



2012 SAN DIEGO

**REGIONAL
STANDARD
DRAWINGS**

STANDARD DRAWINGS FOR AGENCIES IN THE SAN DIEGO REGION

Recommended by the Regional Standards Committee
Maintained and Published by the County of San Diego
Department of Public Works
September 2012
www.regional-stds.com



Regional Standards Committee

Web Site: <http://www.regional-stds.com>

Mission Statement: Cost effective government through regional construction standards for San Diego area agencies.

FORWARD

These "2012 San Diego Regional Standard Drawings" (Standard Drawings) have been prepared and adopted by the San Diego Regional Standards Committee (RSC) for use in San Diego County Region by local agencies. They are for use in concert with the "2012 San Diego Regional Supplement to the 2012 Edition of the "Greenbook" Standard Specifications for Public Works Construction" (Regional Supplement). The San Diego region is defined as the land area within the boundaries of the County of San Diego.

The San Diego Regional Standard Drawings are published every three years and are posted on the website: <http://www.regional-stds.com>. Updates to the Standard Drawings will be posted to the website as they are adopted by the RSC.

The website contains information about membership, operating procedures, meeting schedules, agenda and minutes, Standard Drawings, Regional Supplement, a link to the Greenbook Committee and a form for submitting proposed revisions. Users of the Regional Supplement and the Standard Drawings are encouraged to submit proposed changes to the Regional Standards Committee (RSC) at:

County of San Diego
Department of Public Works
Attention: Matt Widelski, PE, RSC Coordinator
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858-694-8841
Matthew.widelski@sdcounty.ca.gov

The following is a list of the County of San Diego Coordinator and the subcommittee chairpersons who over the last three years have made this publication possible by integrating the input from all agencies in the County:

Matt Widelski, PE	County of San Diego Coordinator	County of San Diego
Tim Regello, PE, PLS	Drainage/NPDES Committee Chair	City of Vista
Dennis Gerschoffer	Dry Utilities and Misc Committee Chair	SDG&E
Nabil Batta, PE	Landscaping Committee Chair	City of San Diego
Tim Shell, PE	Retaining Walls & ADA Committee Chair	City of Vista
Christy Villa, PE	Surface Facilities Committee Co-Chair	City of Encinitas
Melody Rocco, PE	Surface Facilities Committee Co-Chair	City of Poway
Dennis Gerschoffer	Traffic/Lighting/Electrical Committee Chair	SDG&E
Blair Knoll, PE, PLS	Wet Utilities Committee Chair	San Dieguito Water District

The "Greenbook" was first published in 1967 and the Regional Standards Committee was established under San Diego County Board of Supervisors Policy I-50 in 1973. The Regional Standards Committee membership is open to the City Engineers, Directors of Public Works, District Engineers and Heads of Engineering, or their designees, from the County of San Diego, cities, water and sewer districts, utility companies, construction associations, consultant associations, and various private industry organizations within the San Diego region.

The County Department of Public Works provides coordination and staff support for the Regional Standards Committee. The RSC Chairman is selected by the committee members and serves a three-year term.

The 2012 San Diego Regional Standard Drawings has discontinued the use of dual units and adopted U.S. Standard Measures, also referred to as Customary System Units or English Units, based on Local Agencies requests and the State of California and most other states returning to English only units. The 2012 Greenbook continues to have U.S. Customary System Units followed by International System of Units also referred to SI or metric units in parenthesis.

A handwritten signature in blue ink, reading "Tim Stanton". The signature is stylized with a large, sweeping initial "T" and a cursive "Stanton".

Timothy N. Stanton, PE

Chairman, Regional Standards Committee

PROPOSED REVISION TO THE REGIONAL STANDARDS

Draft No.

Specification

☐ Drawing

Date _____

REASON FOR REVISION:

SUBMITTED BY:

NAME: _____ PHONE: _____

AGENCY: _____ ADDRESS: _____

Subcommittee: _____

Date: _____

☐ RECOMMENDED ☐ AS MODIFIED ☐ REJECTED

Regional Standards Committee

Date: _____

☐ RECOMMENDED ☐ AS MODIFIED ☐ REJECTED

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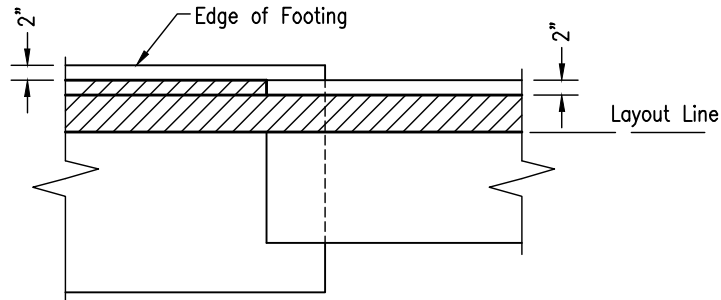
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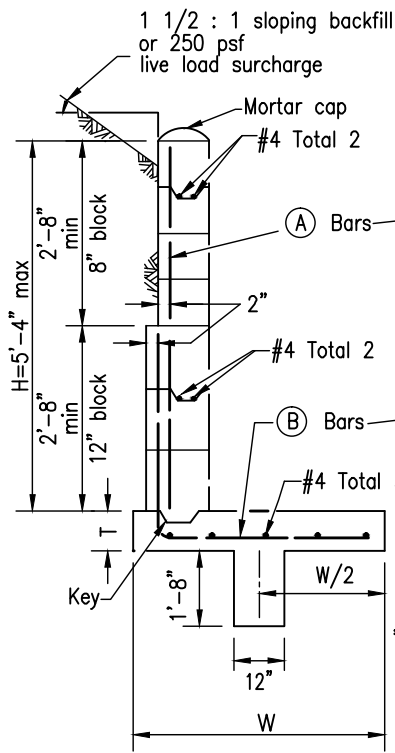
APPENDIX A

Traffic Control Plans

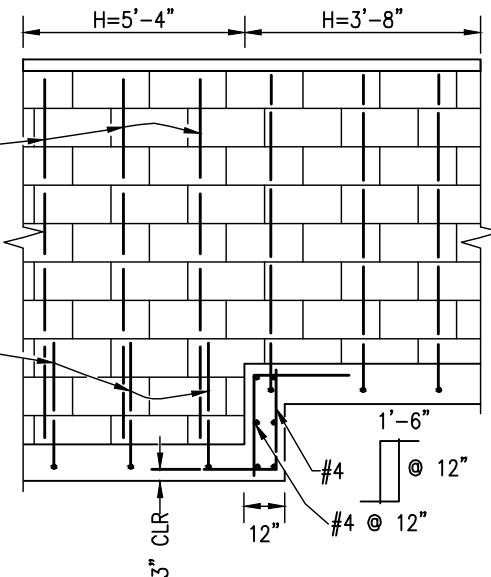
CONCRETE STRUCTURES



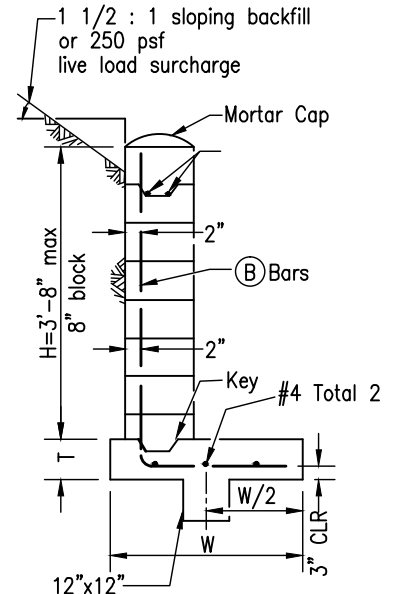
PLAN



TYPICAL SECTION
over 3'-8"



ELEVATION
Horizontal reinf. not shown



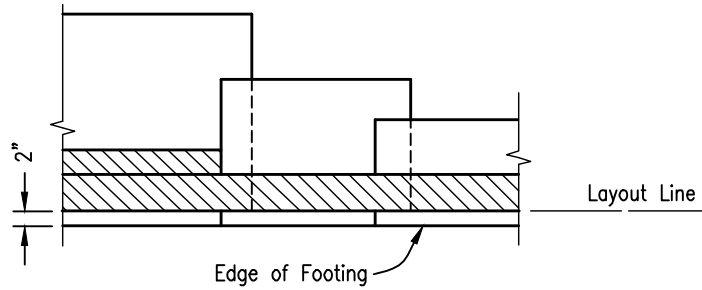
TYPICAL SECTION
3'-8" max

DIMENSIONS AND REINFORCING STEEL		
H (max)	5'-4"	3'-8"
T (min)	0'-10"	0'-10"
W (min)	5'-0"	3'-9"
(A) Bars	#4@16"	—
(B) Bars	#6@16"	#4@16"
max soil pressure	700psf	550psf

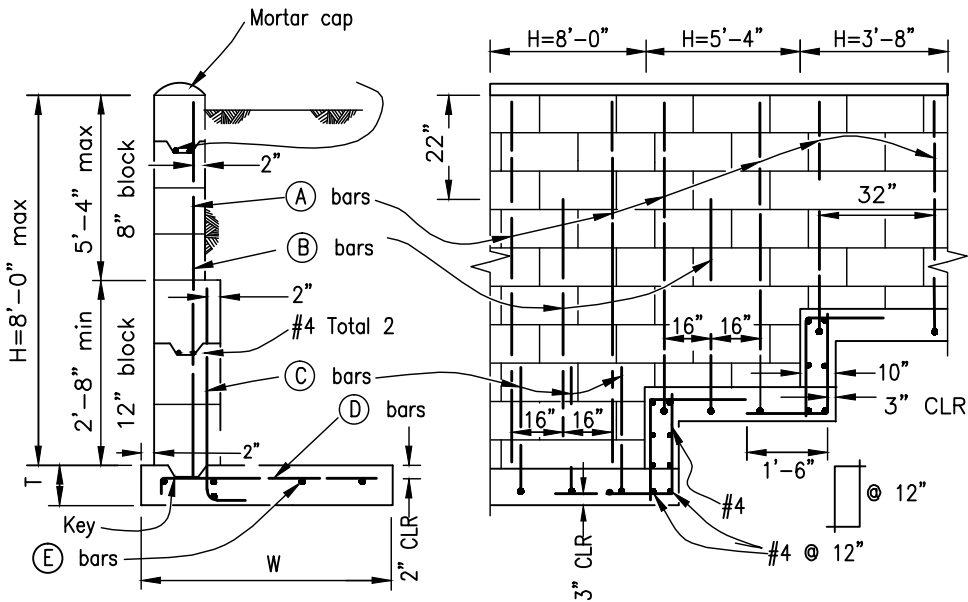
NOTES:

1. See C-7 and C-8 for additional notes and details.
2. Fill all block cells with grout.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75				
Add Metric		T. Stanton	03/03	MANSONRY RETAINING WALL TYPE 2 (LIVE LOAD SURCHARGE OR SLOPING BACKFILL)		Chairperson R.C.E. 19246 Date	
Delete Metric	S.S.	T. Shell	03/11			DRAWING NUMBER C-2	

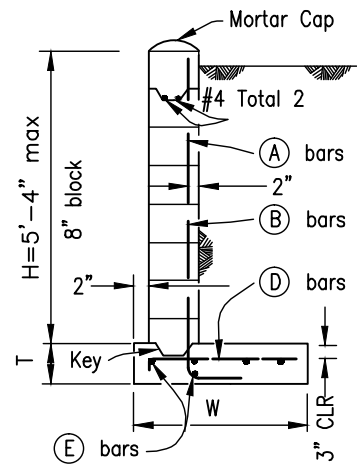


PLAN



ELEVATION

Horizontal reinf. not shown




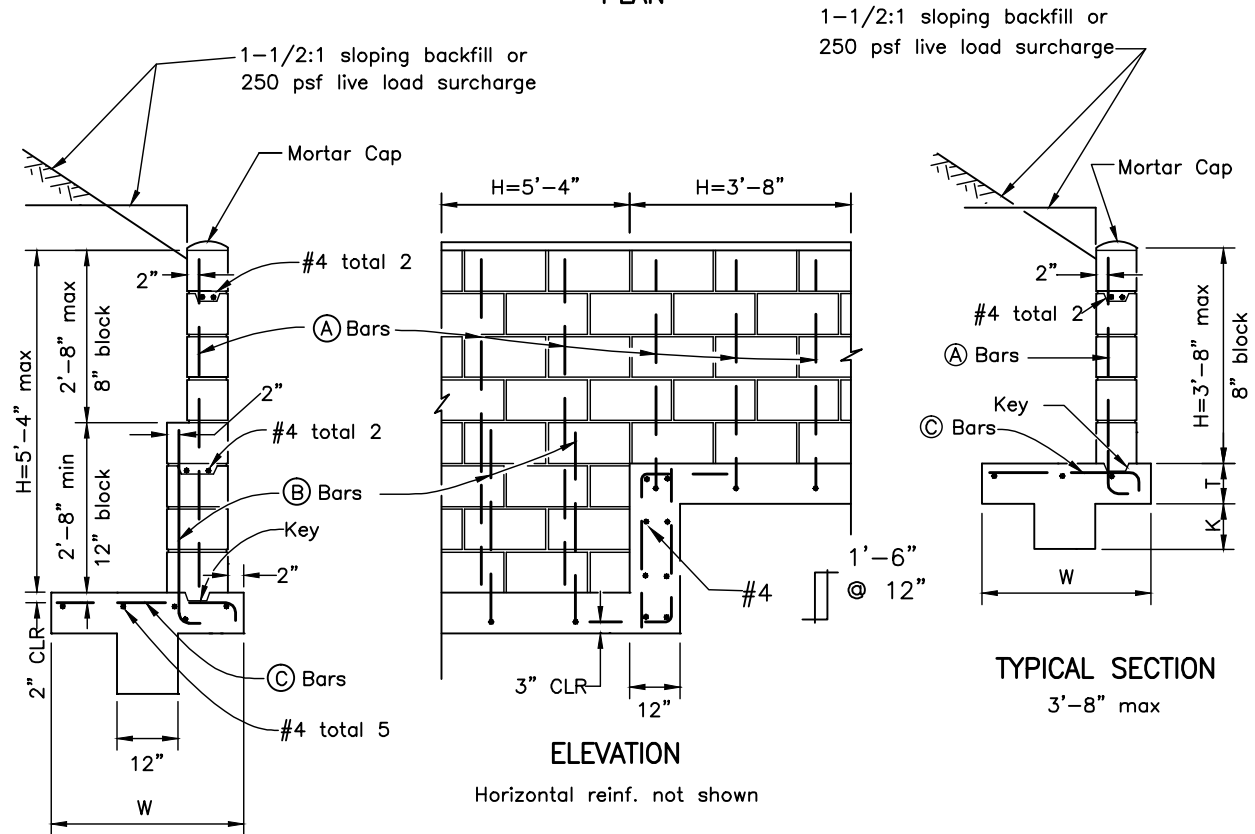
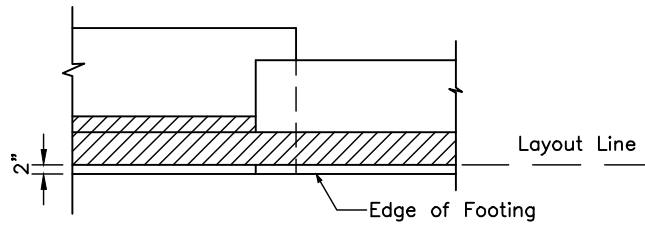
TYPICAL SECTION
5'-4" max

TYPICAL SECTION
over 5'-4"

DIMENSIONS AND REINFORCING STEEL			
H (max)	3'-8"	5'-4"	8'-0"
T (min)	0'-8"	0'-10"	1'-0"
W (min)	2'-4"	3'-2"	4'-9"
(A) Bars	#4@32"	#4@32"	#4@32"
(B) Bars	—	#4@32"	#4@32"
(C) Bars	—	—	#6@16"
(D) Bars	#4@32"	#4@16"	#6@16"
(E) Bars	#4 total 4	#4 total 5	#4 total 6
max soil pressure	1100psi	1600psi	2200psi

NOTES: 1. See C-7 and C-8 for additional notes and details.
2. Fill all block cells with grout.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75				
Add Metric		T. Stanton	03/03	MASONRY RETAINING WALL TYPE 3 (LEVEL BACKFILL)		 7/26/2012 Chairperson R.C.E. 19246 Date	
Delete Metric	S.S.	T. Shell	03/11				
						DRAWING NUMBER C-3	




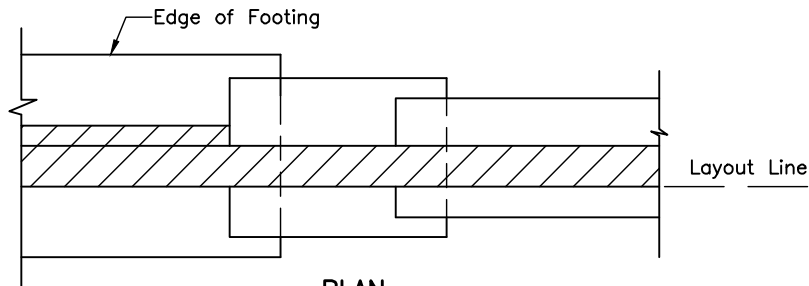
DIMENSIONS AND REINFORCING STEEL

H (max)	5'-4"		3'-8"	
T (min)	0'-10"		0'-8"	
W (min)	4'-0"		3'-0"	
Ⓐ Bars	#4@16"		#4@16"	
Ⓑ Bars	#6@16"		—————	
Surcharge	sloping	live load	sloping	live load
Ⓒ Bars	#6@8"	#6@16"	#6@16"	#6@16"
K (min)	1'-0"	0'-8"	1'-0"	0'-8"
Toe Press.	2700 psf	1900 psf	1700 psf	1430 psf

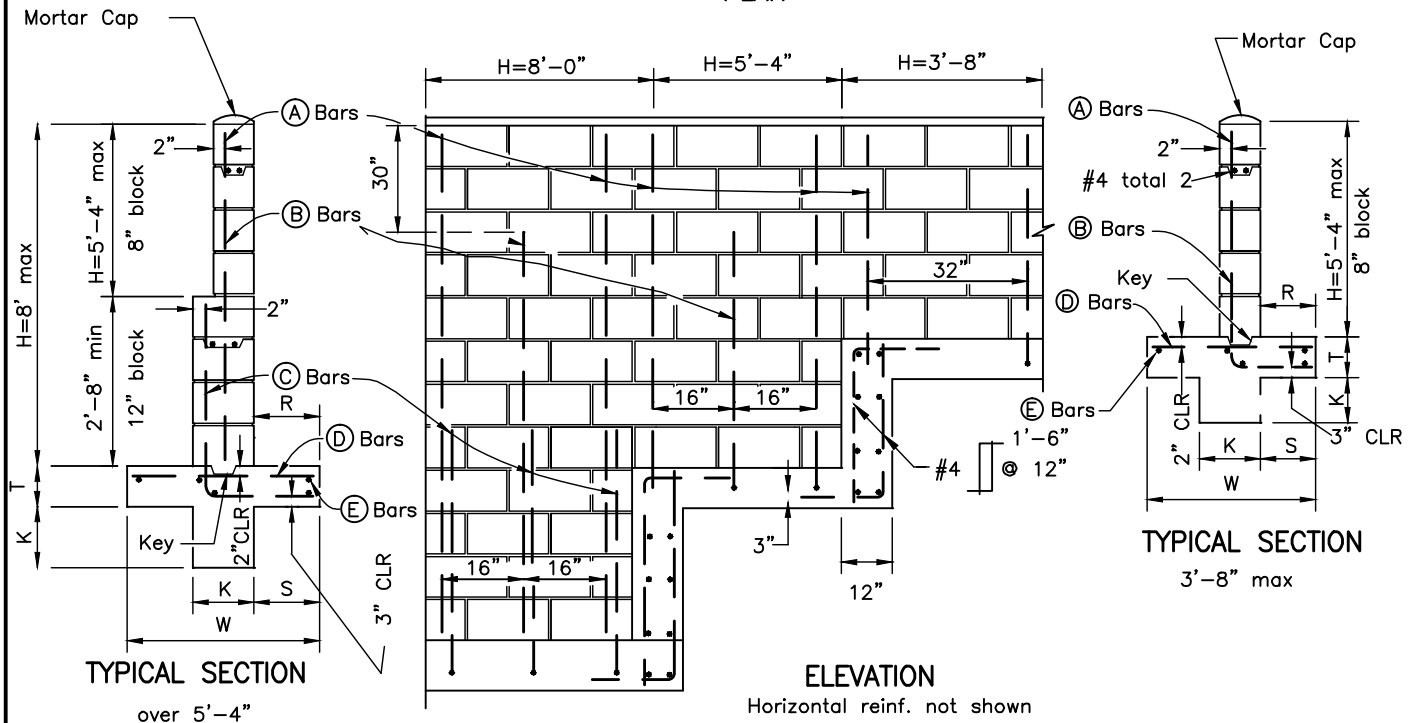
NOTES:

- See C-7 and C-8 for additional notes and details.
- Fill all block cells with grout.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Parkinson	02/95	MASONRY RETAINING WALL TYPE 4 (LIVE LOAD SURCHARGE OR SLOPING BACKFILL)		 7/26/2012 Chairperson R.C.E. 19246 Date	
Add Metric		T. Stanton	03/03				
Reformatted		T. Stanton	04/06				
Delete Metric	S.S.	T. Shell	03/11				
						DRAWING NUMBER C-4	




PLAN

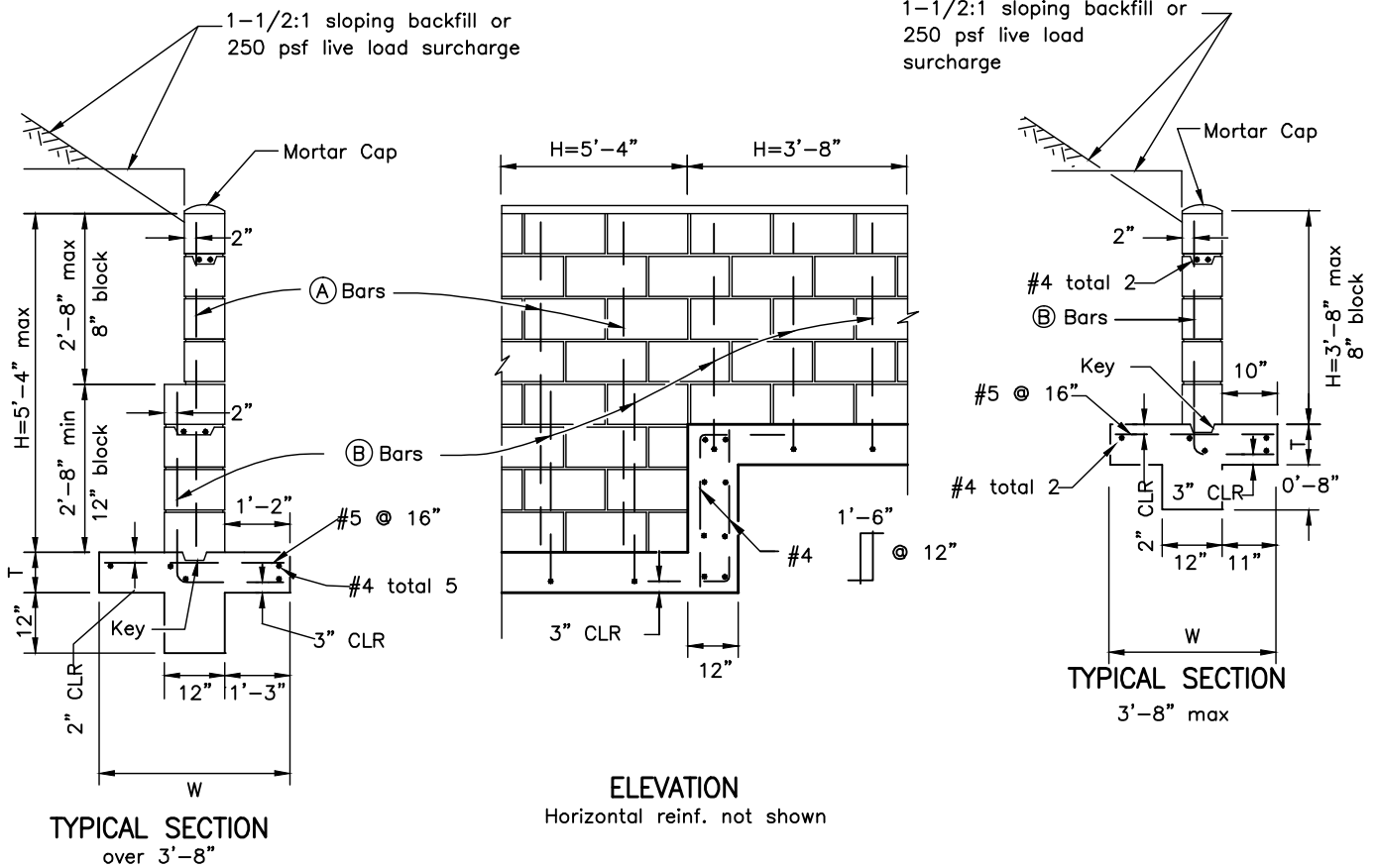
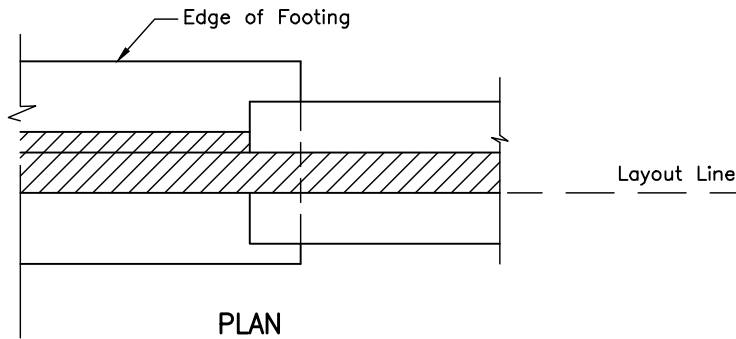


DIMENSIONS AND REINFORCING STEEL			
H (max)	3'-8"	5'-4"	8'-0"
T (min)	0'-8"	0'-10"	1'-0"
W (min)	2'-1"	3'-1"	4'-3"
R	0'-9"	1'-2"	1'-5"
S	0'-8 1/2"	1'-1 1/2"	1'-7 1/2"
K	0'-8"	0'-8"	1'-0"
(A) Bars	#4@32"	#4@32"	#4@32"
(B) Bars	—	#4@32"	#4@32"
(C) Bars	—	—	#7@16"
(D) Bars	#4@32"	#4@16"	#4@16"
(E) Bars	#4 total 5	#4 total 5	#4 total 6
Max Toe Pressure	774 psf	1,030 psf	1,660 psf

NOTES:

1. See C-7 and C-8 for additional notes and details.
2. Fill all block cells with grout.


Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Parkinson	2/95			<div> 7/26/2012</div> <div>Chairperson R.C.E. 19246 Date</div> <div>DRAWING NUMBER C-5</div>	
Add Metric		T. Stanton	03/03				
Delete Metric	S.S.	T. Shell	03/11				
				MASONRY RETAINING WALL TYPE 5 (LEVEL BACKFILL)			



DIMENSIONS AND REINFORCING STEEL		
H (max)	5'-4"	3'-8"
T (min)	0'-10"	0'-8"
W (min)	3'-10"	2'-9"
(A) Bars	#4@16"	—
(B) Bars	#6@16"	#4@16"
Max Toe Pressure	2,000 psf	1,400 psf

NOTES:

- See C-7 and C-8 for additional notes and details.
- Fill all block cells with grout.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Parkinson	2/95				
Add Metric		T. Stanton	03/03	MASONRY RETAINING WALL TYPE 6 (LIVE LOAD SURCHARGE OR SLOPING BACKFILL)		 7/26/2012 Chairperson R.C.E. 19246 Date	
Delete Metric	S.S.	T. Shell	03/11				
						DRAWING NUMBER C-6	

DESIGN CONDITIONS:

Walls are to be used for the loading conditions shown for each type wall. Design H shall not be exceeded. Footing key is required except as shown otherwise or when found unnecessary by the Engineer. Special footing design is required where foundation material is incapable of supporting toe pressure listed in table.

DESIGN DATA:**Reinforced Concrete:**

$F_c=1200$ psi $F'_c=3000$ psi
 $F_s=20,000$ psi $n=10$

Reinforced Masonry:

$F'_m=600$ psi $F_m=200$ psi
 $F_s=20,000$ psi $n=50$
 Earth=120 pcf and Equivalent Fluid
 Pressure=36 psf per foot of height

Walls shown for 1 1/2:1 unlimited sloping surcharge are designed in accordance with Rankline's formula for unlimited sloping surcharge with a $\phi = 42'$.

REINFORCEMENT:

Intermediate grade, hard grade, or rail steel deformation shall conform ASTM A615, A616, A617. Bars shall lap 40 diameters, where spliced, unless otherwise shown on the plans. Bends shall conform to the Manual of Standard Practice, A.C.I.1. Backing for hooks is four diameters. All bar embedments are clear distances to outside of bar. Spacing for parallel bars is center to center bars.

MASONRY:

All reinforced masonry retaining walls be constructed of regular or light weight standard units conforming to the "Standard Specifications for Public Works Construction."

JOINTS:

Vertical control joints shall be placed at 32' intervals maximum. Joints shall be designed to resist shear and other lateral forces while permitting longitudinal movement. Vertical expansion joints shall be placed at 96' intervals maximum.

CONCRETE:

Footing concrete shall be 560-C-3250, using Type B aggregate when placing conditions permit.

BACKFILL:

No backfill material shall be placed against masonry retaining walls until grout has reached design strength or until grout has cured for a minimum of 28 days. Compaction of backfill material by jetting or ponding with water will not be permitted. Each layer of backfill shall be moistened as directed by the Engineer and thoroughly tamped, rolled or otherwise compacted until the relative compacting is not less than 90%.

FENCING:

Safety fencing shall be installed at the top of the wall as required by the agency.

INSPECTIONS:

Call for inspections as follows:

A. When the footing has been formed, with the steel tied securely in final position, and is ready for the concrete to be placed.

B. Where cleanout holes are not provided:

(1) After the blocks have been laid up to a height of 4' or full height for walls up to 5', with steel in place but before the grout is poured, and.....

(2) After the first lift is properly grouted, the blocks have been laid up to the top of the wall with the steel tied securely in place but before the upper lift is grouted.

Where cleanout holes are provided:

After the blocks have been laid up to the top of the wall, with the steel tied securely in place, but before grouting.

C. After grouting is complete and after rock or rubble wall drains are in place but before earth backfill is placed.

D. Final inspection when all work has been completed.

CONCRETE GROUT AND MORTAR MIXES:

Concrete grout shall attain a minimum compressive strength of 2,000 psi in 28 days and mortar shall attain 1,800 psi in 28 days.

All cells shall be filled with grout. Rod or vibrate consolidation. Bring grout within 10 minutes of pouring to insure grout to a point 2" from the top of masonry units when grouting of second lift is to be continued at another time.

MORTAR KEY:

To insure proper bonding between the footing and the first course of block, a mortar key shall be formed by embedding a flat 2 x 4 flush with and at the top of the freshly poured footing. The 2 x 4 should be removed after the concrete has started to harden (approximately 1 hour).

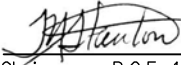
A mortar key may be omitted if the first course of block is set into the fresh concrete when the footing is poured, and a good bond is obtained.

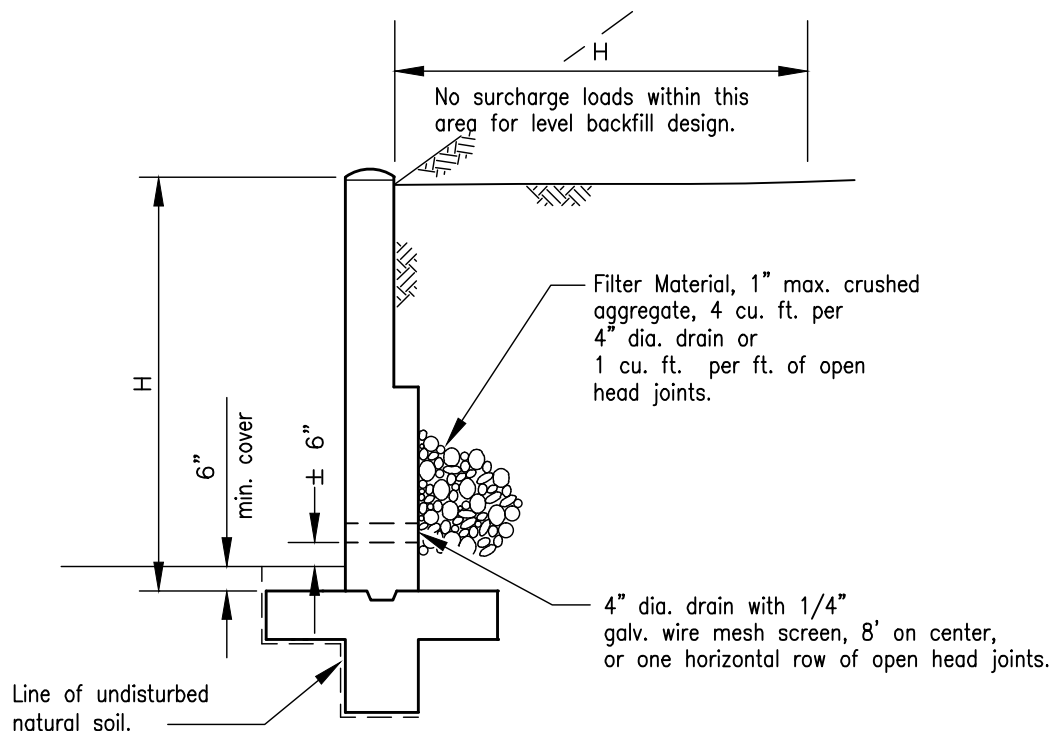
WALL DRAINS:

Wall drains shall be provided in accordance with Standard Drawing C-8.

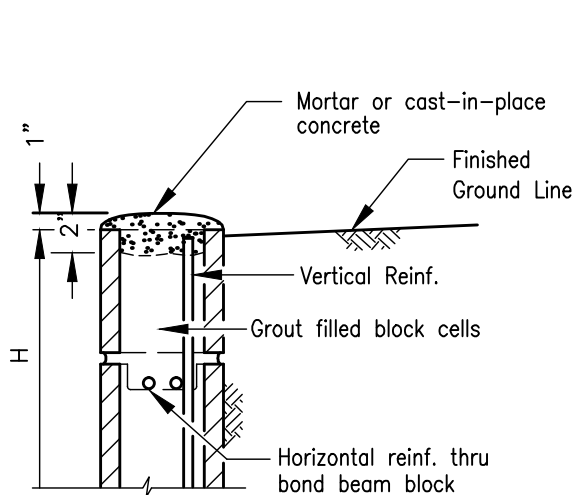
SOIL:

All footings shall extend at least 12" into undisturbed natural soil or approved compacted fill. Soil should be dampened prior to placing concrete in footings.

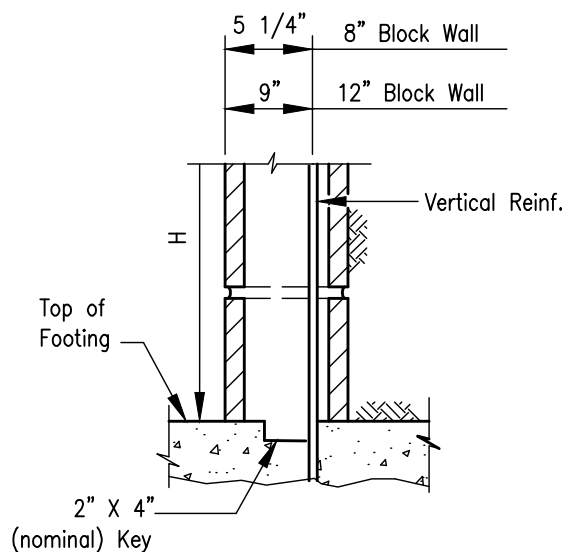
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		A. Kercheval	12/75				
Add Metric		T. Stanton	03/03	GENERAL NOTES FOR MASONRY RETAINING WALLS		 7/26/2012	
Delete Metric	S.S.	T. Shell	03/11			Chairperson R.C.E. 19246 Date	
						DRAWING NUMBER	
						C-7	



TYPICAL SECTION



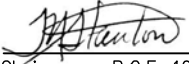
CAP DETAIL

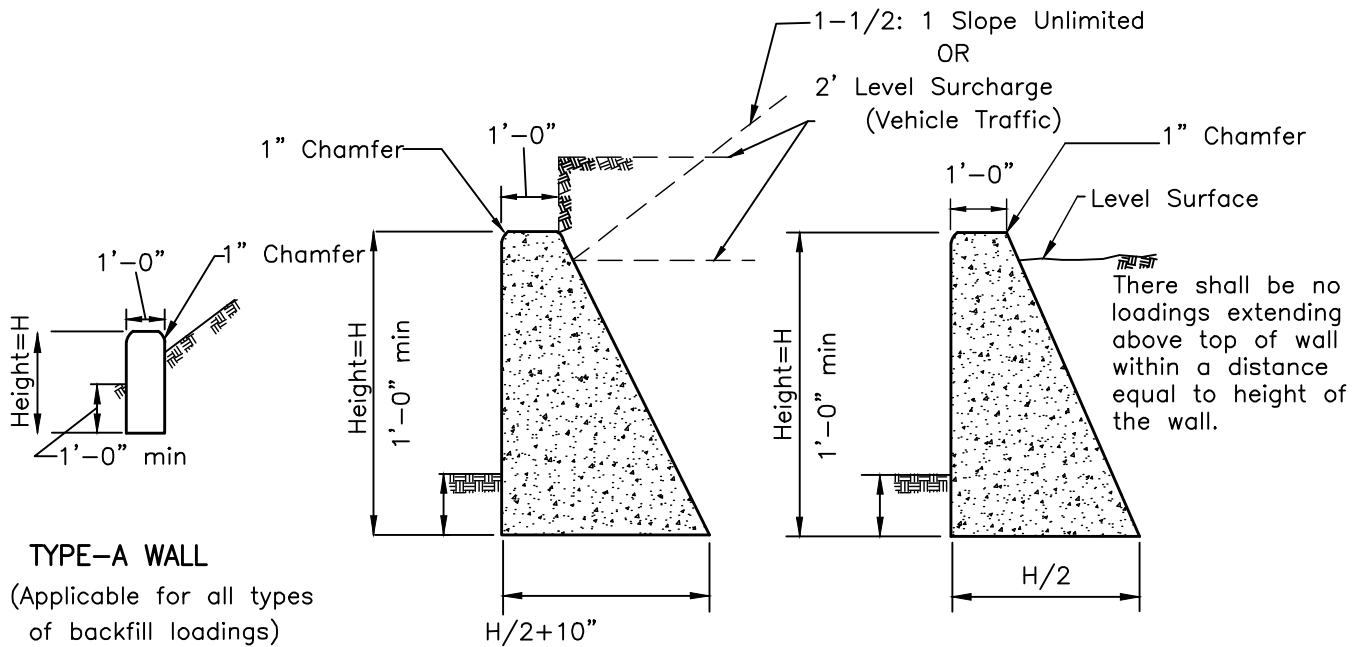


KEY DETAIL

NOTES:

1. All masonry retaining walls shall be constructed with cap, key and drainage details as shown hereon.
2. 4" diameter drain may be formed by placing a block on it's side.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	DETAILS FOR MASONRY RETAINING WALL		 7/26/2012 Chairperson R.C.E. 19246 Date
Add Metric		T. Stanton	03/03			
Delete Metric	S.S.	T. Shell	03/11			
						DRAWING NUMBER C-8

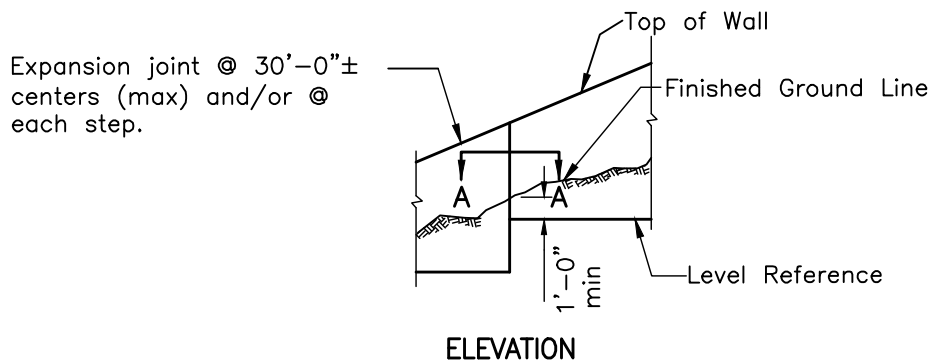


TYPE-A WALL

(Applicable for all types of backfill loadings)

TYPE-B WALL

TYPE-C WALL



WALL TYPE	HEIGHT	BASE	CONCRETE CF/FT
A	1'-6"	1'-0"	1.50 cu ft.
	2'-0"	1'-0"	2.00 cu ft.
B	3'-0"	2'-4"	4.99 cu ft.
	4'-0"	2'-10"	7.66 cu ft.
	5'-0"	3'-4"	10.82 cu ft.
	6'-0"	3'-10"	14.49 cu ft.
C	3'-0"	1'-6"	3.75 cu ft.
	4'-0"	2'-0"	6.00 cu ft.
	5'-0"	2'-6"	8.75 cu ft.
	6'-0"	3'-0"	12.00 cu ft.

NOTE:

See C-10 for Section A-A, notes and details.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	GRAVITY RETAINING WALLS		<i>T. Stanton</i> 7/26/2012 Chairperson R.C.E. 19246 Date	DRAWING NUMBER C-9
Add Metric		T. Stanton	03/03				
Delete Metric	S.S.	T. Shell	03/11				

CONCRETE

Concrete shall be 560-C-3250.

DESIGN CONDITIONS

Walls are to be used for the loading conditions shown for each type wall. Design H may be exceeded by six inches before going to next size.

DESIGN DATA

$F_c = 1200$ psi
 $F'_c = 3000$ psi
 Earth = 120 pcf
 and equivalent fluid pressure = 36 psf per foot of height

Walls shown for 1-1/2:1 unlimited sloping surcharge are designed in accordance with Rankine's Formula for unlimited sloping surcharge with $\phi = 42^\circ$.

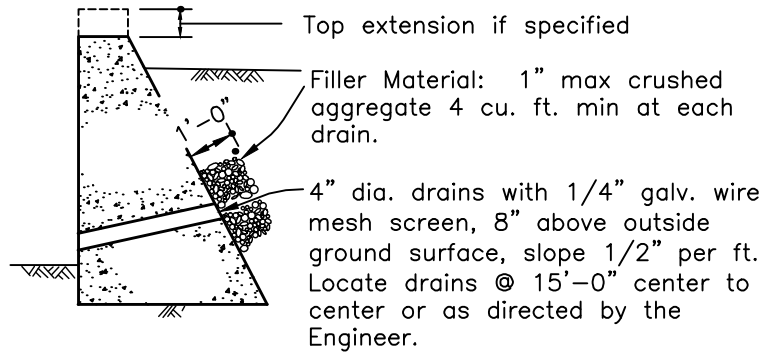
Note: Maximum toe pressure under wall footing = 1-1/2 tons/sq. ft. Special design required where footing material is incapable of supporting this pressure.

EXCAVATION AND BACKFILL

Compaction of backfill material by jetting or ponding with water will not be permitted.

Each layer of backfill shall be moistened as directed by the Engineer and thoroughly tamped, rolled or otherwise compacted until the relative compaction is not less than 90 percent.

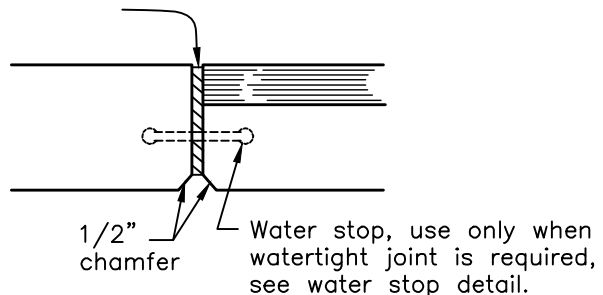
No backfill material shall be deposited against concrete retaining walls until the concrete has developed a strength of 2,500 psi in compression as determined by test cylinders, or until 28 days after wall has been placed.



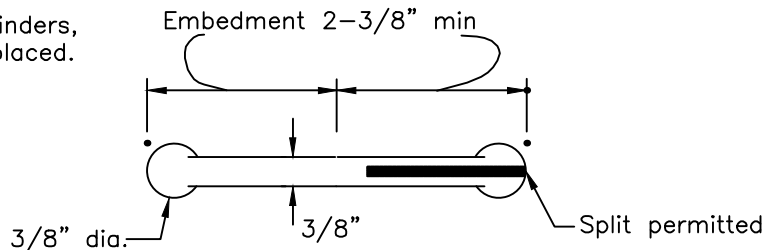
TYPICAL DRAINAGE

WHEN H IS GREATER THAN 4'-0"

1/2" Expansion joint, fill with premolded expansion joint filler. Locate joints at approx. 30'-0" centers or as directed by the Engineer.



