-100</b>

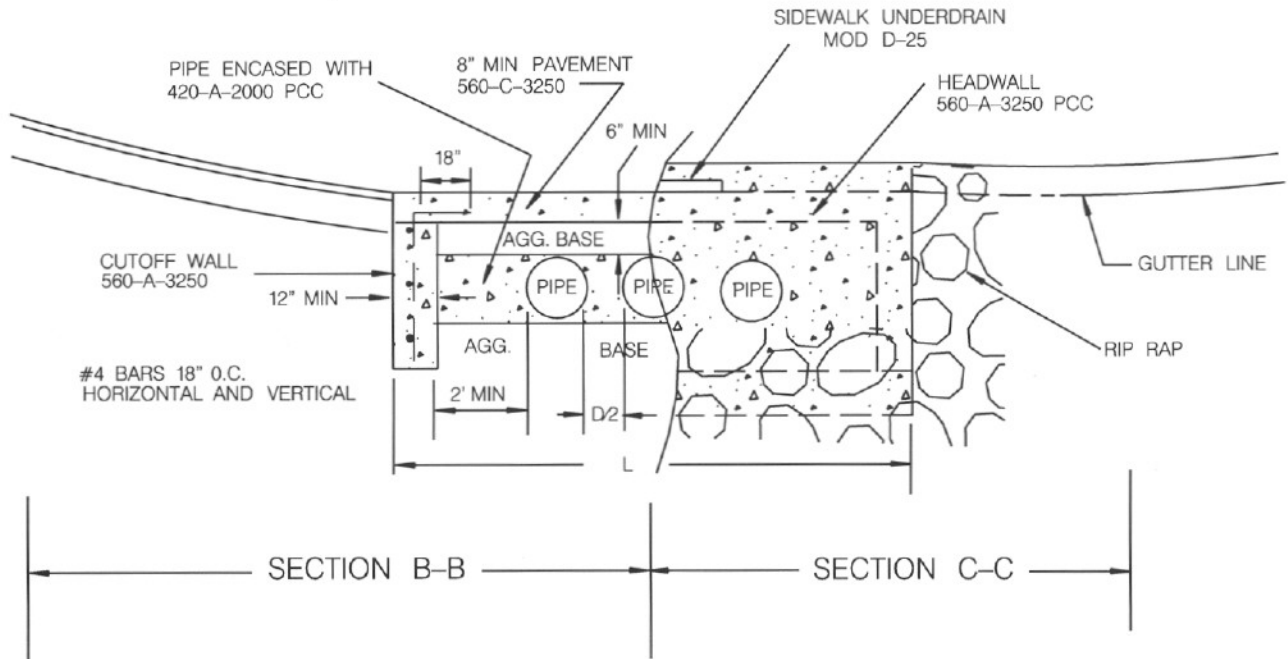


NOTE:

1. RIP RAP PER D-40 & STD. SPECIAL PROVISIONS
2. METAL BEAM GUARD RAIL SHALL HAVE W6x9 STEEL POST
3. SIDEWALK, CURB, PAVEMENT AND HEADWALL'S SHALL BE TIED TOGETHER WITH #4 BARS 18" O.C. HORIZONTAL AND VERTICAL
4. CONCRETE JOINTS PER G-9 AND G-10

SHT. 1 OF 2

Revision	By	Approved	Date	CITY OF SAN DIEGO - STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE
ORIGINAL		J.P. Casey	6-3-83		
				DRAWING NUMBER <b>SDD-101</b>	



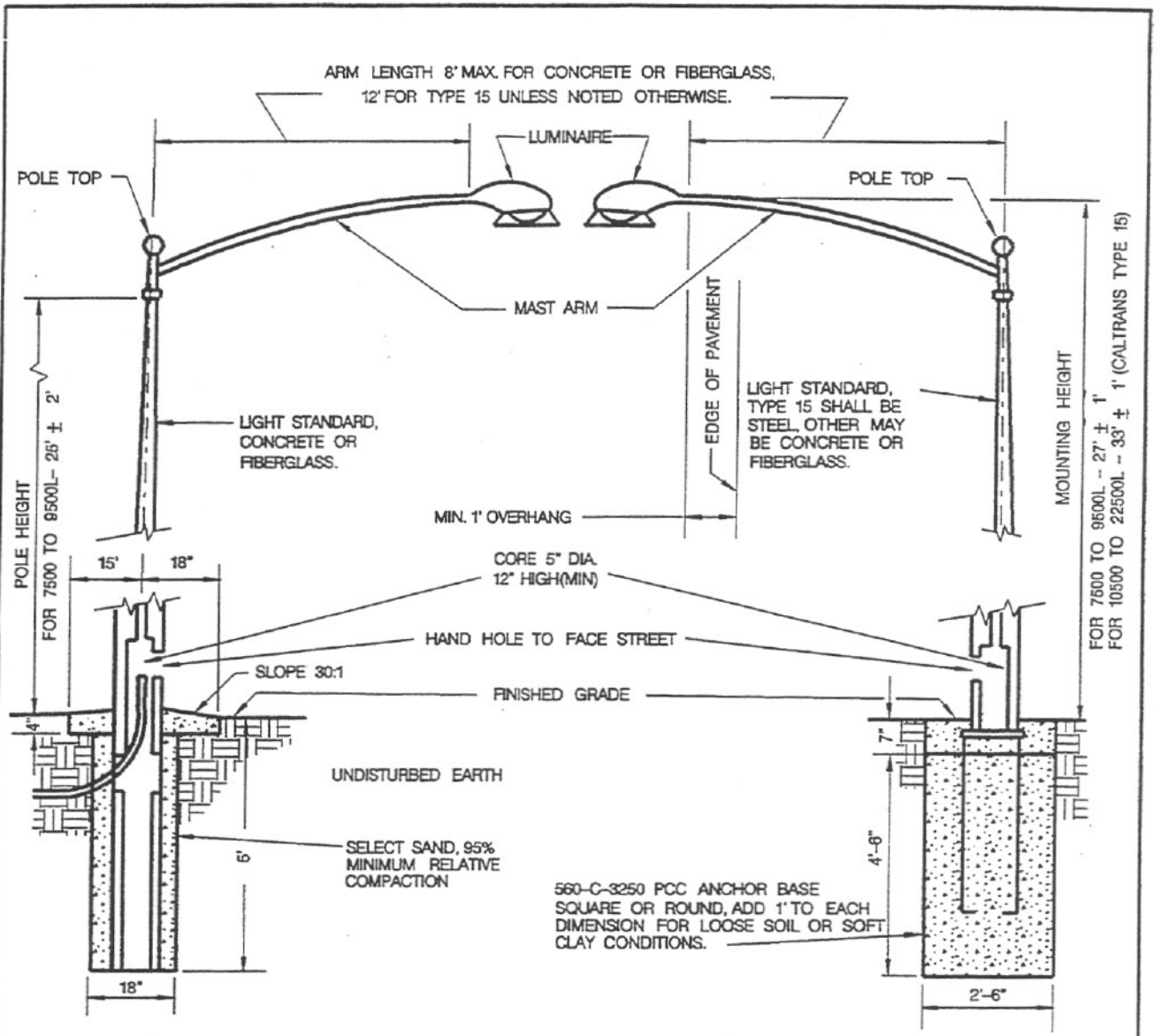
NOTE:  
 1. HEADWALL LENGTH (L) PER D-30, D-31

SHT. 2 OF 2

Revision	By	Approved	Date	CITY OF SAN DIEGO - STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE
ORIGINAL		J.P. Casey	6-3-83		
				2-7-95 DATE	
				DRAWING NUMBER	
				<b>SDD-101</b>	

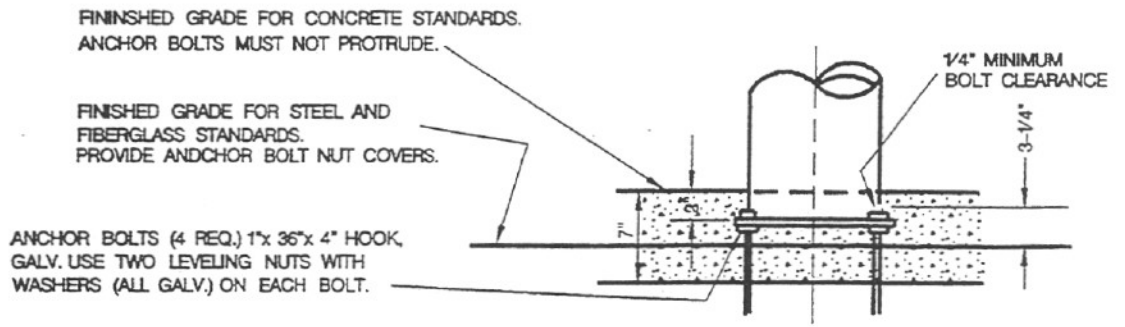


# ELECTRICAL SYSTEMS



DIRECT BURIAL FOUNDATION

ANCHOR BASE FOUNDATION



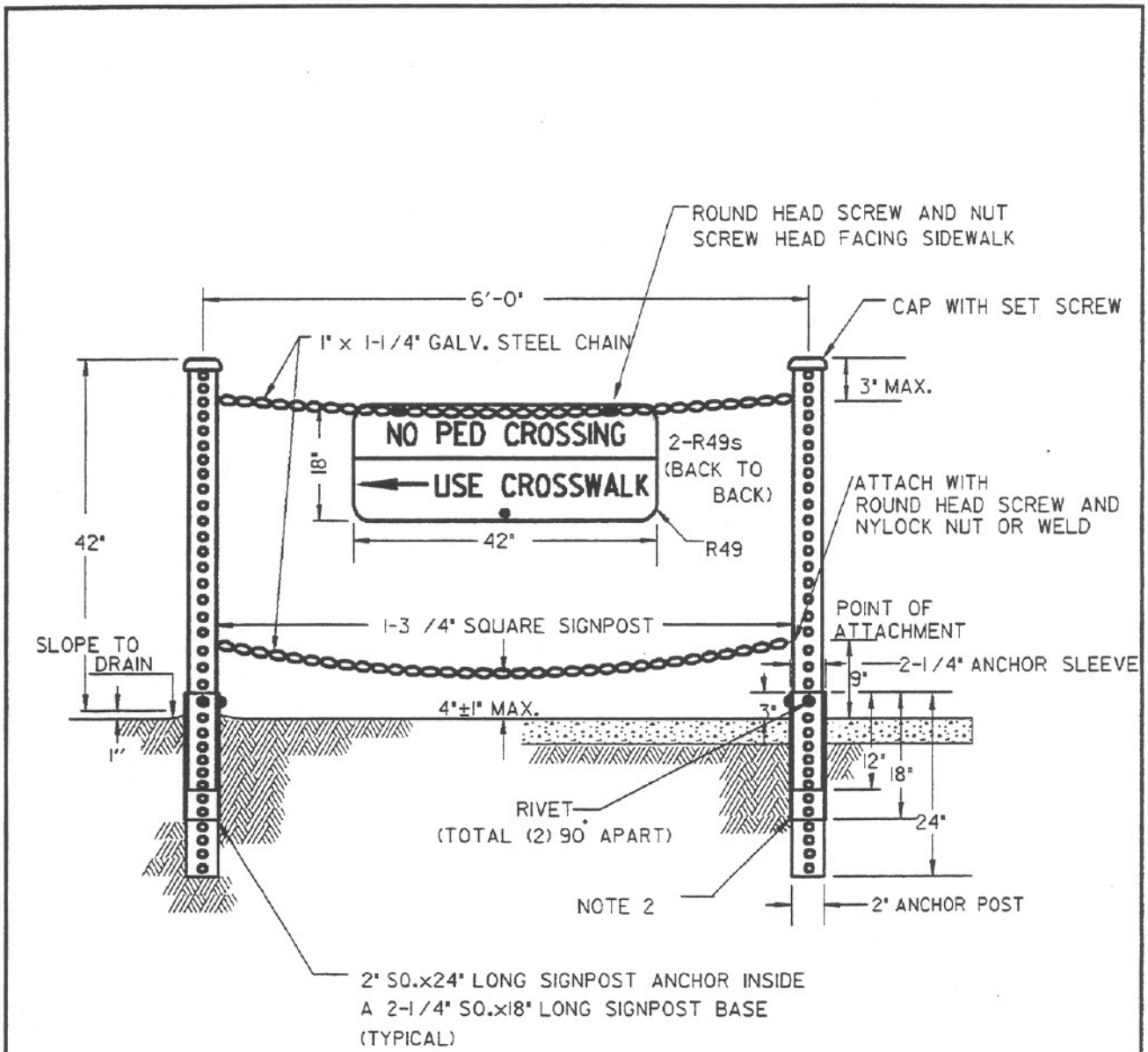
Revision	By	Approved	Date
ORIGINAL		J.P. Casey	6-3-83

CITY OF SAN DIEGO - STANDARD DRAWING

CITY OF SAN DIEGO  
STANDARDS COMMITTEE  
*John J. Paul* 2-7-95  
COORDINATOR R.C.E. 25902 DATE

STREET LIGHTING STANDARD

DRAWING NUMBER **SDE-101**



**NOTES:**

1. POSTS TO BE SET 1'-6" BEHIND FACE OF CURB UNLESS OTHERWISE SPECIFIED.
2. IN EXISTING SIDEWALK AREA SET POSTS INTO 4" CORE BORING, PACK WITH GROUT.
3. R49 SIGNS ON ALUMINUM SHEETING CENTERED BETWEEN POSTS.

Revision	By	Approved	Date	<b>CITY OF SAN DIEGO - STANDARD DRAWING</b>	CITY OF SAN DIEGO STANDARDS COMMITTEE <i>John F. Bell</i> 2-7-95 COORDINATOR R.C.E. 25902 DATE
ORIGINAL		J.P. Casey	8-23-88		
<b>PEDESTRIAN BARRICADE</b>				DRAWING NUMBER	<b>SDE-103</b>

# GENERAL SURFACE IMPROVEMENTS

**G**

GENERAL SURFACE IMPROVEMENTS

SUPPLEMENT TO REGIONAL STANDARD DRAWING ( "G" SERIES )

DRAWINGS G-1, G-2, G-3, G-4, G-6, G-7, G-11,  
G-12, G-13, G-14A, G-14B, G-14C, G-14D, G-28, G-29, G-30, & G-31

NOTES All Historical Stamps/impressions (Street name, Contractor name, and/or date) shall be preserved per Standard Drawing SDG-115.

DRAWINGS G-3, G-7, G-11, G-14A, G-14B,  
G-14C, G-14D, G-26, G-27, G-28, G-29, G-30, & G-31

NOTES For designated urbanized communities, sidewalk design (scoring pattern, color, texture) to be in conformance with historic design on adjacent properties.

DRAWINGS G-3, G-7, G-11, G-14A, G-14B,  
G-14C, G-14D, G-27, G-28, G-29, G-30, & G-31

NOTES Sidewalk cross slope shall be 1.5%

DRAWING G-1


NOTES Amend Note 3 to read: "Sidewalk cross slope shall be 1.5%"

DRAWING G-2

NOTES Amend Note 3 to read: "Cross slope shall be 1.5%"

- Add: 4. On the high side of superelevated curves the gutter shall be sloped to match cross-section grade of the roadway ( see SDDS-105 ).
- Add: 5. Place expansion joints at curb returns, adjacent to structures and at no greater than forty-five foot ( 45' ) intervals.
- Add: 6. Place weakened plane joints at driveways and at fifteen ( 15' ) foot intervals from P. C. R. 's.

**SHT. 1 OF 3**

Revision	By	Approved	Date	<b>CITY OF SAN DIEGO - STANDARD DRAWING</b>  SUPPLEMENTAL TO REGIONAL STANDARD DRAWING ( "G" SERIES )	CITY OF SAN DIEGO STANDARDS COMMITTEE  Chairperson RCE 64572      Date <b>12-9-03</b>
ORIGINAL		M. V. Rollinger	5-20-92		
NOTES		G. Parkinson	2-07-95		
NOTES	SM	Oskoui	12-09-03		DRAWING NUMBER <b>SDG-100</b>

SUPPLEMENT TO REGIONAL STANDARD DRAWING ( "G" SERIES ) cont.

DRAWING G-4

NOTES            Add: 4.        Sidewalk under drains shall not be allowed.

DRAWING G-7

NOTES            Add: 3.        Sidewalk shall have a minimum clear width of four feet  
( 4' ) from any obstruction.

DRAWING G-9

NOTES            For designated urbanized communities, sidewalk scoring (grooves)  
pattern to be in conformance with historic design on adjacent properties.

DRAWING G-12

SECTION A-A        Delete notation, "Base material as shown on plans."

DRAWING G-13

CROSS SECTION    Delete notation, "Base material as shown on plans."

DRAWINGS G-14A, G-14B

PLAN                Add notation at property line, "Place one-quarter inch ( 1/4" )  
Expansion Joint Filler Material."

NOTES                Amend note 4 to read: "Driveway shall be a continuous pour from  
back of Curb to Property Line."  
  
Add: 6                Meter boxes shall not be located within driveway – see W-15.  
  
Add: 7                Driveway in excess of 150 feet in length from curb face shall  
require minimum of 7 inch P.C.C.

**SHT. 2 OF 3**

Revision	By	Approved	Date	<b>CITY OF SAN DIEGO - STANDARD DRAWING</b>  SUPPLEMENTAL TO REGIONAL STANDARD DRAWING ( "G" SERIES )	CITY OF SAN DIEGO STANDARDS COMMITTEE <i>R. L. Li</i> 12-9-03 Chairperson RCE 64572      Date
ORIGINAL		M. Y. Rollinger	5-20-92		
NOTES		G. Parkinson	2-07-95		
NOTES	SM	Oskoui	12-09-03		
					DRAWING NUMBER <b>SDG-100</b>

SUPPLEMENT TO REGIONAL STANDARD DRAWING ( "G" SERIES ) cont.

DRAWINGS G-14C, G-14D

NOTES            Add: 6            Meter boxes shall not be located within driveway – see W-15.

DRAWING G-17

NOTES            Add: 6.            Construction of Alley Apron includes the adjacent six-inch (6") curb.  
                      Add: 7.            Refer to G-31 for pedestrian ramps.

DRAWING G-31

NOTES            Add: 3.            Where curb height affected by construction varies, the ramp length (Y) shall be governed by the highest curb height (X). The side slope (Z) shall be governed by the curb height on the respective side.

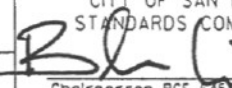
DRAWING G-32

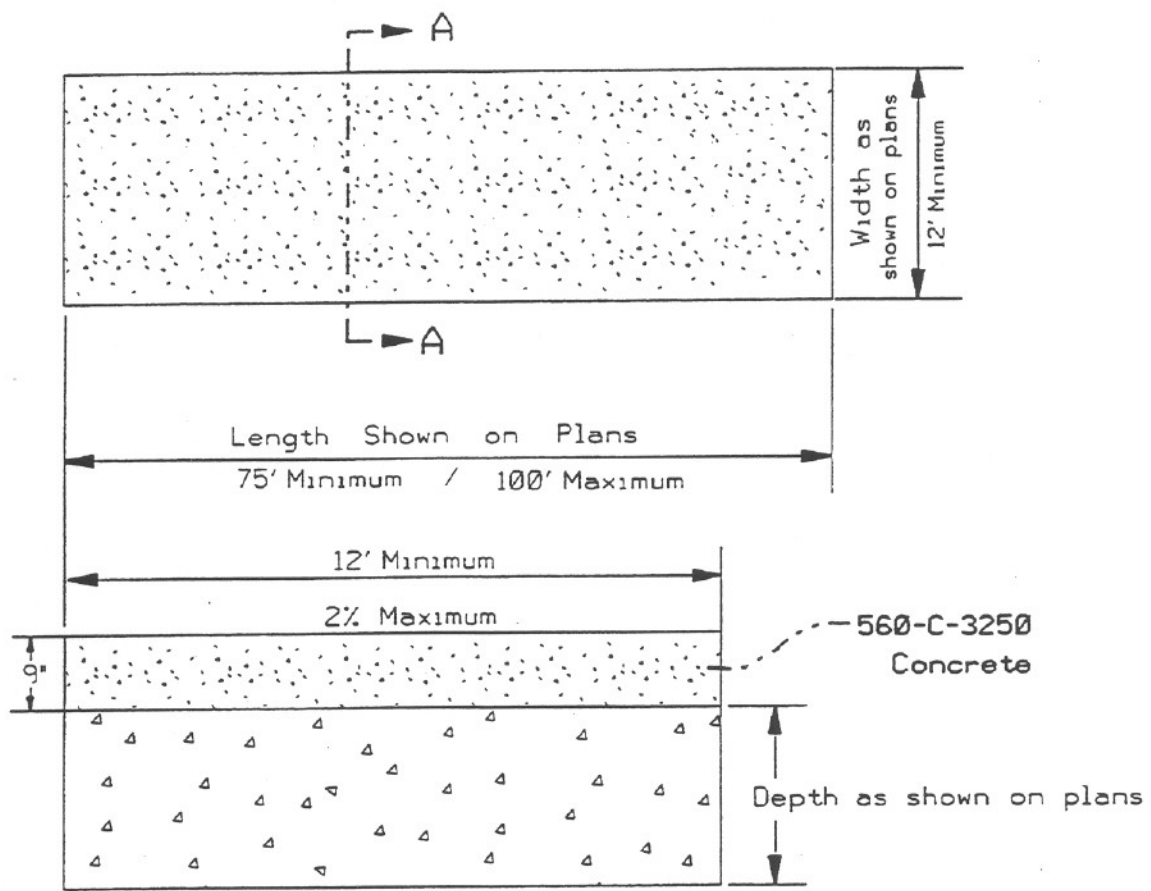
NOTES            Add: 7.            For Federally funded projects (new constructions and alterations), the lower end of the 48-inch width of the ramp shall be flush and free of abrupt changes between the bottom of the ramp and the street pavement.

DRAWINGS G-27, G-28, G-29, G-30, & G-31

NOTES            Do NOT use tables.

SHT. 3 OF 3

Revision	By	Approved	Date	CITY OF SAN DIEGO - STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE		
ORIGINAL		M. V. Rollinger	5-20-92			SUPPLEMENTAL TO REGIONAL STANDARD DRAWING ( "G" SERIES )	 Chairperson RCE 84512      Date 12-9-03
NOTES		G. Parkinson	2-07-95				
NOTES	SM	Oskoui	12-09-03				
				DRAWING NUMBER	<b>SDG-100</b>		



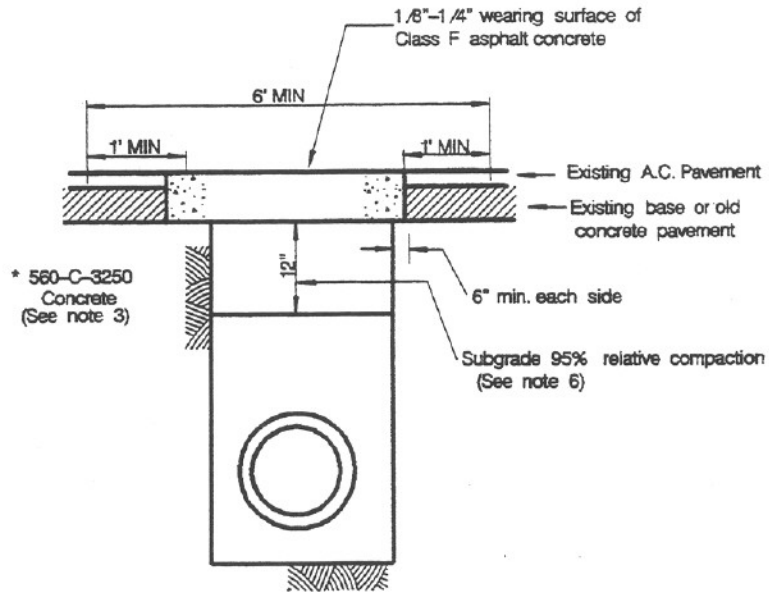
SECTION A-A

NOTES

1. Broom finish parallel with traffic.

REVISION	BY	APPROVED	DATE	CITY OF SAN DIEGO - STANDARD DRAWINGS	CITY OF SAN DIEGO STANDARDS COMMITTEE
ORIGINAL		PARKINSON	5-6-80		BUS STOP SLAB
REVISION		J.C.CASEY	6-3-83	DRAWING NUMBER	
DRAWING	LEC		6-95	SDG-102	
MAX	G.P.	F.BELOCK	4-96		

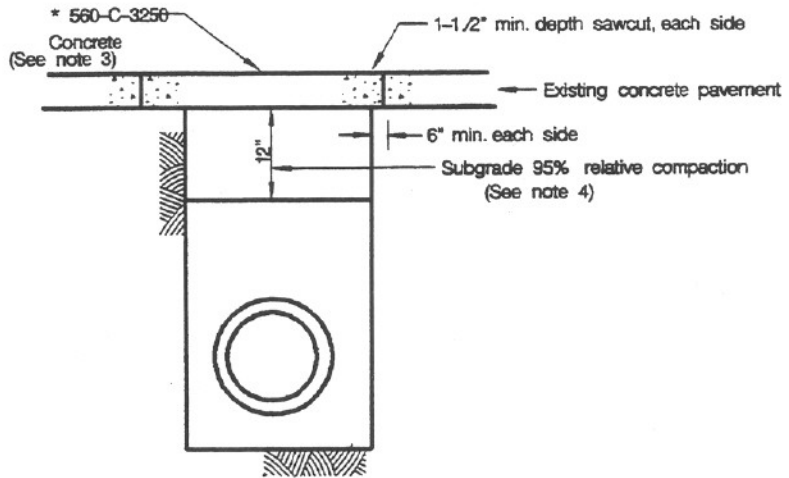




**NOTES:**

1. Existing A.C. pavement shall be sawcut to a minimum depth of 1-1/2 inches or 25% of its thickness, whichever is greater, except lateral trenches in 2-lane residential streets may be jack-hammered if approved by the Engineer. In case of an emergency endangering public safety or property, sawcutting is not required.
  2. Prior to placing concrete, paving and base edges shall be trimmed to neat horizontal and vertical lines.
  3. Unless otherwise specified, concrete trench cover shall be a minimum of 5-1/2 inches thick for alleys, 7 inches for local through four lane collector streets and 9 inches thick for all major or greater street classifications.
  4. Only asphaltic type curing compound shall be used on the concrete trench cover. Pigmentation is not required.
  5. A tack coat shall be applied to the existing A.C. pavement and concrete trench cover prior to placing the new A.C.
  6. Subgrade preparation shall be done in accordance with Section 301-1 of the Standard Specifications for Public Works Construction; latest edition.
  7. Any street trench 7 feet in width or greater and longer than 100 feet in overall length shall be reconstructed with the pavement section for the street classification per Schedule "J" (SDG-113). Street trench sections 7 feet in width or greater but less than 100 feet in overall length shall be resurfaced to a thickness of one inch (1") greater than required by note 3 above.
- \* In four-lane major or greater streets, an approved set accelerating admixture such as calcium chloride, shall be used in the concrete.

Revision	By	Approved	Date	<b>CITY OF SAN DIEGO - STANDARD DRAWING</b>	CITY OF SAN DIEGO STANDARDS COMMITTEE <i>James L. [Signature]</i> 2-7-95 COORDINATOR R.C.E. 25902 DATE
ORIGINAL		J.P. Casey	1-24-89		
				<b>TRENCH RESURFACING FOR ASPHALT CONCRETE SURFACED STREETS</b>	DRAWING NUMBER <b>SDG-107</b>

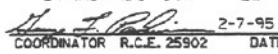


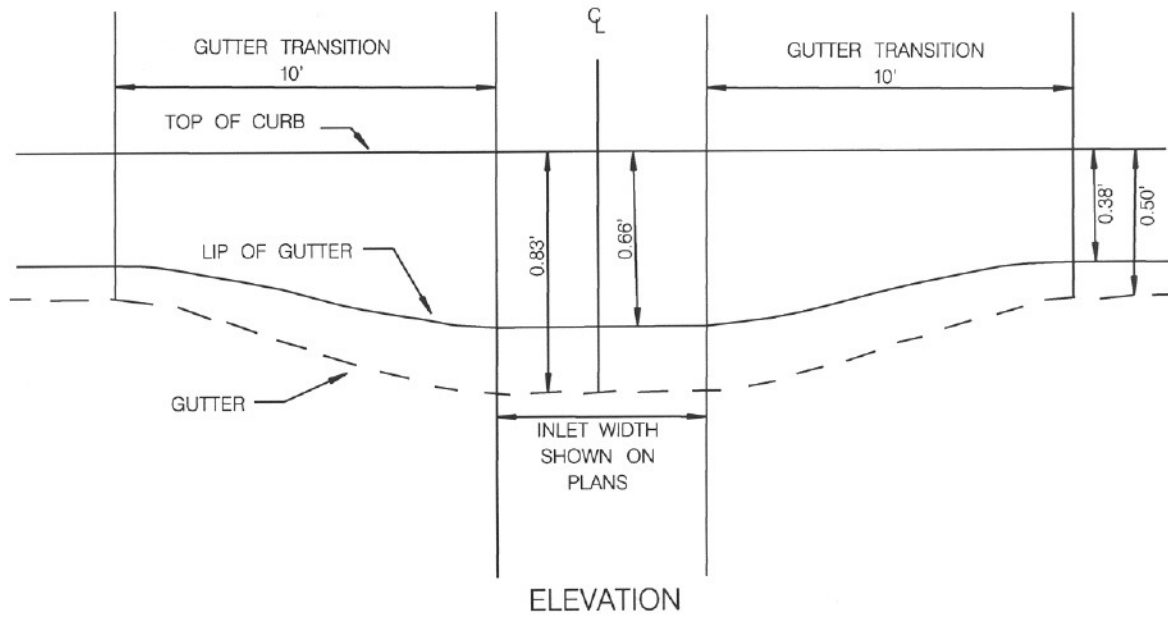
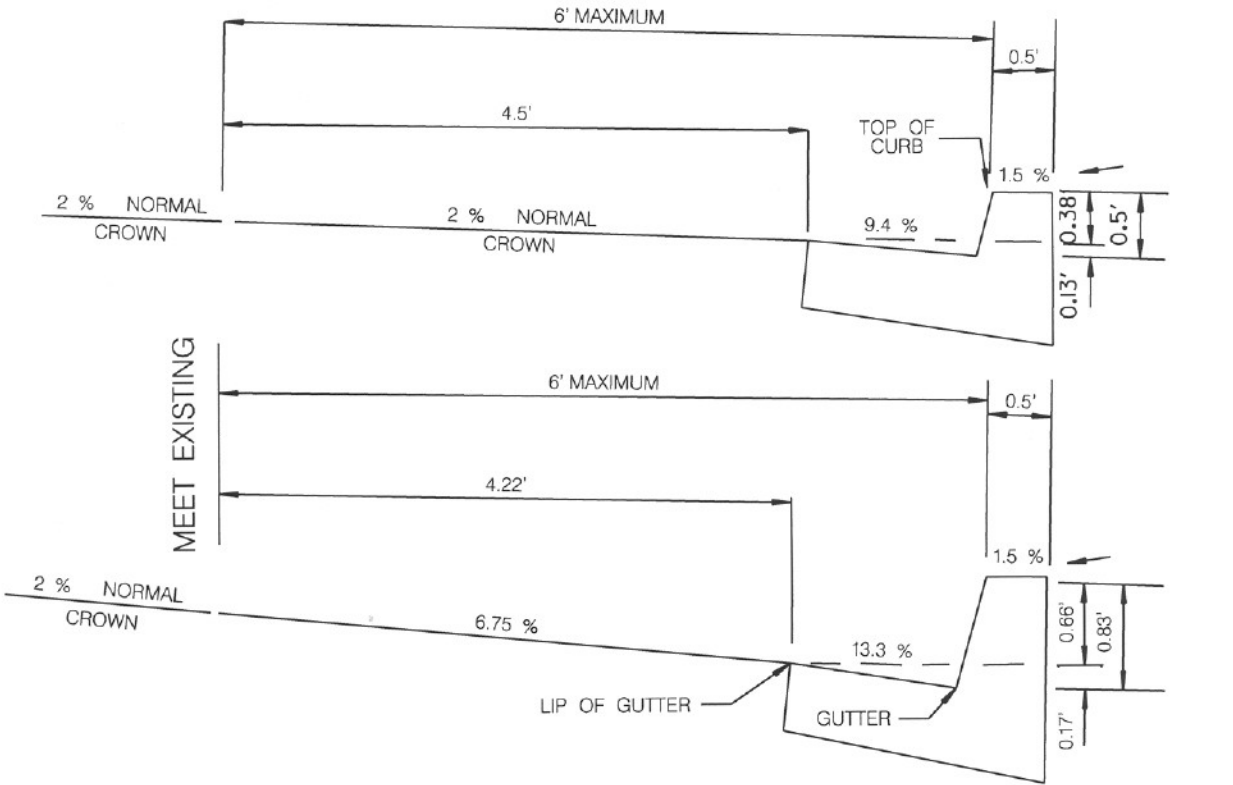
**NOTES:**

1. Removal of the existing concrete pavement for trench excavation shall be done in accordance with Section 300-1.3 of the Standard Specifications for Public Works Construction, latest edition.
2. Prior to placing concrete, pavement edges shall be trimmed to neat horizontal and vertical lines.
3. Unless otherwise specified, concrete trench cover shall be a minimum of 5-1/2 inches thick for alleys, 7 inches for local through four lane collector streets and 9 inches thick for all major or greater street classifications.
4. Subgrade preparation shall be done in accordance with Section 301-1 of the Standard Specifications for Public Works Construction, latest edition.
5. Any street trench 7 feet in width or greater and longer than 100 feet in length shall be reconstructed with the pavement section for the street classification per Schedule "J" (SDG-113). Street trench sections 7 feet in width or greater but less than 100 feet in overall length shall be resurfaced to a thickness of one inch (1") greater than required by note 3 above.

\* In four-lane major or greater streets, an approved set accelerating admixture such as calcium chloride, shall be used in the concrete.

FOR A STREET SURFACED WITH ASPHALT CONCRETE, SEE STANDARD DRAWING SDG-107.

Revision	By	Approved	Date	CITY OF SAN DIEGO - STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE	
ORIGINAL		J.P. Casey	1-24-89			
				TRENCH RESURFACING FOR PCC SURFACED STREETS	 COORDINATOR R.C.E. 25902      2-7-95      DATE	
					DRAWING NUMBER	<b>SDG-108</b>



CURB PROFILE - INLET TRANSITION  
NOT TO SCALE

SHT. 1 OF 2

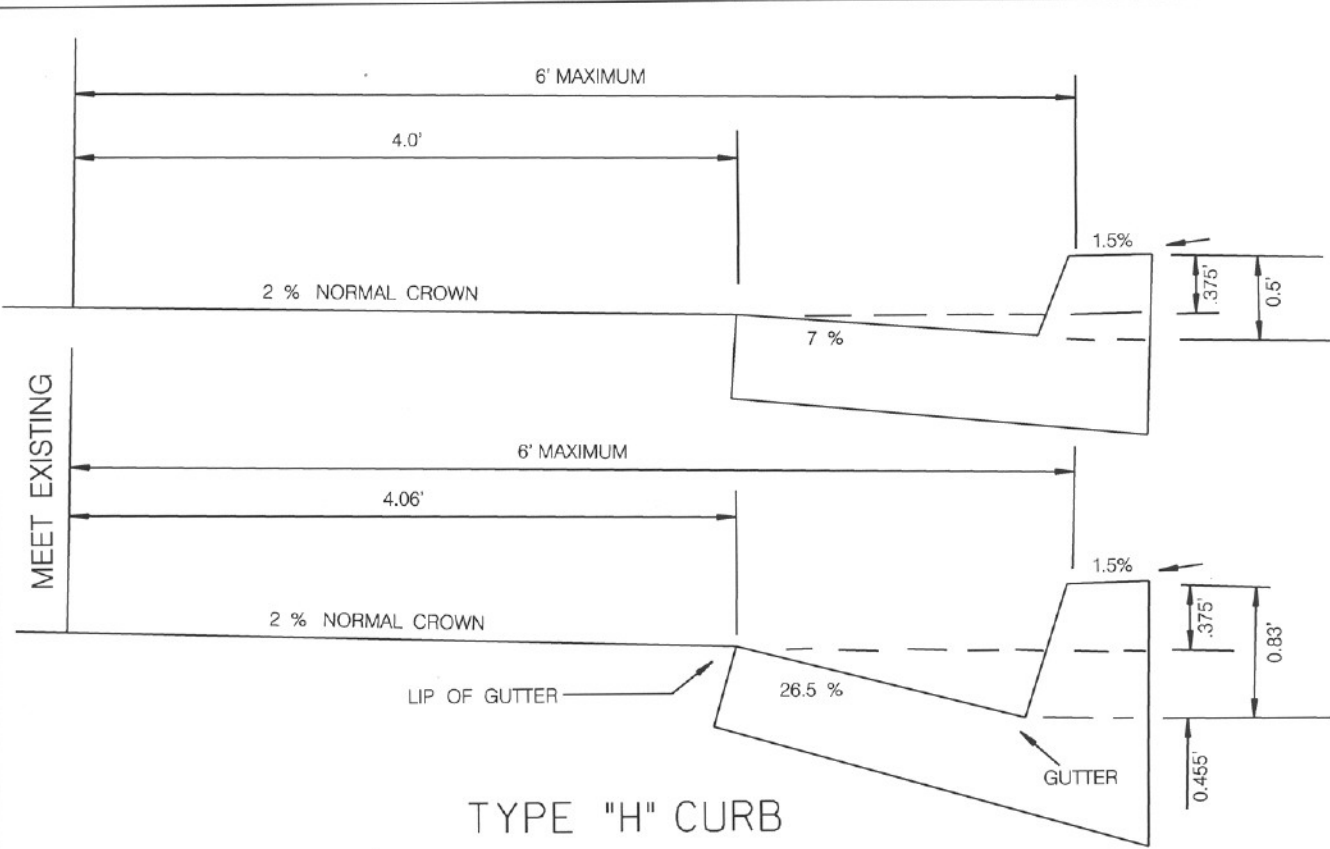
Revision	By	Approved	Date
ORIGINAL		J.P. Casey	11-8-88

CITY OF SAN DIEGO - STANDARD DRAWING

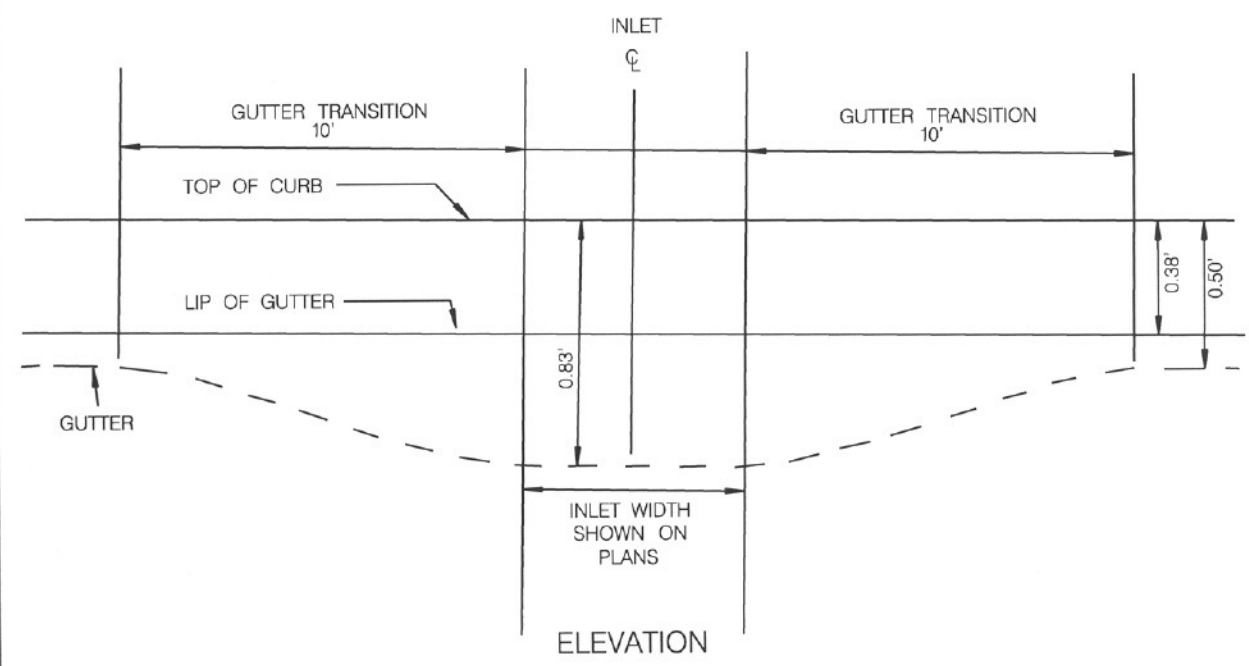
**G CURB PROFILE  
INLET TRANSITION**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE  
*James F. ...* 2-7-95  
COORDINATOR R.C.E. 25902 DATE

DRAWING NUMBER **SDG-110**

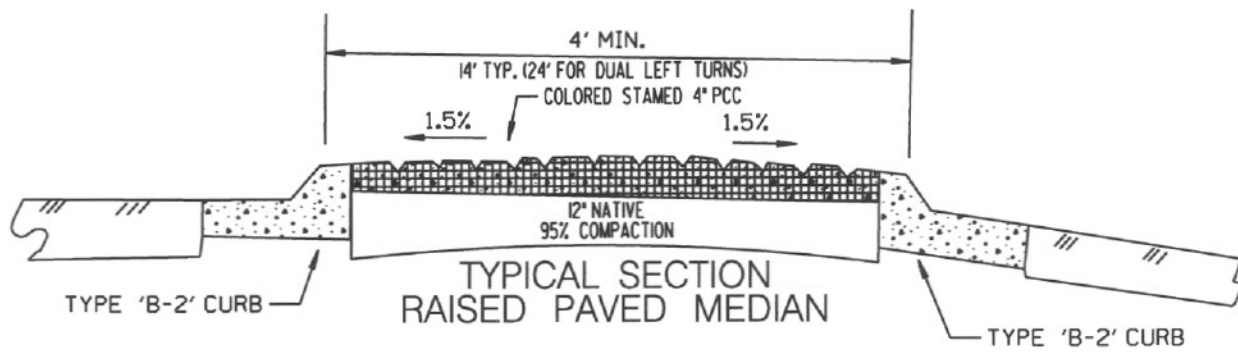


TYPE "H" CURB



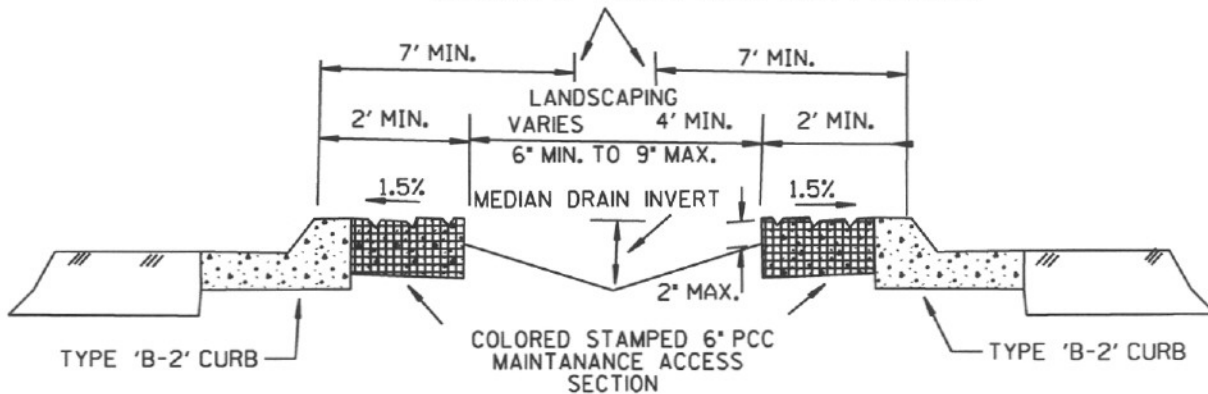
CURB PROFILE - INLET TRANSITION  
NOT TO SCALE

Revision	By	Approved	Date	CITY OF SAN DIEGO - STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE
ORIGINAL		J.P. Casey	11-18-88		
				2-7-95 DATE	
				DRAWING NUMBER	
				<b>SDG-110</b>	

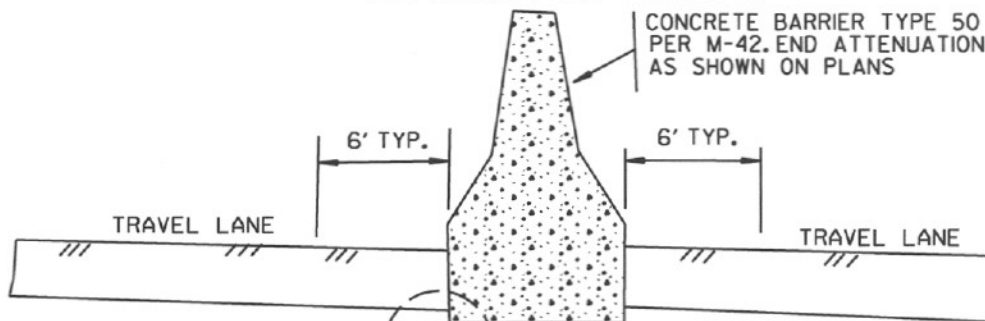


TYPICAL SECTION  
RAISED PAVED MEDIAN

LOCATION OF STREET TREES WHEN PERMITTED



TYPICAL SECTION  
LANDSCAPED MEDIAN



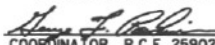
TYPICAL SECTION  
CONCRETE BARRIER

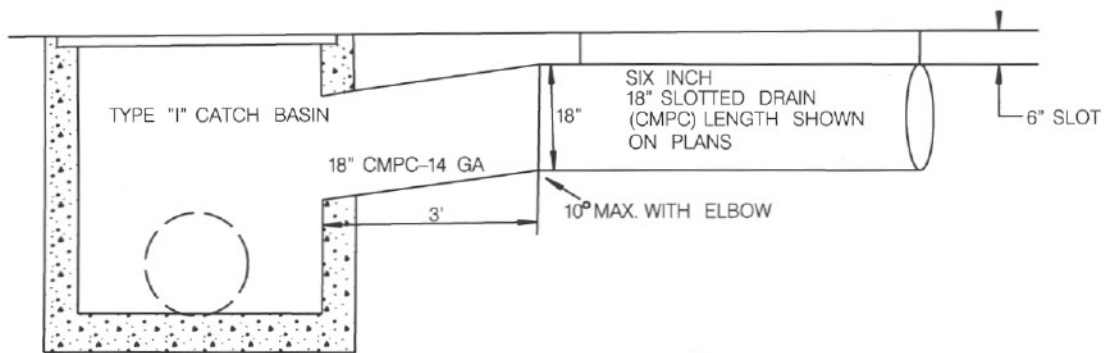
18" SLOTTED CMPC  
WITH 6" HIGH SLOT  
WHERE REQUIRED FOR  
DRAINAGE, SEE  
SHEET 2 OF 2

NOTES:

1. CONCRETE SHALL BE 520-C-2500.
2. SEE STANDARD DRAWINGS G-9 & G-10 FOR JOINT DETAILS.
3. COLOR & PATTERN OF COLORED STAMPED CONCRETE SHALL BE SHOWN ON PLANS.
4. CONCRETE COLOR SHALL BE INTERGRATED THROUGHOUT.

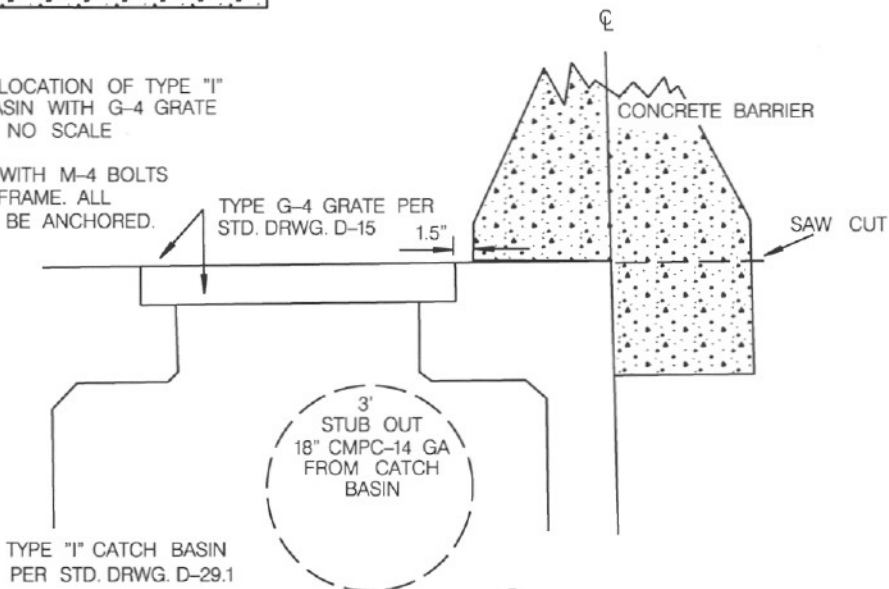
SHT. 1 OF 2

Revision	By	Approved	Date	CITY OF SAN DIEGO - STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE
ORIGINAL		J.P. Casey	11-10-88		
				<b>RAISED CENTER MEDIAN</b>	 COORDINATOR R.C.E. 25902      2-7-95      DATE
					DRAWING NUMBER <b>SDG-112</b>



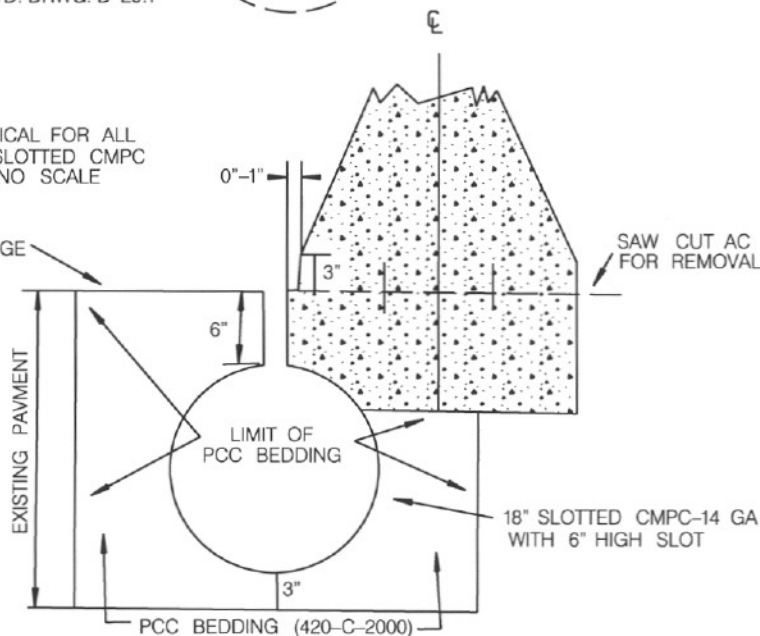
DETAILED LOCATION OF TYPE "I" CATCH BASIN WITH G-4 GRATE  
NO SCALE

ANCHOR GRATE WITH M-4 BOLTS TO D-13 GRATE FRAME. ALL GRATES ARE TO BE ANCHORED.



TYPICAL FOR ALL 18" SLOTTED CMPC  
NO SCALE

SAW CUT AC FOR TRENCH EDGE



SHT. 2 OF 2

Revision	By	Approved	Date
ORIGINAL		M. V. Rollinger	5-20-92

CITY OF SAN DIEGO - STANDARD DRAWING

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*Thomas J. Rollinger* 2-7-95  
COORDINATOR R.C.E. 25902 DATE

RAISED CENTER MEDIAN

DRAWING  
NUMBER

SDG-112

**SCHEDULE "J" PAVEMENT**

The following tables are to be used to determine the Schedule "J" pavement design sections for streets, alleys, parking lots for public facilities, driveways, and easements, including public access easements. These designs shall be used in the public right-of-way, or private property in the areas where public easements are granted.

1. Resistance values (R-values) will be determined from samples taken in the 12 inches of material located immediately below the first layer of subbase, base or pavement. This 12 inch section shall represent the top 36 inches of uniform soils below the subbase, or pavement. If a lower bearing soil is encountered in this 36-inch section, the R-value will be determined from the lowest bearing soil. Determination of the R-value shall be in accordance with CalTrans test methods 301-F and 301-G.
2. Average daily traffic (ADT) is the maximum average annual ADT expected at buildout. Function shall also be considered when determining the minimum Schedule "J" pavement section per the Engineer.
3. Rigid Pavements: The design thickness shown in the tables are based on a modified Portland Cement Association (PCA) design. Projects requiring CalTrans review should utilize the design methods prescribed in the CalTrans Highway Design Manual.
4. Portland Cement Concrete (PCC) pavement shall be constructed in streets on grades greater than 12.0 percent and in alleys and in alley intersections. The pavement shall be Class 560-B-3250 concrete with a minimum modulus of rupture (MOR) of 600.
5. New pavement, less than six feet (6') in width, shall be paved with Portland Cement Concrete pavement section noted in Schedule "J" for the street classification plus a 1/8" to 1/4" Class F asphalt concrete cap. An equivalent section of lean concrete shall be substituted for any required CTB subbase.
6. Personnel from the City's Engineering Laboratory will designate where a Private Laboratory shall sample for R-values.

SHEET 1 OF 4

REVISION	BY	APPROVED	DATE	<b>CITY OF SAN DIEGO - STANDARD DRAWINGS</b>	CITY OF SAN DIEGO STANDARDS COMMITTEE <i>[Signature]</i> 5-29 COORDINATOR DATE	
ORIGINAL		M.ROLLINGER	5-20-92		<b>PAVEMENT DESIGN STANDARDS SCHEDULE "J"</b>	DRAWING NUMBER
NOTES		G.PARKINSON	2-7-95			<b>SDG-113</b>



STREET CLASSIFICATION	MAX ADT	MAX TRAFFIC INDEX	"R" VALUE	STANDARD SECTIONS		CONCRETE M.O.R. 600 MIN		FULL DEPTH A.C. (IN)
				A.C. (IN)	CTB (IN)	PCC (IN)	CTB (IN)	
CUL-DE-SAC	200	5.0	50.0 OR GREATER	3.0	5.0	6.0	---	4.5
LOCAL (L.V.R.)	700	5.5		3.0	5.0	6.5	---	5.0
LOCAL (RES.)	1200	6.0		3.0	5.0	6.5	---	5.5
LOCAL (RES.)	2200	6.5		3.0	5.0	6.5	---	6.0
LOCAL (IND.)	2000	8.5		3.0	7.5	7.5	---	8.5
COLLECTOR (RES.)	3500	7.0		3.0	5.0	7.0	---	6.5
COLLECTOR (RES.)	5000	7.5		3.0	5.5	7.0	---	7.5
COLLECTOR (COMM./IND)	5000	9.5		3.0	8.5	7.5	---	9.0
COLLECTOR (NO FRT.)	7500	8.0		3.0	6.5	7.0	---	8.0
COLLECTOR	15000	9.0		3.0	7.5	7.5	---	8.5
MAJOR (4-LANE)	30000	10.5		3.0	10.0	8.0	---	10.5
MAJOR (6-LANE)	40000	11.0		3.5	10.5	8.0	---	11.0
PRIMARY ARTERIAL	50000	11.5		3.5	11.5	8.0	---	11.5
EXPRESSWAY	60000	12.0		3.5	11.5	8.5	---	12.0
EXPRESSWAY	80000	12.5		4.0	12.0	8.5	---	12.5
EXPRESSWAY	100000	13.0		4.0	12.5	9.0	---	13.0

STREET CLASSIFICATION	MAX ADT	MAX TRAFFIC INDEX	"R" VALUE	STANDARD SECTIONS		CONCRETE M.O.R. 600 MIN		FULL DEPTH A.C. (IN)
				A.C. (IN)	CTB (IN)	PCC (IN)	CTB (IN)	
CUL-DE-SAC	200	5.0	40 TO 49.9	3.0	5.0	6.5	---	5.0
LOCAL (L.V.R.)	700	5.5		3.0	5.0	6.5	---	6.0
LOCAL (RES.)	1200	6.0		3.0	5.5	7.0	---	6.5
LOCAL (RES.)	2200	6.5		3.0	6.0	7.0	---	7.0
LOCAL (IND.)	2000	8.5		3.0	9.5	7.5	---	9.5
COLLECTOR (RES.)	3500	7.0		3.0	6.5	7.0	---	8.0
COLLECTOR (RES.)	5000	7.5		3.0	7.5	7.5	---	8.5
COLLECTOR (COMM./IND)	5000	9.5		3.0	11.0	8.0	---	11.0
COLLECTOR (NO FRT.)	7500	8.0		3.0	8.5	7.5	---	9.0
COLLECTOR	15000	9.0		3.0	10.5	8.0	---	10.0
MAJOR (4-LANE)	30000	10.5		3.5	12.5	8.5	---	12.0
MAJOR (6-LANE)	40000	11.0		4.0	12.5	8.5	---	12.5
PRIMARY ARTERIAL	50000	11.5		4.0	13.5	9.0	---	13.0
EXPRESSWAY	60000	12.0		4.5	13.5	9.0	---	13.5
EXPRESSWAY	80000	12.5		4.5	14.5	9.5	---	14.0
EXPRESSWAY	100000	13.0		5.0	15.0	10.0	---	15.0

SHEET 2 OF 4

REVISION	BY	APPROVED	DATE	CITY OF SAN DIEGO - STANDARD DRAWINGS	CITY OF SAN DIEGO STANDARDS COMMITTEE <i>Paul Bell</i> 5-2-94 COORDINATOR DATE
ORIGINAL		J.P.CASEY	1-12-84		
REVISED		G.PARKINSON	2-7-95	PAVEMENT DESIGN STANDARDS SCHEDULE "J"	DRAWING NUMBER <b>SDG-113</b>



STREET CLASSIFICATION	MAX ADT	MAX TRAFFIC INDEX	"R" VALUE	STANDARD SECTIONS		CONCRETE M.O.R. 600 MIN		FULL DEPTH A.C. (IN)
				A.C. (IN)	CTB (IN)	PCC (IN)	CTB (IN)	
CUL-DE-SAC	200	5.0	30 TO 39.9	3.0	5.0	6.5	---	6.0
LOCAL (L.V.R.)	700	5.5		3.0	5.5	7.0	---	6.5
LOCAL (RES.)	1200	6.0		3.0	6.5	7.0	---	7.0
LOCAL (RES.)	2200	6.5		3.0	7.5	7.0	---	8.0
LOCAL (IND.)	2000	8.5		3.0	11.5	8.0	---	10.5
COLLECTOR (RES.)	3500	7.0		3.0	8.5	7.5	---	8.5
COLLECTOR (RES.)	5000	7.5		3.0	9.5	7.5	---	9.0
COLLECTOR (COMM./IND)	5000	9.5		3.5	13.0	8.5	---	12.0
COLLECTOR (NO FRT.)	7500	8.0		3.0	10.5	7.5	---	10.0
COLLECTOR	15000	9.0		3.5	12.0	8.0	---	11.0
MAJOR (4-LANE)	30000	10.5		4.0	14.5	8.5	---	13.5
MAJOR (6-LANE)	40000	11.0		4.5	15.0	9.0	---	14.0
PRIMARY ARTERIAL	50000	11.5		5.0	15.5	9.0	---	14.5
EXPRESSWAY	60000	12.0		5.0	16.5	9.5	---	15.0
EXPRESSWAY	80000	12.5		5.5	17.0	9.5	---	16.0
EXPRESSWAY	100000	13.0		6.0	17.0	10.0	---	17.0

STREET CLASSIFICATION	MAX ADT	MAX TRAFFIC INDEX	"R" VALUE	STANDARD SECTIONS		CONCRETE M.O.R. 600 MIN		FULL DEPTH A.C. (IN)
				A.C. (IN)	CTB (IN)	PCC (IN)	CTB (IN)	
CUL-DE-SAC	200	5.0	20 TO 29.9	3.0	5.5	7.0	---	6.5
LOCAL (L.V.R.)	700	5.5		3.0	7.0	7.0	---	7.5
LOCAL (RES.)	1200	6.0		3.0	8.0	7.0	---	8.0
LOCAL (RES.)	2200	6.5		3.0	9.0	7.5	---	8.5
LOCAL (IND.)	2000	8.5		3.5	13.0	8.0	---	11.5
COLLECTOR (RES.)	3500	7.0		3.0	10.0	7.5	---	9.0
COLLECTOR (RES.)	5000	7.5		3.0	11.5	7.5	---	10.0
COLLECTOR (COMM./IND)	5000	9.5		4.0	15.0	8.5	---	13.0
COLLECTOR (NO FRT.)	7500	8.0		3.5	12.0	8.0	---	11.0
COLLECTOR	15000	9.0		4.0	13.5	8.5	---	12.0
MAJOR (4-LANE)	30000	10.5		5.0	16.0	8.5	5.0	14.5
MAJOR (6-LANE)	40000	11.0		5.0	17.0	8.5	5.0	15.5
PRIMARY ARTERIAL	50000	11.5		5.5	17.5	9.0	5.0	16.0
EXPRESSWAY	60000	12.0		6.0	18.0	9.0	5.0	17.0
EXPRESSWAY	80000	12.5		6.0	19.5	9.5	5.0	17.5
EXPRESSWAY	100000	13.0		6.5	20.0	10.0	5.0	18.5

SHEET 3 OF 4

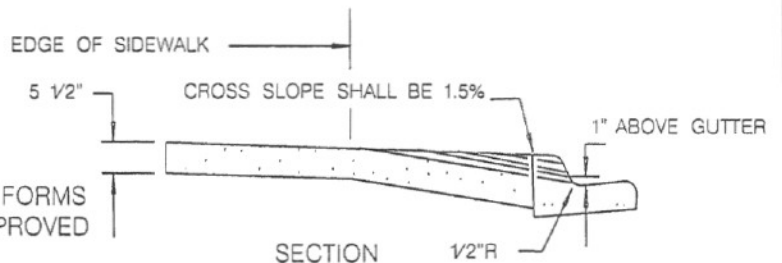
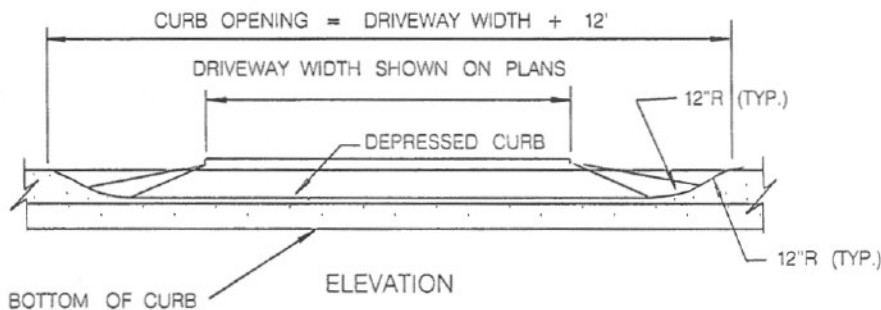
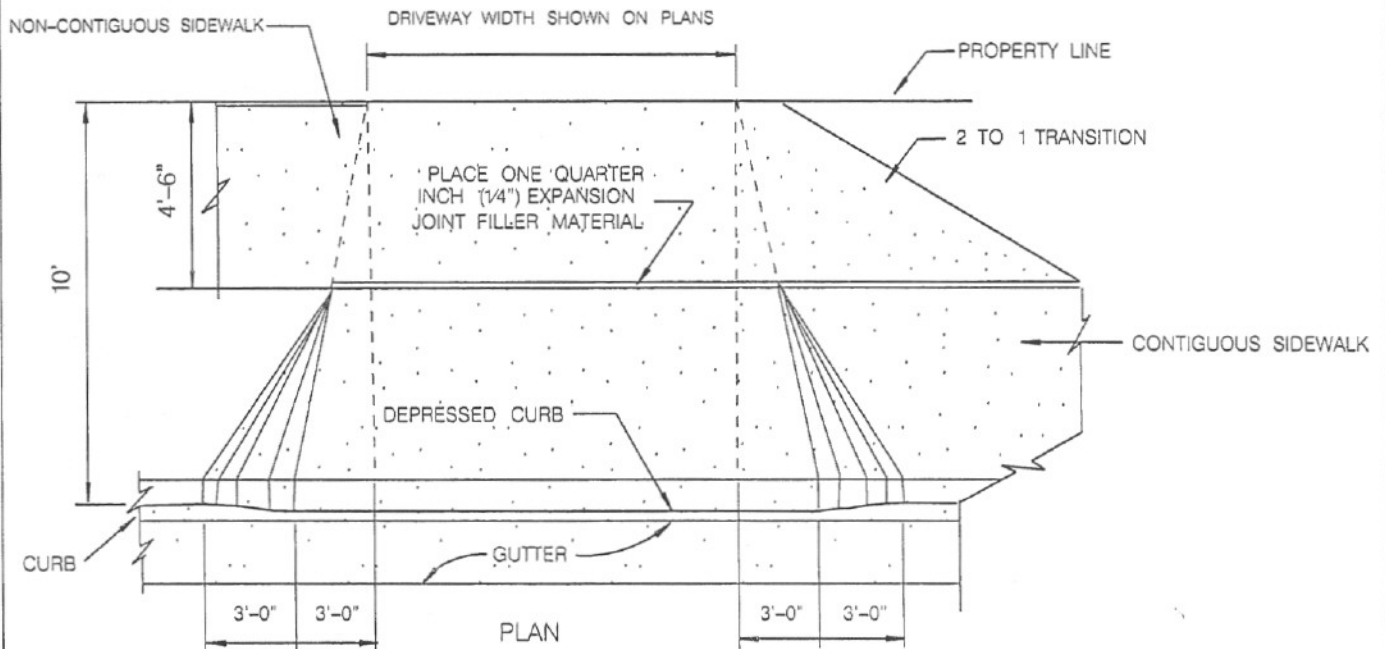
REVISION	BY	APPROVED	DATE	CITY OF SAN DIEGO - STANDARD DRAWINGS	CITY OF SAN DIEGO STANDARDS COMMITTEE <i>[Signature]</i> 5-2-97 COORDINATOR DATE
ORIGINAL		J.P.CASEY	1-12-84		
REVISED		G.PARKINSON	2-7-95	PAVEMENT DESIGN STANDARDS SCHEDULE "J"	DRAWING NUMBER <b>SDG-113</b>

STREET CLASSIFICATION	MAX ADT	MAX TRAFFIC INDEX	"R" VALUE	STANDARD SECTIONS		CONCRETE M.O.R. 600 MIN		FULL DEPTH
				A.C. (IN)	CTB (IN)	PCC (IN)	CTB (IN)	A.C. (IN)
CUL-DE-SAC	200	5.0		3.0	7.0	7.0	---	7.5
LOCAL (L.V.R.)	700	5.5		3.0	8.0	7.0	---	8.0
LOCAL (RES.)	1200	6.0		3.0	9.0	7.5	---	8.5
LOCAL (RES.)	2200	6.5		3.0	10.5	7.5	---	9.0
LOCAL (IND.)	2000	8.5		4.0	14.5	8.0	5.0	12.5
COLLECTOR (RES.)	3500	7.0		3.0	12.0	7.5	---	10.0
COLLECTOR (RES.)	5000	7.5	10 TO	3.5	12.5	8.0	---	11.0
COLLECTOR (COMM./IND)	5000	9.5	19.9	4.5	16.5	8.5	5.0	14.0
COLLECTOR (NO FRT.)	7500	8.0		3.5	14.0	8.0	---	11.5
COLLECTOR	15000	9.0		4.5	15.0	8.0	5.0	13.0
MAJOR (4-LANE)	30000	10.5		5.5	18.0	8.5	6.0	15.5
MAJOR (6-LANE)	40000	11.0		6.0	18.5	9.0	6.0	16.5
PRIMARY ARTERIAL	50000	11.5		6.0	20.0	9.0	6.0	17.5
EXPRESSWAY	60000	12.0		6.5	20.5	9.0	6.0	18.5
EXPRESSWAY	80000	12.5		7.0	21.5	9.5	6.0	19.0
EXPRESSWAY	100000	13.0		7.5	22.5	10.0	6.0	20.0

STREET CLASSIFICATION	MAX ADT	MAX TRAFFIC INDEX	"R" VALUE	STANDARD SECTIONS		CONCRETE M.O.R. 600 MIN		FULL DEPTH
				A.C. (IN)	CTB (IN)	PCC (IN)	CTB (IN)	A.C. (IN)
CUL-DE-SAC	200	5.0		3.0	8.0	7.0	---	8.5
LOCAL (L.V.R.)	700	5.5		3.0	9.5	7.5	---	9.0
LOCAL (RES.)	1200	6.0		3.0	10.5	7.5	---	9.5
LOCAL (RES.)	2200	6.5		3.0	12.5	7.5	---	10.5
LOCAL (IND.)	2000	8.5		4.5	16.0	8.0	5.0	14.0
COLLECTOR (RES.)	3500	7.0		3.5	13.0	7.5	---	11.5
COLLECTOR (RES.)	5000	7.5	0 TO	3.5	14.5	8.0	---	12.5
COLLECTOR (COMM./IND)	5000	9.5	9.9	5.0	18.5	8.5	6.0	15.5
COLLECTOR (NO FRT.)	7500	8.0		4.0	15.5	8.0	5.0	13.0
COLLECTOR	15000	9.0		5.0	17.0	8.5	5.0	14.5
MAJOR (4-LANE)	30000	10.5		6.0	20.0	9.0	6.0	17.5
MAJOR (6-LANE)	40000	11.0		6.5	21.0	9.0	6.0	18.5
PRIMARY ARTERIAL	50000	11.5		7.0	22.0	9.0	6.0	19.5
EXPRESSWAY	60000	12.0		7.0	23.0	9.5	6.0	20.5
EXPRESSWAY	80000	12.5		7.5	24.0	10.0	6.0	21.5
EXPRESSWAY	100000	13.0		8.0	25.0	10.5	6.0	22.0

SHEET 4 OF 4

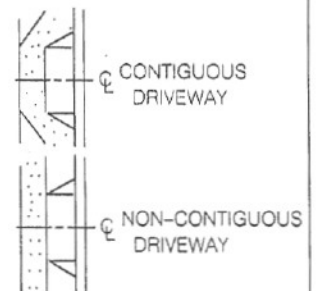
REVISION	BY	APPROVED	DATE	CITY OF SAN DIEGO - STANDARD DRAWINGS	CITY OF SAN DIEGO STANDARDS COMMITTEE <i>[Signature]</i> COORDINATOR DATE
ORIGINAL		J.P.CASEY	1-12-84		
REVISED		G.PARKINSON	2-7-95	PAVEMENT DESIGN STANDARDS SCHEDULE "J"	DRAWING NUMBER SDG-113



**NOTES:**

1. CONCRETE SHALL NOT BE PLACED UNTIL FORMS AND SUBGRADE ARE INSPECTED AND APPROVED BY ENGINEER
2. CONCRETE SHALL BE 520-C-2500
3. SEE STANDARD DRAWING G-15 AND G-16 FOR WIDTH AND LOCATION REQUIREMENTS.
4. SEE STANDARD DRAWING G-2 AND G-10 FOR CURB AND JOINT DETAILS
5. METER BOXES SHALL NOT BE LOCATED WITHIN DRIVEWAY - SEE W-15
6. DRIVEWAY IN EXCESS OF 150' IN LENGTH FROM CURB FACE SHALL REQUIRE MINIMUM 7" P.C.C.
7. DRIVEWAY SHALL BE A CONTINUOUS POUR FROM BACK OF CURB TO PROPERTY LINE.
8. ALL HISTORICAL STAMPS/IMPRESSIONS (STREET NAME, CONTRACTOR NAME, AND/OR DATE) SHALL BE PRESERVED PER STANDARD DRAWING SDG-115
9. FOR DESIGNATED URBANIZED COMMUNITIES, SIDEWALK DESIGN (SCORING PATTERN, COLOR, TEXTURE) TO BE IN CONFORMANCE WITH HISTORIC DESIGN ON ADJACENT PROPERTIES.

**LEGEND ON PLANS**



Revision	By	Approved	Date
ORIGINAL		M.V. ROLLINCERS	5-20-92
NOTES		G. PARKINSON	2-7-95
NOTES	SM	Oskoui	2-9-03

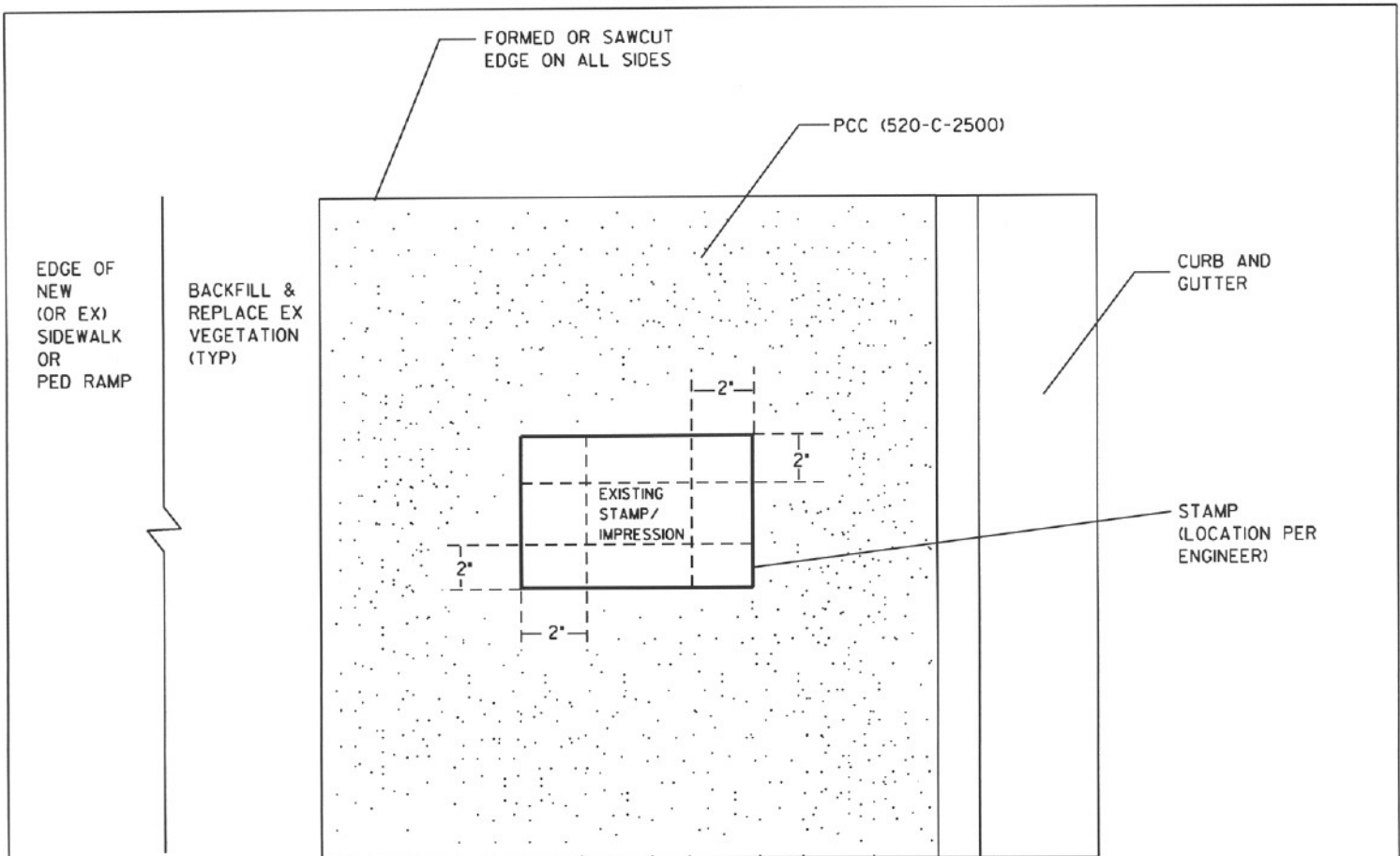
**CITY OF SAN DIEGO - STANDARD DRAWING**

**COMMERCIAL  
CONCRETE DRIVEWAY**

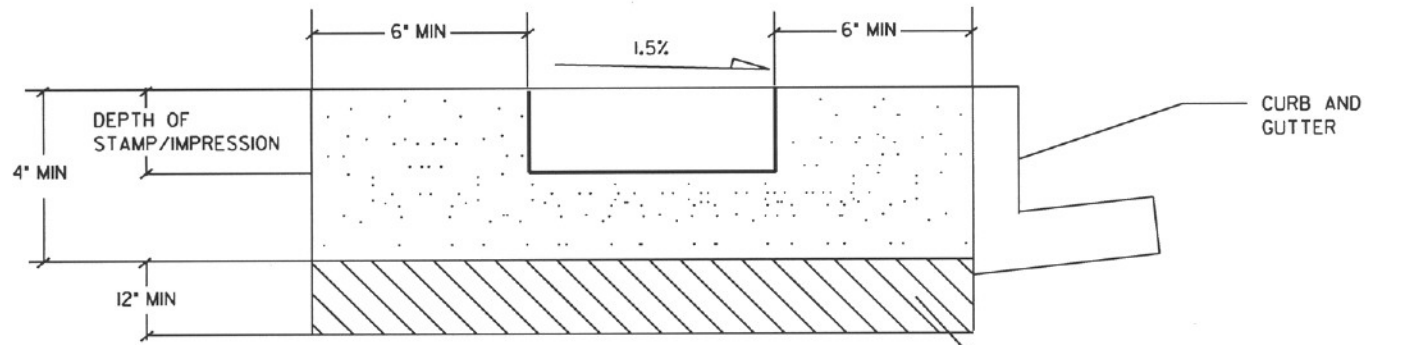
CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*R. L. G.* 12-9-03  
Chairperson RCE 645/2 DATE

DRAWING NUMBER **SDG-114**



PLAN VIEW  
NOT TO SCALE



SECTION VIEW  
NOT TO SCALE

**NOTES:**

1. ALL STAMP/IMPRESSION LOCATIONS AND ORIENTATIONS SHALL BE PRE-APPROVED BY THE ENGINEER.
2. SINGLE STAMP/IMPRESSION SHALL BE PLACED AS CLOSE TO ITS ORIGINAL LOCATION AS CONSTRUCTION ALLOWS.
3. MULTIPLE STAMPS/IMPRESSIONS (EXISTING AND/OR NEW) SHALL BE EVENLY SPACED ALONG THE NEWLY CONSTRUCTED SIDEWALK
4. EXISTING STAMP/IMPRESSION SHALL BE SAWCUT TO NO LESS THAN 2" FROM STAMP LETTERING AND/OR SYMBOL
5. INSTALLATION OF ALL NEW STAMPS/IMPRESSIONS SHALL BE PER GREENBOOK SPECIFICATION SECTION 303-5.5

Revision	By	Approved	Date
ORIGINAL	NBZ	J. SHOAF	8/00
DETAIL	SM	A. OSKOUI	12/03

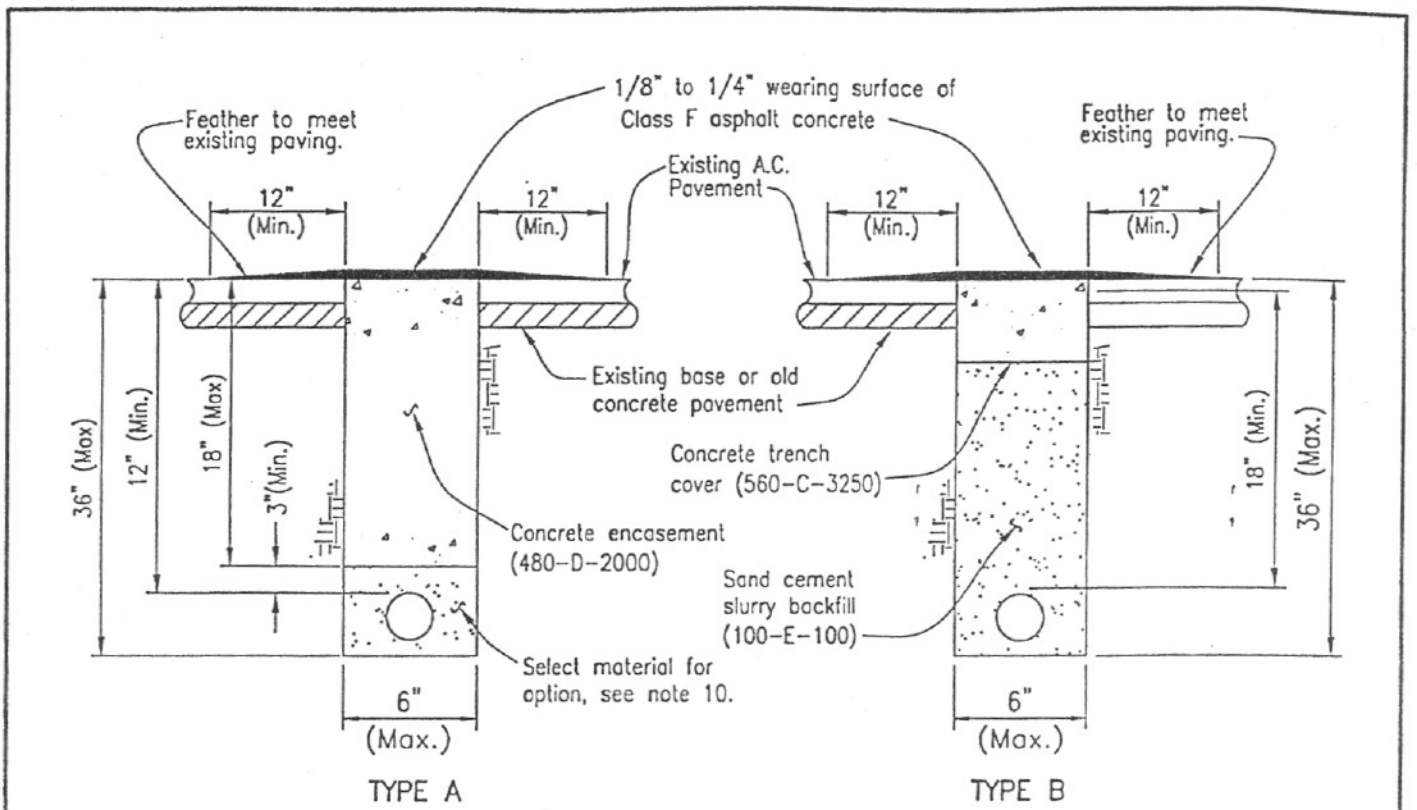
CITY OF SAN DIEGO - STANDARD DRAWING

EXISTING STAMP/IMPRESSION PLACEMENT

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*B. L.* 6-14-04  
Chairperson RCE 64572 Date

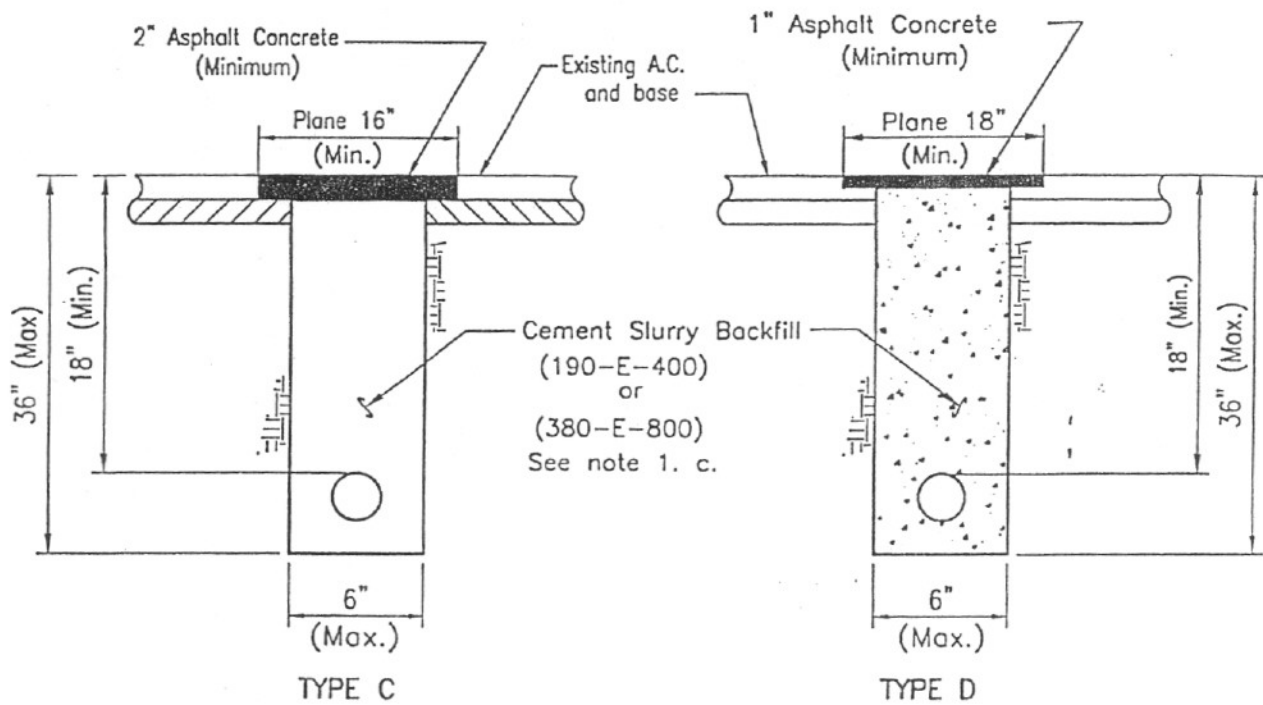
DRAWING NUMBER SDG-115



**NOTES**

1. Concrete encasement or sand cement slurry backfill shall have a minimum slump of 4 inches.
2. Concrete encasement and sand cement slurry backfill shall be thoroughly consolidated to encase conduits. Tampers or vibrators shall be used.
3. Concrete shall be screeded off to match pavement grade and floated to assure proper edge match.
4. A tack coat shall be applied to the concrete and existing asphalt pavement prior to placing the new asphalt pavement wearing surface.
5. Existing A.C. pavement will not require saw cutting when using rockwheel for excavation.
6. Concrete trench cover shall be a minimum 5-1/2 inches thick in alleys or local residential streets, and 7 inches thick in all other streets.
7. Allow concrete backfill or concrete trench cover 7 calendar days minimum, but no longer than 30 calendar days to cure and dry before applying the asphalt concrete wearing surface.
8. In major or prime arterial streets, an approved set accelerating admixture, such as calcium chloride, may be used only with prior approval of the agency's Engineer.
9. Only Type A shall be permitted for supply cables of 750 volts or less. See California Public Utility Commission General Order No. 128, Rule 33.4 D.(1)(b).
10. Selected material with minimum sand equivalent of 50 shall be backfilled to 3 inches minimum above the conduit. Sand cement slurry backfill (100-E-100) may be substituted for select material.

Revision	By	Approved	Date	<b>SAN DIEGO REGIONAL STANDARD DRAWING</b>	CITY OF SAN DIEGO STANDARDS COMMITTEE
ORIGINAL		Bahmanian	4/86		
		A. Oskovi	12/03	<b>NARROW TRENCHING TYPES A &amp; B BACKFILL &amp; RESURFACING</b>	<i>R. Oskovi</i> 12-9-03 Chairperson R.C. 64572 Date
					DRAWING NUMBER <b>SDG-116</b>

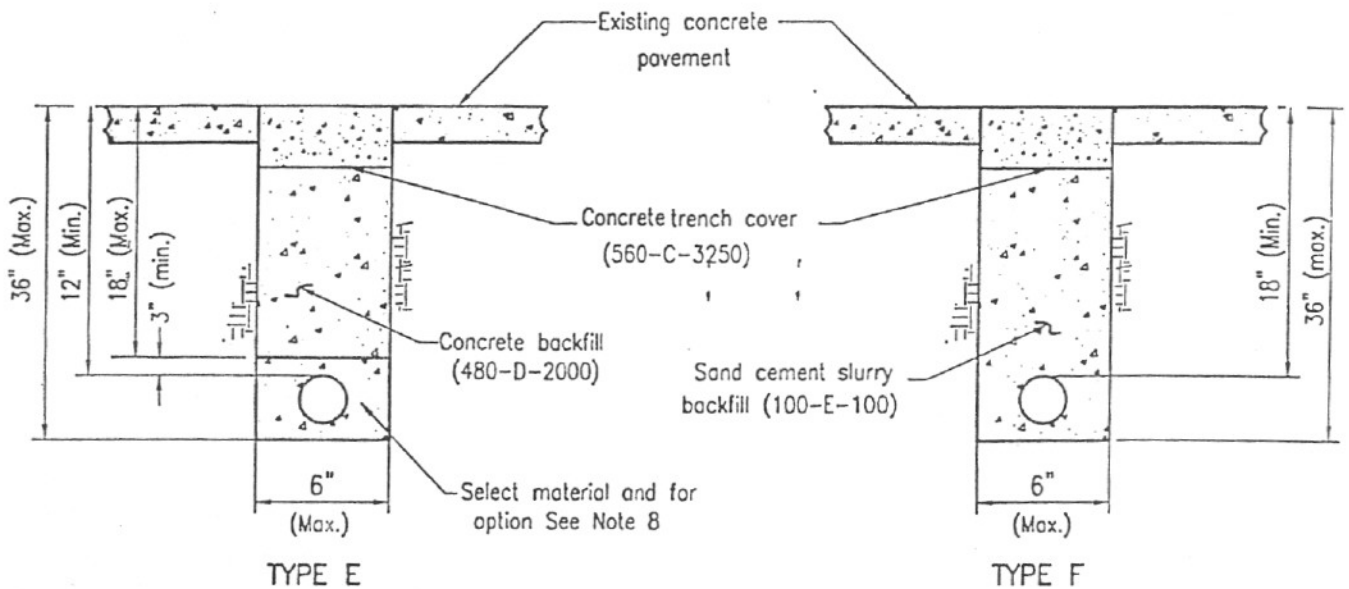


**NOTES**

1. Cement Slurry Backfill:
  - a. Cement slurry backfill shall have a maximum slump of 4 inches.
  - b. Cement slurry backfill shall be thoroughly consolidated to encase conduits. Tampers or vibrators shall be used.
  - c. Cement slurry backfill shall be as follows:
    - Alleys and local residential streets ..... Class (190-E-400)
    - All other streets ..... Class (380-E-800)
2. A tack coat shall be applied to the cement slurry backfill and existing asphalt pavement prior to placing the new asphalt surface.
3. Asphaltic Concrete Resurfacing:
  - Type C
    - a. Allow cement slurry backfill 48 hours minimum to cure before resurfacing, unless approved by the Engineer.
    - b. Thickness shall match the existing A.C. with a minimum of 2 inches.
    - c. A.C. shall be hot mix.
  - Type D
    - a. Allow cement slurry backfill seven days minimum to cure before planing.
    - b. Plane existing asphalt pavement and slurry backfill, one half thickness of existing A.C., (1 inch minimum not to exceed 2 inches).
    - c. A.C. shall be hot mix.
4. A.C. resurfacing shall be sealed or chip sealed when required by the agency's Engineer.
5. Existing A.C. pavement will not require sawcutting when using rockwheel for excavation.

CITY OF SAN DIEGO STANDARDS COMMITTEE  <i>Bl</i> 12-9-03 <small>Chairperson R.C. 64572 Date</small>	<b>SAN DIEGO REGIONAL STANDARD DRAWING</b>  <b>NARROW TRENCHING TYPES C &amp; D</b> <b>BACKFILL &amp; RESURFACING</b>	Revision Note 3a	By NL	Approved RLM A. Oskoui	Date 1/97 12/03
DRAWING NUMBER <b>SDG-117</b>					

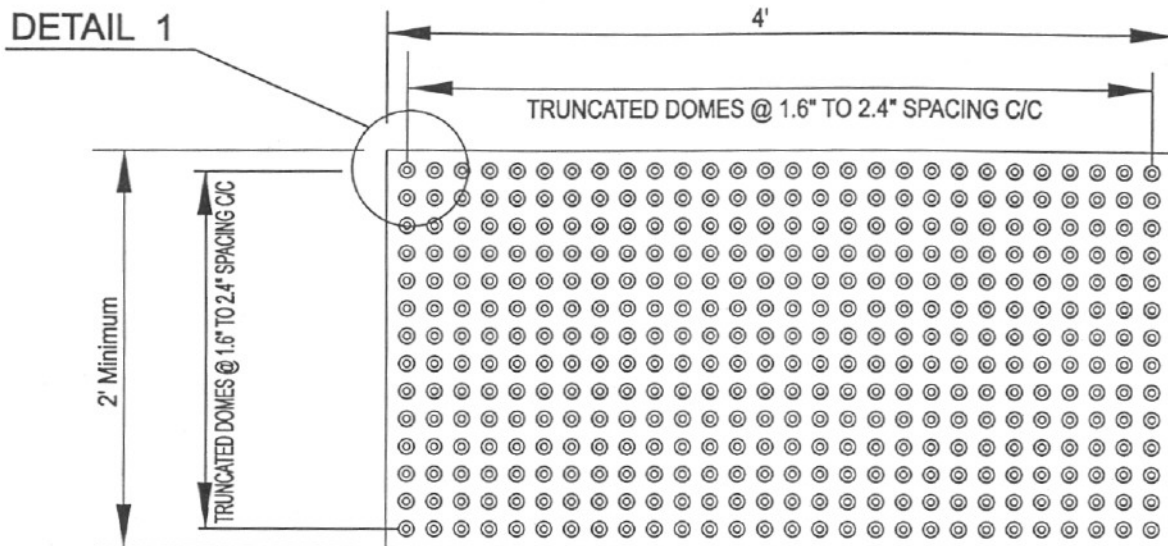




#### NOTES

1. Concrete slurry backfill shall have a maximum slump of 4 inches.
2. Cement slurry backfill shall be thoroughly consolidated to encase conduits. Tampers or vibrators shall be used.
3. Concrete shall be screeded off to match existing pavement grade and floated to assure proper edge match.
4. Concrete trench cover shall be a minimum of 5 1/2 inches thick in alley or local residential streets and 7 inches thick in all other streets.
5. Existing concrete pavement will require sawcutting when using rockwheel for excavation.
6. In major or prime arterial streets, an approved set accelerating admixture, such as Calcium Chloride, may be used only with prior approval of the agency's engineer.
7. Only Type E shall be permitted for supply cables of 750 volts or less. See California Public Utility Commission General Order No. 128, Rule 33.4 (1)(b).
8. Select material with a minimum sand equivalent of 50 shall be backfilled to 3" min. above the conduit. Sand cement slurry backfill (100-E-100) may be substituted for select material.

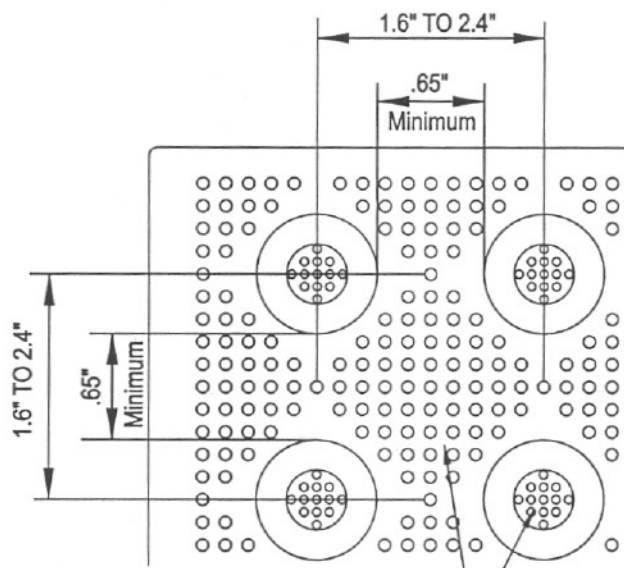
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE
ORIGINAL		Bahmanian	4/86		
		A.Oskovi	12/03		
				DRAWING NUMBER	SDG-118



**PLAN - TILE**  
NOT TO SCALE

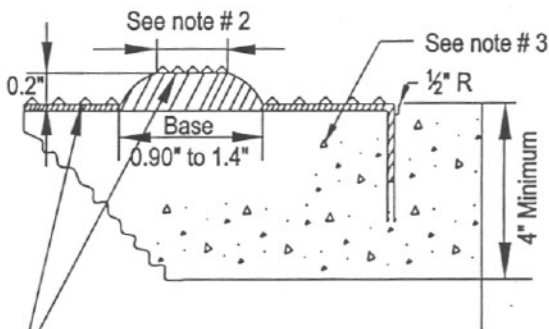
**NOTES**

1. Detectable warning surface color shall be yellow conforming to federal standards 595B Table IV, color no. 33538. Color shall be homogeneous throughout the tile.
2. Truncated dome top diameter of 50% of the base diameter minimum to 65% of the base diameter maximum.
3. During and after the tile installation and the concrete curing stage, it is imperative that there is no walking, leaning or external forces placed on the tile to rock the tile, causing a void between the underside of tile and concrete.



**DETAIL 1**  
NOT TO SCALE

NOTE:  
PATTERN, SIZE &  
ORIENTATION ARE  
PER MANUFACTURER'S  
RECOMMENDATION



Revision	By	Approved	Date
Original	SS	A. Oskoui	12/03

CITY OF SAN DIEGO STANDARD DRAWINGS

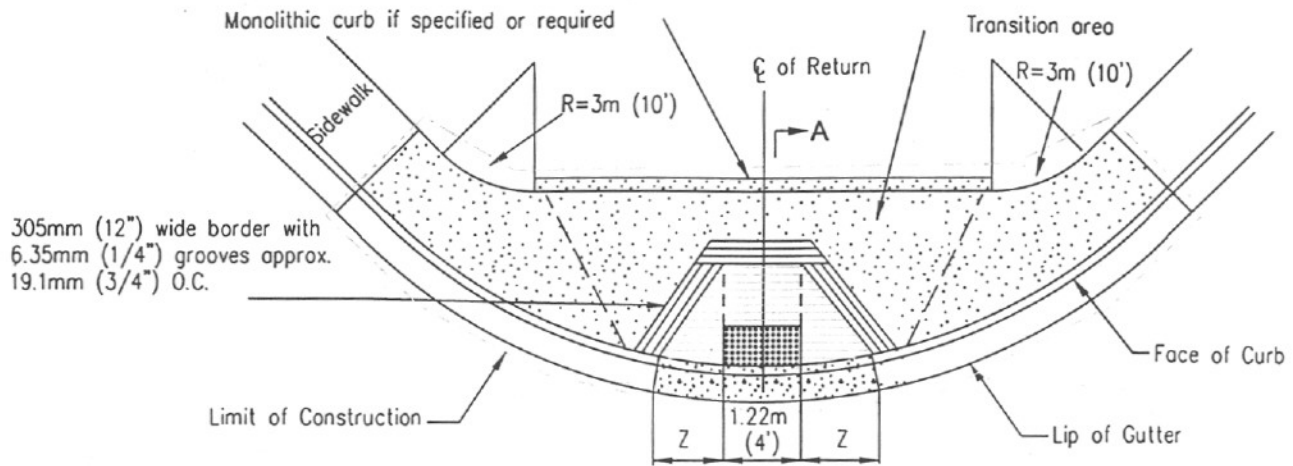
CITY OF SAN DIEGO  
STANDARDS COMMITTEE

**TRUNCATED DOME DETAIL**

*R. L. ...* 6-14-04  
Chairperson RCE 84572 Date

DRAWING  
NUMBER SDG-130

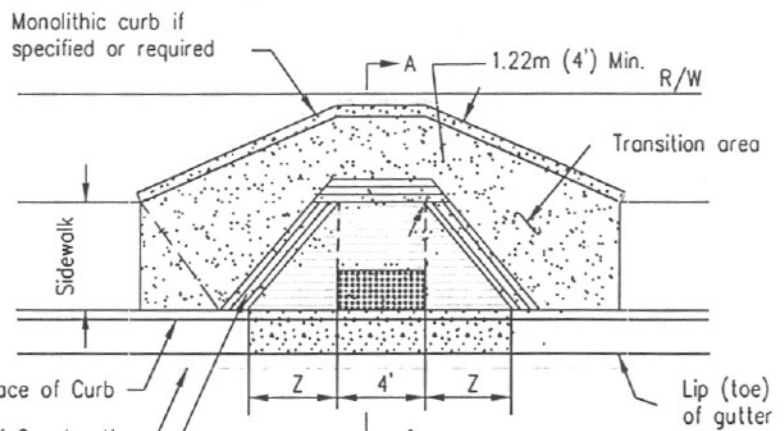




PLAN - TYPE A

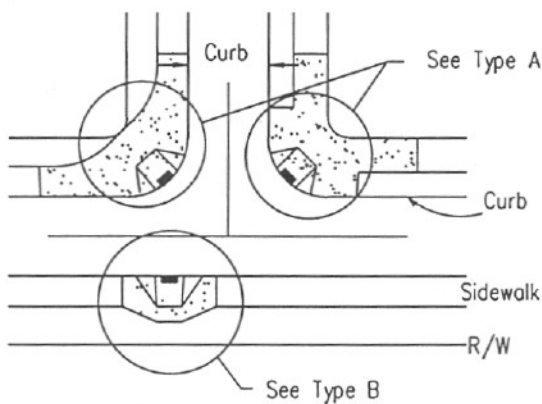
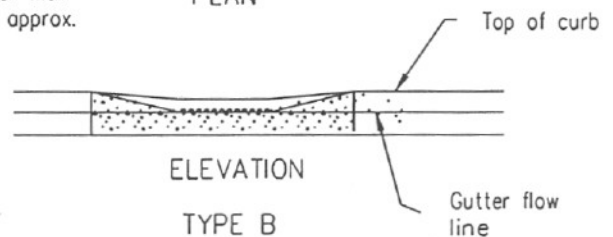
**NOTE**

1. See Drawing SDG-137 for general notes.
2. For truncated domes details, please see Drawing SDG-130.
3. All curb ramp shall be as per the most current adopted City of San Diego Street Design Manual.
4. Landing cross slope shall be 1.5%.
5. Z side slope shall be 10:1.



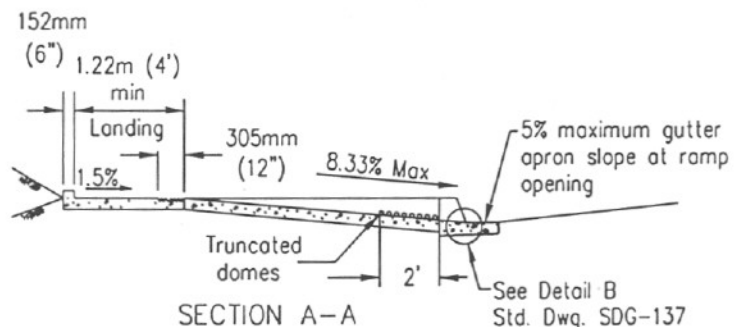
PLAN

305mm (12") wide border with 6.35mm (1/4") grooves approx. 19.1mm (3/4") O.C.



**NOTE**

See Standard Drawing SDG-137 for general notes.



SECTION A-A

Revision	By	Approved	Date
ORIGINAL	SMS	A. Oskoui	12/03

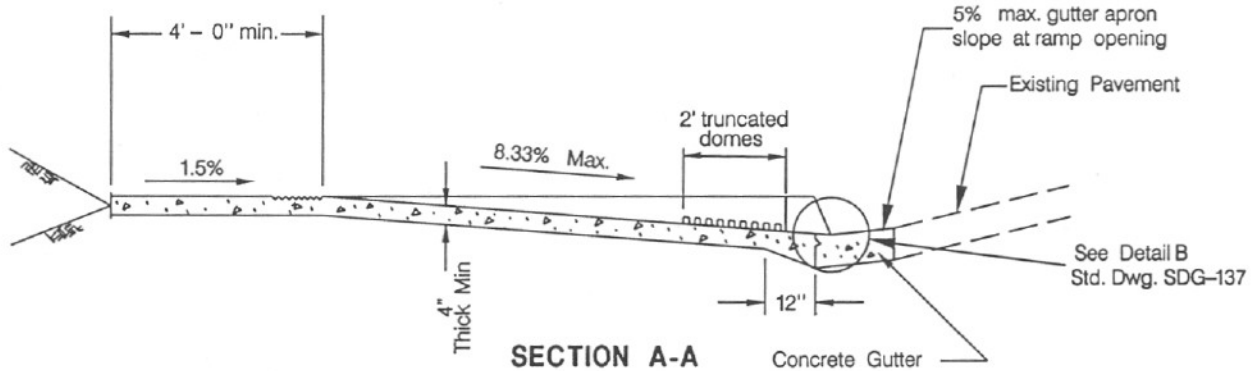
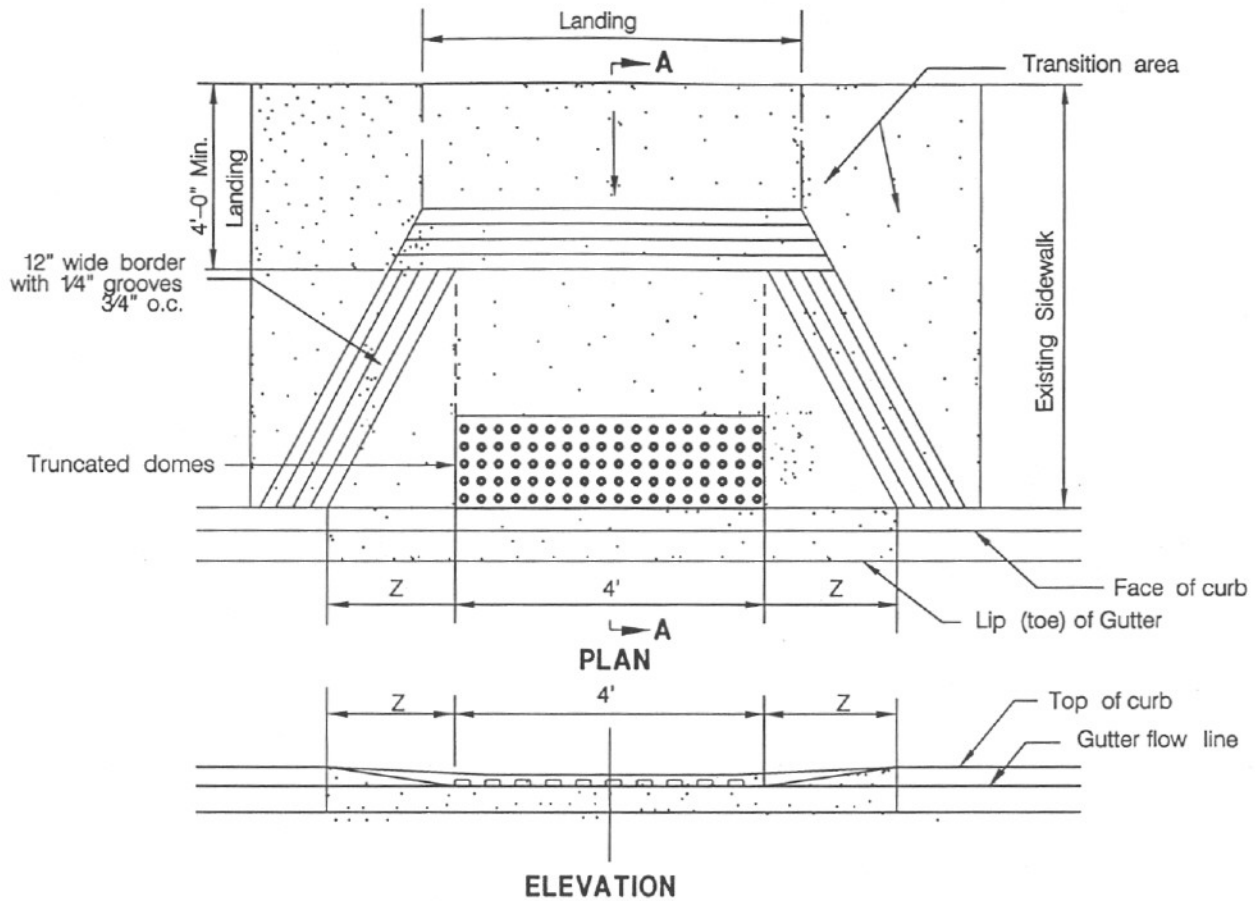
CITY OF SAN DIEGO STANDARD DRAWING

CURB RAMP - TYPES A and B  
(New Construction)

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*Bob Li* 6-14-04  
Chairperson R.C.E. 84572 Date

DRAWING NUMBER SDG-132



**NOTES**

1. See Standard Drawing SDG-137 for general notes.
2. Type A-1 is a designation for ramp at curb return.
3. Type B-1 is a designation for ramp at straight curb (shown above).
4. Landing cross slope shall be 1.5 %.
5. For truncated domes details, please see Standard Drawings SDG-130.
6. Z side slope shall be 10:1.