SECTION A-A



RUBBER WATERSTOP

Use only when watertight joint is required.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Delete Metric	S.S.	T. Shell	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

GENERAL NOTES AND DETAILS FOR GRAVITY RETAINING WALLS

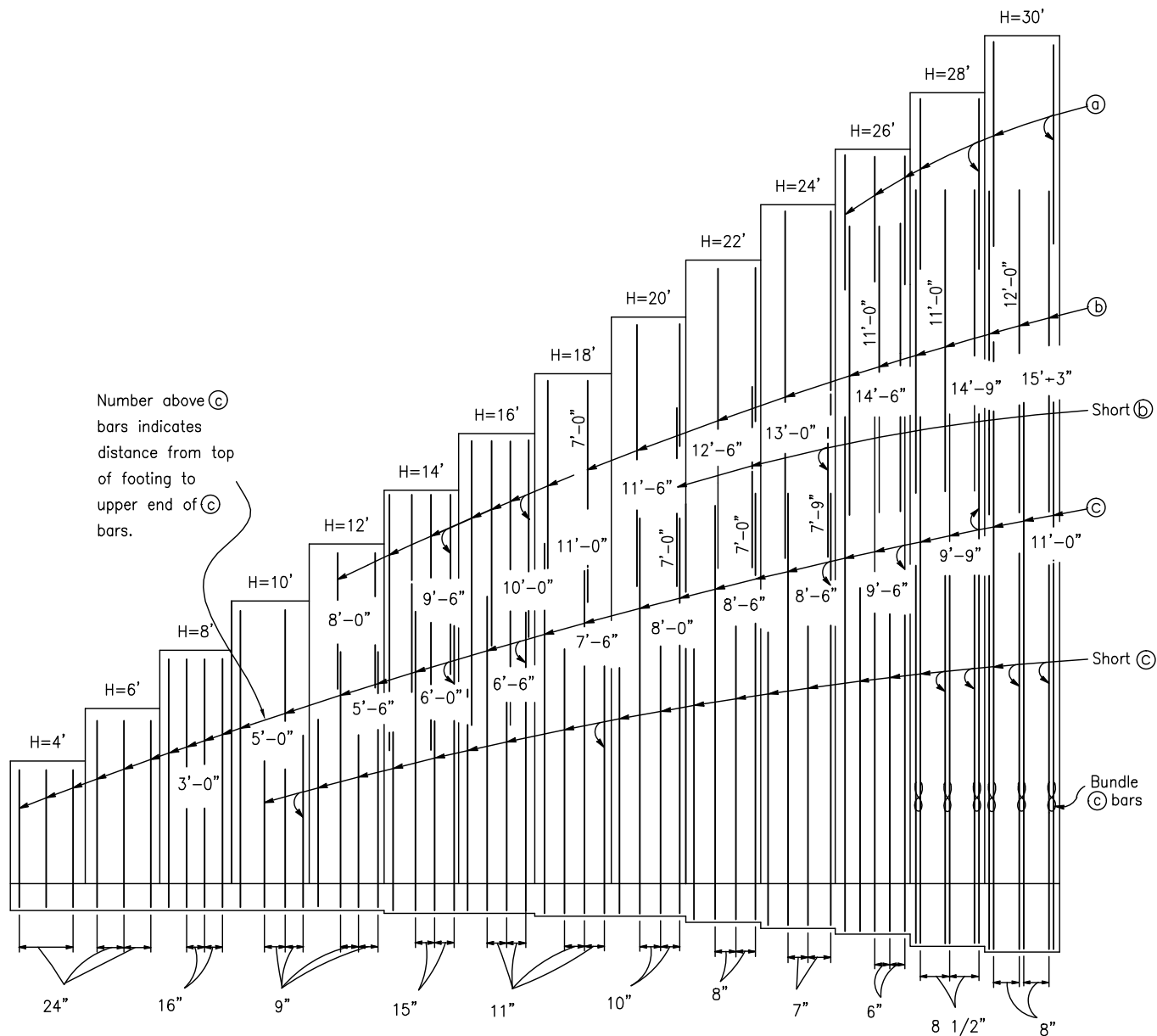
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER


C-10

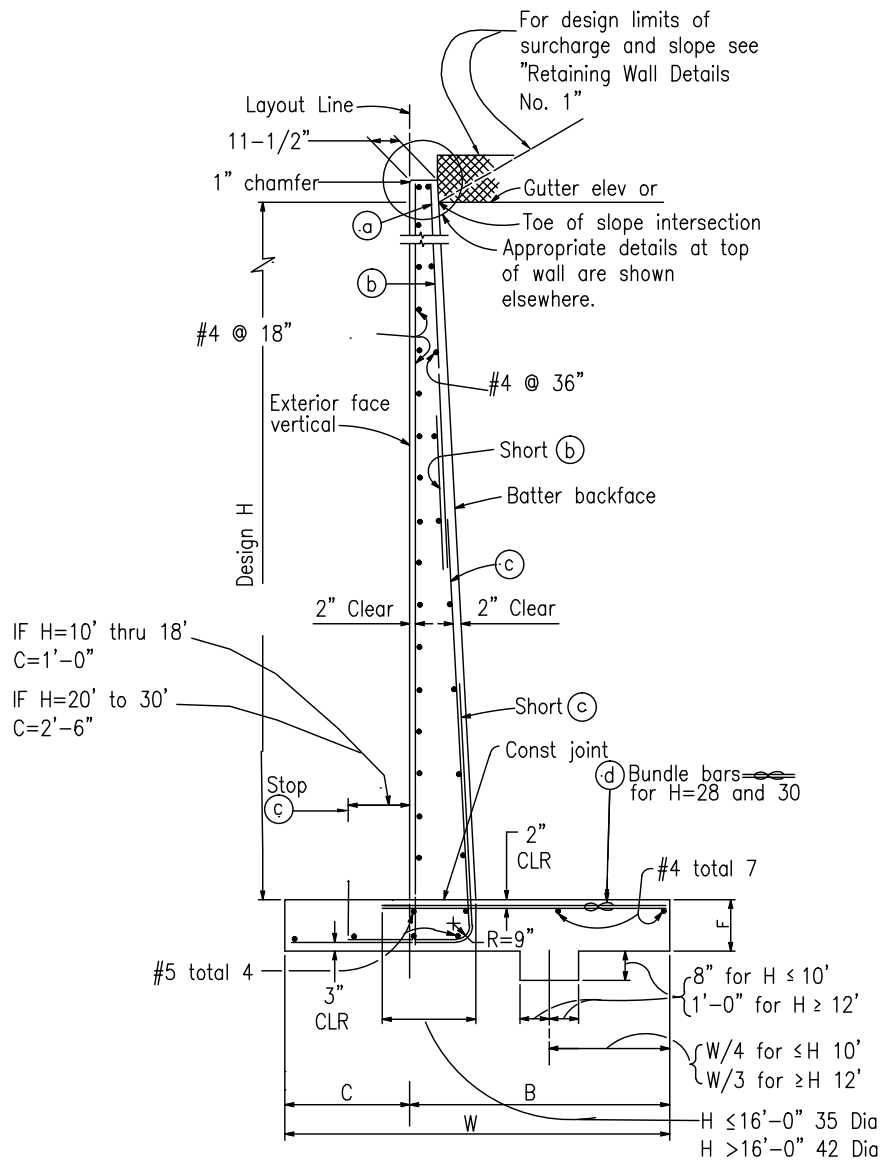


ELEVATION

NOTES:

1. For SPREAD FOOTING SECTION see C-11B
2. For TYPICAL LAYOUT EXAMPLE see C-11C
3. For 45T PILE FOOTING SECTION see C-11C
4. For TABLE OF REINFORCING STEEL DIMENSIONS AND DATA see C-11D

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	REINFORCED CONCRETE RETAINING WALL TYPE 1		 Chairperson R.C.E. 19246 Date	
Add Metric		T. Stanton	03/03				
Delete Metric	S.S.	T. Shell	03/11				
						DRAWING NUMBER C-11A	

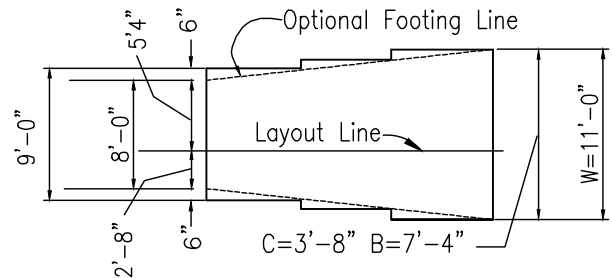
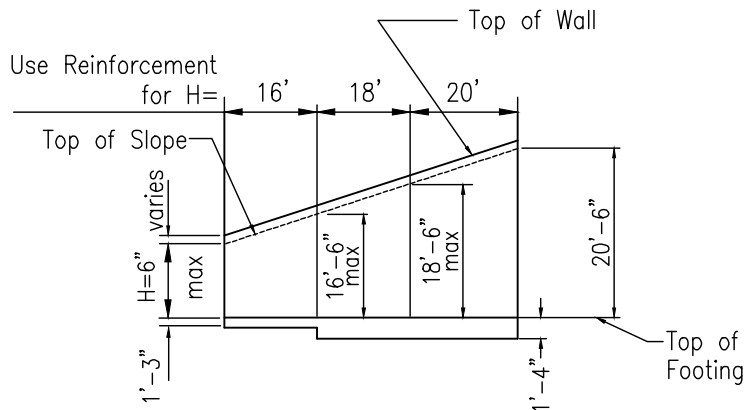


SPREAD FOOTING SECTION

NOTES:

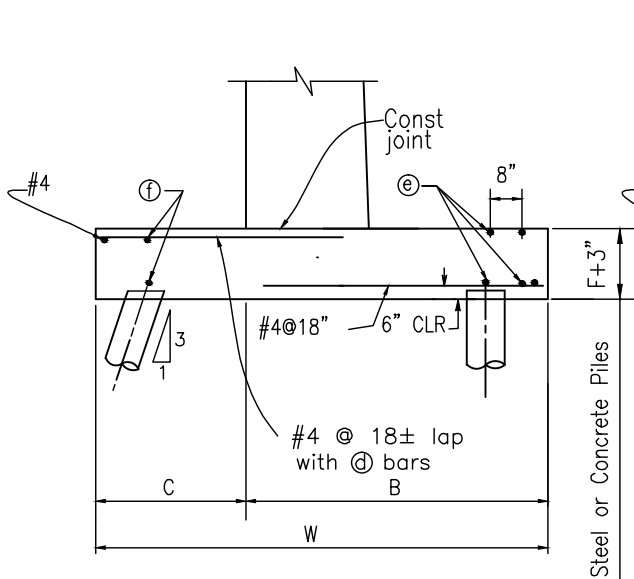
- For details not shown and drainage notes see "Retaining Wall Details No.1".
Standard Drawings C-13A to C-13D.
- Quantities apply to Design H portion and exclude the added portion above "Gutter Elevation".

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	REINFORCED CONCRETE RETAINING WALL TYPE 1		<i>J. Stanton</i> 7/26/2012 Chairperson R.C.E. 19246 Date	DRAWING NUMBER C-11B
Add Metric		T. Stanton	03/03				
Delete Metric	S.S.	T. Shell	03/11				



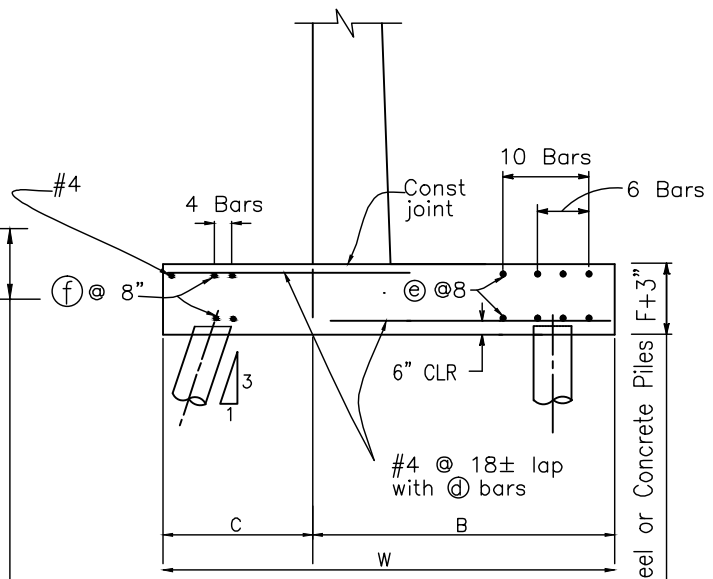
TYPICAL LAYOUT EXAMPLE

For joints required, see Details 3-3 and 3-4, drawing C-15



45T PILE FOOTING SECTION

H=24' Thru H=30'



45T PILE FOOTING SECTION

H=4' Thru H=22'

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75			
Add Metric		T. Stanton	03/03			
Delete Metric	S.S.	T. Shell	03/11			
				REINFORCED CONCRETE RETAINING WALL		Chairperson R.C.E. 19246 Date
				TYPE 1		DRAWING NUMBER
						C-11C

TABLE OF REINFORCING STEEL DIMENSIONS AND DATA

Design H	*4'	6'	8'	10'	12'	14'	16'	18'	20'	22'	24'	26'	28'	30'
W	3'-2"	4'-2"	5'-2"	6'-2"	7'-2"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-3"	14'-3"	15'-3"	16'-9"
C	1'-0"	1'-4"	1'-8"	2'-0"	2'-4"	2'-8"	3'-0"	3'-4"	3'-8"	4'-0"	4'-5"	4'-9"	5'-1"	5'-5"
B	2'-2"	2'-10"	3'-6"	4'-2"	4'-10"	5'-4"	6'-0"	6'-8"	7'-4"	8'-0"	8'-10"	9'-6"	10'-2"	11'-4"
F Spread Ftg.	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-4"	1'-6"	1'-8"	1'-11"	2'-2"	2'-4"
Batter	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	5/8:12	3/4:12	3/4:12	7/8:12
Ⓐ bars	—	—	—	—	—	—	—	—	—	—	—	#6@24	#6@17	#6@16
Ⓑ bars	—	—	—	—	#4@18	#6@30	#6@22	#7@22	#8@20	#8@16	#8@14	#8@12	#8@8-1/2	#8@8
Ⓒ bars	#5@24	#5@24	#5@16	#5@9	#6@9	#9@15	#9@11	#10@11	#11@10	#11@8	#11@7	#11@6	#10@8-1/2	#10@8
Ⓓ bars	#5@24	#5@24	#4@16	#4@9	#5@9	#8@15	#8@11	#10@11	#10@11	#10@8	#10@7	#10@6	#9@8-1/2	#9@8
Total Ⓔ bars	6-#6	6-#6	10-#7	10-#7	10-#7	10-#7	6-#7	6-#7	6-#7	6-#7	4-#7	4-#7	4-#7	4-#7
Total Ⓕ bars				4-#7	4-#7	4-#7	4-#7	4-#7	4-#7	4-#7	2-#7	2-#7	2-#7	2-#7
2' Level surcharge	Toe Pressure k/sf	1.6	1.9	2.2	2.3	2.8	3.3	3.5	4.0	4.3	4.6	4.9	5.3	6.2
2:1 unlimited slope	Toe Pressure k/sf	1.1	1.5	2.0	2.5	2.7	3.3	3.6	4.2	4.7	5.5	5.9	6.5	7.5
1-1/2:1 limited slope	Toe Pressure k/sf	1.3	1.7	2.1	2.5	2.9	3.4	3.8	4.3	4.8	5.4	5.8	6.5	7.5
Spread Footing	Steel lbs/ft.	17	20	28	37	51	80	105	147	187	246	303	407	507
Conc cf/ft	Conc cf/ft	8.9	12.5	16.3	20.2	25.4	30.1	34.6	40.1	45.0	52.1	63.3	77.0	104.8
Pile ftg.	Steel lbs/ft.	29	32	41	70	84	113	140	172	212	270	322	427	528
	Conc cf/ft	10.2	12.7	16.7	20.8	25.2	30.1	34.8	40.6	45.7	53.1	64.7	78.6	107.0

Note: Reinforcement detailed is to be placed in addition to that shown for spread footing. All piles not shown, see Pile Layout on plans. *For pile footing Design H=4' use same footing dimensions as Design H=6'

⌘ Denotes a bundle of 2 bars

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Delete Metric	S.S.	T. Shell	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

REINFORCED CONCRETE RETAINING WALL TYPE 1

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **C-11D**

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Delete Metric	S.S.	T. Shell	03/11

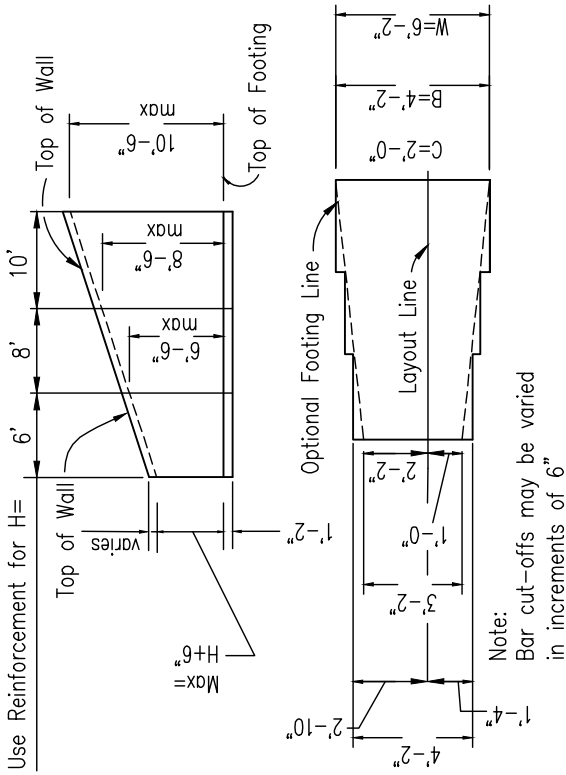
SAN DIEGO REGIONAL STANDARD DRAWING

REINFORCED CONCRETE RETAINING WALL TYPE 1A

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **C-12B**



45T PILE FOOTING SECTION

TYPICAL LAYOUT EXAMPLE

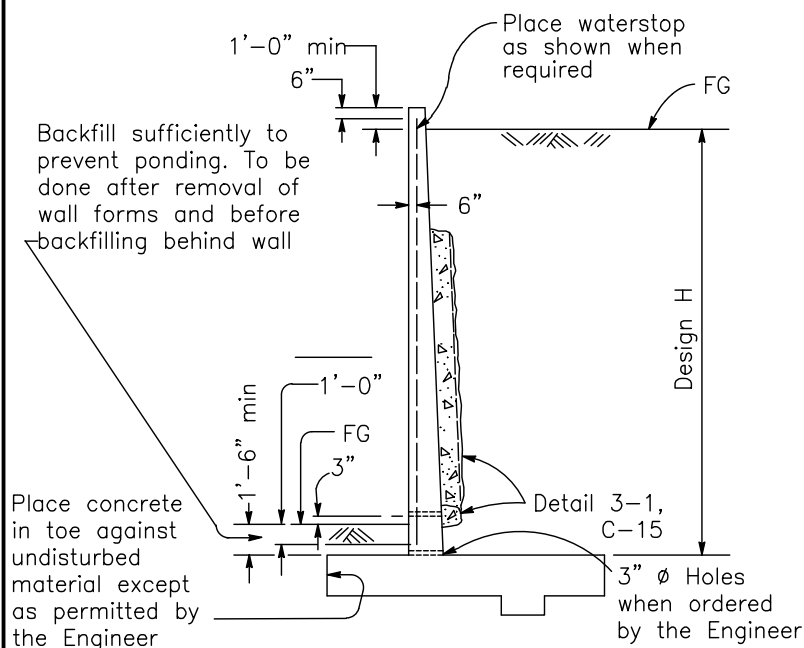
For joints required, see Details 3-3 and 3-4,
Std Dwg C-15

TABLE OF REINFORCING STEEL DIMENSIONS AND DATA

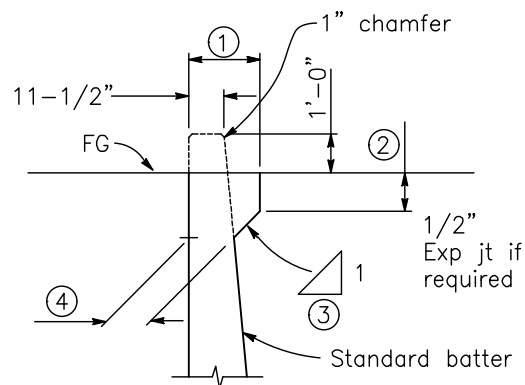
Design H	* 4'	6'	8'	10'	12'
W	3'-2"	4'-2"	5'-2"	6'-2"	7'-2"
C	1'-0"	1'-4"	1'-8"	2'-0"	2'-4"
B	2'-2"	2'-10"	3'-6"	4'-2"	4'-10"
© bars	#5@24"	#5@22"	#5@11"	#6@9"	#7@7'-1/2"
© bars	#5@24"	#5@22"	#5@22"	#7@18"	#8@15"
Total © bars	6-#6	6-#6	6-#6	10-#7	10-#7
Total © bars	6-#6	6-#6	6-#6	4-#7	4-#7
Case I - Toe Press.	1590psf	1930psf	2240psf	2550psf	2840psf
Case II - Toe Press.	1060psf	1460psf	1860psf	2280psf	2700psf
Spread Steel lbs/ft	15lb	21lb	27lb	46lb	70lb
Footing Conc CF/ft	8.6lb	11.8lb	14.9lb	18.1lb	21.3lb
Pile Ftg Steel lbs/ft	25lb	32lb	38lb	75lb	101lb
Conc CF/ft	9.9lb	11.9lb	15.3lb	18.8lb	22.2lb

Note:

Quantities apply to Design H portion and exclude the added portion above
"Gutter Elevation". *For pile footing Design H=4' use same footing dimensions as Design H=6'.



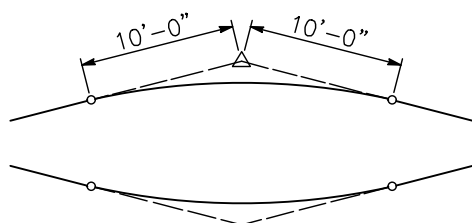
DESIGN AND DRAINAGE



Dimensions ①, ② and ③ to be as shown elsewhere in the project plans

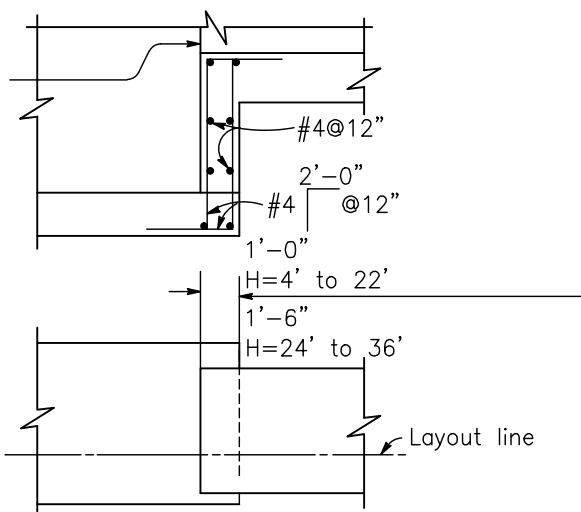
④ Stem width at base of haunch to be determined as shown

STEM WIDTH AT BASE OF HAUNCH

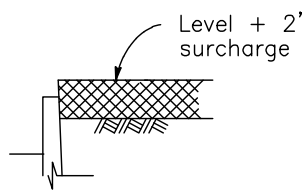


20' VC AT TOP OF WALL SLOPE CHANGE

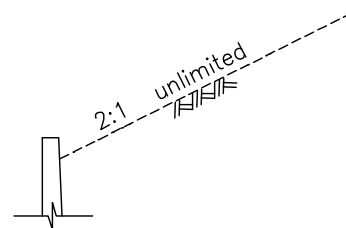
Where shown on the plans



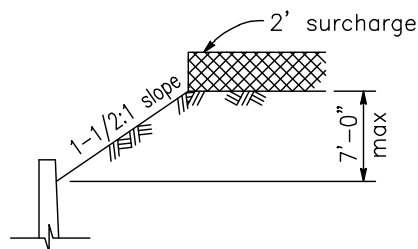
FOOTING STEP



CASE I



CASE II



CASE III

DETAIL OF DESIGN LOADING CASES

- CASE I Level + 2' surcharge
- CASE II 2:1 unlimited slope
- CASE III 1-1/2:1 limited slope (7'-0" max height) + 2' surcharge

NOTE: Surcharge limits shown apply to retaining walls Type 1 and 3

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Delete Metric	S.S.	T. Shell	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

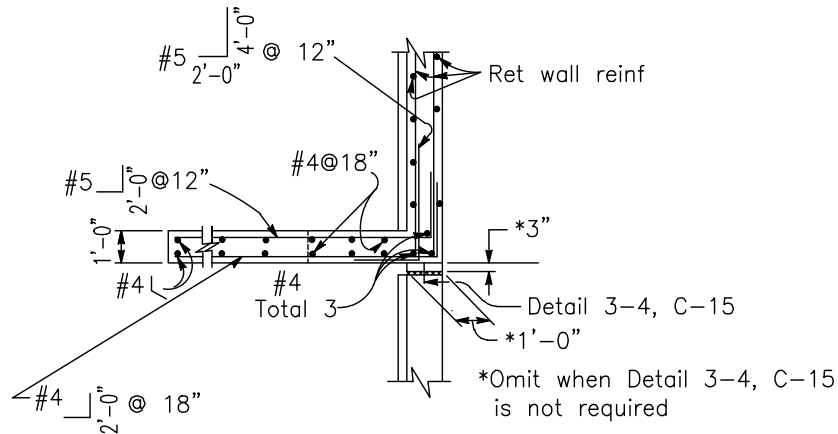
REINFORCED CONCRETE RETAINING WALL DETAILS No. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

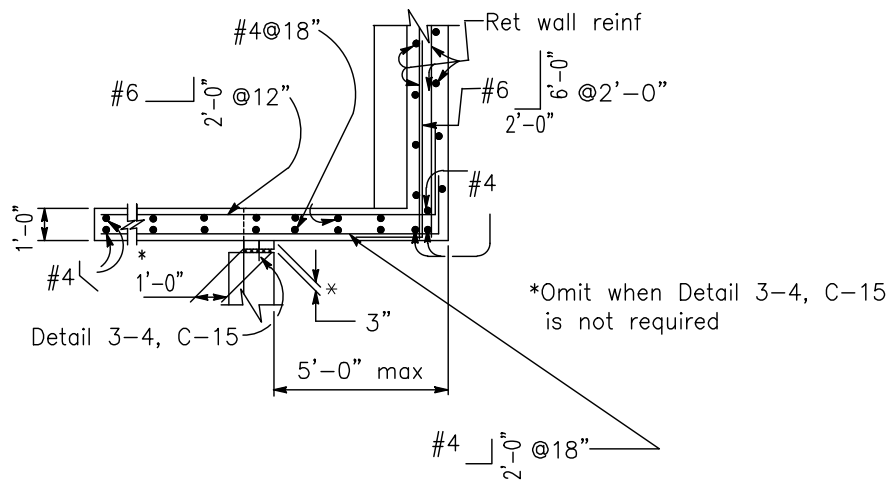
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **C-13A**



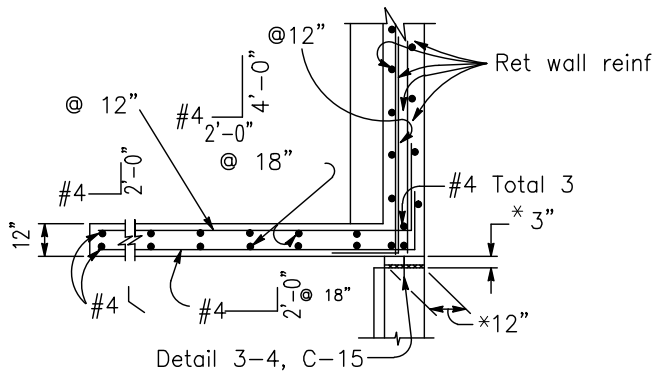
PLAN

(For return wall type "A")



PLAN

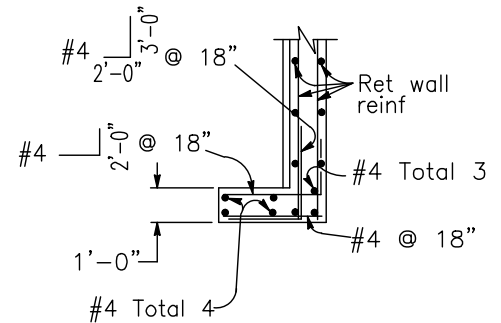
(For return wall type "B")



*Omit when Detail 3-4, C-15 is not required


PLAN

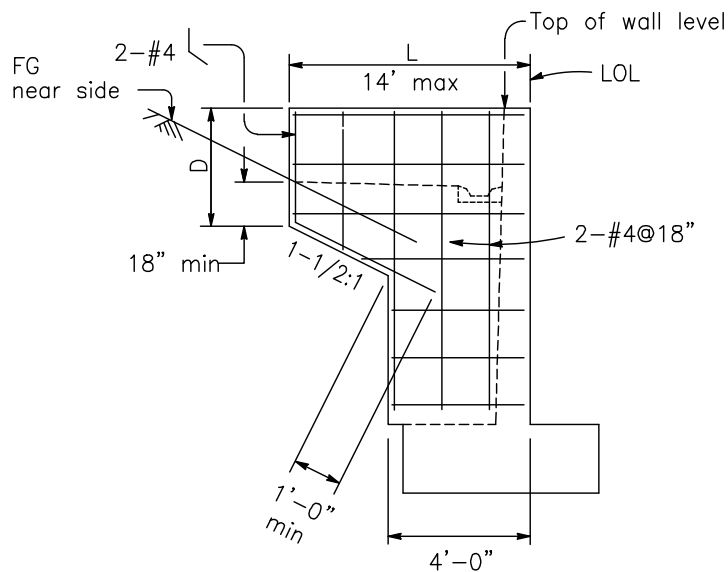
(For return wall type "C")



PLAN

(For return wall type "D")

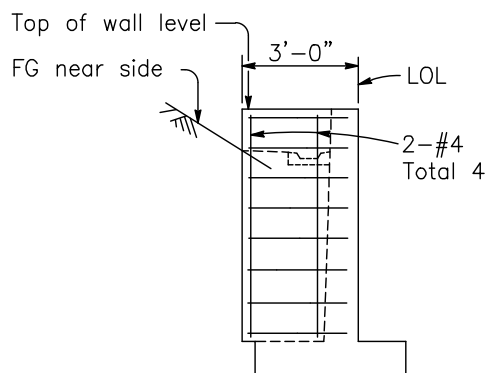
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			<div> 7/26/2012</div> <div>Chairperson R.C.E. 19246 Date</div> <div>DRAWING NUMBER C-13B</div>	
Add Metric		T. Stanton	03/03				
Delete Metric	S.S.	T. Shell	03/11				
				REINFORCED CONCRETE RETAINING WALL DETAILS No. 1			



ELEVATION

RETURN WALL TYPE A

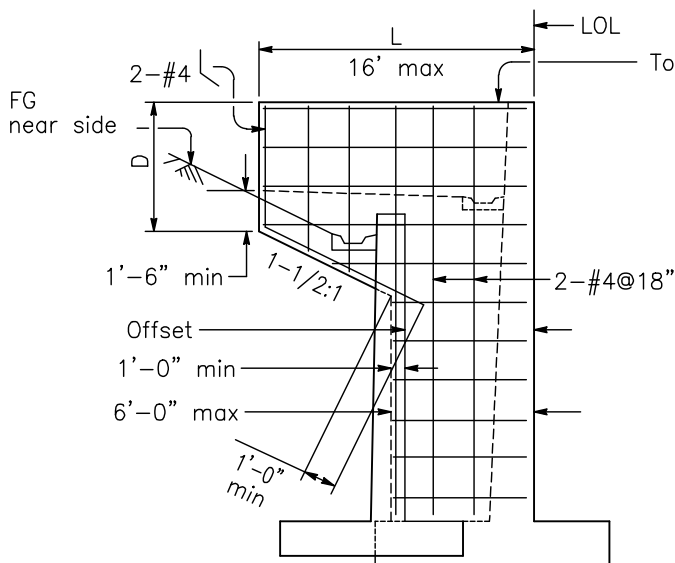
Use where H=8' or less



ELEVATION

RETURN WALL TYPE D

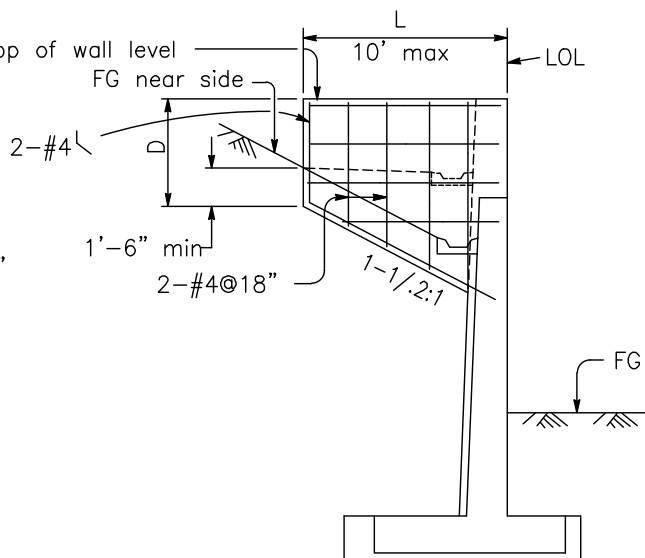
Use where H=6' or less



ELEVATION

RETURN WALL TYPE B

Use where H=10' or more on offset walls



ELEVATION

RETURN WALL TYPE C

Use where H=10' or more on straight walls

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Delete Metric	S.S.	T. Shell	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

REINFORCED CONCRETE RETAINING WALL DETAILS No. 1

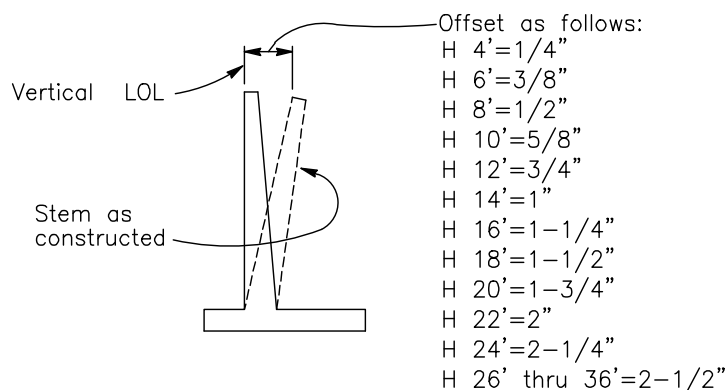
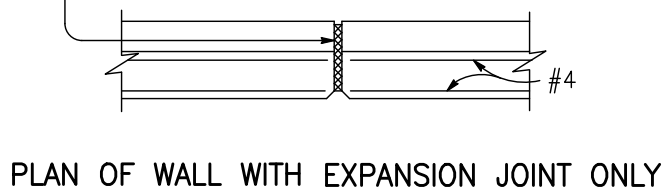
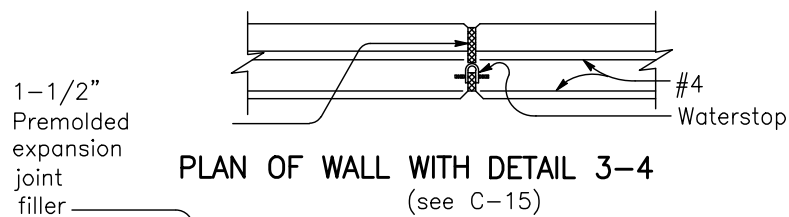
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

C-13C



APPROX. WALL OFFSET VALUES

Not required for wall Types 3 and 4.
Values for offsetting forms to be determined by the Engineer.

NOTES

Design Conditions:

Design H may be exceeded by 6" before going to the next size. Special footing design is required where foundation material is incapable of supporting toe pressure listed in table. Return wall not required unless shown elsewhere.

Design Data:

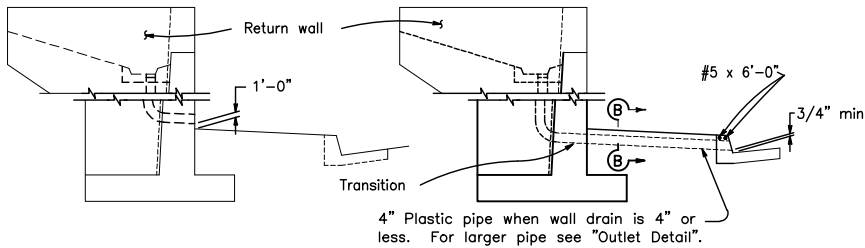
$f_c = 1300$ psi $f'_c = 3250$ psi $f_s = 24,000$ psi
 $n = 10$ earth = 120 pcf
2' Surcharge:

Equivalent fluid pressure =

36 pcf maximum for determination of toe pressure.
27 pcf minimum for determination of heel pressure.

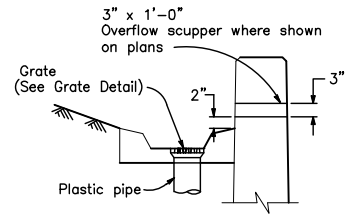
Earth pressures for 2:1 unlimited slope, 1-1/2:1 slope, and 1-1/2:1 unlimited slope, determined from Rankine's formula with $\phi = 33^\circ - 42^\circ$.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75				
Add Metric		T. Stanton	03/03	REINFORCED CONCRETE RETAINING WALL DETAILS No. 1		<i>T. Stanton</i> 7/26/2012	
Delete Metric	S.S.	T. Shell	03/11			Chairperson R.C.E. 19246 Date	
						DRAWING NUMBER C-13D	

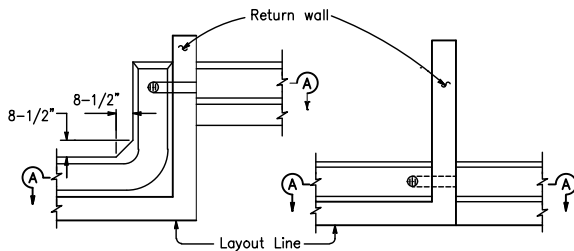


RETAINING WALL,
FACE OF WALL OUTLET

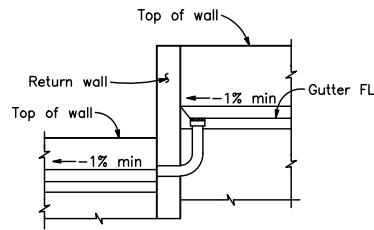
RETAINING WALL, GUTTER OUTLET



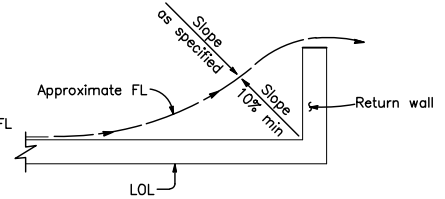
WALL DRAIN DETAIL



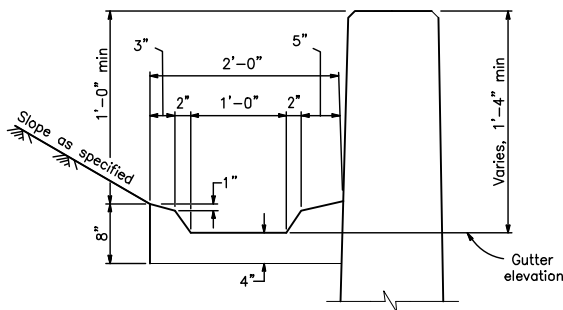
PLAN-OFFSET WALL
PLAN-CONTINUOUS WALL
DRAIN THROUGH RETURN WALL



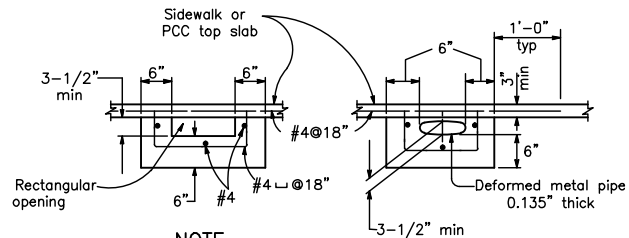
SECTION A-A



WALL DRAINAGE
WHERE GUTTER NOT REQUIRED



TYPICAL GUTTER DETAIL



NOTE

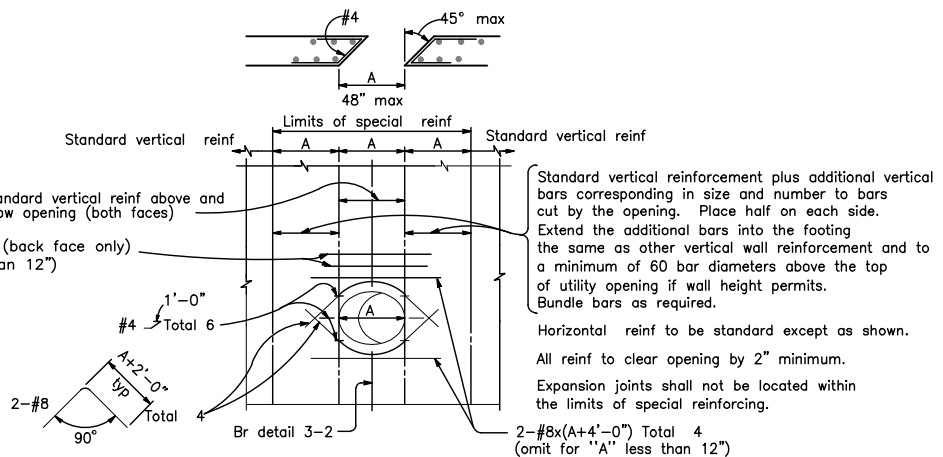
Area of opening to be not less than that of pipe from wall gutter. Make opening transition in wall. Edge opening in curb face to 3/4" minimum radius.

OUTLET DETAIL - SECTION B-B



GRATE DETAIL

Sizes to fit standard hubs



RETAINING WALL UTILITY OPENING

Max size of opening (A) = 48" to be used in conjunction with C-13

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Delete Metric	S.S.	T. Shell	03/11

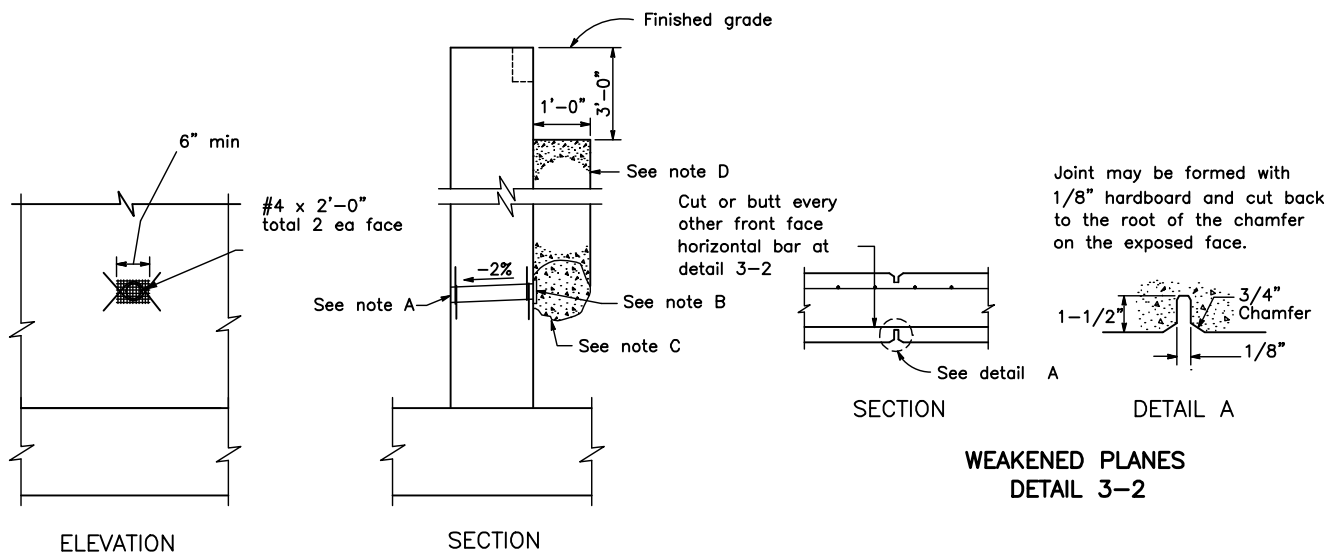
SAN DIEGO REGIONAL STANDARD DRAWING

REINFORCED CONCRETE
RETAINING WALL DETAILS No. 2

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

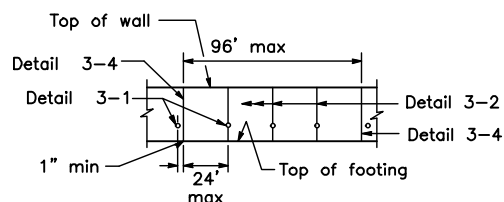
DRAWING
NUMBER C-14



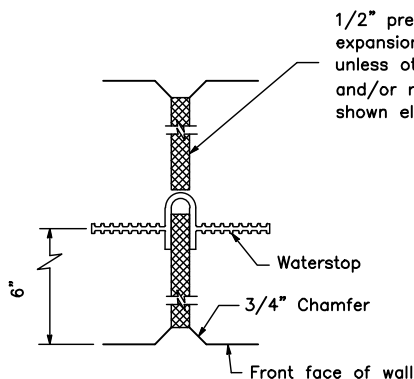
**WEEP HOLE AND PERVIOUS BACKFILL
DETAIL 3-1**

NOTES

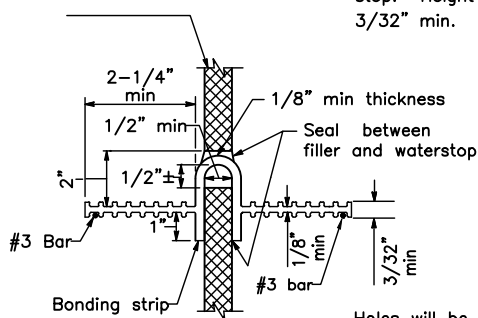
- 4" diameter drain @ 25' max center to center (9' c-c for Type 3 and 9'-3" c-c for Type 4 Retaining Walls). For walls adjacent to sidewalks or curbs, provide 4" cast iron or asbestos cement pipe under the sidewalk to discharge thru curb face. Exposed wall drains shall be located 3" \pm above finished grade.
- 6" square aluminum or galvanized steel wire 4 mesh hardware cloth. (Min wire diameter 0.03") Anchor firmly to backface.
- One cubic foot pervious backfill material in a burlap sack, securely tied.
- Pervious backfill material continuous behind retaining wall.



**WALL EXPANSION JOINTS
AND WEAKENED PLANES
DETAIL 3-3**



**WALL EXPANSION JOINT
DETAIL 3-4**



**WATERSTOP
DETAIL 3-6**

Waterstop to have 5 or more pairs of raised ribs to provide 0.1 sq in min rib cross-section area on each half of the water stop. Height of ribs to be 3/32" min.

Holes will be permitted in the outer 1/2" of the web for wire, rings etc. Tie web to #3 reinforcing bars @ 12" max intervals to support the waterstop in proper position during concrete placement. Alternative detail may be submitted for approval of the engineer.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Delete Metric	S.S.	T. Shell	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

**REINFORCED CONCRETE
RETAINING WALL DETAILS No. 3**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

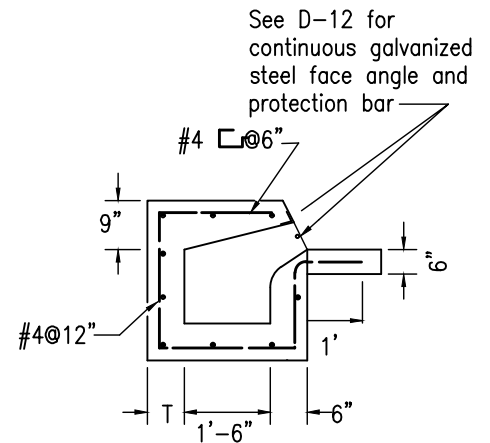
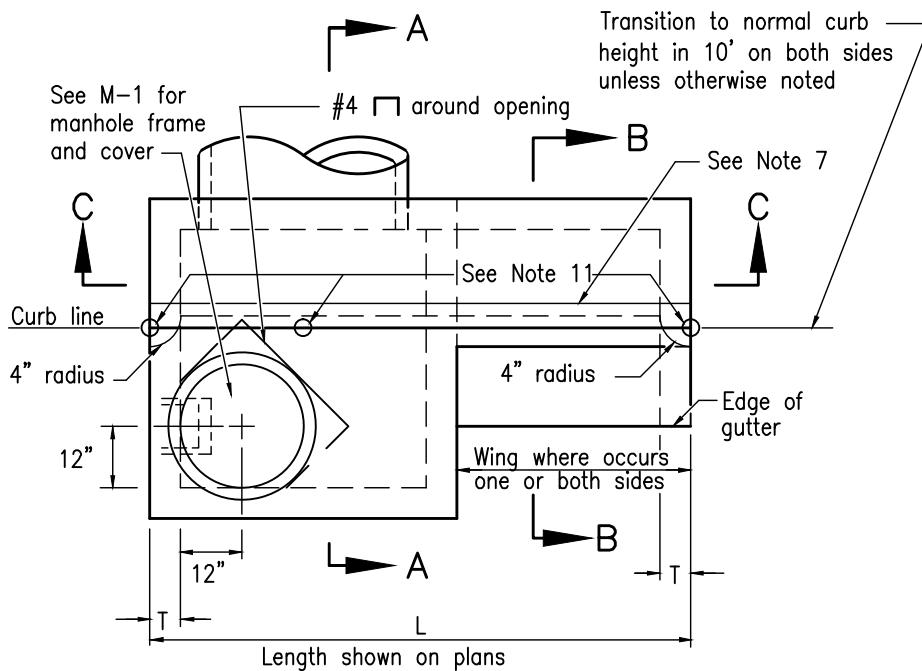
T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

**DRAWING
NUMBER C-15**

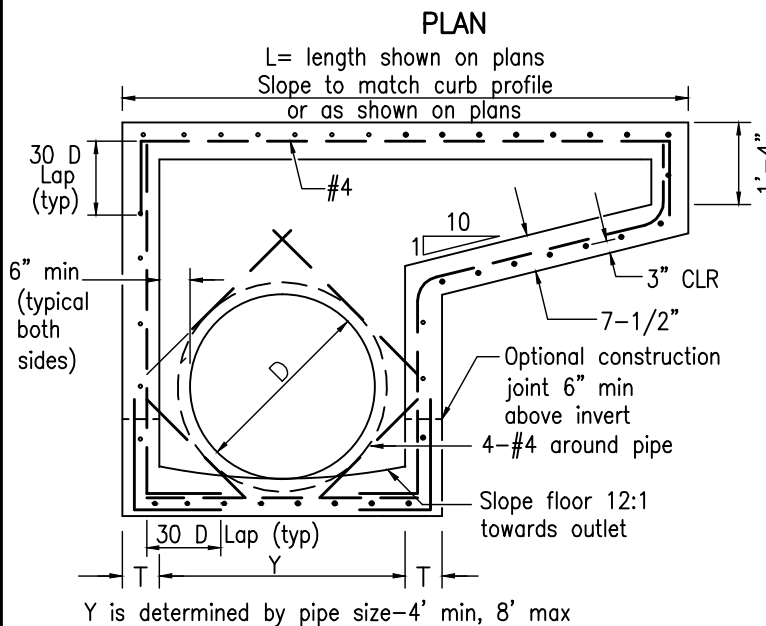
DRAINAGE SYSTEMS

DRAINAGE SYSTEMS

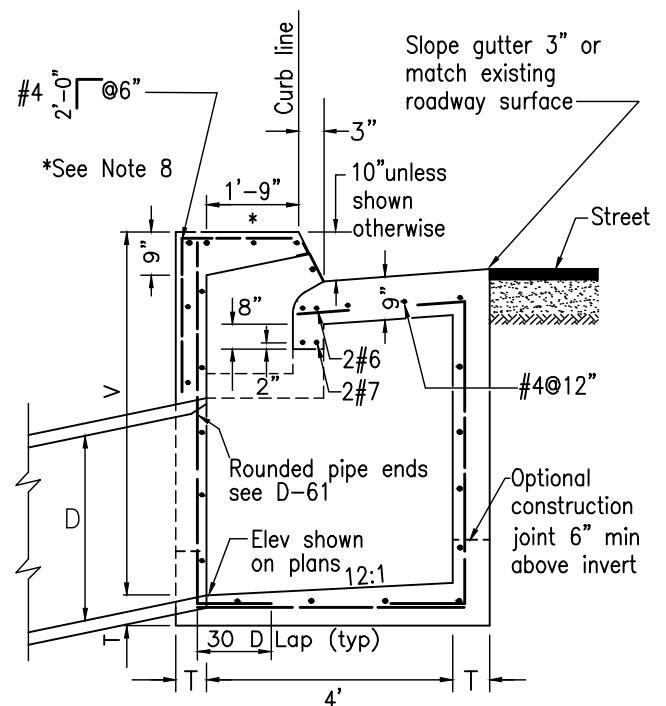
D



SECTION B-B



SECTION C-C

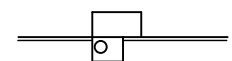


SECTION A-A

NOTES

1. See D-11A, D-11B, & D-12 for additional notes and details.
2. Types are designated on plans as follows: A (no wing), A-1 (one wing), or A-2 (two wings).
3. Exposed edges of concrete shall be rounded with a radius of 1/2".
4. Steps shall be installed when V exceeds 4'. See D-11A for details.
5. Concrete gutter to match adjacent gutters.
6. An expansion joint shall be placed at the ends of the inlet where the curb is to adjoin.
7. Provide 1/4" tooled groove in top slab in line with back of adjacent curb.
8. Surface of top slab to match sidewalk finish and slope.
9. Maintain 1-1/2" clear spacing between reinforcing and concrete surface unless otherwise noted.
10. If required by local agency, extend top slab steel reinforcement 12" into adjacent sidewalk.
11. Elevations shall be shown on plans where indicated by "O" symbol.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