Revision	By	Approved	Date
ORIGINAL	SMS	A. Oskoui	12/09/03

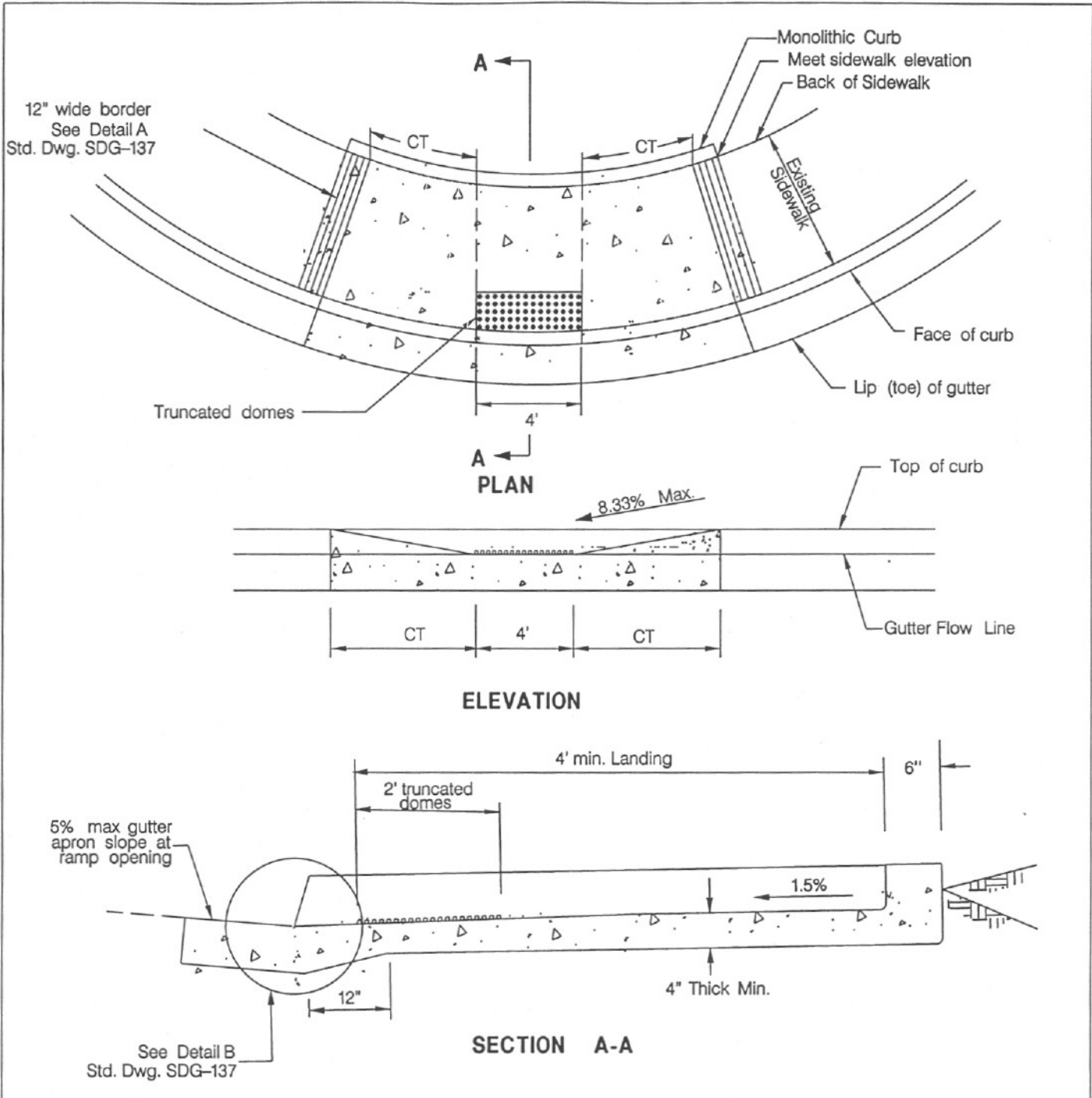
**CITY OF SAN DIEGO STANDARD DRAWING**

**CURB RAMP - TYPE A-1 & B-1  
(For Existing Sidewalk)**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*R. B. Li* 6-14-04  
Chairperson RCE 64572 Date

DRAWING  
NUMBER **SDG-133**



**NOTES**

1. Type C ramps are only to be used to mitigate existing conditions where inadequate right of way exists to use Standard Drawing SDG-133, and are not to be used in new construction.
2. See Standard Drawing SDG-137 for general notes.
3. Landing cross slope shall be 1.5%.
4. For truncated domes, please see Standard Drawing SDG-130.
5. CT Curve Transition slope shall be 8.33% maximum.

Revision	By	Approved	Date
ORIGINAL	SMS	A. Oskoui	12/03

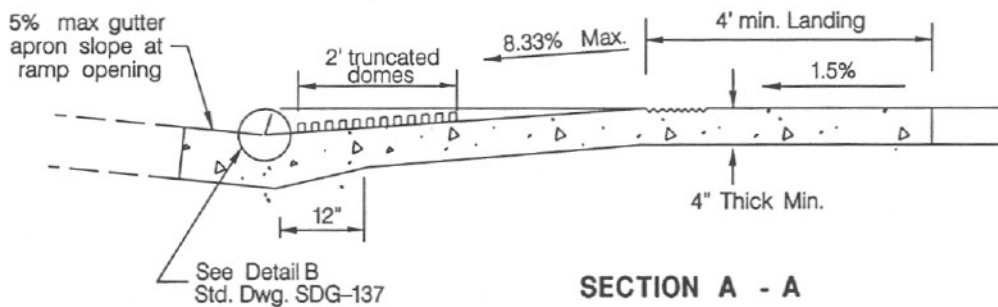
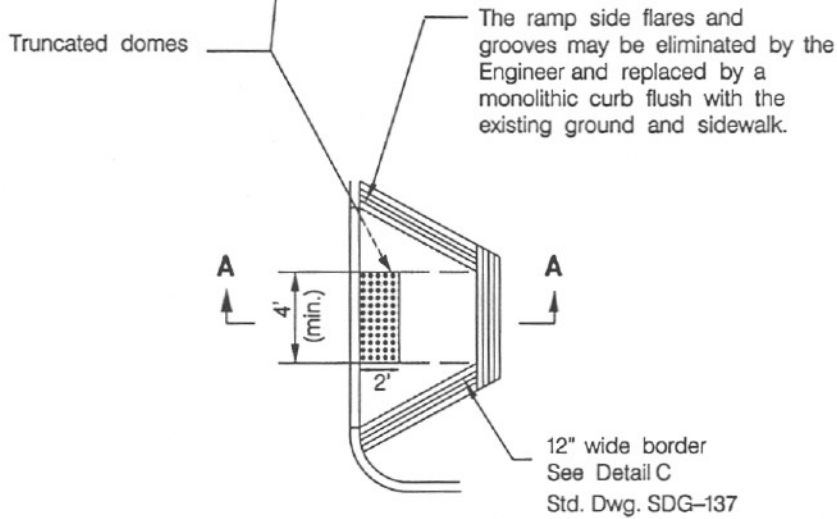
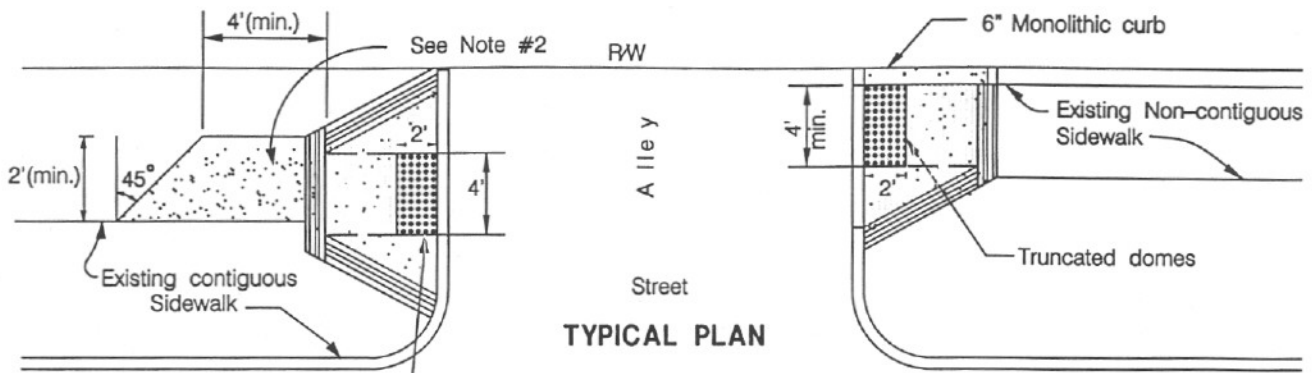
**CITY OF SAN DIEGO STANDARD DRAWING**

**CURB RAMP - TYPE C  
(For Existing Sidewalk)**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*[Signature]* 6-14-04  
Chairperson R.C.E. 64572 Date

DRAWING NUMBER **SDG-134**



**NOTES**

1. See Standard Drawing SDG-137 for general notes.
2. Landing cross slope shall be 1.5%.
3. For truncated domes details, see Standard Drawing SDG-130.

Revision	By	Approved	Date
ORIGINAL	SMS	A. Oskoui	12/09/03

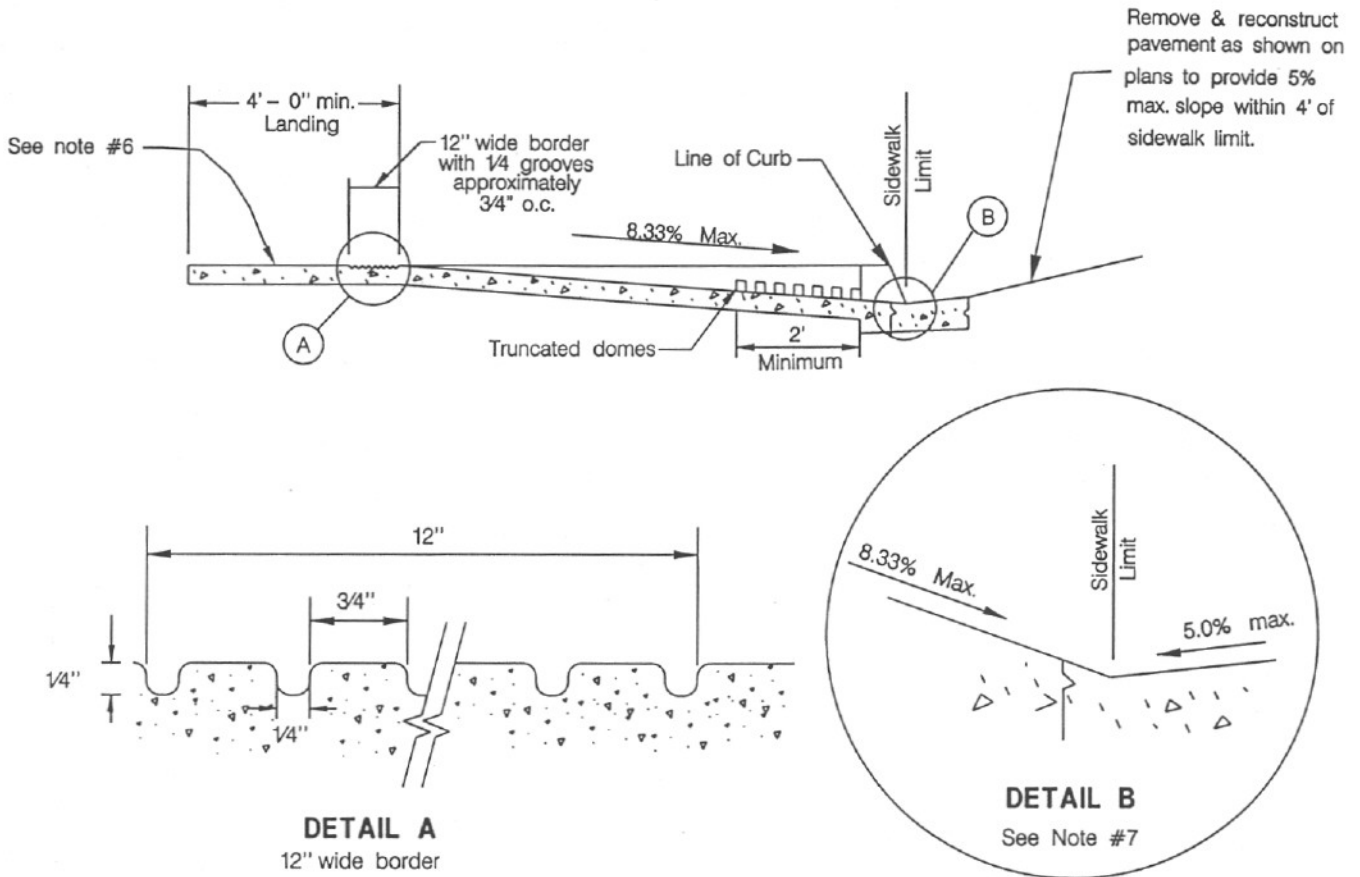
**CITY OF SAN DIEGO STANDARD DRAWING**

**CURB RAMP - TYPE D**


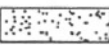
CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*R. L. E.* 6-14-04  
Chairperson R.C.E. 64572 Date

DRAWING NUMBER **SDG-136**

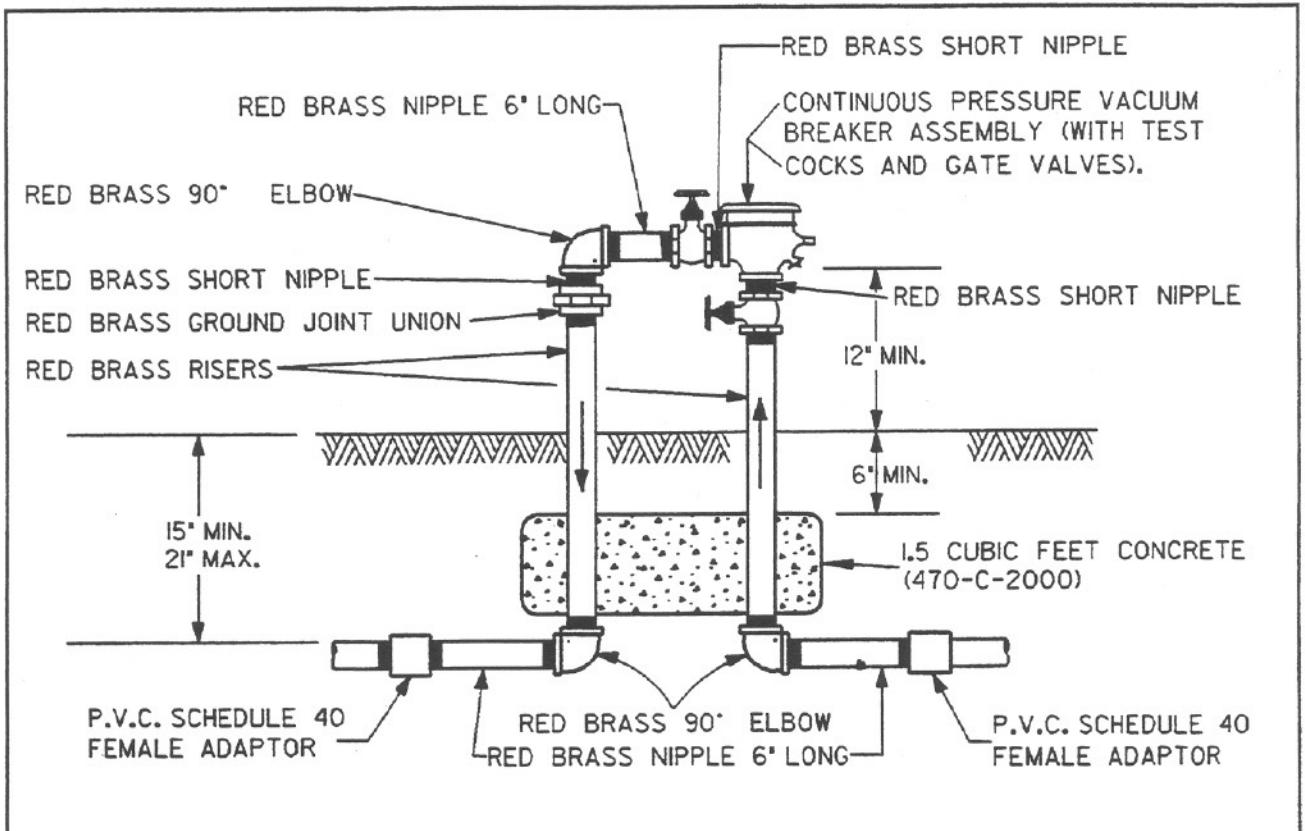


**NOTES**

- The removal of existing concrete curb, gutter, sidewalk and pavement for pedestrian ramp installation shall comply with Standard Drawing G-11. For construction of Curb Ramps on existing sidewalks, removal of additional sidewalk may be required to comply with ADA requirements to meet the existing grade.
- Areas shown thus:  shall have a medium to heavy broom texture finish, perpendicular to the axis of the ramp.
- Areas shown thus:  are the minimum required for a complete ramp installation and shall be concrete class 520-C-2500.
- If obstructions such as inlets, utility poles, fire hydrants, etc., are encountered, the ramp locations may be adjusted upon the approval of the Resident Engineer, or Local Agency Inspector.
- The ramp slopes will be measured relative to the sidewalk slope, see Detail B above. Adjoining slope beyond ramp shall not exceed 20:1 (5%).
- Landing cross slope shall be 1.5%.
- All projects (new construction & alteration), the lower end of 48-inch width of the ramp shall be flush and free of abrupt changes between the bottom of the ramp and the street pavement surface.
- There shall be no more than 8" (eight inches) separation between the face of the curb and any given point of the nearest edge of the truncated domes.

Revision	By	Approved	Date	<b>CITY OF SAN DIEGO STANDARD DRAWING</b>	<b>GENERAL NOTES for CURB RAMPS</b>	CITY OF SAN DIEGO STANDARDS COMMITTEE
ORIGINAL	SMS	A. Oskoui	12/03			<i>R. L. H.</i> 6-14-04 Chairperson RCE 64572 Date
						DRAWING NUMBER <b>SDG-137</b>

# SPRINKLER IRRIGATION SYSTEMS



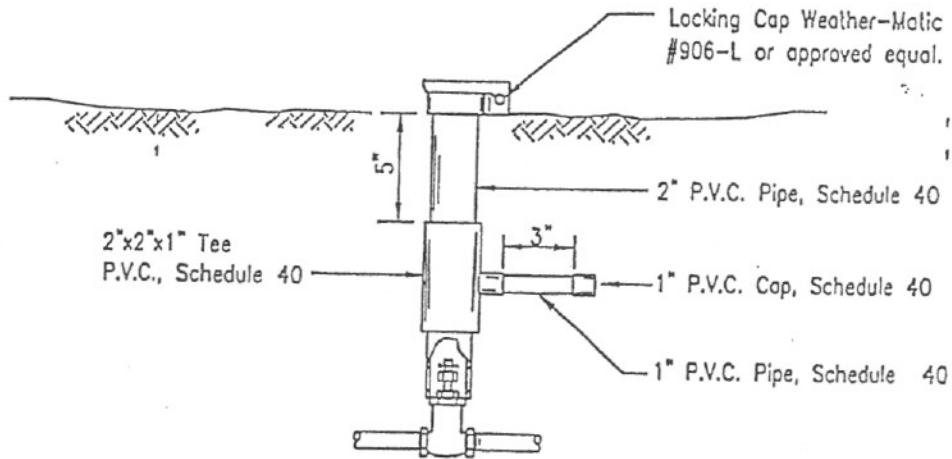
**NOTES:**

1. Continuous pressure vacuum breaker shall be installed approximately 12 inches above finished grade and at the highest point in the line.
2. Continuous pressure vacuum breaker shall not be subjected to back pressure or drainage
3. Teflon tape  $\frac{3}{4}$ " in width shall be used on all threaded connections.
4. Close nipples shall not be used.
5. Backflow preventer assembly shall be tested upon installation by a San Diego County certified backflow device tester. Contractor shall provide Engineer with written test results completed by a certified backflow tester prior to backflow preventer acceptance by the Engineer.
6. If protective guard fence is specified, see Std. Dwg. SDI-102.

LEGEND ON PLANS



Revision	By	Approved	Date	<b>CITY OF SAN DIEGO - STANDARD DRAWING</b>	CITY OF SAN DIEGO STANDARDS COMMITTEE <i>Steve L. [Signature]</i> 2-7-95 COORDINATOR R.C.E. 25902 DATE
ORIGINAL		J.P. Casey	8-22-86		
<b>BACKFLOW PREVENTOR PRESSURE VACUUM BREAKER TYPE (2-INCH &amp; SMALLER)</b>				DRAWING NUMBER	<b>SDI-101</b>



STANDARD PIPE SLEEVE  
INSTALLATION

NOTES

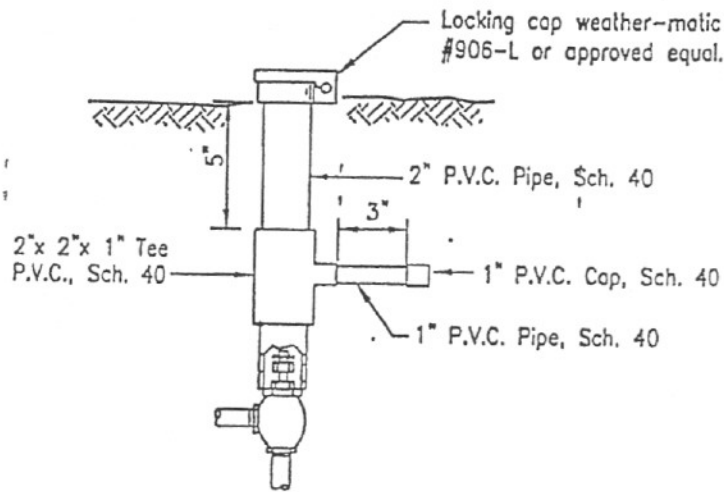
1. All valves shall be furnished with a standard manual control valve bronze cross handle.
2. All valves shall be installed within 12" of the water main, unless otherwise shown on the plans.
3. Close nipples shall not be used.

LEGEND ON PLANS



CITY OF SAN DIEGO STANDARDS COMMITTEE  <i>Blh</i> 12-9-03 Chairperson R.C.E. 04572 Date	CITY OF SAN DIEGO STANDARD DRAWING		Revision	By	Approved	Date
	GATE VALVE [2" AND SMALLER]		ORIGINAL		Kercheval	12/75
DRAWING NUMBER SDI-102			Dwg No	SM	Oskoui	12/03





STANDARD PIPE SLEEVE  
INSTALLATION

NOTES

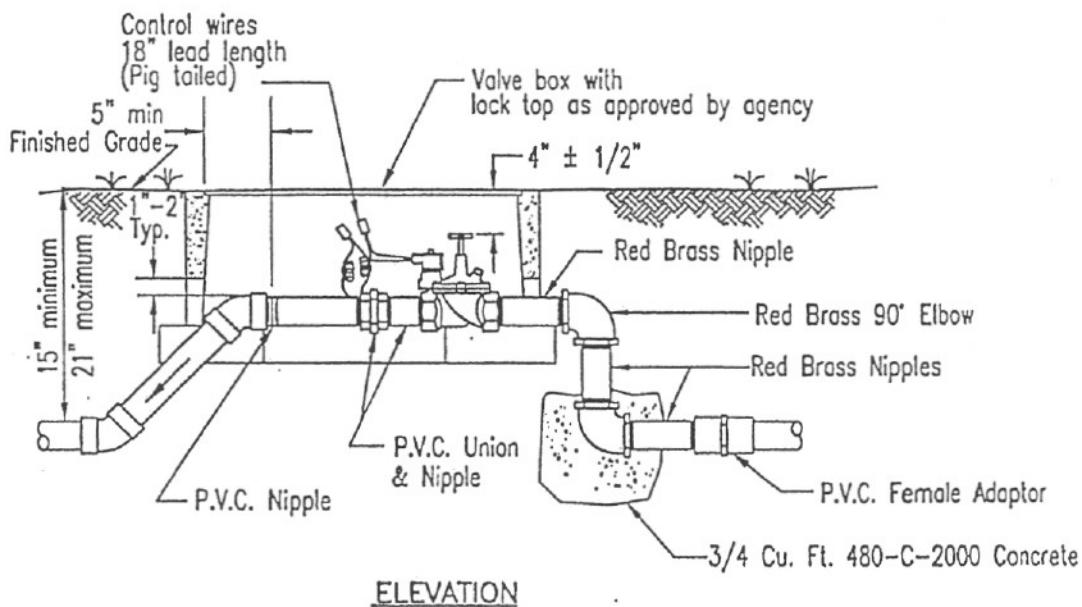
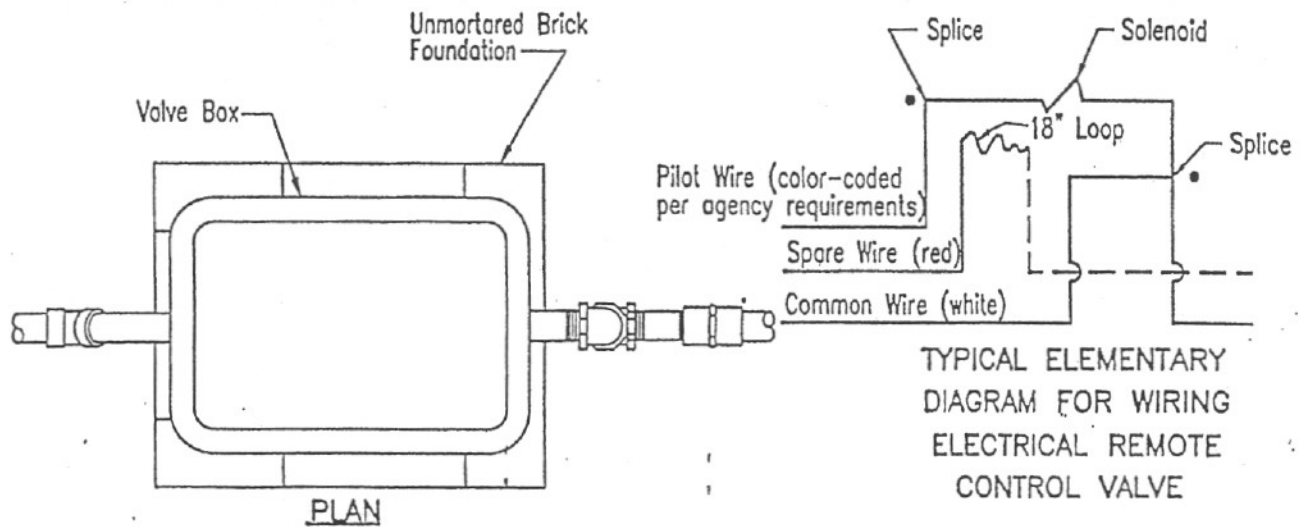
1. All Manual Valves shall be furnished with a standard manual control valve bronze cross handle.
2. All valves shall be installed with 12" of water main, unless otherwise shown on the plans.
3. All Manual Valves shall be furnished with a removable bonnet and packing gland nut.
4. Close Nipples shall not be used.
5. Locking cap shall be mounted flush with finish grade in turf areas & 1 inch above finish grade in shrub areas.

LEGEND ON PLANS



MCV

Revision	By	Approved	Date	CITY OF SAN DIEGO STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE
ORIGINAL		A.Kercheval	12/75		
Dwg No	SM	Oskoui	12/03	MANUAL VALVES	<i>R. Li</i> 12-9-03 Chairperson P.C.E. #572 Date
				DRAWING NUMBER	SDI-103



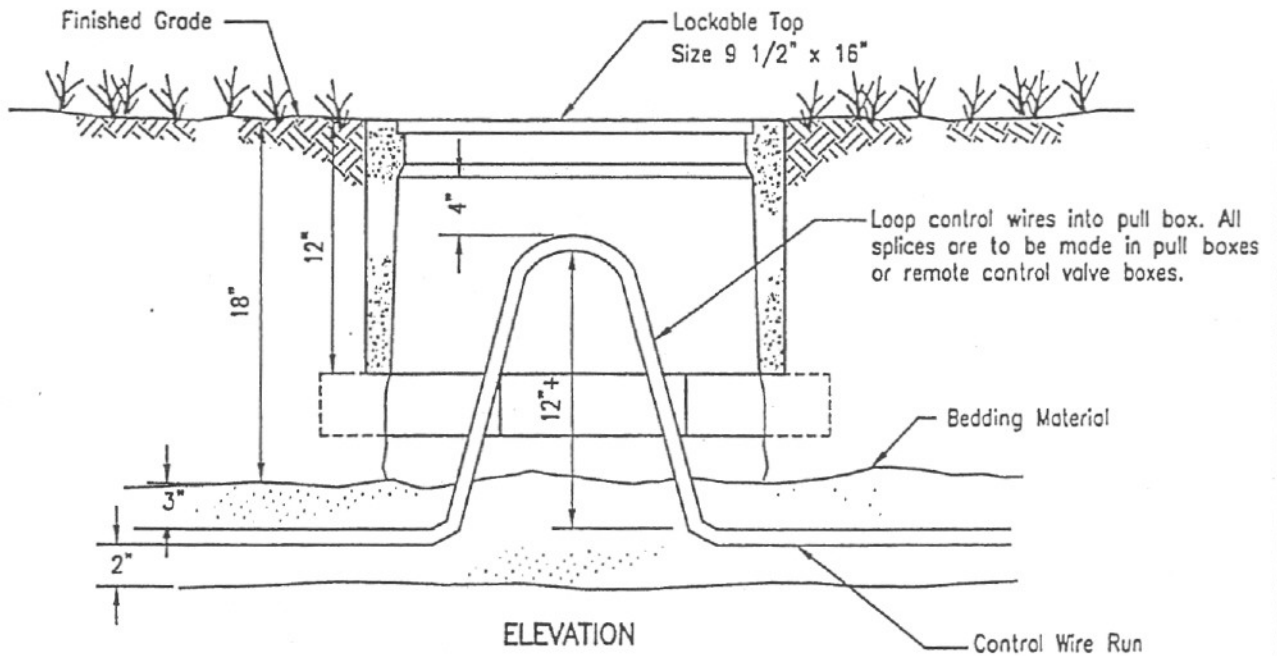
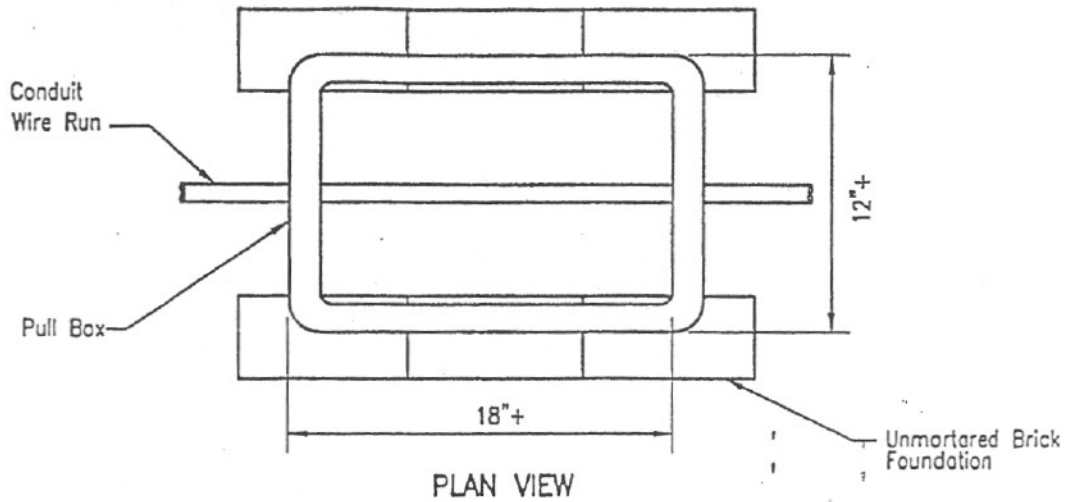
**NOTES:**

1. Splicing shall be made in valve boxes and pull boxes only. See Standard Drawing I-15 for splice details.
2. Close nipples shall not be used.
3. Spare wires terminating in valve boxes shall have their ends insulated, the same as for a splice.
4. When two or more valves are installed in the same location, they shall be in manifold using red brass fittings, with a globe valve installed at the start of the manifold.
5. All valves shall be installed with a union on the downstream side of the valve. The union shall be P.V.C.
6. Valve/controller identification shall be painted on the valve boxes. Use only 100% acrylic epoxy water proof paint. (White or yellow paint, unless otherwise specified by Agency.)
7. Clearance between piping and valve box shall be 1" to 2" typical.
8. Install only one valve per box.

LEGEND ON PLANS

▼ R.C.V

CITY OF SAN DIEGO STANDARDS COMMITTEE  <i>R. L. G.</i> 12-9-03 Chalperson R.C.E. 64572 Date	CITY OF SAN DIEGO STANDARD DRAWING		Revision	By	Approved	Date
	<b>REMOTE CONTROL VALVE</b>		ORIGINAL		R. Munoz	3/97
DRAWING NUMBER <b>SDI-104</b>			Dwg. No	SM Oskoui		12/03



**NOTES**

1. Install pull boxes as shown on plans.
2. At junctions where runs combine, splice common ground in pull box.
3. Pull box cover shall be permanently marked "ELECTRIC".
4. Conductors for each controller clock shall be harnessed separately and at sufficient intervals to maintain a definite bundle.
5. All splices shall be made with a properly set mechanical splice connector entirely enclosed in self-curing resin and shall be completely water-proof.
6. All spare wire ends shall be insulated in the same manner as wire splices.
7. If specified, all splices shall be soldered with metallic alloy solder prior to installing connectors.
8. Wire bundles inside pull boxes shall be at least 4 inches from the under side of the box cover. Minimum size pull box shall be as shown above. Larger boxes may be necessary to meet 4 inch clearance required.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		A.Kercheval	12/75
Dwg No	SM	Oskoui	12/03

CITY OF SAN DIEGO STANDARD DRAWING

**ELECTRICAL PULL BOX  
FOR DIRECT BURIAL CONTROL WIRES  
AND SPLICE DETAILS**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*R. L. Li* 12-9-03  
Chairperson R.C.E. 64572 Date

DRAWING NUMBER SDI-105

# LANDSCAPING


SUPPLEMENT TO REGIONAL STANDARD DRAWING (L-SERIES)

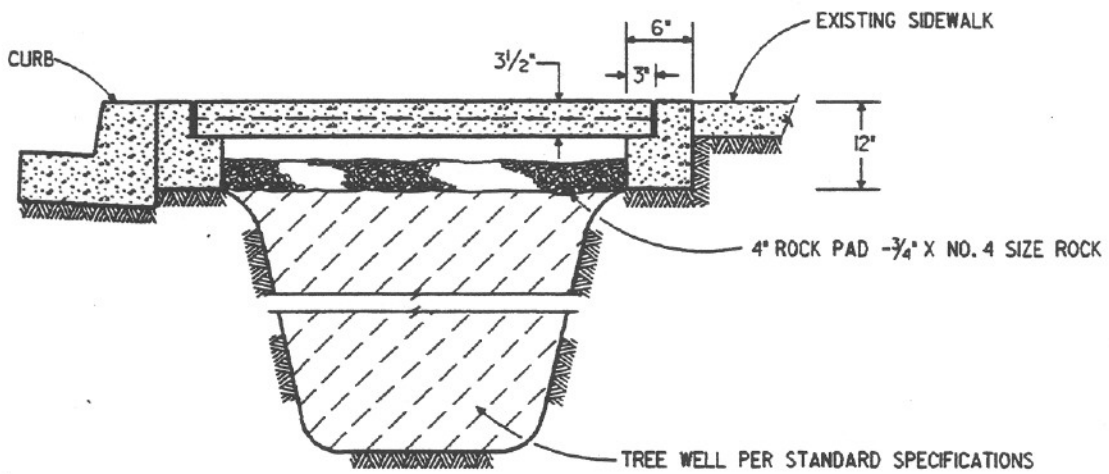
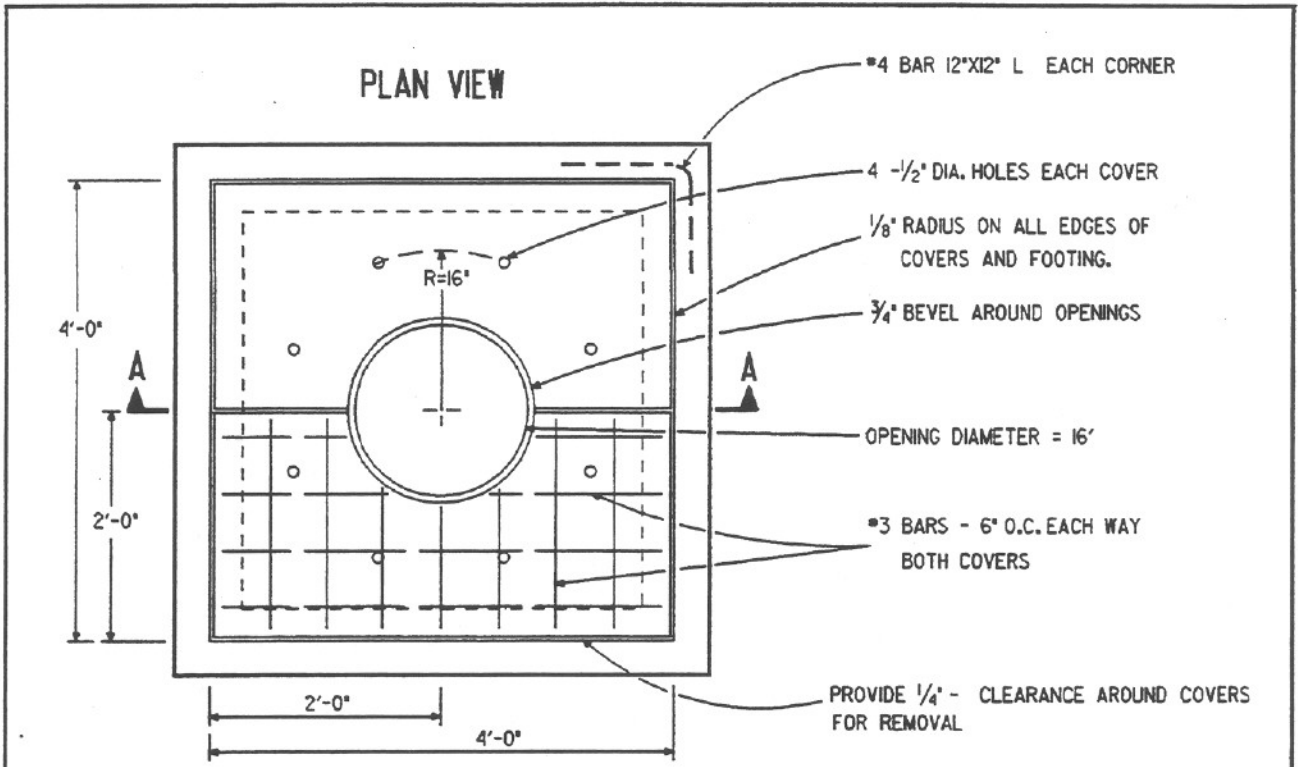
DRAWING L-4

- NOTES:
- Amend Note 3 to read: "Fill to within one inch (1") below bottom of grate with  $\frac{3}{4}$ " x No.4 clean crushed rock. If required to secure the grate, all bolts, nuts, and washers shall be Grade 316 stainless steel. All fabricated steel items shall be hot dipped galvanized after fabrication.
  - Add: 6. Adjacent sidewalk shall have a minimum clear width of four feet inches (4'-4") from the edge of grate.
  - Add: 7. Sidewalk cross slope shall be 1.5%
  - Add: 8. Steel grate to have a permanent slip resistance finish.

DRAWING L-5

- NOTES:
- Amend Note 4 to read: "Pole pads shall drain 1.5% in the same slope direction as the sidewalk."

Revision	By	Approved	Date	CITY OF SAN DIEGO STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE
ORIGINAL		Porkinson	5/92		
NOTES	SM	Oskouf	12/03	SUPPLEMENT TO REGIONAL STANDARD DRAWING ("L" SERIES)	 Chairperson R.C.E. 64572      Date 12-9-03
				DRAWING NUMBER	SDL-100



SECTION A-A

**NOTES:**

1. THE LOCATION AND SPEICES OF EACH TREE SHALL BE APPROVED BY THE STREET TREE DIVISION OF THE PARK AND RECREATION DEPARTMENT
2. ALL CONCRETE SHALL BE CLASS 520-C-2500. ALL REINFORCING STEEL SHALL BE 40K MIN. TENSILE STRENGTH.
3. SIDEWALK TO BE REMOVED SHALL BE SAW-CUT.
4. CONCRETE COVER AND FOOTING ASSEMBLY SHALL BE INSTALLED AND MAINTAINED FLUSH WITH SIDEWALK.
5. FINISH OF EXPOSED CONCRETE SURFACE SHALL MATCH EXISTRING SIDEWALK FINISH UNLESS OTHERWISE NOTED.

Revision	By	Approved	Date
ORIGINAL		J.P. Casey	6-2-86

**CITY OF SAN DIEGO - STANDARD DRAWING**

**CONCRETE TREE WELL COVER**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE  
*[Signature]* 2-7-95  
COORDINATOR R.C.E.: 25902 DATE

DRAWING NUMBER **SDL-103**

# MISCELLANEOUS

M

MISCELLANEOUS

SUPPLEMENT TO REGIONAL STANDARD DRAWING (M-SERIES)

DRAWING M-17

NOTES

ADD the following SPECIAL NOTE:

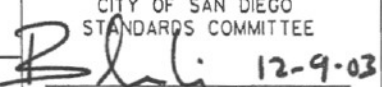
1. Chain link fabric shall have knuckled finish on top edge.

DRAWING M-24

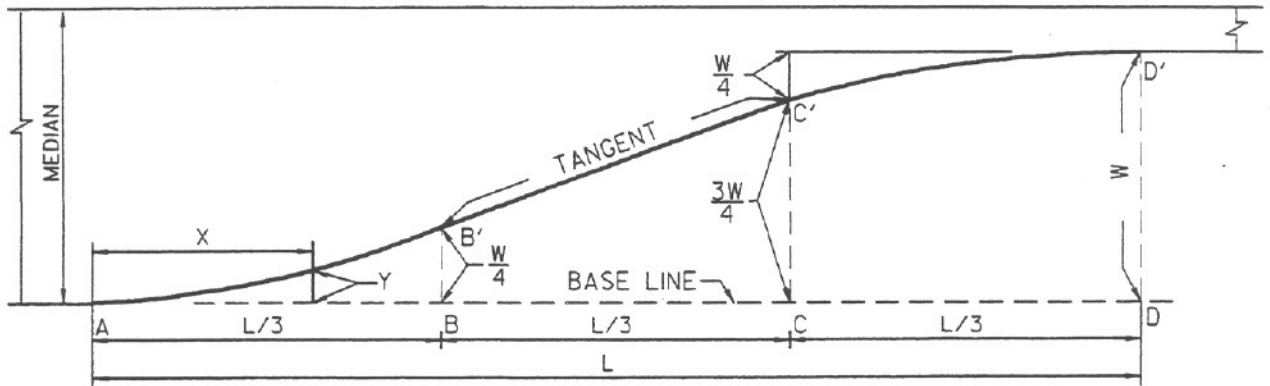
NOTES

Amend Note 5: "  $\Delta < 4$ ". Guardrails and handrails for stairs and ramps more than 30" above have intermediate rails equally spaced such that a sphere 4" in diameter cannot pass through."

7. The clearance between handrail and wall is 1-1/2" absolute.

Revision	By	Approved	Date	CITY OF SAN DIEGO - STANDARD DRAWING  SUPPLEMENTAL TO REGIONAL STANDARD DRAWING ("M" SERIES )	CITY OF SAN DIEGO STANDARDS COMMITTEE		
ORIGINAL		M. V. Rollinger	5-20-92			Chairperson RCE 04572	Date
NOTES		G. Parkinson	2-7-95				
NOTES	SM	Oskoui	12-9-03				
				DRAWING NUMBER	<b>SDM-100</b>		





$$Y = 2.25W \left( \frac{X}{L} \right)^2$$

L=LENGTH OF TRANSITION  
 W=MAXIMUM OFFSET DISTANCE  
 X=DISTANCE ALONG BASELINE  
 Y=OFFSET FROM BASELINE

L	DISTANCE X												
	60'	5'	10'	15'	20'	25'	30'	35'	40'	45'	50'	55'	60'
90'	7.5'	15'	22.5'	30'	37.5'	45'	52.5'	60'	67.5'	75'	82.5'	90'	
120'	10'	20'	30'	40'	50'	60'	70'	80'	90'	100'	110'	120'	
W	OFFSET Y												
	10'	0.16'	0.62'	1.41'	2.50'	3.75'	5.00'	6.25'	7.50'	8.59'	9.38'	9.84'	10.00'
	11'	0.17'	0.69'	1.55'	2.75'	4.13'	5.50'	6.88'	8.25'	9.45'	10.31'	10.83'	11.00'
	20'	0.31'	1.25'	2.81'	5.00'	7.50'	10.00'	12.50'	15.00'	17.19'	18.75'	19.69'	20.00'
	22'	0.34'	1.38'	3.09'	5.50'	8.25'	11.00'	13.75'	16.50'	18.91'	20.62'	21.66'	22.00'

**NOTE:**

TO DETERMINE OFFSET DISTANCE FOR ANY LENGTH OF TRANSITION USE THE FORMULA  $Y = 2.25W \left( \frac{X}{L} \right)^2$  FOR THE PORTIONS AB' AND C'D' WHICH ARE PARABOLIC CURVES. THE PORTION B'C' IS A TANGENT. WHEN THE BASELINE IS CURVED, THE OFFSETS ARE APPLIED TO THE CURVED BASELINE, AND B'C' IS NO LONGER A TANGENT.

Revision	By	Approved	Date
ORIGINAL	JJD	G. PARKINSON	2-9-95

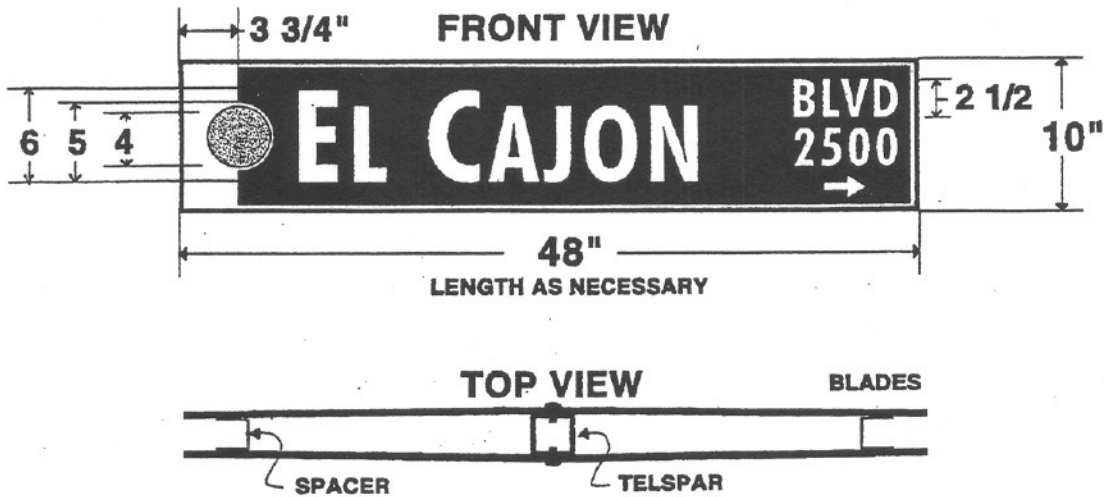
**CITY OF SAN DIEGO - STANDARD DRAWING**

CITY OF SAN DIEGO  
 STANDARDS COMMITTEE

*H. J. P.* 2-9-95  
 COORDINATOR R.C.E. 25902 DATE

**LEFT TURN MEDIAN TRANSITION**

DRAWING NUMBER **SDM-101**



**LETTER STYLE: FUTURA BOLD CONDENSED**  
**LETTER SIZE: 6" 5" 2 1/2"**  
**CITY SEAL: 4"**  
**BACKGROUND: TYPE IV PRISMATIC SHEETING**  
**ELECTRO CUT BLUE OVER WHITE**  
**.065 ALUMINUM**  
**MOUNTED TO TELSPAR WITH 3/8" DRIVE RIVETS**  
**4" TALL BY 1 1/4" SQ. CHANNEL SPACER HELD WITH VHB 4950 TAPE**  
 Contractor shall contact City Of San Diego Sign Shop, (619) 527-7528  
 for a list of approved vendors for City Seal.

**SHEET 1 OF 4**

REVISION	BY	APPROVED	DATE	CITY OF SAN DIEGO - STANDARD DRAWINGS	CITY OF SAN DIEGO STANDARDS COMMITTEE <i>Hon. Rob</i> 8/17/00 COORDINATOR DATE C-35390
ORIGINAL		J.P. CASEY	11/8/88		

**PERMANENT STREET NAME SIGNS**

**GENERAL:**

Street name sign assembly for post top mounting shall consist of: Name Blade units, 24" long 1-1/2" Square Telespar extension and Drive Rivets. All as indicated on the Standard Drawings and/or specified in these notes. Assemblies shall be mounted to 1-3/4" square Telespar posts.

**NAME BLADE UNITS:**

Name Blade units shall be single faced and made from 10" wide (top to bottom) aluminum sheet stock, mill flat, 6061-T6 or 5052 alloy, .063 thick. Ends of blade to be perpendicular to top bottom edges. All edges shall be free of sharp burrs.

Each blade shall be drilled with two 7/16" holes, one at top and one at bottom edge of sign. Holes to be centered on blade and 1/2" from edge.

Blade shall be covered with type IV prismatic white reflective sheeting.

**LETTERING:**

Street name shall be cut from blue E.C. Film material and applied over the white background, creating a sign with a blue background and white lettering. Type font to be Futura Bold Condensed. Lettering height of street name shall be 6" for first letter and 5" for the rest of the name. Street and block number suffix to be 2-1/2" Futura Bold Condensed. Layout to be as shown on Sheet 1 of 4 on the Standard Drawing.

**MOUNTING OF SIGN:**

Each Name Blade shall be mounted to the 1-1/2" Telespar extension with a 3/8" Drive Rivet.

Each Street Name shall be mounted back to back with the Telespar sandwiched in between and the ends fastened together with VHB double stick tape. A Square channel spacer is required on blades shorter than 36". The extension is to be placed inside the 1-3/4" Telespar post and fastened with a Drive Rivet.

Sheet 2 of 4

REVISION	BY	APPROVED	DATE	<b>CITY OF SAN DIEGO - STANDARD DRAWINGS</b>	CITY OF SAN DIEGO STANDARDS COMMITTEE <i>Ken Kahn</i> 8/17/00 COORDINATOR DATE C-35390
ORIGINAL		J.P.CASEY	11-8-88		<b>STREET NAME SIGN</b>

# STREET NAME SIGN STANDARDS

## Suffix and Prefix Abbreviations:

Avenue	AVE
Street	ST
Court	CT
Drive	DR
Road	RD
Boulevard	BLVD
Terrace	TER
Mountain	MTN
Mount	MT
Caminito	CMTO
Camino	CAM
Rancho	RCHO

Spell out "FIRST AVE through TWELFTH AVE"  
Then: 13TH ST — 14TH ST etc.