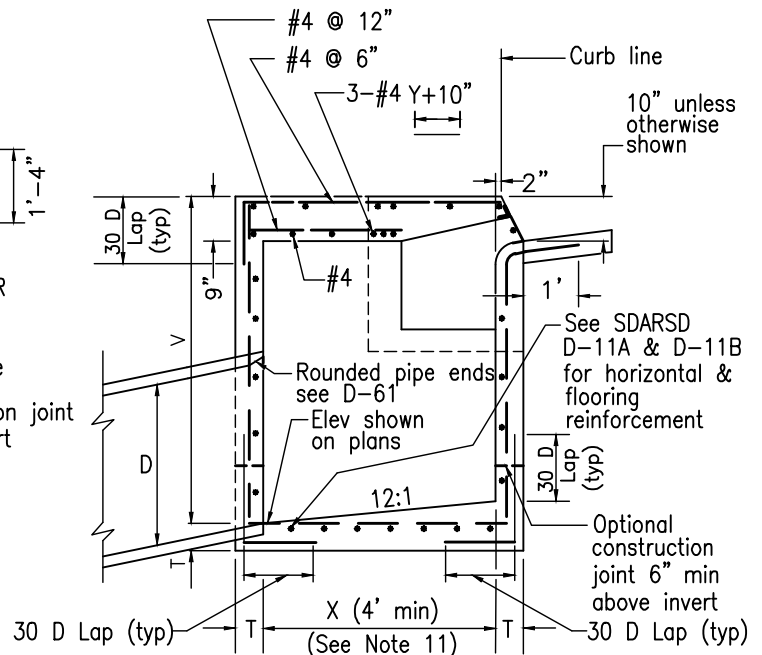
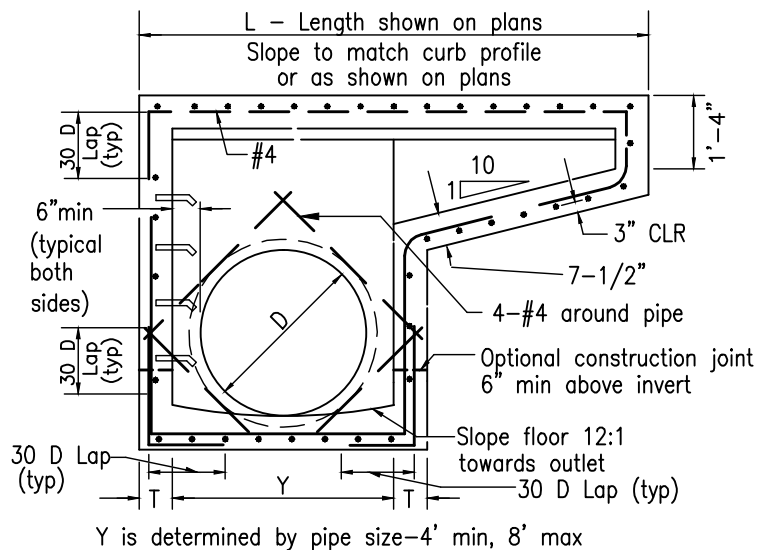
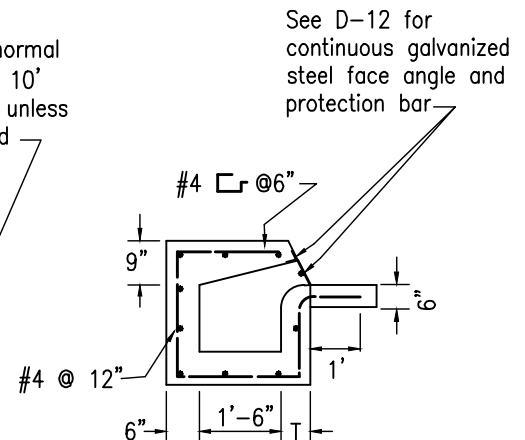
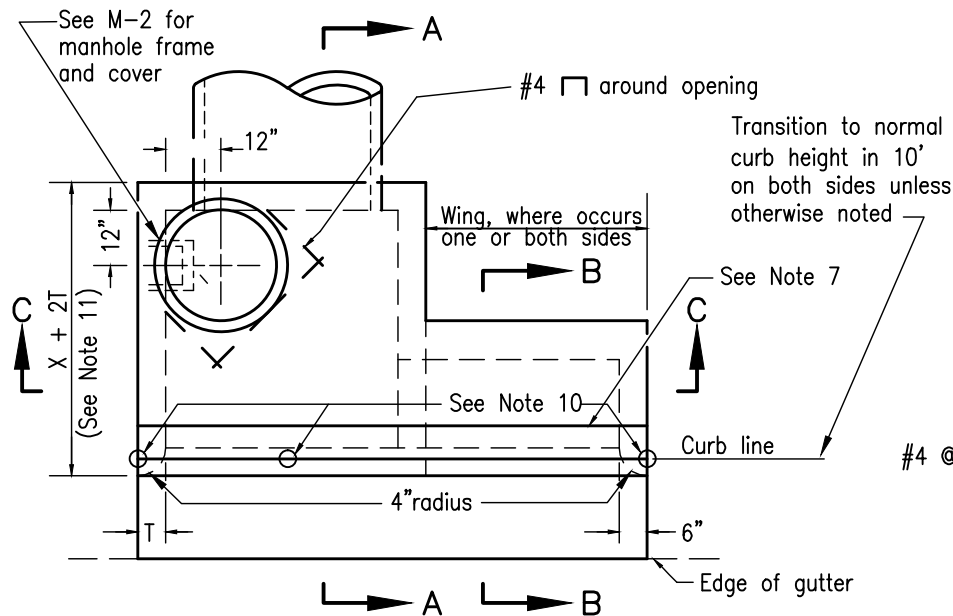
CURB INLET - TYPE A

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING NUMBER **D-01**



NOTES

1. See D-11A, D-11B & D-12 for additional notes and details.
2. Types are designated on plans as follows: B (no wing), B-1 (one wing) or B-2 (two wings).
3. Maintain 1-1/2" clear spacing between reinforcing and concrete surface unless otherwise noted.
4. Steps shall be installed when V exceeds 4'. See D-11A for details.
5. Concrete gutter to match adjacent gutters.
6. An expansion joint shall be placed at the ends of the inlet where the curb is to adjoin.
7. Provide 1/4" tooled groove in top slab in line with back of adjacent curb.
8. Surface of top slab to match sidewalk finish and slope.
9. If required by local agency, extend top slab steel reinforcement 12" into adjacent sidewalk.
10. Elevations shall be shown on plans where indicated by "O" symbol.
11. If required by local agency, enlarge curb inlet top to width of adjacent sidewalk (X + T not to exceed 5'-6") by length of inlet including wing(s). Reinforcing steel shall be extended across enlarged top to clear distances shown.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

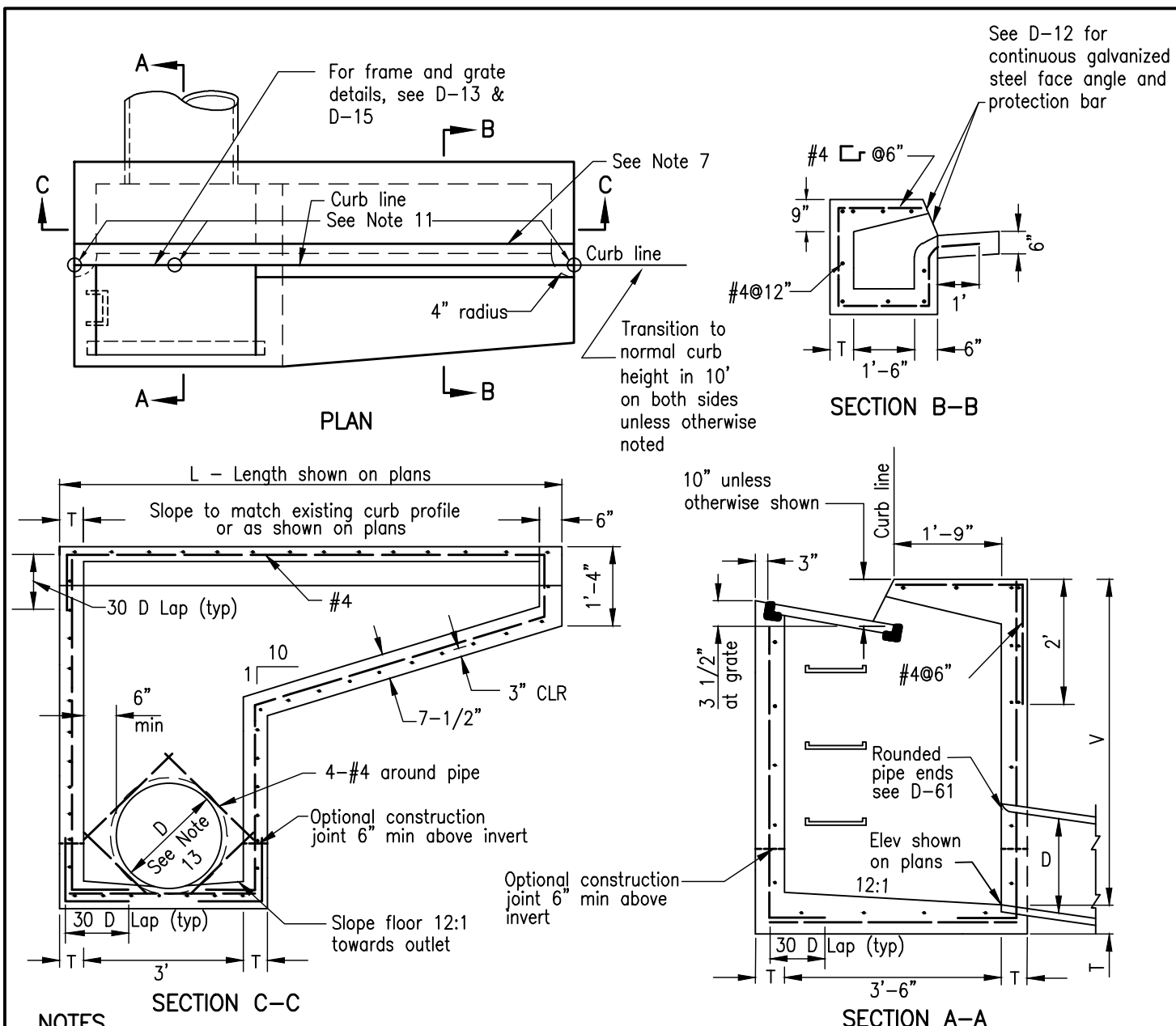
CURB INLET - TYPE B

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

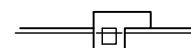
DRAWING
NUMBER **D-02**



NOTES

1. See D-11A through D-15 for additional notes and details.
2. Types are designated on plans as follows: C (no wing), C-1 (one wing) or C-2 (two wings).
3. Exposed edges of concrete shall be rounded with a radius of 1/2".
4. Steps shall be installed when V exceeds 4'. See D-11A for details.
5. Concrete gutter to match adjacent gutters.
6. An expansion joint shall be placed at the ends of the inlet where the curb is to adjoin.
7. Provide 1/4" tooled groove in top slab in line with back of adjacent curb.
8. Surface of top slab to match sidewalk finish and slope.
9. Maintain 1-1/2" clear spacing between reinforcing and concrete surface unless otherwise noted.
10. Where inlet is to be constructed on grade and concrete apron per D-03B is required, lift down-grade end of grate as shown on D-03B.
11. If required by local agency, extend top slab steel reinforcement 12" into adjacent sidewalk.
12. Elevations shall be shown on plans where indicated by "O" symbol.
13. Diameter "D" shall be 24" maximum; for larger diameter pipes this drawing must be modified.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Replaced D-3		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

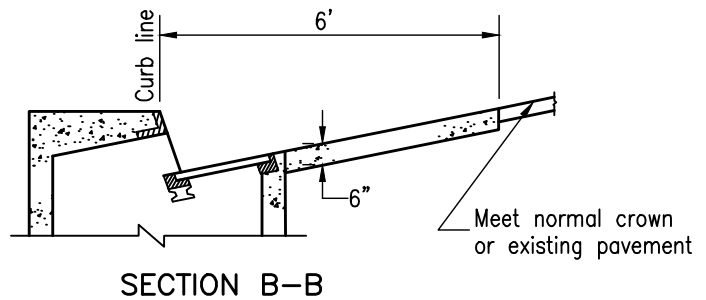
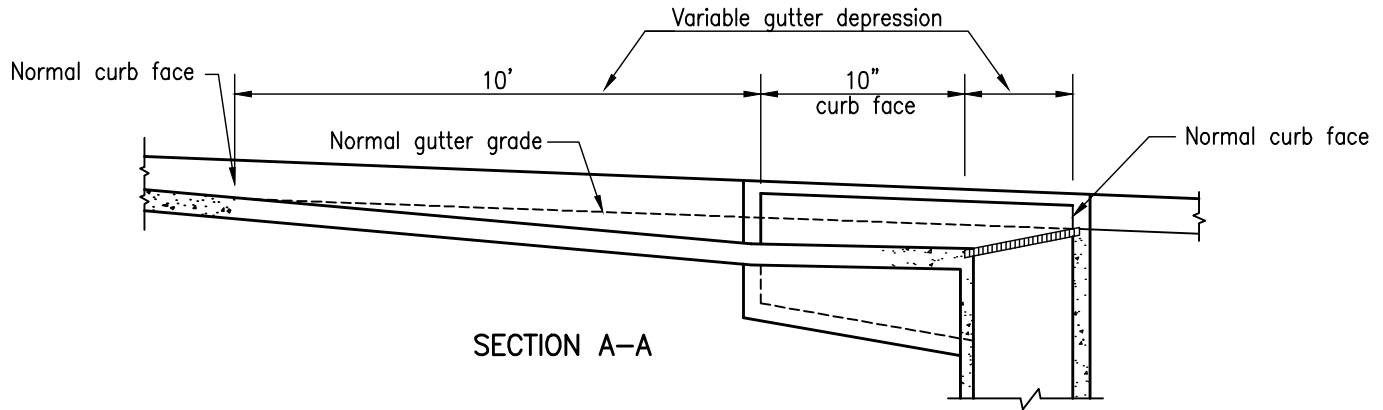
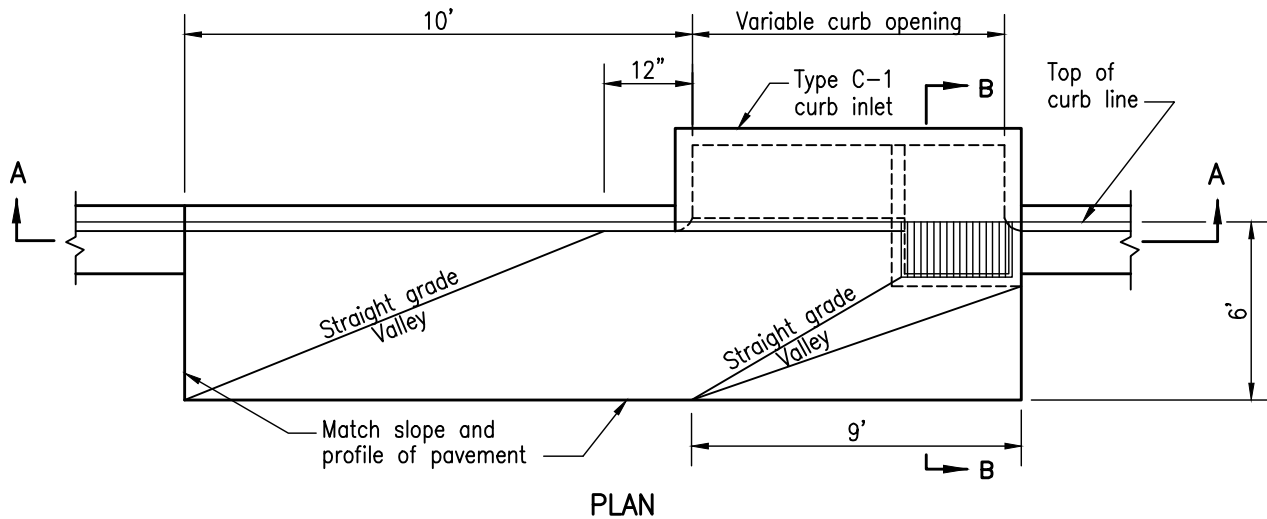
CURB INLET - TYPE C

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

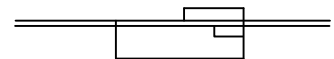
DRAWING NUMBER **D-03A**



NOTES

1. Curb and apron to be placed monolithically.
2. Use of false header at valleys and slope break line is optional.
3. Extend vertical steel from inlet structure into concrete apron as shown on Section B-B of D-03A.
4. Concrete shall be 520-C-2500.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Replaced D-20		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

CONCRETE APRON FOR TYPE C CURB INLET

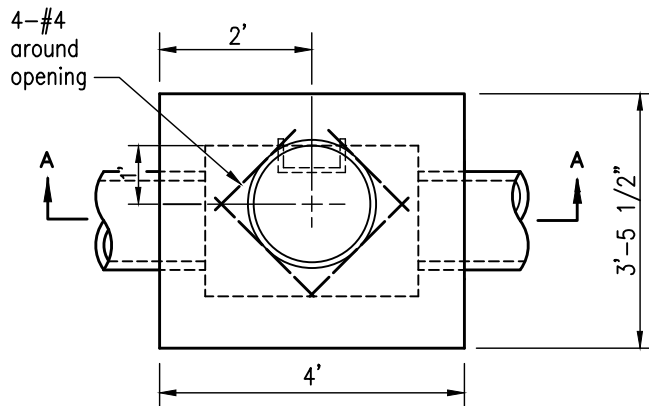
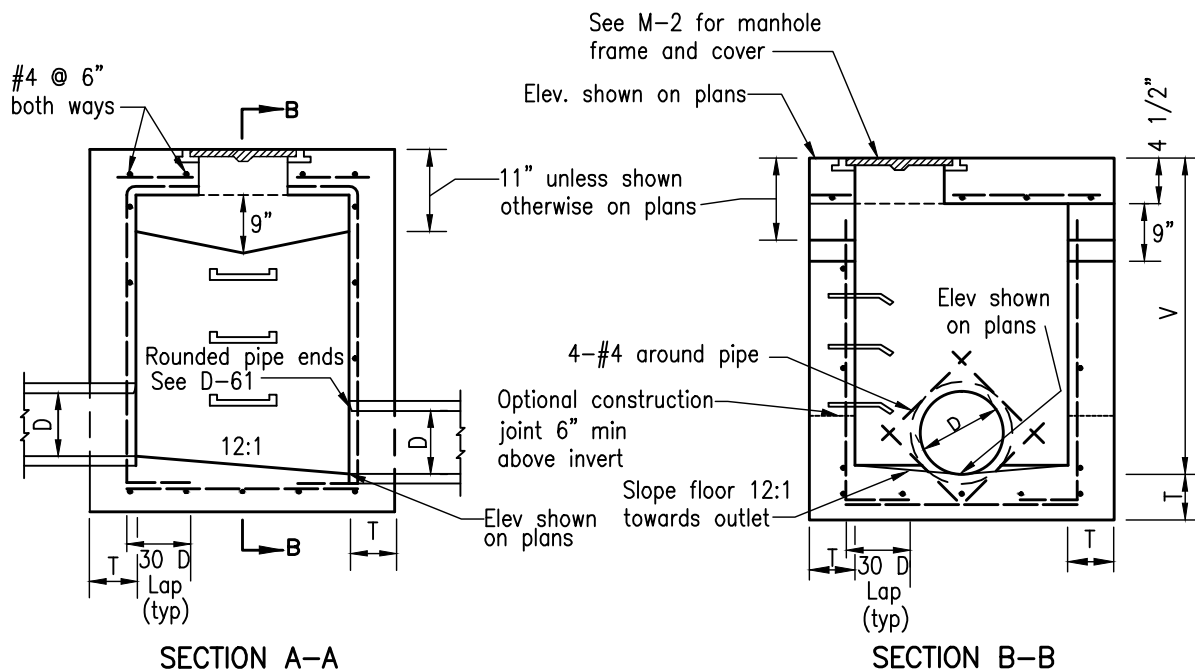
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

D-03B



NOTES

1. See D-11A & 11B for additional notes and details.
2. When V exceeds 4' steps shall be installed. See D-11A for details.
3. Exposed edges of concrete shall be rounded with a radius of 1/2".
4. Construct openings on both sides unless otherwise shown on plans.
5. Maintain 1-1/2" clear spacing between reinforcing and concrete surface.
6. Install 1" steel protection bar across opening.
7. Diameter "D" shall be 18" max, for larger diameter pipes this drawing must be modified. Pipe diameters to be shown on plans.
8. If constructed adjacent to sidewalk, the surface of the top slab of the catch basin shall match the sidewalk slope and finish.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

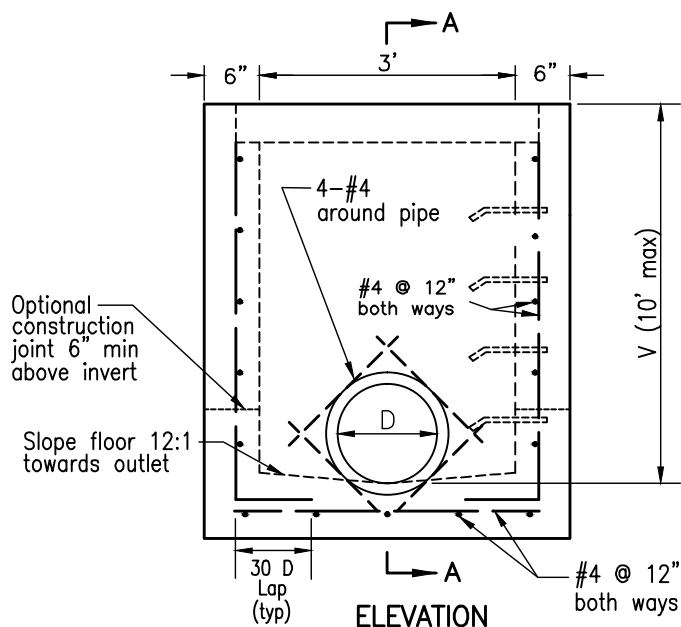
CATCH BASIN - TYPE F

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

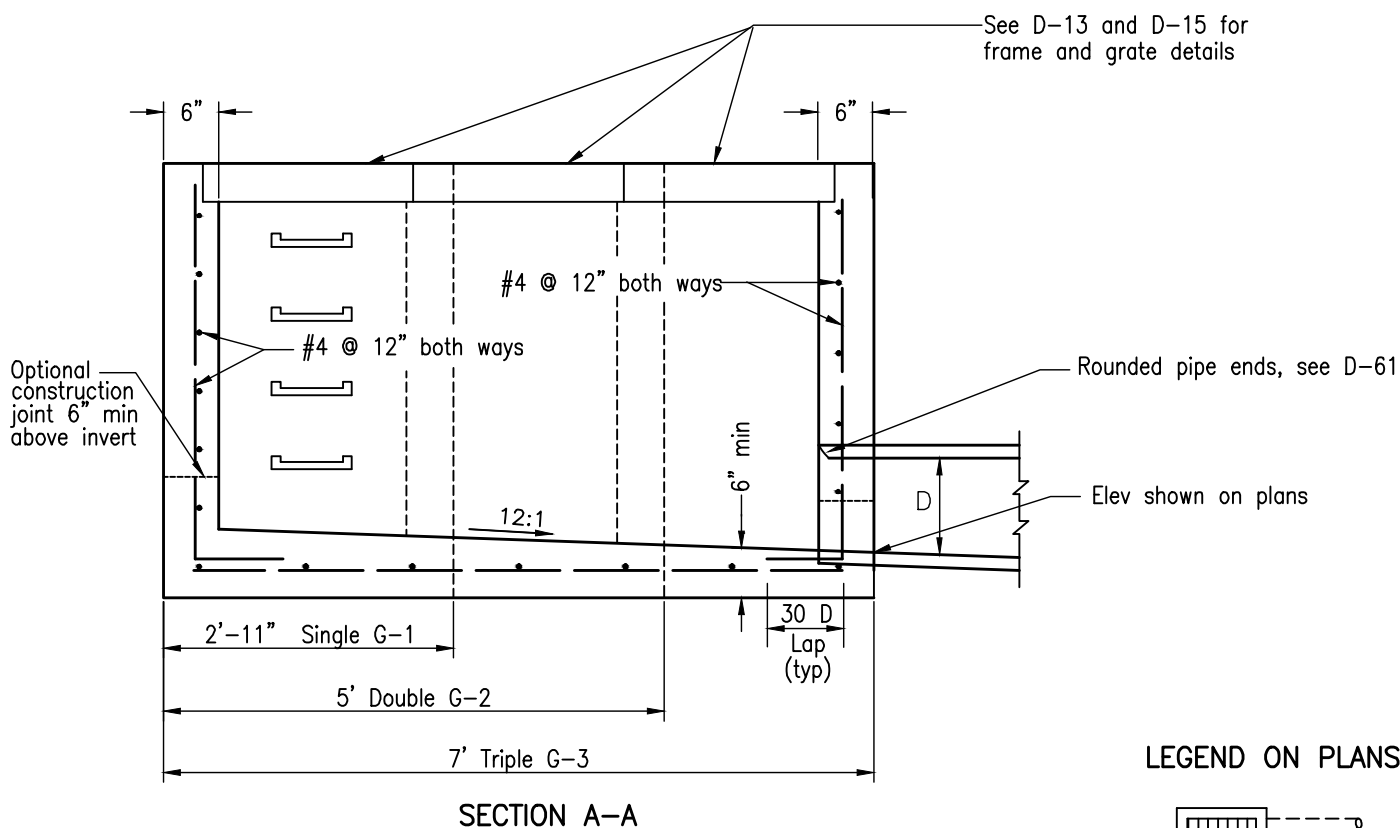
Chairperson R.C.E. 19246 Date

DRAWING NUMBER **D-07**

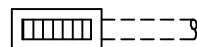


NOTES

1. See D-11A & D-11B for additional notes and details.
2. When V exceeds 4', steps shall be installed. See D-11A for details.
3. Maintain 1-1/2" clear spacing between reinforcing and concrete surface.
4. Increase in allowable depth subject to approval by Agency.
5. Section A-A shows 3 sizes and shall not imply that an interior wall is to be built for the structures with with double or triple frame and grate.
6. Exposed edges of concrete shall be rounded with radius of 1/2".
7. Designate types as follows: Single G-1, Double G-2 or Triple G-3.
8. Only end bearing grates shall be used. See D-15.



LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

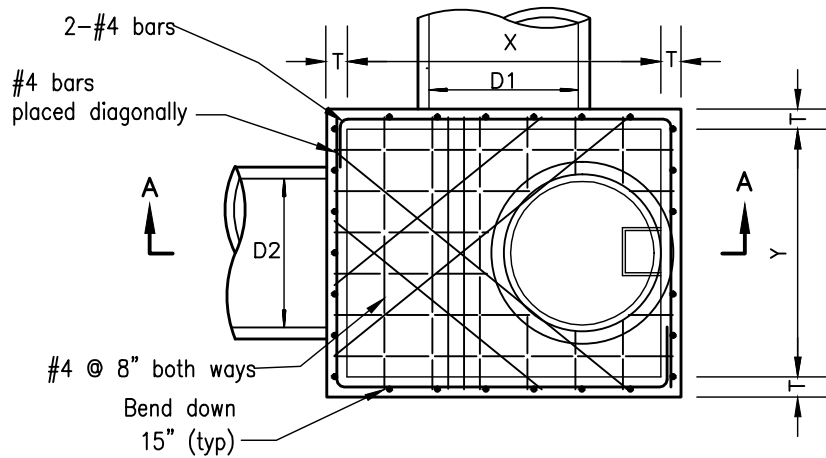
CATCH BASIN - TYPE G

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

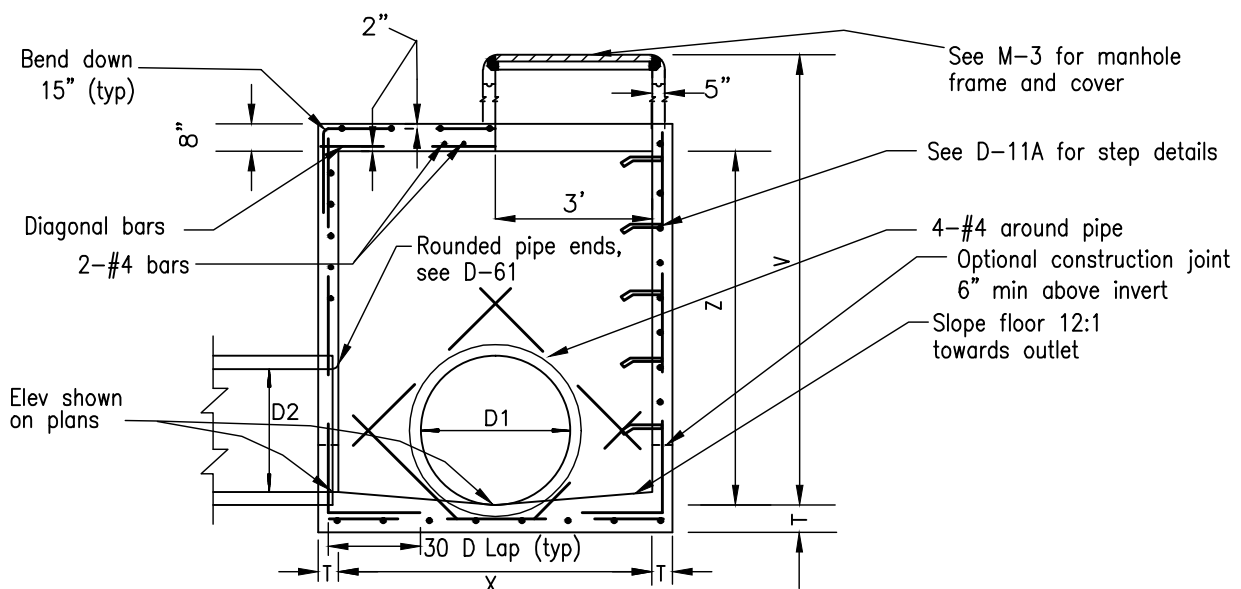
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-08**



PLAN

TYPE	PIPE DIAMETER (D1)	X	Y (See Note 8)	Z
A4	up to 39"	4'	4'	6'
A5	42" to 48"	5'	4'	6'
A6	51" to 60"	6'	4'	6'
A7	63" to 66"	7'	4'	7'
A8	69" to 78"	8'	4'	8'

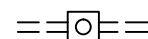


SECTION A-A

NOTES

1. See D-11A & D-11B for additional notes and details.
2. Concrete base shall be 560-C-3250.
3. All precast components shall be reinforced with 1/4" diameter steel, wound spirally on 4" centers.
4. All joints shall be set in Class C mortar.
5. Maintain 1-1/2" clear spacing between reinforcing and concrete surface unless otherwise noted.
6. Exposed edges of concrete shall be rounded with a radius of 1/2".
7. Manhole cover to be marked "Storm Drain".
8. Modifications to "Y" dimension required if pipe (D2) exceeds 39".
9. If constructed adjacent to sidewalk, top of manhole to match sidewalk slope.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

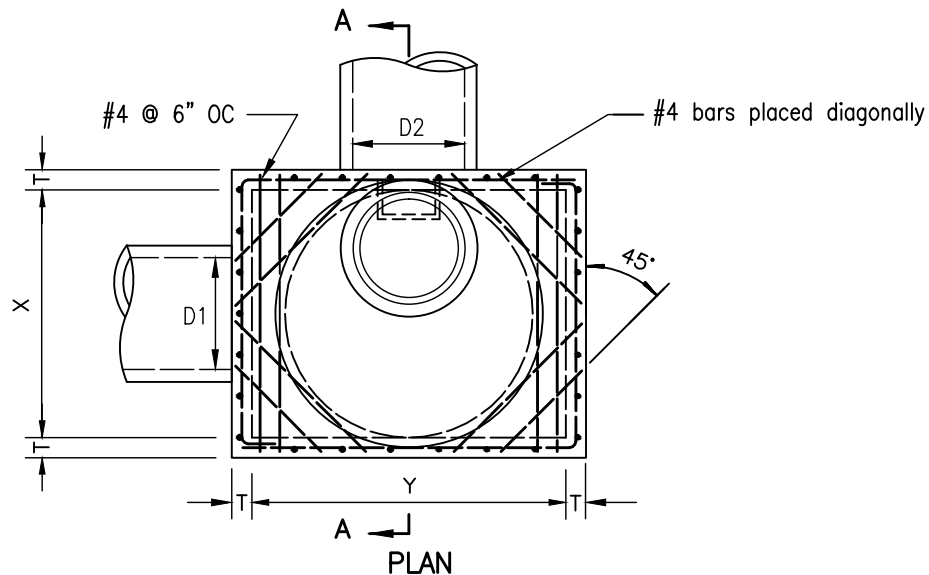
SAN DIEGO REGIONAL STANDARD DRAWING

STORM DRAIN CLEANOUT - TYPE A

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

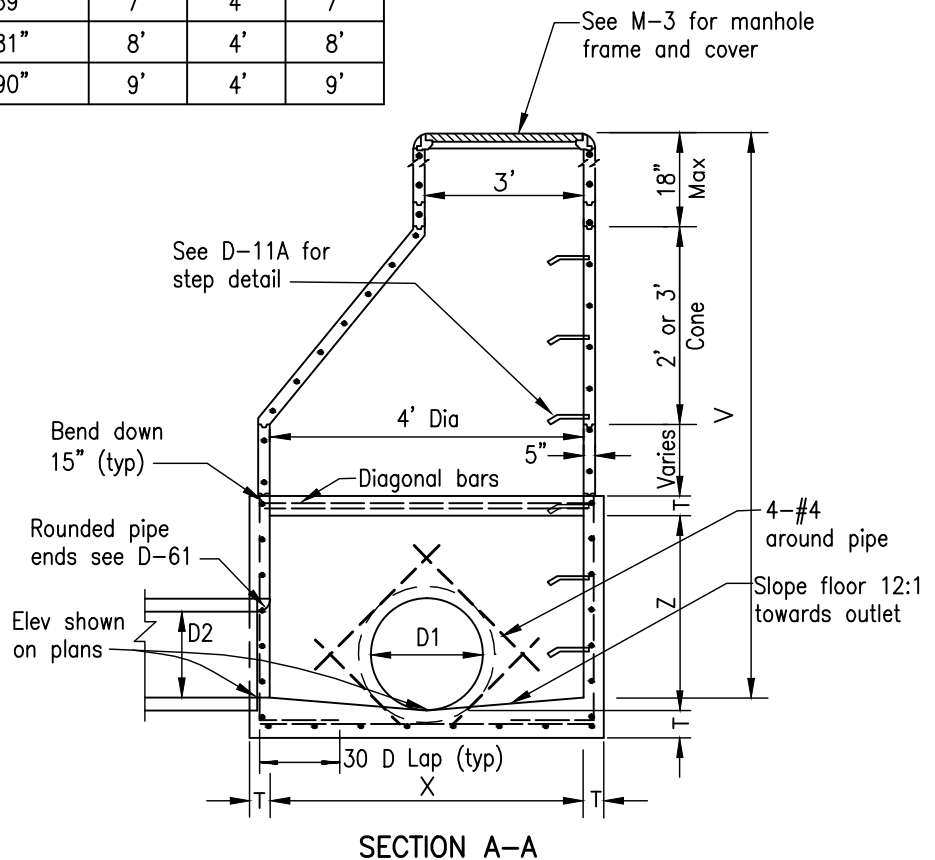
DRAWING
NUMBER **D-09**



TYPE	PIPE DIAMETER (D1)	X	Y	Z
B5	up to 51"	5'	4'	5'
B6	54" to 60"	6'	4'	6'
B7	63" to 69"	7'	4'	7'
B8	72" to 81"	8'	4'	8'
B9	84" to 90"	9'	4'	9'

NOTES

1. See D-11A & D-11B for additional notes and details.
2. All joints shall be set in Class C mortar.
3. All precast components shall be reinforced with 1/4" diameter steel wound spirally on 4" centers.
4. Maintain 1-1/2" clear spacing between reinforcing and concrete surface.
5. Concrete base shall be 560-C-3250.
6. Exposed edges of concrete shall be rounded with a 1/2" radius.
7. Manhole cover to be marked "Storm Drain".
8. Modifications to "Y" dimension required if pipe (D2) exceeds 39".
9. If constructed adjacent to sidewalk, top of manhole to match sidewalk slope.



LEGEND ON PLANS

= =

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

STORM DRAIN CLEANOUT - TYPE B

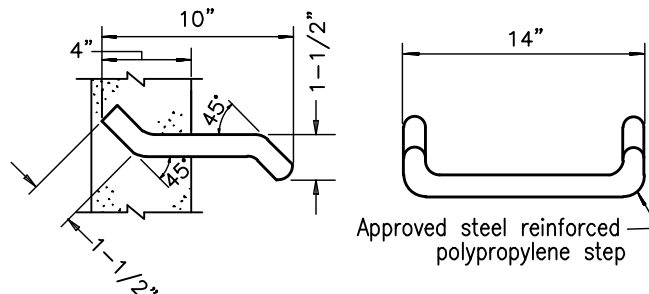
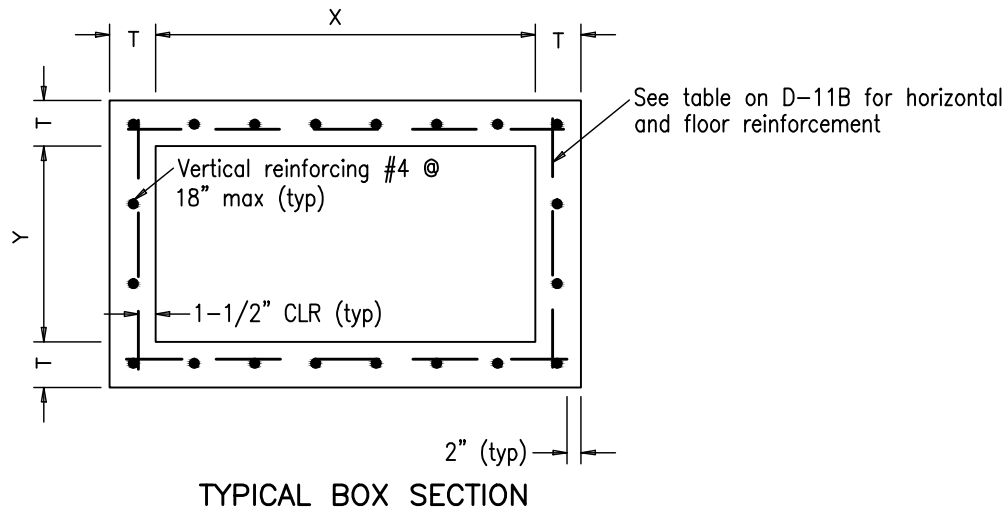
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

D-10



NOTES

- Concrete shall be 560-C-3250 unless otherwise noted.
- Reinforcing steel shall comply with this drawing (D-11A and D-11B) unless otherwise specified.
- Reinforcing steel shall be intermediate grade deformed bars conforming to latest ASTM specifications.
- Bends shall be in accordance with latest ACI code.
- Minimum splice length for reinforcing shall be 30 diameters.
- Floor shall have a wood trowel finish and, except where used as junction boxes, shall have a minimum slope of 1:12 toward the outlet.
- Depth V is measured from the top of the structure to the flowline of the box.
- Wall thickness and reinforcing steel required may be decreased in accordance with table on D-11B.
- Wall thickness shall be stepped on the outside of the box.
- When the structure depth V exceeds 4', steps shall be cast into the wall at 15" intervals from 15" above floor to within 12" of top of structure. Where possible place steps in wall without pipe opening, otherwise over opening of smallest diameter.
- Alternate step may be an approved steel reinforced polypropylene step.
- Upon approval of the Agency, the use of precast storm structures is acceptable as an alternate to cast-in-place. Precast units shall conform to ASTM standards and be manufactured in a permanent facility designed for that purpose.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING INLETS AND CLEANOUTS NOTES AND DETAILS		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75			<i>T. Stanton</i> 7/26/2012
Add Metric		T. Stanton	03/03			Chairperson R.C.E. 19246 Date
Reformatted		T. Stanton	04/06			
Edited		T. Stanton	02/09			
Edited	S.S.	T. Regello	03/11			DRAWING NUMBER D-11A

BOX SECTION REINFORCEMENT (HORIZONTAL AND FLOOR)			
MAXIMUM SPAN X or Y	DEPTH V	THICKNESS T	HORIZONTAL AND FLOOR REINFORCEMENT SIZE AND SPACING
3' to 4'	4'	6"	#4 @ 18"
4'-1" to 7'			#4 @ 12"
7'-1" to 8'			#4 @ 8"
3' to 4'	4'-1" to 8'	6"	#4 @ 18"
4'-1" to 5'			#4 @ 12"
5'-1" to 6'			#4 @ 8"
6'-1" to 8'			#4 @ 6"
3' to 4'	8'-1" to 12'	6"	#4 @ 15"
4'-1" to 5'		8"	#4 @ 12"
5'-1" to 6'			#4 @ 8"
6'-1" to 8'			#4 @ 6"
3' to 4'	12'-1" to 16'	8"	#4 @ 12"
4'-1" to 5'			#4 @ 12"
5'-1" to 6'			#4 @ 8"
6'-1" to 7'			#4 @ 6"
7'-1" to 8'			#5 @ 8"
3' to 4'	16'-1" to 20'	8"	#4 @ 12"
4'-1" to 5'		10"	#4 @ 12"
5'-1" to 6'			#4 @ 8"
6'-1" to 7'			#4 @ 6"
7'-1" to 8'			#5 @ 8"
3' to 4'	20'-1" to 24'	8"	#4 @ 12"
4'-1" to 5'		10"	#4 @ 12"
5'-1" to 6'			#4 @ 8"
6'-1" to 7'			#4 @ 6"
7'-1" to 8'		12"	#5 @ 8"

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
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SAN DIEGO REGIONAL STANDARD DRAWING

INLETS AND CLEANOUTS NOTES AND DETAILS

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

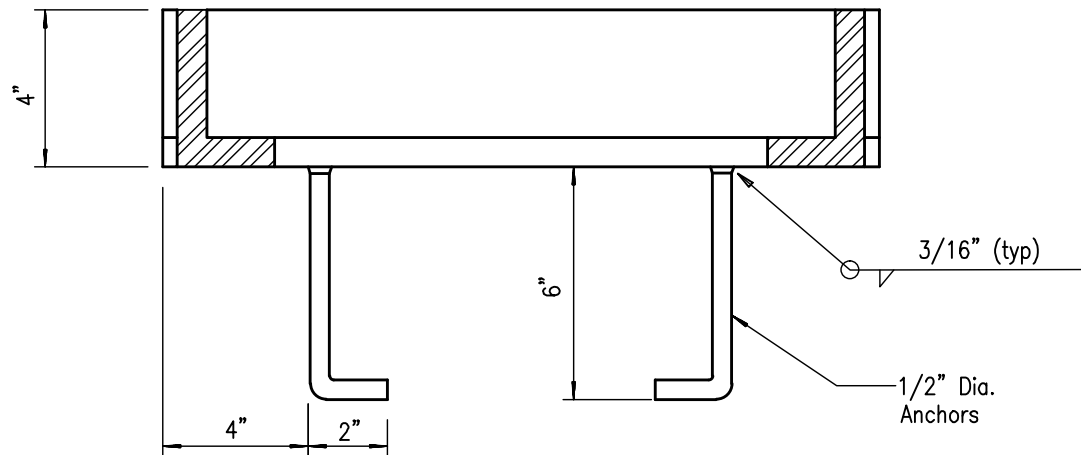
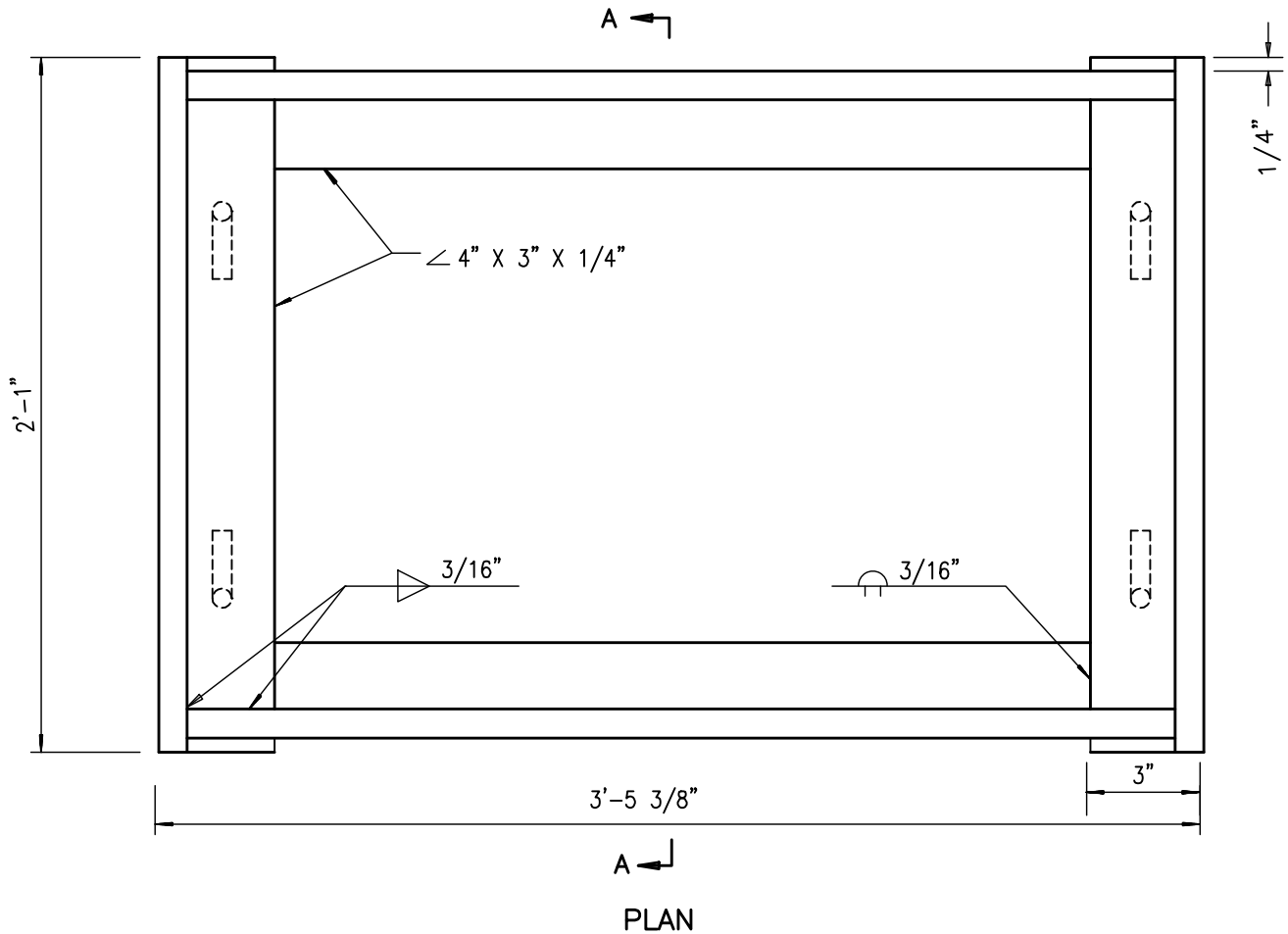
 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

D-11B

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE



NOTE

Hot dip galvanize all parts after fabrication.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
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Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

WELDED STEEL GRATE FRAME

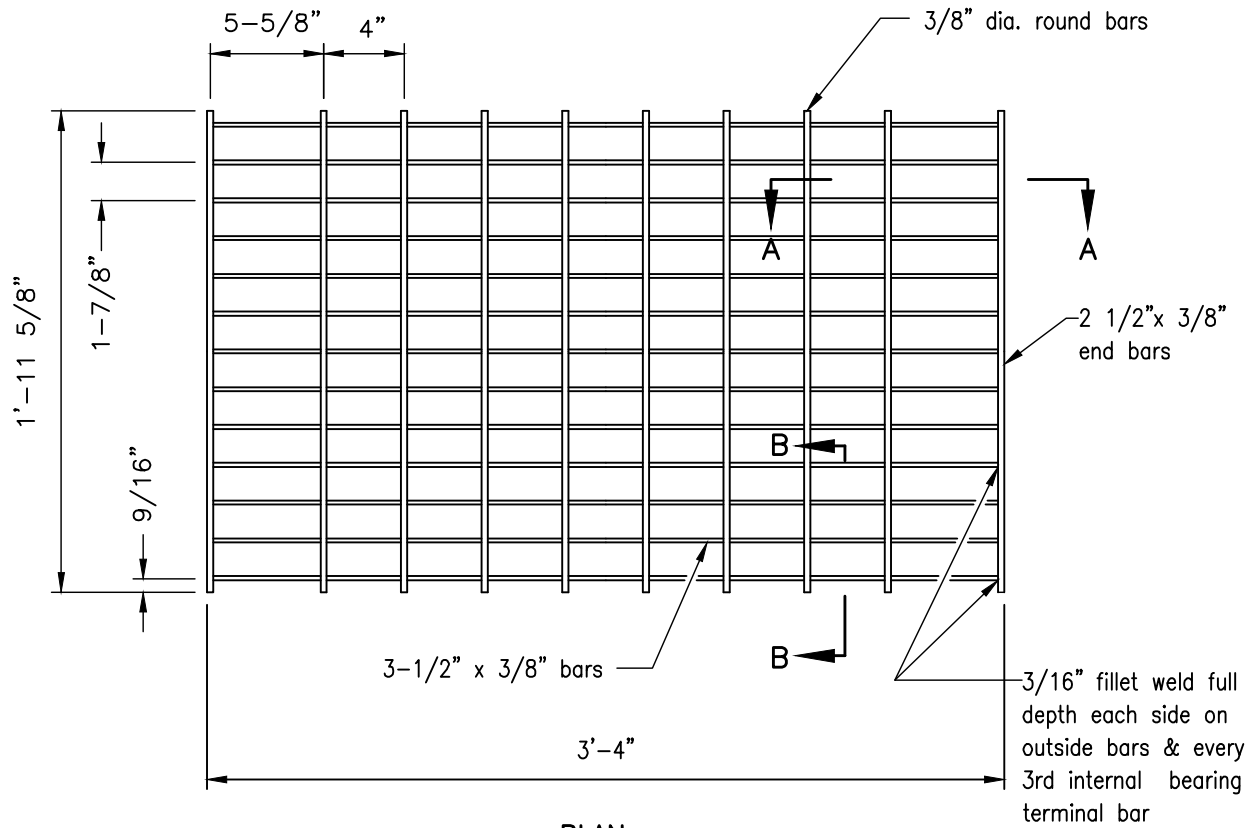
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

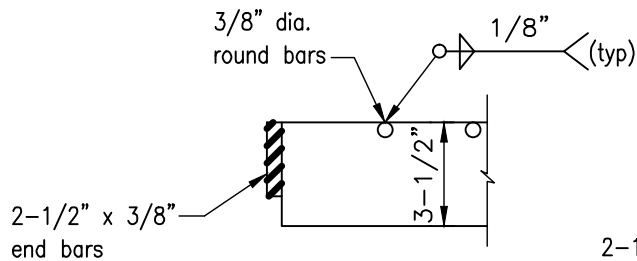
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