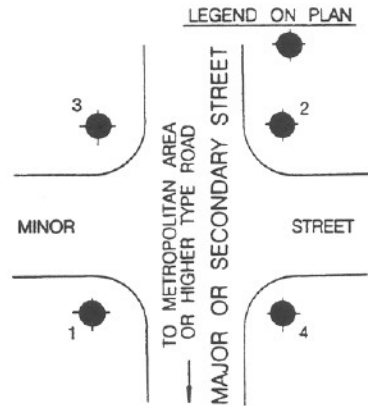
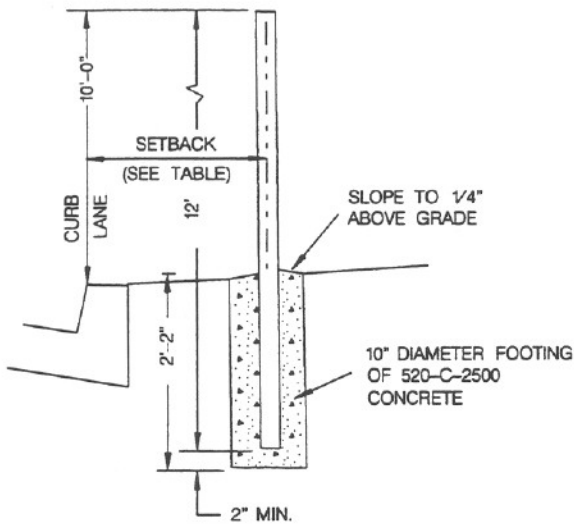
**SHT. 3 OF 4**

Revision	By	Approved	Date	<b>CITY OF SAN DIEGO - STANDARD DRAWING</b>	CITY OF SAN DIEGO STANDARDS COMMITTEE
ORIGINAL		J.P. Casey	1-8-88		<i>[Signature]</i> 2-7-95
Rev. - 1	TLH		7/28/00	<b>STREET NAME SIGN</b>	COORDINATOR R.C.E. 25902 DATE
					DRAWING NUMBER <b>SDM-102</b>

CURB & SIDEWALK	SIDEWALK WIDTH	SETBACK
CONTIGUOUS	6' OR LESS	SIDEWALK WIDTH
CONTIGUOUS	MORE THAN 6'	2' - 6"
SEPARATE	_____	2' - 6"

LOCATION NOTES

1. ALONG MAJOR OR PRIMARY STREETS THERE SHALL BE 2 SIGN INSTALLATIONS PER INTERSECTION PLACED ON OPPOSITE CORNERS
2. ALONG A COLLECTOR OR LOCAL STREETS THERE SHALL BE ONE SIGN INSTALLATION PER INTERSECTION



STREET NAME SIGN LOCATION  
 (NUMBERS INDICATE PRIORITY OF LOCATION SELECTION WHEN THERE IS A CONFLICT WITH OTHER IMPROVEMENTS)

Sheet 4 of 4

Revision	By	Approved	Date
ORIGINAL		J.P. Casey	11-8-88
Rev. - 1	TLH		7/28/00

**CITY OF SAN DIEGO - STANDARD DRAWING**

**STREET NAME SIGN**

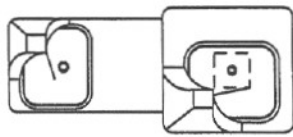
CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*[Signature]* 2-7-95  
COORDINATOR R.C.E. 25902 DATE

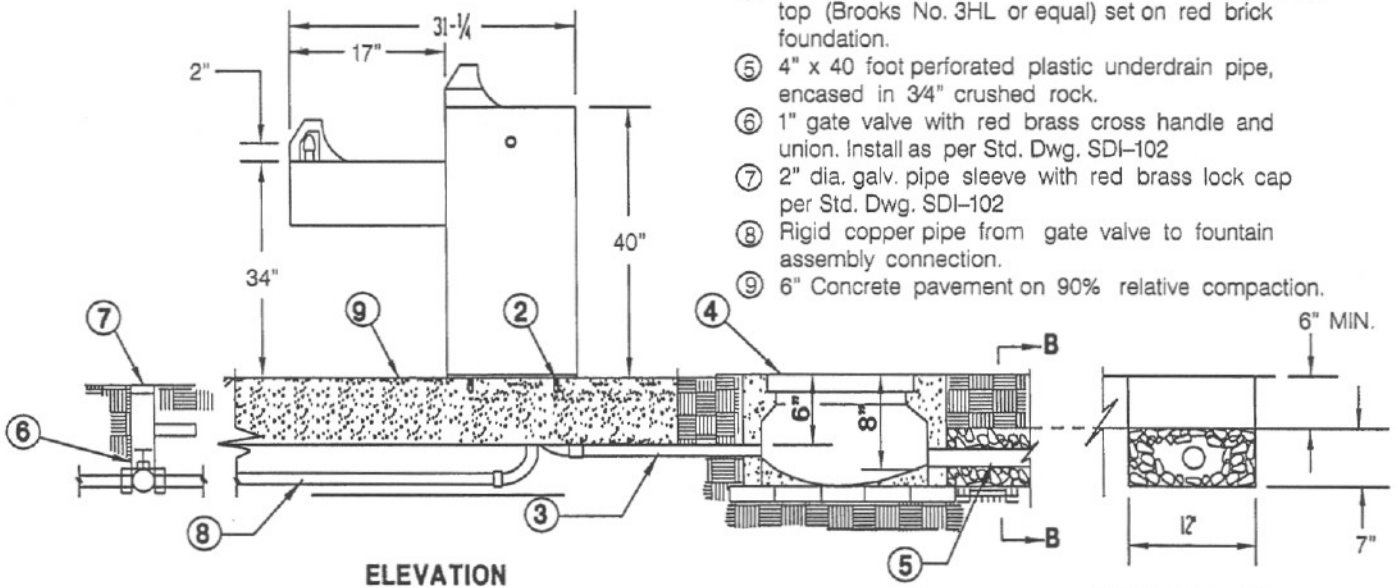
DRAWING NUMBER **SDM-102**

**LEGEND:**

- ① Dual-height drinking fountain as approved by the Resident Engineer.
- ② 1/2" x 4" loop anchors and 1/2" x 1-1/2" bolts at all locations or per manufacturer's recommendation.
- ③ 1-1/4" P.V.C. pipe with sweep 90 ell connection to fountain drain.
- ④ 9-1/2" x 16" concrete yard box with hinged locking top (Brooks No. 3HL or equal) set on red brick foundation.
- ⑤ 4" x 40 foot perforated plastic underdrain pipe, encased in 3/4" crushed rock.
- ⑥ 1" gate valve with red brass cross handle and union. Install as per Std. Dwg. SDI-102
- ⑦ 2" dia. galv. pipe sleeve with red brass lock cap per Std. Dwg. SDI-102
- ⑧ Rigid copper pipe from gate valve to fountain assembly connection.
- ⑨ 6" Concrete pavement on 90% relative compaction.

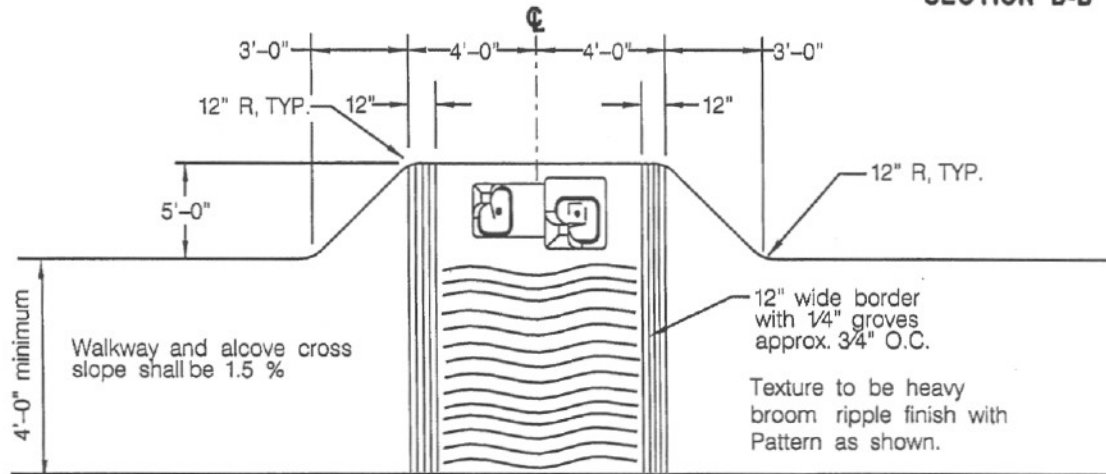


**PLAN**



**ELEVATION**

**SECTION B-B**



**PLAN AT ALCOVE ALONG CONCRETE WALKWAY**

**NOTES**

- 1. Install drinking fountains so that right hand side faces prevailing wind.
- 2. Hand form a concrete bowl at bottom of yard box to facilitate sand clean out.
- 3. Perforated drain pipe and trench are to drain away from fountain.
- 4. Item no. 6 is a one-inch gate valve. Use red brass bushing reducers to adapt to feed pipe.
- 5. Locate drinking fountains in an alcove or at areas outside the path-of-travel otherwise required protective railing see Standard Drawing SDM-108.

**LEGEND ON PLANS**



Revision	By	Approved	Date
ORIGINAL	SM	Oskoui	12/03

**CITY OF SAN DIEGO STANDARD DRAWING**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

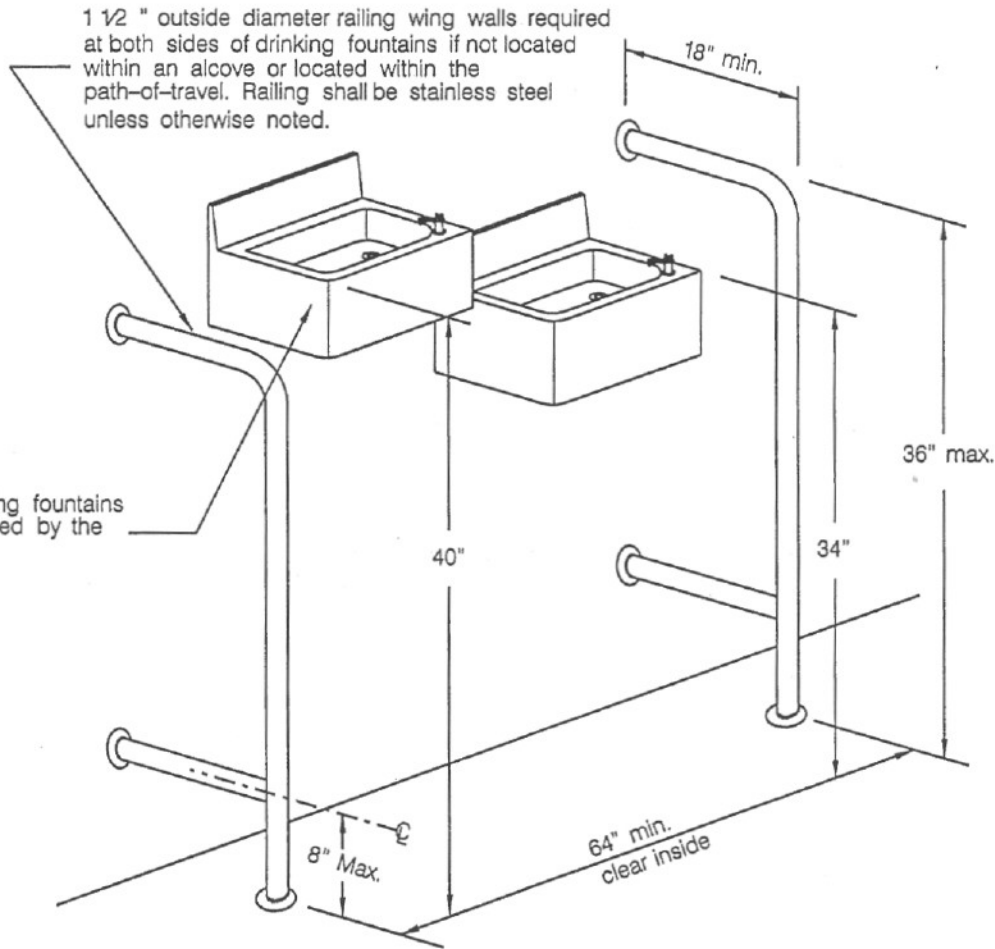
*B. L. Li* 12-9-03  
Chairperson RCE 64572 Date

**DRINKING FOUNTAINS**

**DRAWING NUMBER SDM-107**

1 1/2" outside diameter railing wing walls required at both sides of drinking fountains if not located within an alcove or located within the path-of-travel. Railing shall be stainless steel unless otherwise noted.

Dual-height drinking fountains or as recommended by the manufacturer.



LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL	SM	Oskoui	12/03

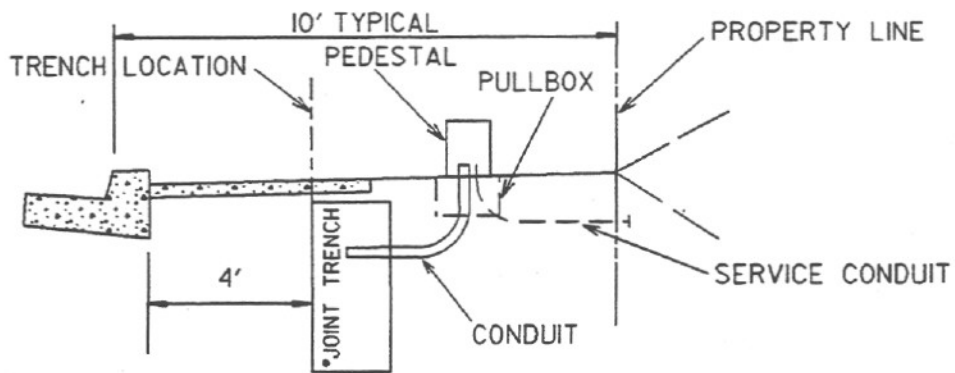
CITY OF SAN DIEGO STANDARD DRAWINGS

**WALL-MOUNTED DRINKING FOUNTAINS  
WITH PROTECTIVE RAILING**

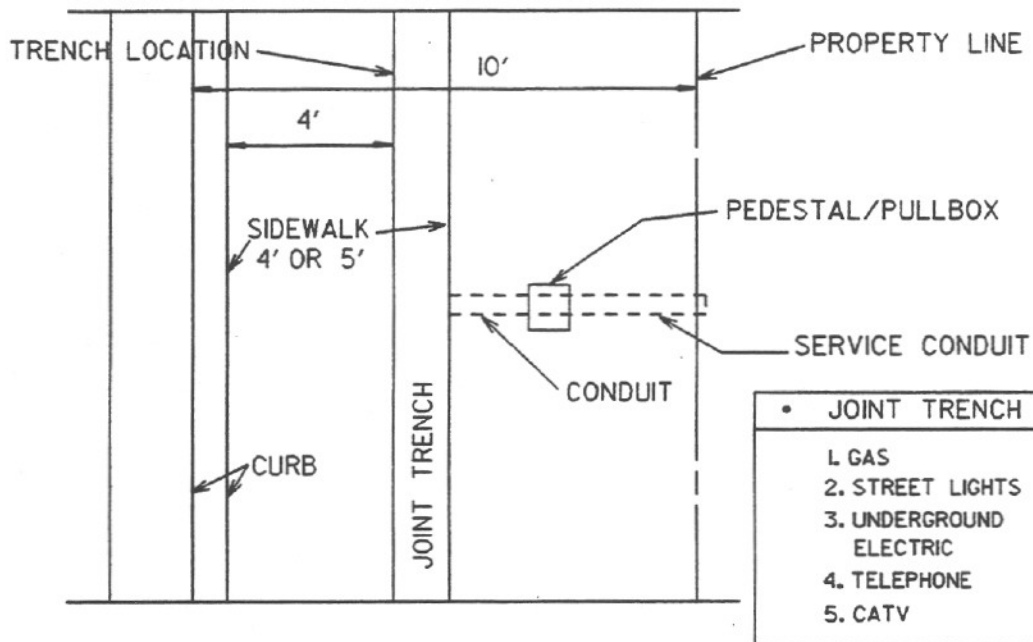
CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*B. L. H.* 12-2008  
Chairperson RCE 64572 Date

DRAWING NUMBER **SDM-108**



SECTION VIEW



PLAN VIEW

NOTE: SIDEWALK SHALL HAVE A MINIMUM OF FOUR (4) FOOT CLEAR (PATH) PASSING PEDESTALS, PULLBOXES AND OTHER STRUCTURES.

Revision	By	Approved	Date
ORIGINAL		J.P. Casey	8-3-85

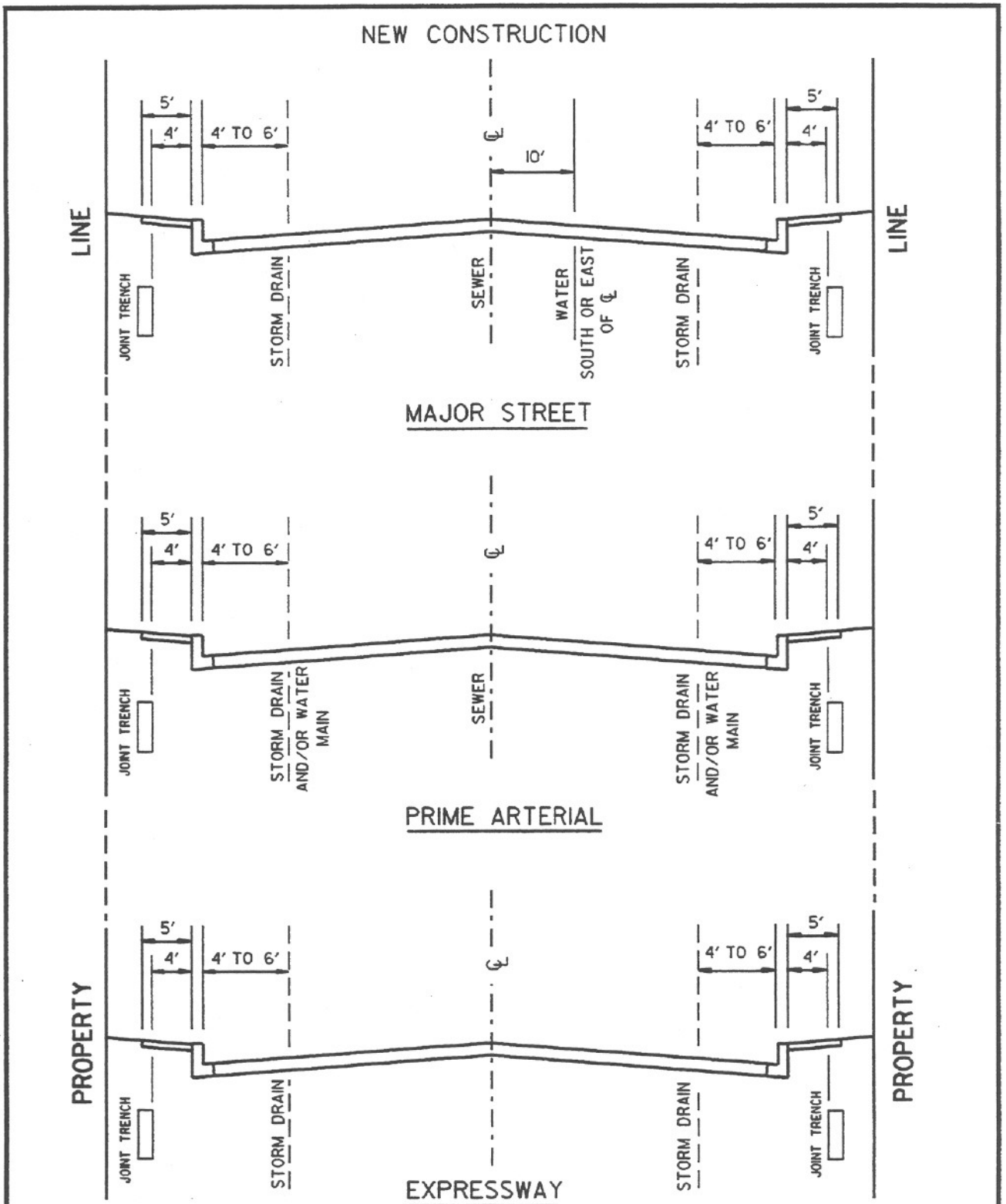
CITY OF SAN DIEGO - STANDARD DRAWING

UNDERGROUND TYPICAL LOCATION  
NEW CONSTRUCTION

CITY OF SAN DIEGO  
STANDARDS COMMITTEE  
*[Signature]* 2-7-95  
COORDINATOR R.C.E. 25902 DATE

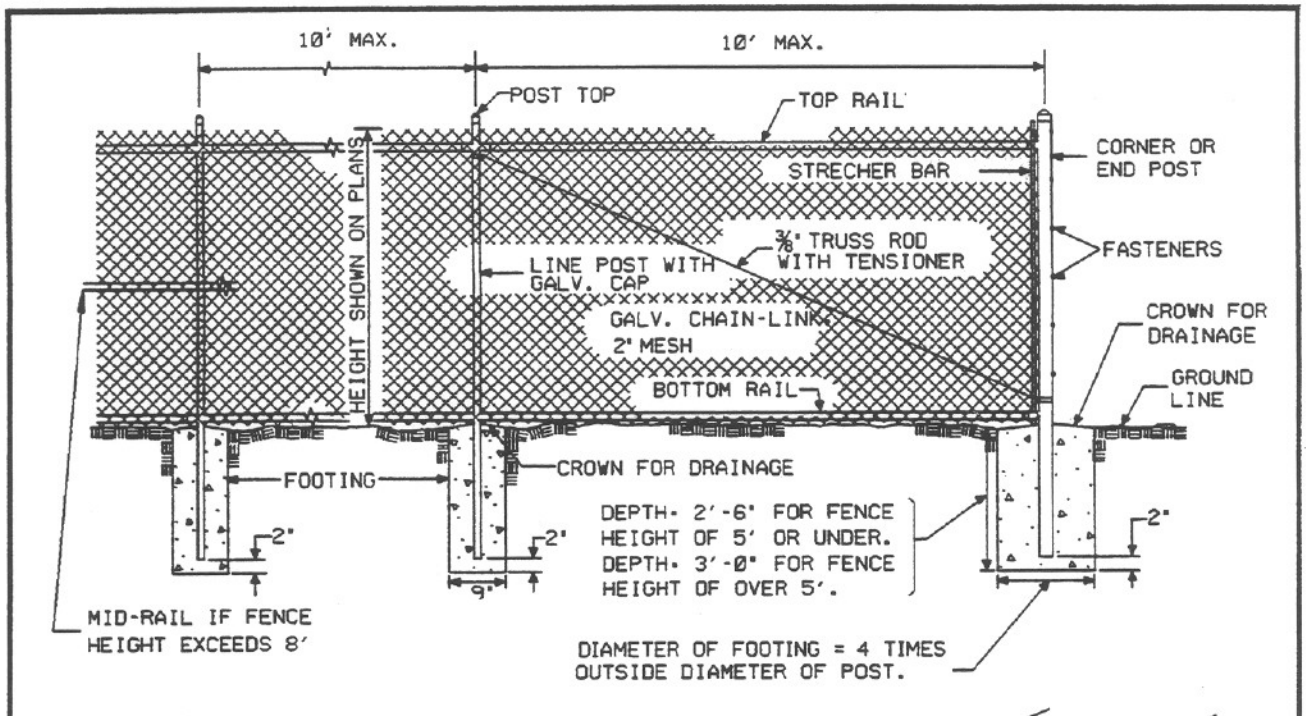
DRAWING NUMBER **SDM-109**





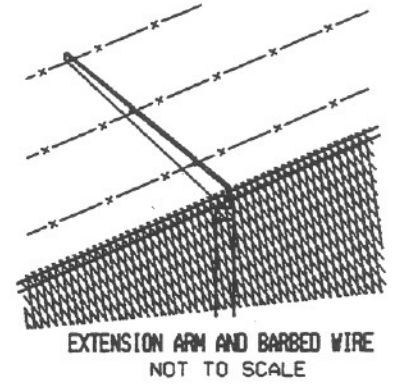
NOTE: SEE M-23 FOR LOCATION OF RECLAIMED WATER

Revision	By	Approved	Date	CITY OF SAN DIEGO - STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE	
ORIGINAL		J.P. Casey	9-28-85			<b>UTILITY LOCATIONS IN MAJOR STREETS PRIME ARTERIALS AND EXPRESSWAYS</b>
				DRAWING NUMBER <b>SDM-111</b>		



**NOTES:**

1. ALL FOOTINGS SHALL BE 520-C-2500 CONCRETE.
2. THE FOLLOWING ITEMS SHALL BE FURNISHED AND INSTALLED ONLY WHEN SHOWN ON THE PLANS AND/OR CALLED FOR IN THE SPECIAL PROVISIONS:
  - A. BARBED WIRE
  - B. EXTENSION ARM
3. CHAIN LINK FENCE SHALL CONFORM TO SECTION 206-6 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION UNLESS SPECIFICALLY NOTED ON THIS DRAWING
4. SEE STANDARD DRAWING M-20 FOR ADDITIONAL DETAILS.
5. CHAIN LINK FENCE AND ALL FITTINGS SHALL BE BLACK 22 MIL PRESSURE-BONDED OR 7 MIL THERMALLY-FUSED VINYL COATED, OVER 9 GAUGE ALUMINIZED STEEL CORE FABRIC PRIOR TO COATING. POSTS AND RAILS SHALL BE GALVANIZED STEEL, PVC VINYL BONDED, 10-14 MIL (COLOR TO MATCH FABRIC).
6. CHAIN LINK FABRIC SHALL HAVE KNUCKLED FINISH ON TOP EDGE.



**LEGEND:**



Revision	By	Approved	Date
ORIGINAL		J.P. Casey	5-20-92

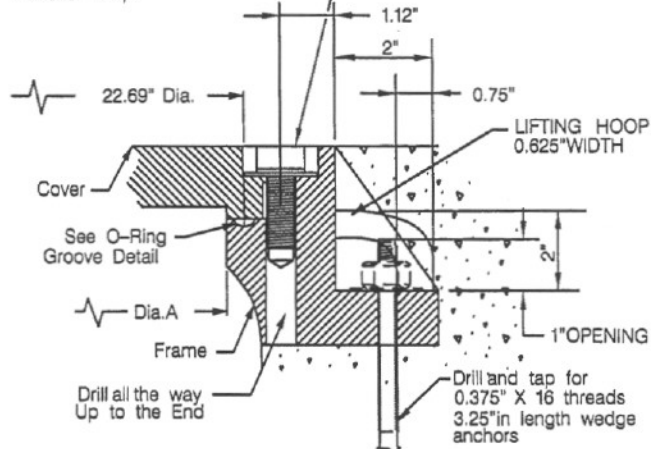
**CITY OF SAN DIEGO - STANDARD DRAWING**

**VINYL COATED CHAIN LINK FENCE**

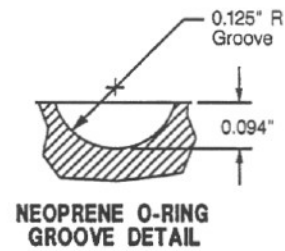
CITY OF SAN DIEGO  
STANDARDS COMMITTEE  
*James J. [Signature]* 2-7-95  
COORDINATOR R.C.E. 25802 DATE

DRAWING NUMBER **SDM-112**

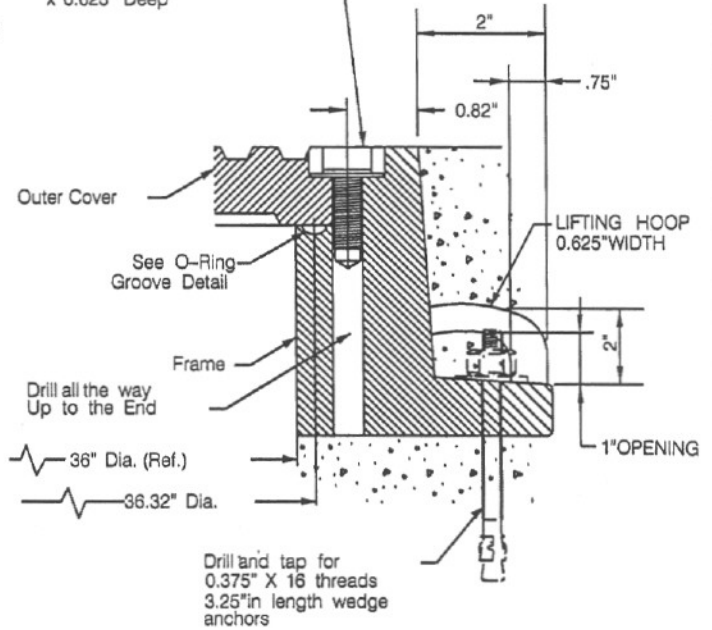
Drill and tap for 0.625" X 20  
Penta Bolt SS UNC Thread,  
1.50" Deep Cbore 1.625" Dia.  
X 0.625" Deep



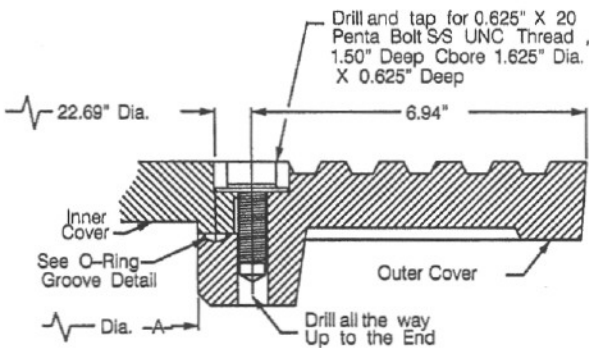
**M-1 Detail:  
COVER TO FRAME**



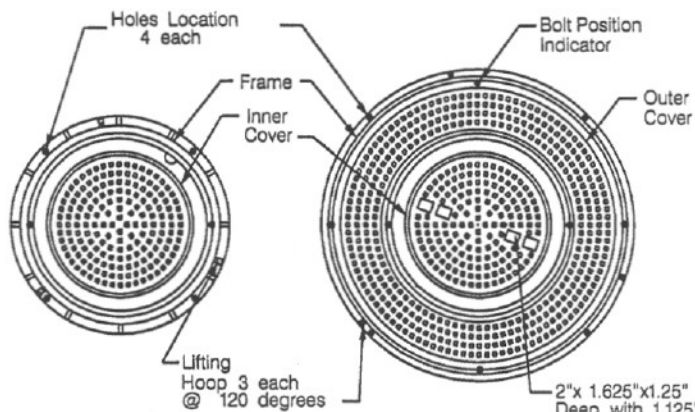
Drill and tap for 0.625" x 20  
Penta Bolt SS UNC Thread.  
1.50" deep Cbore 1.625" Dia.  
x 0.625" Deep



**M-3B Detail:  
OUTER COVER TO FRAME**



**M-3A Detail:  
INNER COVER TO OUTER COVER**



**M-1 COVER AND FRAME  
BOLT PLACEMENT  
(See Note 3)**

**M-3 CONCENTRIC COVERS AND FRAME  
BOLT PLACEMENT  
(See Note 3)**

**NOTES:**

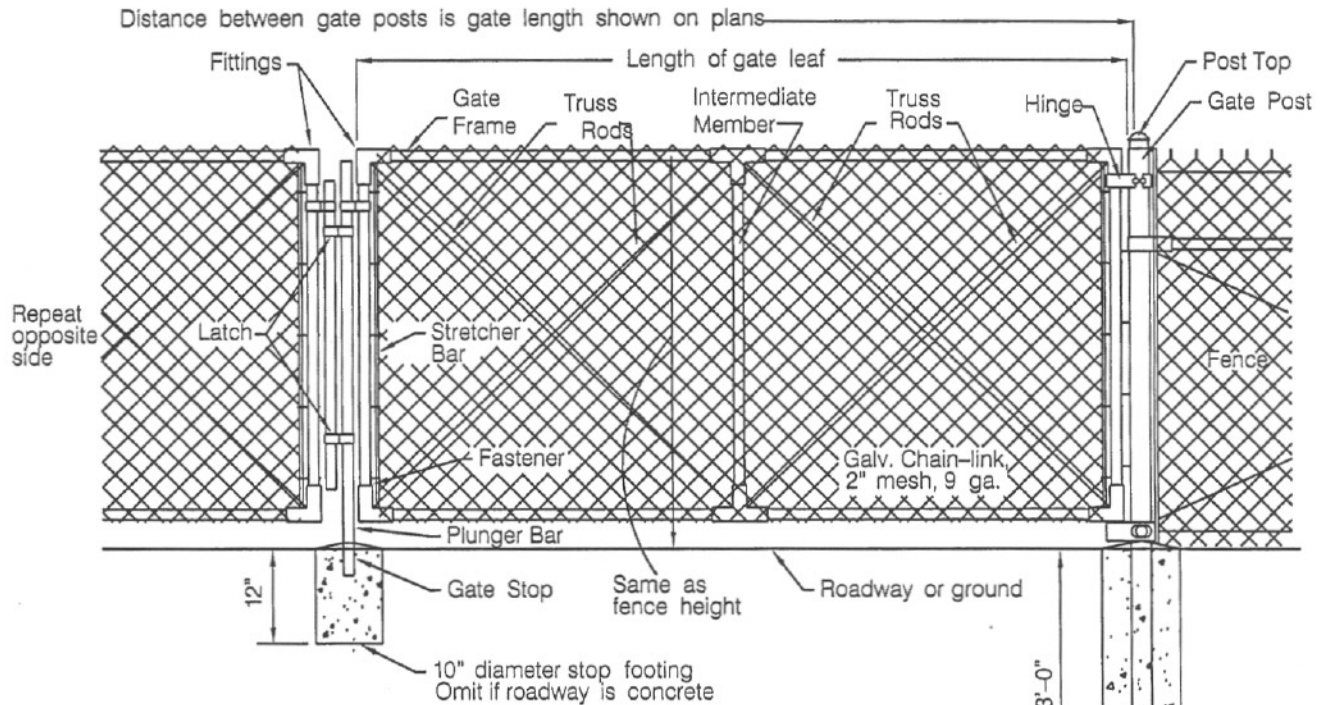
- 0.625" X 20 PENTA BOLT SS UNC THREAD, 316 STAINLESS STEEL SOCKET HEAD CAP SCREW AND 1.50" O.D. x 0.687" I.D. X 0.078 THICK 316 STAINLESS STEEL WASHER.
  - 0.25" NEOPRENE O-RING GASKET SHALL BE GLUED INTO MACHINED GROOVE. GLUE SHALL MEET THE REQUIREMENTS OF MIL-M-81288 (AMEND. 1)
  - BOLTDOWN PATTERNS:
    - M-1 DETAIL (24" COVER & FRAME): INSTALL TWO (2) BOLTS AT 180 DEGREES.
    - M-3A DETAIL (CONCENTRIC COVERS): BETWEEN INNER AND OUTER COVERS INSTALL TWO (2) BOLTS AT 180 DEGREES.
    - M-3B DETAIL (OUTER COVER & FRAME): BETWEEN OUTER COVER & FRAME INSTALL FOUR (4) BOLTS AT 90 DEGREES.
- FOR M-1 AND M-3 OUTER COVER FRAME DRILL 4 HOLES FOR 0.375"x16 STAINLESS STEEL WEDGE ANCHORS 3.75" IN LENGTH AT 90 DEGREES.

Revision	By	Approved	Date
Original	Oskoui		12/03

**CITY OF SAN DIEGO - STANDARD DRAWING**

**MANHOLE COVER - LOCKING DEVICE**

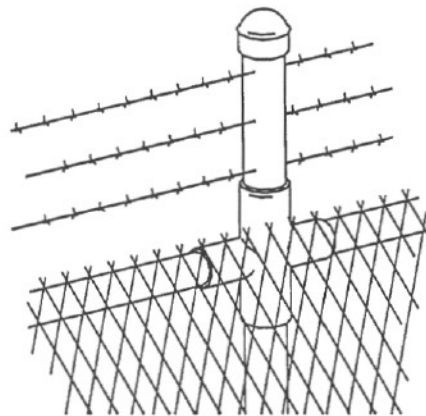
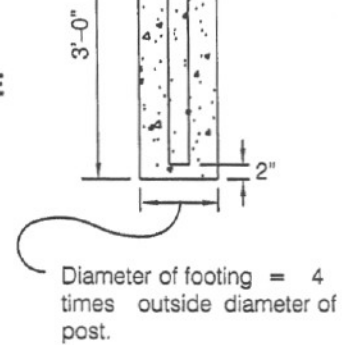
CITY OF SAN DIEGO  
STANDARDS COMMITTEE  
*R.L.C.* 12-9-03  
Chairperson RCE 64572 Date  
DRAWING NUMBER **SDM-113**



**HALF ELEVATION DOUBLE SWING GATE**

**NOTES**

1. All footings shall be 520-C-2500 concrete.
2. The following items shall be furnished and installed only when shown on the plans and/or called for in the special provisions:
  - a. Barbed wire
  - b. Extension post
3. Chain link fence shall conform to Section 206-6 of the Standard Specification for Public Works Construction unless specifically noted on this drawing.
4. Chain link fabric shall have knuckled finish on top edge.



**EXTENSION POST AND BARBED WIRE**

**LEGEND ON PLANS**



**SHEET 1 OF 2**

Revision	By	Approved	Date
DETAIL	SM	Oskoui	12/03

**SAN DIEGO REGIONAL STANDARD DRAWING**

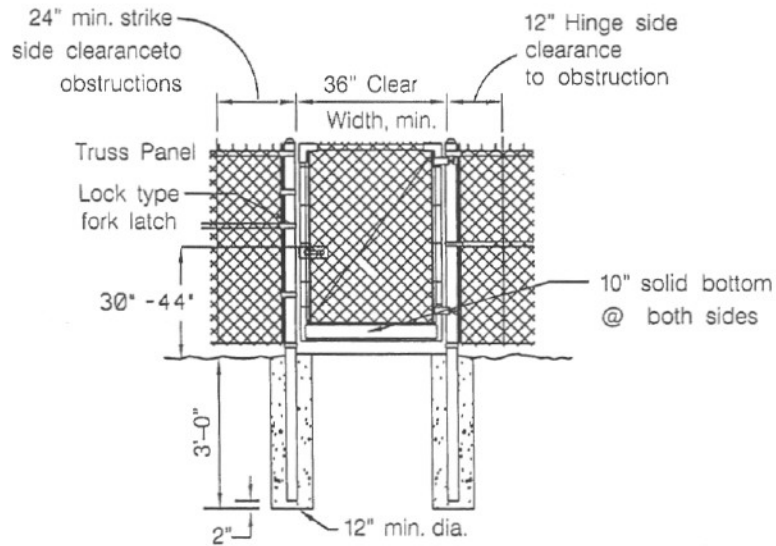
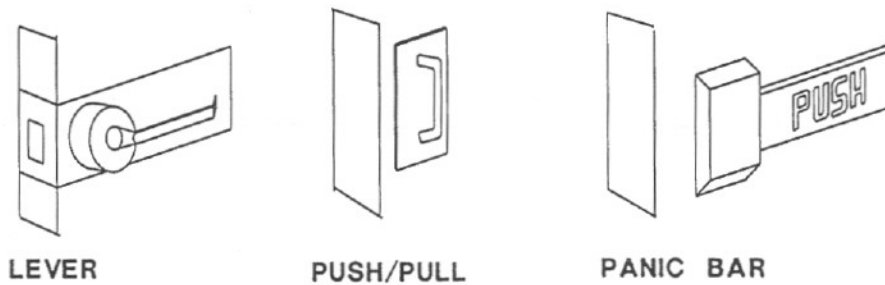
**CHAIN LINK GATE &  
CHAIN LINK PEDESTRIAN GATE**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*R. Sh...* 12-9-03  
Chairperson RCE 64572 Date

DRAWING NUMBER **SDM-114**

**ACCEPTABLE DOOR/GATE HARDWARE**



**MOUNTING DETAIL**

**NOTES**

1. Accessible gate shall be provided with the required international symbol of accessibility. Refer to the CBC Title 24 & ADA/ADAAG for type & mounting requirements
2. Landing and approach space must comply with CBC Title 24 and ADA/ADAAG accessibility requirements.
3. 3/8" dia. tension rod & tightener for gates over 3 feet.
4. Tie fabric top and frame with 11 gage wire
5. Latching & locking gates that are hand operated are operable with the single effort (5 pound pressure)

**LEGEND ON PLANS**



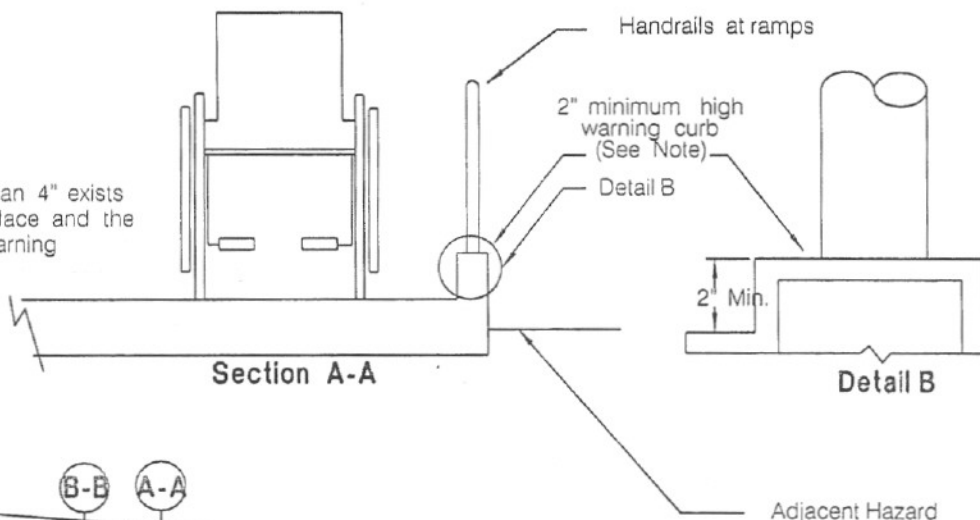
**SHEET 2 OF 2**

Revision	By	Approved	Date	CITY OF SAN DIEGO STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE
DETAIL	SM	Oskoui	12/03		

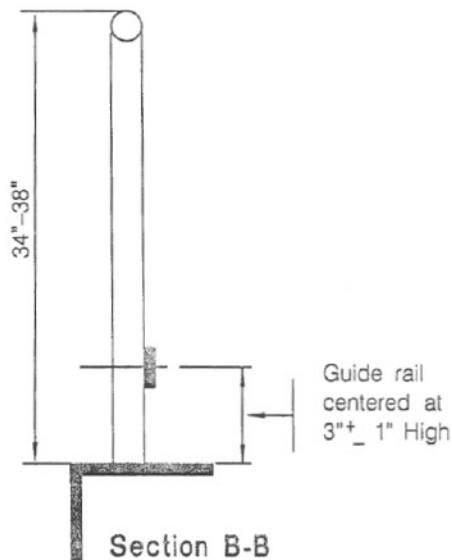
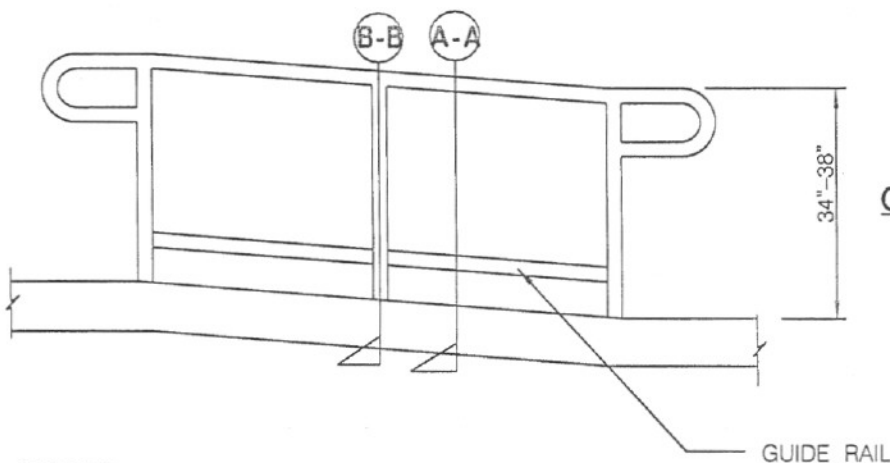
## WARNING CURB EDGE PROTECTION

Note:

If a drop-off of more than 4" exists between the ramp surface and the adjacent grade, a 6" warning curb must be utilized.



## GUIDE RAIL EDGE PROTECTION



### NOTES

1. It shall conform with the current ADA/ADAAG and CBC Title 24 accessibility regulations.
2. The ramp running slope shall be between 5.5% - 8.33%. Construct ramp to minimum slope possible.
3. The minimum width of the ramp shall be 60".
4. The ramp cross slope shall be 0%.
5. The maximum difference of elevation between landing shall not exceed 30".
6. Landings:
  - a. Top landing shall be a minimum of 60" x 60"
  - b. Bottom landing shall be a minimum of 72" long in the ramp direction.
  - c. Bottom and intermediate landings shall be at least as wide as the required ramp.
  - d. Intermediate landings shall be a min. of 60" long in ramp direction.
  - e. At intermediate landing, where the ramp changes direction 30 degree or more, the landing dimension must be a min. of 72" in length and shall incorporate a 60" diameter turning circle within the landing.
  - f. Top, Intermediate & bottom landings shall have a cross slope of 1.5%
7. All travel surfaces shall be medium broom finish.
8. Ramps and landings with drop-offs (or ramps that exceed 10 feet in length and are not bounded by wall or fence) shall have an edge protection consisting of either a warning curb, a minimum of 2" high on each side of the ramp, or a wheel guide rail centered 3" plus or minus 1" on each side of the ramp.
9. Ramps and their approaches shall be designed so water does not accumulate on walking surfaces.

SHEET 1 OF 2

Revision	By	Approved	Date
ORIGINAL	SM	Oskoui	12/03

CITY OF SAN DIEGO STANDARD DRAWING

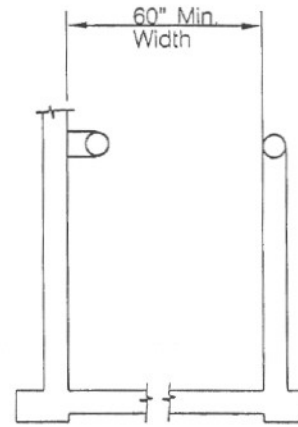
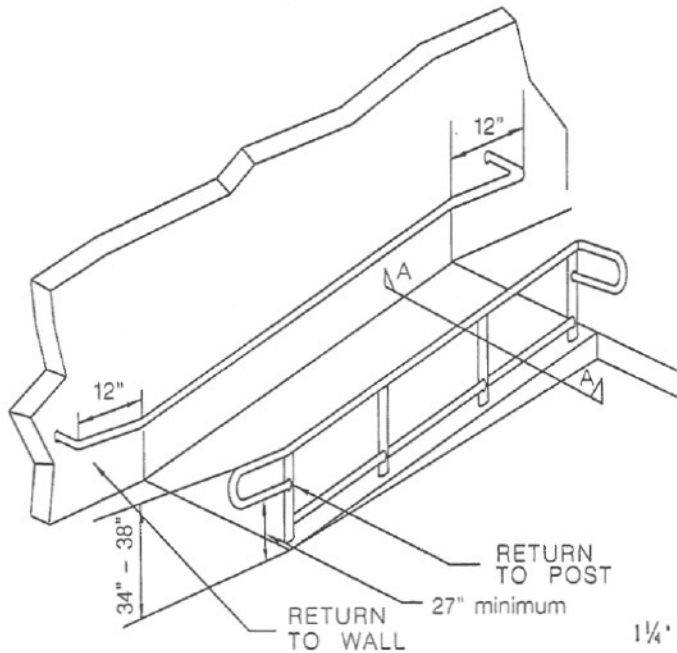
PEDESTRIAN RAMP AND PROTECTIVE RAILING

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

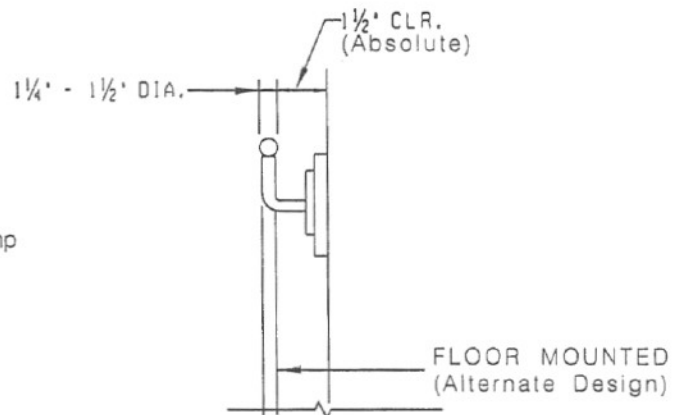
*B. B.* 12-9-03  
Chairperson RCE 64572 Date

DRAWING  
NUMBER **SDM-115**





**SECTION A-A**  
WIDTH MUST BE MINIMUM OF 60"  
WITH OCCUPANCY OF 300 OR MORE



**HANDRAIL SECTION**

WHERE THE EXTENSION OF THE HAND RAIL IN THE DIRECTION OF THE RAMP RUN WOULD CREATE A HAZARD, THE TERMINATION OF THE EXTENSION MAY BE MADE ROUNDED OR RETURN SMOOTHLY TO A FLOOR, WALL OR POST.

**GENERAL NOTES:**

1. Any path of travel shall be considered a pedestrian ramp if it's slope is greater than 5.0%.
2. See Sheet 1 for additional information.

**RAILING NOTES:**

1. 1/4" expansion joints @ 16'-0" o.c. slip joints and vertical railing spacing per welding details on M24.
2. Weld and grind smooth all connections.
3. All railing to be hot dip galvanized after fabrication.
4. Pipe shall seamless steel ASTM A53 Grade B.
5. Guardrails and handrails for stairs and ramps more than 30" above the grade shall have intermediate rails equally spaced such that a 4" in sphere diameter cannot pass through.
6. Handrails must extend a minimum of 12" of level distance (parallel to landing surface) beyond top and bottom of the ramps ends before they are returned.



**MOUNTING DETAIL**

Post shall be grouted in place using non-shrink grout.

**SHEET 2 OF 2**

Revision	By	Approved	Date
ORIGINAL	SM	Oskoui	12/03

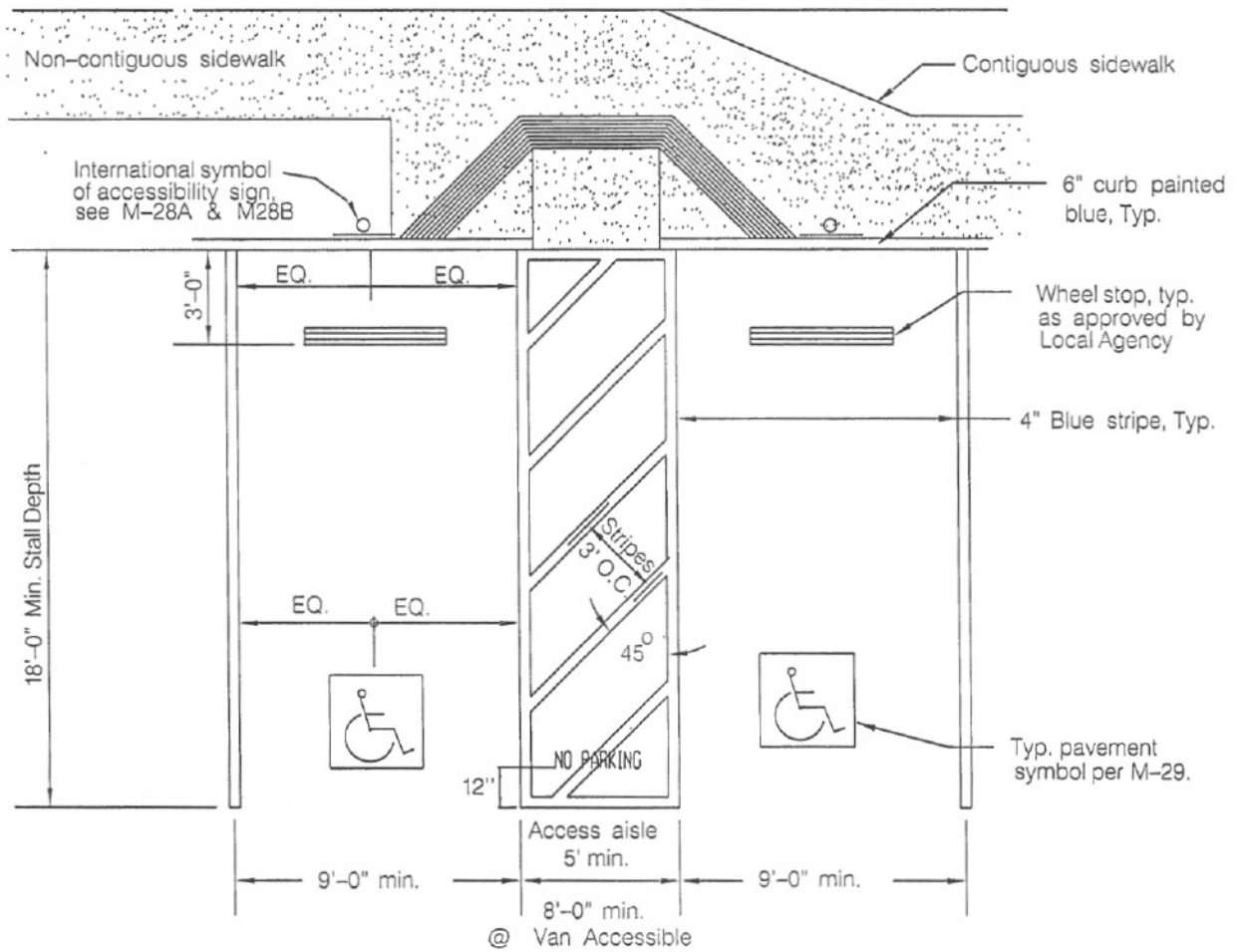
**CITY OF SAN DIEGO STANDARD DRAWING**

**PEDESTRIAN RAMP AND PROTECTIVE RAILING**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*Blh* 12-9-03  
Chairperson RCE 64572 Date

DRAWING  
NUMBER **SDM-115**

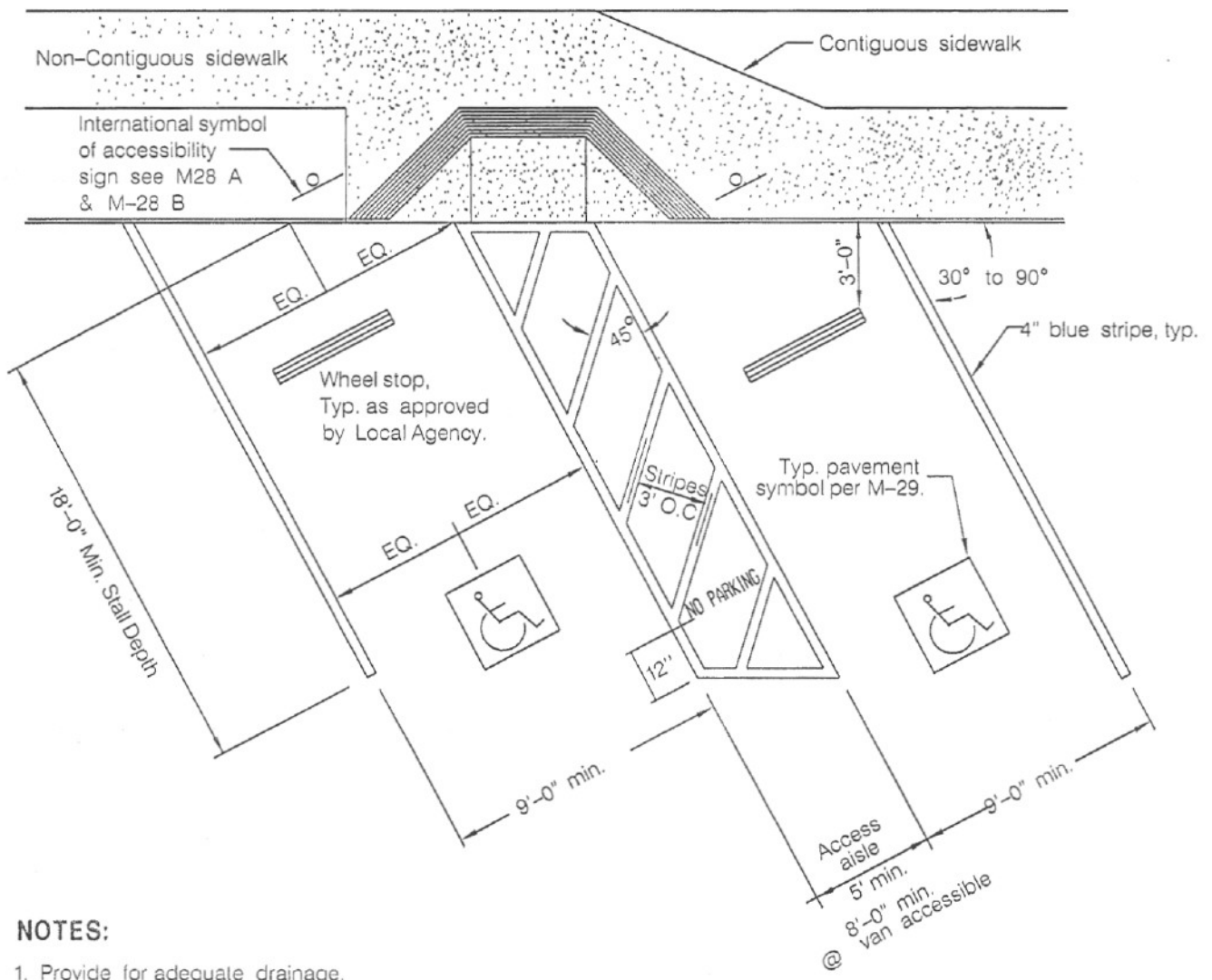


**NOTES:**

1. Provide for adequate drainage.
2. For appropriate ramp alternate to conform to topographical conditions, see standard drawing G-27 through G-30.
3. Blue color should match color No. 15090 in the Federal Standard 595a as specified in Section 522(b)2.
4. If one accessible parking is going to be provided, at least one van-accessible space with an 8'-0" access aisle located on the passenger side is required.
5. Sidewalk cross slope shall be 1.5%.
6. The 8'-0" wide access aisle for a van accessible stall shall be located on the passenger side of the vehicle.
7. "NO PARKING" 12" high stencil marking, reflective white over blue stripes.

Revision	By	Approved	Date	CITY OF SAN DIEGO STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE
ORIGINAL	SM	Oskoui	12/03		
				DRAWING NUMBER <b>SDM-117</b>	





**NOTES:**

1. Provide for adequate drainage.
2. For appropriate ramp alternate to conform to topographical conditions, see standard drawing G-27 through G-30.
3. Blue color should match color No. 15090 in the Federal Standard. 595 as specified in Section 522 (b) 2.
4. If one accessible parking is going to be provided, at least one van accessible space with an 8'-0" access aisle located on the passenger side is required
5. Sidewalk cross slope shall be 1.5%.
6. "NO PARKING" shall be 12" high stencil marking, reflective white over blue stripes.

Revision	By	Approved	Date	CITY OF SAN DIEGO STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE	
ORIGINAL	SM	Oskoui	12/03			<b>DIAGONAL ACCESSIBLE PARKING STALL(S) STRIPING LAYOUT</b>
				DRAWING NUMBER <b>SDM-118</b>		

# SEWERAGE SYSTEMS

SEWERAGE SYSTEMS

S

**SUPPLEMENT TO REGIONAL STANDARD DRAWINGS ("S" SERIES)**

**NOTES** All material used must be on the City of San Diego MWWD "Approved Materials List."


**DRAWING S-4**

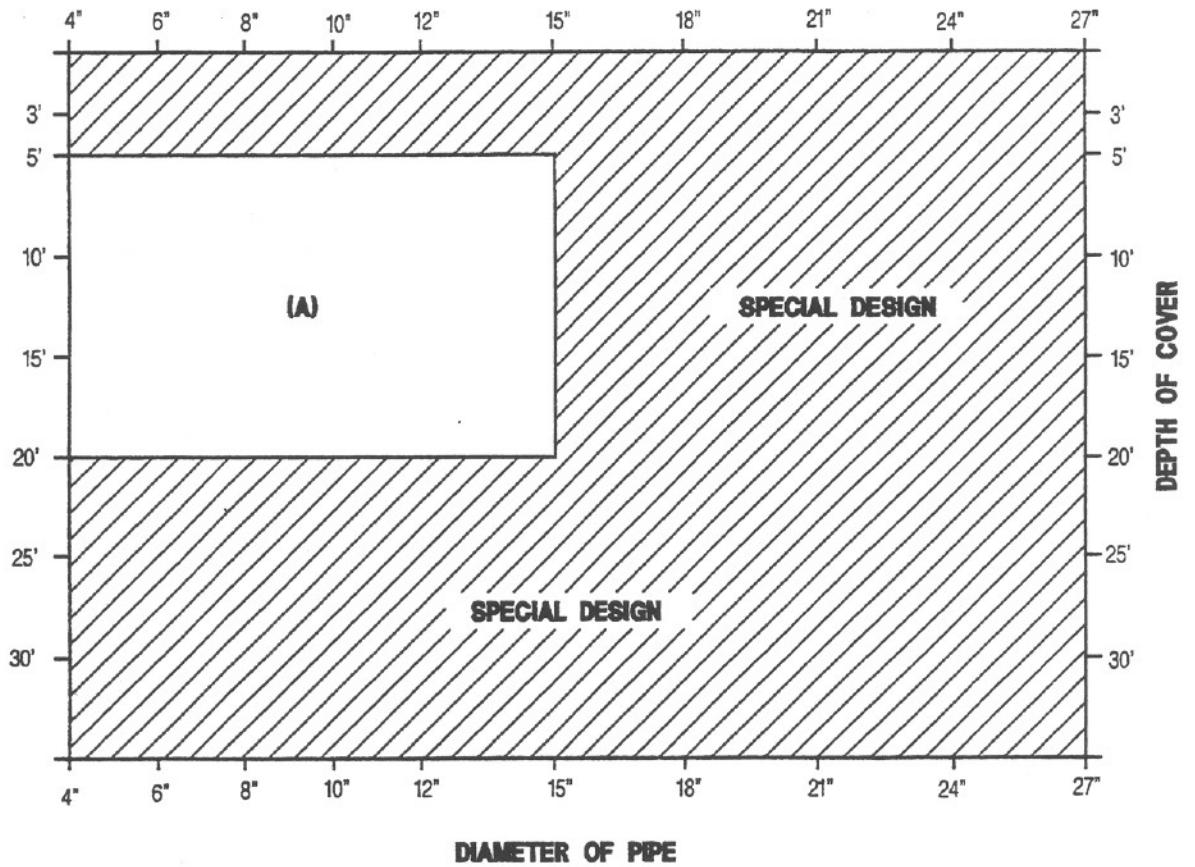
**NOTES** Amend note 1 to read: "For trenching in improved streets, use Standard Drawings SDG-107 and SDG-108 for trench resurfacing."

Add: 5. "All sanitary sewer pipes shall be bedded using a Type C rock envelope with 3/8 inch max. crushed rock (in lieu of 3/4 inch max.). Side wall clearance for pipe size encasement larger than 15 inches shall be 12 inches maximum or as specified on plans."

**DRAWING S-10**

Unless otherwise noted, Type "A" shall be used.

REVISION	BY	APPROVED	DATE	<b>CITY OF SAN DIEGO - STANDARD DRAWING</b>	CITY OF SAN DIEGO STANDARDS COMMITTEE  Chairperson R.C.E. 64572
ORIGINAL		M. Rollinger	5-20-92		
NOTES	SM	Oskoui	12/03	<b>SUPPLEMENT TO REGIONAL STANDARD DRAWING ("S" SERIES)</b>	DRAWING NUMBER <b>SDS-100</b>



**(A) SDR - 35 or pipe stiffness of 46 PSI per ASTM D2412**

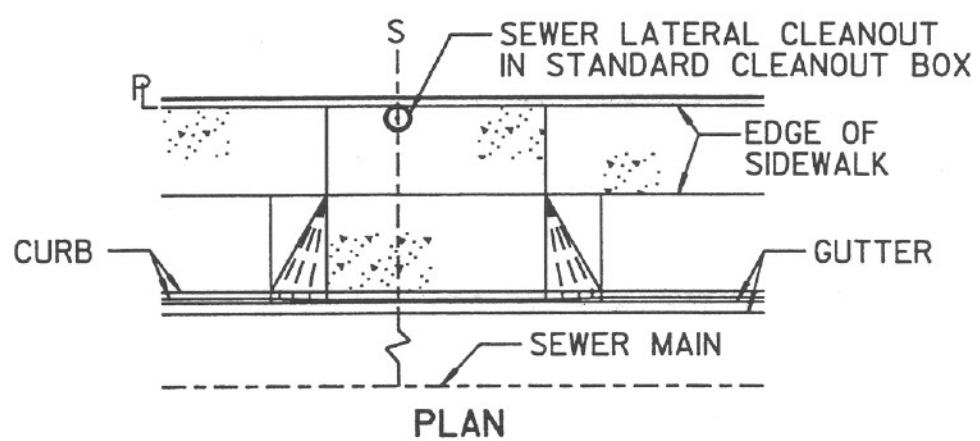
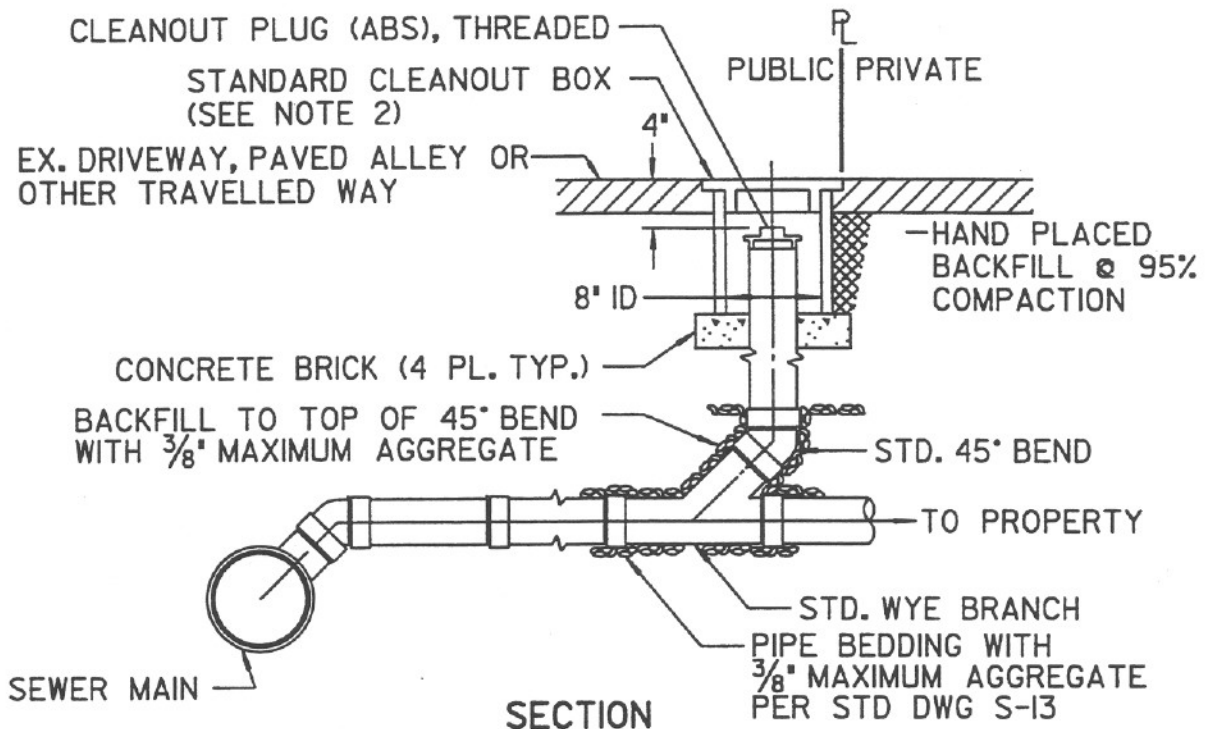
**NOTE:**

1. This standard drawing shall be used only where existing soil conditions are stable. Stable soil is defined as standard penetration test blow count equal to or greater than 13 blows per foot or shear strength greater than 750 psf. Obtained from unconfined compression test.
2. Standard design assumption :  $K_b = .110$ ,  $D_L = 1.0$ ,  $E' = 750$  psi  
 $W_c = \text{Prism load @ } W = 125 \text{ lbft}^3$
3. Bedding requirements per Regional Drawing S-4 Type C and SDS-100
4. Installations in ground water shall require a special design.

**Design Ref. : ASCE Manuals and reports on Engineering Practice - No. 60 "Gravity Sanitary Sewer Design and Construction."**

REVISION	BY	APPROVED	DATE	<b>CITY OF SAN DIEGO - STANDARD DRAWING</b>	CITY OF SAN DIEGO STANDARDS COMMITTEE  <i>James L. Perkins</i> 12-23-94 COORDINATOR R.C.E. 25902 DATE
ORIGINAL		J. Mueller	6-15-83		
		J.P. Casey	8-26-86	<b>PERMISSIBLE DEPTH OF COVER FOR PVC PIPE</b>	DRAWING NUMBER <b>SDS-101</b>
		J.P. Casey	11-8-88		

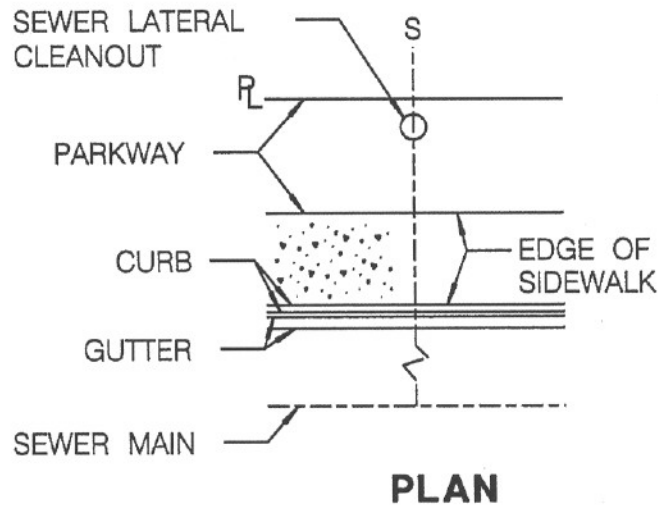
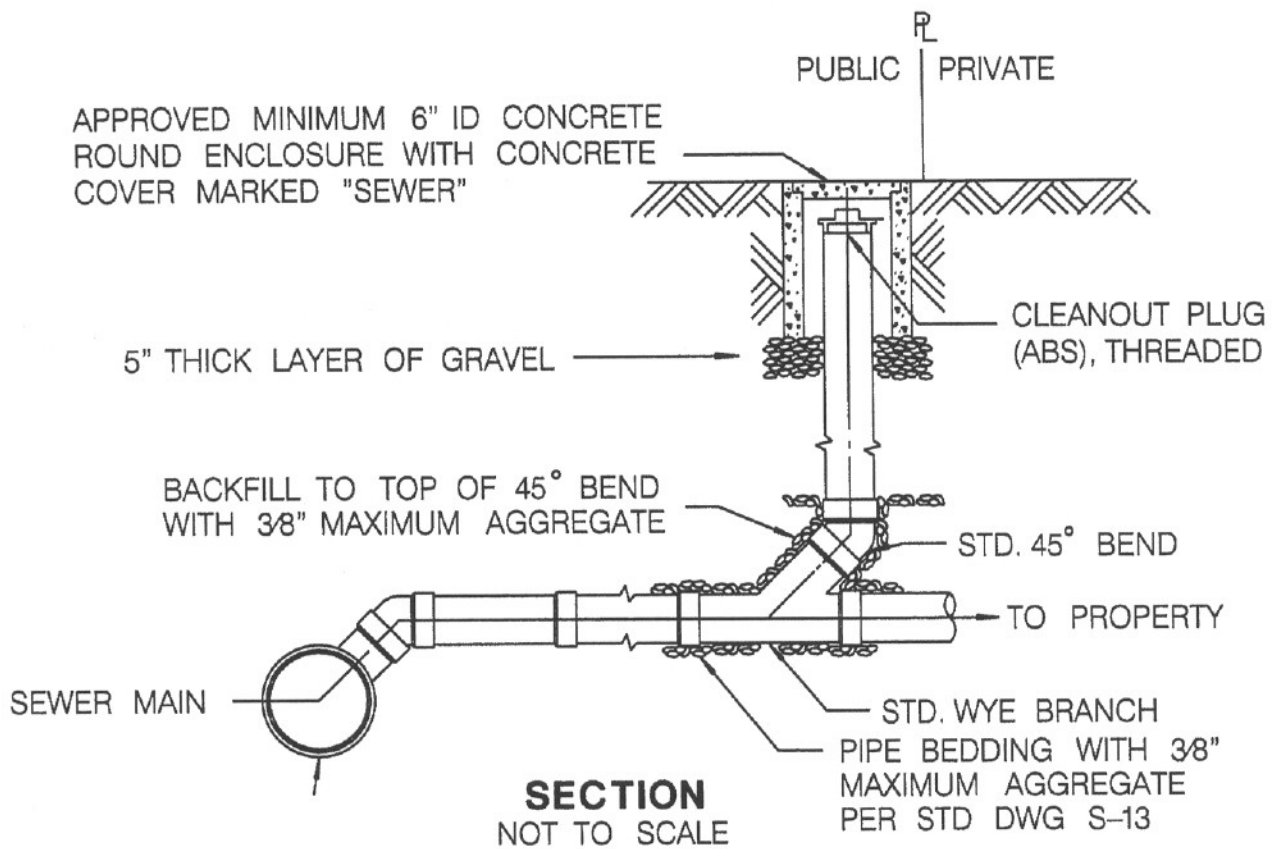
REVISED 9/30/94



- NOTES:
1. RISER AND CLEANOUT PLUG SHALL BE SAME DIAMETER AS SEWER LATERAL.
  2. CLEANOUT SHALL BE PLACED INSIDE A STANDARD CLEANOUT BOX (SEE S-3, TYPE B CLEANOUT BOX) WITH CAST IRON LID MARKED 'CLEANOUT', OR EQUAL. EQUAL.

(NO SCALE)

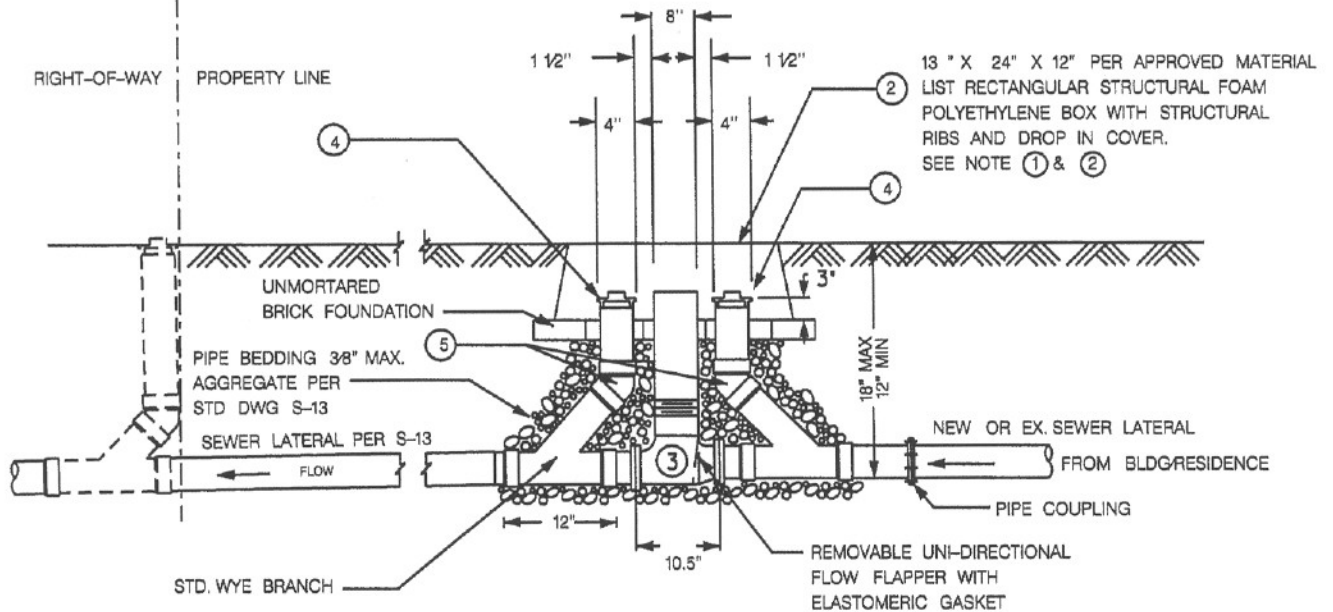
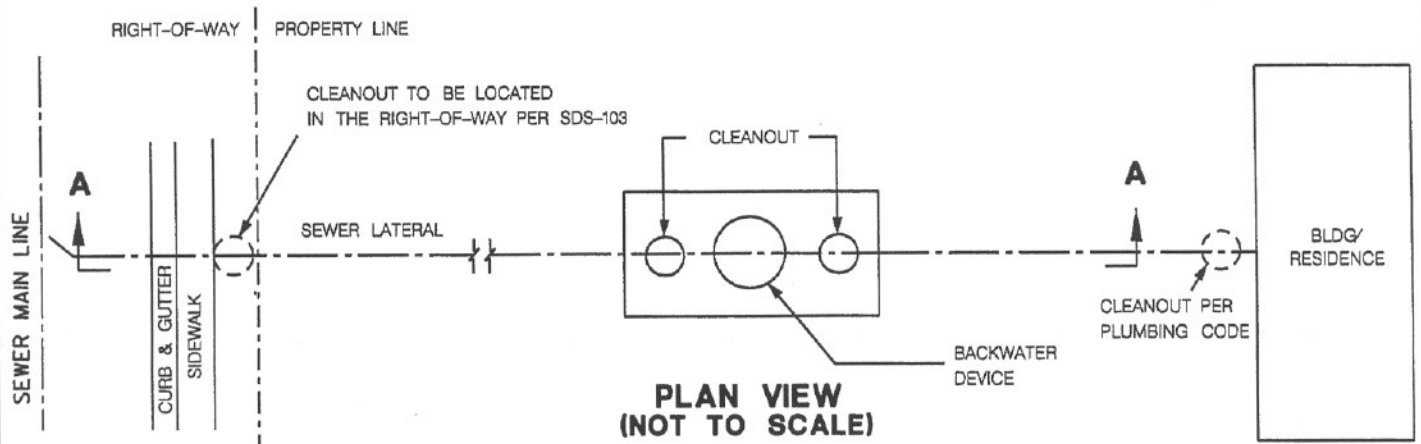
Revision	By	Approved	Date	CITY OF SAN DIEGO - STANDARD DRAWING SEWER LATERAL CLEANOUT (IN DRIVEWAY, PAVED ALLEY, SIDE WALK, OR OTHER AREA SUBJECT TO TRAFFIC)	CITY OF SAN DIEGO STANDARDS COMMITTEE <i>Hon. Rubin</i> 8/10/00 Chairman R.C.E. Date C-35390 DRAWING NUMBER SDS-102



**NOTES:**

1. RISER AND CLEANOUT PLUG SHALL BE SAME DIAMETER AS SEWER LATERAL.
2. CLEANOUT SHALL BE LOCATED WITHIN CITY RIGHT OF WAY, BEHIND THE SIDEWALK.

Revision	By	Approved	Date	CITY OF SAN DIEGO - STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE
DETAIL	SMS	Oskoui	12/03		
				DRAWING NUMBER <b>SDS-103</b>	



**Notes:**

- ① WHEN BACKWATER DEVICE IS INSTALLED IN THE DRIVEWAY, SEE PAGE 2
- ② INSTALL VALVE BOX SO THAT IT IS FLUSH WITH EXISTING PAVEMENT SURFACE OR 1" ABOVE GROUND COVER.
- ③ PVC BACKWATER DEVICE AND ATTACHED PARTS SHALL BE PER THE APPROVED MATERIAL LIST.
- ④ CLEANOUT PLUG (ABS) THREADED.
- ⑤ STANDARD 45° BEND.
- ⑥ OVERSIZED POP-UP CAP.
- ⑦ THREADED PLUG.

**SHEET 1 OF 2**

Revision	By	Approved	Date
DETAIL	C9S	Oskoui	12/03

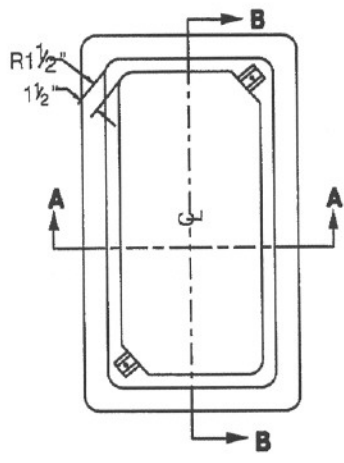
**CITY OF SAN DIEGO - STANDARD DRAWING**

**4" BACKWATER DEVICE**

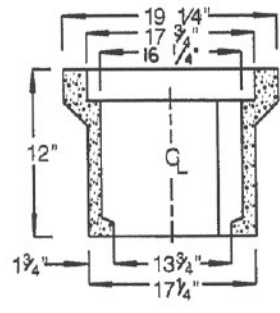
CITY OF SAN DIEGO  
STANDARD COMMITTEE

*R. G. 12-9-03*  
Chairperson RCE 64672 Date

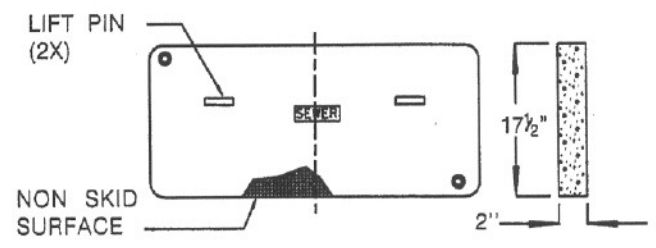
**DRAWING  
NUMBER SDS-104**



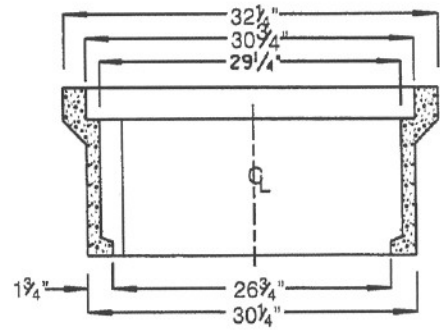
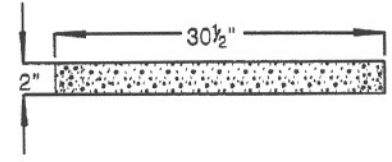
**TOP VIEW**



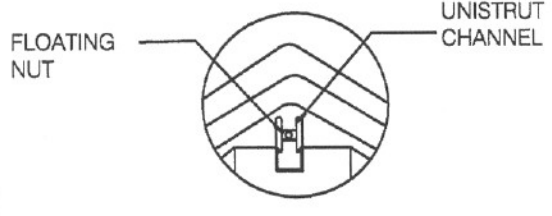
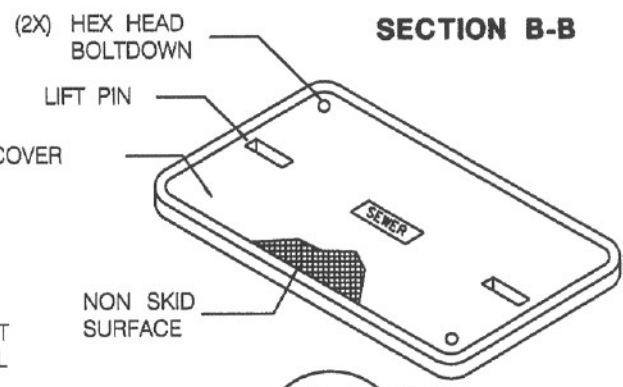
**SECTION A-A**



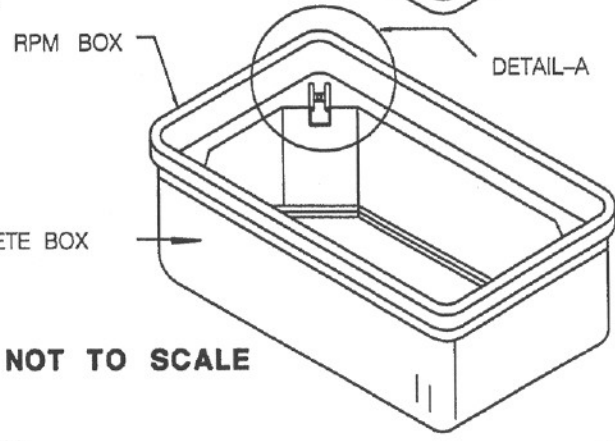
**POLYMER CONCRETE COVER**



**SECTION B-B**



**DETAIL-A**



**NOT TO SCALE**

**NOTE:**

1. THE BOX & COVER IS 10K LOAD RATED.

**SHEET 2 OF 2**

Revised	By	Approved	Date
DETAIL	SMS	Oskoui	12/03

**CITY OF SAN DIEGO - STANDARD DRAWING**

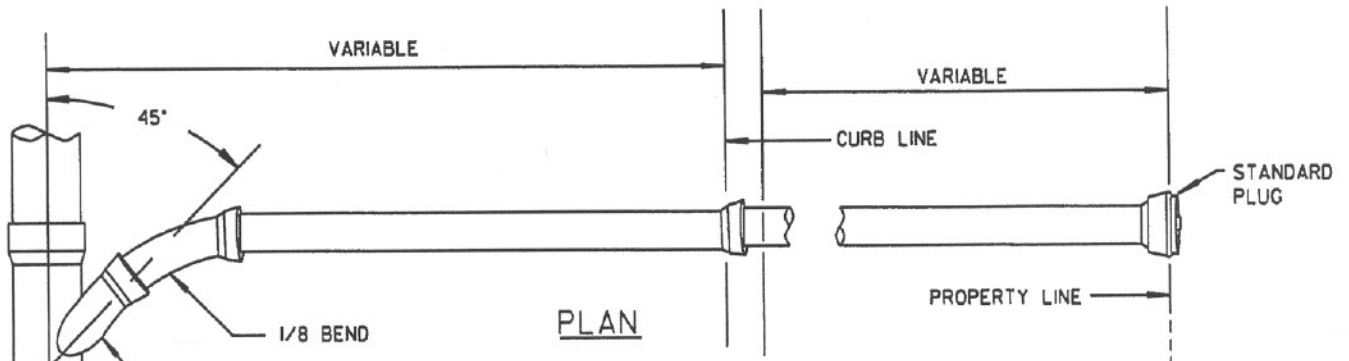
**4" BACKWATER DEVICE**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*Bl...* 12-9-03  
Chairperson RCE 64572 Date

DRAWING NUMBER **SDS-104**

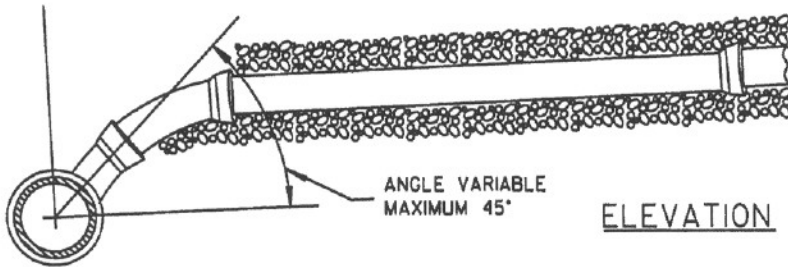
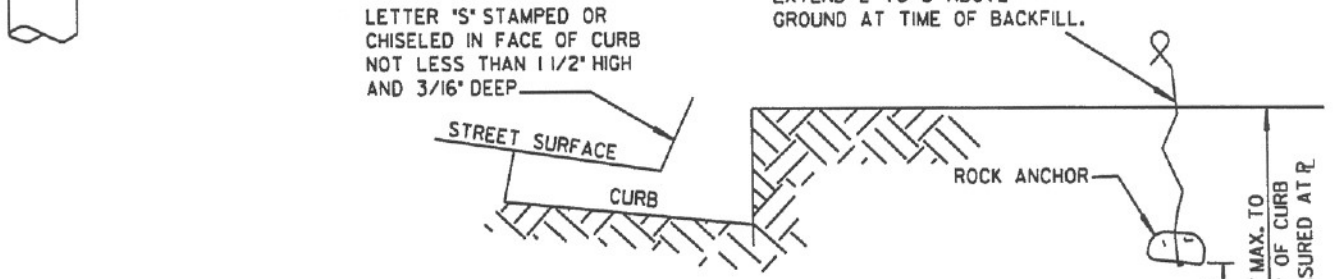




STANDARD WYE OR TEE, OR "CUT IN" CONNECTION. WHERE A "CUT IN" CONNECTION IS USED, IT SHALL BE SURROUNDED WITH 4" OF CLASS 470-C-2000 CONCRETE.

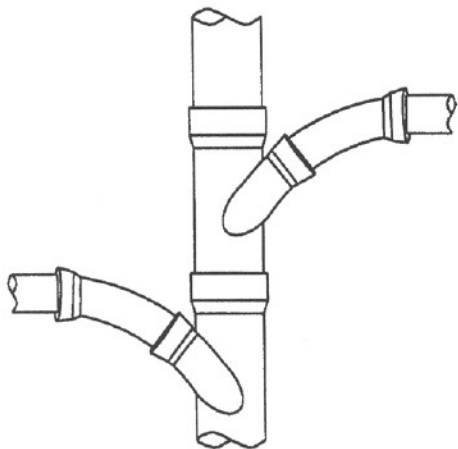
LETTER 'S' STAMPED OR CHISELED IN FACE OF CURB NOT LESS THAN 1 1/2" HIGH AND 3/16" DEEP

WIRE, #12 OR HEAVIER. EXTEND 2' TO 3' ABOVE GROUND AT TIME OF BACKFILL.



**NOTES**

1. IN NO CASE SHALL A LATERAL CONNECT TO THE SEWER MAIN DIRECTLY ON TOP OF THE PIPE.
2. SEWER LATERALS SHALL HAVE A MINIMUM SLOPE OF 2%.
3. ALL JOINTS ON SEWER LATERAL PIPE SHALL BE COMPRESSION TYPE OR APPROVED SOLVENT WELD.
4. LATERAL SHALL EXTEND TO PROPERTY LINE UNLESS OTHERWISE SHOWN ON PLANS
5. DO NOT TAP HOLE AND INSERT LATERAL PIPE DIRECTLY INTO MAIN. ALL CONNECTIONS SHALL BE MADE USING A SADDLE OR WYE CUT IN.
6. SEWER LATERAL SHALL HAVE 6 INCH METAL TAPE WITH GREEN LETTERING INDICATING "SEWER" INSTALLED ABOVE THE ALIGNMENT OF THE PIPE FROM SEWER MAIN TO PROPERTY LINE, AT A MINIMUM 12 INCHES FROM THE FINISH GRADE AND A MINIMUM OF 12 INCHES FROM THE TOP OF PIPE.



DETAIL SHOWING THE MANNER OF CONNECTING OPPOSITE LATERALS TO A SEWER MAIN. TWO CONNECTIONS SHALL NOT BE MADE IN THE SAME LENGTH OF PIPE.

LEGENDS ON PLANS



Revision	By	Approved	Date
DETAIL	JFP	Oskoui	12/03

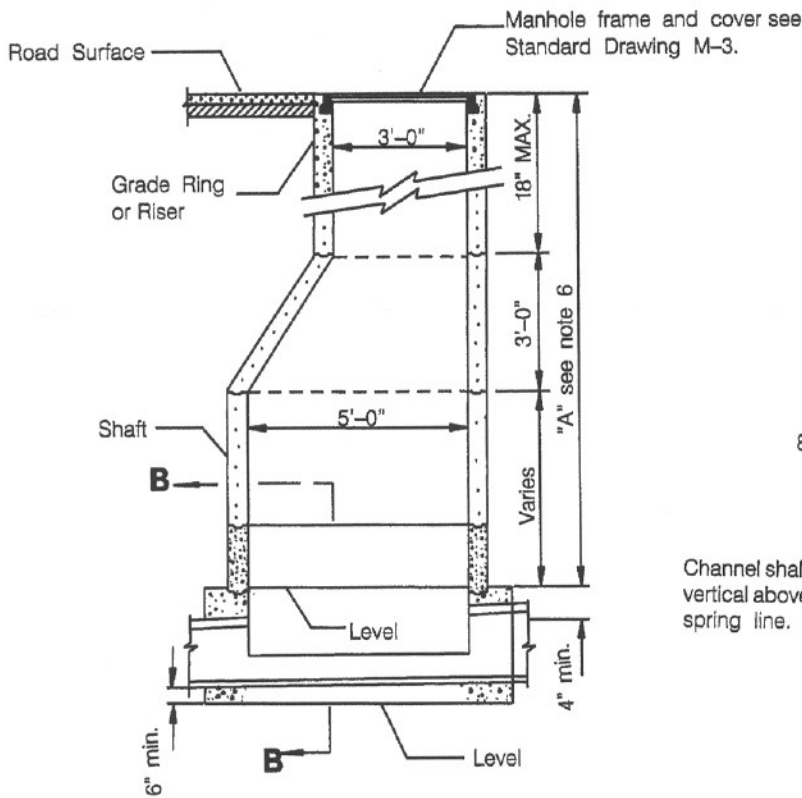
CITY OF SAN DIEGO - STANDARD DRAWING

HOUSE CONNECTION  
(SEWER LATERAL)

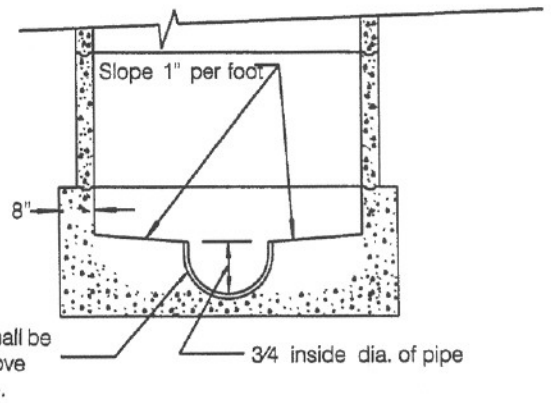
CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*Blah* 12-9-03  
Chairperson RCE 64572 Date

DRAWING NUMBER SDS-105



**SECTION A-A**



**SECTION B-B**

**NOTES**

1. Manhole frame and all joints shall be set in Class "C" mortar.
2. All precast components shall be manufactured in accordance with ASTM C-478
3. Vertical wall of cone shall be on the upstream side of the manhole.
4. Concrete base shall be 560-C-3250 concrete..
5. Approved water stop required for plastic pipe connectors.
6. Precast sections shall be used within dimension "A" as required, in order of preference listed:
  - A) Cone (notched for pipe if dimension "A" is less than 3 ft.)
  - B) 6" to 18" of 3' diameter grade rings and/or risers.
  - C) 5 ft. diameter shaft variable height.
7. Flexible pipe joints shall be required within 12 inches of inside face of manhole, except for plastic pipe.
8. All patching within manhole base shall be epoxy mortar,
9. Prior approval of precast base is required by the Agency.

**LEGEND ON PLANS**



Revision	By	Approved	Date
DETAIL	SMS	Oskoui	12/03

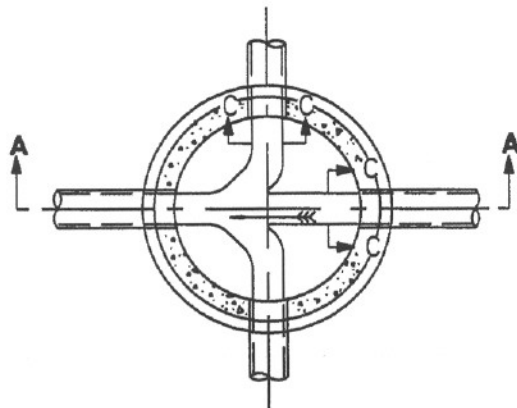
**CITY OF SAN DIEGO - STANDARD DRAWING**

**MANHOLE 5' X 3' DIAMETER**

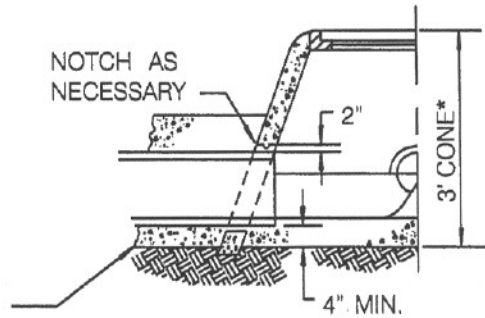
CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*Blah* 12-9-03  
Chairperson RCE 64572 Date

DRAWING NUMBER **SDS-106**

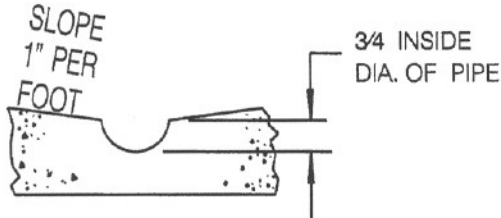


**SECTION B-B**



CONCRETE  
ENCASMENT  
OR BACKFILL

\* EITHER CONCENTRIC OR  
ECCENTRIC CONE MAY BE USED

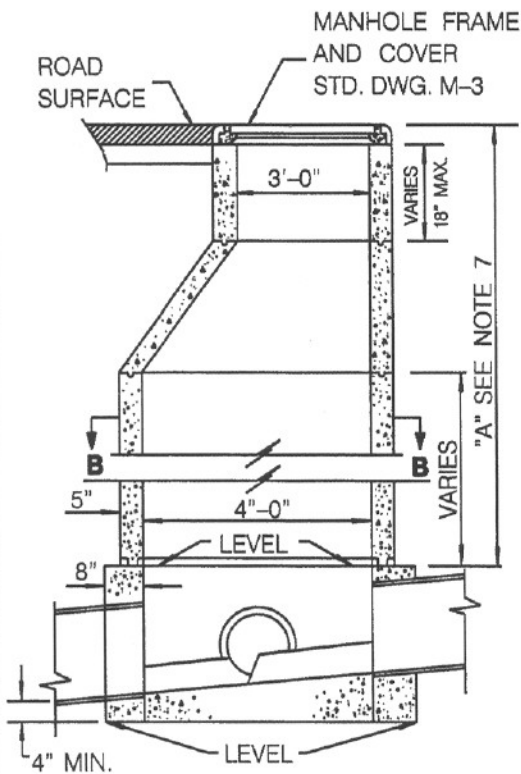


**SECTION C-C**

**HALF SECTION SHALLOW MANHOLE**

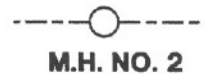
**NOTES**

1. ALL RISER JOINTS SHALL BE EPOXY MORTARED.
2. ALL PRECAST COMPONENTS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C-478.
3. VERTICAL WALL OF CONE SHALL BE ON THE UPSTREAM SIDE OF THE MANHOLE.
4. CONCRETE BASE SHALL BE 560-C-3250.
5. APPROVED WATER STOP REQUIRED FOR PLASTIC PIPE CONNECTIONS.
6. FLEXIBLE JOINTS SHALL BE REQUIRED WITHIN 12" OF INSIDE FACE OF MANHOLE (EXCEPT FOR PLASTIC PIPE).
7. PRECAST SECTIONS SHALL BE USED WITHIN DIMENSION "A" AS REQUIRED, IN ORDER OF PREFERENCE LISTED:
  - A) CONE (NOTCHED FOR PIPE IF DIMENSION "A" IS LESS THAN 3FT.
  - B) 3" TO 18" OF 3' DIAMETER GRADE RINGS AND /OR RISERS.
  - C) 4FT. DIAMETER SHAFT VARIABLE HEIGHT.
8. ALL PATCHING WITHIN MANHOLE BASE SHALL BE EPOXY MORTAR.
9. PRIOR APPROVAL OF PRECAST BASE IS REQUIRED BY THE AGENCY.
10. MANHOLES SERVING 18 INCH DIAMETER PIPE AND LARGER SHALL USE PRECAST RISERS LINED WITH WHITE PVC SHEETS IMBEDDED WITH LOCKING EXTENSIONS TO THE CONCRETE WALL. THE BASE AND ALL REMAINING EXPOSED CONCRETE SHALL BE COATED WITH AN APPROVED POLYURETHANE COATING.



**SECTION A-A**

**LEGEND ON PLANS**



Revision	By	Approved	Date
DETAIL	JFP	Oskoui	12/03

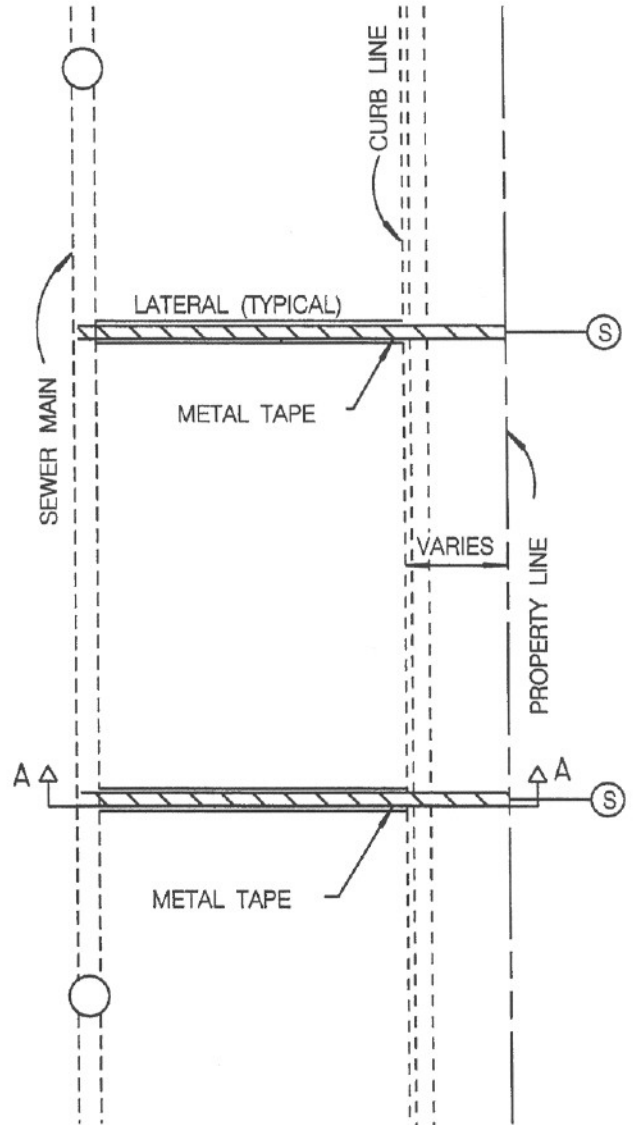
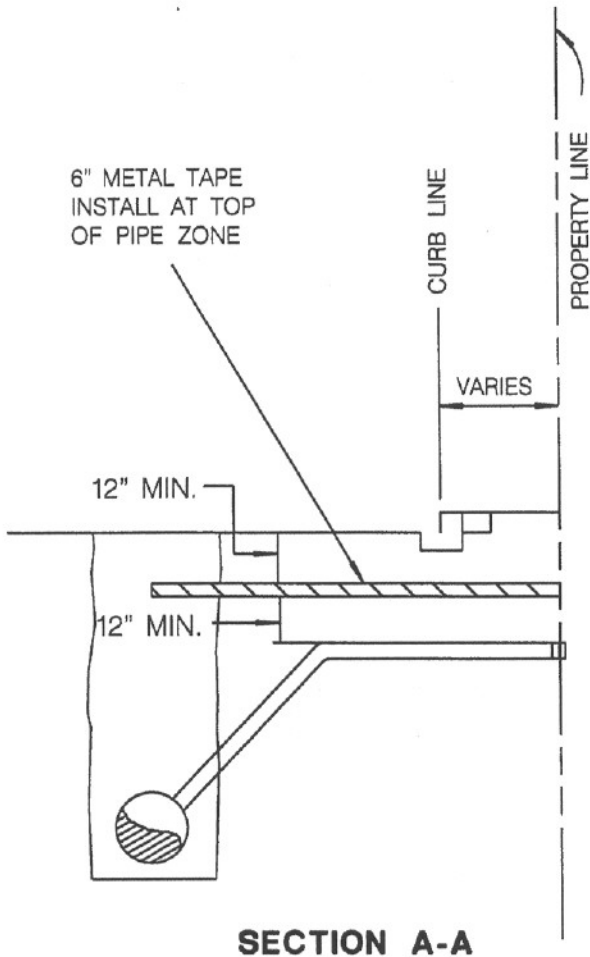
**CITY OF SAN DIEGO - STANDARD DRAWING**

**MANHOLE - 4' X 3' DIAMETER  
(FOR 15" MAXIMUM DIAMETER PIPE)**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*R. L. H.* 12-9-03  
Chairperson RCE 64572 Date

DRAWING  
NUMBER **SDS-107**



**NOTE**

METAL TAPE SHALL BE INSTALLED  
ABOVE TOP OF PIPE (ZONE)  
APPROXIMATELY 12" BELOW  
PAVEMENT SECTION.

REVISION	BY	APPROVED	DATE
DETAIL	SMS	Oskoui	12/03

**CITY OF SAN DIEGO - STANDARD DRAWING**

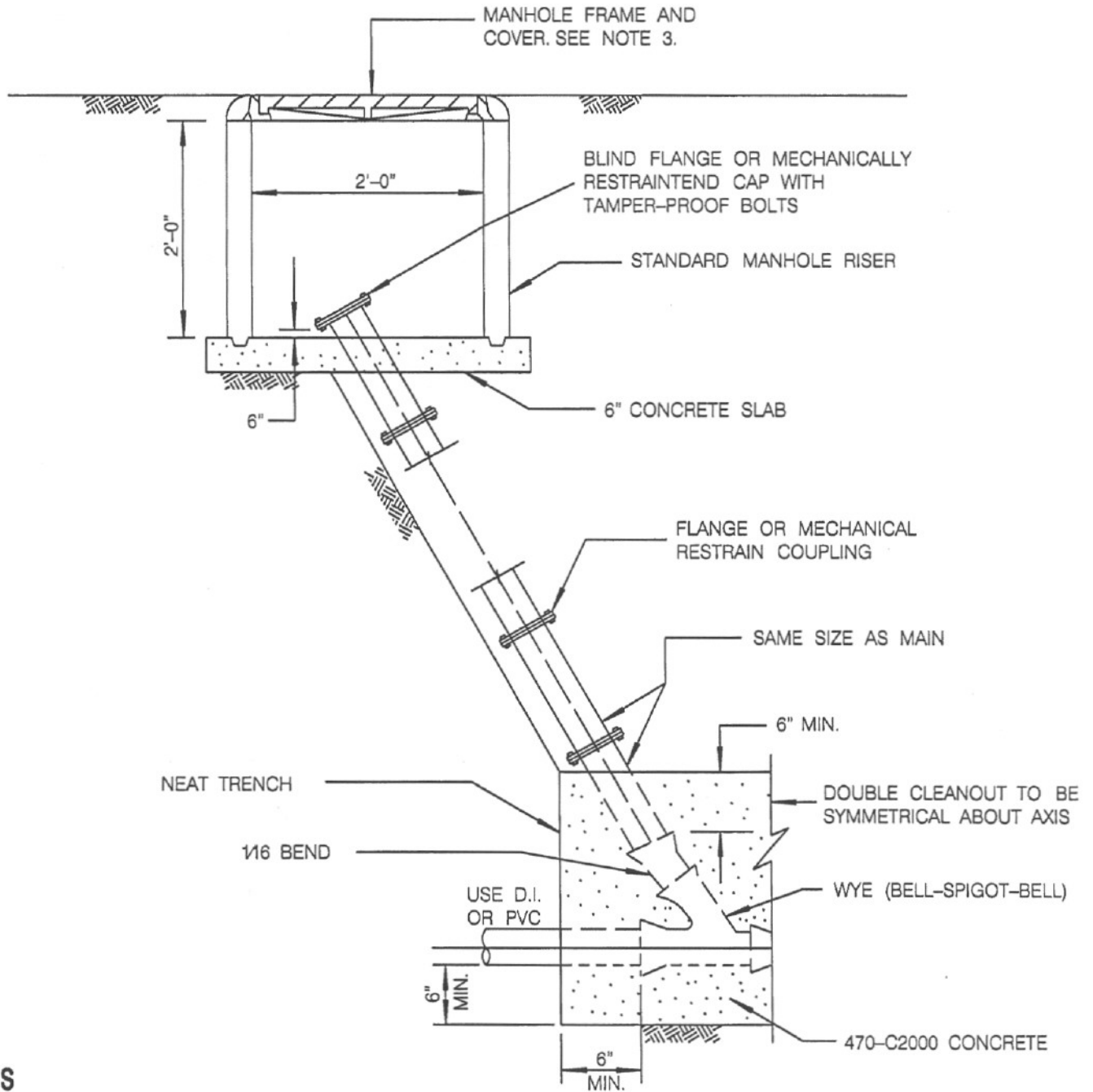
**METALLIC TAPE LOCATOR  
FOR NON-METALLIC SEWER PIPE**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*R. L. H.* 12-9-03  
Chairperson RCE 84572 Date

DRAWING  
NUMBER

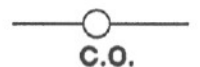
**SDS-108**



**NOTES**

1. SIMILAR POLYVINLYL CHLORIDE COMPONENTS MAY BE USED IN ACCORDANCE WITH A.S.T.M. STANDARD SPECIFICATION D-2241 AND D-3139.
2. CONCRETE SLAB SHALL BE 560-C-3250 CONCRETE.
3. USE HEAVY DUTY MANHOLE FRAME AND COVER, STANDARD DRAWING M-1, IN AREAS SUBJECT TO VEHICULAR TRAFFIC; USE LIGHT DUTY MANHOLE FRAME AND COVER, STANDARD DRAWING M-2, IN ALL OTHER LOCATIONS.
4. MINIMUM PIPE PRESSURE CLASS 200.