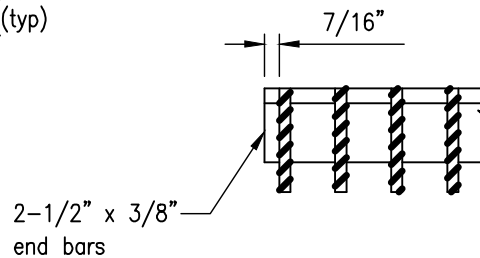
D-13



PLAN



SECTION A-A



SECTION B-B

NOTES

1. Hot dip galvanize all parts after fabrication.
2. Dimensions are to centerline of bars unless otherwise noted.
3. Not to be used in pedestrian areas.
4. Weight: 200lbs +/-

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
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Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

DRAINAGE STRUCTURE GRATE

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

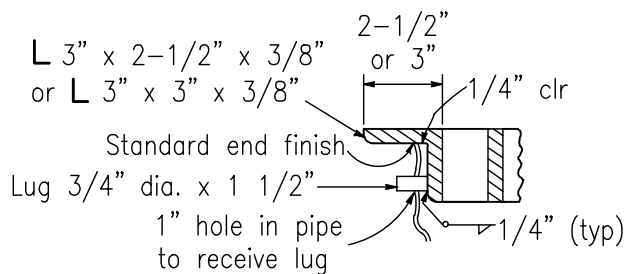
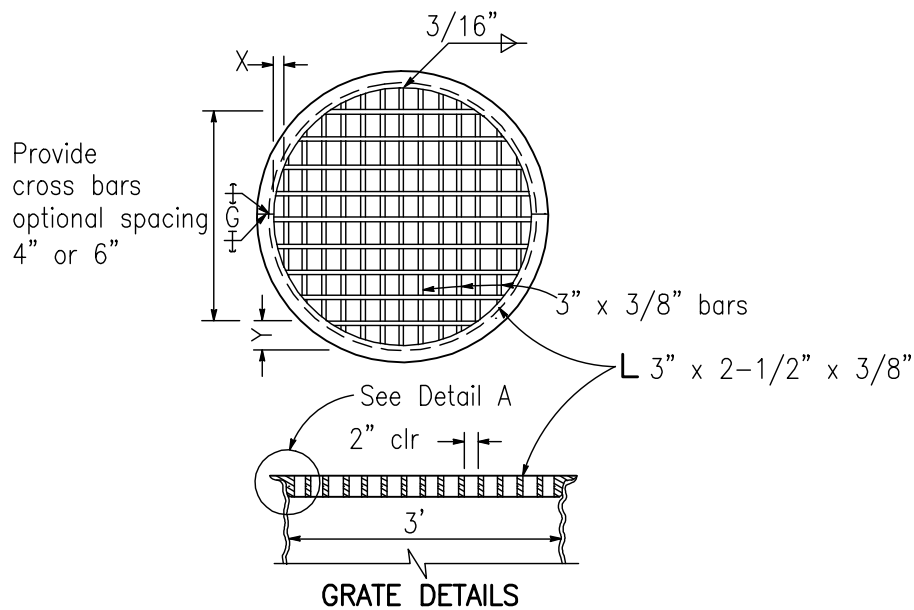
T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

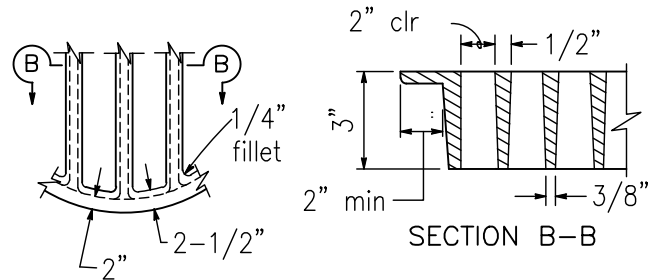
DRAWING
NUMBER

D-15

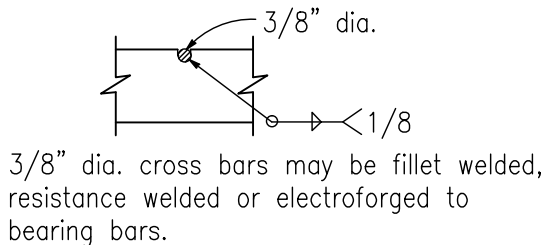
D-16



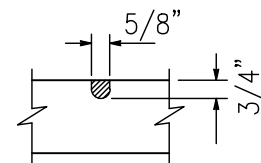
DETAIL A



**ALTERNATIVE CAST NODULAR IRON GRATE
OR CAST STEEL GRATE**



**CROSS BAR DETAIL TYPE
WELDED STEEL GRATE**



**CROSS BAR DETAIL
ALTERNATIVE CAST NODULAR
IRON GRATE OR CAST STEEL GRATE**

GRATE BAR SPACING TABLE

TYPE	NO. OF BARS	CLEAR BAR SPACING	X	Y	
				4" SPACING	6" SPACING
Welded Steel	15	2"	9/16"	3-3/4"	5-3/4"
Cast	13	2"	2-1/8"	3-3/4"	5-3/4"

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ORIGINAL		Kercheval	12/75
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Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

**CORRUGATED STEEL PIPE INLETS,
DETAILS**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

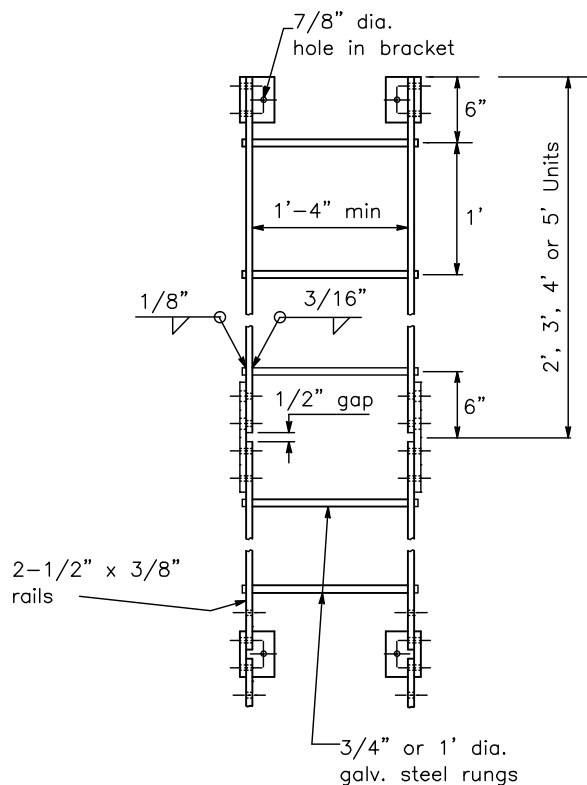
T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

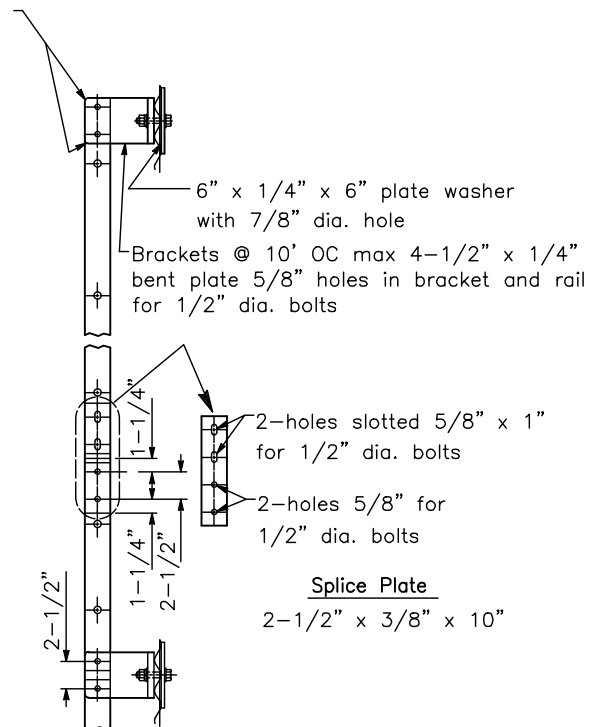
DRAWING
NUMBER

D-17A

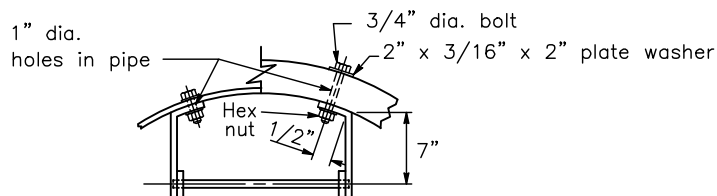
Grind all exposed corners 1/4" radius



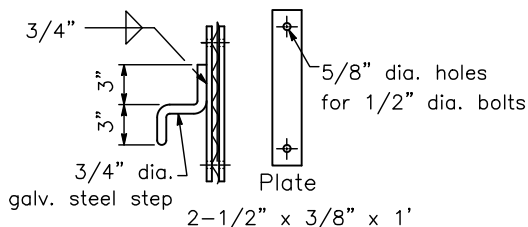
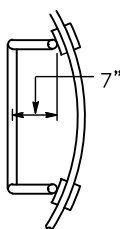
FRONT VIEW



SIDE VIEW



LADDER DETAIL
H=5' or greater



STEP DETAIL
H=3'-6" to 4'-11"

NOTE

See Note 3 on D-16 for ladder requirements.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
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Edited	S.S.	T. Regello	03/11

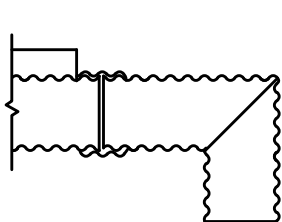
SAN DIEGO REGIONAL STANDARD DRAWING

**CORRUGATED STEEL PIPE INLETS,
DETAILS**

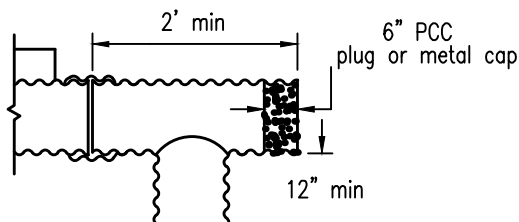
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

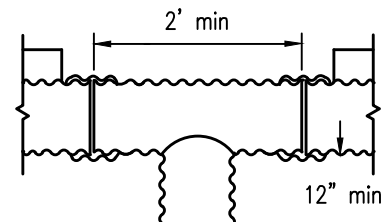
DRAWING
NUMBER **D-17B**



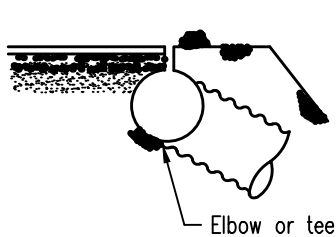
ELBOW



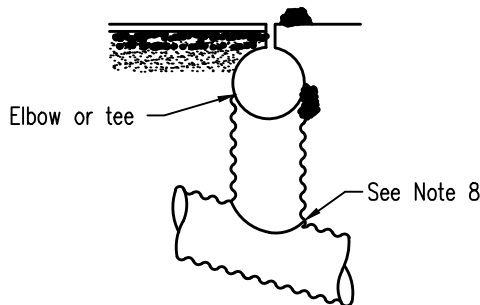
TEE



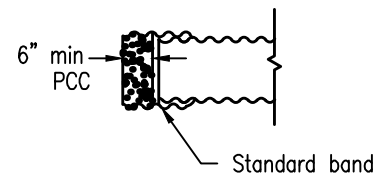
TEE-SAG CONDITION



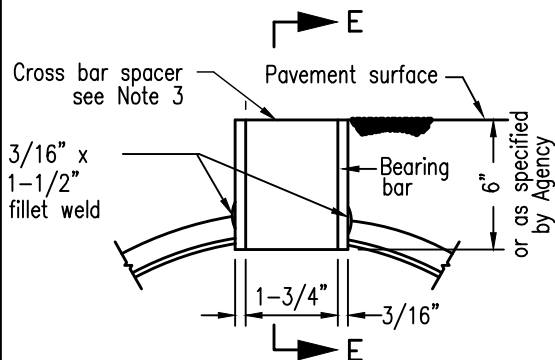
OVERSIDE DRAIN



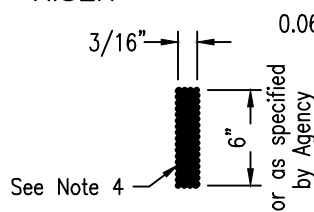
RISER



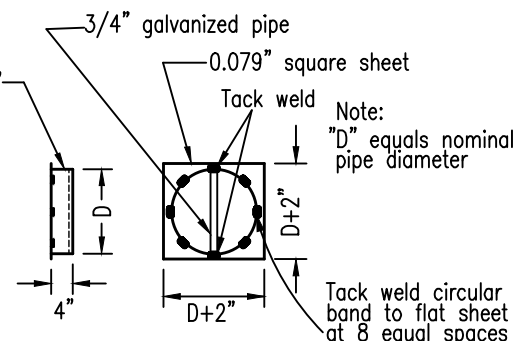
BAND PLUG



SECTION D-D
GRATE SLOT DETAIL

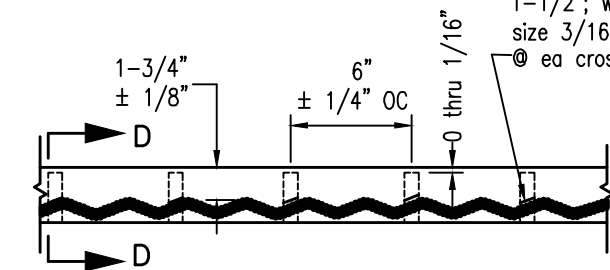


SECTION E-E

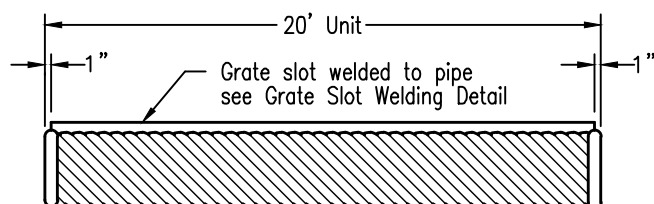


METAL CAP DETAIL

Min weld length
1-1/2"; weld
size 3/16" min
@ ea cross bar



GRATE SLOT WELDING DETAIL



GRATE SLOT DRAIN

NOTES

1. Drain seams may be constructed by riveting or resistance spot-welding, continuous helical lock seam or helical welding seam at equal centers.
2. Each drain section shall be assembled with standard coupling bands.
3. Cross bar spacer of grate shall be pressure fused or plug welded to bearing bars in such a manner as to develop the strength of the cross bar spacer.
4. Cross bar spacer (Section E-E) may differ from that shown provided section area is equal or greater.
5. Grate material shall be a weldable grade of steel complying to the requirements of ASTM A 36.
6. The maximum variance from a straight line from the extreme top corners of the bearing bar shall be 1/2" in 20'.
7. Installation lengths shall be 10' or multiples thereof.
8. Either field joint sealed with a pliable mixture of sand, portland cement and emulsified asphalt (Mixture of 1 part portland cement, 3 - 5 parts sand and 1-1/2 parts SSI emulsified asphalt), or continuous weld.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

SLOTTED CORRUGATED STEEL PIPE DRAINS

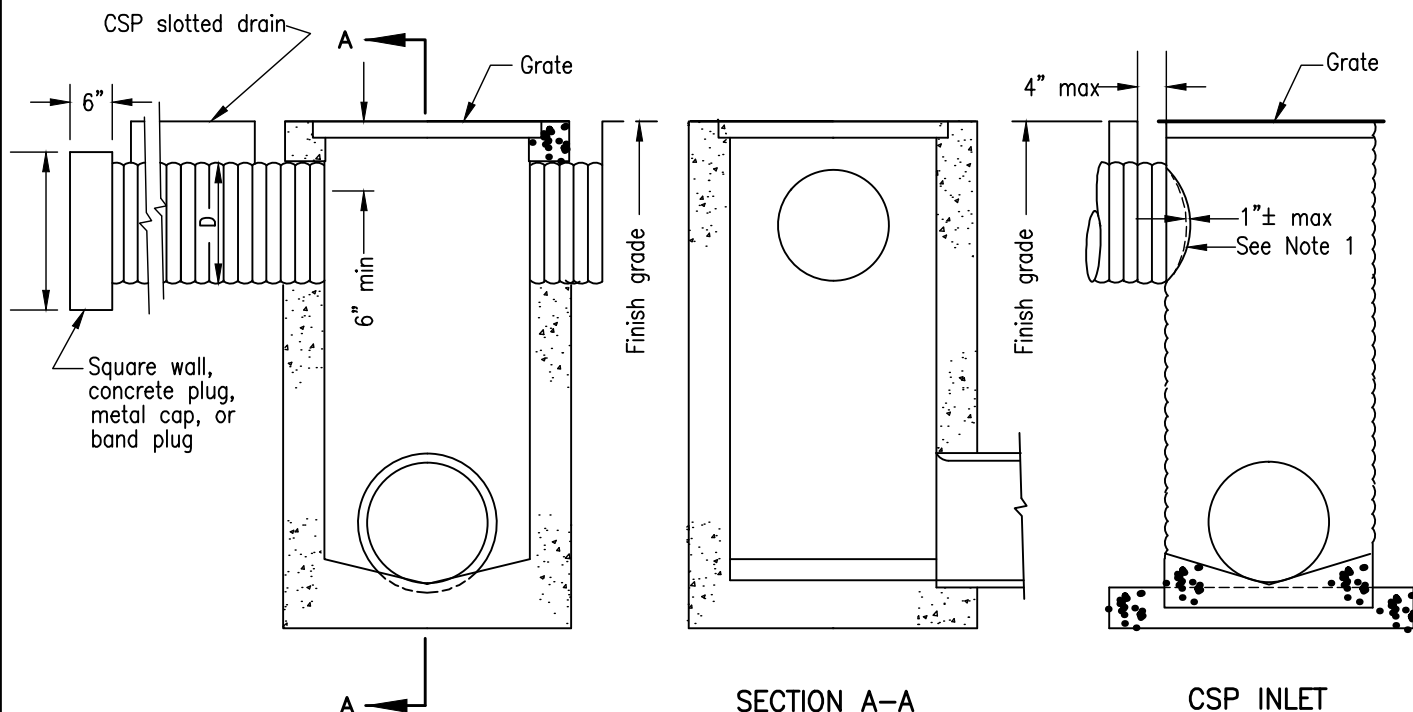
12" THROUGH 24"

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

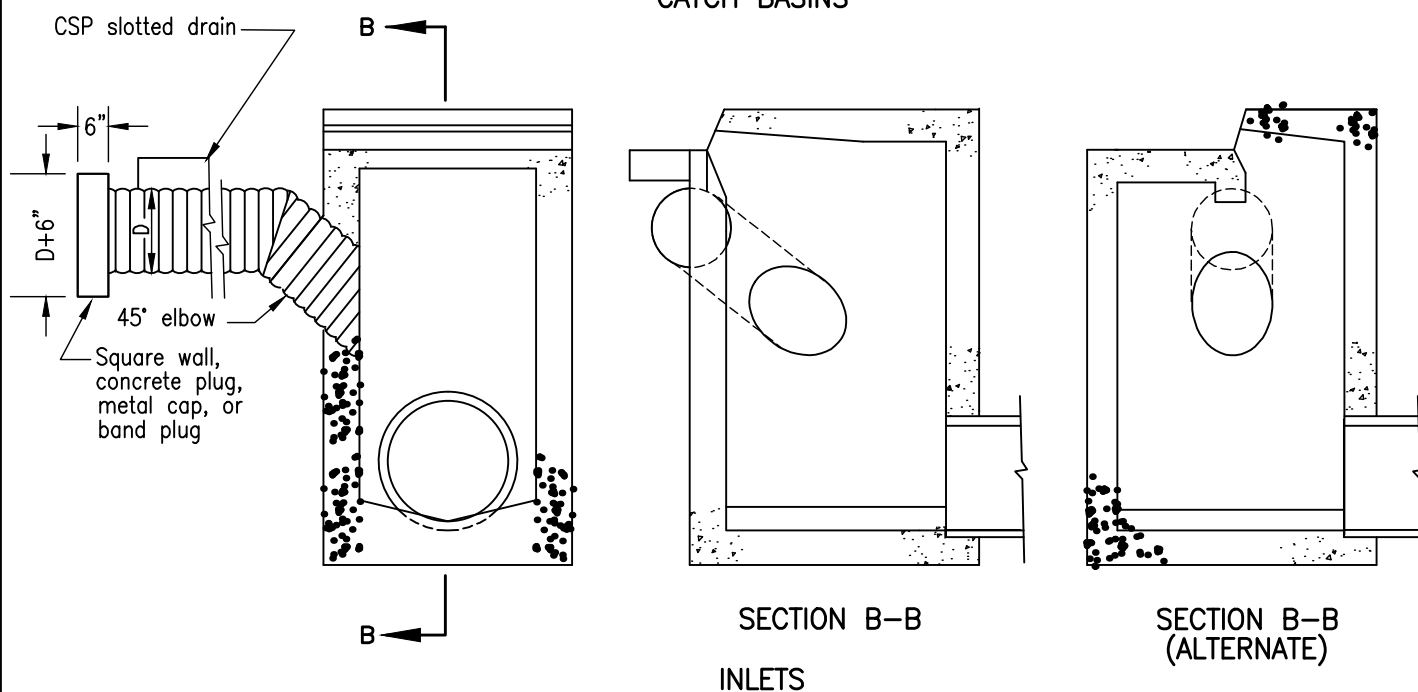
T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-18**



CATCH BASINS



NOTES

1. Either field joint with a pliable mixture of sand, portland cement emulsified asphalt (mixture of 1 part portland cement, 3-5 parts sand, and 1-1/2 parts SSI emulsified asphalt), or continuous weld.
2. See D-18 for additional notes and details.
3. Slotted drain installations shall be encased with 6" PCC 520-C-2500 all around and shall be poured monolithically with the curb and gutter.

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ORIGINAL		Kercheval	12/75
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Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

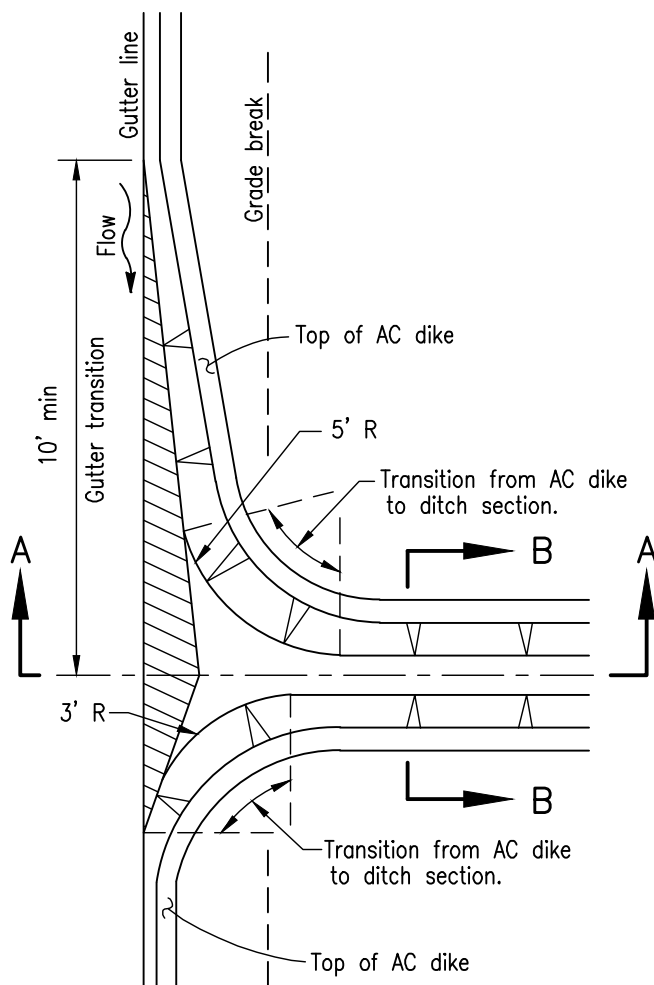
SLOTTED DRAIN CONNECTIONS TO STANDARD INLETS

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

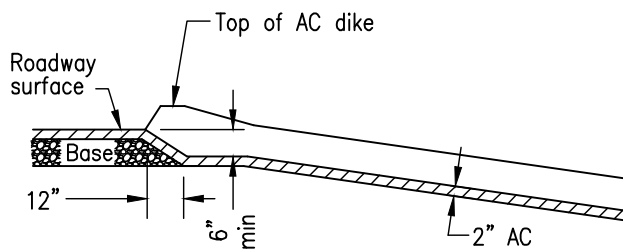
T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

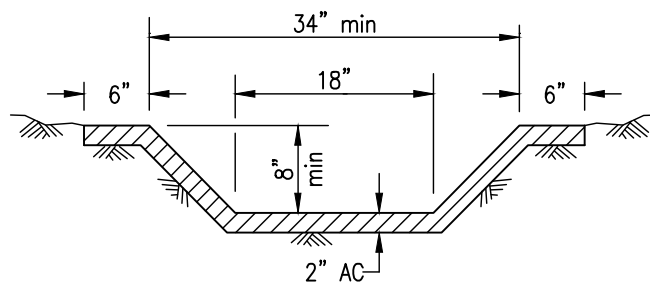
DRAWING
NUMBER **D-19**



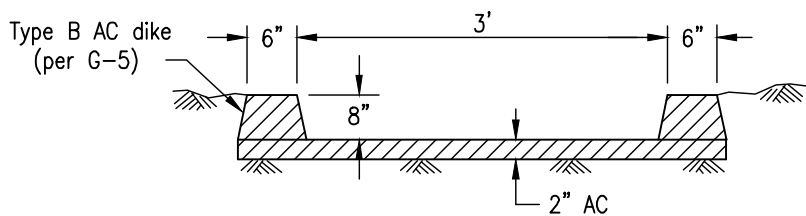
PLAN



SECTION A-A



SECTION B-B

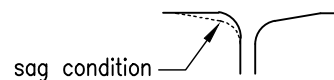


ALTERNATE SECTION B-B

NOTES

1. AC spillway may be used when fill is 10' or less, and where fill slope 1-1/2:1 or flatter.
2. Use 10' min length of gutter transition on each side of downdrain in sag condition.
3. Cross sectional area of ditch (Section B-B) may be trapezoidal or semi-circular; semi-circular sectional area must provide an equal flow capacity as trapezoidal.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

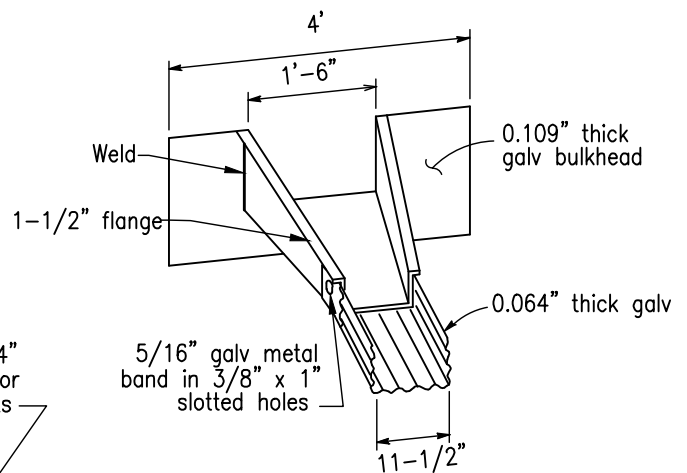
ASPHALT CONCRETE SPILLWAY

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

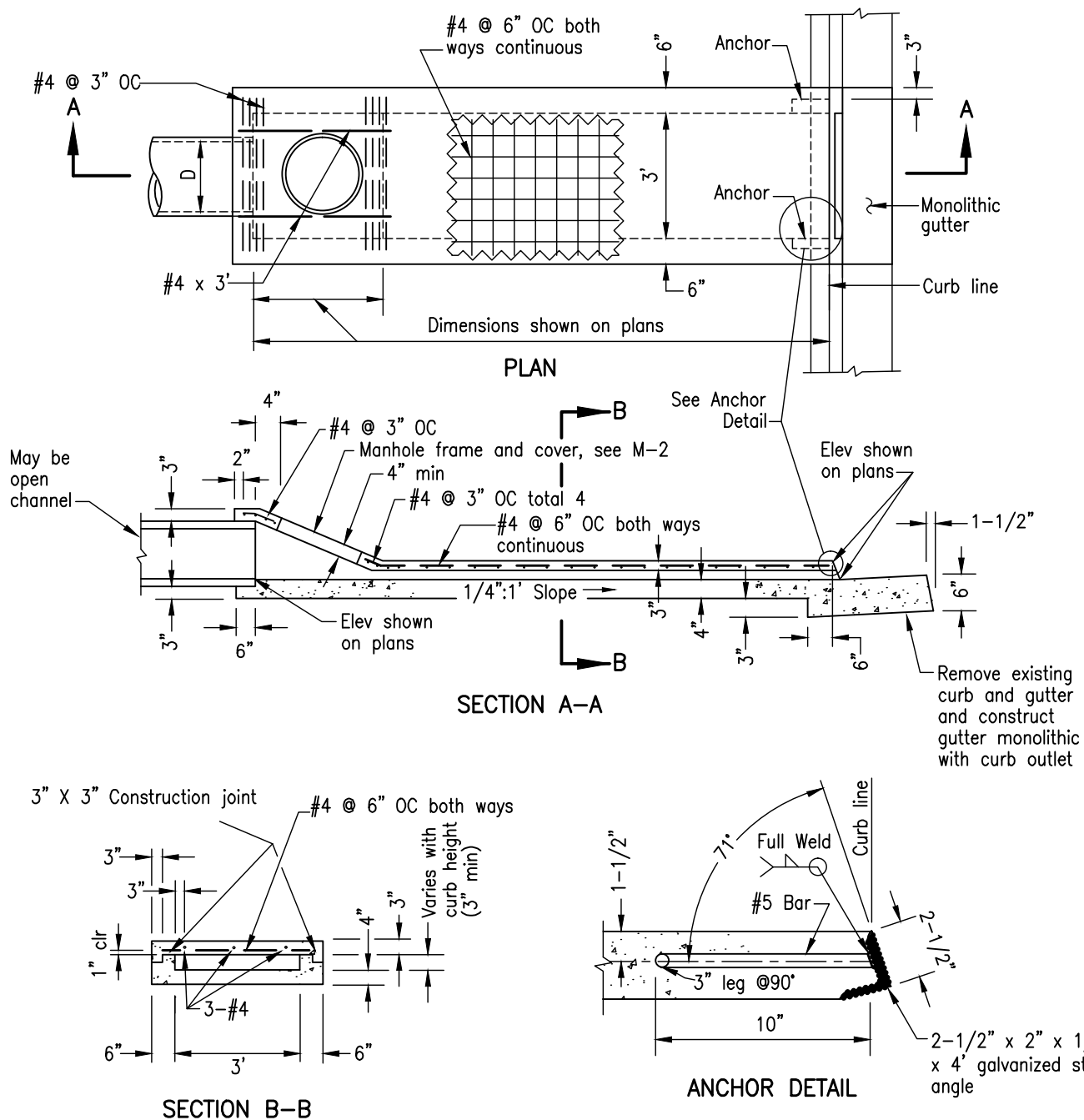
T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING NUMBER **D-22**



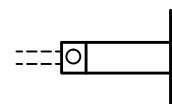
D-23



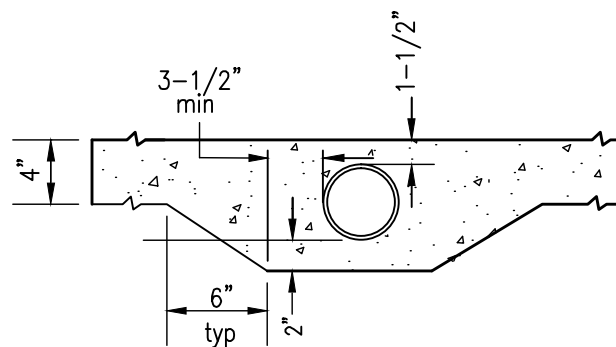
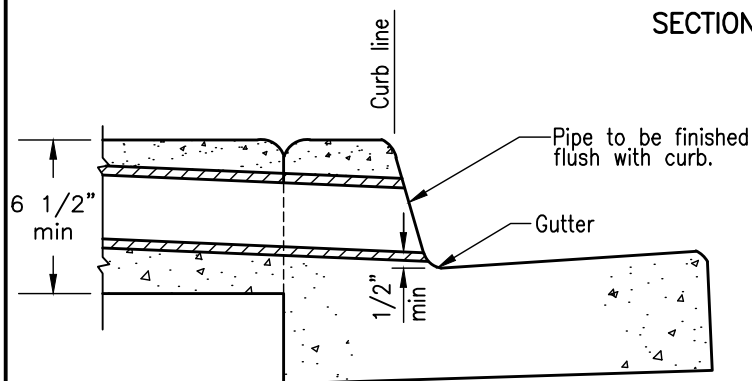
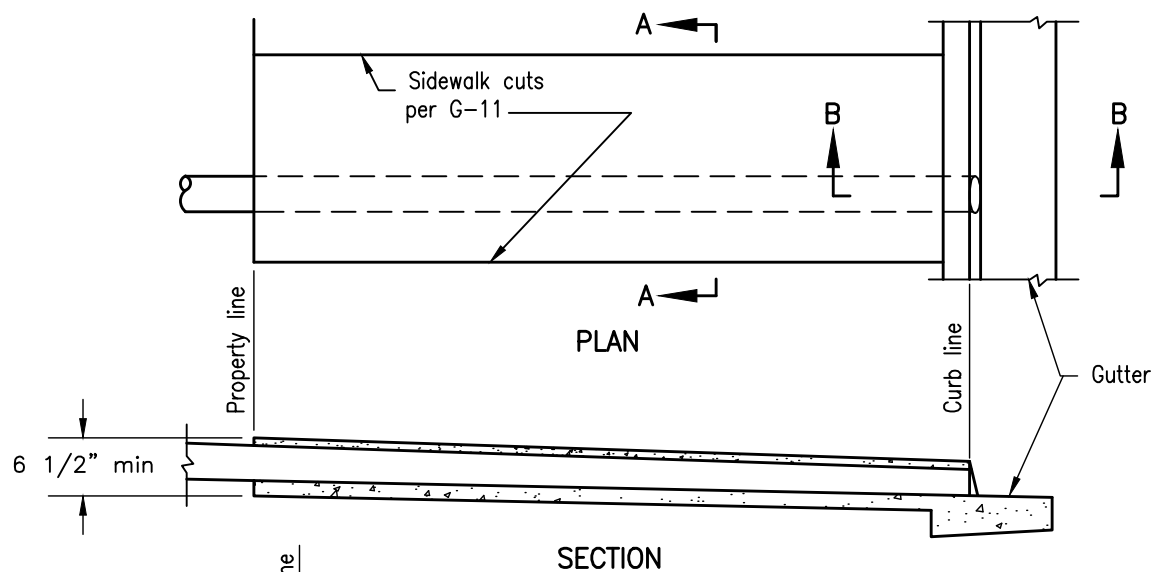
NOTES

- Concrete shall be 560-C-3250.
- D=inside diameter of pipe or depth of channel.
- Section to be sloped laterally with top conforming to the grades of the existing sidewalk and curb.
- Manhole frame and cover may be deleted with open channel.
- Trowel finish top surface and reproduce markings of existing sidewalk and curb.
- Trowel finish floor of outlet.
- Provide 1/4" tooled groove in top slab in line with back of curb.

LEGEND ON PLANS



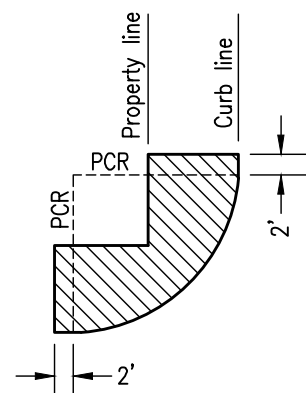
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		Kercheval	12/75		
Add Metric		T.Stanton	03/03	CURB OUTLET - TYPE A	
Reformatted		T.Stanton	04/06		
Revised		T.Stanton	11/08		
Edited	S.S.	T. Regello	03/11		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
				 7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER D-25	



APPROVED DRAIN PIPE SIZES	
PIPE SIZE	CURB HEIGHT AT CURB FACE
3"	6" to 8"
4"	8"
6"	10"

NOTES

1. Pipe shall be one continuous length from property line to curb line.
2. Multiple pipes to be set a minimum distance of D/2 apart (3 max).
3. Concrete shall be 520-C-2500.
4. Pipe shall be circular rigid plastic, or approved equal.
5. Coring of existing curb may be used as an alternative.
6. Provide 1/4" tooled groove in top slab in line with back of adjacent curb.



Drain shall not occupy the hatched area

BLOCK CORNER

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T.Stanton	03/03
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SAN DIEGO REGIONAL STANDARD DRAWING

SIDEWALK UNDERDRAIN PIPE

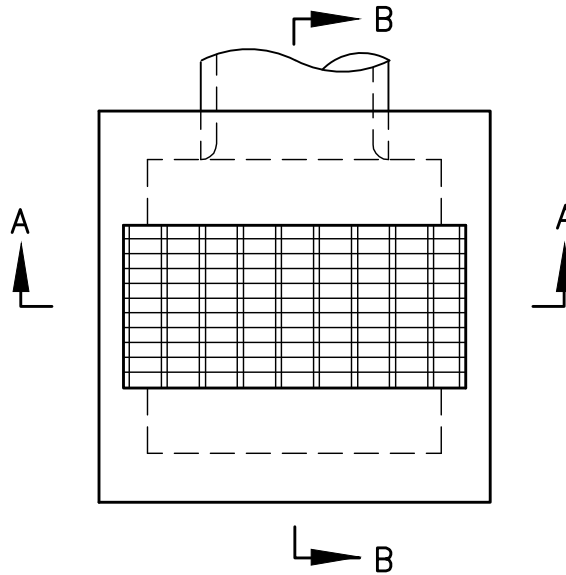
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

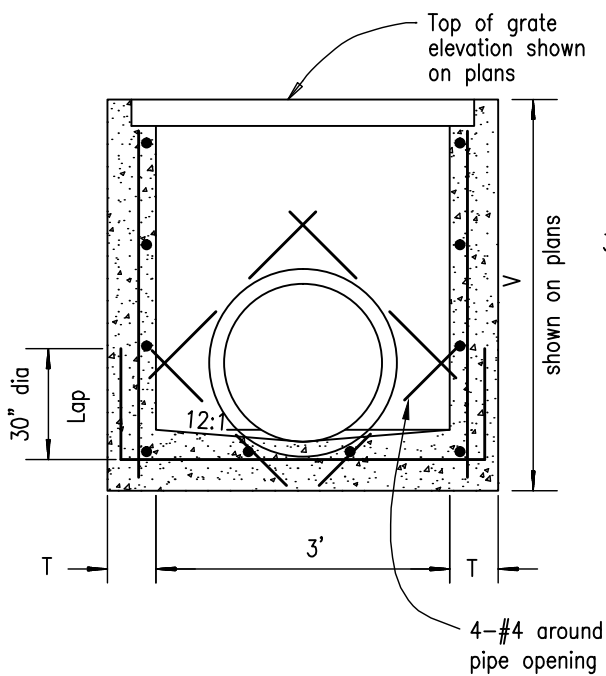
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

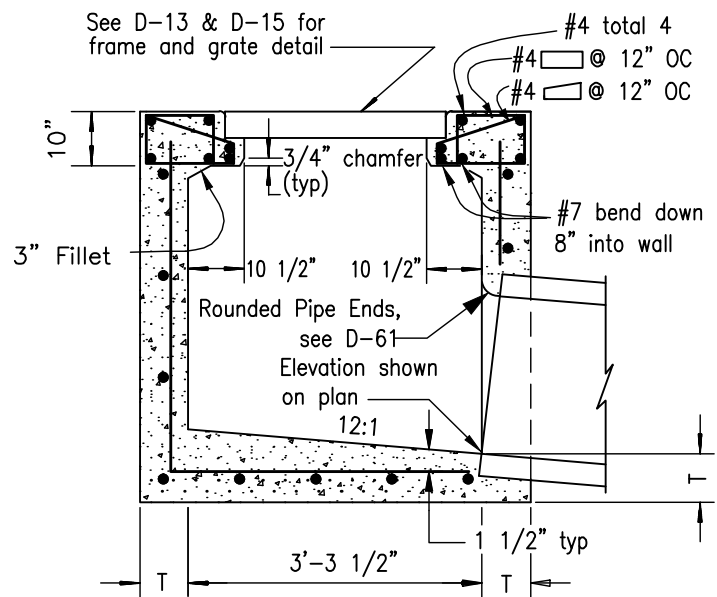
D-27



PLAN



SECTION A-A

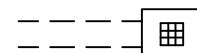


SECTION B-B

NOTES

1. See D-11A & D-11B for additional notes and details.
2. When V exceeds 4', steps shall be installed per D-11A.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Solomon	7/79
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

CATCH BASIN - TYPE I

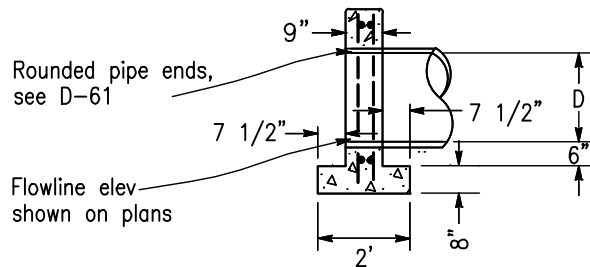
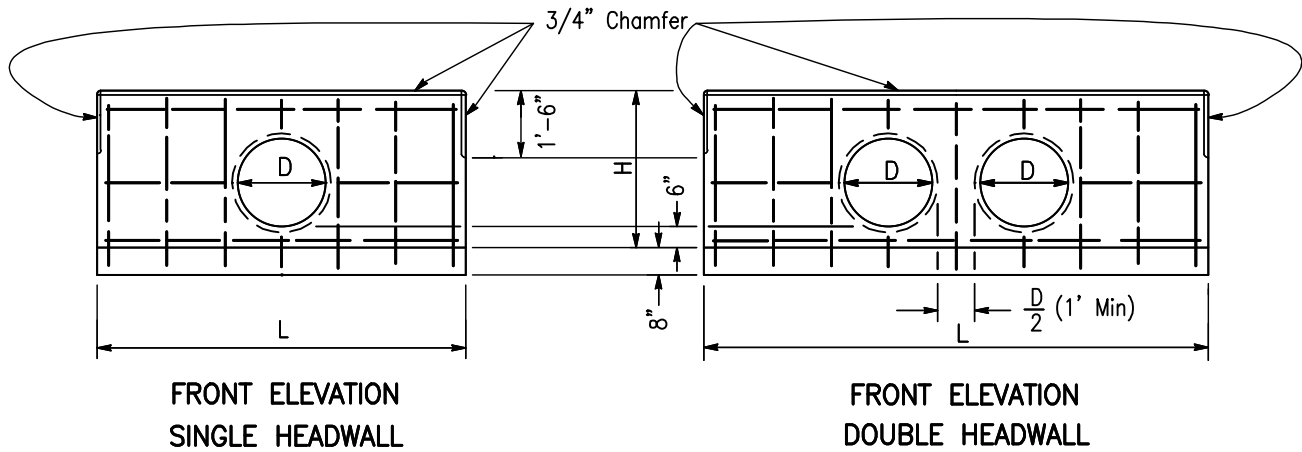
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

D-29



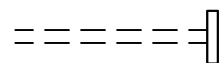
SECTION, SINGLE &
DOUBLE HEADWALLS

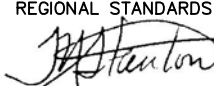
D	H	SINGLE			DOUBLE		
		L	Steel Lbs.	Concrete C.Y.	L	Steel Lbs.	Concrete C.Y.
12"	2'-8"	5'	35	0.60	8'	50	0.94
15"	2'-11"	6'	40	0.75	9'-6"	60	1.17
18"	3'-2"	7'	50	0.91	10'-6"	75	1.35
21"	3'-5"	7'-6"	60	1.02	11'-6"	90	1.52
24"	3'-8"	8'-6"	75	1.20	12'-6"	100	1.72
27"	3'-11"	9'-6"	85	1.39	14'	115	2.00
30"	4'-2"	10'	85	1.52	15'	126	2.21
33"	4'-5"	11'	100	1.73	16'	130	2.42
36"	4'-8"	12'	105	1.95	17'	145	2.65
39"	4'-11"	12'-6"	130	2.09	18'	170	2.88
42"	5'-2"	13'-6"	140	2.34	19'	185	3.13
45"	5'-5"	14'-6"	150	2.60	20'	195	3.38
48"	5'-8"	15'	160	2.75	21'	200	3.64
51"	5'-11"	16'	180	3.03	22'-6"	225	4.02
54"	6'-2"	17'	190	3.31	23'-6"	240	4.30

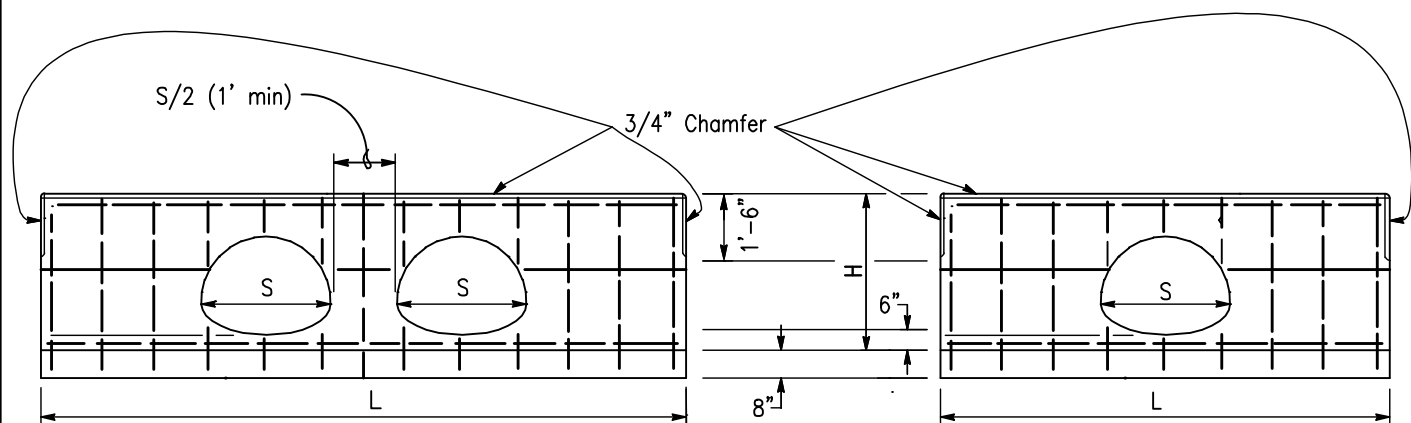
NOTES

- Concrete shall be 560-C-3250.
- All reinforcing shall be #4 bars. All vertical and horizontal tie bars @ 18" maximum spacing.
- Exposed corners shall be 3/4" chamfered.

LEGEND ON PLANS

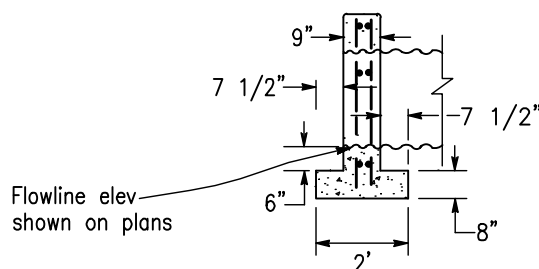


Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			 7/26/2012 Chairperson R.C.E. 19246 Date	
Add Metric		T. Stanton	03/03				
Reformatted		T. Stanton	04/06				
Edited		T. Stanton	02/09				
Edited	S.S.	T. Regello	03/11				
				STRAIGHT HEADWALL - TYPE A (CIRCULAR PIPE)		DRAWING NUMBER	
						D-30	



ELEVATION - DOUBLE HEADWALL

ELEVATION - SINGLE HEADWALL



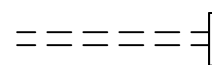
SECTION, SINGLE &
DOUBLE HEADWALLS

C.S.P. ARCH SIZE inches	SINGLE				DOUBLE		
	H ft/in	L ft/in	Steel Lbs.	Concrete C.Y.	L ft/in	Steel Lbs.	Concrete C.Y.
18x11	2'-7"	5'-6"	37	0.64	8'	52	0.91
21x15	2'-11"	6'-6"	45	0.80	10'	60	1.22
24x18	3'-2"	7'-6"	50	0.96	11'-6"	70	1.45
28x20	3'-4"	8'-6"	60	1.12	13'-6"	90	1.76
35x24	3'-8"	10'-6"	85	1.47	15'-6"	120	2.16
42x29	4'-1"	12'-6"	110	1.76	18'	145	2.57
49x33	4'-5"	14'-6"	130	2.26	21'	170	3.13
57x38	4'-10"	17'	155	2.81	24'-6"	210	3.86
64x43	5'-3"	19'	175	3.31	27'	230	4.42
71x47	5'-7"	21'	195	3.81	30'	255	5.09

NOTES

- Concrete shall be 560-C-3250.
- All reinforcing shall be #4 bars. All vertical and horizontal tie bars @ 18" maximum spacing.
- Exposed corners shall be 3/4" chamfered.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

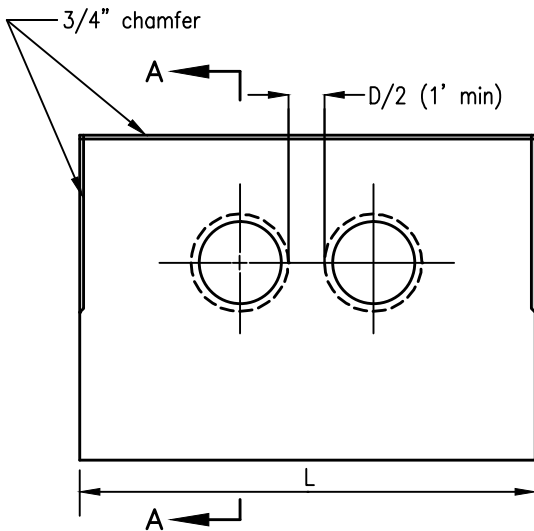
STRAIGHT HEADWALL - TYPE A (CORRUGATED STEEL PIPE - ARCH)

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

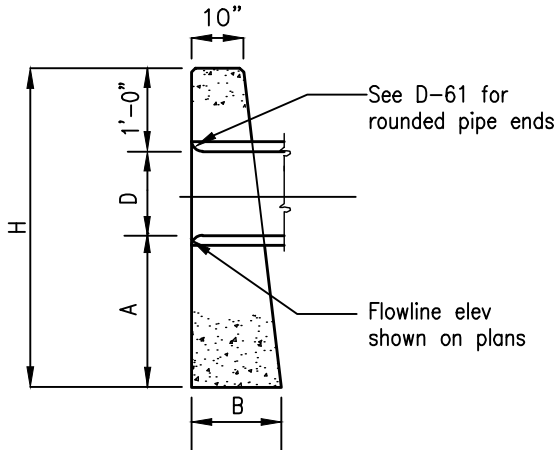
T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

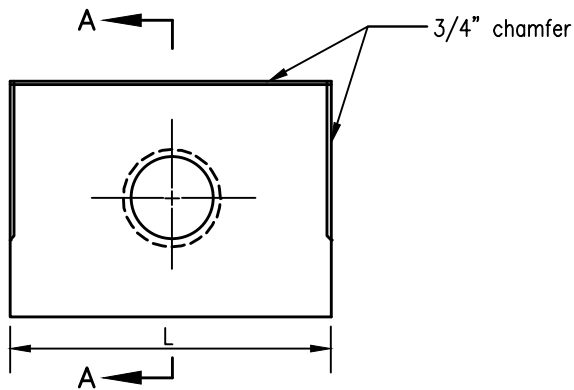
D-31



DOUBLE PIPE
ELEVATION



SECTION A-A



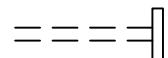
SINGLE PIPE
ELEVATION

D	A	B	H	SINGLE		DOUBLE	
				L	Concrete C.Y.	L	Concrete C.Y.
12"	2'	1'	4'	4'	0.45	5'-8"	.62
15"	2'	1'-1"	4'-3"	5'	0.63	7'-1"	.85
18"	2'	1'-2"	4'-6"	6'	0.83	8'-6"	1.12
24"	2'-6"	1'-5"	5'-6"	8'	1.54	11'-4"	2.09
30"	2'-6"	1'-9"	6'	10'	2.41	14'-2"	3.26
36"	3'	2'	7'	12'	3.74	17'	5.05

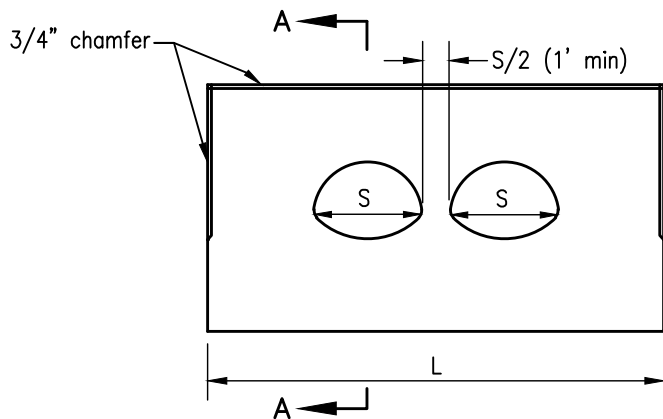
NOTES

- Concrete shall be 560-C-3250.
- Exposed corners shall be 3/4" chamfered.