**LEGEND ON PLANS**



Revision	By	Approved	Date
DETAIL	JFP	Oskoui	12/03

**CITY OF SAN DIEGO - STANDARD DRAWING**

**CLEANOUT - SEWER FORCE MAIN**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*R. Blah* 12-9-03  
Chairperson RCE 64572 Date

**DRAWING NUMBER SDS-109**

# WATER SYSTEMS

WATER SYSTEMS

W

**SUPPLEMENT TO REGIONAL STANDARD DRAWINGS ("W" SERIES)**

**NOTES** All materials used must be on the City of San Diego Water Utilities Department's "Approved Materials List."

**DRAWING W-1**

**NOTES** Add: 3. "Bronze pipe saddles are required for all taps into polyvinyl chloride (PVC) pipe. Top taps are not permitted. Silver solder joints shall not be used."

- CALLOUT**
- (1) Delete and substitute: Use copper tubing stop (install with key on side and open tap) and adaptor. On steel mains use weld on couplings. Insulating bushings are required."
  - (2) Delete and substitute: Use copper tubing type (K) soft for 1 inch services only. No intermediate joints permitted within the first 60 feet from the main. For lengths longer than 60 feet use flare joint union or lok-pac fitting with locking clamp and stainless steel bolt only. No sweat joints are allowed.
  - (3) Delete and substitute: "Bronze angle service stop with locking device and meter coupling attached. "Furnish and install bronze property valve. Use spacer for meter."

**DRAWING W-2**

**NOTES:** 1. Delete and substitute: "Top taps not permitted. Silver solder shall not be used. Any glue joint shall be beveled prior to assembly."

- CALLOUT**
- (1) Delete and substitute: "Bronze service clamp (double strap). On steel mains use weld on couplings. Insulating bushings are required."
  - (2) Delete and substitute: "Bronze corporation stop and adaptor (installed with key on side and open tap). For PVC pipe the adaptor must be bronze with a pack joint to accept PVC. Pack-joint shall have locking clamp with stainless steel bolts."
  - (3) Delete and substitute: "Copper Tubing or PVC pipe."
  - (4) Delete and substitute: "PVC weld on coupling /brass coupling used when service is 20 feet or longer."

Add: For PVC pipe the adaptor must be bronze with a pack-joint to accept PVC pipe. No PVC adaptors are permitted. All glue joints shall be beveled (min. 1/8 inch on 45° angle) prior to assembly.

**SHT. 1 OF 5**

REVISION	BY	APPROVED	DATE	<b>CITY OF SAN DIEGO - STANDARD DRAWING</b>	CITY OF SAN DIEGO STANDARDS COMMITTEE <i>Henry J. Cochran</i> COORDINATOR	12-23-94 DATE
ORIGINAL		M. Rollinger	5-20-92			
NOTES	A.O.			<b>SUPPLEMENT TO REGIONAL STANDARD DRAWING ("W" SERIES)</b>	DRAWING NUMBER	<b>SDW-100</b>

**DRAWING W-3**

**CALLOUT**

- (1) Delete and substitute: "Bronze service clamp (double strap). On steel mains use weld on couplings. Insulating bushings are required."

**DRAWING W-4**

**CALLOUT**

- (1) Delete and substitute: "Bronze service clamp (double strap). On steel mains use weld on couplings. Insulating bushings are required."
- (4) Delete and substitute: "90° ELL. (No sweat joints allowed.)"
- (5) Delete and substitute: "Copper Tubing or PE 200 for 1 inch, PVC (iron pipe size) for 2 inches."

**DRAWING W-5**

**CALLOUT**

- (4) Delete and substitute: "Valve Well Frame and Cover (see Standard Drawings W-12A & W-12B)."

**DRAWING W-6**

**NOTES**

Add: Delete End of Main Detail and use SDW-106 for End of Main Blow-off.

**CALLOUT**

- (1) Delete and substitute: "Bronze service clamp (double strap). On steel mains use weld on couplings. Insulating bushings are required."
- (2) Delete and substitute: "Bronze corporation stop (install with key on side and open tap)."
- (4) Delete and substitute: "90° ELL. (No sweat joints allowed.)"

**DRAWING W-7**

**CALLOUT**

- (1) Delete and substitute: "Bronze service clamp (double strap). On steel mains use weld on couplings. Insulating bushings are required."

**NOTES**

2: Delete and substitute: "See Standard Drawing SDW-106 for end of main detail."

**SHT. 2 OF 5**

REVISION	BY	APPROVED	DATE	<b>CITY OF SAN DIEGO - STANDARD DRAWING</b>	CITY OF SAN DIEGO STANDARDS COMMITTEE  COORDINATOR	12-23-94 DATE
ORIGINAL		M. Rollinger	5-20-92			
NOTES	A.O.					
				<b>SUPPLEMENT TO REGIONAL STANDARD DRAWING ("W" SERIES)</b>	DRAWING NUMBER	<b>SDW-100</b>



**DRAWING W-8**

- CALLOUT**
- (5) Delete and substitute: "Use steel pipe only."
  - (6) Delete and substitute: "Valve Well Frame and cover."  
(See Standard Drawings W-12A & w-12B)

**DRAWING W-9**

- CALLOUT**
- (2) Delete and substitute: "Flanged Valve."
  - (3) Delete and substitute: "Cast iron pipe"; Ductile iron, or C-900 PVC
  - (4) Delete and substitute: "Flange x Flange 90° Bend."
  - (6) Delete and substitute: "Valve Well Frame and Cover per W-12A & W-12B."
  - (9) Delete in its entirety. Included in callout (6) and (10)
  - (10) Delete and substitute: "Valve Well Frame and cover per W-12A & W-12B."

**DRAWING W-10**

- CALLOUT**
- (2) Delete and substitute: "6-inches long Cast iron extension spool connected to base of fire hydrant with shear bolt (ASTM A307) . Shear bolts shall be 3/4 inch NC thread, 3-1/4 inch minimum length (3/16 inch diameter hole 2 inches deep in bolt, galvanized after boring. The hole shall be filled with grease before installation). Bolts shall face up.
  - (3) Add: Cast iron extension spool unless break-off check valve is required during plan review and noted on plans.
  - (4) Delete and substitute: "Cast iron extension spool."
  - (5) Delete the word "Typical".
  - (8) Revise to read "Gate Valve with Concrete Support Std. Dwg. W-19 (Type A)"

**SHT. 3 OF 5**

REVISION	BY	APPROVED	DATE	<b>CITY OF SAN DIEGO - STANDARD DRAWING</b>	CITY OF SAN DIEGO STANDARDS COMMITTEE
ORIGINAL		M. Rollinger	5-20-92		
NOTES	A.O.			<b>SUPPLEMENT TO REGIONAL STANDARD DRAWING ("W" SERIES)</b>	DRAWING NUMBER <b>SDW-100</b>

**DRAWING W-11**

**NOTES**

- 1: Delete entire note and replace with: "Concrete apron shall be required where the fire hydrant is installed in an unpaved location. The apron shall be 4 inch thick (520-C-2500) concrete.
- 2: Delete entire note and replace with: "When distance from hydrant to the top or toe of slope or wall is less than 2 feet, special hydrant installation detail shall be shown on the plans."
- Add: 5. For Type A Fire Hydrants the distance from the face of the curb to the center line of the Fire Hydrant shall be 6 feet.

**DRAWING W-17**

**NOTES**

- Add: 3. "A minimum of 6 inches of concrete shall be poured on virgin or compacted soil beneath each installation."
- Add: 4. "Tee shall be concrete blocked a minimum of 6 inches on all three sides."
- Add: 5. Use 12 inches – 18 inches length of pipe between the end cap and the last joint as a bond breaker on dead end blocking.

**DRAWING W-21**

**NOTES**

- 1: Delete and substitute: "For trenching on improved streets see Standard Drawings SDG-107 and SDG-108 for resurfacing details."

**DRAWING W-23**

**CALLOUT**

- (2) Delete and substitute: "1-inch Ball Valve."
- (3) Delete and substitute: "Main connection x brass multiple branch connection."

**DRAWING W-25**

Revise as follows: "Electrically bond service tape and main tape together. Use only 6 inch tape at 4 inches below pavement section. Tape shall extend within meter box itself to allow markout by continuity tester."

**SHT. 4 OF 5**

REVISION	BY	APPROVED	DATE	<b>CITY OF SAN DIEGO - STANDARD DRAWING</b>	CITY OF SAN DIEGO STANDARDS COMMITTEE <i>George J. ...</i> 12-23-94 COORDINATOR DATE
ORIGINAL		M. Rollinger	5-20-92		
NOTES	A.O.			<b>SUPPLEMENT TO REGIONAL STANDARD DRAWING ("W" SERIES)</b>	DRAWING NUMBER <b>SDW-100</b>

**DRAWING W-27**

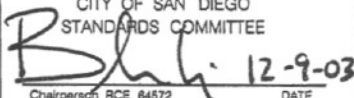
Dimension from slab to bottom of backflow device to be "18" minimum to 36" maximum".

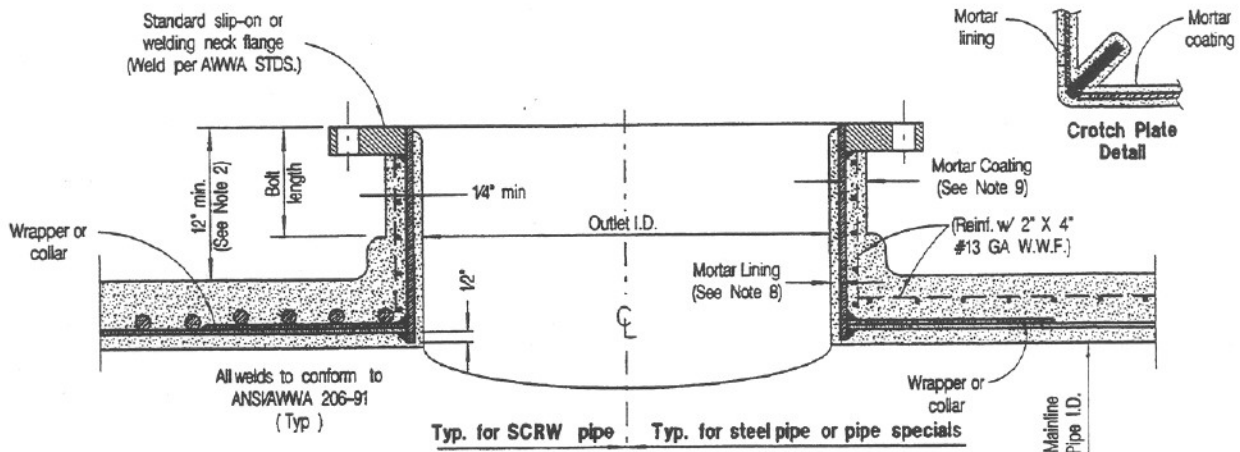
**NOTES**

Amend Note 8 to read: "Location must be approved by Water Department, Operations Distribution Division, Meter/Backflow Group and shown on plans."

- 9. All risers, elbows and underground piping shall be copper. Brass unions are acceptable.

**SHT. 5 OF 5**


REVISION	BY	APPROVED	DATE	CITY OF SAN DIEGO - STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE
ORIGINAL		M. Rollinger	5-20-92		
NOTES	A.O.			SUPPLEMENT TO REGIONAL STANDARD DRAWING ("W" SERIES)	 <small>Chairperson RCE 84572</small> <small>DATE</small>
NOTES	J2C	Oskoui	12/03		
				DRAWING NUMBER	<b>SDW-100</b>



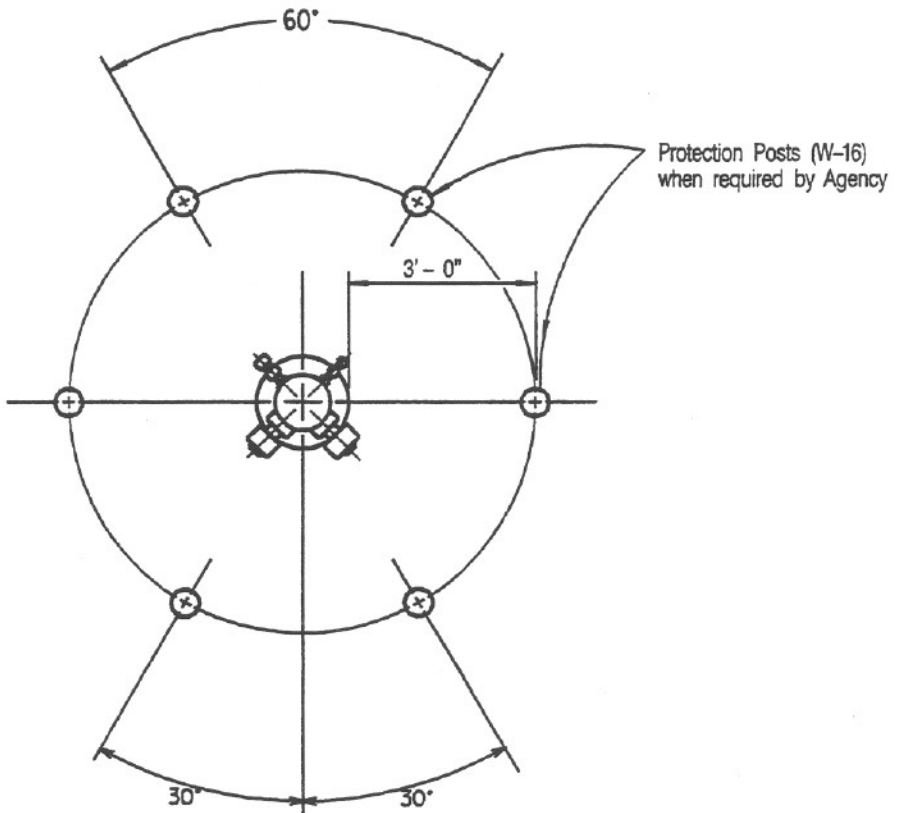
**OUTLET REINFORCING**

Ratio of Outlet I.D. to pipe I.D.	Pipe Class	Angle between outlet axis and mainline axis	Type of Reinforcing
0.2 AND LESS	All All	0° to 75° 75° to 90°	Wrapper Collar
0.2 TO 0.6	Under 150 Under 150 150 and over	0° to 75° 75° to 90° 0° to 90°	Wrapper Collar Wrapper
0.6 TO 1.0	Under 150 150 and over	0° to 90° 0° to 90°	Wrapper 1 Pl. Crotch
1.0	Under 150 150 and over	0° to 90° 0° to 90°	Wrapper 2 Pl. Crotch

- NOTES:**
- Collar O.D. or wrapper width shall be equal to twice the length of the opening in the mainline pipe measured along the pipe axis. Thickness shall be equal to that specified for pipe specials.
  - If a crotch plate is required, the outlet length shall be adjusted to clear the maximum length of bolt used for flange.
  - Outlets less than 3-inches in dia. may be installed without collars providing that rod reinforcing is not cut and outlets are welded to rods.
  - Reinforcing for outlets on pipe, other than SCRW pipe or steel pipe, shall be as shown on design drawings or submitted for approval.
  - Nozzle fabrication details are typical for all sizes of outlets.
  - Repeat Note 1 from SDW-103
  - Flanges shall conform to AWWA C207 and drilling shall match the above flange drilling.
  - Minimum lining thickness for outlets shall be:
    - 1/4-inch for 8-inch I.D. and less
    - 1/2-inch for 10-inch I.D. through 16-inch I.D.
    - 3/4-inch for 18-inch I.D. and greater
  - Coating thickness for outlets shall be:
    - 3/4-inch for 16-inch I.D. and less
    - 1 1/4-inch for 18-inch I.D. and greater
 Specified coating thickness shall be reduced by 50% for the distance of one bolt length back from the flange face.
  - Reinforcement of fittings, collar, wrapper and crotch plate design shall conform to M-11, Steel Pipe-Guide for Design and Installation 1989 Edition.

REVISION	BY	APPROVED	DATE	<b>CITY OF SAN DIEGO - STANDARD DRAWING</b>	<b>TYPICAL OUTLET FOR SCRW PIPE STEEL PIPE AND PIPE SPECIALS</b>	CITY OF SAN DIEGO STANDARDS COMMITTEE  COORDINATOR R.C.E. 25902 DATE 12-23-94
ORIGINAL		H. Horn	5-6-80			
		J.P. Casey	6-3-83			
		J.P. Casey	8-23-86			
DRAWING NUMBER <b>SDW-101</b>						

REVISED 9/30/94



**NOTE:**

Number of posts to be determined by Engineer.

REVISION	BY	APPROVED	DATE
ORIGINAL		W.J. Tomas	5-18-75
		J.P. Casey	6-3-83

**CITY OF SAN DIEGO - STANDARD DRAWING**

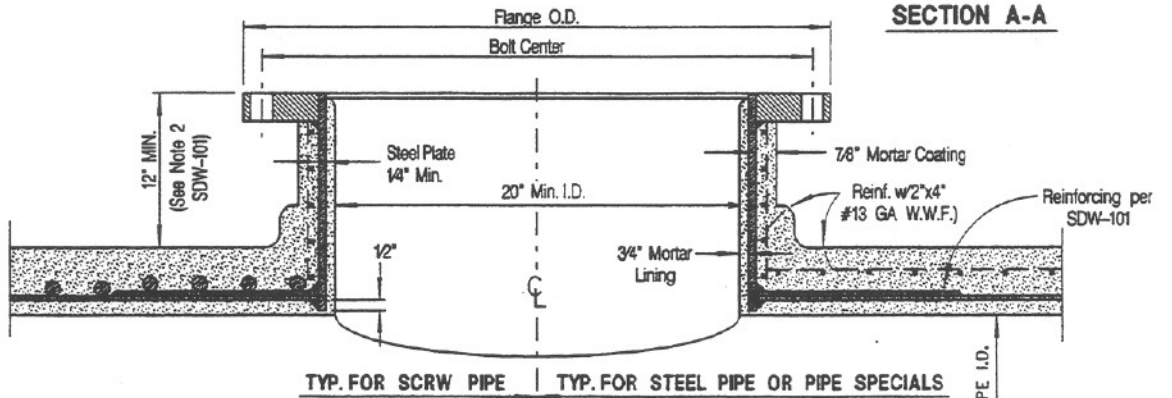
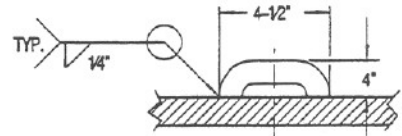
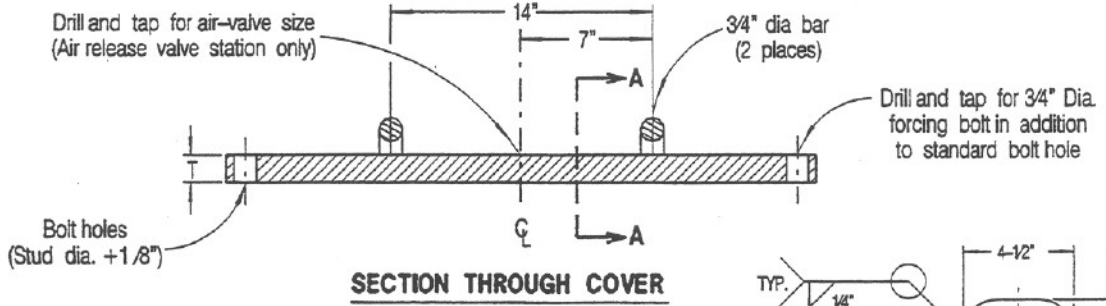
**FIRE HYDRANT  
PROTECTION POSTS**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*Henry F. ...* 12-23-84  
COORDINATOR R.C.E. 25802 DATE

DRAWING NUMBER **SDW-102**

REVISED 9/30/84



TYPE	PRESSURE RANGE (P.S.I.)	FLANGE		BOLT CENTER	NO. OF BOLTS	STUD DIA. & LENGTH	THICKNESS (T)
		I.D.	O.D.				
175	0 - 175	22"	29-1/2"	27-1/4"	20	6"x 1-1/4"	1-3/16"
250	175 - 250	22"	33"	29-1/4"	24	7"x 1-1/2"	1-1/16"
325	250 - 325	22"	33"	29-1/4"	24	7"x 1-1/2"	1-7/8"

**FURNISH:** Required stud bolts w/full length thread & two (2) hex nuts each 1/16" thick full face gasket and 3/4 inch dia. stainless steel forcing bolt on D.C.

- NOTES:**
1. Apply two (2) coats of coal-tar epoxy 16 mils total (min) to all exposed metal surfaces. Amercoat 78 or Kop-coat 300 M or equal meeting U.S. Public Health Standards are approved for such application per manufacturer's standards.
  2. Details of manholes on pipelines less than 24 inches in diameter shall be shown on design drawings or submitted for approval.
  3. Manholes shall be beveled during fabrication, so that they are true to vertical upon installation.
  4. All welds to conform to ANSI/AWWA C206 - 91

REVISION	BY	APPROVED	DATE
ORIGINAL		H. Horn	5-8-80
		J.P. Casey	6-8-83
		J.P. Casey	8-22-86

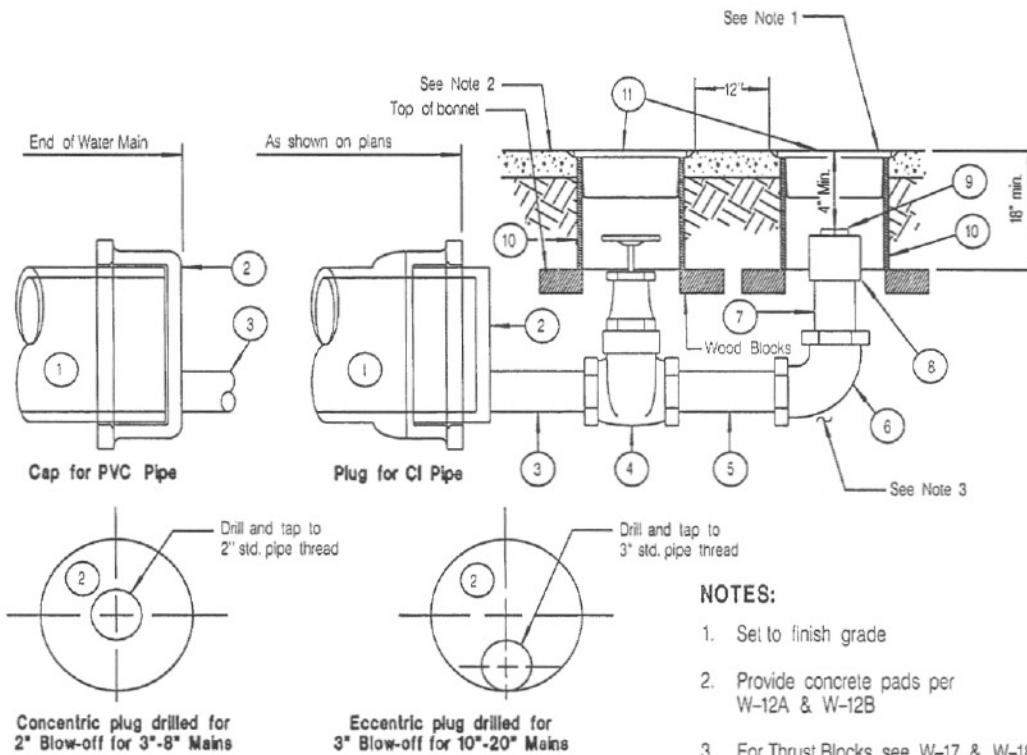
**CITY OF SAN DIEGO - STANDARD DRAWING**

**ACCESS MANHOLE**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*John J. Rubin* 12-23-94  
COORDINATOR R.C.E. 25902 DATE

DRAWING NUMBER **SDW-103**



**NOTES:**

1. Set to finish grade
2. Provide concrete pads per W-12A & W-12B
3. For Thrust Blocks, see W-17 & W-18

SCHEDULE			
ITEM	STD. DWG. NUMBER	SIZE AND DESCRIPTION	
1	Water Main	W-21	3" - 8" Incl. 10" - 20" Incl.
2	Cast Iron plug or cap		Main size x 2" Main size x 3"
3	Brass Nipple		2" x 8" 3" x 8"
4	Bronze gate valve with Bronze wheel-screw ends		2" 3"
5	Brass Nipple		As needed As Needed
6	Brass 90° EL	W-17, 18	2" 3"
7	Brass Riser		2" x Variable to Grade Minus 4" 3" x Variable to Grade Minus 4"
8	Brass Coupling Thread		2" 3"
9	Brass Plug		2" 3"
10	Steel casing for gate valve and riser	W-12B	8" x Variable to Grade minus 3/4" 8" x Variable to Grade minus 3/4"
11	Cast Iron valve well cover for gate valve and riser	W-12A	8" 8"

Revision	By	Approved	Date
ORIGINAL		J.P.Mueller	3-3-83
		J.P.Casey	6-3-83
		J.P.Casey	8-26-86
NOTES	A.O.	F. Belock	4-96
NOTES	SM	Oskoui	12/03

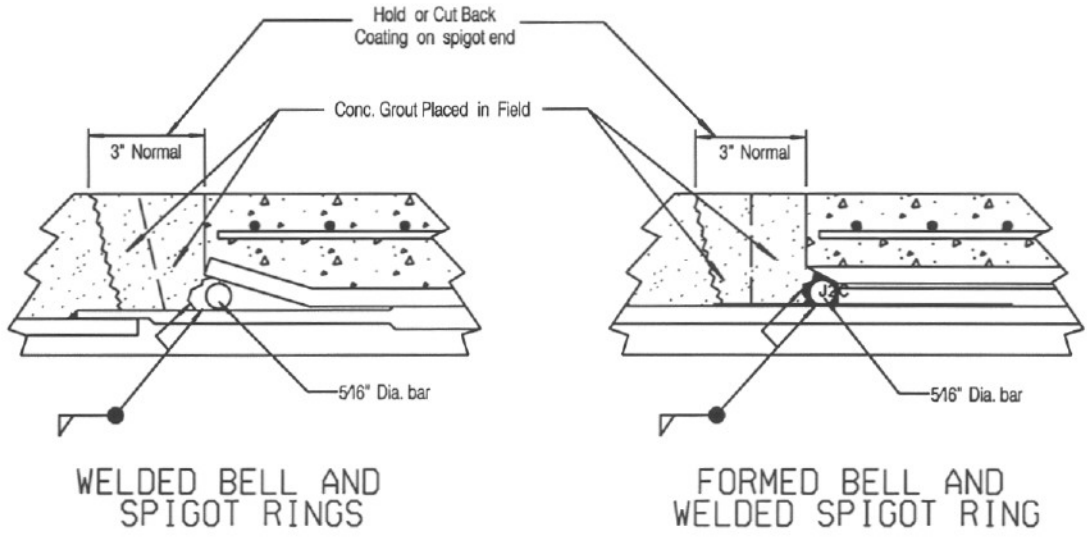
CITY OF SAN DIEGO STANDARD DRAWING

BLOW-OFF ASSEMBLIES  
AT THE END OF  
PVC AND CAST IRON MAINS

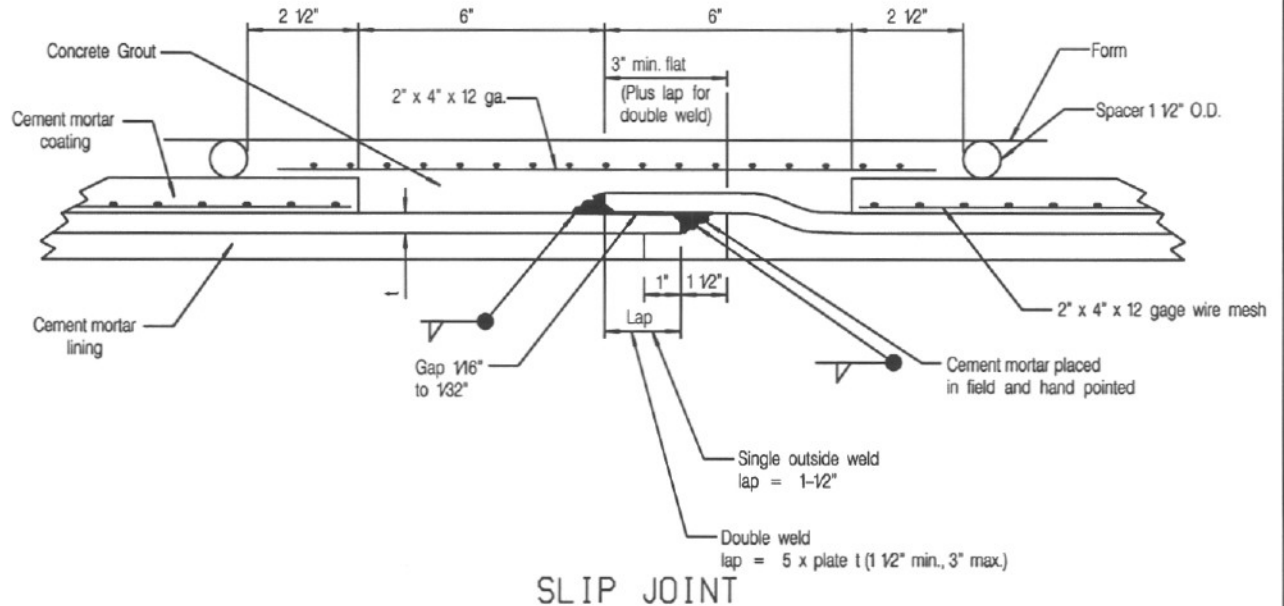
CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*B. Belock* 12-9-03  
Chairperson RCE 64572 Date

DRAWING NUMBER SDW-106



NOTE:  
See Std. Dwg. SDW-111 for full details of above joints.



NOTES:  
1. All welds to conform to ANSI/AWWA C206 - 91

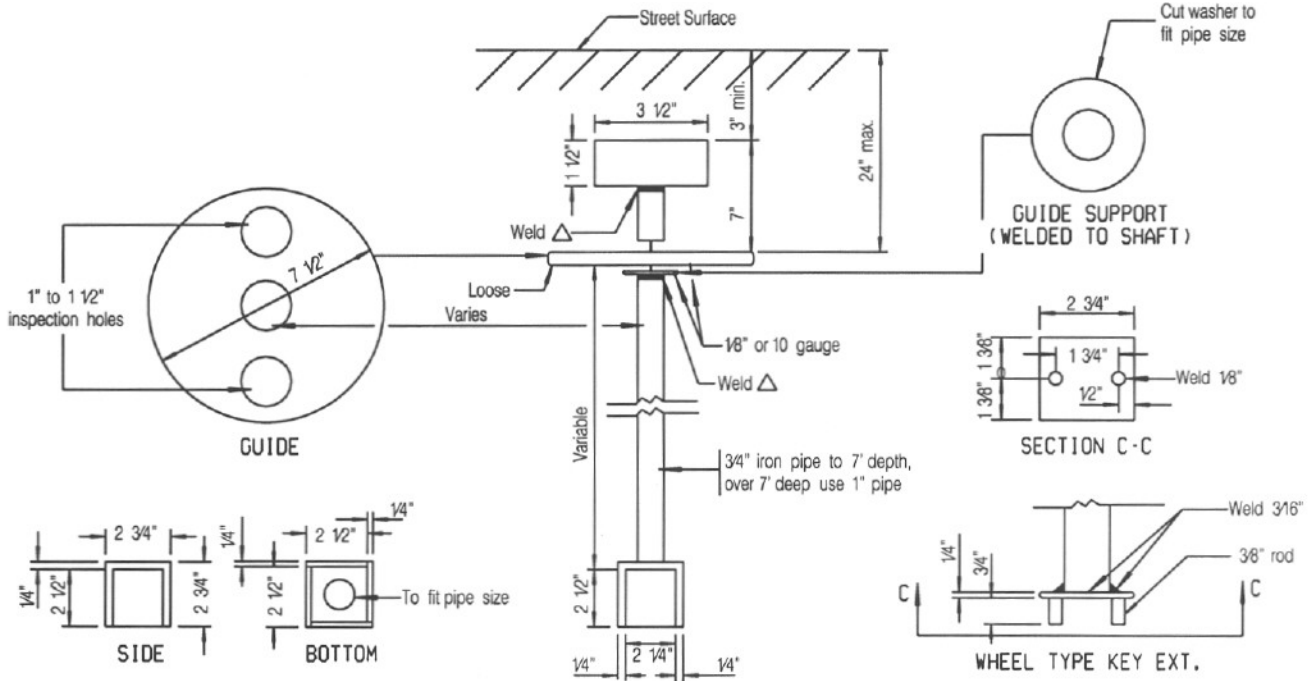
REVISION	BY	APPROVED	DATE
ORIGINAL		H. Horn	5-6-80
		J.P. Casey	6-3-83

CITY OF SAN DIEGO - STANDARD DRAWING

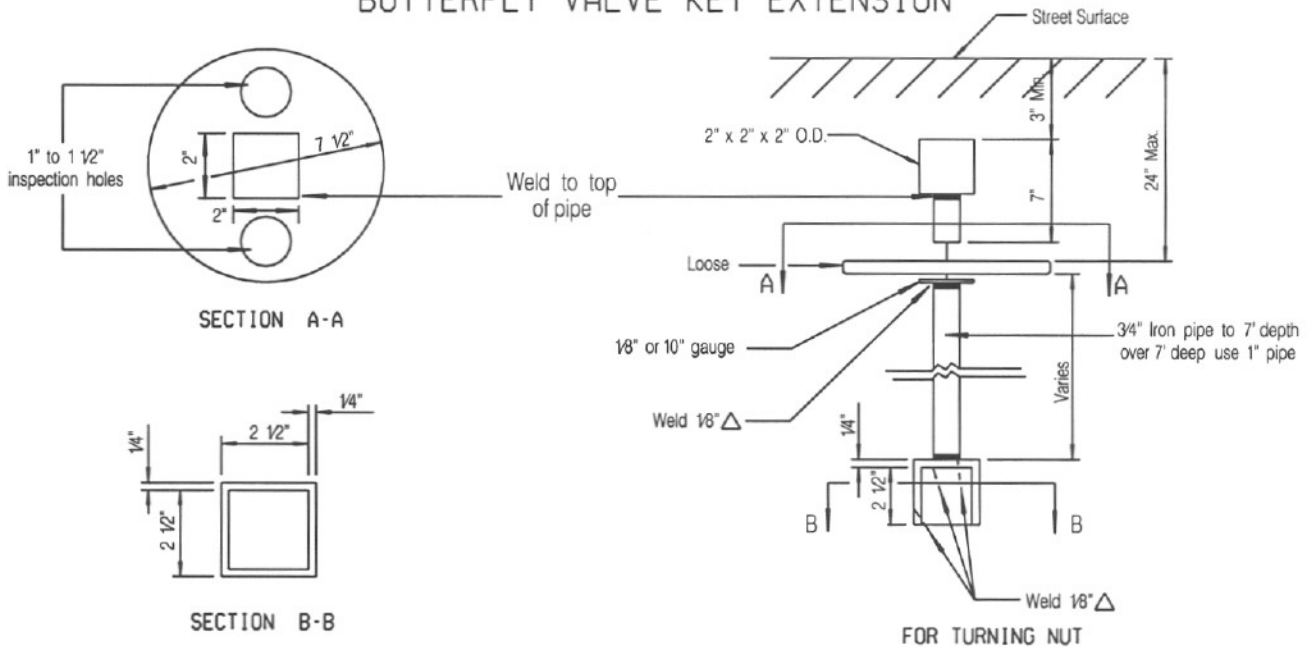
FIELD WELDED JOINTS

CITY OF SAN DIEGO  
STANDARDS COMMITTEE  
*James J. ...* 12-23-94  
COORDINATOR R.C.E. 25902 DATE  
DRAWING NUMBER **SDW - 108**





BUTTERFLY VALVE KEY EXTENSION



GATE VALVE KEY EXTENSION

- NOTES:
1. Valve key extensions shall be installed:
    - a) For all butterfly valves, and
    - b) For all gate valves when top of gate valve nut is twenty-five inches (25") or more below ground or pavement surface.
  2. Paint all finished surfaces with asphalt varnish.
  3. Materials and Workmanship shall be as required by Sections 206 and 304 of Std. Specs.
  4. For valve box and cover, see W-12A & W-12B
  5. All welds to conform to ANSI/AWWA C206 - 91

REVISION	BY	APPROVED	DATE
ORIGINAL		H. Horn	5-6-90
		J.P. Casey	6-3-83
		J.P. Casey	8-22-86
NOTES	A.O.		

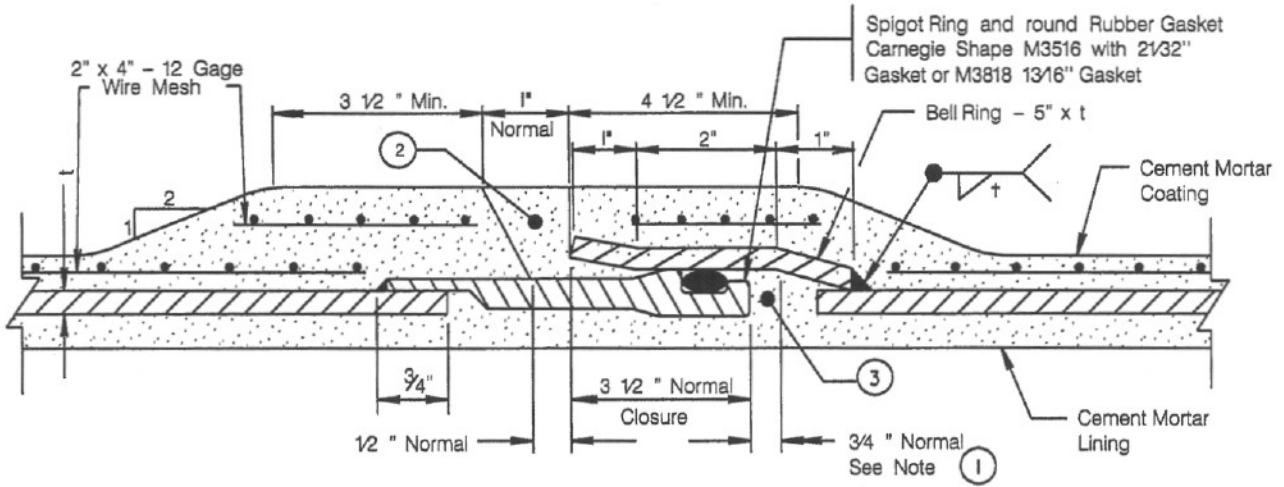
CITY OF SAN DIEGO - STANDARD DRAWING

VALVE KEY EXTENSIONS

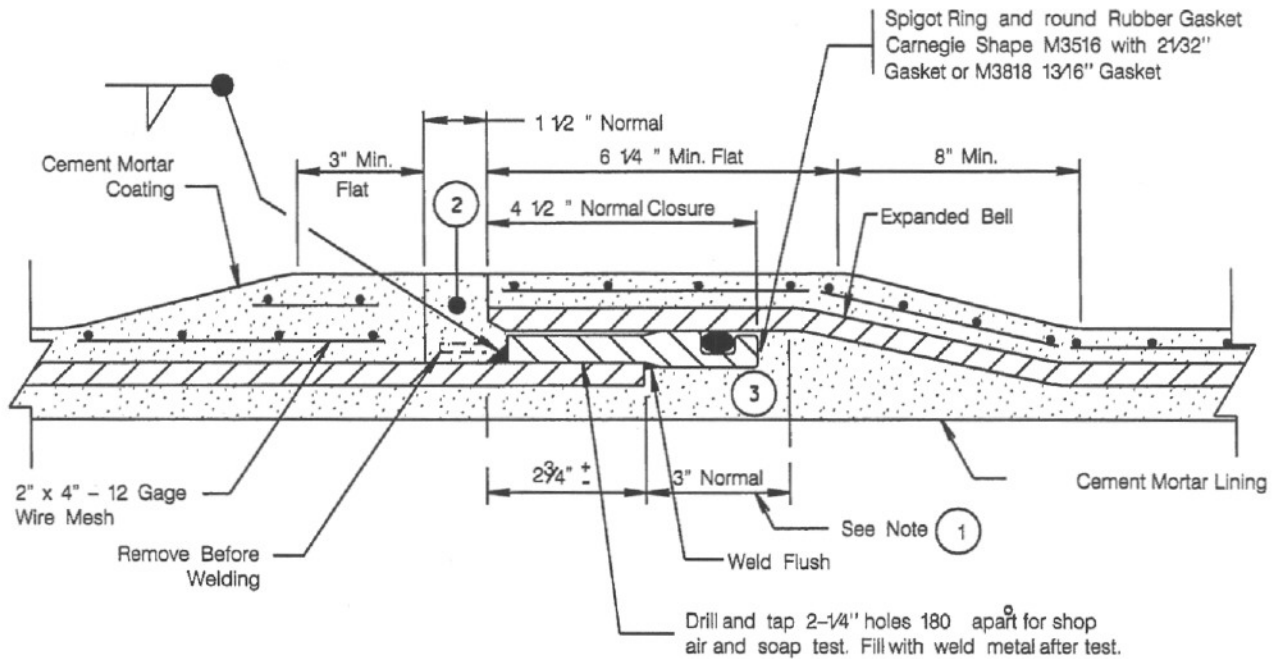
CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*George J. Rubin* 12-23-94  
COORDINATOR R.C.E. 25902 DATE

DRAWING NUMBER SDW - 109




**WELDED BELL AND SPIGOT RINGS**

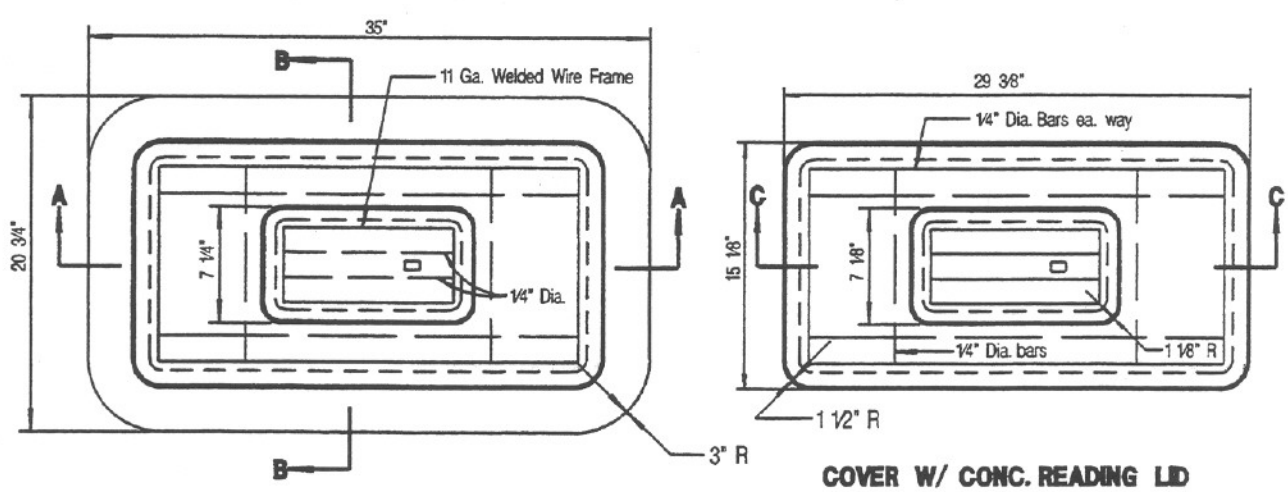


**FORMED BELL END AND WELDED SPIGOT RING**

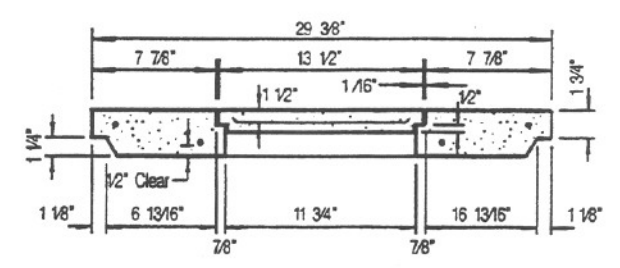
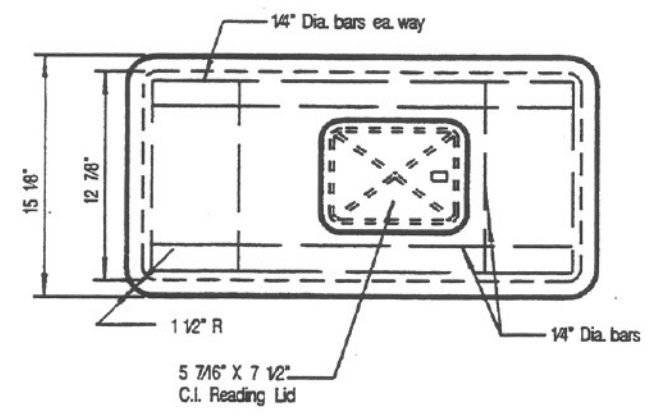
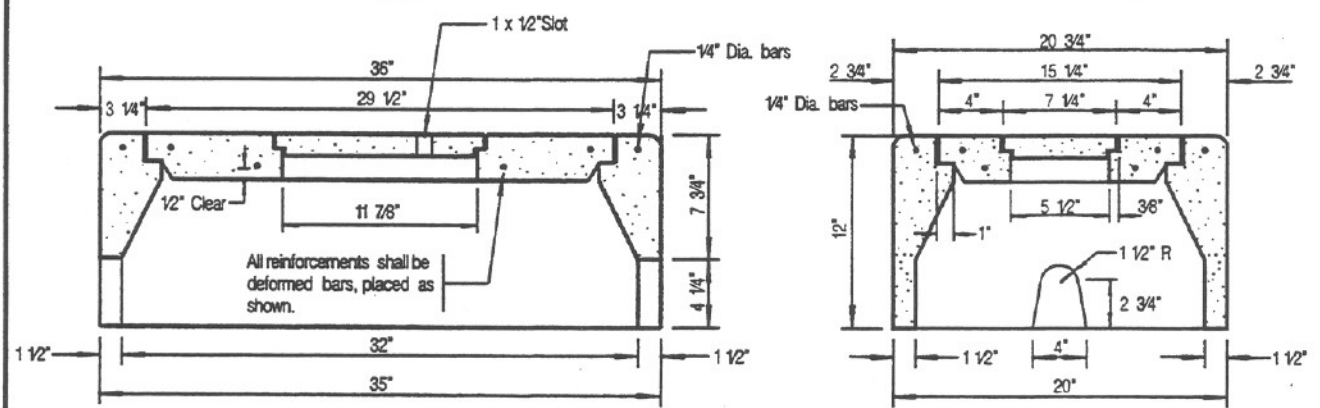
**NOTES:**

- ① Maximum field deflection in a joint is 3/8 inch pull and 3/8 inch push, the pull to be utilized first.
- ② Concrete grout placed in field.
- ③ Cement mortar placed in field and hand pointed.
- 4 Tolerance between Bell I.D. and Spigot O.D to be 1/32 inch to 1/16 inch on the diameter.
- 5 All welds to conform to ANSIAWWA C206 - 91.

REVISION	BY	APPROVED	DATE	CITY OF SAN DIEGO - STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE
ORIGINAL		H. Horn	5-8-80		
		J.P. Casey	6-3-83		
NOTES	SM	Oskoui	12/03	<b>SPIGOT RING &amp; GASKET JOINT FOR WELDED STEEL PIPE</b>	 Chairperson RCE 84572      DATE 12-9-03
					DRAWING NUMBER <b>SDW-111</b>



**PLAN**



**NOTE:** Unless otherwise indicated on the detail plans and/or specified in special conditions Covers with Concrete reading lid shall be used.

REVISION	BY	APPROVED	DATE
ORIGINAL		H. Horn	5-6-90
		J.P. Casey	6-3-83

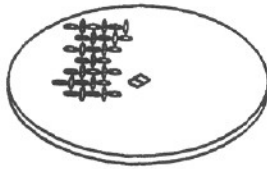
**CITY OF SAN DIEGO - STANDARD DRAWING**

**CONCRETE WATER METER BOX FOR 1 1/2" OR 2" WATER METER**

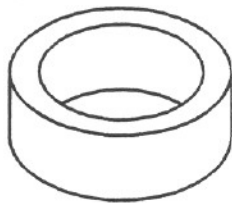
CITY OF SAN DIEGO  
STANDARDS COMMITTEE  
*James J. [Signature]* 12-23-94  
COORDINATOR R.C.E. 25902 DATE

DRAWING NUMBER **SDW-113**

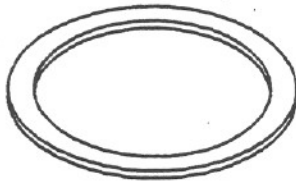
REVISED 9/30/94



Weld top of cap to pipe

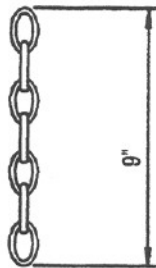


Weld plate ring to underside of cover

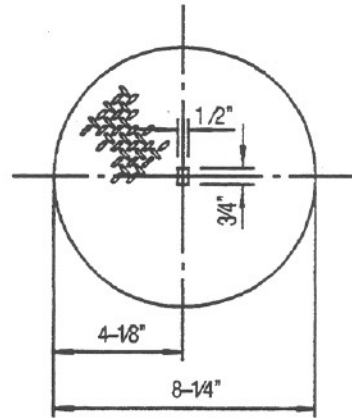


Weld chain to inside of cap's pipe and to underside of cover

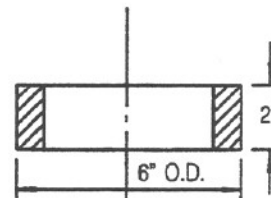
Hot dipped galvanized steel chain



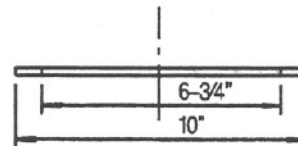
1/4" x 9" Chain



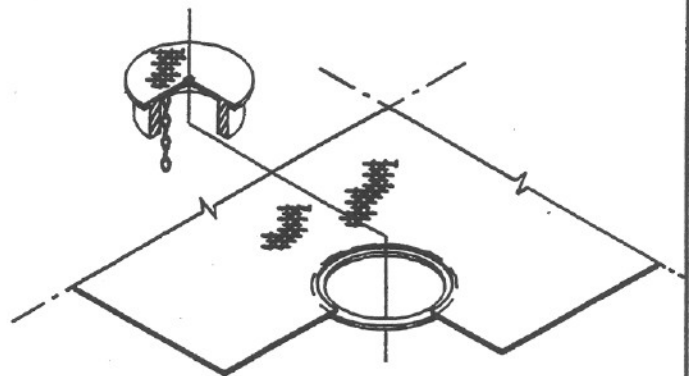
1/4" Floor Plate



3/16" Steel pipe



1/8" Steel Plate Ring



COVER (Typ.)

**NOTES:**

1. 8-1/4 inches floor plate shall be cut out of the cover and the opening shall be finished for tight fit.
2. Read hole in cover shall be centered over each meter register.

**NO SCALE**

REVISION	BY	APPROVED	DATE
ORIGINAL		T. Mueller	2-4-86
		J.P. Casey	8-22-86

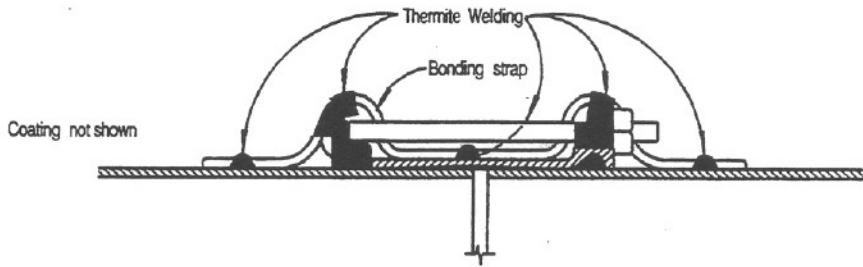
**CITY OF SAN DIEGO - STANDARD DRAWING**

**READ HOLE  
CAP & CHAIN DETAIL**  
For Metal Meter Vault Covers

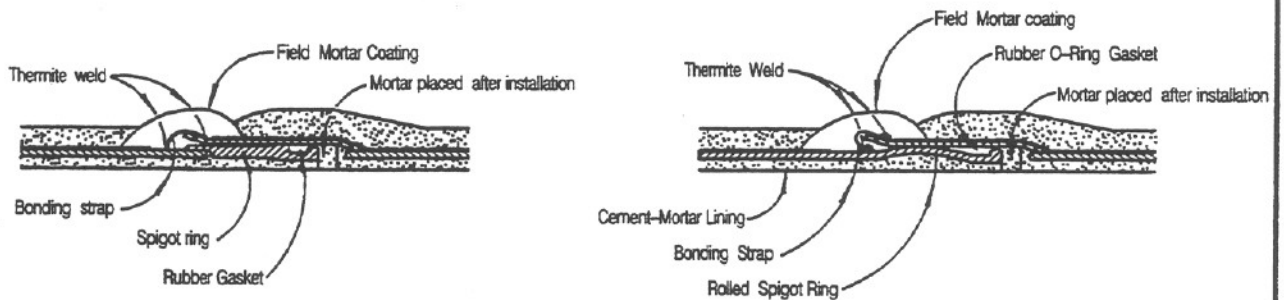
CITY OF SAN DIEGO  
STANDARDS COMMITTEE  
*James J. ...* 12-23-84  
COORDINATOR R.C.E. 25902 DATE

DRAWING NUMBER **SDW-115**

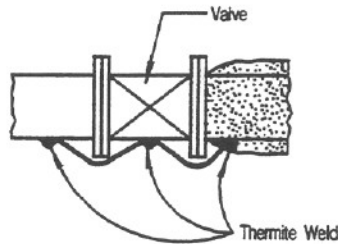
REVISED 9/30/94



**Bonding Strap Installed on Sleeve-Type Coupling**



**Bonding Strap for Bell and Spigot Rubber-Gasketed Joint**



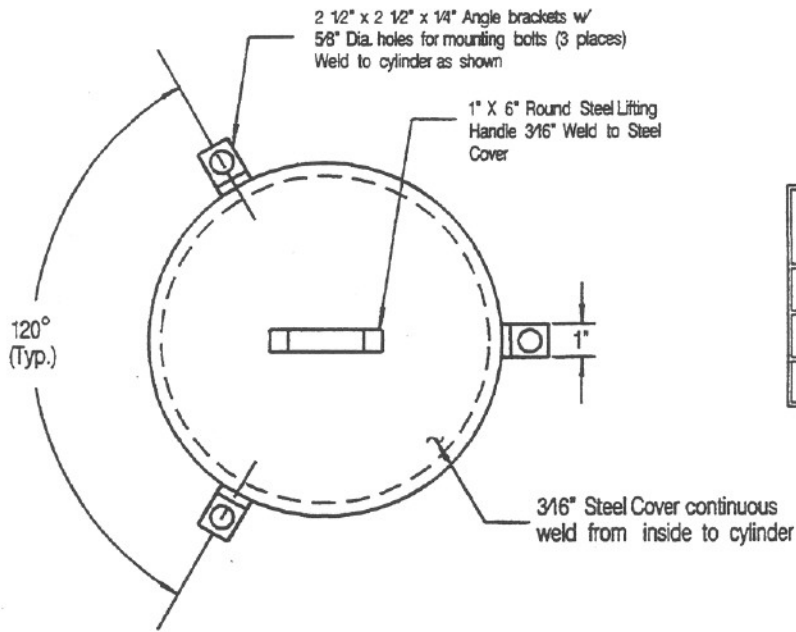
**Bonding Strap Installed on Valve**

**NOTES:**

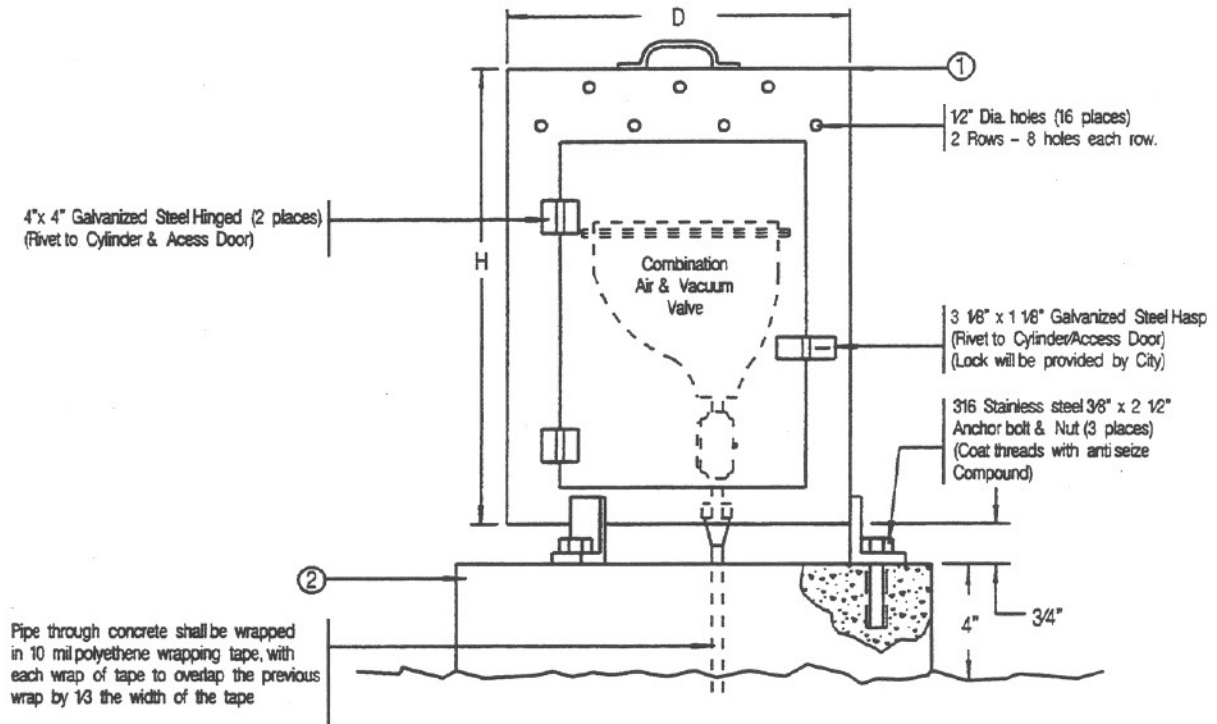
1. Remove coating and clean approx. 2 inch area to a bright metal surface for welding.
2. The exact type, size and number of bonding wire /strap shall be determined by pipe size and type.
3. Where not protected by cement mortar coating, thermite weld shall be covered with cold applied coal tar solution.

REVISION	BY	APPROVED	DATE	CITY OF SAN DIEGO - STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE <i>James F. [Signature]</i> 12-23-94 COORDINATOR R.C.E. 25902 DATE
ORIGINAL		T. Mueller	2-2-85		
		J.P. Casey	8-22-85		

REVISED 9/30/94



Valve Size	D	H
1" & 2"	16"	24"
4"	24"	30"
6"	30"	36"



- ① 3/16 inch steel enclosure with access door, misc. hardware. Cabinet and hardware should be zinc rich epoxy powder primer (2-3 mil Dry Film Thickness) and polyester powder top coat (2-3 mil Dry Film Thickness).
- ② 3'x 3'x 4" Concrete pad (520-C-2500 Concrete)

REVISION	BY	APPROVED	DATE
ORIGINAL		M. Rollinger	5-20-92

**CITY OF SAN DIEGO - STANDARD DRAWING**

**AIR AND VACUUM VALVE ENCLOSURE**

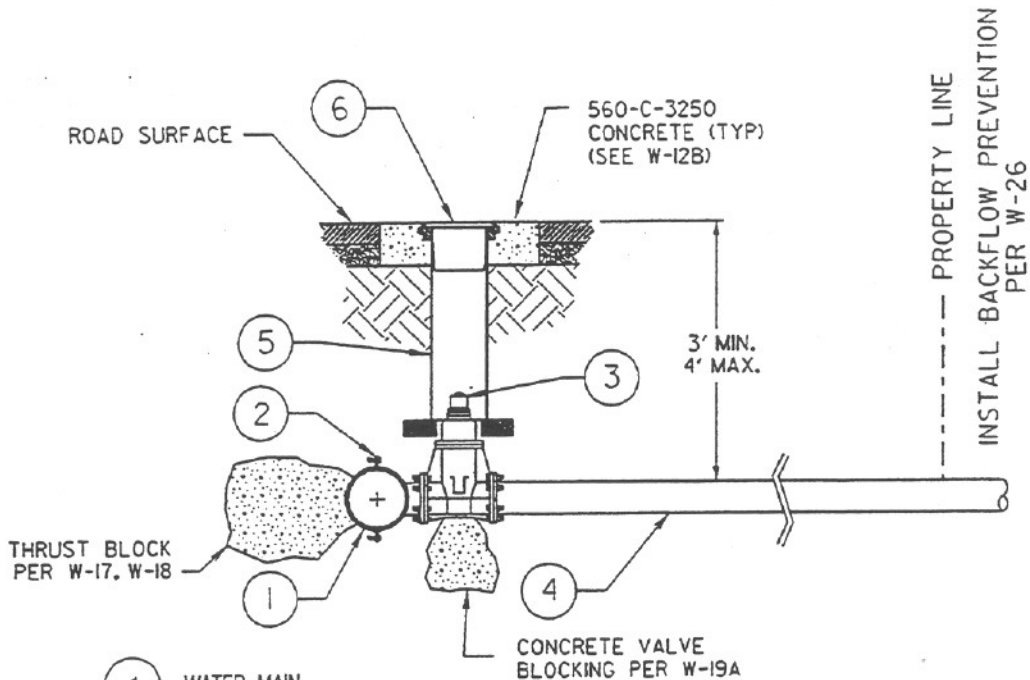
CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*Steve J. Bell* 12-23-04  
COORDINATOR R.C.E. 25902 DATE

DRAWING  
NUMBER

**SDW-117**

REVISED 9/30/94



- 1 WATER MAIN
- 2 FLANGED TAPPING SLEEVE OR TEE (NO SIZE-ON-SIZE TAPS ALLOWED (4 X 4, 6 X 6, ETC.). NO EXTENSIONS ALLOWED.
- 3 FULL RESILIENT SEAT GATE VALVE . SIZE OF VALVE SHALL MATCH SIZE OF FIRE SERVICE (4-INCH MINIMUM DIAMETER ). SEE NOTE #1.
- 4 4-INCH OR LARGER DIAMETER OF PIPE (DUCTILE IRON OR PVC PER APPROVED MATERIALS LIST).
- 5 VALVE WELL PER W-12B.
- 6 VALVE WELL COVER PER W-12A.

- NOTES:
1. FOR SMALLER FIRE SERVICE REQUIREMENTS, USE REDUCER AT PROPERTY LINE.
  2. CONSTRUCT WATER MAIN & FIRE SERVICE PER SDW-100, SDW-109 & W-12A, W-12B, W-17, W-18, & W-21 (ALSO USE W-22 & W-25 WHEN REQUIRED ).
  3. FOR CORROSION CONTROL REQUIREMENTS, SEE WATER UTILITIES DESIGN GUIDE.

REVISION	BY	APPROVED	DATE
ORIGINAL			
NOTES	A.O.	<i>Michael</i>	4-98

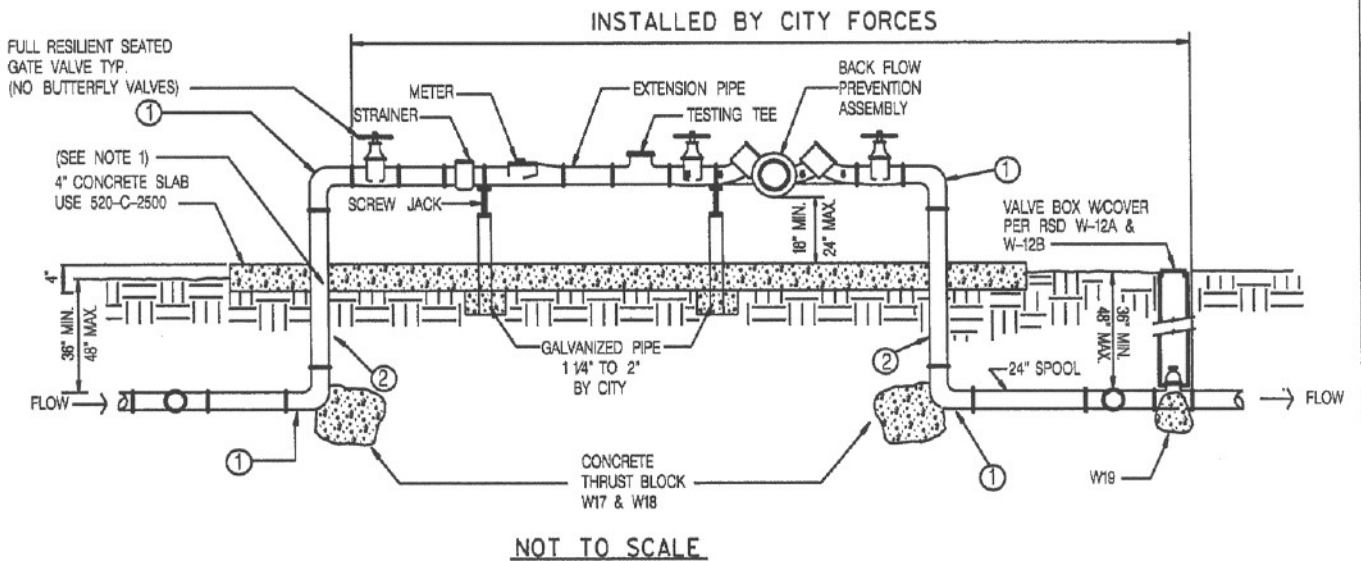
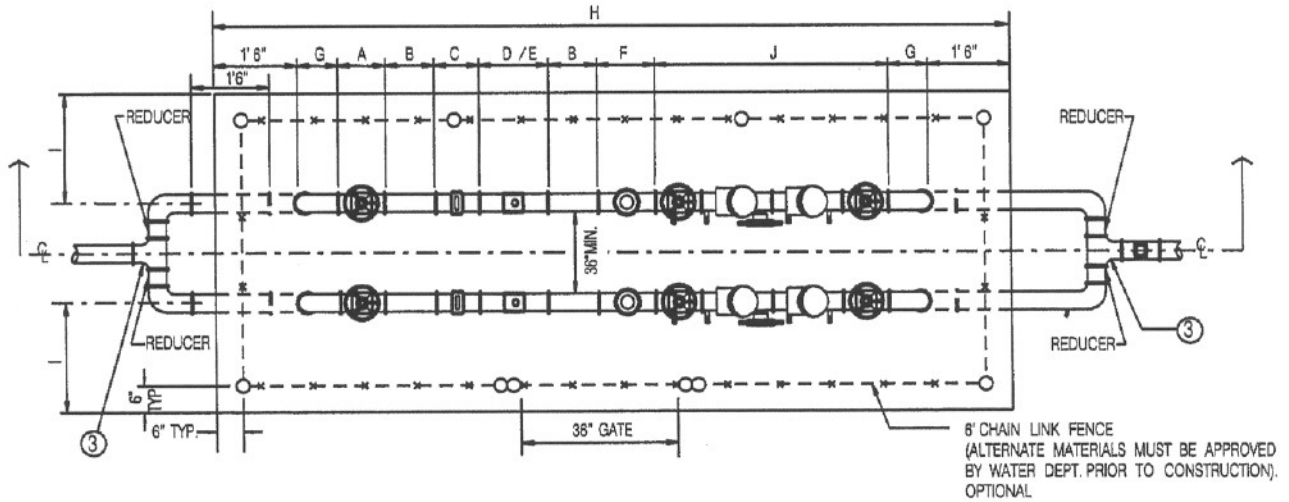
CITY OF SAN DIEGO - STANDARD DRAWING

CITY OF SAN DIEGO  
STANDARDS COMMITTEE  
*James F. Paul* 2-23-94  
COORDINATOR R.C.E. 28902 DATE

FIRE SERVICE CONNECTION

DRAWING NUMBER **SDW-118**





NOTES:

1. ALL BURIED DUCTILE IRON PIPE, FITTINGS, VALVES AND APPURTENANCES SHALL BE COATED WITH A DIELECTRIC COATING. A LIQUID EPOXY COATING SYSTEM PER AWWA C-210 AT 24 MILS MIN. DRY FILM THICKNESS (MDFT), OR A COLD APPLIED THREE-PART SYSTEM PETROLEUM WAX TAPE PER AWWA C-217, OR A 100% POLYURETHANE COATING OF 24 MILS (MDFT) SUITABLE.
2. ANY CHANGES MUST HAVE WATER DEPARTMENT APPROVAL.
3. PIPING TO BE SYMMETRICAL TO SLAB CENTERLINE.
4. SUPPLY PIPE IS ONE COMMERCIAL SIZE LARGER THAN PROPOSED METER.
5. CONCRETE SLAB AND FENCE WILL BE INSTALLED BY CONTRACTOR.

- ① 90° FLANGED DUCTILE IRON ELBOW (TYP).
- ② FLANGED DUCTILE IRON SPOOL. BOTH ENDS SHALL BE FLANGED (UNI-FLANGE SHALL NOT BE USED).
- ③ DIAMETER OF TEE IS EQUAL TO THE DIAMETER OF THE SUPPLY PIPE.

SHEET 1 OF 2

REVISION	BY	APPROVED	DATE
ORIGINAL	J2C		
REVISION	SM	Oskoui	12/03

**CITY OF SAN DIEGO - STANDARD DRAWING**

**DUAL ABOVE GROUND METER AND  
BACKFLOW PREVENTION ASSEMBLIES**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE  
*R. H. G.* 12-9-03  
Chairperson RCE 64572 DATE

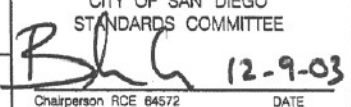
DRAWING NUMBER **SDW-119**

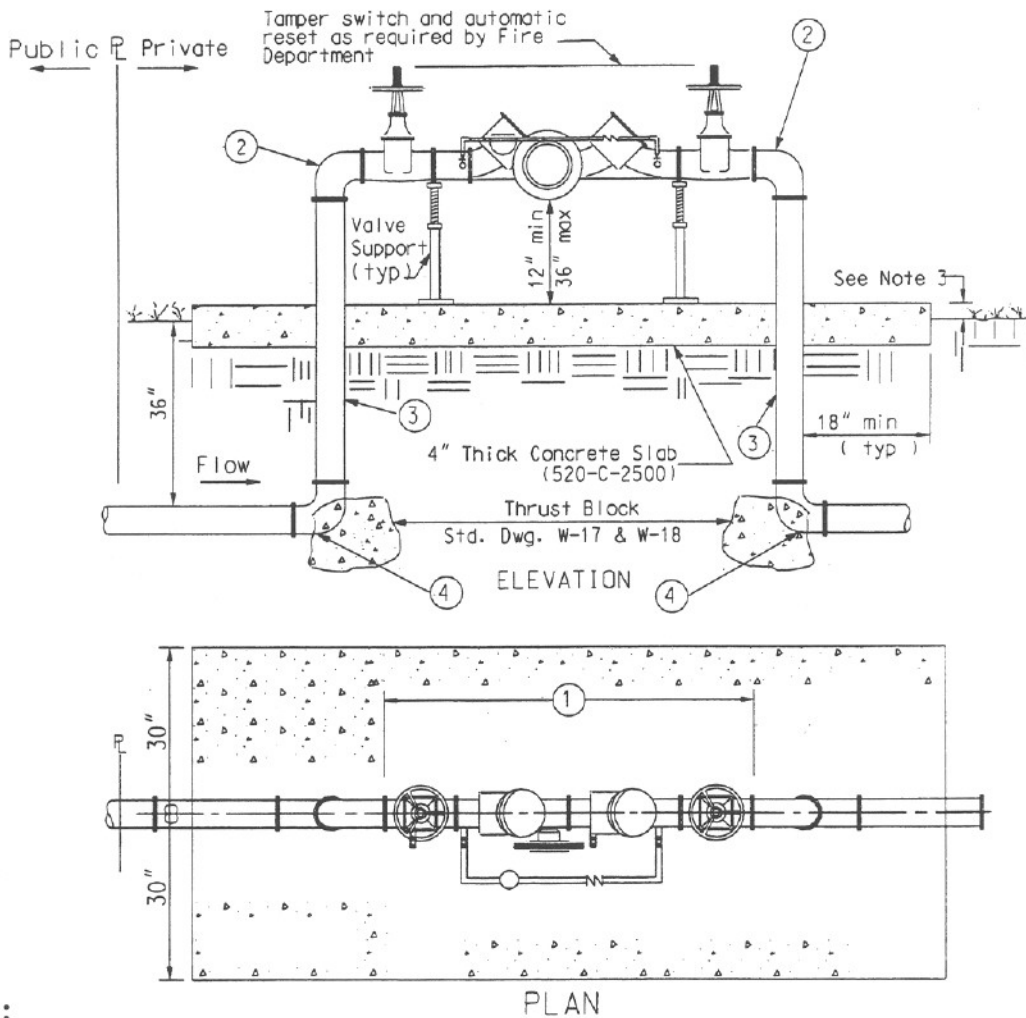


LTR. CODE	PART DESCRIPTION	METER SIZE				
		3"	4"	6"	8"	10"
A	GATE VALVE	8"	9"	10 1/2"	11 1/2"	1' - 1"
B	PIPE EXTENSION	1' - 0"	1' - 0"	1' - 0"	1' - 0"	1' - 0"
C	STRAINER *	7"	9"	9"	10"	1' - 0"
D	TURBINE WATER METER *	1' - 0"	1' - 2"	1' - 6"	1' - 9"	2' - 2"
E	COMPOUND METER *	1' - 5"	2' - 0"	2' - 5"	3' - 1"	4' - 7"
F	TESTING TEE	11"	1' - 1"	1' - 4"	1' - 6"	1' - 10"
G	90 DEG. ELBOW (SHORT)	5 1/2"	6 1/2"	8"	9"	11"
H	OVERALL SLAB LENGTH *	11' - 10"	12' - 11"	14' - 9"	16' - 3"	18' - 10"
I	SLAB TO CL PIPE	3' - 0"	3' - 0"	3' - 0"	3' - 0"	3' - 6"
J	BACKFLOW *	3' - 2"	3' - 4"	4' - 1/2"	4' - 4 1/2"	4' - 7 1/2"

\* NOTES: INDIVIDUAL DIMENSIONS MAY VARY PER MANUFACTURER  
OVERALL DIMENSIONS INCREASE WITH USE OF THESE COMPONENTS

SHEET 2 OF 2

REVISION	By	Approved	Date	CITY OF SAN DIEGO - STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE
	J2C				
REVISION	SM	Oskoui	12/03	DUAL ABOVE GROUND METER AND BACKFLOW PREVENTION ASSEMBLIES	 Chairperson RCE 64572      DATE 12-9-03
					DRAWING NUMBER <b>SDW-119</b>



**NOTES:**

1. Backflow preventor assembly shall be tested upon installation by a certified backflow assembly tester. Contractor shall provide the Engineer with written test results completed by a certified backflow tester prior to backflow preventor assembly's acceptance by the Engineer.
2. All pipe below grade shall be wrapped as required by agency.
3. Concrete pad to be 2" above grade unless installed in lawn area where it will be at 1" above grade. Slope to drain.
4. Valve supports as required by agency.
- ① Reduced Pressure Principle Detection Assembly shall be included in the latest edition of the "Approved for Service Isolation California Public Water Systems" issued by the State of California Department of Health Services, Office of Drinking Water.
- ② 90° Flanged Cast Iron or Ductile Iron Elbow (typ)
- ③ Flanged Ductile Iron Spool. Both ends shall be flanged (uni-flange shall not be used)
- ④ 90° Ductile Iron Flanged Elbow
- 5 Location must be approved by Water Department, Water Operations Division, Meter/Backflow Group and shown on plans.

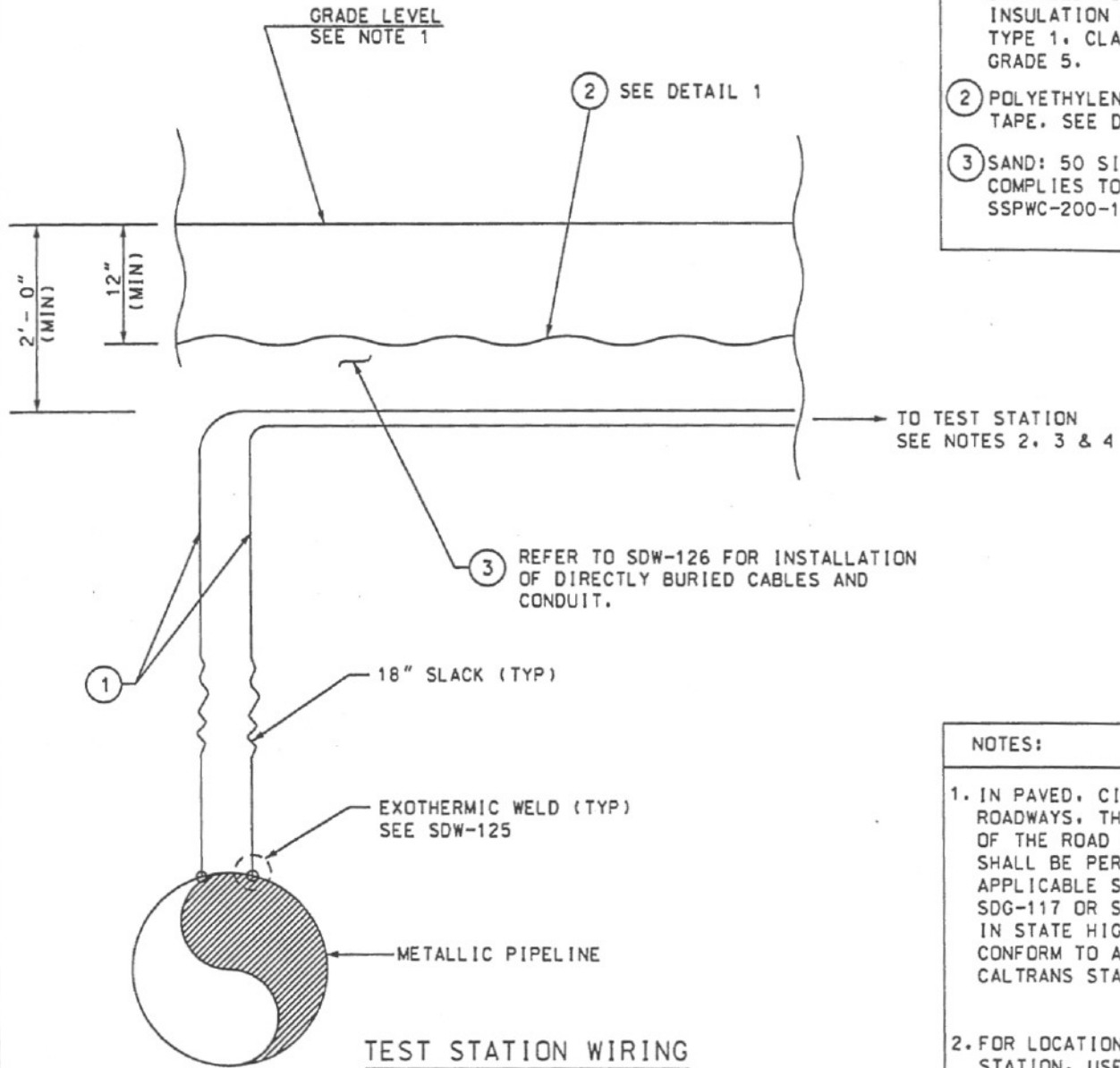
**LEGEND ON PLANS**



REVISION	BY	APPROVED	DATE	CITY OF SAN DIEGO - STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE	
ORIGINAL	LEC	J. NAVARRO	6/00			
				BACKFLOW PREVENTER REDUCED PRESSURE PRINCIPLE DETECTOR ASSEMBLY FOR FIRE SERVICE-3" AND LARGER	<i>Hari Rishi</i> 8/9/00 DATE @35390	
					DRAWING NUMBER	SDW-120

**MATERIALS:**


- ① CABLE AWG #8  
COPPER ASTM B3  
STRANDED ASTM B8  
INSULATION ASTM D1248  
TYPE 1, CLASS C,  
GRADE 5.
- ② POLYETHYLENE WARNING  
TAPE, SEE DETAIL 1.
- ③ SAND: 50 SIEVE  
COMPLIES TO  
SSPWC-200-1.5



**NOTES:**

- 1. IN PAVED, CITY-OWNED ROADWAYS, THE REPAIR OF THE ROAD SURFACE SHALL BE PER APPLICABLE SDRSD SDG-117 OR SDG-118. IN STATE HIGHWAYS, CONFORM TO APPLICABLE CALTRANS STANDARDS.
- 2. FOR LOCATION OF TEST STATION, USE REGIONAL STD DWG W-15. EXACT LOCATION SHALL BE APPROVED BY CORROSION ENGINEER.
- 3. AT ROADWAYS, USE SDW-129 AND AT UNDEVELOPED AREAS USE SDW-127.
- 4. FOR INSTALLATION OF DIRECTLY BURIED CABLES & CONDUIT SEE SDW-126.

APWA BLUE 6" WIDE TAPE  
WITH WHITE LETTERING  
CONTINUOUSLY IMPRINTED



**CAUTION CAUTION**  
BURIED CATHODIC PROTECTION LINE BELOW  
CALL 619-515-3525

**DETAIL 1**  
BURIED TAPE  
NTS

Revision	By	Approved	Date
Original	1	Oskoui	12/03

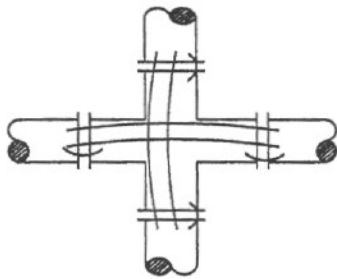
CITY OF SAN DIEGO - STANDARD DRAWING

AT-GRADE CATHODIC PROTECTION  
TEST STATION  
INSTALLATION FOR ROADWAYS

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*[Signature]* 12-9-03  
Chairperson RCE 6457e Date

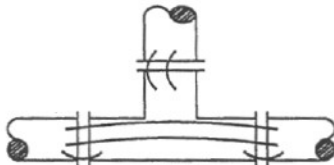
**DRAWING NUMBER SDW-121**



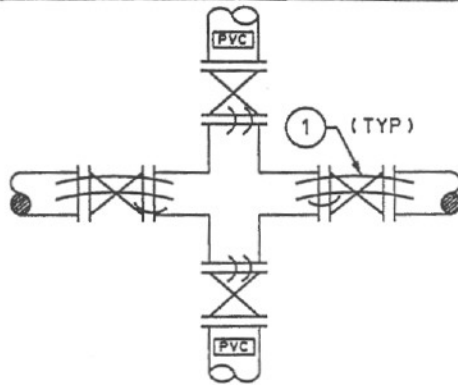
CROSS



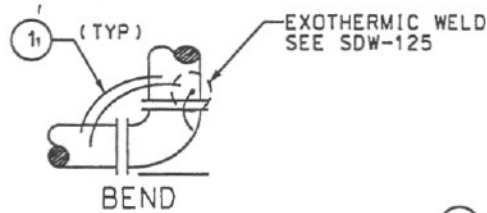
SPOOL



TEE



VALVE CROSSING



BEND

EXOTHERMIC WELD  
SEE DWG SDW-125



BELL AND SPIGOT PIPE JOINT



FLANGED VALVE



FLANGED OR MECHANICAL PIPE JOINT

SEE DETAIL A

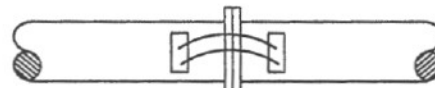


FLEXIBLE COUPLING PIPE JOINT

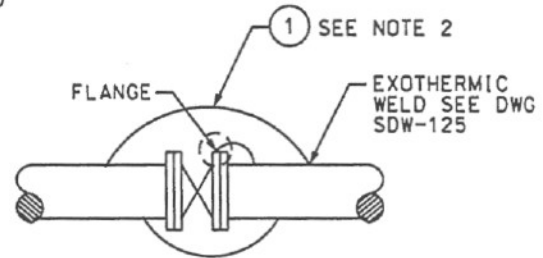
EXOTHERMIC WELD  
SEE DWG. SDW-125



NON-MORTAR LINED



NON-MORTAR LINED



BOND ACROSS FLANGES

BOND WIRE W/ LUG  
COATED WITH  
BITUMASTIC



DETAIL A

WIRE CONNECTION TO  
FLANGE BOLT  
SEE NOTE 5

MATERIALS:

- ① BOND CABLE: AWG #6  
COPPER ASTM B3  
STRANDED ASTM B8  
INSULATED ASTM D1248  
TYPE 1, CLASS C  
GRADE 5.
- ② STEEL PLATE: 1/8"  
THICK. WELD TO THE  
PIPE.

NOTES:

- 1. ALL BOND CABLE SHALL  
BE INSTALLED AT  
MINIMUM LENGTH.
- 2. BOND CABLES SHALL  
NOT BE INSTALLED  
ACROSS INSULATING  
JOINTS.
- 3. ONE ADDITIONAL CABLE  
SHALL BE REQUIRED  
FOR PIPE DIAMETERS  
FROM 36" TO 48" AND 2  
MORE FOR DIAMETERS  
LARGER THAN 48".
- 4. WELD BEFORE APPLYING  
INTERNAL COATING.
- 5. ONLY AT THE APPROVAL  
OF CITY'S CORROSION  
ENGINEER.
- 6. REFER TO SDW-116, FOR  
SCRW PIPE BOND DETAIL

Revision	By	Approved	Date
Original		Oskoui	12/03

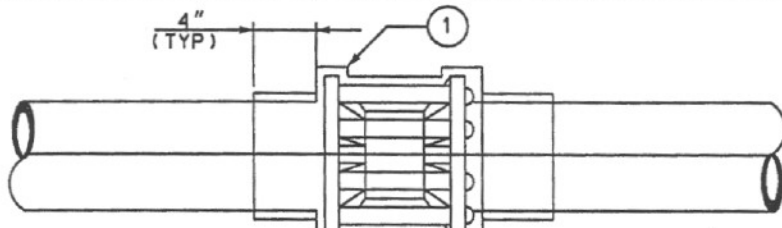
CITY OF SAN DIEGO - STANDARD DRAWING

JOINT BONDING OF NON-WELDED  
PIPE JOINTS & FITTINGS

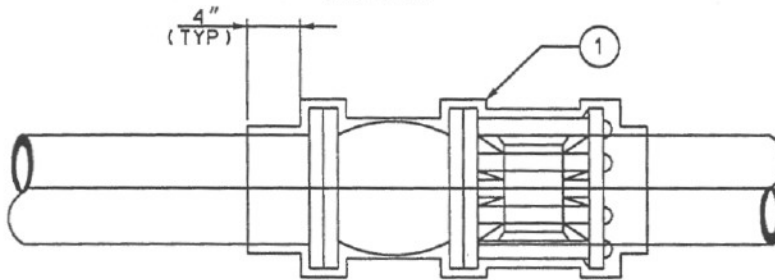
CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*[Signature]* 12-9-03  
Chairperson RCE 64522 Date

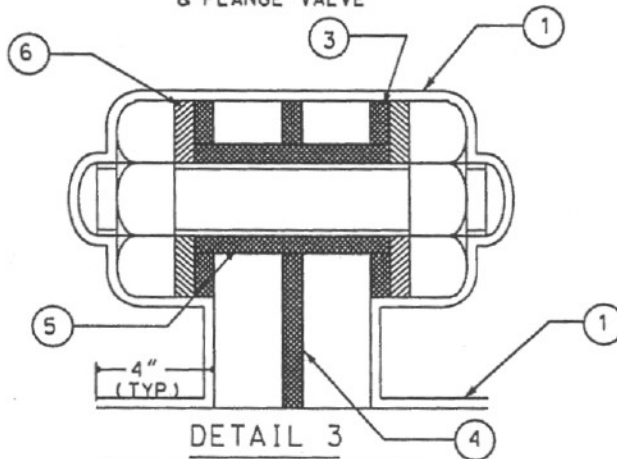
DRAWING  
NUMBER SDW-122



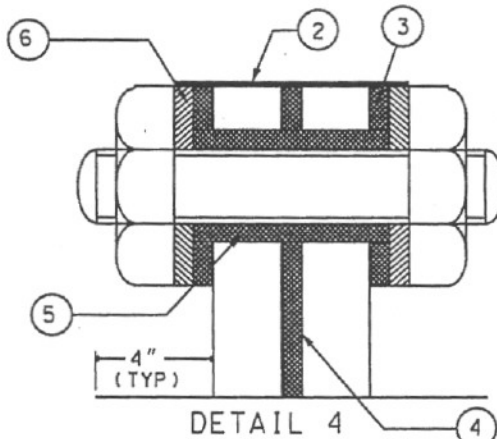
DETAIL 1  
MECHANICAL  
COUPLING



DETAIL 2  
MECHANICAL COUPLING  
& FLANGE VALVE



DETAIL 3  
INSULATING FLANGE JOINTS,  
UNDERGROUND INSTALLATION



DETAIL 4  
INSULATING FLANGE JOINTS,  
ABOVE-GROUND INSTALLATION

MATERIALS:

- ① PROTECTIVE COATING:  
3-PARTS PETROLATUM AWWA  
C217 OR APPROVED EQUAL.
- ② TAPE: WRAPAROUND 3"  
WIDE, 0.050" THICK,  
CROSS LINKED POLYOLEFIN,  
HEAT SHRINKABLE,  
PRECOATED WITH HOT MELT-  
ADHESIVE.
- ③ WASHER: INSULATING  
EPOXY GLASS
- ④ GASKET: 1/8" THICK EPOXY  
GLASS INSULATING  
MATERIALS WITH NEOPRENE  
SEALING ELEMENT.
- ⑤ SLEEVE: INSULATING EPOXY  
GLASS, 1/32" THICK,  
ID=BOLT DIAMETER + 1/64.
- ⑥ WASHER: STEEL, 1/8"  
THICK.

NOTES:

1. WHEREVER POSSIBLE,  
INSULATING FLANGE  
ASSEMBLIES SHOULD BE  
ASSEMBLED PRIOR TO  
INSTALLATION & TESTED  
ELECTRICALLY USING GAS  
ELECTRONIC TOOL OR  
APPROVED EQUAL TO INSURE  
THAT THE INSTALLATION IS  
EFFECTIVE.
2. WRAP FLANGE ASSEMBLY AS  
SHOWN WITH 3-PART PETRO-  
LATUM TAPE PER AWWA C217.
3. INSULATING FLANGE BOLT  
HOLE DIAMETER SHOULD BE  
1/8" BIGGER THAN THE  
INSULATING SLEEVE OD.
4. RECOMMENDED FLANGE  
INSTALLATION PROCEDURE:  
-CLEAN & INSPECT PIPE  
FLANGE FACES, APPLY NON-  
CONDUCTIVE LUBRICANT TO  
ALL THREADS.  
-INSTALL THE GASKET, ALIGN  
FLANGES & GASKETS.  
-USE ALIGNMENT PIN IN TWO  
DIAMETRICALLY OPPOSITE  
BOLT HOLES.  
-INSERT INSULATING SLEEVES  
INTO BOLT HOLES.  
-INSERT THE BOLT WITH BOTH  
INSULATING WASHERS.  
-TIGHTEN TWO DIAMETRICALLY  
OPPOSITE BOLTS TO 30%  
TOTAL TORQUE.  
-TIGHTEN ALL BOLTS TO 50%  
AFTER REPLACING TWO  
ALIGNMENT PINS WITH BOLTS  
AND TO 100% OF FINAL  
TORQUE VALUE.

Revision	By	Approved	Date
Original	Oskoui		12/03

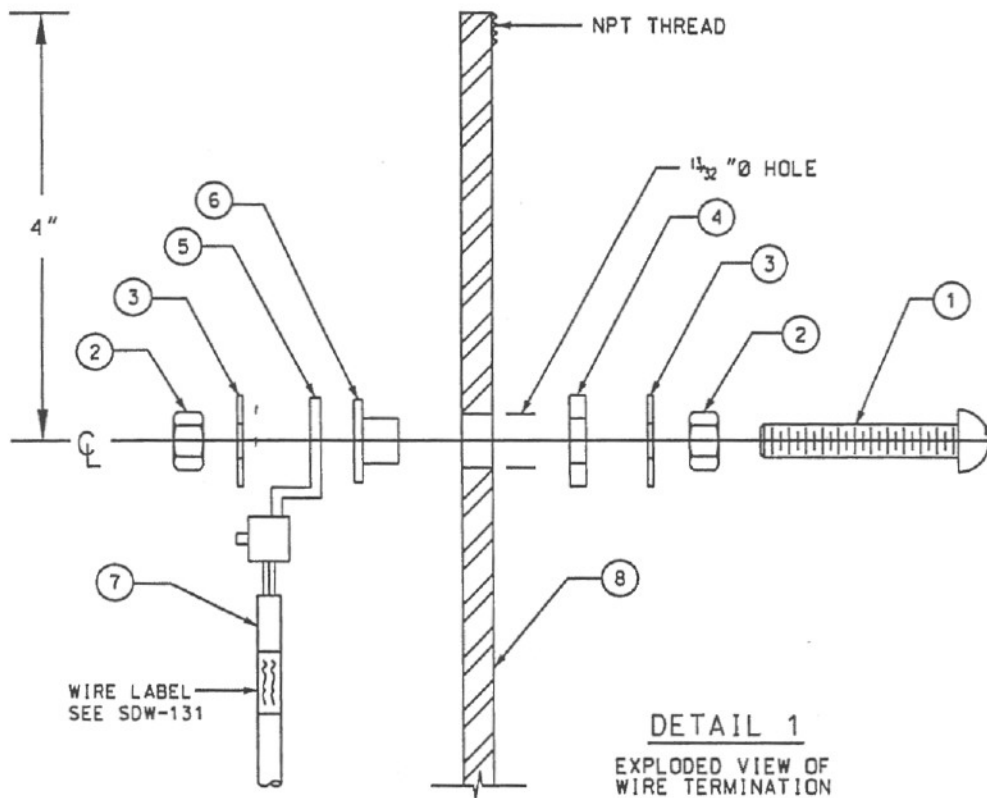
CITY OF SAN DIEGO - STANDARD DRAWING

INSULATING FLANGE AND MECHANICAL  
JOINTS EXTERNAL PROTECTION

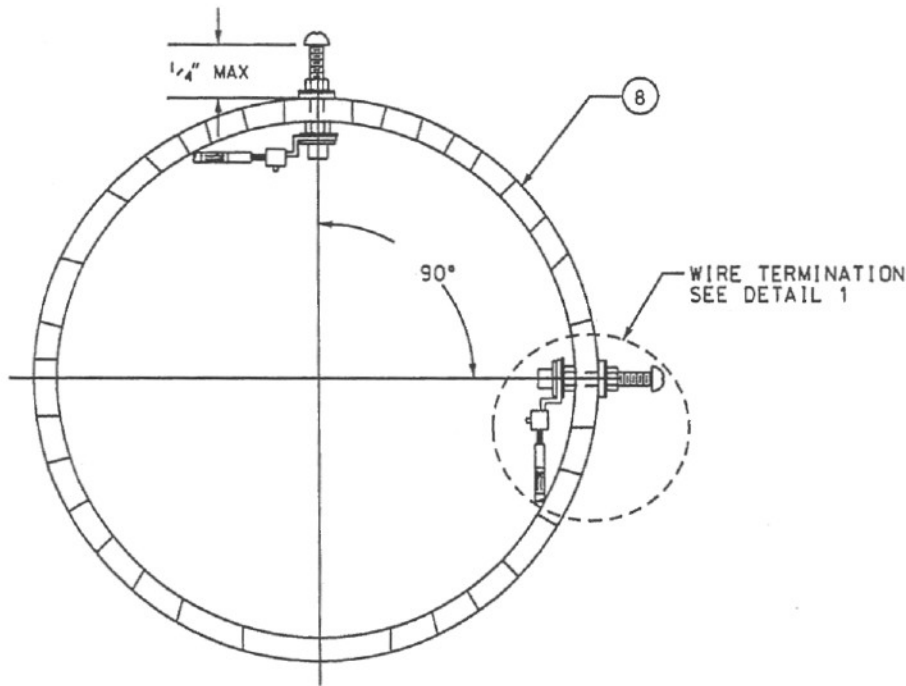
CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*Bh* 12-9-03  
Chairperson RCE 4572 Date

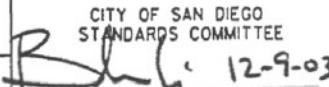
DRAWING  
NUMBER SDW-123



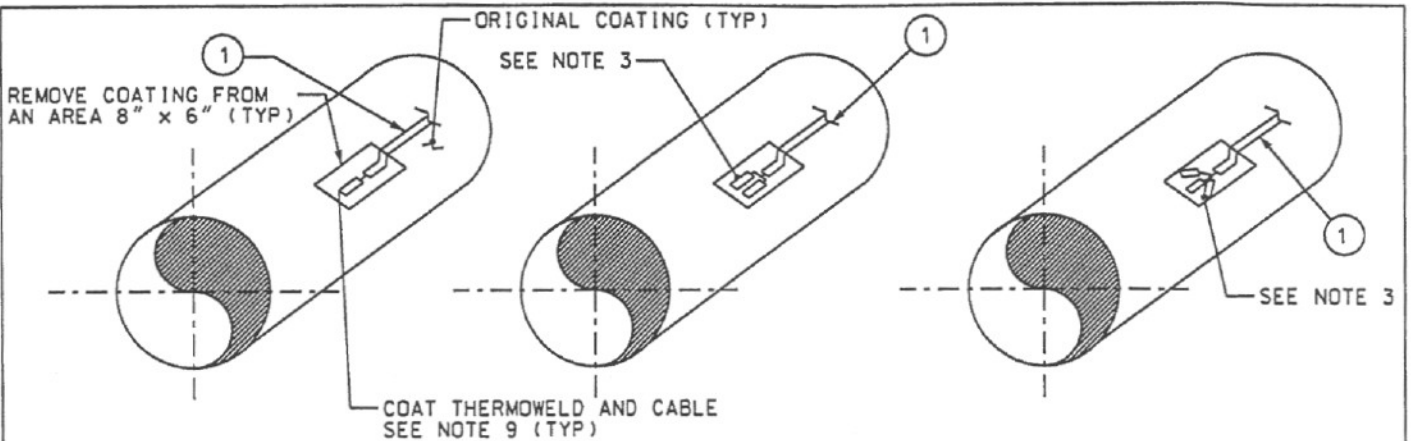
- MATERIALS:**
- ① SCREW: MACHINE BRASS, ROUND HEAD SLOTTED, 1/4" - 20T 1 1/2" LONG
  - ② NUT: BRASS 1/4" 20 THREADS.
  - ③ WASHER, BRASS 1/4"
  - ④ WASHER, INSULATION NYLON, 0.719" OD, 0.281" ID, 0.062" THICK NATURAL.
  - ⑤ LUG: OFFSET TONGUE SOLDERNESS, COPPER.
  - ⑥ WASHER: INSULATING, SHOULDER, NYLON, NATURAL, 0.260" OD, 0.625" OD FLANGE, 0.342" OD SHANK, 0.065" FLANGE THK, 0.270" SHANK THK.
  - ⑦ CABLE: AWG #8, COPPER ASTM B3, STRANDED ASTM B8, INSULATED ASTM D1248 TYPE 1, CLASS C, GR. 5.
  - ⑧ PIPE: 4" DIAMETER SCH 40 ASTM A53, GALVANIZED.



- NOTES:**
1. MOUNT WIRE TERMINATIONS AT 90 DEGREE ORIENTATION, FOR MORE THAN 4-WIRES, MOUNT WIRE TERMINATIONS 4" BELOW.
  2. OFFSET MACHINE SCREW HEAD BY 3/4" FROM PIPE EXTERIOR WALL.
  3. TAG WIRE WITH LINE NAME, PIPE SIZE, MATERIALS AND STATION USING SELF-ADHESIVE LABELS. LABELS SHALL BE WRAPPED AROUND THE INSULATION AND ENCASED WITH CLEAR HEAT-SHRINK SEE SDW-131

Revision	By	Approved	Date	CITY OF SAN DIEGO - STANDARD DRAWING	CITY OF SAN DIEGO STANDARDS COMMITTEE
Original		Oskoui	12/03		
				POST-MOUNTED TEST STATION WIRE TERMINATION DETAIL	 Chairperson RCE 4572 Date 12-9-03
				DRAWING NUMBER	SDW-124





DETAIL 1

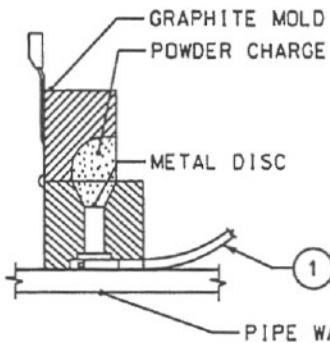
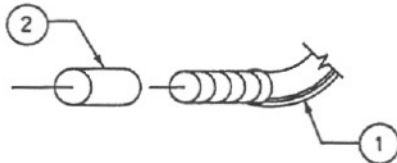
TYPICAL CONNECTIONS OF NO.6 AWG CABLE AND SMALLER CABLES

DETAIL 2

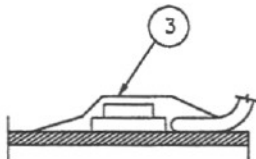
TYPICAL CONNECTIONS OF NO.4 AWG CABLE

DETAIL 3

TYPICAL CONNECTIONS OF NO.2 AWG CABLE AND LARGER CABLES



EXOTHERMIC CONNECTION DETAIL



EXOTHERMIC CONNECTION SECTION

MATERIALS:

- ① CABLE: AWG SIZE, ASTM B3/B8  
ASTM D-1248, TYP1 1, CLASS C, GR.5 INSULATION
- ② SLEEVE: ADAPTER
- ③ APPROVED PRIMER & WELD CAP OR MORTAR OVER WELD LOCATION

NOTES:

1. CLEAN AREA OF STEEL SURFACE APPROXIMATELY 2" x 2" FOR EACH THERMOWELD CONNECTION. WIRE BRUSH FILE AND SCRAPER TO OBTAIN SSPC-SP-5 WHITE METAL SURFACE FINISH.
2. SELECT PROPER MOLD BASED ON STRUCTURE GEOMETRY, ORIENTATION AND MATERIAL TYPE.
3. STRIP CABLE END AND TWIST TO FIT THERMOWELD MOLD. CABLE SIZES LARGER THAN 6 AWG SHALL BE THERMOWELDED BY TWISTING CONDUCTORS INTO GROUPS APPROXIMATELY NUMBER 6 AWG CABLE SIZE. MINIMUM SPACING BETWEEN WELDS WILL BE DETERMINED BY MOLD GEOMETRY, NOMINALLY 3".
4. HOLD MOLD FIRMLY AGAINST PIPE WITH OPENING AWAY FROM THE OPERATOR. IGNITE WITH FLINT GUN.
5. REMOVE ALL WELD SLAG, SPLATTER, SHARP EDGES AND BURRS WITH CHIP HAMMER AND METAL FILE.
6. TEST STRENGTH OF CONNECTION BY LIGHTLY TAPPING WITH 1 LB HAMMER, AND PULL WITH 5 LB FORCE ON CABLE.
7. WIPE PIPE SURFACE WITH CLEAN, OIL FREE RAGS TO REMOVE ANY LOOSE DUST.
8. PRIME CLEANED SURFACE WITH APPROVED PRIMER.
9. COAT THERMOWELD AND 6" OF CABLE TAIL WITH COMPATIBLE COATING, SUCH THAT ALL CORNERS ARE FILLED. THE COATING SHALL EXTEND FOR AT LEAST 2" AROUND THE THERMOWELD AREA.
10. THERMOWELD CARTRIDGE SIZE SHALL BE COMPATIBLE TO STEEL MATERIALS. MULTIPLE POWDER CARTRIDGE CHARGERS SHALL NOT BE USED. IF A THERMOWELD MUST BE REPEATED, A NEW PIPE SURFACE MUST BE PREPARED AT LEAST 3" FROM THE ORIGINAL WELD ATTEMPT. MORE THAN ONE WELD ATTEMPT ON THE SAME SPOT SHALL NOT BE PERMITTED.
11. IN NON-CONCRETE LINED PIPES, ALL EXOTHERMIC WELDS SHALL BE MADE IN A STEEL PAD.