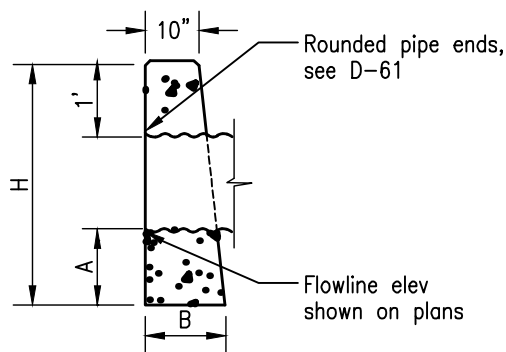
LEGEND ON PLANS



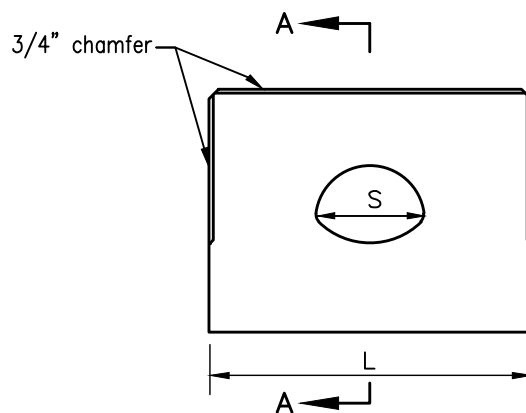
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			<i>T. Stanton</i> 7/26/2012	
Add Metric		T. Stanton	03/03	STRAIGHT HEADWALL - TYPE B (CIRCULAR PIPE)		Chairperson R.C.E. 19246 Date	
Reformatted		T. Stanton	04/06			DRAWING NUMBER	
Edited		T. Stanton	02/09			D-32	
Edited	S.S.	T. Regello	03/11				



DOUBLE PIPE
ELEVATION



SECTION A-A



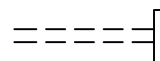
SINGLE PIPE
ELEVATION

CSP ARCH SIZE	A	B	H	SINGLE		DOUBLE	
				L	Concrete CY	L	Concrete CY
18" x 11"	2'	1'-2"	3'-11"	6'	0.83	7'-3"	0.97
21" x 15"	2'	1'-4"	4'-3"	7'	1.08	9'-8"	1.46
24" x 18"	2'	1'-6"	4'-6"	8'	1.41	11'-6"	1.98
28" x 20"	2'-6"	1'-8"	5'-2"	9'	1.97	12'-6"	2.66
35" x 24"	2'-6"	2'	5'-6"	10'	2.56	14'-5"	3.60

NOTES

- Concrete shall be 560-C-3250.
- Exposed corners to be 3/4" chamfered.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

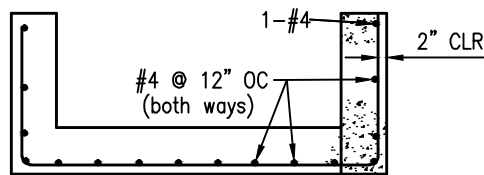
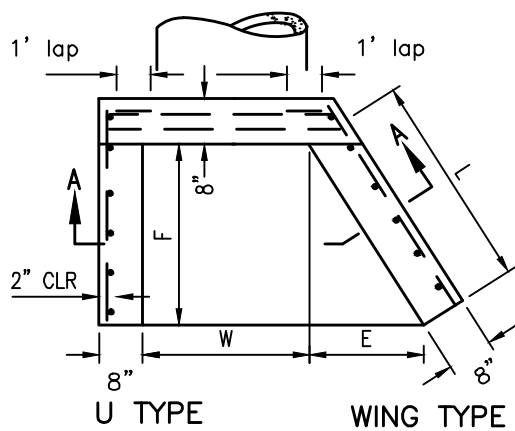
SAN DIEGO REGIONAL STANDARD DRAWING

STRAIGHT HEADWALL - TYPE B (CORRUGATED STEEL PIPE - ARCH)

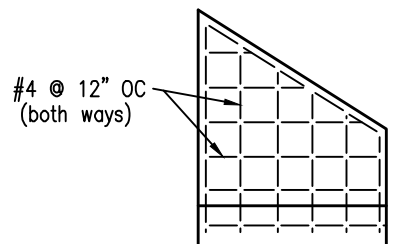
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

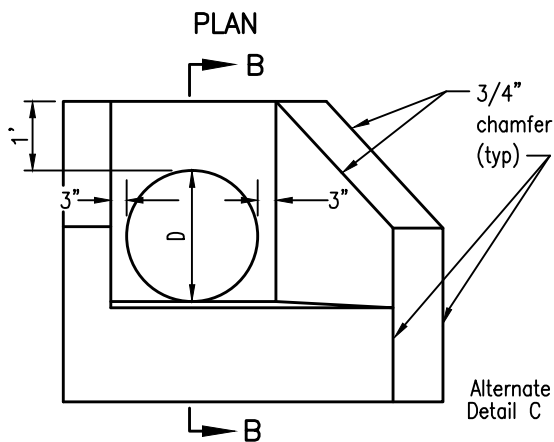
DRAWING
NUMBER **D-33**



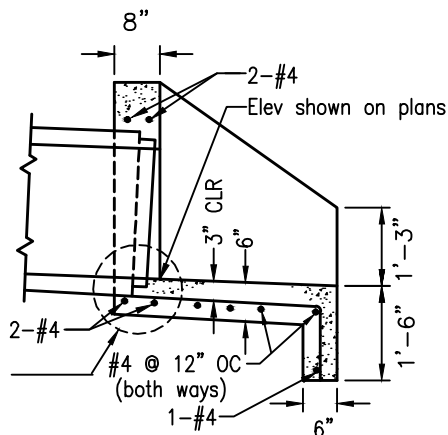
SECTION A-A



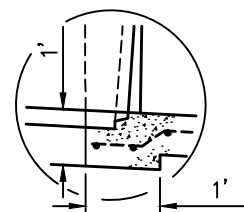
WING WALL
REINFORCING



ELEVATION



SECTION B-B



ALT DETAIL C

DIA OF PIPE	DIMENSIONS			SINGLE PIPE				DOUBLE PIPE					
				W	U TYPE		WING TYPE		W	U TYPE		WING TYPE	
	L	E	F		CONC. (CY)	STEEL (LBS)	CONC. (CY)	STEEL (LBS)		CONC. (CY)	STEEL (LBS)	CONC. (CY)	STEEL (LBS)
18"	2'-3 1/8"	1'-3"	1'-10 1/2"	2'	0.55	35	0.63	43	AS SHOWN ON PLANS	0.82	53	0.90	61
24"	3'-1 7/8"	1'-9"	2'-7 1/2"	2'-6"	0.79	47	0.93	60		1.22	73	1.36	86
30"	4'-5/8"	2'-3"	3'-4 1/2"	3'	1.05	71	1.29	85		1.66	109	1.92	123
36"	4'-11 1/2"	2'-9"	4'-1 1/2"	3'-6"	1.33	88	1.69	114		2.19	136	2.55	162

NOTES

- Concrete shall be 560-C-3250.
- Exposed corners to be 3/4" chamfered.
- Multiple pipes to be set a distance of D/2, with a 1' minimum between outside diameters of pipes.
- Top of headwall shall be placed approximately parallel to profile grade when the grade is 3% or more.
- Skewed pipes: Dimension W to be increased in width or length due to skew or multiple pipes.
- For pipe wall thickness greater than 3" use Alternate Detail C.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

WING AND U TYPE HEADWALLS FOR 18" TO 36" PIPES

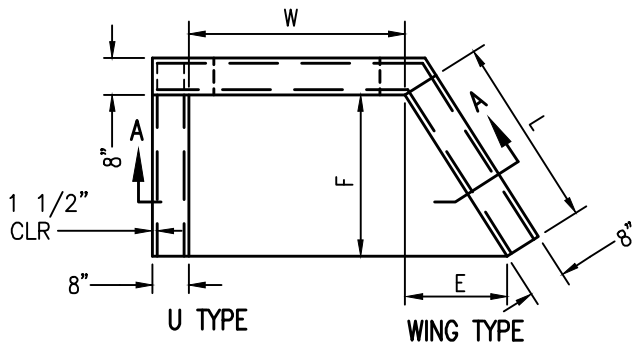
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

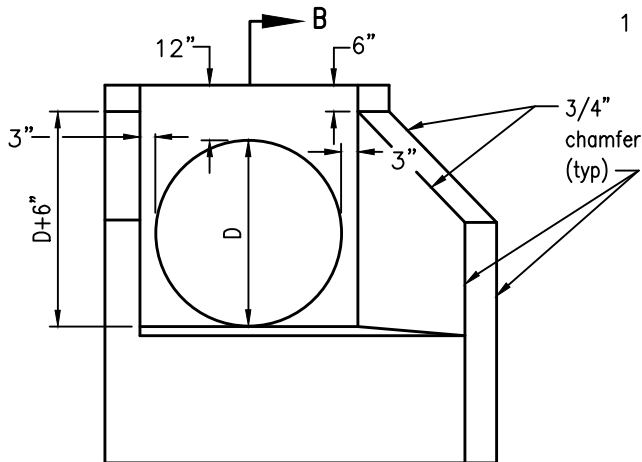
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

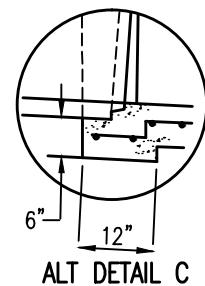
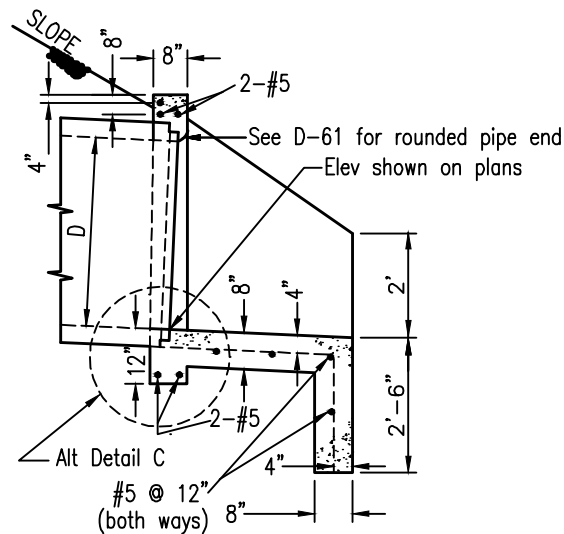
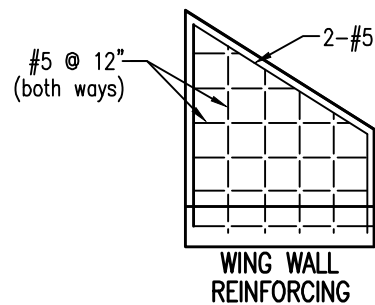
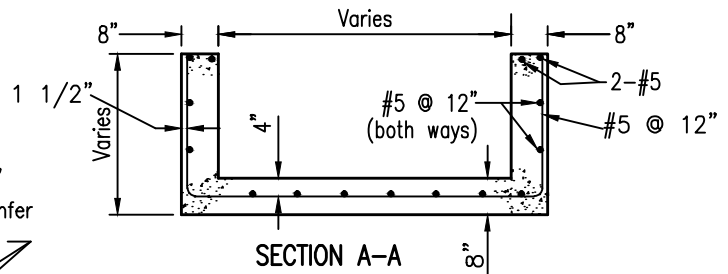
D-34



PLAN



ELEVATION



LEGEND ON PLANS

NOTE

See D-35B for Dimension Table and General Notes.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	WING AND U TYPE HEADWALLS FOR 42" TO 84" PIPE		<i>T. Stanton</i> 7/26/2012 Chairperson R.C.E. 19246 Date	DRAWING NUMBER D-35A
Add Metric		T. Stanton	03/03				
Reformatted		T. Stanton	04/06				
Edited		T. Stanton	02/09				
Edited	S.S.	T. Regello	03/11				

**TABLE OF DIMENSIONS AND QUANTITIES
FOR HEADWALLS SHOWN ON D-35A**

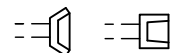
DIA OF PIPE	DIMENSIONS			SINGLE PIPE					DOUBLE PIPE				
				W	U TYPE		WING TYPE		W	U TYPE		WING TYPE	
	L	E	F		CONC. (CY)	STEEL (LBS)	CONC. (CY)	STEEL (LBS)		CONC. (CY)	STEEL (LBS)	CONC. (CY)	STEEL (LBS)
42"	3'-7 1/4"	2'	3'	4'	1.57	117	1.90	135	10'	2.69	190	3.16	214
48"	4'-6"	2'-6"	3'-9"	4'-6"	1.97	153	2.48	184	11'-4"	3.43	252	4.06	288
54"	5'-4 7/8"	3'	4'-6"	5'	2.41	190	3.07	246	12'-8"	4.24	319	5.06	368
60"	6'-3 3/4"	3'-6"	5'-3"	5'-6"	2.88	239	3.75	294	14'	5.13	386	6.17	442
66"	7'-2 1/2"	4'	6'	6'	3.38	294	4.52	356	15'-4"	6.08	454	7.20	516
72"	8'-1 3/8"	4'-6"	6'-9"	6'-6"	3.93	368	5.52	417	16'-8"	7.11	522	8.30	588
78"	9'	5'	7'-6"	7'	4.50	444	6.70	503	18'	8.20	595	9.50	693
84"	9'-10 3/4"	5'-6"	8'-3"	7'-6"	5.21	540	8.15	619	19'-4"	9.50	687	10.80	786

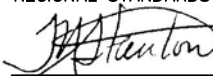
Note: Dimensions E and L apply to wing type only.

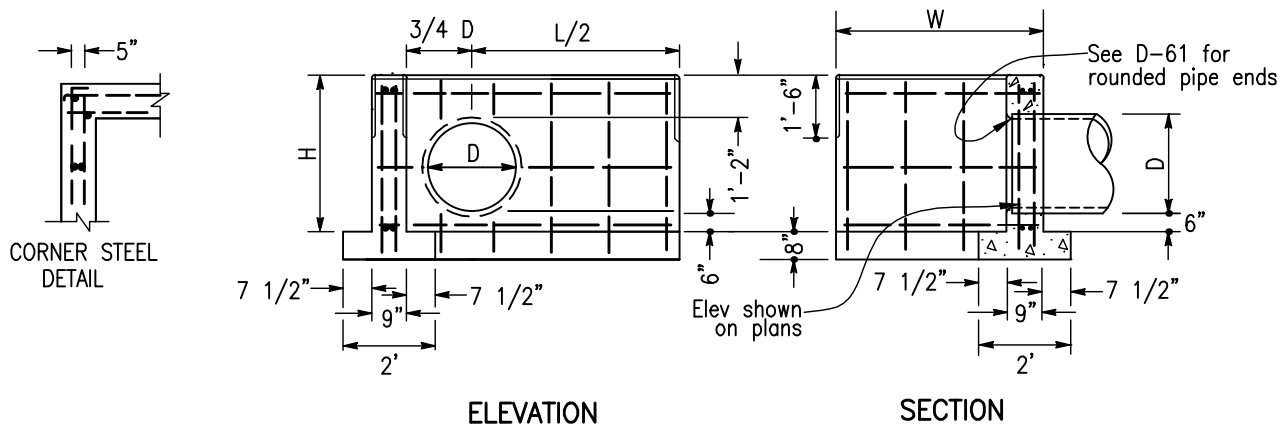
NOTES

1. Skewed Pipes: Dimension W to be increased to take care of increased width or length due to skew of multiple pipes.
2. Top of headwall shall be placed approximately parallel to profile grade when the grade is 3% or more.
3. Concrete shall be 560-C-3250.
4. Exposed corners shall be 3/4" chamfered.
5. Multiple pipes shall be set a distance of D/2, with a 1' minimum, between outside diameters of pipes.
6. For pipe wall thickness greater than 3" use Alternate Detail C.

LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			 7/26/2012	
Add Metric		T. Stanton	03/03	WING AND U TYPE HEADWALLS FOR 42" TO 84" PIPE		Chairperson R.C.E. 19246 Date	
Reformatted		T. Stanton	04/06			DRAWING NUMBER D-35B	
Edited		T. Stanton	02/09				
Edited	S.S.	T. Regello	03/11				

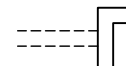


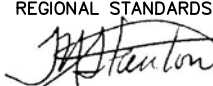
D	H	L/2	W									
			3'-4"		4'-10"		6'-4"		7'-10"		9'-4"	
			STEEL (LBS)	CONC. (CY)	STEEL (LBS)	CONC. (CY)	STEEL (LBS)	CONC. (CY)	STEEL (LBS)	CONC. (CY)	STEEL (LBS)	CONC. (CY)
12"	2'-8"	2'-6"	50	0.79	60	0.98	—	—	—	—	—	—
15"	2'-11"	3'	55	0.91	65	1.11	—	—	—	—	—	—
18"	3'-2"	3'-6"	65	1.04	75	1.25	—	—	—	—	—	—
21"	3'-5"	3'-9"	75	1.15	90	1.36	—	—	—	—	—	—
24"	3'-8"	4'-3"	85	1.29	100	1.51	110	1.74	—	—	—	—
27"	3'-11"	4'-9"	90	1.44	105	1.67	115	1.91	—	—	—	—
30"	4'-2"	5'	95	1.55	110	1.80	120	2.05	135	2.29	—	—
33"	4'-5"	5'-6"	105	1.71	120	1.97	135	2.23	150	2.48	—	—
36"	4'-8"	6'	110	1.88	125	2.15	140	2.41	155	2.68	170	2.95
39"	4'-11"	6'-3"	—	—	150	2.28	170	2.56	185	2.84	200	3.12
42"	5'-2"	6'-9"	—	—	155	2.42	175	2.76	190	3.05	210	3.34
45"	5'-5"	7'-3"	—	—	—	—	180	2.97	200	3.27	215	3.57
48"	5'-8"	7'-6"	—	—	—	—	190	3.13	216	3.44	230	3.75
51"	5'-11"	8'	—	—	—	—	—	—	220	3.67	235	3.99
54"	6'-2"	8'-6"	—	—	—	—	—	—	235	3.91	250	4.24

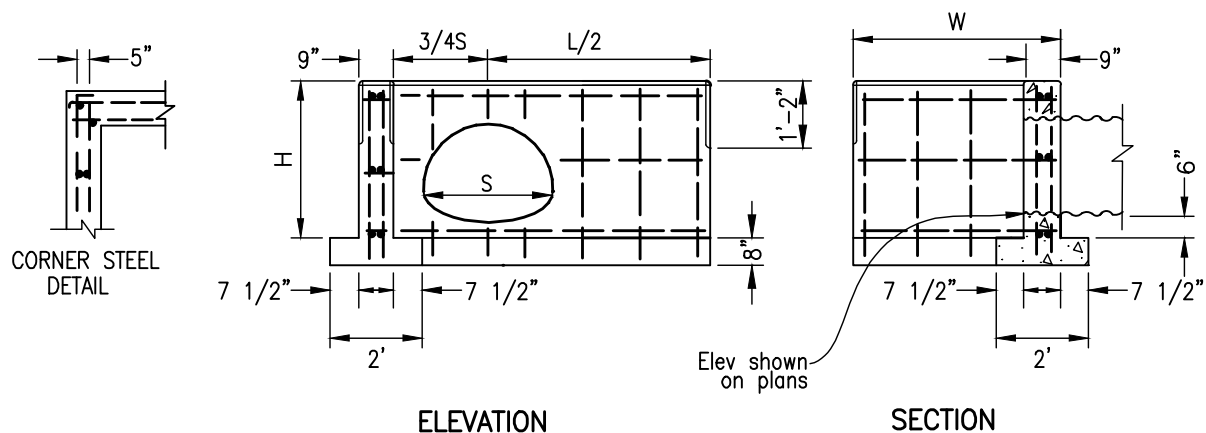
NOTES

- Concrete shall be 560-C-3250.
- All reinforcing steel shall be #4 bars. All vertical and horizontal tie bars shall have 18" maximum spacing.
- When multiple pipes are used, the distance between pipes shall be D/2 (1' min). The dimension L/2 is from the center of the pipe to the end of the headwall as shown.
- Exposed corners shall be 3/4" chamfered.

LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			<div> 7/26/2012</div> <div>Chairperson R.C.E. 19246 Date</div> <div>DRAWING NUMBER D-36</div>	
Add Metric		T. Stanton	03/03				
Reformatted		T. Stanton	04/06				
Edited		T. Stanton	02/09				
Edited	S.S.	T. Regello	03/11				
				L TYPE HEADWALLS (CIRCULAR PIPES)			

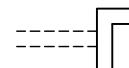


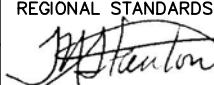
CSP ARCH SIZE	H	L/2	LENGTH OF W									
			3'-4"		4'-10"		6'-4"		7'-10"		9'-4"	
			STEEL (LBS)	CONC. (CY)	STEEL (LBS)	CONC. (CY)	STEEL (LBS)	CONC. (CY)	STEEL (LBS)	CONC. (CY)	STEEL (LBS)	CONC. (CY)
18"x11"	2'-7"	2'-9"	50	0.84	60	1.03	70	1.21	80	1.39	90	1.57
21"x15"	2'-11"	3'-3"	60	1.00	65	1.18	75	1.38	90	1.58	100	1.77
24"x18"	3'-2"	3'-9"	60	1.07	70	1.32	80	1.53	95	1.74	110	1.94
28"x20"	3'-4"	4'-3"	70	1.26	80	1.47	90	1.68	100	1.90	115	2.11
35"x24"	3'-8"	5'-3"	100	1.51	110	1.74	120	1.97	140	2.20	155	2.42
42"x29"	4'-1"	6'-3"	115	1.82	130	2.06	140	2.31	155	2.55	170	2.83
49"x33"	4'-5"	7'-3"	130	2.12	145	2.37	155	2.64	170	2.90	185	3.15
57"x38"	4'-10"	8'-6"	145	2.52	160	2.79	175	3.07	190	3.35	205	3.61
64"x43"	5'-3"	9'-6"	185	2.89	200	3.11	215	3.48	235	3.77	250	4.06
71"x47"	5'-7"	10'-6"	200	3.25	215	3.56	235	3.86	250	4.17	270	4.48

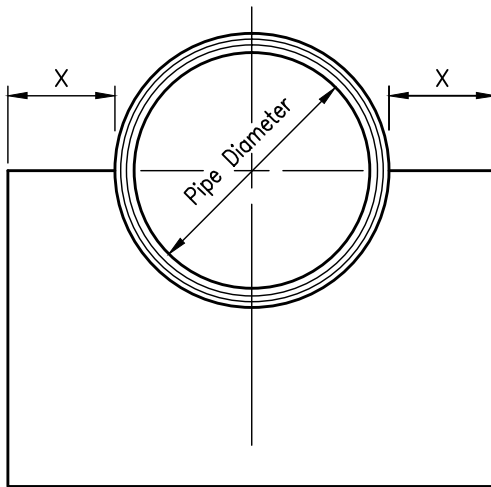
NOTES

- Concrete shall be 560-C-3250.
- All reinforcing steel shall be #4 bars. All vertical and horizontal tie bars shall have 18" maximum spacing.
- When multiple pipes are used, the distance between pipes shall be S/2 (1' min). The dimension L/2 is from the center of the pipe to the end of the headwall as shown.
- Exposed corners shall be 3/4" chamfered.

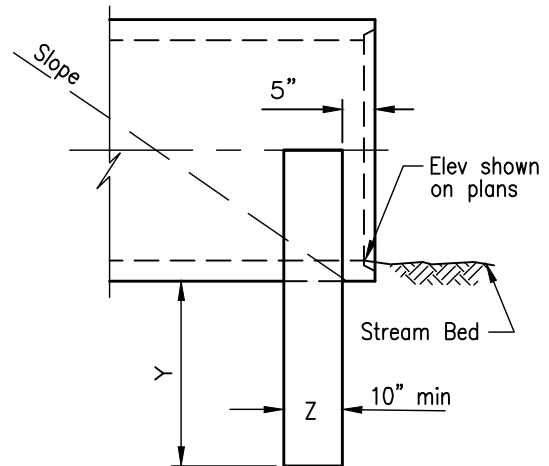
LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			 7/26/2012 Chairperson R.C.E. 19246 Date	
Add Metric		T. Stanton	03/03				
Reformatted		T. Stanton	04/06				
Edited	S.S.	T. Regello	03/11				
				L TYPE HEADWALLS (CORRUGATED STEEL PIPE - ARCH)		DRAWING NUMBER	
						D-37	



FACE ELEVATION



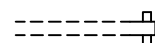
SIDE ELEVATION

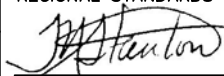
PIPE DIAMETER	X	Y	Z
12" TO 24"	1'	2'	10"
21" TO 36"	1'-6"	2'-6"	12"
39" TO 48"	2'	3'	12"
51" TO 60"	2'-6"	3'	14"
63" & LARGER	3'	3'	14"

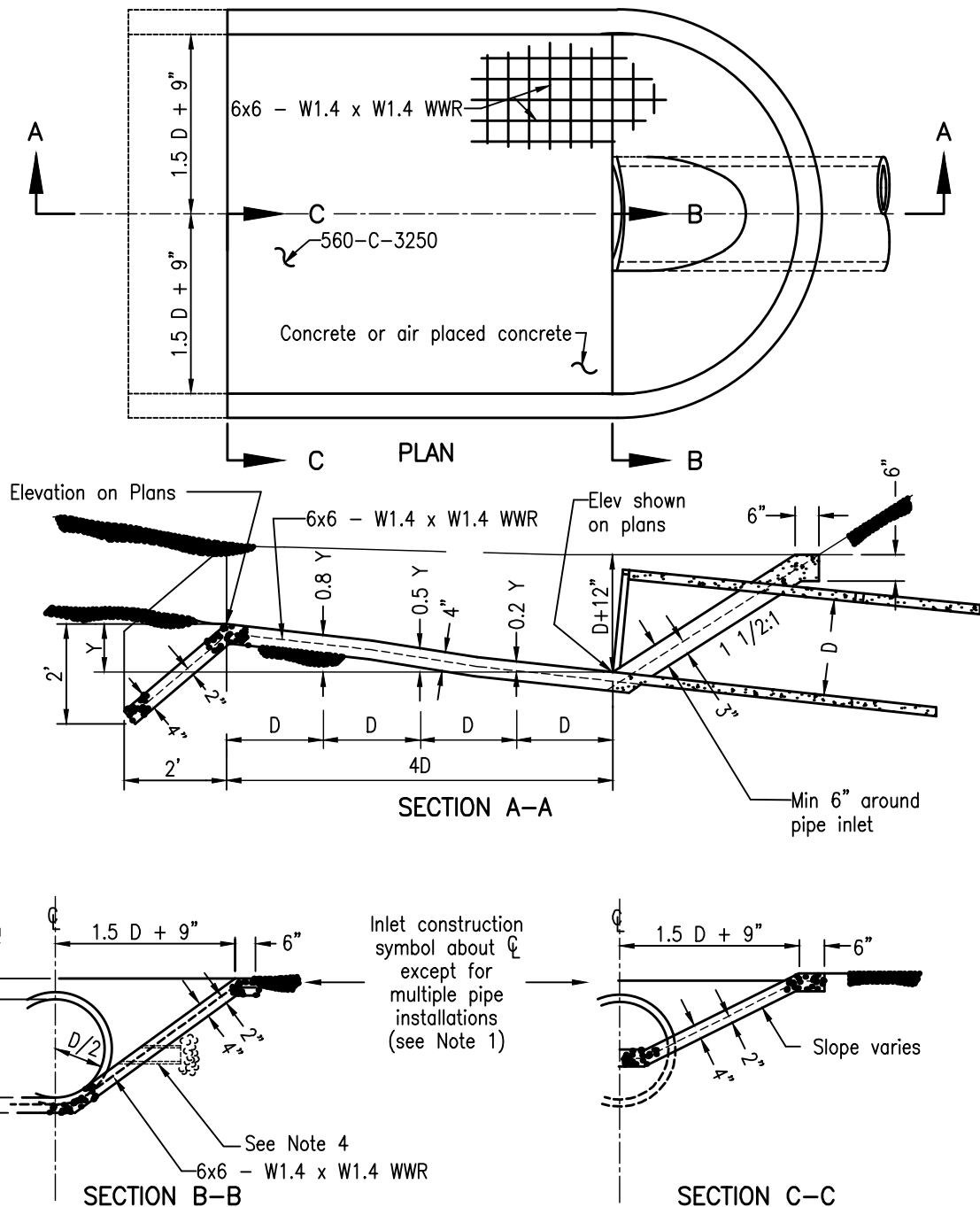
NOTES

1. A curtain wall shall be used in place of a headwall at culvert ends where extension of the culvert is considered imminent or, no fill is retained.
2. Concrete shall be 560-C-3250.
3. Keep the pipe-end clear of obstructions to permit easy placing of culvert extension.

LEGEND ON PLANS



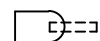
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03	CURTAIN WALL	
Reformatted		T. Stanton	04/06		
Edited	S.S.	T. Regello	03/11		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER D-38	



NOTES

1. When more than one pipe is used the profile view shown shall hold for the distance across all pipe openings. Section A-A and B-B shall be from the outermost pipe. The distance between pipes shall be $D/2$ for round and $\text{Span}/3$ for arch pipe (12" minimum).
2. Culvert shall be cut off even with apron surface when required by the Agency.
3. Use Inlet Apron only where a flared and section can not be utilized.
4. Place weep holes when required by the Agency.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

INLET APRON FOR CULVERTS UP TO 42" DIAMETER

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

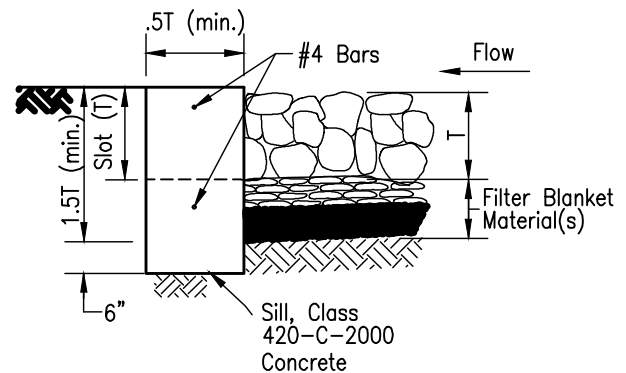
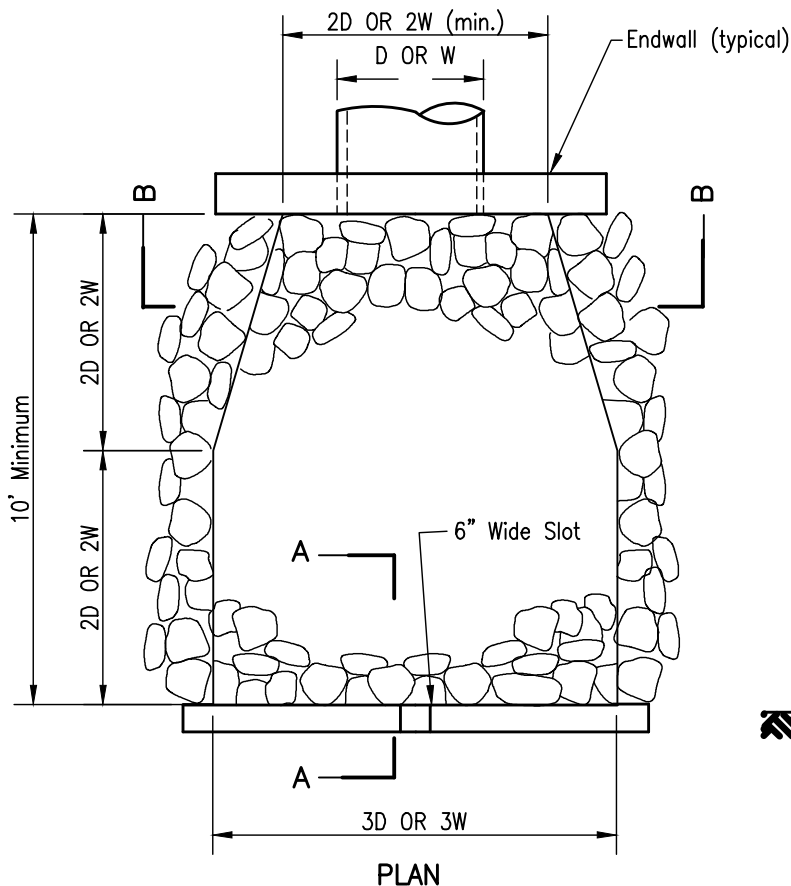
D-39

Table 7-1 (below) per July 2005
San Diego County Drainage Design Manual

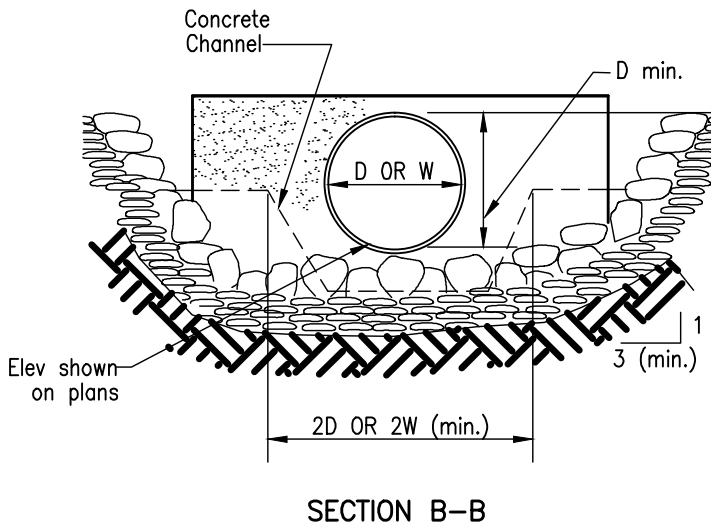
Design Velocity ft/sec*	Rock Class	Rip-Rap Thickness "T" (min)
6-10	No. 2 backing	1.1ft
10-12	1/4 ton	2.7ft
12-14	1/2 ton	3.5ft
14-16	1 ton	4.4ft
16-18	2 ton	5.4ft

*over 20 ft/sec requires special design

D = Pipe Diameter
W = Bottom Width of Channel



SECTION A-A



NOTES

- Plans shall specify:
(A) Rock Class and rip-rap thickness (T). T shall be at least 1.5 times the nominal equivalent diameter of stone (d_{50}) of the specified rip-rap.
(B) Filter blanket material, number of layers and thickness.
- Rip rap shall be either quarry stone or broken concrete (if shown on the plans). Cobbles are not acceptable.
- Rip rap shall be placed over filter blanket material, which may be either granular material or non-woven geotextile filter fabric; material at weight specified in plans or specifications.
- See Table 200-1.7 in San Diego Regional Supplement to Greenbook for selection of filter blanket.
- Rip rap energy dissipators shall be designated as either Type 1 or Type 2. Type 1 shall be with concrete sill; Type 2 shall be without sill.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Add Rip Rap Table		S. Brady	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

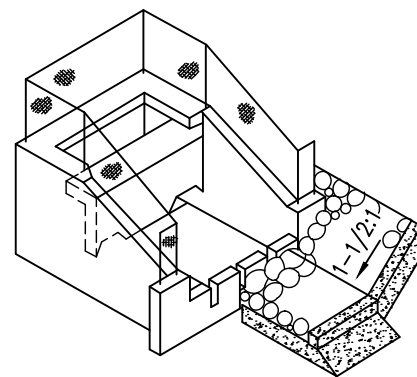
SAN DIEGO REGIONAL STANDARD DRAWING

RIP RAP ENERGY DISSIPATER

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-40**



PLAN

See Note 7

2 x Pipe dia.

8" (typ)

See Note 5

Pipe dia.

1%

5"

1:1

Inlet box

6"

a

b

d

3" fillet

c

0.5%

Top of slab min of 6" above channel invert

Elev shown on plan

8"

Filter cloth

4 x Pipe dia. (min)

Aggregate cutoff wall


Channel invert

Min. thickness Facing Class 18" Light Class 30"

Aggregate subbase bottom and sides 6" thick for facing class 9" thick for light class.

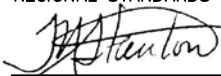
SECTION A-A

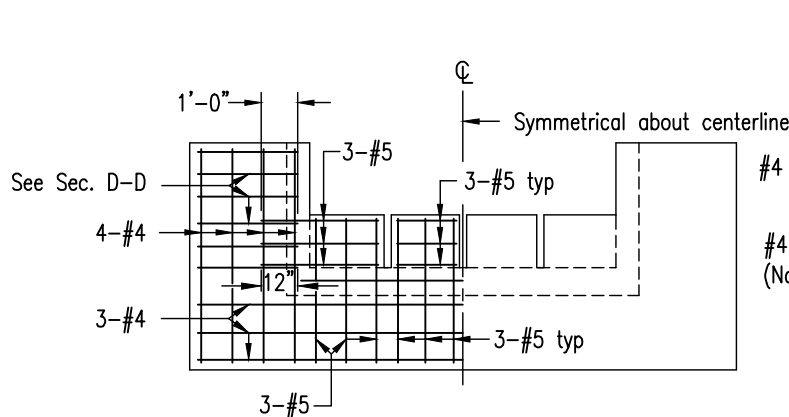
FOR DIMENSIONS, SEE D-41B.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING CONCRETE ENERGY DISSIPATER	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		 7/26/2012
Add Metric		T. Stanton	03/03		
Reformatted		T. Stanton	04/06		
Edited		T. Stanton	02/09		
Edited	S.S.	T. Regello	03/11		
				Chairperson R.C.E. 19246	Date
				DRAWING NUMBER	D-41A

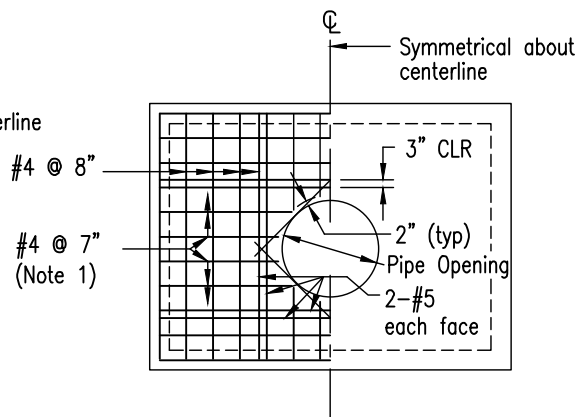
**CONCRETE ENERGY DISSIPATER DIMENSION TABLE
(SEE D-41A FOR STRUCTURE DETAILS)**

Pipe Dia (in)	18	24	30	36	42	48	54	60	72
Area (sq.ft.)	1.77	3.14	4.91	7.07	9.62	12.57	15.90	19.63	28.27
Max. Q (cfs)	21	38	59	85	115	151	191	236	339
W	5'-6"	6'-9"	8'	9'-3"	10'-6"	11'-9"	13'	14'-3"	16'-6"
H	4'-3"	5'-3"	6'-3"	7'-3"	8'	9'	9'-9"	10'-9"	12'-3"
L	7'-4"	9'	10'-8"	12'-4"	14'	15'-8"	17'-4"	19'	22'
a	3'-3"	3'-11"	4'-7"	5'-3"	6'	6'-9"	7'-4"	8'	9'-3"
b	4'-1"	5'-1"	6'-1"	7'-1"	8'	8'-11"	10'	11'	12'-9"
c	2'-4"	2'-10"	3'-4"	3'-10"	4'-5"	4'-11"	5'-5"	5'-11"	6'-11"
d	0'-11"	1'-2"	1'-4"	1'-7"	1'-9"	2'	2'-2"	2'-5"	2'-9"
e	0'-6"	0'-6"	0'-8"	0'-8"	0'-10"	0'-10"	1'	1'	1'-3"
f	1'-6"	2'	2'-6"	3'	3'	3'	3'	3'	3'
g	2'-1"	2'-6"	3'	3'-6"	3'-11"	4'-5"	4'-11"	5'-4"	6'-2"
Tf	8"			10"		12"			
Tb	7"			9 1/2"		10 1/2"			
Tw	7"			9 1/2"		10 1/2"			
Ta	7"			8"					

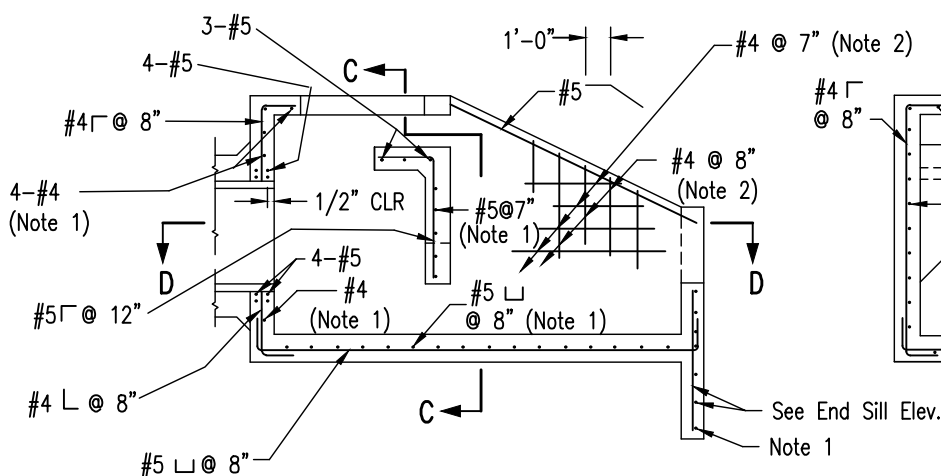
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING CONCRETE ENERGY DISSIPATER		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012	
ORIGINAL		Kercheval	12/75			Chairperson	R.C.E. 19246 Date
Add Metric		T. Stanton	03/03			DRAWING	
Reformatted		T. Stanton	04/06			NUMBER	
Edited		T. Stanton	02/09			D-41B	
Edited	S.S.	T. Regello	03/11				



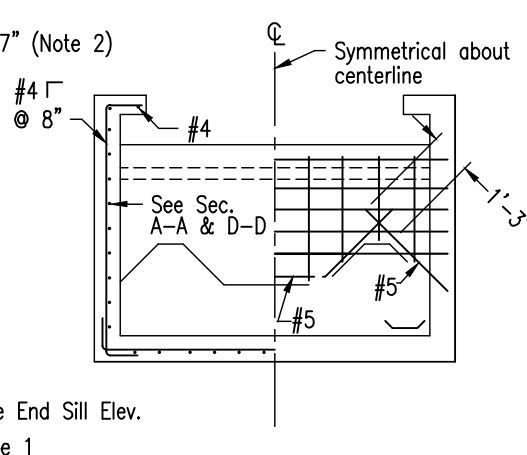
END SILL ELEVATION



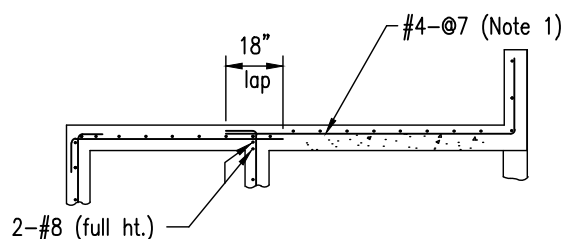
HEADWALL ELEVATION



SECTION A-A



SECTION C-C



SECTION D-D

NOTES

1. Place reinforcing, as noted, at center of wall (or slab).
2. Match location of reinforcing with that in headwall, end sill and foundation slab.
3. All reinforcing shall be placed with 2" concrete cover, unless noted otherwise.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

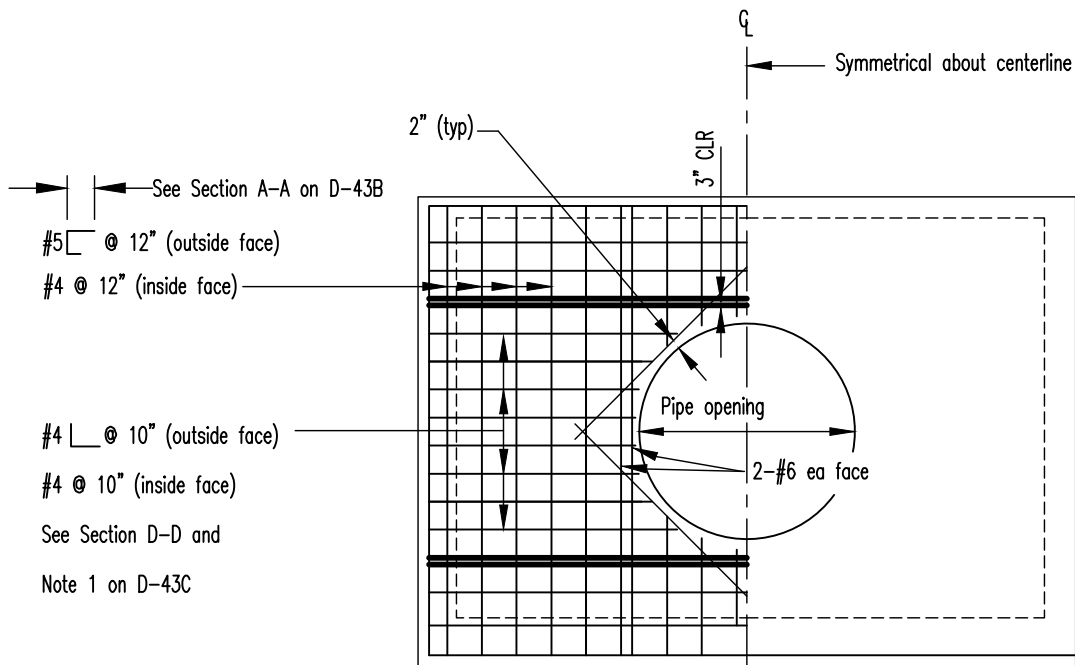
SAN DIEGO REGIONAL STANDARD DRAWING

CONCRETE ENERGY DISSIPATER (REINFORCEMENT) 18" TO 30" DIAMETER PIPE

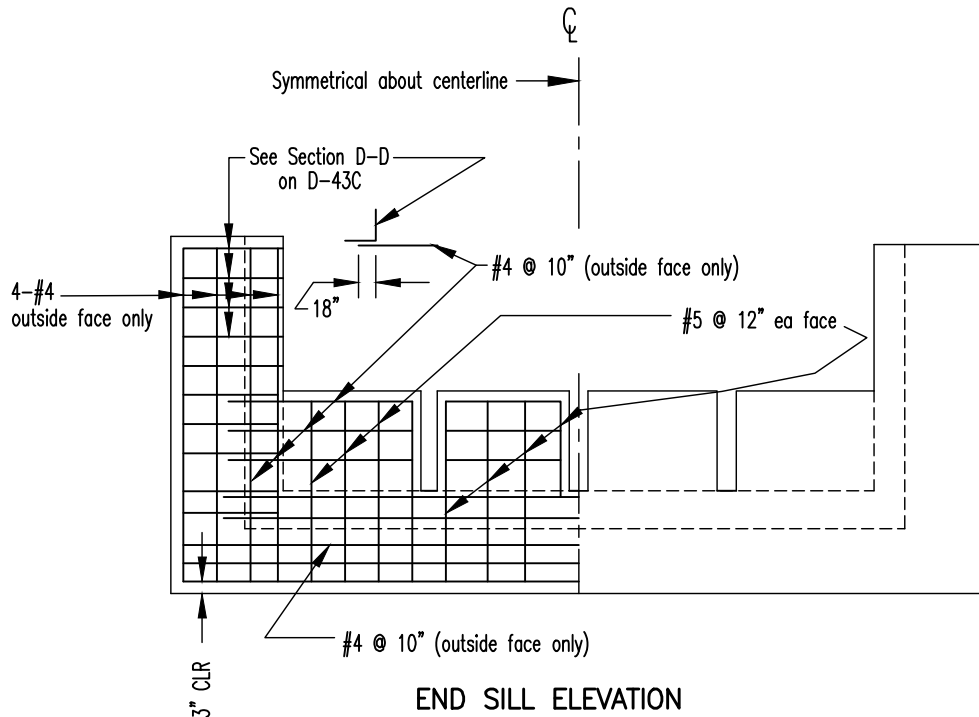
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-42**