CABLE STRAND DETAILS			
CABLE SIZE	NO. OF STRANDS	NO. OF EXOTHERMIC GROUPS PER CABLE CONNECTION	CABLE STRANDS PER GROUP
8	19	1	19
6	7	1	7
	19		19
4	7	2	3-4
	19		10-9
2	7	3	3-2-2
	19		7-6-6

Revision	By	Approved	Date
Original	Oskoui		12/03

CITY OF SAN DIEGO - STANDARD DRAWING

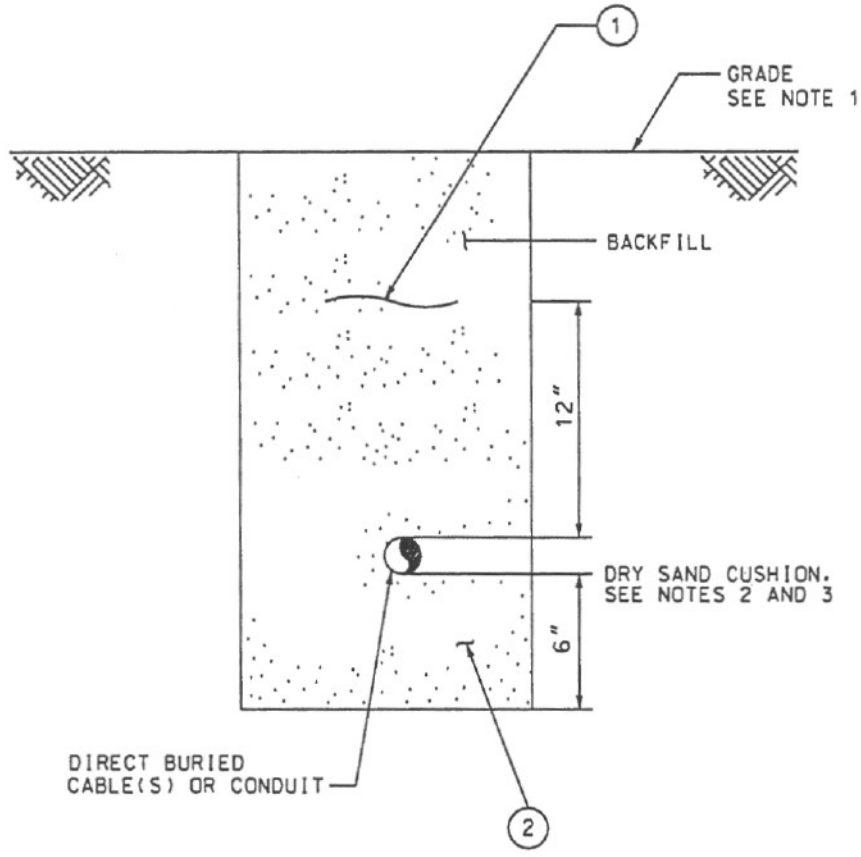
EXOTHERMIC WELDING OF CABLES  
AND COATING OF WELDING

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*R. Kelly* 12-9-03  
Chairperson RCE 64572 Date

DRAWING NUMBER SDW-125

- MATERIALS:**
- ① POLYETHYLENE WARNING TAPE, REFER TO DETAIL 1 ON SDW-121.
  - ② SAND: 50 SIEVE COMPLIES TO SSPWC 200-1.5



CABLE(S) AND CONDUIT TRENCH SECTION

- NOTES:**
- 1. IN PAVED, CITY-OWNED ROADWAYS, THE REPAIR OF THE ROAD SURFACE SHALL BE PER APPLICABLE SDRSD SDG-117 OR SDG-118. IN STATE HIGHWAYS, CONFORM TO APPLICABLE CALTRANS STANDARDS.
  - 2. CLEAN SHARP STONES AND RUBBLE FROM THE BOTTOM OF DITCH.

Revision	By	Approved	Date
Original	Oskoui		12/03

CITY OF SAN DIEGO - STANDARD DRAWING

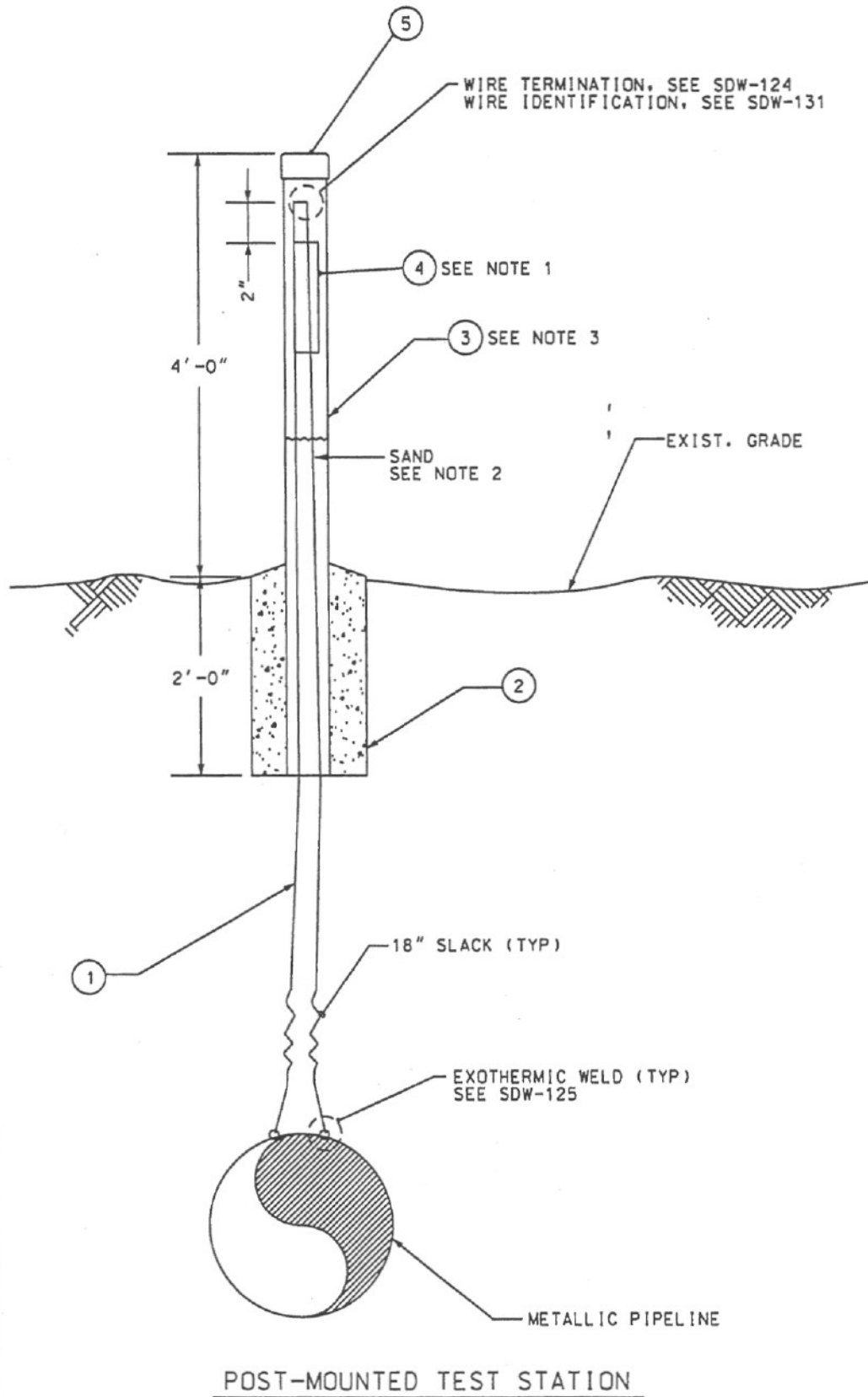
INSTALLATION OF DIRECTLY BURIED CABLES AND CONDUIT

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*R. [Signature]* 12-9-03  
Chairperson RCE 6472 Date

DRAWING NUMBER SDW-126





- MATERIALS:**
- ① CABLE: AWG #8 COPPER ASTM B3 STRANDED ASTM B8 INSULATION ASTM D 1248 TYPE 1, CLASS C, GR. 5.
  - ② FOOTING: CONCRETE 12" DIA., SSPWC 295-C-17.
  - ③ PIPE: 4" DIAMETER, SCH 40, ASTM A 53 GALVANIZED.
  - ④ DECAL: SEE SDW-132.
  - ⑤ CAP: THREADED 4" DIAMETER GALVANIZED.

- NOTES:**
1. PLACE TWO DECALS, ONE FACING ROADWAY.
  2. FILL THE PIPE WITH 50 SIEVE SAND FROM BOTTOM OF CONCRETE FOOTING TO 12" ABOVE GRADE.
  3. THIS POST-MOUNTED STATION IS FOR USE ONLY IN AREAS WITH NO VEHICULAR TRAFFIC.

Revision	By	Approved	Date
Original		Oskoui	12/03

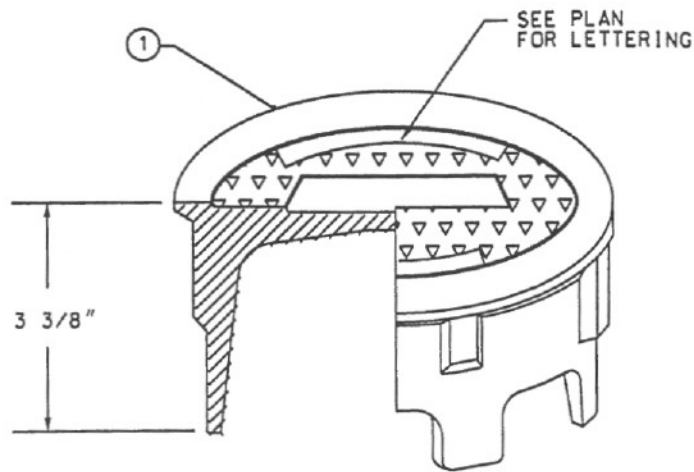
CITY OF SAN DIEGO - STANDARD DRAWING

ABOVE GRADE CATHODIC PROTECTION TEST STATION INSTALLATION FOR UNDEVELOPED AREAS

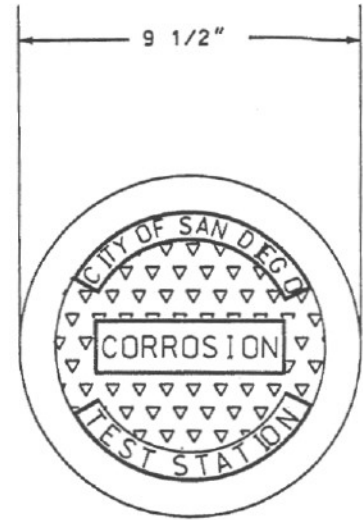
CITY OF SAN DIEGO STANDARDS COMMITTEE

*R. Blahy* 12-9-03  
Chairperson RCE 64572 Date

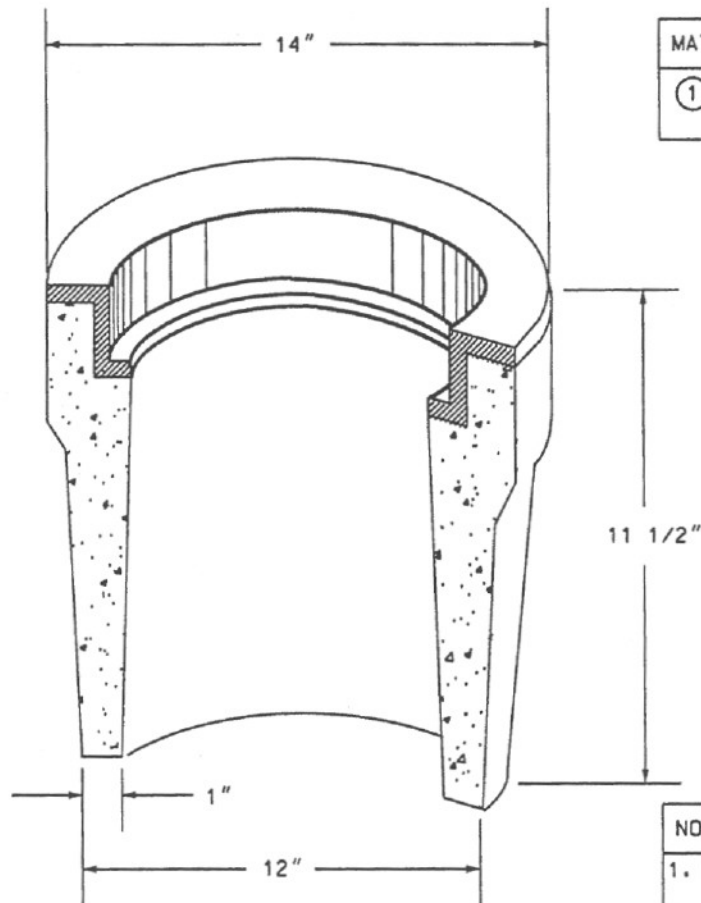
DRAWING NUMBER SDW-127



TEST BOX COVER ISOMETRIC



TEST BOX COVER PLAN



TEST BOX ISOMETRIC SECTION

MATERIALS:	
①	COVER: ASTM A 48 CLASS 30.

NOTES:	
1.	COVER WEIGHT: 12 LB.
2.	BODY WEIGHT: 58 LB.
3.	THE COVER SHALL HAVE CASTED MARKING IN 1/2" HIGH RAISED LETTERS.

Revision	By	Approved	Date
Original		Oskoui	12/03

CITY OF SAN DIEGO - STANDARD DRAWING

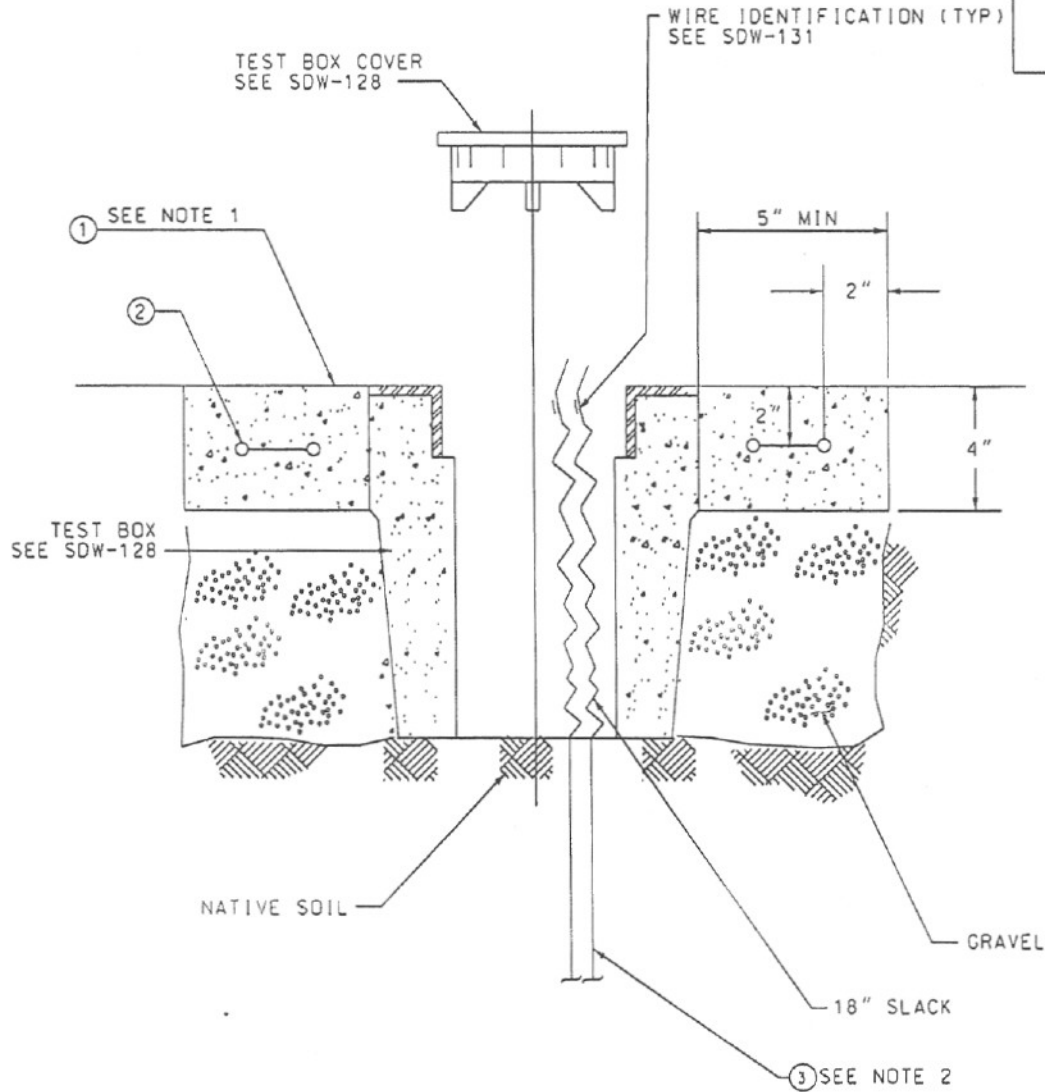
AT-GRADE  
CONCRETE TEST BOX

CITY OF SAN DIEGO  
STANDARDS COMMITTEE  
*R. L. H.* 12-9-03  
Chairperson RCE 6492 Date

DRAWING NUMBER SDW-128

MATERIALS:

- ① CONCRETE: 2' X 2' X 4" THK. PER SSPWC 330-C-23.
- ② REINFORCING FABRIC 4" X 4" GAUGE 10 WIRE.
- ③ CABLE: REFER TO NOTE 2.



TEST STATION SECTION

NOTES:

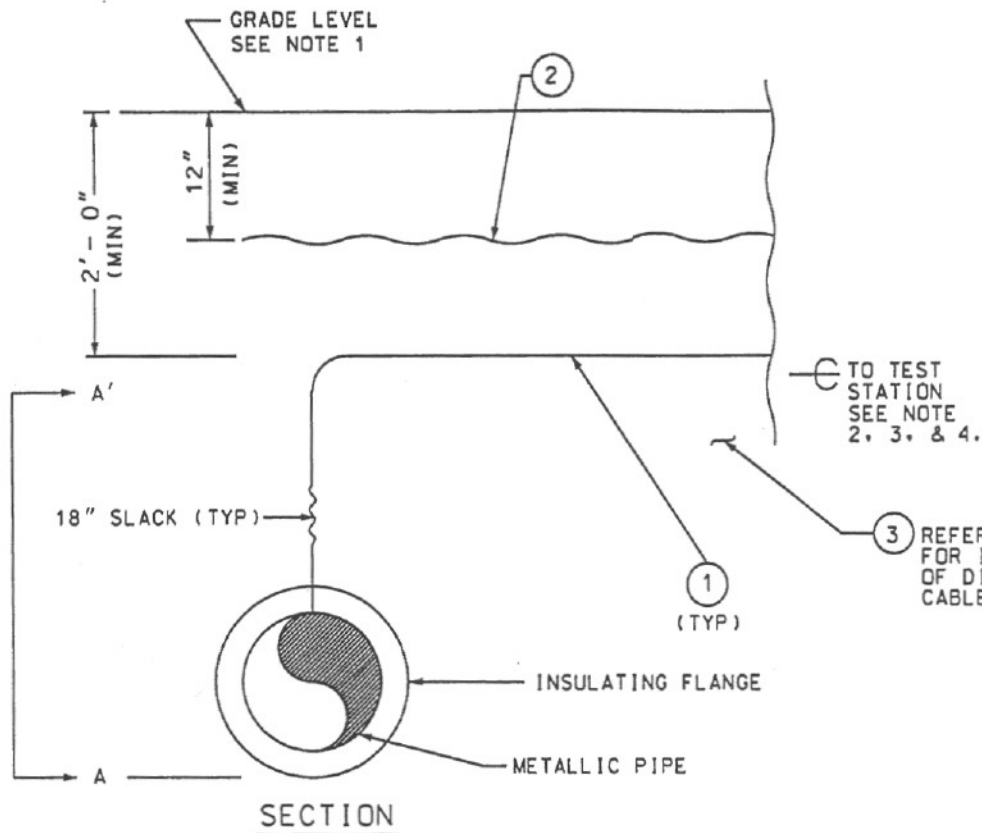
- 1. SLOPE CONCRETE PAD AWAY FROM COVER.
- 2. FOR CONTINUATION OF CABLES, REFER TO SDW-127 OR SDW-130, AS APPLICABLE.

Revision	By	Approved	Date
Original		Oskoui	12/03

CITY OF SAN DIEGO - STANDARD DRAWING

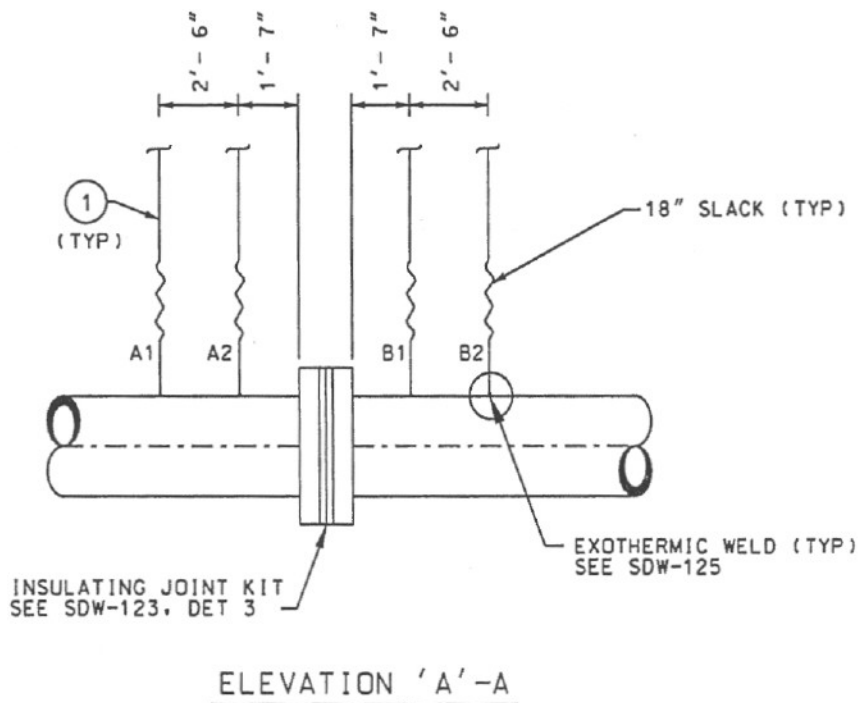
AT-GRADE CATHODIC PROTECTION TEST STATION WIRING DIAGRAM FOR ROADWAYS

CITY OF SAN DIEGO STANDARDS COMMITTEE  
*R. L. G.* 12-9-03  
 Chairperson RCE 84912 Date  
 DRAWING NUMBER SDW-129



- MATERIALS:**
- ① CABLE: AWG #2 COPPER ASTM B3, STRANDED ASTM B8, INSULATED PER ASTM D1248, TYPE 1 CLASS C, GRADE 5.
  - ② POLYETHYLENE WARNING TAPE, SEE DETAIL 1 SDW-121.
  - ③ SAND: 50 SIEVE COMPLIES TO SSPWC 200-1.5.

③ REFER TO SDW-126 FOR INSTALLATION OF DIRECTLY BURIED CABLES AND CONDUITS.



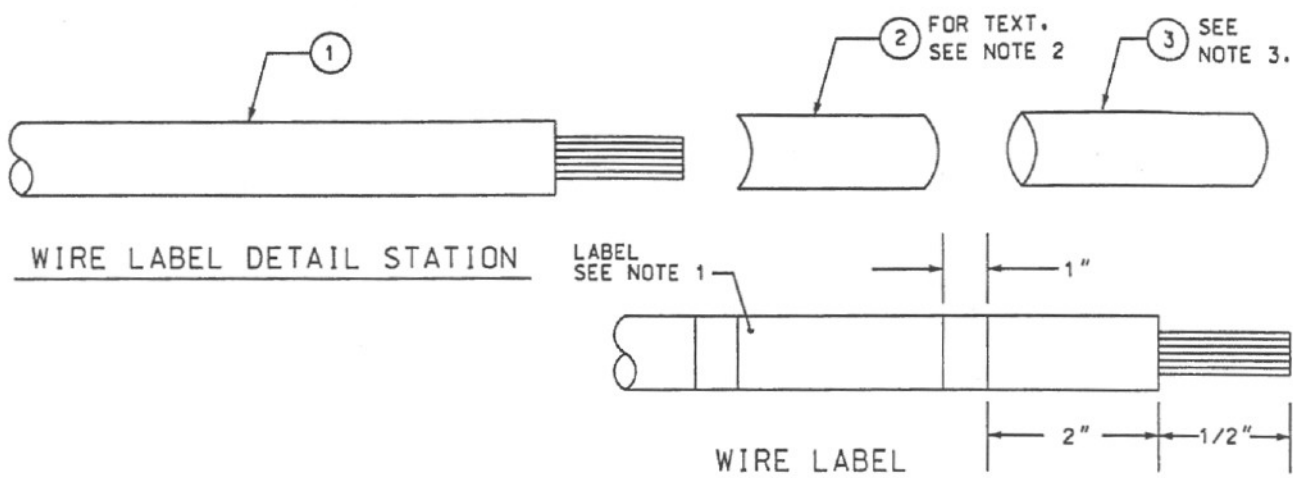
- NOTES:**
1. IN PAVED, CITY OWNED ROADWAYS, THE REPAIR OF THE ROAD SURFACE SHALL BE PER APPLICABLE TO SDRSD SDG-117 OR SDG-118. IN STATE HIGHWAYS, CONFORM TO APPLICABLE CALTRANS STANDARD.
  2. FOR LOCATION OF TEST STATION, USE REGIONAL STD DWG W15. EXACT LOCATION SHALL BE APPROVED BY CORROSION ENGR.
  3. AT ROADWAYS, USE SDW-129 & AT UNDEVELOPED AREAS USE SDW-127.
  4. FOR INSTALLATION OF DIRECTLY BURIED CABLES & CONDUIT SEE SDW-126.

Revision	By	Approved	Date
Original		Oskoui	12/03

CITY OF SAN DIEGO - STANDARD DRAWING

INSULATING FLANGE FOUR-WIRE  
TEST STATION INSTALLATION

CITY OF SAN DIEGO  
STANDARDS COMMITTEE  
*R. G.* 12-9-03  
Chairperson RCE 64572 Date  
DRAWING NUMBER SDW-130



**LEGEND**

PIPE MATERIAL

- CCI - COATED CAST IRON
- CDI - COATED DUCTILE IRON
- SCRC - STEEL CYLINDER REINFORCED CONCRETE
- PSCS - PRE-STRESSED CONCRETE-STEEL CYLINDER
- RCCP - REINFORCED CONCRETE CYLINDER PIPE (W/O STEEL)
- SCRW - STEEL CYLINDER REINFORCED ROD WRAPPED
- CMLC - CEMENT MORTAR LINED-COATED STEEL CYLINDER
- CMLCT - CEMENT MORTAR LINED-COATED-TAPED STEEL CYLINDER
- CSTL - COATED STEEL CYLINDER

CPTS# (CATHODIC PROTECTION TEST STATION NUMBERING)

CPTS#1, 2, 3, .....N

TYPE OF INSTALLATION

- 2WTS - 2-WIRE TEST STATION  
EXAMPLE: CPTS#1, 2WTS, 180+00, 30, OTAY 2, CSTL
- 4WIJTS - 4-WIRE INSULATING JOINT TEST STATION  
EXAMPLE: CPTS#2, 4WIJTS, 180+00, 30, OTAY 2, CSTL, NORTH OR SOUTH OR EAST OR WEST FOR WIRE TAGS
- 6WTS - 6-WIRE TEST STATION  
EXAMPLE: STRUCTURE#1 - CPTS#3, 6WTS, 180+00, 30, OTAY 2, CSTL NORTH OR SOUTH OR EAST OR WEST FOR WIRE TAGS  
STRUCTURE#2 - CPTS#3, 6WTS, 120+60, 24, MIDCITY, SCRW NORTH OR SOUTH OR EAST OR WEST FOR WIRE TAGS  
STRUCTURE#3 - CPTS#3, 6WTS, 101+25, 54, TROJAN, RCCP, NORTH OR SOUTH OR EAST OR WEST FOR WIRE TAGS
- CTS - CURRENT TEST STATION  
EXAMPLE: CPTS#10, CTS, 180+00, 200 FT., OTAY 2, CSTL, NORTH OR SOUTH OR EAST OR WEST FOR WIRE TAGS
- CSGTS - CASING TEST STATION  
EXAMPLE: CPTS#12, CSGTS, 180+00, 30, OTAY 2, CSTL NORTH OR SOUTH OR EAST OR WEST FOR WIRE TAGS
- ASTA - ANODE STATION  
EXAMPLE: ANODE#1, 2, 3, .....N FOR ANODE WIRES;  
30, OTAY 2, CSTL, 180+00, CPTS#6 FOR STRUCTURE WIRE
- BSTA - BOND STATION  
EXAMPLE: CPTS#18, BSTA, 30, OTAY 2, CSTL, 180+00;  
54, OTAY 3, SCRW, 65+20
- FXSTA - FOREIGN CROSSING STATION  
EXAMPLE: CPTS#4, FXSTA, 30, OTAY 2, CSTL, 180+00; 24 SDGE

- MATERIALS:**
- ① CABLE: AWG ASTM B8 & B3.
  - ② LABEL: FILE FOLDER, SELF ADHESIVE WHITE 2/3" X 3 1/16".
  - ③ SLEEVE: HEAT SHRINK, ADHESIVE LINED POLYOLEFIN, CLEAR THIN WALL TUBING.

- NOTES:**
1. CABLES SHALL BE TAGGED USING TIMES ROMAN 10 POINT FONT.
  2. TEXT SHALL BE PRESENTED IN THE FOLLOWING ORDER:
    - . CPTS #
    - . TYPE OF INSTALLATION
    - . STATIONING
    - . PIPE DIAMETER
    - . FACILITY NAME
    - . PIPE MATERIAL
    - . WIRE DIRECTIONAL ORIENTATION
      - . NORTH
      - . SOUTH
      - . EAST
      - . WEST
  3. PLACE SLEEVE AFTER ATTACHMENT OF LABEL TO CABLE.

Revision	By	Approved	Date
Original		Oskoui	12/03

CITY OF SAN DIEGO - STANDARD DRAWING

WIRE IDENTIFICATION

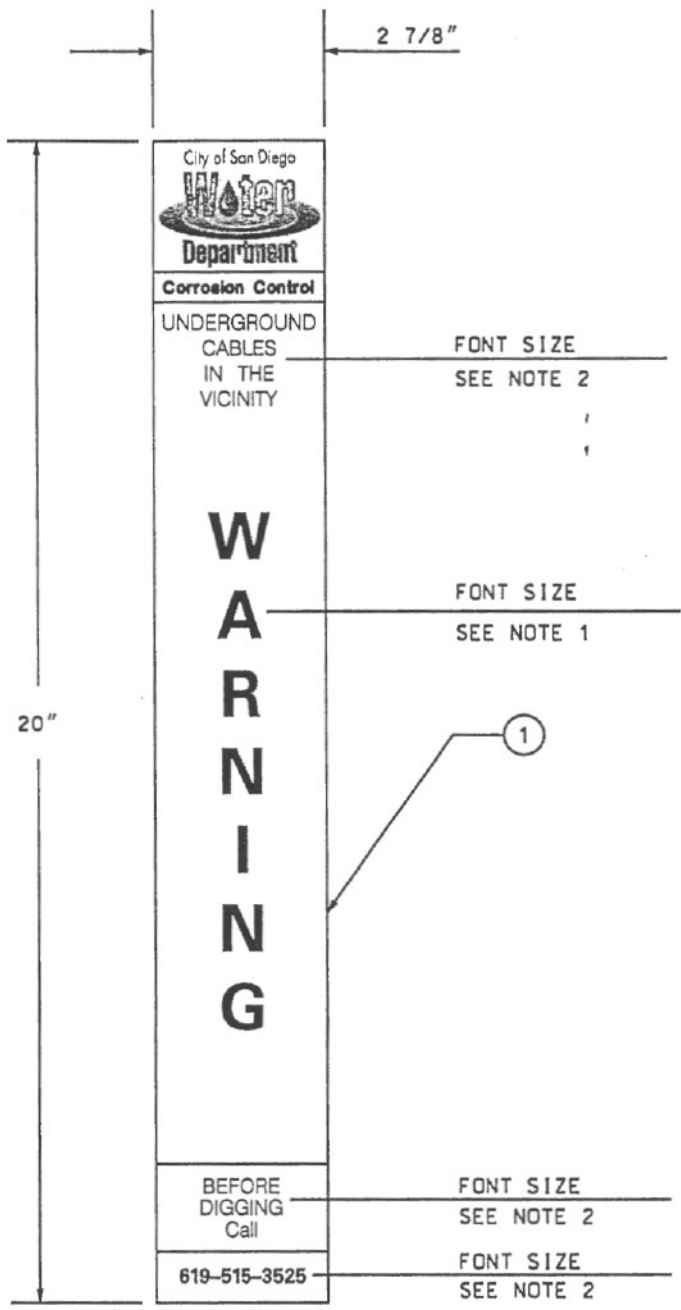
CITY OF SAN DIEGO STANDARDS COMMITTEE

*R. G. ...* 12-9-03  
Chairperson RCE 64572 Date

DRAWING NUMBER SDW-131

**MATERIALS:**

① DECAL: APWA BLUE, WITH WHITE REFLECTIVE LETTERS. DECAL MATERIAL SHALL BE UV RESISTANT PREMIUM GRADE CAST VINYL SHEETING WITH AGGRESSIVE ADHESIVE AND UNDER PROTECTIVE LAMINATE.



DECAL ELEVATION

**NOTES:**

1. 1" TEXT BOLD  
2. 1/4" TEXT BOLD

Revision	By	Approved	Date
Original	Oskoui		12/03

CITY OF SAN DIEGO - STANDARD DRAWING

POST-MOUNTED CATHODIC PROTECTION WARNING DECAL

CITY OF SAN DIEGO STANDARDS COMMITTEE

*B. L. H.* 12-9.03  
Chairperson RCE 64572 Date

DRAWING NUMBER SDW-132

**ANODES**

AV  Vertical      AH  Horizontal  
Where X:

- |                               |                               |
|-------------------------------|-------------------------------|
| AV1 - Al (Aluminum)           | AH1 - Al (Aluminum)           |
| AV2 - Pm (Polymeric)          | AH2 - Pm (Polymeric)          |
| AV3 - Pt (Platinum)           | AH3 - Pt (Platinum)           |
| AV4 - Fe (Scrap Iron)         | AH4 - Fe (Scrap Iron)         |
| AV5 - Gr (Graphite)           | AH5 - Gr (Graphite)           |
| AV6 - Ci (HS C Iron)          | AH6 - Ci (HS C Iron)          |
| AV7 - Zn (Zinc)               | AH7 - Zn (Zinc)               |
| AV8 - Mg (Magnesium)          | AH8 - Mg (Magnesium)          |
| AV9 - MMO (Mixed Metal Oxide) | AH9 - MMO (Mixed Metal Oxide) |

**CABLES (CB)**

- |     |  |                     |
|-----|--|---------------------|
| CB1 |  | Positive            |
| CB2 |  | Positive in Conduit |
| CB3 |  | Negative            |
| CB4 |  | Negative in Conduit |

**CABLE CONNECTION (CC)**

- |     |  |                 |
|-----|--|-----------------|
| CC1 |  | Exothermic Weld |
| CC2 |  | Splice Tee      |
| CC3 |  | Straight Splice |

**CASING (CS)**

- |     |  |                    |
|-----|--|--------------------|
| CS1 |  | Unprotected Casing |
| CS2 |  | Protected Casing   |

**ANODE GROUNDBEDS (AG)**

- |     |  |                           |
|-----|--|---------------------------|
| AG1 |  | Deep Anode Well           |
| AG2 |  | Polymeric or Platinum     |
| AG3 |  | Conventional - Vertical   |
| AG4 |  | Conventional - Horizontal |

**JUNCTION BOX (JB)**

JB  Where X:

- JBN - Negative Cables
- JBP - Positive Cables
- JBR - Resistor
- JBD - Diode
- JBA - Galvanic Anode Shunts
- JBI - Impressed Anode Shunts
- JBS - Cable Splice

**INSULATING JOINTS (IJ)**

- |      |  |   |
|------|--|---|
| IJ1  |  | Dielectrically Insulated Flange Joint     |
| IJ2  |  | Non-Dielectrically Insulated Flange Joint |
| IJ3  |  | Flanged insulating Protective Device      |
| IJ4  |  | Bonded Insulated Flange Joint             |
| IJ5  |  | Insulated Flange w/Adjustable Resistance  |
| IJ6  |  | Gate Valve Insulated Flange Joint         |
| IJ7  |  | Butterfly Valve Insulated Flange Joint    |
| IJ8  |  | MOV Insulated Flange Joints               |
| IJ9  |  | Monolithic Insulating Joint               |
| IJ10 |  | Bonded Mechanical Coupling                |
| IJ11 |  | Dielectrically Insulated Union            |
| IJ12 |  | Bonded Dielectric Union                   |
| IJ13 |  | Dielectrically Insulated Coupling         |

**RECTIFIERS (RE)**

- |     |  |                  |
|-----|--|------------------|
| RE1 |  | Pedestal Mounted |
| RE2 |  | Post Mounted     |

**REFERENCE CELL (RC)**

- |     |  |                             |
|-----|--|-----------------------------|
| RC1 |  | Copper-Copper Sulfate Cell  |
| RC2 |  | 99.9% High Purity Zinc Cell |
| RC3 |  | Silver-Silver Chloride Cell |

**TEST STATION (TS)**

- Above Grade      At Grade      Where X:
- TS1 - IR-Free Coupon
  - TS2 - 2-Wires Station
  - TS3 - Foreign Crossing Station
  - TS4 - 4-Wires Station
  - TS5 - Calibrating Station
  - TS6 - 6-Wires Station
  - TS7 - Interference Current
  - TS8 - 8-Wires Station
  - TS9 - Electrical Resistance Probe

Revision	By	Approved	Date
Original		Oskoui	12/03

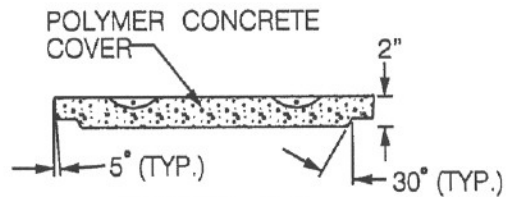
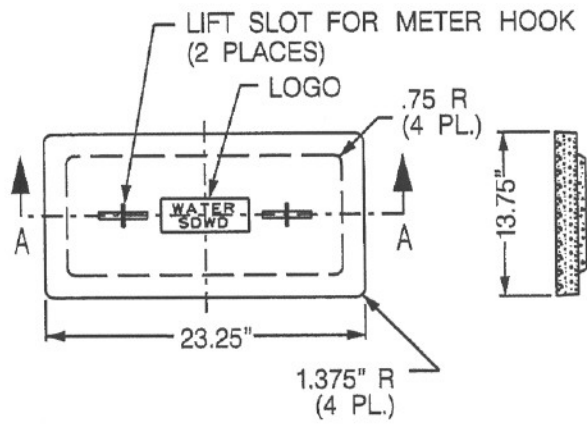
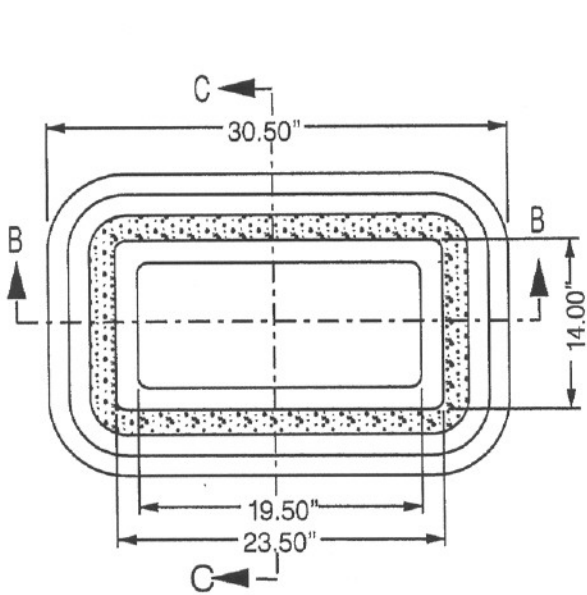
CITY OF SAN DIEGO - STANDARD DRAWING

SYMBOLS  
CATHODIC PROTECTION

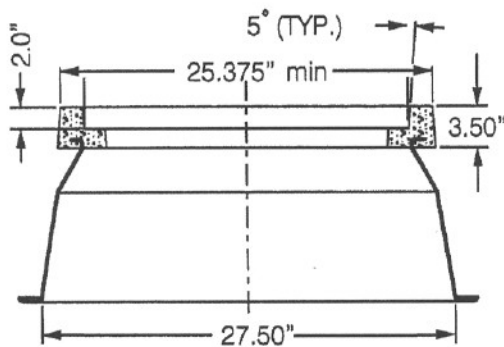
CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*R. Shih* 12-9-03  
Chairperson RCE 64572 Date

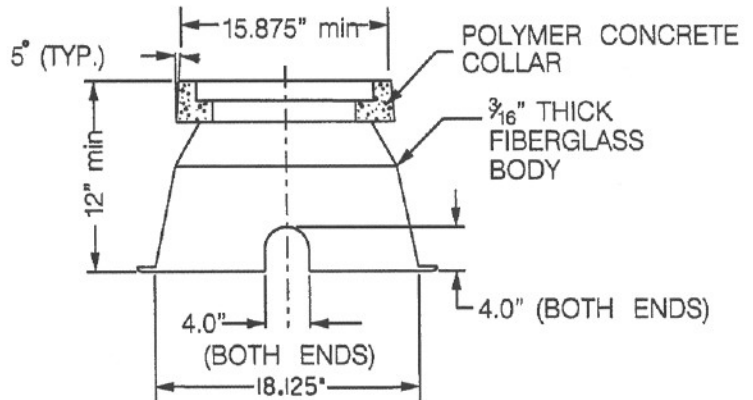
DRAWING NUMBER SDW-133



**SECTION A-A**



**SECTION B-B**



**SECTION C-C**

**NOT TO SCALE**

**NOTE:**

1. METER BOX COLLAR AND COVER SHALL BE OF POLYMER CONCRETE REINFORCED WITH CONTINUOUS LAYERS OF WOVEN FIBERGLASS.
2. BOX AND COVER SHALL WITHSTAND A-16 LOADINGS (ASTM C857-95)
3. LOGO = SDWD WATER
4. FOR COVER DETAIL WITH READER LID, SEE SDW-136
5. SEE SDW-137 FOR INSTALLATION PROCEDURE.

Revision	By	Approved	Date
Orgnl	SMS	Oskoui	12/03

**CITY OF SAN DIEGO - STANDARD DRAWING**

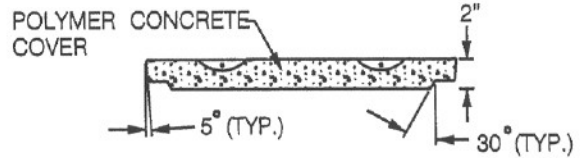
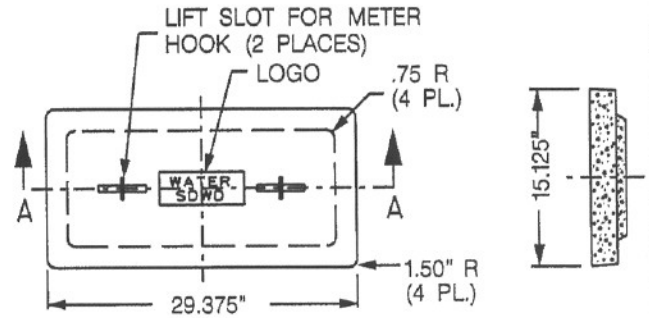
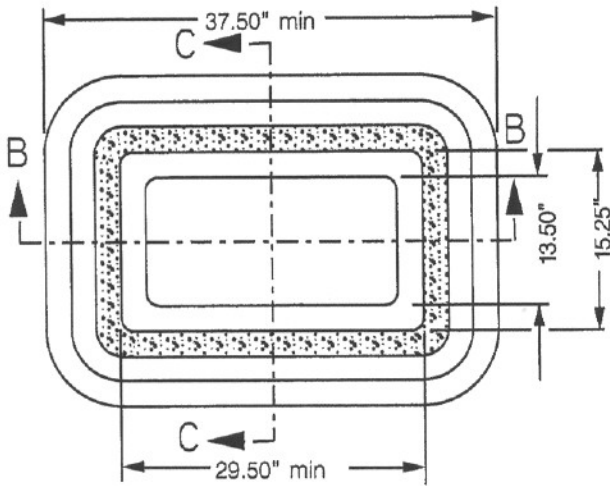
**POLYMER CONCRETE WITH LAYER OF WOVEN FIBERGLASS WATER METER BOX FOR 1" WATER SERVICE**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

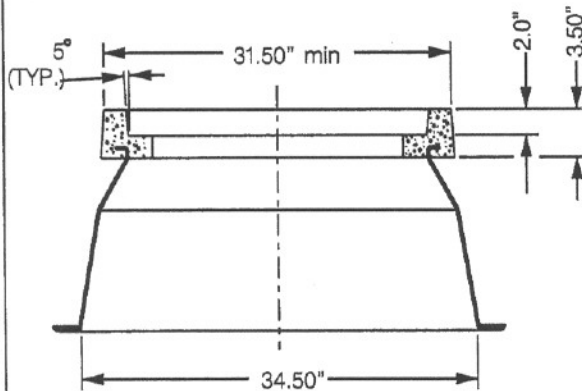
*R. H. ...* 12-9-03  
Chairperson RCE 64572 Date

DRAWING NUMBER **SDW-134**

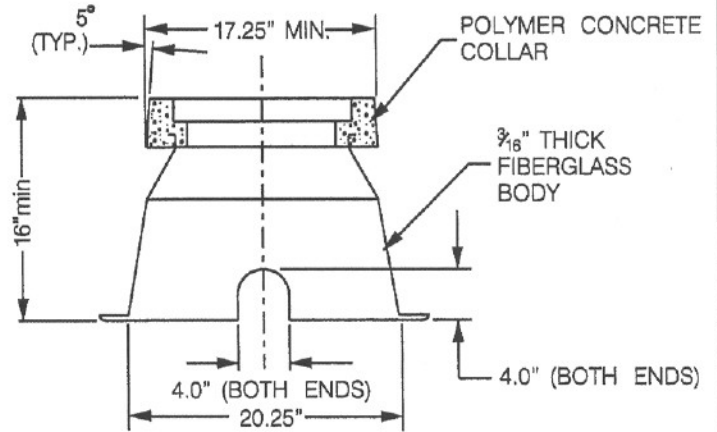




**SECTION A-A**



**SECTION B-B**



**SECTION C-C**

**NOT TO SCALE**

**NOTE:**

1. METER BOX COLLAR AND COVER SHALL BE OF POLYMER CONCRETE REINFORCED WITH CONTINUOUS LAYERS OF WOVEN FIBERGLASS.
2. BOX AND COVER SHALL WITHSTAND A-16 LOADINGS (ASTM C857-95)
3. LOGO = SDWD WATER
4. FOR COVER DETAIL WITH READER LID, SEE SDW-136
5. SEE SDW-137 FOR INSTALLATION PROCEDURE.

Revision	By	Approved	Date
Orgnl	SMS	Oskoui	12/03

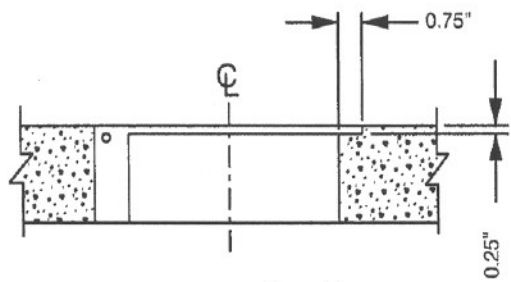
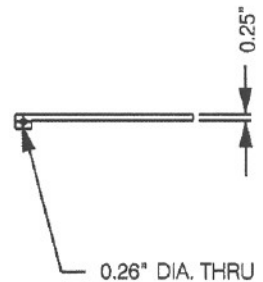
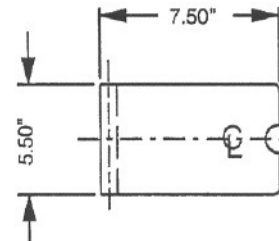
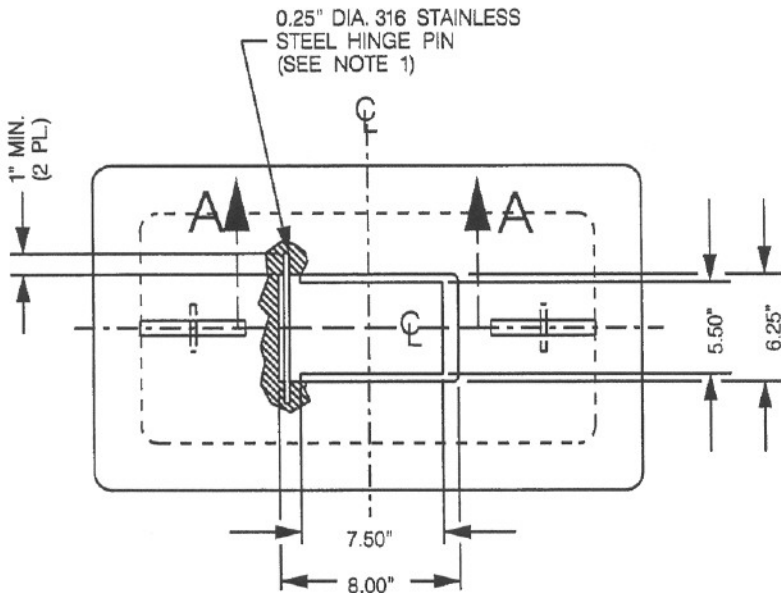
**CITY OF SAN DIEGO - STANDARD DRAWING**

**POLYMER CONCRETE WITH LAYER OF WOVEN FIBERGLASS WATER METER BOX FOR 2" WATER SERVICE**

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*R. Kelly* 12-9-03  
Chairperson RCE 64512 Date

DRAWING NUMBER **SDW-135**



**SECTION A-A**

S.S LID  
 1" METER BOX COVER  
 (38 LBS)  
 2" METER BOX COVER  
 (43 LBS)

**NOT TO SCALE**

**NOTE:**

1. CAST IRON LID & 316 STAINLESS STEEL HINGE PIN TO OPEN LESS THAN 90 DEGREES SHALL BE ASSEMBLED AND MOLDED INTO METER BOX COVER DURING MANUFACTURE.
2. SEE SDW-134 OR SDW-135 FOR DIMENSIONS OF METER BOX COVER.
3. LID SHALL WITHSTAND A-10 LOADINGS (ASTM C857-95)

Revision	By	Approved	Date
Orgnl	sms	Oskoui	12/03

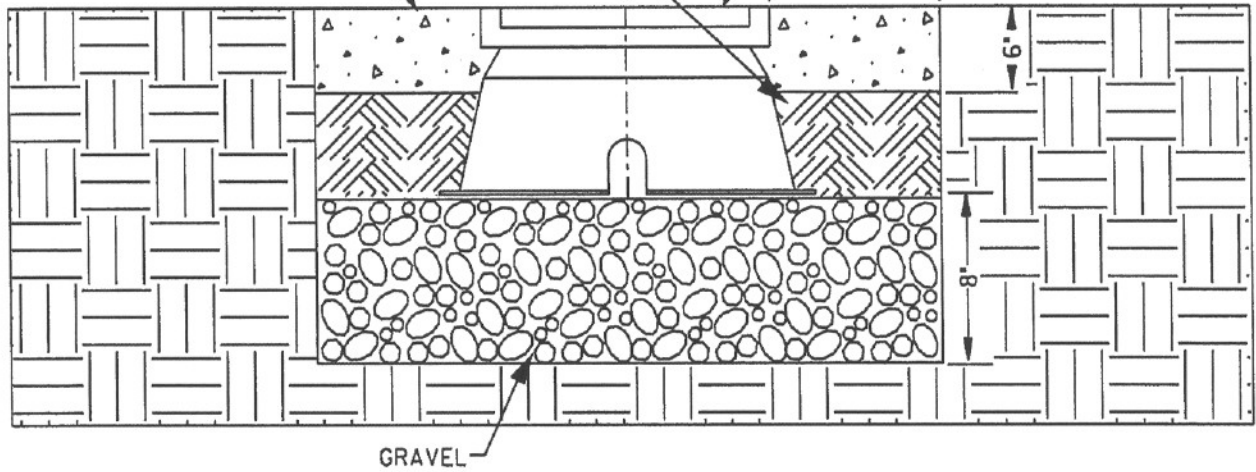
**CITY OF SAN DIEGO - STANDARD DRAWING**  
**METER BOX COVER WITH READER LID**

CITY OF SAN DIEGO  
 STANDARDS COMMITTEE  
*R. L. H.* 12-9-03  
 Chairperson RCE 64572 Date  
 DRAWING NUMBER **SDW-136**

Fill @ 95% RELATIVE  
Compaction

Concrete 3250 PSI  
Minimum  
SEE NOTE ①

SEE SDW-135  
METER BOX



NOT TO SCALE

INSTALLATION PROCEDURE FOR METER BOXES IN AREAS WHICH ARE SUBJECT TO HEAVY TRAFFIC INCLUDING DRIVEWAYS, PARKING LOTS AND ALLEYS

STEP 1. PREPARE THE EXCAVATION APPROXIMATELY 8 INCHES DEEPER THAN THE DEPTH OF THE BOX, THEN ADD 8 INCHES OF GRAVEL.

STEP 2. PLACE BOX IN HOLE WITH TOP AT GRADE LEVEL.

STEP 3. BACKFILL AND COMPACT TO 95% RELATIVE COMPACTION MINIMUM.

NOTE

① CONCRETE IS REQUIRED TO BE 3250 psi MINIMUM STRENGTH AND PLACED AT STREET GRADE.

Revision	By	Approved	Date
Orgnl	SMS	Oskoui	12/03

CITY OF SAN DIEGO - STANDARD DRAWING

INSTALLATION PROCEDURE FOR HEAVY  
TRAFFIC METER BOX

CITY OF SAN DIEGO  
STANDARDS COMMITTEE

*R. L.* 12-9-03  
Chairperson RCE 64572 Date

DRAWING NUMBER **SDW-137**