HEADWALL ELEVATION



END SILL ELEVATION

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

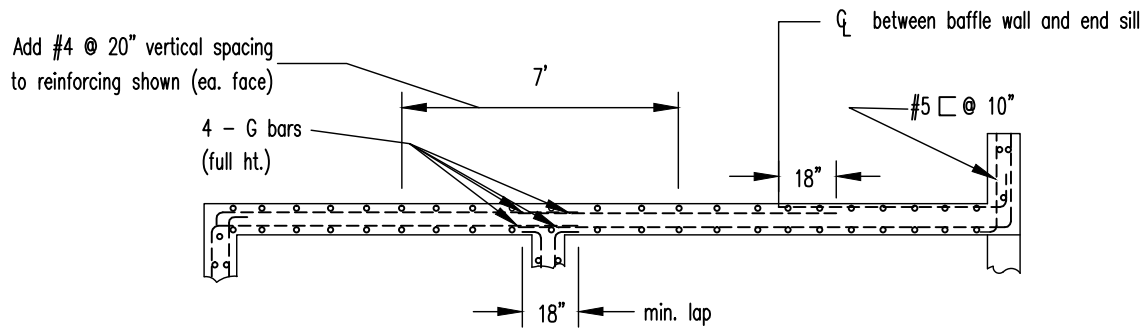
SAN DIEGO REGIONAL STANDARD DRAWING

CONCRETE ENERGY DISSIPATER
(REINFORCEMENT)
36" TO 72" DIAMETER PIPE

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-43A**

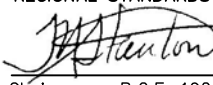


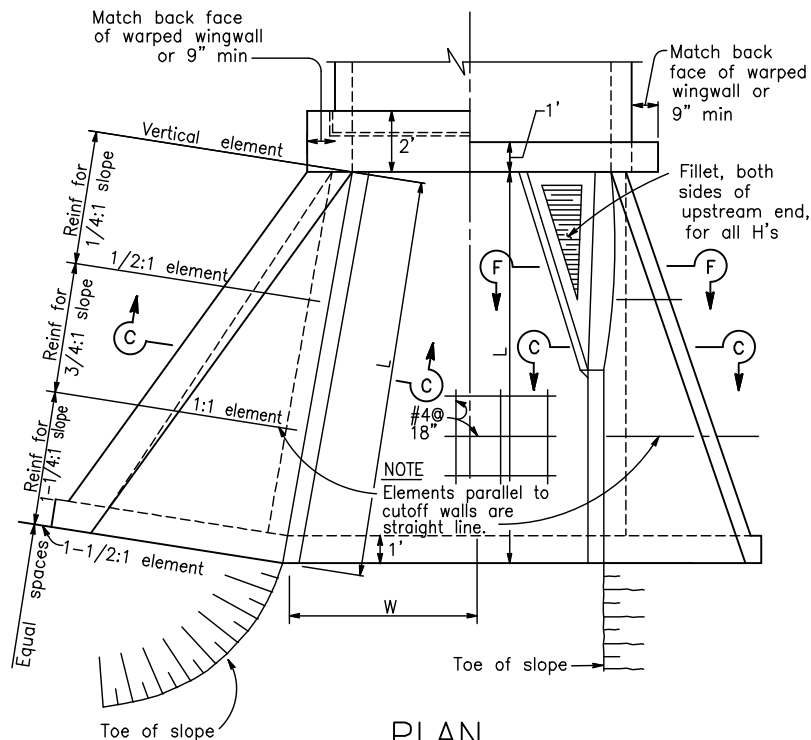
SECTION D-D

Pipe dia. (in.)	36"	42"	48"	54"	60"	72"
A bar	# 5 @ 12"		#6 @ 12"		#7 @ 12"	
B bar	# 5 @ 12"		#6 @ 12"			
C bar	# 4 @ 12"		#5 @ 12"			
D bar	# 4 @ 12"		#5 @ 12"		#6 @ 12"	
E bar	# 4 @ 12"		#5 @ 12"			
F bar	# 4 @ 9"		#5 @ 9"			#6 @ 9"
G bar	# 7			# 11		

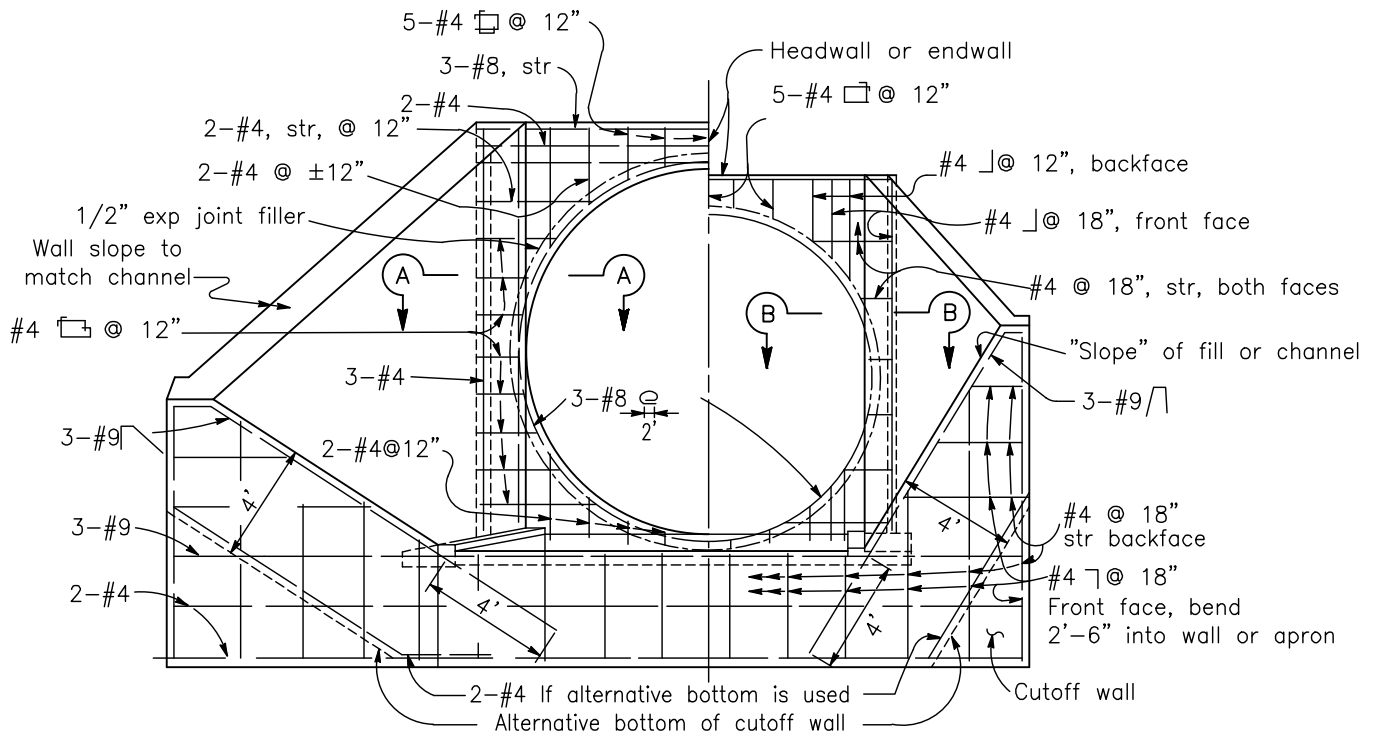
NOTES

1. Match location of sidewall reinforcing.
2. Dowels having same size and spacing as wall reinforcing may be used in lieu of continuous bars at contractors option.
3. Match location of headwall or end sill reinforcing.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	CONCRETE ENERGY DISSIPATER (REINFORCEMENT) 36" TO 72" DIAMETER PIPE		 7/26/2012	Chairperson R.C.E. 19246 Date
Add Metric		T. Stanton	03/03				
Reformatted		T. Stanton	04/06				
Edited		T. Stanton	02/09				
Edited	S.S.	T. Regello	03/11				
						DRAWING NUMBER	D-43C



PLAN



TYPICAL FOR MAXIMUM H > 10'

TYPICAL FOR MAXIMUM H ≤ 10'

END ELEVATION

NOTE

See notes on D-44D.

If at upstream end, fillet is not shown

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited	S.S.	T. Regello	03/11

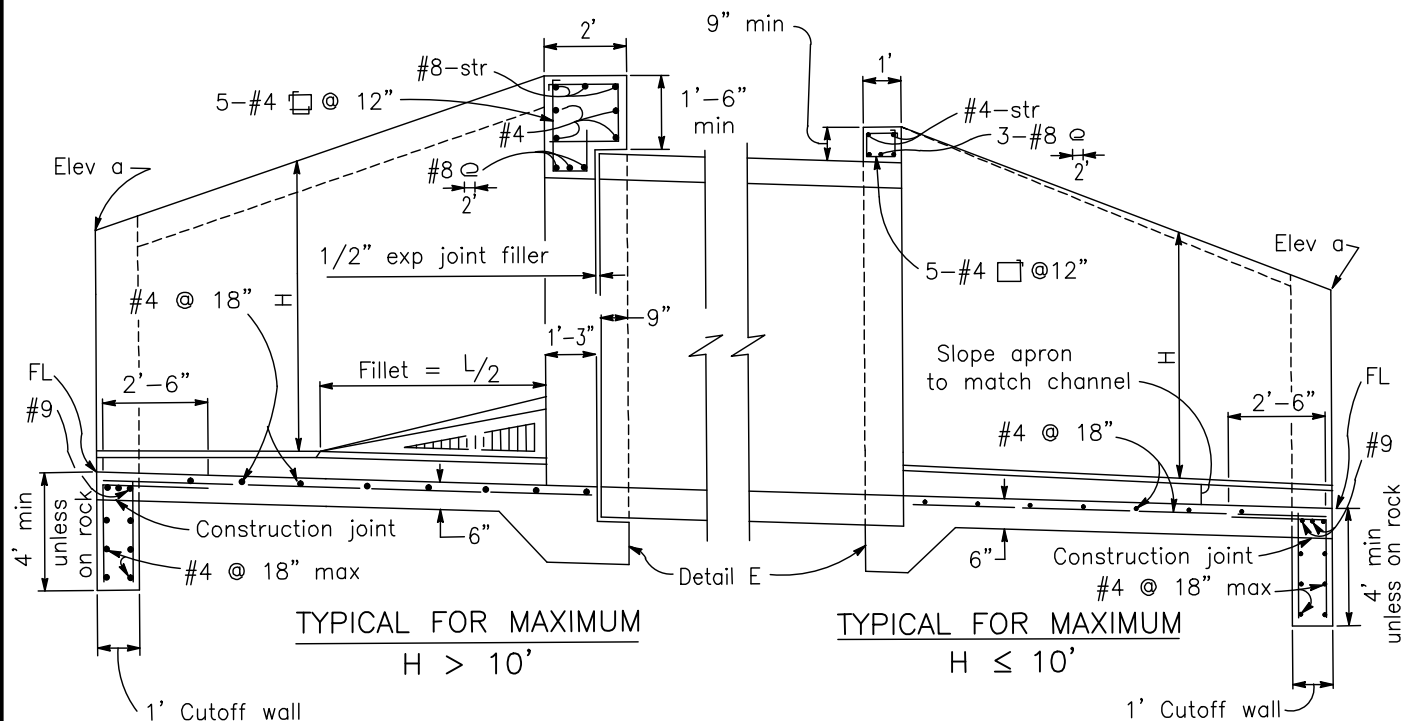
SAN DIEGO REGIONAL STANDARD DRAWING

**PIPE CULVERT - HEADWALLS,
ENDWALLS & WARPED WINGWALLS**

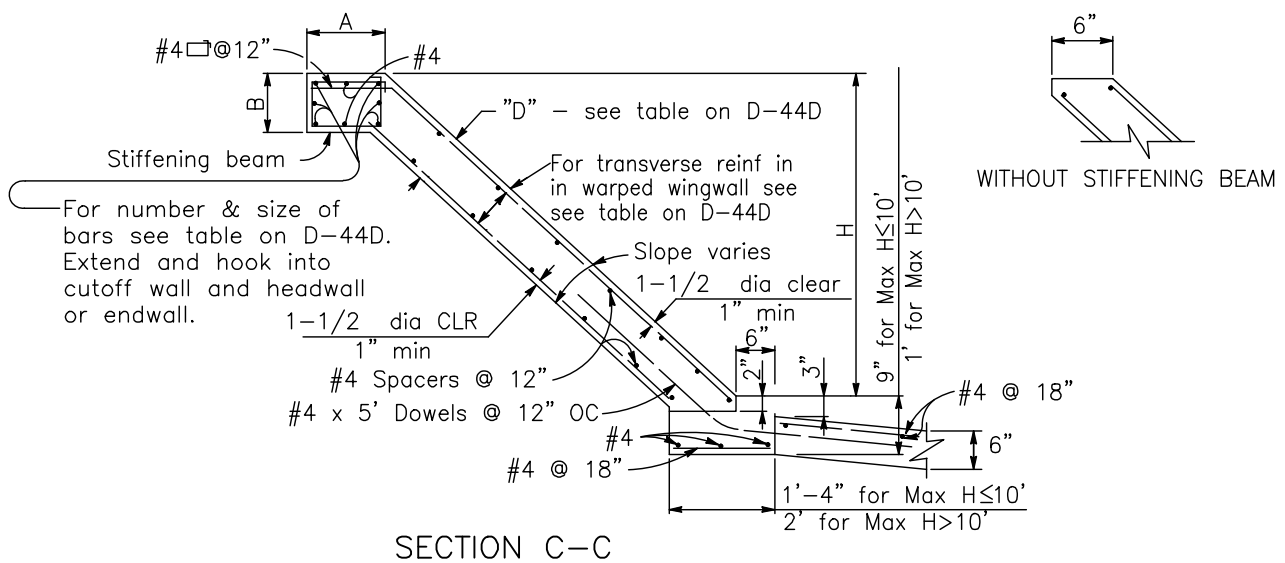
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-44A**

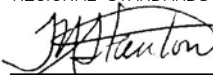


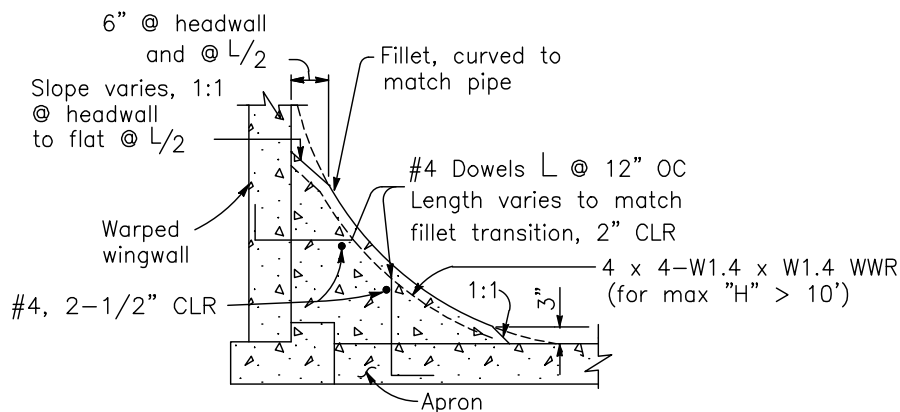
PART LONGITUDINAL SECTION



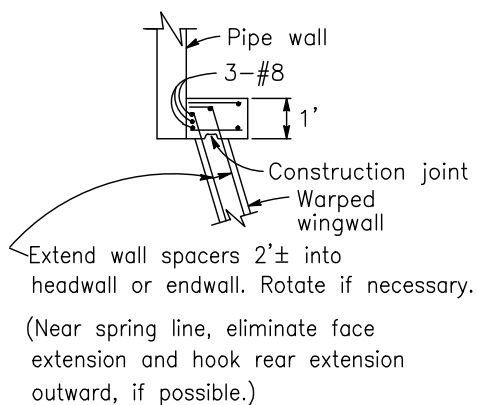
NOTES

1. RCP is shown. When using metal pipe eliminate the expansion joint and use hook bolts @ 19"± spacing (size and length provided by manufacturer).
2. Where abrasion is anticipated, increase apron thickness to 7" minimum to provide 2" minimum reinforcement coverage.

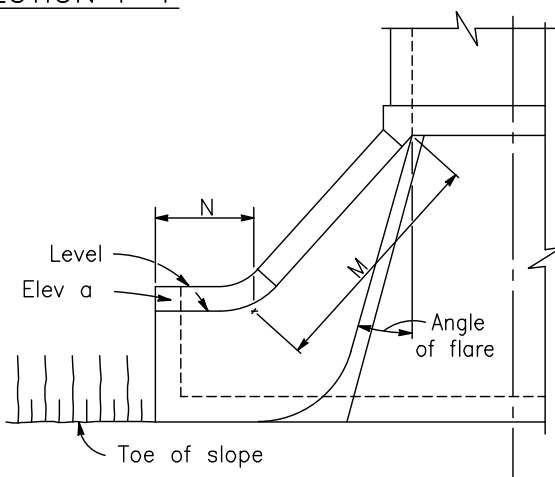
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	PIPE CULVERT - HEADWALLS, ENDWALLS & WARPED WINGWALLS		 7/26/2012 Chairperson R.C.E. 19246 Date
Add Metric		T. Stanton	03/03			
Reformatted		T. Stanton	04/06			
Edited	S.S.	T. Regello	03/11			
						DRAWING NUMBER D-44B



SECTION F-F

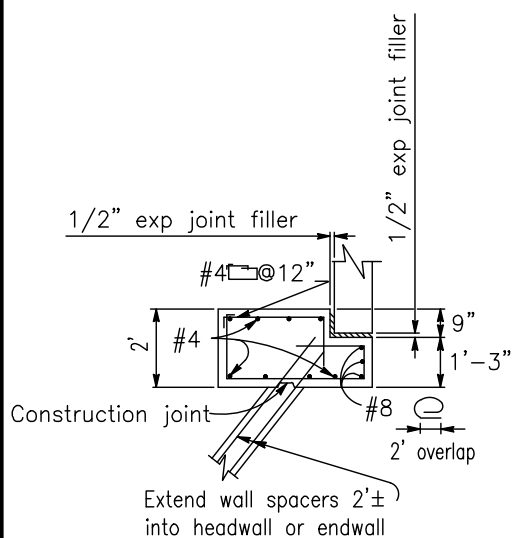


SECTION B-B

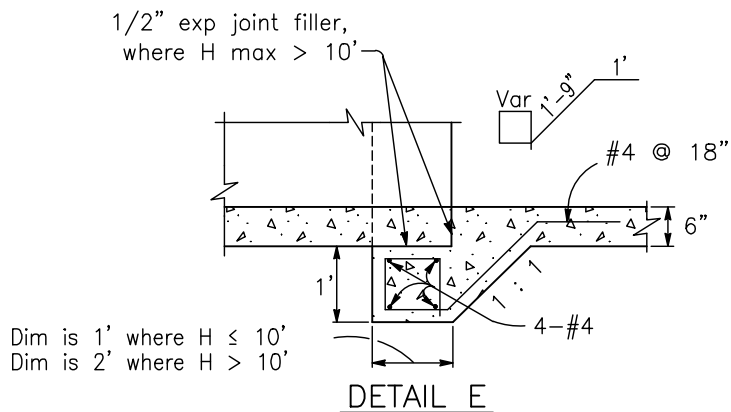


ALTERNATIVE WARPED WINGWALL

Use where additional protection to toe of embankment is required. If at upstream end, fillet is not shown.



SECTION A-A



DETAIL E

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

PIPE CULVERT - HEADWALLS,
ENDWALLS & WARPED WINGWALLS

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-44C**

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

PIPE CULVERT - HEADWALLS, ENDWALLS & WARPED WINGWALLS

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-44D**

WARPED WINGWALLS (all measurements in feet and/or inches unless otherwise noted)																			
WALL DIMENSIONS AND REINFORCING										STIFFENING BEAM DIMENSIONS AND REINFORCING									
Element Slope	H	8' or less	10'	12'	14'	16'	18'	20'	H max	12'	14'	16'	18'	20'	25'	30'	35'	40'	or more
1 / 4:1	Front face reinf	#4@12	#4@ 7	#5@ 7	#5@ 5	#6@ 6	#7@ 7	#7@ 6	6'	No beam. Place 2-#6 in each face along top of wall.									
	Rear face reinf	#4@12	#4@12	#4@12	#4@12	#4@12	#4@12	#4@12											
3 / 4:1	Front face reinf	#4@12	#4@12	#4@12	#4@12	#4@10	#4@ 8	#4@ 6	10'	A = 1' B = 9" A = 1'-6"									
	Rear face reinf	#4@12	#4@12	#4@12	#4@10	#4@ 7	#4@ 6	#5@ 8	12'										
1-1 / 4:1	Front face reinf	#4@12	#4@12	#4@12	#4@12	#4@12	#4@12	#4@12	14'	Total 6-#6 B = 1' A = 1'-10"									
	Rear face reinf	#4@ 8	#4@ 8	#4@ 5	#5@ 6	#6@ 7	#6@ 6	#7@ 6	16'										
D at Cutoff Wall		6"	6"	6"	7-1 / 2"	8"	9-1 / 2"	11"	18'	Total 6-#7 B = 1' A = 1'-6"									
D at Culvert		6"	6"	6"	8"	9-1 / 2"	11"	1'-1"	20'										

NOTES

1. Walls designed for 2' surcharge; earth density = 120 # / cu. ft.; equivalent fluid pressure = 36 #/cu. ft.
2. Vary "D" at warped wall uniformly from that at cutoff wall to that at culvert, for maximum H > 12'.
3. Dimensions "L", "W", "H", "M", "N", "Elev a", "Angle of flare", and end "slope" (as apply) are shown on the plans.
4. All exposed concrete edges to be chamfered 3/4".

PLAN

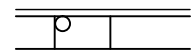
SECTION A-A

SECTION B-B

NOTES

1. See D-11A, D-11B & D-12 for additional notes and details.
2. Dimension shown becomes 2' when opening on both sides. Adjust manhole as required.
3. Exposed edges of concrete shall be rounded with a radius of 1/2"
4. When V exceeds 4' steps shall be installed. See D-11A for details.
5. Concrete gutter to match adjacent gutters.
6. An expansion joint shall be placed at the ends of the inlet where the curb is to adjoin (unless specified otherwise).
7. Provide 1/4" tooled groove in top slab in line with back of adjacent curb.
8. Maintain 1 1/2" clear spacing between reinforcing and surface unless otherwise noted.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		H. Hecht	10/82
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

MEDIAN CURB INLET - TYPE J

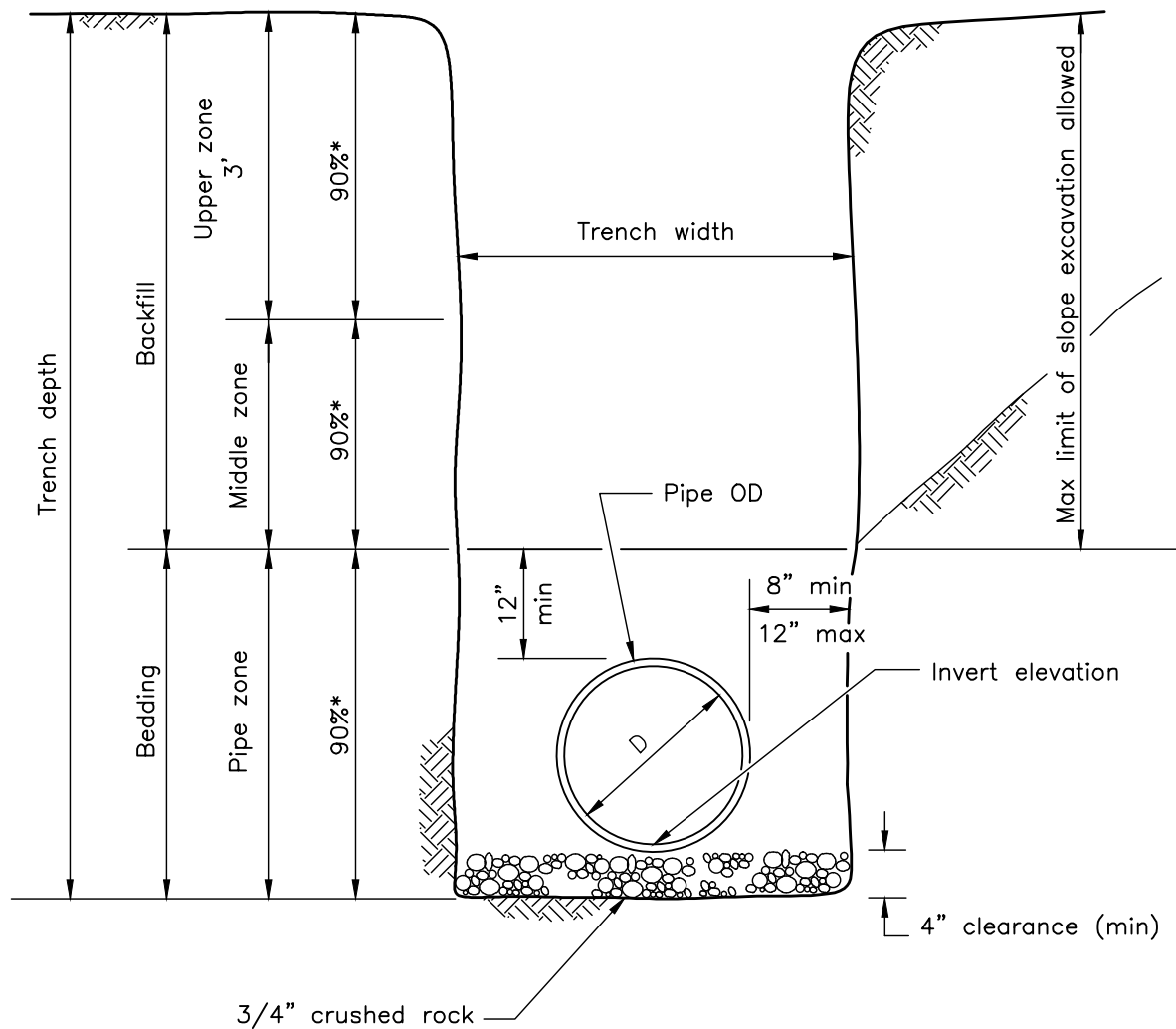
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

[Signature] 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER


D-45

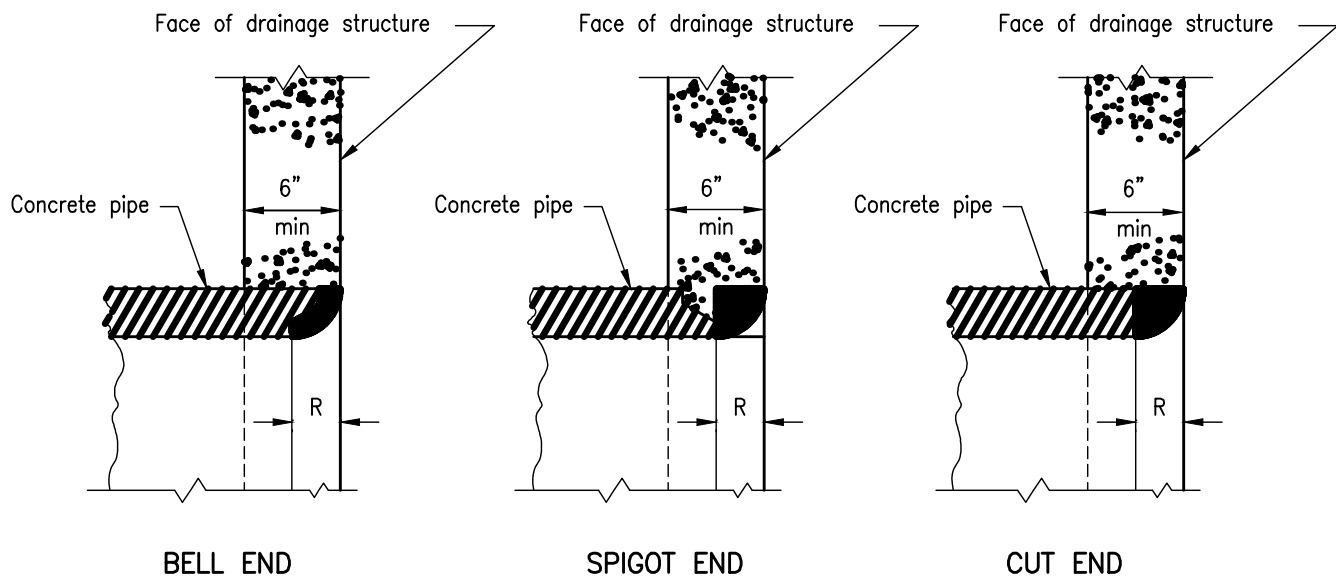


SECTION

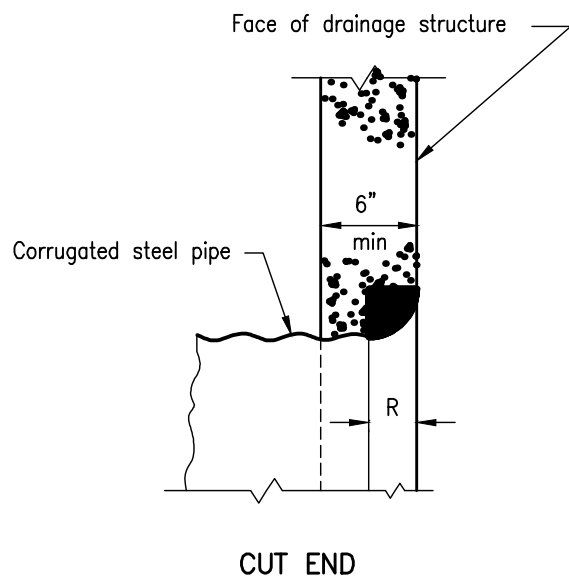
NOTES

1. See G-24A and G-24B or G-25 for resurfacing details on improved streets.
2. (*) indicates minimum relative compaction.
3. Top 12" of trench backfill in street section shall be 95% relative compaction unless specified otherwise.

Revision	By	Approved	Date	<div>SAN DIEGO REGIONAL STANDARD DRAWING</div> <div>PIPE BEDDING AND TRENCH BACKFILL</div> <div>FOR STORM DRAINS</div>	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Parkinson	2/95		<div> 7/26/2012</div> <div>Chairperson R.C.E. 19246 Date</div> <div>DRAWING NUMBER D-60</div>
Add Metric		T. Stanton	03/03		
Reformatted		T. Stanton	04/06		
Edited	S.S.	T. Regello	03/11		



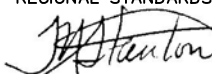
R = Thickness of pipe

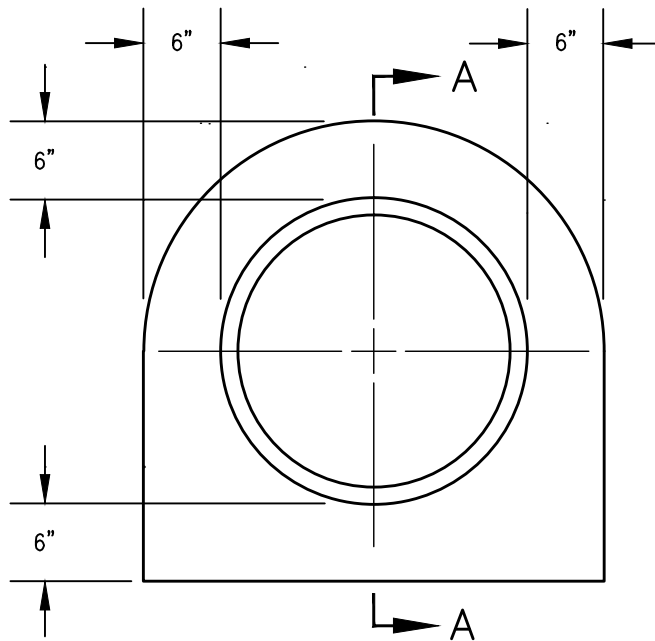


R = $\frac{\text{Inside diameter of pipe}}{10}$

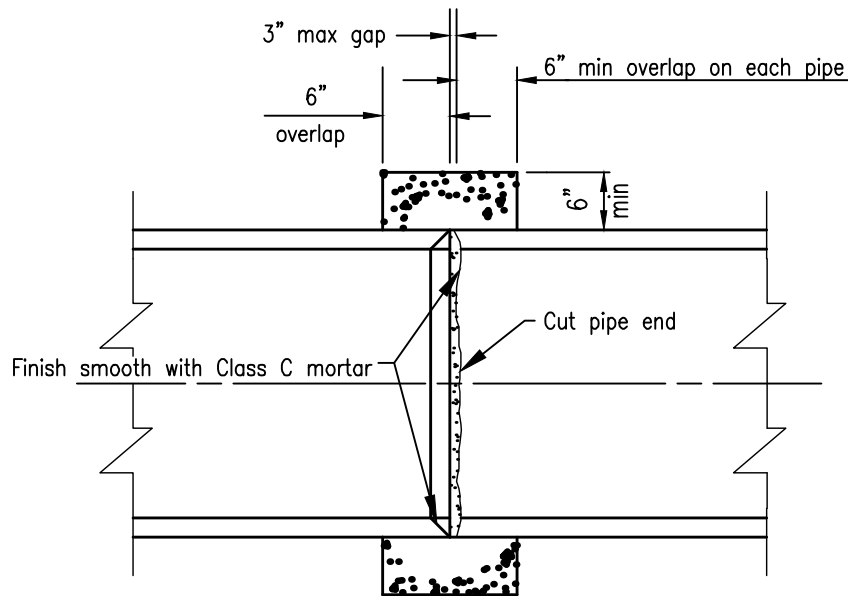
NOTE

The rounded areas may be built up of cement mortar or poured in place with the drainage structure.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			 7/26/2012 Chairperson R.C.E. 19246 Date	
Add Metric		T. Stanton	03/03				
Reviewed		T. Stanton	04/06				
Edited	S.S.	T. Regello	03/11				
				ROUNDED PIPE ENDS IN DRAINAGE STRUCTURES		DRAWING NUMBER	D-61



ELEVATION

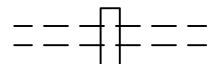


SECTION A-A

NOTES

1. Pipe collar does not have to be finished if covered.
2. Concrete shall be 560-C-3250.
3. Where gap exceeds 3" but is not more than 6" an internal form shall be used.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

PIPE COLLAR

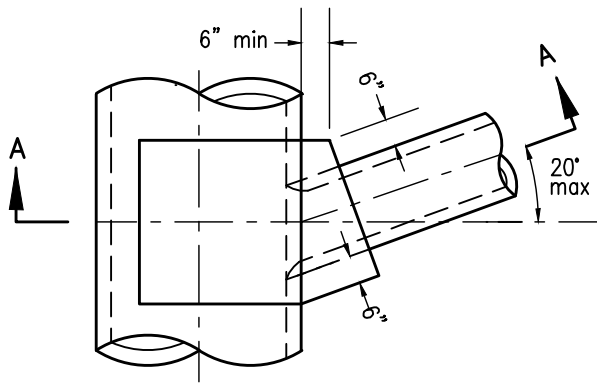
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

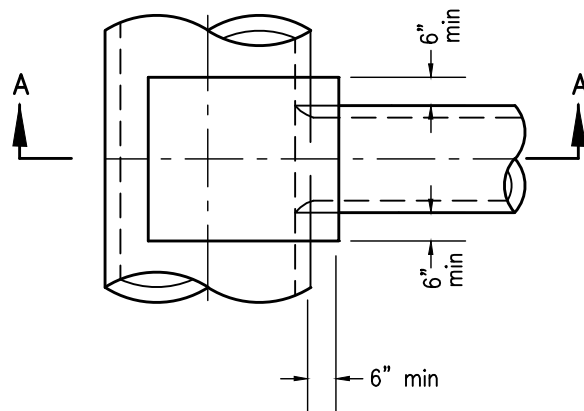
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

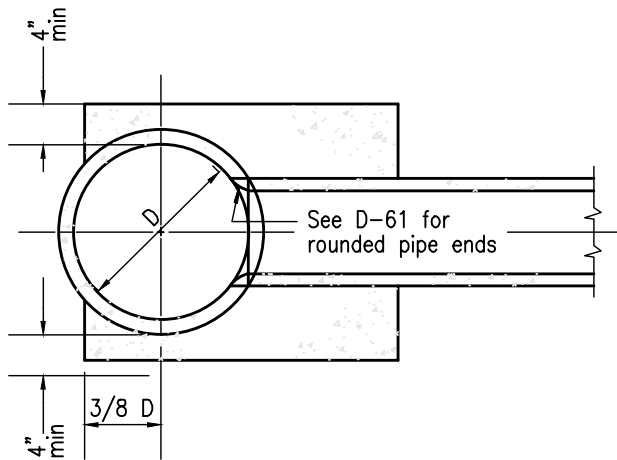
D-62



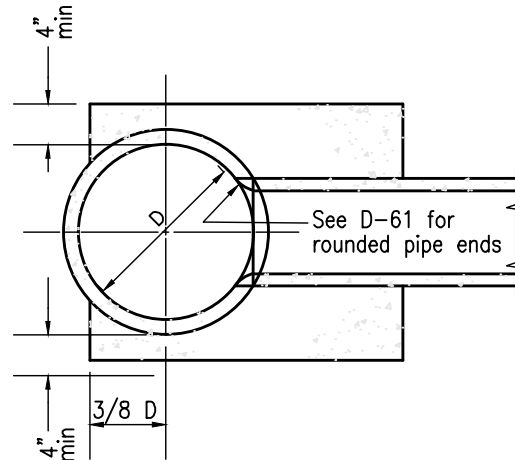
PLAN
SKEWED CONNECTION



PLAN



SECTION A-A

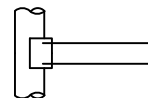


SECTION B-B

NOTES

1. The end of connecting pipe shall not project into the waterway of the larger pipe.
2. The larger pipe shall not be less than 24" ID.
3. The OD of the smaller pipe shall not be more than 2/3 the size of the ID of the larger pipe.
4. Concrete shall be 470-C-2000.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

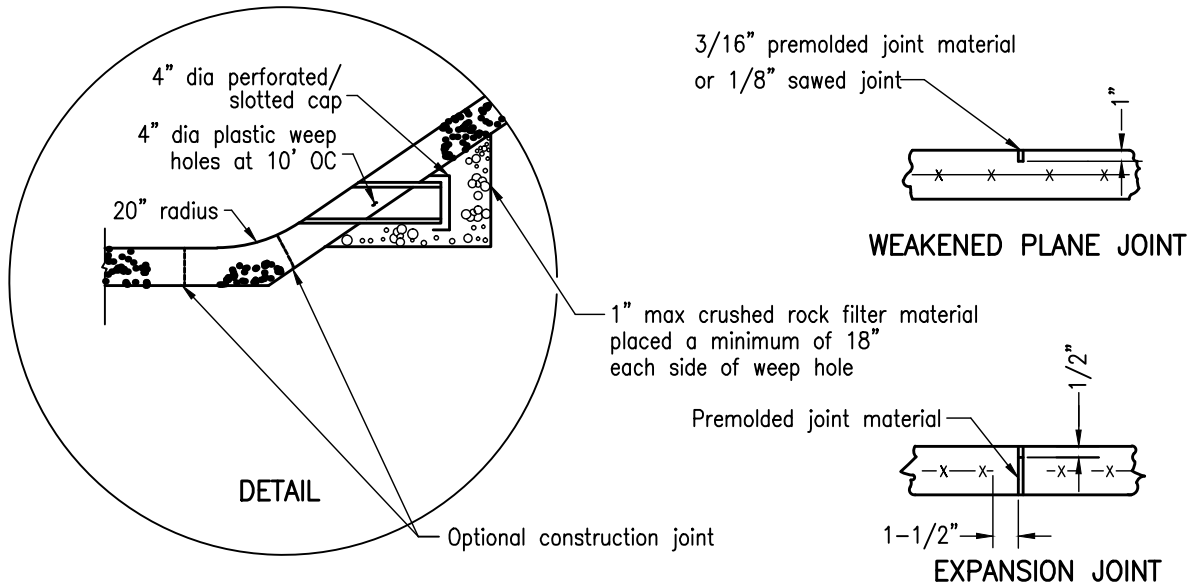
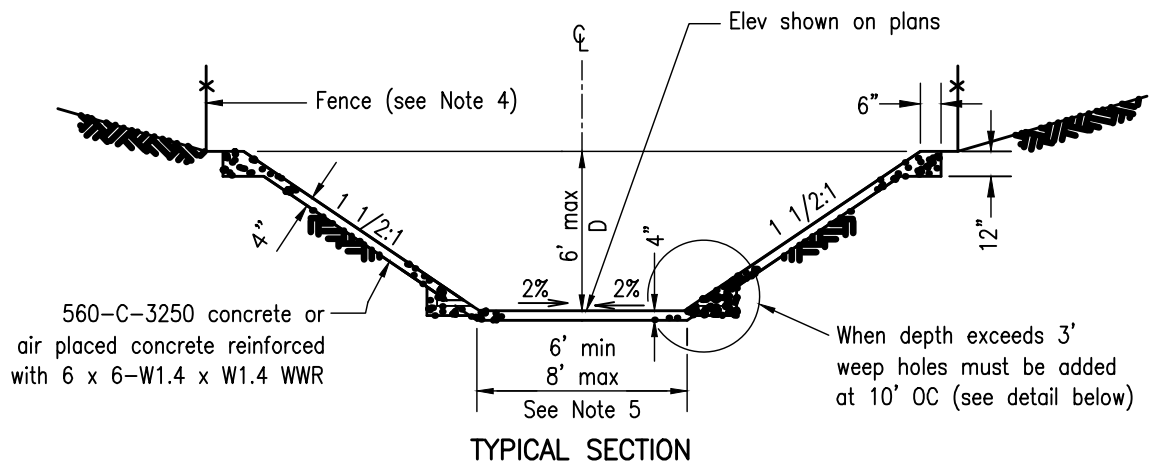
CONCRETE LUG

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

D-63



NOTES

1. AC or clay pipe may be substituted for plastic pipe at weep holes.
2. Weakened plane joints shall be placed every 12' to 15'. Expansion joints shall be placed at all changes of section and at ends of curves.
3. Cutoff walls shall be constructed at each end of the channel along the full width of section. See D-72.
4. Chainlink fence shall be as required by Agency.
5. For bottom widths greater than 8 feet see D-71.
6. Reinforcement shown is minimum.
7. Alternate invert: 2% cross sectional slope toward one side of channel.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

MINOR DRAINAGE CHANNEL

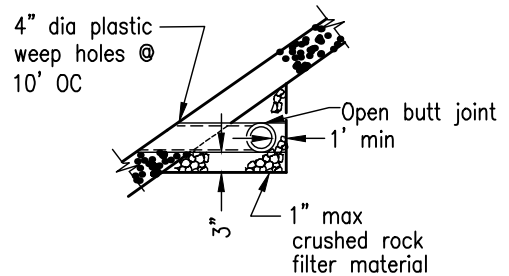
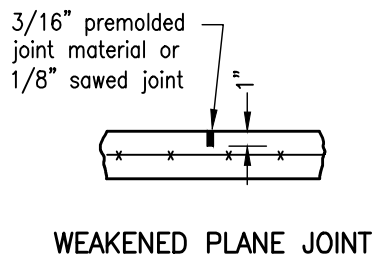
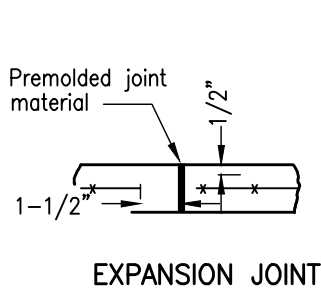
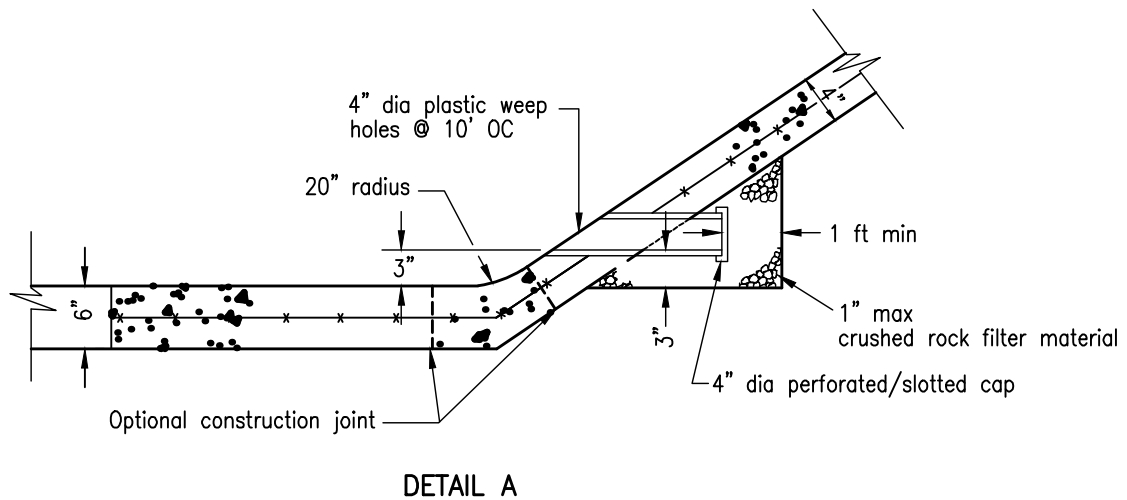
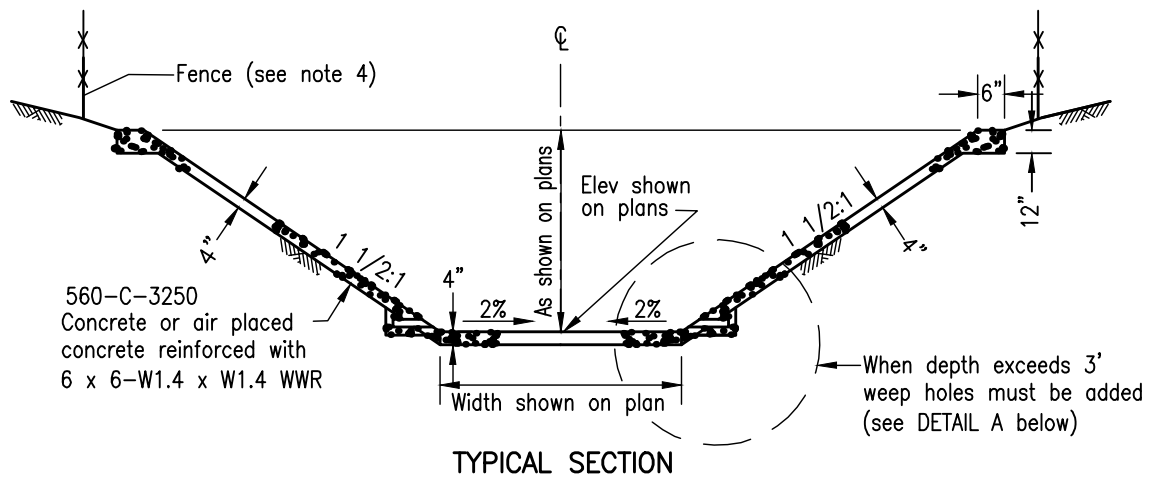
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

D-70



NOTES

1. AC or clay pipe may be substituted for plastic pipe at weep holes.
2. Weakened plane joints shall be placed every 12' to 15'. Expansion joints shall be placed at all changes of section and at ends of curves.
3. Cutoff walls shall be constructed at each end of the channel along the full width of section. See D-72.
4. Chainlink fence shall be as required by Agency.
5. Reinforcement shown is minimum.
6. Minimum bottom width shall be 6' to facilitate cleaning.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

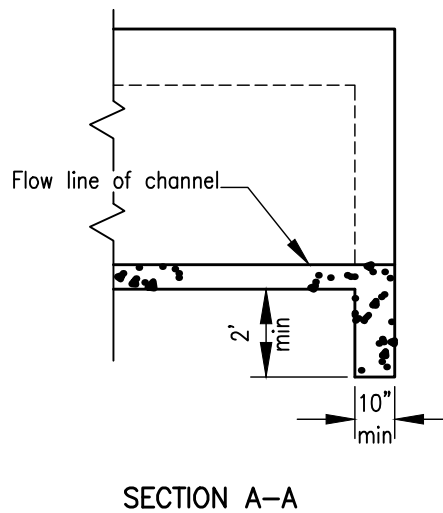
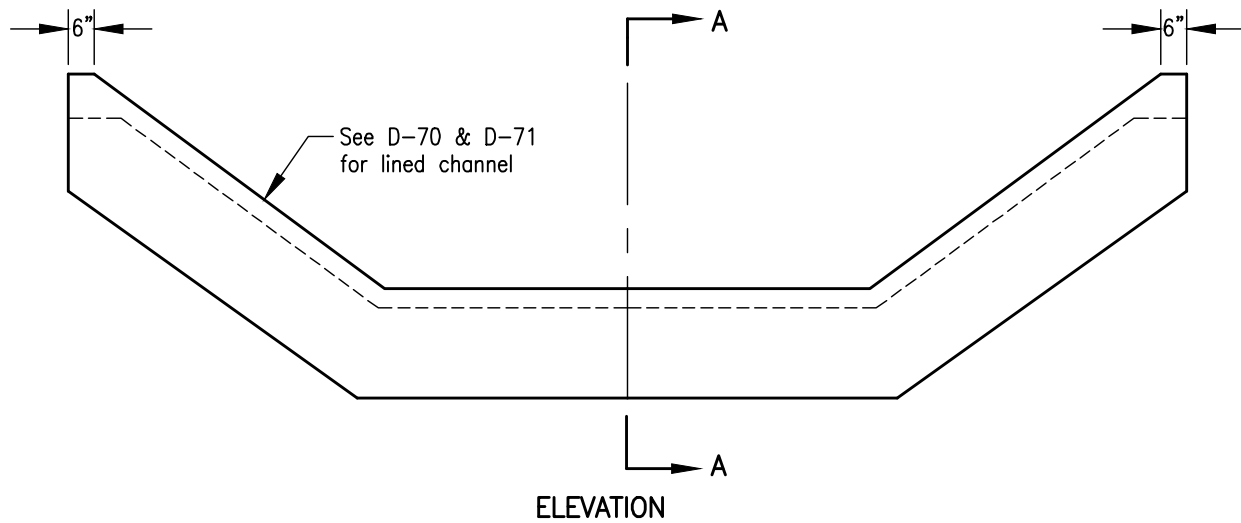
MAJOR DRAINAGE CHANNEL

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

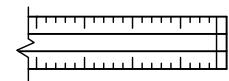
DRAWING NUMBER **D-71**



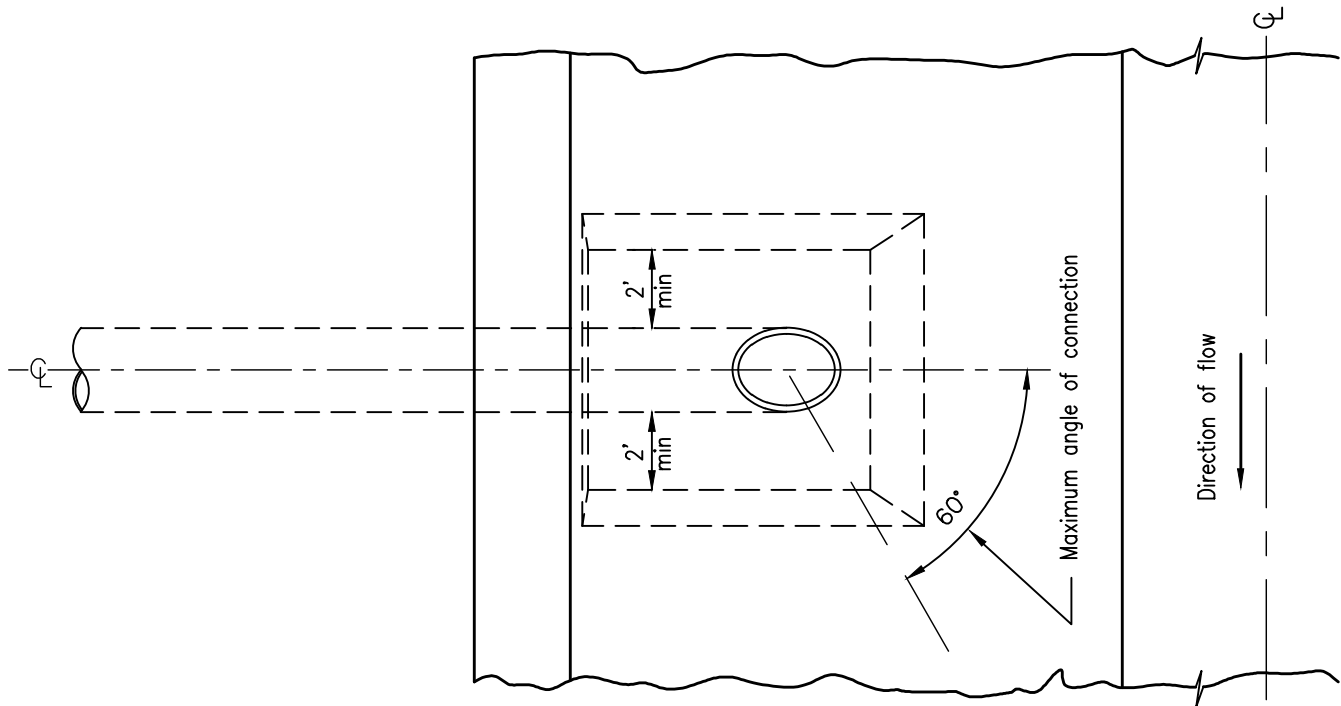
NOTES

1. Thickness and wall depth shall be as shown on plan.
2. Reinforcing in cutoff wall shall be the same as that required in channel.
3. Concrete shall be 560-C-3250.

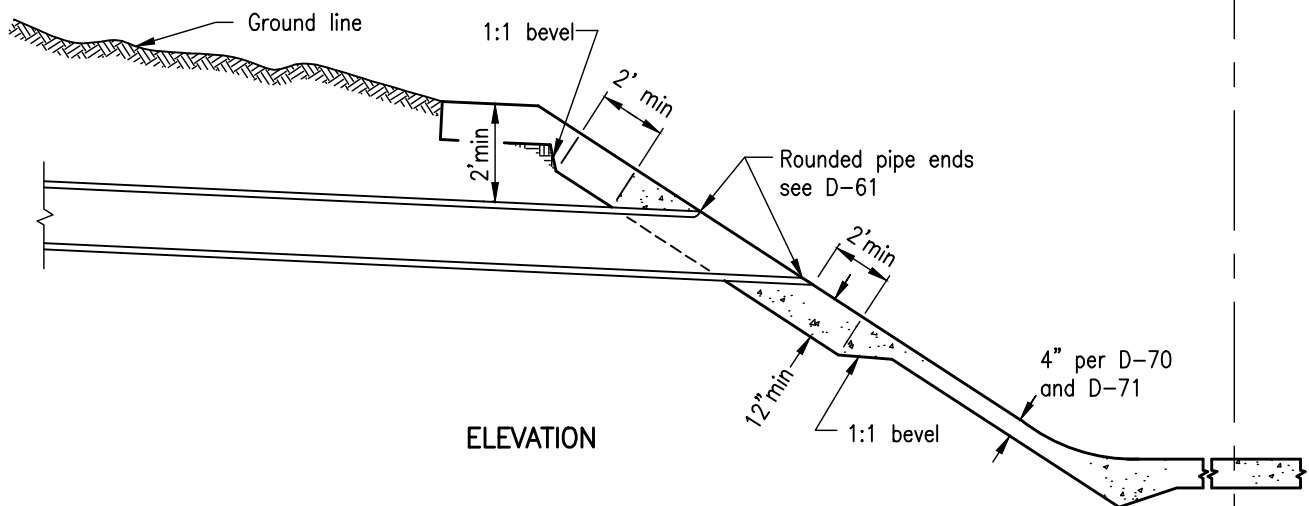
LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03	CUTOFF WALL FOR DRAINAGE CHANNEL	 7/26/2012 Chairperson R.C.E. 19246 Date
Reviewed		T. Stanton	04/06		
Edited	S.S.	T. Regello	03/11		
					DRAWING NUMBER D-72



PLAN

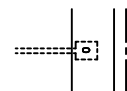


ELEVATION

NOTES:

1. Concrete shall be 560-C-3250.
2. Pipe shall connect to channel as high as possible and not be constructed directly above a weep hole.
3. The maximum angle of connection is 60° downstream. In no case shall a pipe angle upstream.
4. Install 6 x 6-W1.4 x W1.4 WWR in concrete around pipe.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

PIPE TO CHANNEL CONNECTION

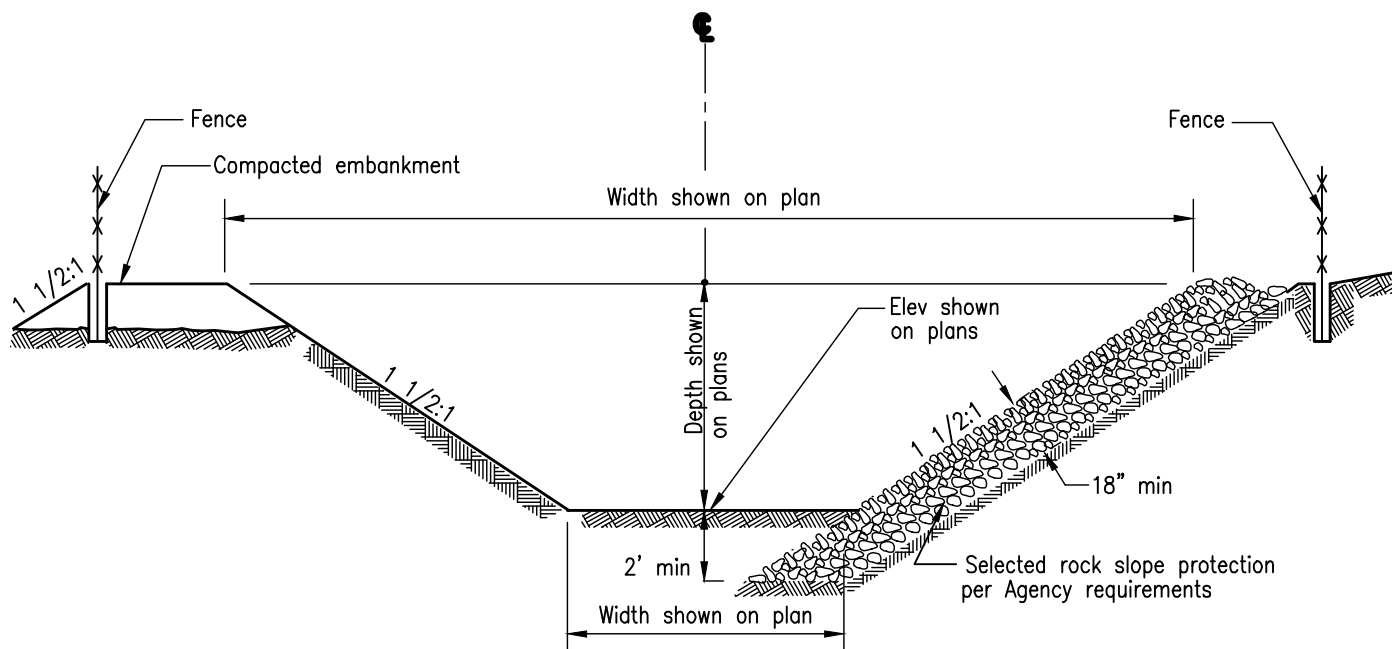
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

D-73



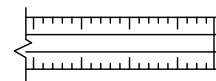
SECTION

NOTE

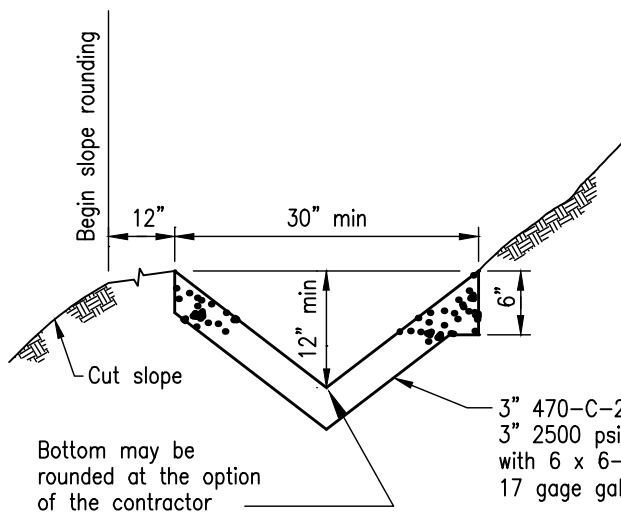
The following shall be specified by Agency and included in the plan design:

- Low flow channel location
- Filter blanket thickness, type and location
- Cutoff wall
- Fence

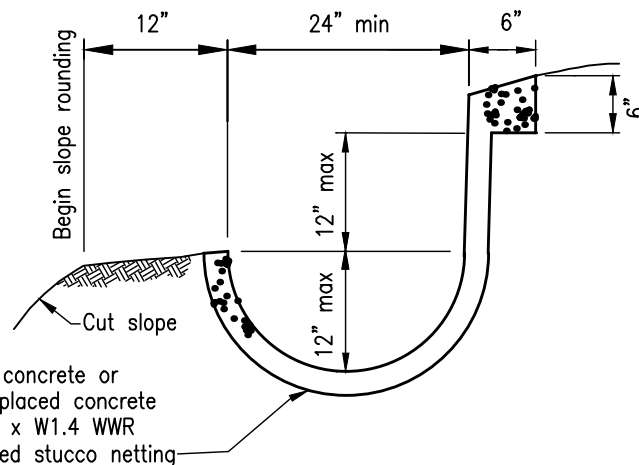
LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03	GRADED EARTH CHANNEL	 7/26/2012 Chairperson R.C.E. 19246 Date
Reviewed		T. Stanton	04/06		
Edited	S.S.	T. Regello	03/11		
					DRAWING NUMBER D-74

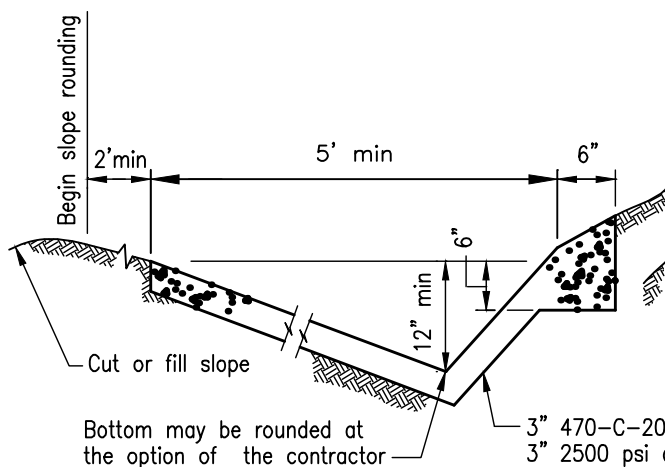


TYPE A

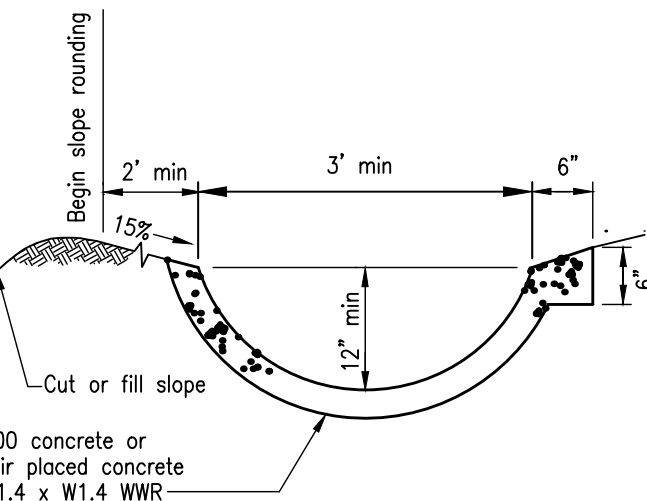


TYPE B

BROW DITCH



TYPE C



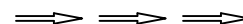
TYPE D

TERRACE DITCH

NOTES

1. Longitudinal slope of lined ditch shall be 2% minimum.
2. Over slope down ditches shall employ 6" thickened edge section at both sides of ditch.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

DRAINAGE DITCHES

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

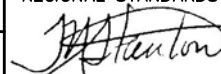
D-75

Revision	By	Approved	Date
ORIGINAL		A.Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

SINGLE BOX CULVERT DETAILS No.1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

D-76A

SPANS UP TO 5' (all measurements in feet and/or inches)

SPAN	2'		3'		4'		5'	
	1'-6"	2'	2'	3'	3'	4'	4'	5'
HEIGHT	A	A	A	A	A	A	A	A
STRENGTH CLASSIFICATION	A	A	A	A	A	A	A	A
MAX FILL OVER TOP	66	38	38	66	28	37	50	46
Top Slab	T ₁	6	6	6	6	6	6	6
Bottom Slab	T ₂	6	6	6	6	6	6	6
Sidewalls	T ₃	6	6	6	6	6	6	6
Size Bar "	4	4	4	4	4	4	4	4
"a" Dist.	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2
Spacing	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2
Length	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2
Top Slab-No. of Bars	2	2	2	2	2	2	2	2
Bottom Slab-No. of Bars	2	2	2	2	2	2	2	2
"e" Bars	18	18	18	18	18	18	18	18
Spacers	12	12	12	12	12	12	12	12
Concrete: C.Y. per lin. ft.	17	18	23	27	31	36	40	43
Reinf. lbs per lin. ft.	27	29	34	36	46	44	52	64
QUAN.								

NOTE

For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities.

Revision	By	Approved	Date
ORIGINAL		A.Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

SINGLE BOX CULVERT DETAILS No.1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-76B**

SPANS 6' (all measurements in feet and/or inches)

SPAN	6'																				
	2'			3'			4'			5'			6'			7'					
HEIGHT	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C			
STRENGTH CLASSIFICATION	10	18	10	18	10	18	25	9	17	25	36	45	9	17	25	36	45	9	17	25	36
MAX FILL OVER TOP	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4	8 1/4
Top Slab	6 3/4	8	6 3/4	8	6 3/4	8	6 3/4	8	6 3/4	8	6 3/4	8	6 3/4	8	6 3/4	8	6 3/4	8	6 3/4	8	6 3/4
Bottom Slab	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Sidewalls	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
"a" Size Bar	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Spacing	7-3	7-3	7-3	7-3	7-3	7-3	7-3	7-3	7-3	7-3	7-3	7-3	7-3	7-3	7-3	7-3	7-3	7-3	7-3	7-3	7-3
Length	7	4	7	4	7	4	7	4	7	4	7	4	7	4	7	4	7	4	7	4	7
"d" Dist. Top Slab-No. of Bars	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
"e" Bars Bottom Slab-No. of Bars	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Spacers Number	40	42	43	46	47	50	58	52	54	60	66	71	56	58	65	71	78	59	61	70	78
Concrete: C.Y. per lin. ft.	64	63	66	65	69	67	74	70	70	80	91	92	73	78	92	112	127	81	90	99	126
Reinf. lbs per lin. ft.																					

NOTE

For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities.

Revision	By	Approved	Date
ORIGINAL		A.Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

SINGLE BOX CULVERT DETAILS No.1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-76C**

SPAN 7' (all measurements in feet and/or inches unless otherwise noted)

SPAN		7'											
HEIGHT		3'			4'			5'			6'		
STRENGTH CLASSIFICATION		A	B	C	A	B	C	A	B	C	A	B	C
MAX FILL OVER TOP		16	26	16	16	26	16	26	35	16	26	35	16
CONC.	Top Slab	T ₁	7 1/4	8 1/4	7 1/4	8 1/4	7 1/4	8 1/4	7 1/4	8 1/4	7 1/4	8 1/4	7 1/4
	Bottom Slab	T ₂	7 1/2	8 3/4	7 1/2	8 3/4	7 1/2	8 3/4	7 1/2	8 3/4	7 1/2	8 3/4	7 1/2
	Sidewalls	T ₃	6	7	6	7	6	7	6	7	6	7	6
Reinforcing Steel	Size Bar "	5	5	5	5	5	5	5	5	5	5	5	5
	Spacing	9	7	9	7	9	7	9	7	9	7	9	7
	Length	6-8	6-9	6-8	6-9	6-8	6-9	6-8	6-9	6-8	6-9	6-8	6-9
	Size Bar "	5	5	5	5	5	5	5	5	5	5	5	5
	Spacing	9	7	9	7	9	7	9	7	9	7	9	7
	Dimension "X"	1-3	1-4	1-3	1-4	1-3	1-4	1-3	1-4	1-3	1-4	1-3	1-4
	Length	3-1	3-2	3-1	3-2	3-1	3-2	3-1	3-2	3-1	3-2	3-1	3-2
	Size Bar "	5	5	5	5	5	5	5	5	5	5	5	5
	Spacing	9	7	9	7	9	7	9	7	9	7	9	7
	Dimension "Y"	1-10	1-11	1-10	1-11	1-10	1-11	1-10	1-11	1-10	1-11	1-10	1-11
	Length	5-2	5-4	6-2	6-4	7-2	7-4	8-2	8-4	9-2	9-4	10-2	10-4
	Size Bar "	5	5	5	5	5	5	5	5	5	5	5	5
QUAN.	Spacing	9	7	9	7	9	7	9	7	9	7	9	7
	Dimension "Y"	1-10	1-11	1-10	1-11	1-10	1-11	1-10	1-11	1-10	1-11	1-10	1-11
	Length	3-8	3-10	3-8	3-10	3-8	3-10	3-8	3-10	3-8	3-10	3-8	3-10
	Top Slab-No. of Bars	7	4	7	4	7	4	7	4	7	4	7	4
	Bottom Slab-No. of Bars	4	4	4	4	4	4	4	4	4	4	4	4
	"e" Bars	18	18	18	18	18	18	18	18	18	18	18	18
	Spacing	24	24	24	24	24	24	24	24	24	24	24	24
	Spacers	24	24	24	24	24	24	24	24	24	24	24	24
	Total Number	47	56	51	60	55	64	78	58	68	84	62	73
	Concrete: C.Y. per lin. ft.	107	130	114	138	118	143	168	125	150	176	132	158
	Reinf lbs per lin. ft.												

NOTE

For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities.

Revision	By	Approved	Date
ORIGINAL		A.Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

SINGLE BOX CULVERT DETAILS No.1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-76D**

SPAN 8' (all measurements in feet and/or inches unless otherwise noted)

SPAN		8'																		
HEIGHT		3'			4'			5'			6'			7'			8'			
STRENGTH CLASSIFICATION		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	
MAX FILL OVER TOP		13	21	31	13	21	31	13	21	31	13	21	31	13	21	31	13	21	31	
CONC.	Top Slab	T ₁	7 1/4	8 1/2	7 1/4	8 1/2	7 1/4	8 1/2	7 1/4	8 1/2	7 1/4	8 1/2	7 1/4	8 1/2	7 1/4	8 1/2	7 1/4	8 1/2	7 1/4	
	Bottom Slab	T ₂	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	
	Sidewalls	T ₃	6 1/2	7 1/2	6 1/2	7 1/2	6 1/2	7 1/2	6 1/2	7 1/2	6 1/2	7 1/2	6 1/2	7 1/2	6 1/2	7 1/2	6 1/2	7 1/2	6 1/2	
	Size Bar "	"a"	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Reinforcing Steel	Spacing		9	7	9	7	9	7	9	7	9	7	9	7	9	7	9	7	9	7
	Length		7-7	7-8	7-7	7-8	7-7	7-8	7-7	7-8	7-7	7-8	7-7	7-8	7-7	7-8	7-7	7-8	7-10	7-10
	Size Bar "	"b"	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Spacing		9	7	9	7	9	7	9	7	9	7	9	7	9	7	9	7	9	7
	Dimension "X"		1-6	1-7	1-6	1-7	1-6	1-7	1-6	1-7	1-6	1-7	1-6	1-7	1-6	1-7	1-6	1-7	1-8	1-8
	Length		3-4	3-5	3-4	3-5	3-4	3-5	3-4	3-5	3-4	3-5	3-4	3-5	3-4	3-5	3-4	3-5	3-10	3-10
	Size Bar "	"c"	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Spacing		9	7	9	7	9	7	9	7	9	7	9	7	9	7	9	7	9	7
	Dimension "Y"		2	2-5	2	2-5	2	2-5	2	2-5	2	2-5	2	2-5	2	2-5	2	2-5	2-8	2-8
	Length		3-4	3-10	6-4	6-10	7-4	7-10	8-4	8-10	9-3	9-4	9-10	10-3	10-4	10-10	11-3	10-4	10-10	11-3
	Size Bar "	"c ₁ "	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Spacing		9	7	9	7	9	7	9	7	9	7	9	7	9	7	9	7	9	7
	Dimension "Y"		2	2-5	2	2-5	2	2-5	2	2-5	2	2-5	2	2-5	2	2-3	2-8	2	2-5	2-8
	Length		3-9	4-5	3-9	4-5	3-9	4-5	3-9	4-5	3-9	4-5	3-9	4-5	3-9	4-5	3-9	4-5	5	5
	Top Slab-No. of Bars	"d"	7	5	7	5	7	5	7	5	7	5	7	5	7	5	7	5	7	5
	Bottom Slab-No. of Bars		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
QUAN.	"e" Bars		18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
	Spacing																			
	Total Number	Spacers	28		32		32		32		36		36		40		40		40	
Concrete: C.Y. per lin. ft.		52	65	56	70	60	74	65	79	100	69	83	106	73	88	112				
Reinf lbs per lin. ft.		118	146	125	154	129	139	136	167	211	143	174	220	147	179	225				

NOTE

For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities.

Revision	By	Approved	Date
ORIGINAL		A.Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

SINGLE BOX CULVERT DETAILS No.1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-76E**

SPAN 10' (all measurements in feet and/or inches unless otherwise noted)

SPAN		10'																							
HEIGHT		4'			5'			6'			7'			8'			9'			10'					
STRENGTH CLASSIFICATION		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	C			
MAX FILL OVER TOP		9	18	9	18	9	18	9	18	9	18	9	18	9	18	9	18	9	18	9	18	28			
CONC.	Top Slab	T ₁	8	9 1/2	8 1/4	9 3/4	8 1/4	9 3/4	8 1/4	9 3/4	8 1/4	9 3/4	8 1/4	9 3/4	8 1/4	9 3/4	8 1/4	9 3/4	8 1/4	9 3/4	12 1/4				
	Bottom Slab	T ₂	8 3/4	10 1/2	9	10 3/4	9	10 3/4	9 1/4	11	9 1/4	11	13 1/4	9 1/4	11	13 1/4	9 1/4	11	13 1/4	9 1/4	11	13 1/4			
	Sidewalls	T ₃	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	11 1/2				
Reinforcing Steel	Size Bar "	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7			
	Spacing	11	8	11	8	11	8	11	8	11	8	11	8	11	8	11	8	11	8	11	8	9			
	Length	9-5	9-8	9-5	9-8	9-5	9-8	9-5	9-8	9-5	9-8	9-5	9-8	9-5	9-8	9-5	9-8	9-5	9-8	9-5	9-8	9-9			
	Size Bar "	5	6	5	6	5	6	5	6	5	6	5	6	5	6	5	6	5	6	5	6	6			
	Spacing	11	8	11	8	11	8	11	8	11	8	11	8	11	8	11	8	11	8	11	8	9			
	Dimension "Y"	2-8	3-4	2-8	3-4	2-8	3-4	2-8	3-4	2-8	3-4	2-8	3-4	2-8	3-4	2-8	3-4	2-8	3-4	2-8	3-4	3-6			
	Length	6-11	7-10	8-1	8-10	9-1	9-10	10-1	10-10	11-1	11-10	12-3	12-1	12-10	13-3	13-1	13-10	14-3	14-1	14-10	15-3	15-10			
	Size Bar "	5	6	5	6	5	6	5	6	5	6	5	6	5	6	5	6	5	6	5	6	6			
	Spacing	11	8	11	8	11	8	11	8	11	8	11	8	11	8	11	8	11	8	11	8	9			
	Dimension "Y"	2-8	3-4	2-8	3-4	2-8	3-4	2-8	3-4	2-8	3-4	2-8	3-4	2-8	3-4	2-8	3-4	2-8	3-4	2-8	3-4	3-6			
	Length	4-7	5-8	4-7	5-8	4-7	5-8	4-7	5-8	4-7	5-8	4-7	5-8	4-7	5-8	4-7	5-8	4-7	5-8	4-7	5-8	6-2			
	Bars	Top Slab-No. of Bars	9	5	9	5	9	5	9	5	9	5	9	5	9	5	9	5	9	5	9	5	5		
Bottom Slab-No. of Bars		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5			
Spacing		18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18			
QUANT.	Spacers	32			34			36			40			44			48			48			48		
	Concrete: C.Y. per lin. ft.	75	94	82	108	86	108	92	115	97	121	150	106	126	157	118	132	165	118	132	165	165			
	Reinf. lbs per lin. ft.	143	221	148	228	154	235	160	244	164	250	265	170	259	273	178	267	281	178	267	281	281			

NOTE

For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities.

Revision	By	Approved	Date
ORIGINAL		A.Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

SINGLE BOX CULVERT DETAILS No.1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

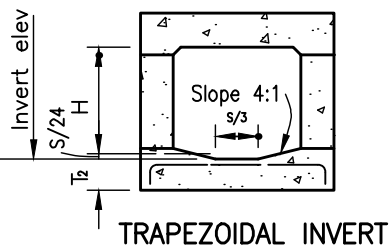
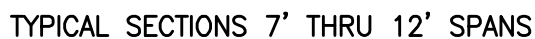
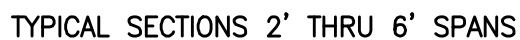
DRAWING
NUMBER **D-76F**

SPAN 12' (all measurements in feet and/or inches unless otherwise noted)


SPAN		12'																		
HEIGHT		6'			7'			8'			9'			10'			12'			
STRENGTH CLASSIFICATION		A	B		A	B		A	B		A	B		A	B		A	B		C
MAX FILL OVER TOP		5	16		5	16		5	16		5	16		5	16		5	16		24
CONC.	Top Slab	T ₁	8 3/4	11 1/4	8 3/4	11 1/4	8 3/4	11 1/4	8 3/4	11 1/4	8 3/4	11 1/4	8 3/4	11 1/4	8 3/4	11 1/4	8 3/4	11 1/4	8 3/4	11 1/4
	Bottom Slab	T ₂	8 3/4	12 1/4	8 3/4	12 1/4	8 3/4	12 1/4	8 3/4	12 1/4	8 3/4	12 1/4	8 3/4	12 1/4	8 3/4	12 1/4	8 3/4	12 1/4	8 3/4	12 1/4
	Sidewalls	T ₃	7 1/2	10 1/2	7 1/2	10 1/2	7 1/2	10 1/2	7 1/2	10 1/2	7 1/2	10 1/2	7 1/2	10 1/2	7 1/2	10 1/2	7 1/2	10 1/2	7 1/2	10 1/2
Reinforcing Steel	Size Bar "	6	7		6	7		6	7		6	7		6	7		6	7		7
	Spacing	11	10		11	10		11	10		11	10		11	10		11	10		8
	Length	11-3	11-6		11-3	11-6		11-3	11-6		11-3	11-6		11-3	11-6		11-3	11-6		11-8
	Size Bar "	6	7		6	7		6	7		6	7		6	7		6	7		7
	Spacing	11	10		11	10		11	10		11	10		11	10		11	10		8
	Dimension "X"	2-8	3		2-8	3		2-8	3		2-8	3		2-8	3		2-8	3		3
	Length	4-10	5-7		4-10	5-7		4-10	5-7		4-10	5-7		4-10	5-7		4-10	5-7		5-7
	Size Bar "	6	7		6	7		6	7		6	7		6	7		6	7		7
	Spacing	11	10		11	10		11	10		11	10		11	10		11	10		8
	Dimension "Y"	3-9	3-9		3-9	3-9		3-9	3-9		3-9	3-9		3-9	3-9		3-9	3-9		3-9
	Length	10-2	10-4		11-2	11-4		12-2	12-4		13-2	13-4		14-2	14-4		16-2	16-4		16-6
	Size Bar "	6	7		6	7		6	7		6	7		6	7		6	7		7
"c" └───┐	Spacing	11	10		11	10		11	10		11	10		11	10		11	10		8
	Dimension "Y"	3-9	3-9		3-9	3-9		3-9	3-9		3-9	3-9		3-9	3-9		3-9	3-9		3-9
	Length	5-11	6-5		5-11	6-5		5-11	6-5		5-11	6-5		5-11	6-5		5-11	6-5		6-8
	Top Slab-No. of Bars	10	6		10	6		10	6		10	6		10	6		10	6		6
	Bottom Slab-No. of Bars	6	6		6	6		6	6		6	6		6	6		6	6		6
"e" Bars	Spacing	18	18		18	18		18	18		18	18		18	18		18	18		18
	Total Number	36	44		44	44		44	44		44	44		44	44		44	44		52
	Concrete: C.Y. per lin. ft.	99	138		103	144		108	152		118	158		130	165		141	178		213
Reinf lbs per lin. ft.		203	293		213	304		218	311		223	317		231	326		243	341		415

NOTE

For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities.



ALTERNATIVE INVERTS
(When specified)

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING SINGLE BOX CULVERT DETAILS NO.2	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		 7/26/2012
Add Metric		T Stanton	03/03		
Reviewed		T Stanton	04/06		
Edited	S.S.	T. Regello	03/11		
					Chairperson R.C.E. 19246 Date
					DRAWING NUMBER D-76G

SPAN 4' (all measurements in feet and/or inches unless otherwise noted)

SPAN		4'																	
HEIGHT		2'						3'						4'					
STRENGTH CLASSIFICATION		A	B	C	A	B	C	D	A	B	C	D	A	B	C	D			
MAX FILL OVER TOP		11	21	32	11	23	34	46	11	23	34	46	11	23	34	46			
Concrete	Top Slab	T1	6 1/2	6 1/2	7 1/4	6 1/2	6 1/2	7 1/2	8 1/2	6 1/2	6 1/2	7 1/2	8 1/2	6 1/2	6 1/2	7 1/2	8 1/2		
	Bottom Slab	T2	6	7 1/4	8 1/2	6	7 1/2	8 1/2	9 1/2	6	7 1/2	8 1/2	9 1/2	6	7 1/2	8 1/2	9 1/2		
	Sidewalls	T3	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		
	Size Bar #		5	4	4	5	4	4	4	5	4	4	4	5	4	4	4		
Reinforcing Steel	Spacing		11	11	9	11	10 1/2	8 1/2	7 1/2	11	10 1/2	8 1/2	7 1/2	11	10 1/2	8 1/2	7 1/2		
	Length		10-3	10-2	10-2	10-3	10-2	10-2	10-2	10-3	10-2	10-2	10-2	10-3	10-2	10-2	10-2		
	Size Bar #		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5		
	Spacing		11	11	9	11	10 1/2	8 1/2	7 1/2	11	10 1/2	8 1/2	7 1/2	11	10 1/2	8 1/2	7 1/2		
	Length "b"		9-4	9-4	9-6	9-4	9-4	9-6	9-7	9-4	9-4	9-6	9-7	9-4	9-4	9-6	9-7		
	Length "b1"		9-4	9-5	9-6	9-4	9-4	9-6	9-7	9-4	9-4	9-6	9-7	9-4	9-4	9-6	9-7		
	Size Bar #		4	5	5	4	5	5	5	4	5	5	5	4	5	5	5		
	Spacing		11	11	9	11	10 1/2	8 1/2	7 1/2	11	10 1/2	8 1/2	7 1/2	11	10 1/2	8 1/2	7 1/2		
	Length		4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6		
	"d" Dist Bars		10	6	6	10	6	6	6	10	6	6	6	10	6	6	6		
	Bottom Slab-Tot. No.		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		
	Size Bar #		4	4	4	4	4	4	4	4	4	4	4	4	4	4	5		
	Spacing		18	18	18	18	18	16	12	18	12	9	10	18	12	9	10		
	Number		23						26						29				
Span	Concrete: C.Y. per lin. ft.	0.47	0.51	0.57	0.53	0.57	0.63	0.69	0.59	0.63	0.69	0.75	0.59	0.63	0.69	0.75			
Span	Reinf. lbs per lin. ft.	81	74	84	84	79	91	101	87	85	99	111	87	85	99	111			

NOTE

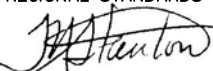
For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities. Number of "d" bars in table is slab total for both cells.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

DOUBLE BOX CULVERT DETAILS No. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-77A**

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

**DOUBLE BOX CULVERT
DETAILS No. 1**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-77B**

SPAN 5' (all measurements in feet and/or inches unless otherwise noted)

SPAN		5'											
HEIGHT		2'				3'				4'			
		A	B	C		A	B	C		A	B	C	D
STRENGTH CLASSIFICATION		6	36	36		6	24	36		6	23	34	46
MAX FILL OVER TOP		6	3/4	9 1/4		6	3/4	9 1/4		6	3/4	10 1/4	10 1/4
Top Slab		T1	6 3/4	7 3/4	9 1/4	6 3/4	7 3/4	9 1/4	10 1/4	6 3/4	7 3/4	8 3/4	10 1/4
Bottom Slab		T2	6 1/2	8 3/4	10 1/4	6 1/2	8 3/4	10 1/4	11 1/4	6 1/2	8 3/4	10 1/4	11 1/4
Sidewalls		T3	6	6	6	6	6	6	6	6	6	6	6
Size Bar #		5	4	4		5	4	4		5	4	4	4
Spacing		10	8 1/2	10		10	8 1/2	10		10	8 1/2	10 1/2	9
Length		12-3	12-2	12-2		12-3	12-2	12-2		12-3	12-2	12-2	12-2
Size Bar #		5	5	6		5	5	6		5	5	6	6
Spacing		10	8 1/2	10		10	8 1/2	10		10	8 1/2	10 1/2	9
Length "b"		11-5	11-6	11-7		11-5	11-6	11-7		11-5	11-6	11-7	11-8
Length "b1"		11-4	11-6	11-7		11-4	11-6	11-7		11-4	11-6	11-7	11-8
Size Bar #		4	5	6		4	5	6		4	5	6	6
Spacing		10	8 1/2	10		10	8 1/2	10		10	8 1/2	10 1/2	9
Length		5-6	5-6	5-6		5-6	5-6	5-6		5-6	5-6	5-6	5-6
Top Slab-Tot. No.		12	6	6		12	6	6		12	6	6	6
Bottom Slab-Tot. No.		6	6	6		6	6	6		6	6	6	6
Size Bar #		4	4	4		4	4	4		4	4	4	4
Spacing		18	18	18		18	18	16		18	12	10 1/2	9
Number		23				26				29			32
Concrete: C.Y. per lin. ft.		0.58	0.69	0.80		0.63	0.75	0.86		0.69	0.80	0.89	0.98
Reinf :lbs per lin. ft.		99	100	109		103	104	112		106	109	119	133
Quant.													

NOTE

For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities. Number of "d" bars in table is slab total for both cells.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING







DOUBLE BOX CULVERT DETAILS No. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-77C**

SPAN 6' (all measurements in feet and/or inches unless otherwise noted)

SPAN		6'											
HEIGHT		3'				4'				5'			
STRENGTH CLASSIFICATION		A	B	C		A	B	C		A	B	C	D
MAX FILL OVER TOP		4	20	34		4	20	34		4	19	33	43
Top Slab	T1	7 1/4	8 1/4	10 1/2	7 1/4	8 1/4	10 1/2	12	7 1/4	8 1/4	10 1/2	12	12
Bottom Slab	T2	7 1/4	9 1/2	11 1/2	7 1/4	9 1/2	11 1/2	12 3/4	7 1/4	9 1/2	11 1/2	12 3/4	12
Sidewalls	T3	6	6	6	6	6	6	6	6	6	6	6	7 1/2
"a" 	Size Bar #	5	4	4	5	4	4	4	5	4	4	4	4
"b" 	Spacing	9 1/2	11	8 1/2	9 1/2	11	8 1/2	10 1/2	9 1/2	11	8 1/2	10 1/2	10 1/2
"b1" 	Length	14-3	14-2	14-2	14-3	14-2	14-2	14-2	14-3	14-2	14-2	14-2	14-8
"c" 	Size Bar #	5	6	6	5	6	6	6	5	6	6	6	7
"d" Dist Bars 	Spacing	9 1/2	11	8 1/2	9 1/2	11	8 1/2	10 1/2	9 1/2	11	8 1/2	10 1/2	10 1/2
"e" Bars 	Length	6-6	6-6	6-6	6-6	6-6	6-6	6-6	6-6	6-6	6-6	6-6	6-8
Top Slab-Tot. No.		12	6	6	12	6	6	6	12	6	6	6	6
Bottom Slab-Tot. No.		6	6	6	6	6	6	6	6	6	6	6	6
Size Bar #		4	4	4	4	4	4	4	4	4	4	4	6
Spacing		18	18	16	18	14	14	8 1/2	18	10	9 1/2	7	6
Spacers	Number	30				33				36			
Concrete: C.Y. per lin. ft.		0.77	0.90	1.08	0.82	0.96	1.13	1.30	0.88	1.01	1.19	1.30	1.47
Reinf :lbs per lin. ft.		121	119	147	125	124	155	175	128	131	164	175	201

NOTE

For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities. Number of "d" bars in table is slab total for both cells.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

DOUBLE BOX CULVERT DETAILS No. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-77D**

SPAN 8' (all measurements in feet and/or inches unless otherwise noted)

SPAN		8'																				
HEIGHT		4'				5'				6'				7'				8'				
STRENGTH CLASSIFICATION		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	D		
MAX FILL OVER TOP		3	14	25	3	14	25	3	14	25	3	14	25	3	14	25	3	14	25	37		
Conc.	Top Slab	T1	8 1/2	9 1/2	12	8 1/2	9 1/2	12	8 1/2	9 1/2	12	8 1/2	9 1/2	12	8 1/2	9 1/2	12	8 1/2	9 1/2	14 1/4		
	Bottom Slab	T2	7 1/2	10 1/2	12 3/4	7 1/2	10 1/2	12 3/4	7 1/2	10 1/2	12 3/4	7 1/2	10 1/2	12 3/4	7 1/2	10 3/4	13	15	7 1/2	10 3/4		
	Sidewalls	T3	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		
Reinforcing Steel	Size Bar #	6	4	4	6	4	4	6	4	4	6	4	4	6	4	4	6	4	4	4		
	Spacing	12	9 1/2	10 1/2	12	9 1/2	10	12	9 1/2	10	11 1/2	9 1/2	10	11 1/2	9 1/2	10	11 1/2	9 1/2	10	8 1/2		
	Length	18-4	18-2	18-2	18-4	18-2	18-2	18-4	18-2	18-2	18-2	18-7	18-5	18-5	18-8	18-5	18-7	18-5	18-8	18-10		
Reinforcing Steel	Size Bar #	6	6	7	6	6	7	6	6	6	6	6	6	6	6	6	6	6	6	7		
	Spacing	12	9 1/2	10 1/2	12	9 1/2	10	12	9 1/2	10	11 1/2	9 1/2	10	11 1/2	9 1/2	10	11 1/2	9 1/2	10	8 1/2		
	Length	17-7	17-8	17-9	17-7	17-8	17-9	17-7	17-8	17-9	17-7	17-8	17-9	17-10	17-10	18	18-5	17-10	17-10	18-3		
Reinforcing Steel	Size Bar #	4	6	7	4	6	7	4	6	7	4	6	7	4	6	7	4	6	7	7		
	Spacing	12	9 1/2	10 1/2	12	9 1/2	10	12	9 1/2	10	11 1/2	9 1/2	10	11 1/2	9 1/2	10	11 1/2	9 1/2	10	8 1/2		
	Length	8-6	8-6	8-6	8-6	8-6	8-6	8-6	8-6	8-6	8-6	8-7	8-7	8-7	8-7	8-7	8-7	8-7	8-8	8-9		
Reinforcing Steel	Top Slab-Tot. No.	16	8	8	16	8	8	16	8	8	16	8	8	16	8	8	16	8	8	8		
	Bottom Slab-Tot. No.	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8		
	Size Bar #	4	4	5	4	4	5	4	4	4	5	4	5	4	5	6	4	5	7	7		
Reinforcing Steel	Spacing	18	18	10 1/2	18	12	10	18	11 1/2	10	11 1/2	10	14	9 1/2	7 1/2	8 1/2	11 1/2	8 1/2	7 1/2	9		
	Bars																					
	Spacers	41				44				44				47				50				60
Reinforcing Steel	Concrete: C.Y. per lin. ft.	1.08	1.30	1.55	1.14	1.37	1.61	1.19	1.42	1.66	1.32	1.56	1.83	1.32	1.56	1.83	1.39	1.62	1.99	2.27		
	Reinf :lbs per lin. ft.	169	175	200	172	181	218	173	188	229	185	199	248	191	207	248	191	207	284	314		

NOTE

For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing of steel, and make necessary changes in bar lengths, number of spacers and quantities. Number of "d" bars in table is slab total for both cells.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	03/03
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

DOUBLE BOX CULVERT DETAILS No. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-77E**

SPAN 10' (all measurements in feet and/or inches unless otherwise noted)

SPAN		10'											
HEIGHT		5'				6'				7'			
STRENGTH CLASSIFICATION		A	B	C	A	B	C	A	B	C	A	B	C
MAX FILL OVER TOP		2	17	30	2	17	30	2	17	30	2	16	29
Top Slab		T1	8 3/4	12 3/4	16	8 3/4	12 3/4	16	8 3/4	12 3/4	16	8 3/4	12 3/4
Bottom Slab		T2	8 1/4	13 1/2	16 1/2	8 1/4	13 1/2	16 1/2	8 1/4	13 3/4	16 3/4	8 3/4	13 1/2
Sidewalls		T3	6	6	6	6	6	6	6 1/2	7	7	7 1/2	8
Size Bar #			6	4	4	4	4	6	4	4	6	4	4
Spacing			11	10	10	11	9 1/2	10	11	9 1/2	10	10	10
Length			22-4	22-2	22-2	22-4	22-2	22-2	22-4	22-4	22-5	22-7	22-10
Size Bar #			6	7	8	6	7	8	6	7	8	6	7
Spacing			11	10	10	11	9 1/2	10	11	9 1/2	10	10	9
Length "b"			21-7	21-10	22	21-7	21-10	22	21-7	21-11	22-3	22-1	22-4
Length "b1"			21-5	21-10	22	21-5	21-10	22	21-5	21-11	22-3	21-9	22
Size Bar #			6	7	8	6	7	8	6	7	8	6	7
Spacing			11	10	10	11	9 1/2	10	11	9 1/2	10	10	9
Length			10-6	10-6	10-6	10-6	10-6	10-6	10-6	10-7	10-7	10-7	10-8
Top Slab-Tot. No.			18	10	10	18	10	10	18	10	18	10	10
Bottom Slab-Tot. No.			10	10	10	10	10	10	10	10	10	10	10
Size Bar #			4	4	5	4	4	5	4	4	4	5	6
Spacing			18	10	10	18	6	6 1/2	14	6	8	11	8 1/2
Number			48	48	48	48	48	48	51	51	54	54	68
Concrete: C.Y. per lin. ft.			1.40	2.05	2.46	1.45	2.07	2.48	1.51	2.18	2.64	1.68	2.27
Reinf :lbs per lin. ft.			236	254	310	238	274	324	243	280	339	252	278

NOTE

For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities. Number of "d" bars in table is slab total for both cells.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

DOUBLE BOX CULVERT DETAILS No. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

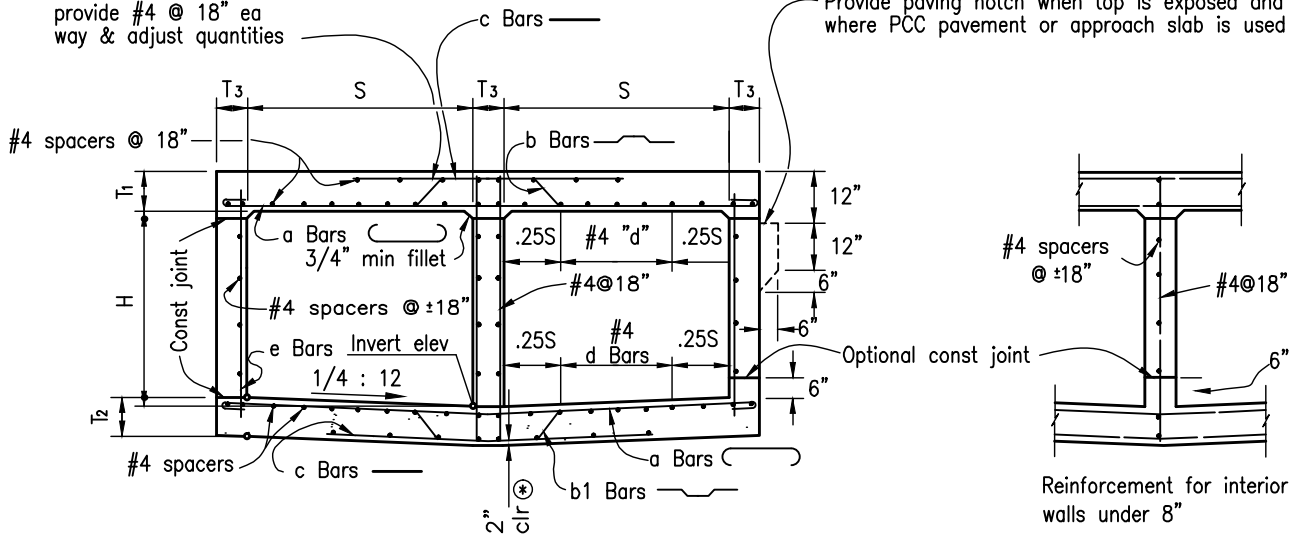
DRAWING
NUMBER **D-77F**

SPAN 12' (all measurements in feet and/or inches unless otherwise noted)

SPAN		12'																					
HEIGHT		6'			7'			8'			9'			10'			12'						
STRENGTH CLASSIFICATION		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	D			
MAX. FILL OVER TOP		2	14	26	2	14	26	2	14	26	2	14	26	2	14	26	2	14	26	36			
Concrete	Top Slab	T ₁	10	14	17 1/2	10	14 1/4	17 1/2	10 1/4	14 1/4	17 3/4	10 1/4	14 1/2	17 3/4	20 3/4	10 1/4	14 1/2	17 3/4	20 3/4	10 1/4	14 1/2	18 1/4	21 1/4
	Bottom Slab	T ₂	9 1/4	14 3/4	18	9 1/4	15	18 1/4	9 3/4	15	18 1/2	10	15 1/4	18 3/4	21 1/4	10 1/4	15 1/4	18 3/4	21 1/2	10 1/2	15 1/4	19 1/4	22
	Sidewalls	T ₃	6	6	6 1/2	7	7	7	8	8	8 1/2	9	9	9	10	9	9	9 1/2	11	9	10	11	12
Size Bar #		6	4	4	6	4	4	6	4	4	6	4	4	6	4	4	6	4	4	6	4	4	4
Spacing		9	11 1/2	9	9	11 1/2	9	9	11	8 1/2	9	9	11	8 1/2	9	9	11	8 1/2	9	9	11	8 1/2	9
Length		26-4	26-2	26-4	26-7	26-5	26-5	26-10	26-8	26-10	27-1	26-11	26-11	27-1	27-1	26-11	27-3	27-5	27-1	27-1	27-2	27-5	27-8
Size Bar #		6	8	8	6	8	8	6	8	8	6	8	8	9	6	8	8	9	6	8	8	8	9
Spacing		9	11 1/2	9	9	11 1/2	9	9	11	8 1/2	9	9	11	8 1/2	9	9	11	8 1/2	9	9	11	8 1/2	9
Length		25-8	25-10	26-3	25-11	26-1	26-4	26-2	26-4	26-9	26-5	26-9	26-9	27-4	26-5	26-8	27-2	27-6	26-5	26-11	27-5	27-10	
Size Bar #		5	8	8	5	8	8	5	8	8	5	8	8	9	5	8	8	9	5	8	8	9	
Spacing		9	11 1/2	9	9	11 1/2	9	9	11	8 1/2	9	9	11	8 1/2	9	9	11	8 1/2	9	9	11	8 1/2	9
Length		12-6	12-6	12-7	12-7	12-7	12-7	12-8	12-8	12-9	12-9	12-9	12-9	12-10	12-9	12-9	12-10	12-11	12-9	12-10	12-11	13	
Top Slab-Tot. No.		24	10	10	24	10	24	10	24	10	24	10	24	10	24	10	24	10	24	10	10	10	
Bars		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Size Bar #		4	4	5	4	4	5	4	4	5	4	4	5	7	8	4	7	8	6	7	8	9	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Size Bar #		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Size Bar #		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Size Bar #		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Size Bar #		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Size Bar #		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Size Bar #		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Size Bar #		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Size Bar #		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Size Bar #		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Size Bar #		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Size Bar #		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Size Bar #		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Size Bar #		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Size Bar #		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Size Bar #		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Size Bar #		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Size Bar #		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Spacing		18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	
Length		8	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	9	8 1/2	9	12	8	7	7	

For cover less than 2'
provide #4 @ 18" ea
way & adjust quantities

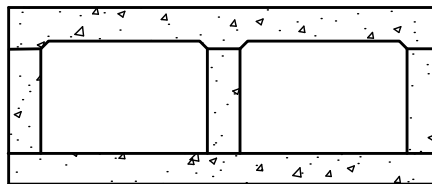
Provide paving notch when top is exposed and
where PCC pavement or approach slab is used



TYPICAL SECTION

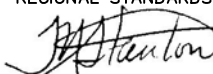
(Showing reinforcement for interior walls 8" and over)

⊙ For reinforcement clearance, except at bottom, see "Miscellaneous Details," on D-81A and D-81B.



"FLAT INVERT" ALTERNATIVE

(When specified)

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			 7/26/2012 Chairperson R.C.E. 19246 Date	
Add Metric		T. Stanton	03/03				
Reviewed		T. Stanton	04/06				
Edited	S.S.	T. Regello	03/11				
				DOUBLE BOX CULVERT DETAILS NO. 2		DRAWING NUMBER	D-77G

SPAN 4' (all measurements in feet and/or inches)

SPAN		4'											
HEIGHT		2'				3'				4'			
STRENGTH CLASSIFICATION		A	B	C		A	B	C		A	B	C	
MAX FILL OVER TOP		10	24	38		10	24	38		10	24	38	
Conc.	Top Slab	T1	6 1/4	6 1/4	7 1/4	6 1/4	6 1/4	7 1/4	7 1/4	6 1/4	6 1/4	7 1/4	7 1/4
	Bottom Slab	T2	6	7	8 1/4	6	7	8 1/4	8 1/4	6	7	8 1/4	8 1/4
	Sidewalls	T3	6	6	6	6	6	6	6	6	6	6	6
Reinforcing Steel	Size Bar #	5	4	5		5	4	5		5	4	5	
	Spacing	11	11 1/2	13		11	11 1/2	13		11	11 1/2	13	
	Length	14-9	14-8	14-9		14-9	14-8	14-9		14-9	14-8	14-9	
Reinforcing Steel	Size Bar #	5	5	6		5	5	6		5	5	6	
	Spacing	11	11 1/2	13		11	11 1/2	13		11	11 1/2	13	
	Length	14-2	14-2	14-3		14-2	14-2	14-3		14-2	14-2	14-3	
Reinforcing Steel	Length "b"	14	14-2	14-3		14	14-2	14-3		14	14-2	14-3	
	Length "b1"	4	5	6		4	5	6		4	5	6	
	Size Bar #	11	11 1/2	13		11	11 1/2	13		11	11 1/2	13	
Reinforcing Steel	Spacing	9	9	9		9	9	9		9	9	9	
	Length	15	9	9		15	9	9		15	9	9	
	Top Slab-Tot. No.	9	9	9		9	9	9		9	9	9	
Reinforcing Steel	Bottom Slab-Tot. No.	4	4	4		4	4	4		4	4	4	
	Size Bar #	18	18	18		18	18	18		18	18	18	
	Spacing	34	34	34		34	34	34		34	34	34	
Reinforcing Steel	Spacers	0.67	0.71	0.81		0.75	0.79	0.89		0.82	0.86	0.96	
	Concrete: C.Y. per lin. ft.	122	110	133		127	115	138		131	122	147	
	Reinf :lbs per lin. ft.												

NOTE

For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities. Number of "d" bars in table is slab total for all cells.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

TRIPLE BOX CULVERT DETAILS No. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

D-78A

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

TRIPLE BOX CULVERT DETAILS No. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

D-78B

SPAN 5' (all measurements in feet and/or inches)

SPAN		5'											
HEIGHT		2'				3'				4'			
STRENGTH CLASSIFICATION		A	B	C		A	B	C		A	B	C	D
MAX FILL OVER TOP		8	17	26		8	17	26		8	17	26	35
Concrete	Top Slab	T1	6 3/4	6 3/4	7 1/2	6 3/4	6 3/4	7 1/2	8 1/2	6 3/4	6 3/4	7 1/2	8 1/2
	Bottom Slab	T2	6 1/4	7 1/4	8 1/2	6 1/4	7 1/4	8 1/2	9 1/2	6 1/4	7 1/4	8 1/2	9 1/2
	Sidewalls	T3	6	6	6	6	6	6	6	6	6	6	6
Reinforcing Steel	Size Bar #	5	4	5		5	4	5		5	4	5	5
	Spacing	10	11 1/2	13		10	11 1/2	13		10	11 1/2	13	11 1/2
	Length	17-9	17-8	17-9		17-9	17-8	17-9		17-9	17-8	17-9	17-9
	Size Bar #	5	5	6		5	5	6		5	5	6	6
	Spacing	10	11 1/2	13		10	11 1/2	13		10	11 1/2	13	11 1/2
	Length "b"	17-3	17-3	17-3		17-3	17-3	17-3		17-3	17-3	17-3	17-5
	Length "b1"	17	17-2	17-4		17	17-2	17-4		17	17-2	17-4	17-5
	Size Bar #	4	5	6		4	5	6		4	5	6	6
	Spacing	10	11 1/2	13		10	11 1/2	13		10	11 1/2	13	11 1/2
	Length	11	11	11		11	11	11		11	11	11	11
Quants.	"d" Dist Bars	18	9	9		18	9	9		18	9	9	9
	Bottom Slab-Tot. No.	9	9	9		9	9	9		9	9	9	9
	Size Bar #	4	4	4		4	4	4		4	4	4	6
	Spacing	18	18	18		18	18	18		18	11 1/2	11 1/2	11 1/2
	Spacers	34				38				38			
Concrete: C.Y. per lin. ft.		0.82	0.87	0.98		0.90	0.95	1.05		0.97	1.02	1.13	1.31
Reinf :lbs per lin. ft.		150	126	153		155	130	157		157	136	161	192

NOTE

For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities. Number of "d" bars in table is slab total for all cells.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

TRIPLE BOX CULVERT DETAILS No. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-78C**

SPAN 6' (all measurements in feet and/or inches)

SPAN		6'											
HEIGHT		3'				4'				5'			
STRENGTH CLASSIFICATION		A	B	C		A	B	C		A	B	C	D
MAX FILL OVER TOP		3	13	23		3	13	23		3	13	23	30
Top Slab	T1	7 1/2	7 1/2	8 1/4	7 1/2	7 1/2	7 1/2	8 1/4	9 1/4	7 1/2	7 1/2	8 1/4	9 1/4
Bottom Slab	T2	6	7 3/4	9 1/4	6	7 3/4	9 1/4	9 1/4	10	6	8	9 1/4	10 1/4
Sidewalls	T3	6	6	6	6	6	6	6	6	6	6	6	6
Size Bar#		6	5	5	6	5	5	5	5	6	5	5	5
Spacing		13	14	11 1/2	13	14	11 1/2	13	14	11 1/2	13	14	11 1/2
Length		20-10	20-9	20-9	20-10	20-9	20-9	20-9	20-9	20-10	20-9	20-9	20-9
Size Bar#		6	6	6	6	6	6	6	6	6	6	6	6
Spacing		13	14	11 1/2	13	14	11 1/2	13	14	11 1/2	13	14	11 1/2
Length		20-3	20-3	20-5	20-3	20-3	20-3	20-5	20-6	20-3	20-3	20-5	20-6
Size Bar#		4	6	6	4	6	6	6	6	4	6	6	6
Spacing		13	14	11 1/2	13	14	11 1/2	13	14	11 1/2	13	14	11 1/2
Length		13	13	13	13	13	13	13	13	13	13	13	13
Top Slab-Tot. No.		18	9	9	18	9	9	9	9	18	9	9	9
Bottom Slab-Tot. No.		9	9	9	9	9	9	9	9	9	9	9	9
Size Bar#		4	4	4	4	4	4	4	4	4	4	4	4
Spacing		18	18	18	18	18	18	18	18	18	18	18	18
Length		40	40	40	40	40	40	40	40	40	40	40	40
Concrete: C.Y. per lin. ft.		1.05	1.15	1.29	1.12	1.23	1.37	1.44	1.55	1.19	1.32	1.44	1.52
Reinf :lbs per lin. ft.		181	168	196	183	170	200	209	235	192	187	221	249

NOTE

For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities. Number of "d" bars in table is slab total for all cells.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

TRIPLE BOX CULVERT DETAILS No. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-78D**

SPAN 8' (all measurements in feet and/or inches)

SPAN 8'																
HEIGHT		4'			5'			6'			7'			8'		
STRENGTH CLASSIFICATION		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
MAX FILL OVER TOP		2	11	20	2	11	20	2	11	20	2	11	20	2	11	20
Top Slab	T1	8 1/4	8 1/4	10 1/4	8 1/4	8 1/4	10 1/4	8 1/4	8 1/4	10 1/4	8 1/4	8 1/4	10 1/4	8 1/4	8 1/4	10 1/4
Bottom Slab	T2	6 1/2	9	11	6 1/2	9 1/4	11	6 1/2	9 1/4	11	6 3/4	9 1/4	11	6 3/4	9 1/4	11
Sidewalls	T3	6	6	6	6	6	6	6	6	6	6	6	6 1/2	7	7	7 1/2
Size Bar #		6	5	5	6	5	5	6	5	5	6	5	5	6	5	6
Spacing		11 1/2	12	12	11 1/2	12	12	11 1/2	12	12	11 1/2	12	12	10 1/2	11 1/2	12
Length		26-10	26-9	26-9	26-10	26-9	26-9	26-10	26-9	26-9	26-10	26-9	26-11	27-4	27-1	27-8
Size Bar #		6	6	7	6	6	7	6	6	7	6	6	7	6	6	7
Spacing		11 1/2	12	12	11 1/2	12	12	11 1/2	12	12	11 1/2	12	12	10 1/2	11 1/2	12
Length		26-5	26-5	26-7	26-5	26-5	26-7	26-5	26-5	26-7	26-5	26-5	26-9	26-9	26-9	27-1
Size Bar #		4	6	7	4	6	7	4	6	7	4	6	7	4	6	7
Spacing		11 1/2	12	12	11 1/2	12	12	11 1/2	12	12	11 1/2	12	12	10 1/2	11 1/2	12
Length		17	17	17	17	17	17	17	17	17	17	17	17-1	17-3	17-2	17-5
Top Slab-Tot. No.		24	12	12	24	12	12	24	12	12	24	12	12	24	12	12
Bottom Slab-Tot. No.		12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Size Bar #		4	4	4	4	4	5	4	4	5	4	4	6	4	6	7
Spacing		18	18	12	18	12	12	18	12	12	11 1/2	12	12	10 1/2	11 1/2	12
Length		147	167	199	154	176	206	162	184	214	171	191	226	190	210	246
Concrete: C.Y. per lin. ft.		261	250	301	266	257	310	267	284	320	276	277	336	283	295	347
Reinf :lbs per lin. ft.																
Quants																

NOTE

For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities. Number of "d" bars in table is slab total for all cells.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

TRIPLE BOX CULVERT DETAILS No. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-78E**

SPAN 10' (all measurements in feet and/or inches)

SPAN	10'																	
	5'						6'						7'					
HEIGHT																		
STRENGTH CLASSIFICATION	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
MAX FILL OVER TOP	2	11	20	2	11	20	2	11	20	2	11	20	2	11	20	2	11	20
Top Slab	9	10	12	9	10	12	9	10	12	9	10	12	9	10	12	9	10	12
Bottom Slab	7 1/2	10 3/4	13	7 1/2	10 3/4	13	7 1/2	10 3/4	13	7 1/2	10 3/4	13	7 3/4	11	13	8	11	13 1/2
Sidewalls	6	6	6	6	6	6	6	6	6	6	6	6	6 1/2	7	7 1/2	8	8 1/2	9
Size Bar #	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Spacing	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10
Length	32-10	32-10	32-10	32-10	32-10	32-10	32-10	32-10	32-10	32-10	32-10	32-10	33-2	33-2	33-4	33-6	33-8	33-10
Size Bar #	6	7	7	6	6	7	6	6	7	6	6	7	6	7	7	6	7	7
Spacing	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10
Length "b" or "b1"	32-6	32-7	32-10	32-6	32-7	32-10	32-6	32-7	32-10	32-6	32-7	32-10	32-6	32-7	33-4	32-11	32-2	33-5
Length "b1"	32-2	32-7	32-11	32-2	32-7	32-11	32-2	32-7	32-11	32-2	32-7	32-11	32-2	32-7	33-5	32-11	32-5	33-11
Size Bar #	5	7	7	5	7	7	5	7	7	5	7	7	5	7	7	5	7	7
Spacing	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10
Length	21	21	21	21	21	21	21	21	21	21	21	21	21-1	21-2	21-3	21-5	21-4	21-6
"d" Dist Top Slab-Tot. No.	27	15	15	27	15	15	27	15	15	27	15	15	27	15	15	27	15	15
Bars Bottom Slab-Tot. No.	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Size Bar #	4	4	5	4	4	5	4	4	5	4	4	5	4	4	6	5	6	8
Spacing	18	13	10	18	13	10	18	13	10	18	13	10	18	13	10	18	13	10
Spacers Number	68	68	68	68	68	68	68	68	68	68	68	68	72	76	76	94	102	102
Concrete: C.Y. per lin. ft.	1.98	2.40	2.82	2.06	2.48	2.90	2.13	2.55	3.03	2.34	2.77	3.23	2.77	3.23	3.78	2.68	3.18	3.73
Reinf :lbs per lin. ft.	358	372	470	359	379	482	367	391	502	377	402	514	402	514	590	421	453	577
Quantities																		

NOTE

For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities. Number of "d" bars in table is slab total for all cells.

SPAN												
HEIGHT												
STRENGTH CLASSIFICATION												
MAX FILL OVER TOP												
Top Slab												
Bottom Slab												
Sidewalls												
Size Bar-#												
Spacing												
Length												
Size Bar-#												
Spacing												
Length												
Top Slab-Tot. No.												
Bottom Slab-Tot. No.												
Size Bar-#												
Spacing												
Number												
Spacers												
Concrete: C.Y. per lin. ft.												
Reinf :lbs per lin. ft.												
SPAN												
HEIGHT												
STRENGTH CLASSIFICATION												
MAX FILL OVER TOP												
Top Slab												
Bottom Slab												
Sidewalls												
Size Bar-#												
Spacing												
Length												
Size Bar-#												
Spacing												
Length												
Top Slab-Tot. No.												
Bottom Slab-Tot. No.												
Size Bar-#												
Spacing												
Number												
Spacers												
Concrete: C.Y. per lin. ft.												
Reinf :lbs per lin. ft.												

For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities. Number of "d" bars in table is slab total for all cells.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11


TRIPLE BOX CULVERT DETAILS No. 1

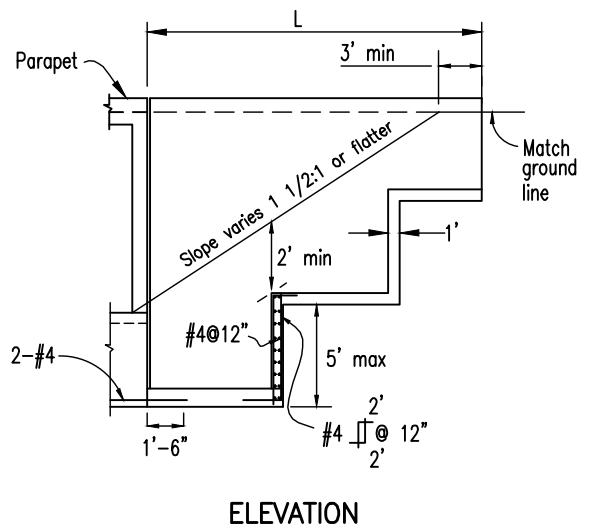
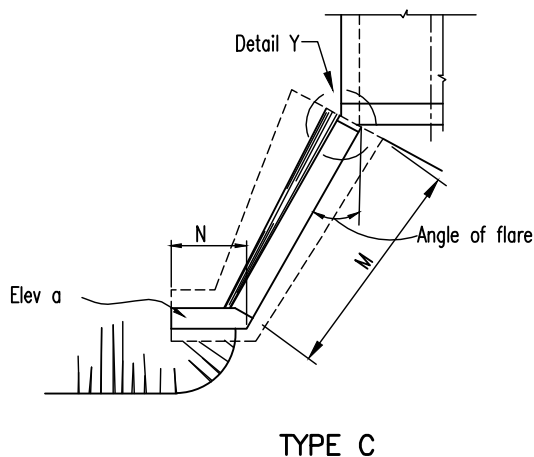
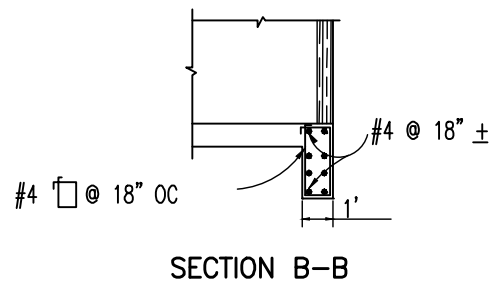
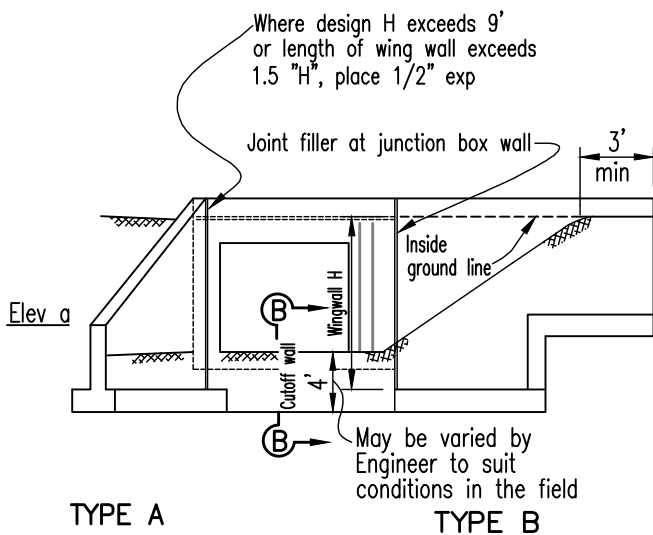
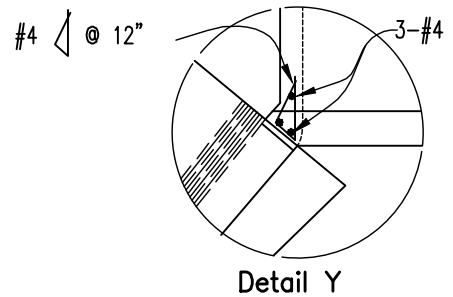
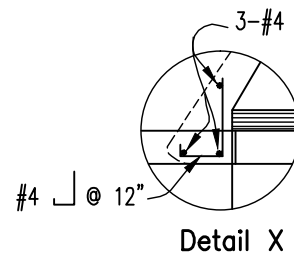
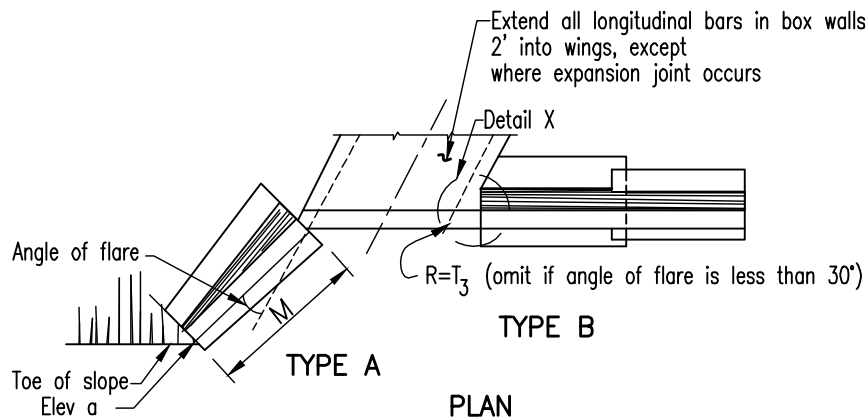
DRAWING NUMBER	D-78F
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Provide paving notch when top is exposed and where PCC pavement or approach slab is used



1. Spacers shall be #4 @ 18" oc in top slab and sidewall mats.
2. Remaining #4 Spacers shall be equally distributed in bottom slab mats.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75		TRIPLE BOX CULVERT DETAILS NO.2	 7/26/2012
Add Metric		T. Stanton	03/03	Chairperson R.C.E. 19246		Date
Reviewed		T. Stanton	04/06	DRAWING NUMBER		D-78G
Edited	S.S.	T. Regello	03/11			



NOTE

Use Type 2 retaining wall where 1 1/2:1 surcharge exceeds 5'.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

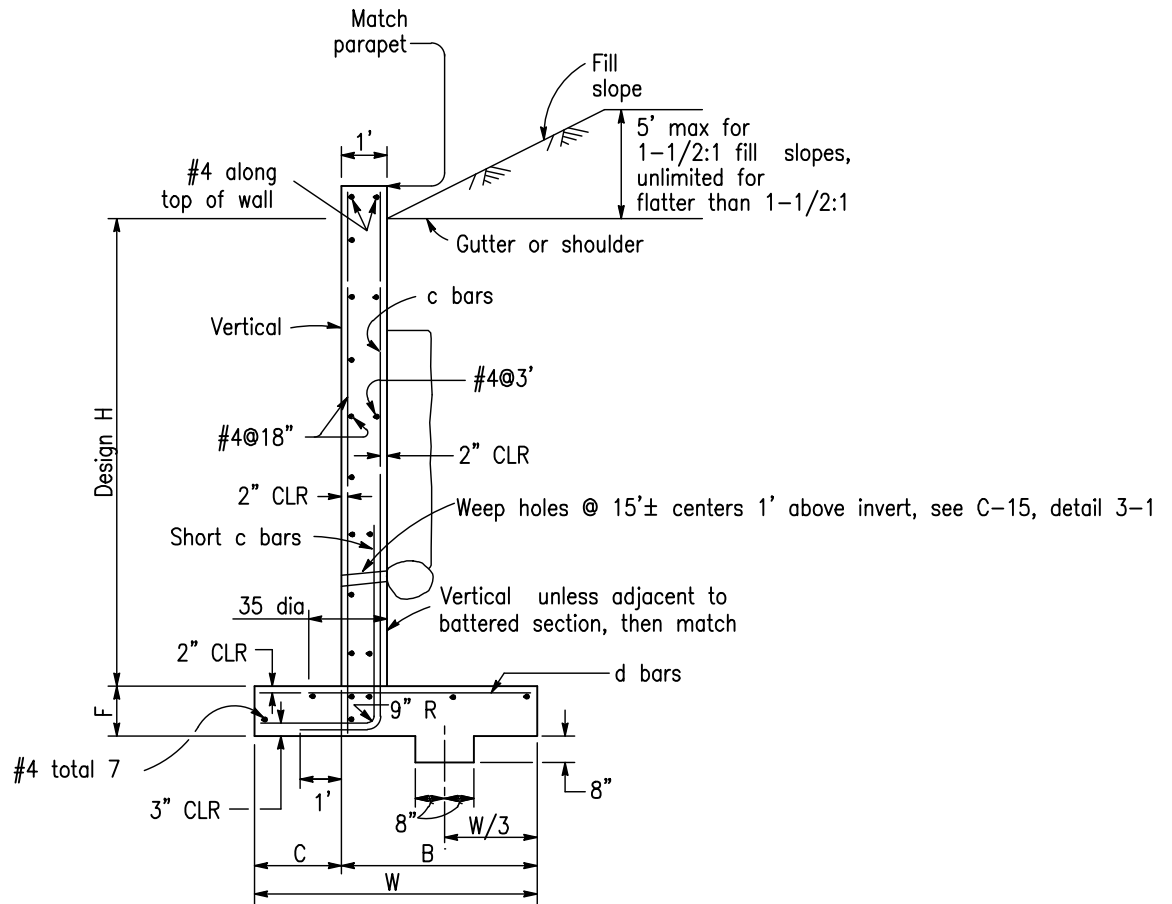
BOX CULVERT WINGWALL TYPES A, B & C DETAILS NO. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-79A**



TYPICAL SECTION
H=4' Thru 12'

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T Stanton	03/03
Reviewed		T Stanton	04/06
Edited	S.S.	T. Regello	03/11

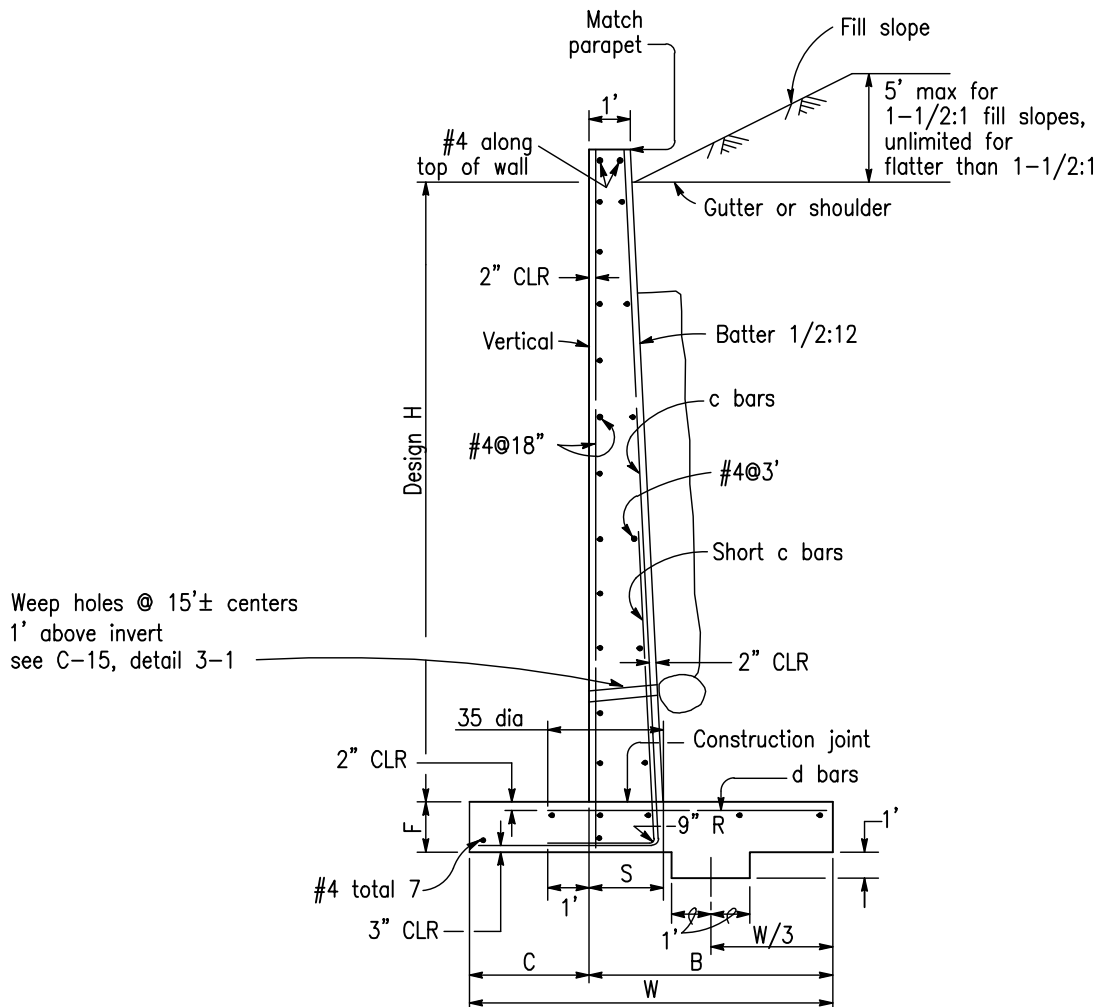
SAN DIEGO REGIONAL STANDARD DRAWING

BOX CULVERT WINGWALL
TYPES A, B & C
DETAILS NO. 2

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-79B**



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited		T. Stanton	02/09
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

BOX CULVERT WINGWALL TYPES A, B & C DETAILS NO. 3

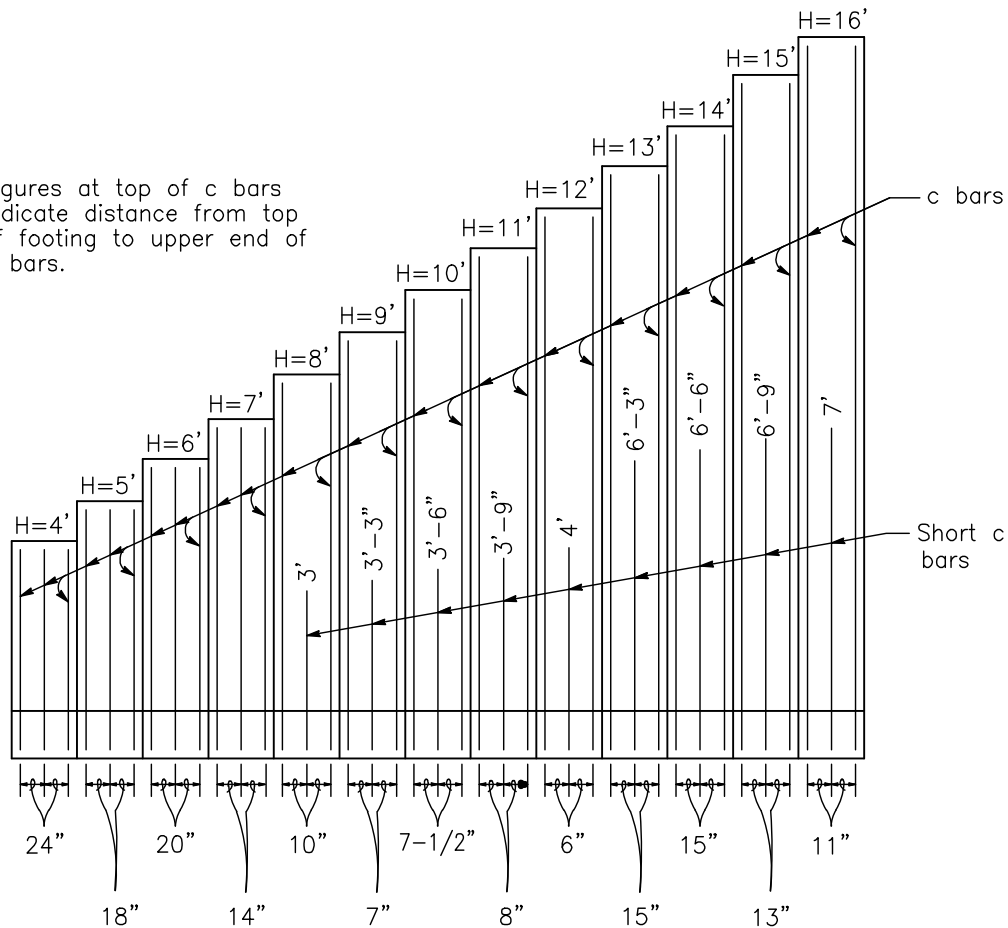
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

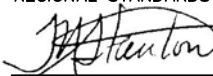
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-79C**

Figures at top of c bars indicate distance from top of footing to upper end of c bars.




TYPICAL LAYOUT EXAMPLE 1

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03	BOX CULVERT WINGWALL TYPES A, B & C DETAILS NO. 4	
Reviewed		T. Stanton	04/06		
Edited		T. Stanton	02/09		
Delete Metric	S.S.	T. Regello	03/11		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
				 7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER D-79D	



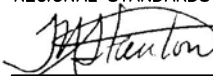
3. Wall height may be exceeded by 6" before going to next greater H.
Eliminate cutoff wall if adjacent channel is paved and skew is 20° maximum.

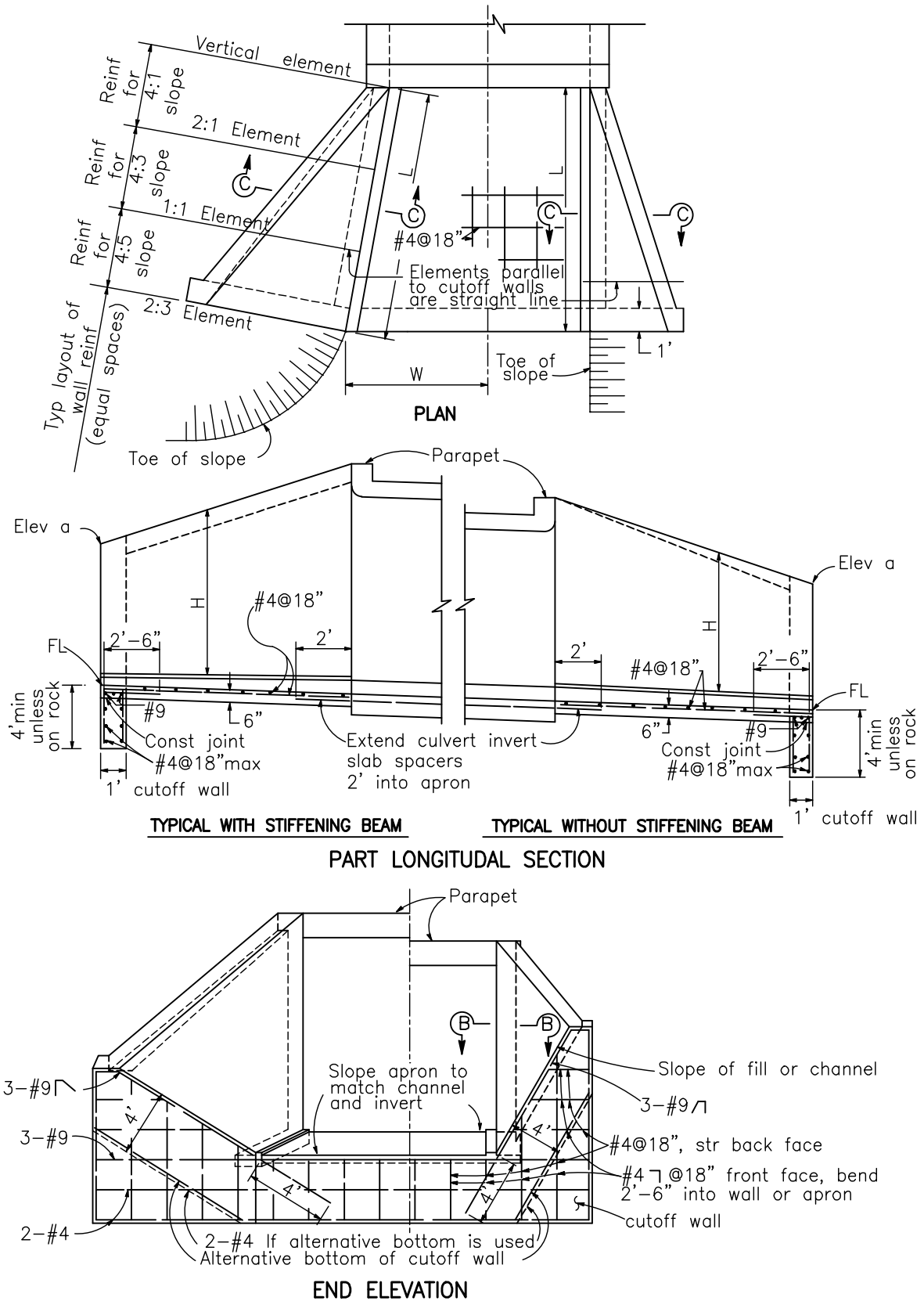
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75		BOX CULVERT WINGWALL TYPES A, B & C DETAILS NO. 5	 7/26/2012
Add Metric		T. Stanton	03/03	Chairperson R.C.E. 19246		Date
Reviewed		T. Stanton	04/06	DRAWING NUMBER		D-79E
Edited		T. Stanton	02/09			
Edited	S.S.	T. Regello	03/11			

H	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'
W	3'-2"	3'-8"	4'-2"	4'-8"	5'-2"	5'-8"	6'-2"	6'-8"	7'-2"	7'-8"	8'-2"	8'-8"	9'-2"
C	1'	1'-2"	1'-4"	1'-6"	1'-8"	1'-10"	2'	2'-2"	2'-4"	2'-6"	2'-8"	2'-10"	3'
B	2'-2"	2'-6"	2'-10"	3'-2"	3'-6"	3'-10"	4'-2"	4'-6"	4'-10"	5'-2"	5'-6"	5'-10"	6'-2"
F	1'-2"												
Batter	None										1/2 : 12		
S	1'	1'	1'	1'	1'	1'	1'	1'	1'	1'-6 1/2"	1'-7"	1'-7 1/2"	1'-8"
c Bars	#4@24	#4@18	#5@20	#5@14	#5@10	#5@7	#6@7 1/2	#7@8	#7@6	#9@15	#10@15	#10@13	#10@11
d Bars	#4@24	#4@18	#5@20	#5@14	#5@10	#6@14	#7@15	#8@16	#7@12	#8@15	#9@15	#10@13	#9@11
Conc c_y/f	0.32	0.38	0.44	0.49	0.55	0.61	0.67	0.73	0.79	1.02	1.10	1.18	1.26
Reinf $\#_f$	13	16	19	25	30	37	49	62	76	73	90	104	125

NOTE

Quantities do not include that portion above the design H limit.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			 7/26/2012	
Add Metric		T. Stanton	03/03	BOX CULVERT WINGWALL TYPES A, B & C DETAILS NO. 6		Chairperson R.C.E. 19246 Date	
Reviewed		T. Stanton	04/06			DRAWING NUMBER D-79F	
Edited		T. Stanton	02/09				
Edited	S.S.	T. Regello	03/11				



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

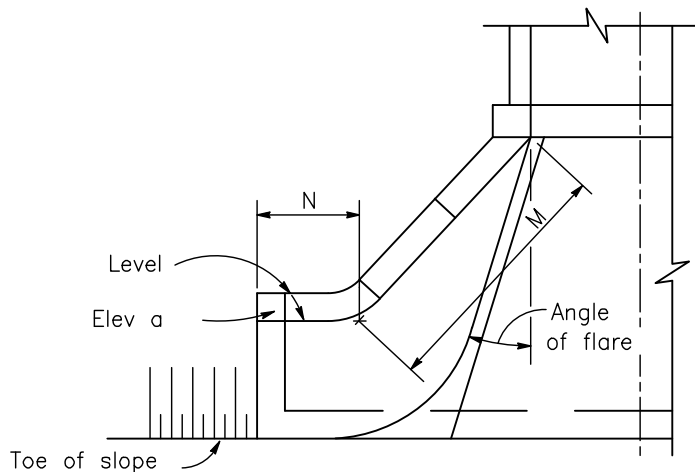
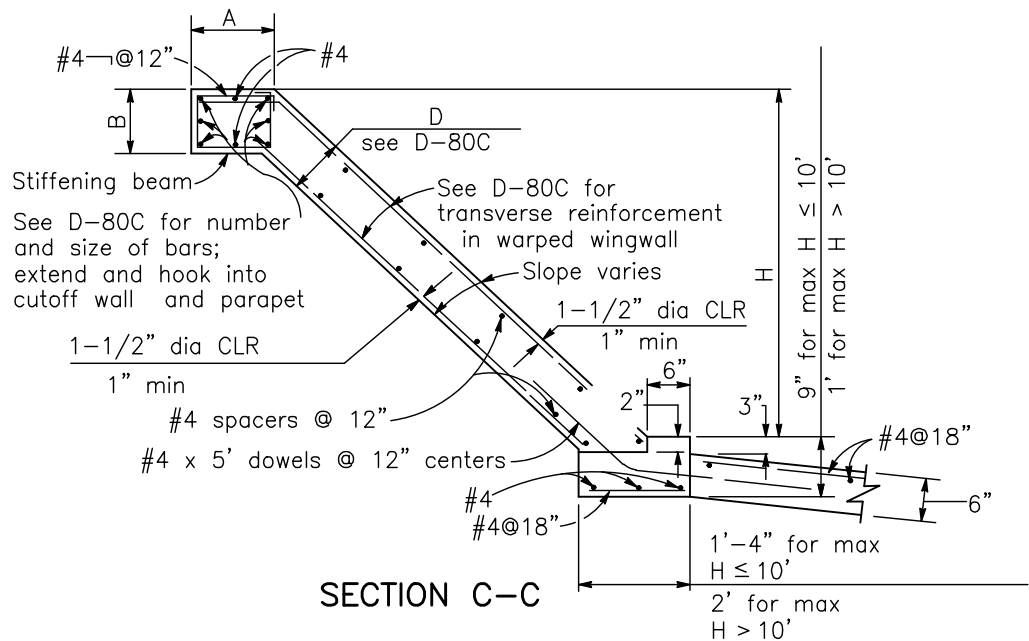
BOX CULVERT WARPED WINGWALL DETAILS NO. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

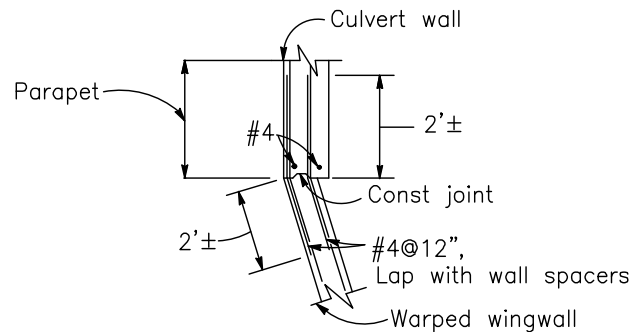
T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-80A**

6"
WITHOUT
STIFFENING
BEAM



Use where additional protection to toe of embankment is required



NOTES

1. Walls designed for 2' surcharge; earth density = 120 lbs./cu. ft.; equivalent fluid pressure = 36 lbs./cu. ft.
2. Vary D of warped wall uniformly from that at cutoff wall to that at culvert, for maximum H > 12'.
3. Where abrasion is anticipated increase apron thickness to 7" minimum to provide 2" minimum reinforcement coverage.
4. Dimensions L, W, H, M, N, Elevation a, Angle of flare, and end Slope (as apply) are shown on the plans.
5. Concrete shall be 560-C-3250 and reinforcing steel shall be minimum Grade 40 (unless otherwise specified).

Revision	By	Approved	Date
ORIGINAL		A. Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Edited	S.S.	T. Regello	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

BOX CULVERT WARPED WINGWALL DETAILS No. 2

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-80B**

WALL DIMENSIONS AND REINFORCING								
Element Slope	H	8' or less	10'	12'	14'	16'	18'	20'
1/4:1	Front face reinf	#4@12	#4@ 7	#5@ 7	#5@ 5	#6@ 6	#7@ 7	#7@ 6
	Rear face reinf	#4@12	#4@12	#4@12	#4@12	#4@12	#4@12	#4@12
3/4:1	Front face reinf	#4@12	#4@12	#4@12	#4@12	#4@10	#4@ 8	#4@ 6
	Rear face reinf	#4@12	#4@12	#4@12	#4@10	#4@ 7	#4@ 6	#5@ 8
1-1/4:1	Front face reinf	#4@12	#4@12	#4@12	#4@12	#4@12	#4@12	#4@12
	Rear face reinf	#4@ 8	#4@ 8	#4@ 5	#5@ 6	#6@ 7	#6@ 6	#7@ 6
D at Cutoff Wall		6"	6"	6"	7-1/2"	8"	9-1/2"	11"
D at Culvert		6"	6"	6"	8"	9-1/2"	11"	1'-1"

STIFFENING BEAM DIMENSIONS AND REINFORCING										
H max	L	12'	14'	16'	18'	20'	25'	30'	35'	40' or more
6'	No beam. Place 2-#6 in each face along top of wall.									
8'										
10'										
12'										
14'										
16'	Total 6-#6									
18'										
20'										
	Total 6-#7									
	Total 8-#9									

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		A.Kercheval	12/75				
Add Metric		T. Stanton	03/03	BOX CULVERT WARPED WINGWALL DETAILS No. 3		Chairperson R.C.E. 19246 Date	
Reviewed		T. Stanton	04/06				
Edited	S.S.	T. Regello	03/11				
						DRAWING NUMBER D-80C	

GENERAL NOTES

QUANTITIES: Quantities are for the sloped invert slab and do not include splices in the longitudinal bars, nor temperature reinforcement for exposed top culvert, nor concrete or reinforcement for parapets or cutoff walls.

SPECIAL COVERAGE: Box standard plans are not to be used for culverts in a corrosive environment or where there is a severe abrasive flow condition.

DESIGNATION: Show on plans as span x height-strength classification x length (e.g. 4 x 4-A x 60'), followed by alternatives.

ALTERNATIVES: Invert will be sloped unless "Trapezoidal Invert", "Flat Invert" or "V Invert" is included in designation. Ends of culvert will be rounded unless "Square Ends" are designated. Parapets will be as shown unless "____ ft. parapet" is designated in plans. Such designations may be different for inlet and outlet ends.

REINFORCEMENT PLACEMENT: Main Reinforcement is positioned transverse or, for curved culverts, radial. When radial, reinforcing spacing is measured along C/L.

CONSTRUCTION NOTES

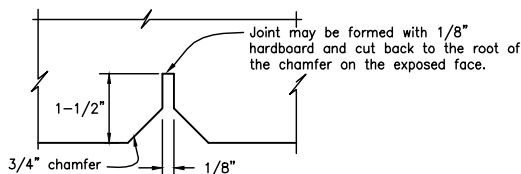
CONCRETE: Bottom slab & walls shall be Class 560-B-3250. Top slab shall be Class 560-C-3250.

EXPANSION JOINTS: Bottom Slab - No expansion joints shall be placed.

Top Slab and Walls - When cover is less than span length, place 1/2" expansion joint filler at 50'± centers outside the paved roadway lanes and place weakened plane joints per Detail A of Weakened Planes Detail 3-2 of C-15 at 30'± centers under paved roadway lanes. When cover depth is greater than span length, place 1/2" expansion joint filler at 30'± centers and additional 1/2" expansion joints at locations of change of foundation character as directed by the Engineer.

CONSTRUCTION LOADS: Not permitted until concrete has reached a strength of 3,000 p.s.i. or age of 28 days, whichever occurs first, and falsework plans have been submitted by the Contractor to the Engineer and approved.

CONSTRUCTION JOINTS: Temporary joints may be permitted if normal (or radial) to C/L of RCB. Otherwise, the Contractor is to submit a proposal for consideration.



DETAIL A OF WEAKENED PLANES DETAIL 3-2
(Portion of Standard Drawing C-15)

DESIGN NOTES

SPECIFICATIONS

DESIGN: AASHTO's publication titled A Policy on Geometric Design of Highways, dated 1984, with revisions as supplemented by State of California Bridge Planning and Design Manual.

Sections designed for culvert in a trench on hard foundation or culvert untrenched on yielding foundation. Special design will be required for culverts on piles or rock foundations.

LOADING

LIVE LOAD: For legal highway loads, use HS20-44 or alternative with 30% impact for all cover depths with no impact on invert.

COVER LESS THAN 2': Wheel load distribution on the top slab is $E=0.175S+3.2'$ longitudinally and concentrated along the span. Wheel load distribution on the invert slab is 7.5' longitudinally and uniformly over the breadth of the culvert.

COVER 2' OR MORE: Wheel loads distributed uniformly over a square, the sides of which are 1.75 times the depth of cover, but not less longitudinally than E on the top slab, or 7.5' on the invert slab when such areas from several wheel concentrations overlap. The total load shall be considered as uniformly distributed over the area defined by the outside limits of the individual areas, but the overall longitudinal dimension shall not exceed the total length of the supporting slab. Neglect live load, on single spans when cover is more than 8' and exceeds span, and on multiple spans when cover exceeds distance between exterior walls.

DEAD LOAD: Earth load of 120 pcf and an equivalent fluid pressure of 36 pcf, reduced to 84 pcf and 25 pcf respectively for clear spans of 20' or less.

UNIT STRESSES: $F_s = 20,000$ psi, $N = 10$
 $F_c = 1,200$ psi

Reinforcement embedment is 1-1/2 dia. clear, min 1" and in 1/4" increments, except as noted.

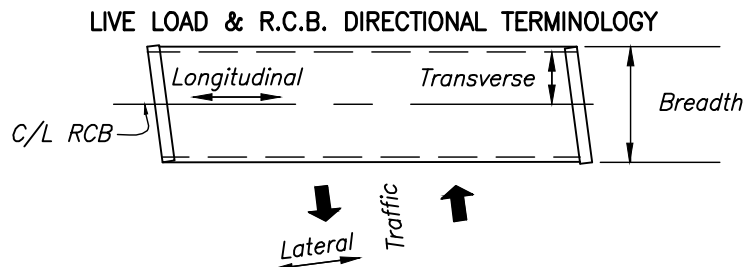
Distribution "d" bars expressed as a percent of main positive reinforcement.

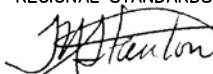
Classification "A" top slab = $\frac{100}{\sqrt{\text{SPAN}}}$, max. 50% (unless traffic longitudinal)

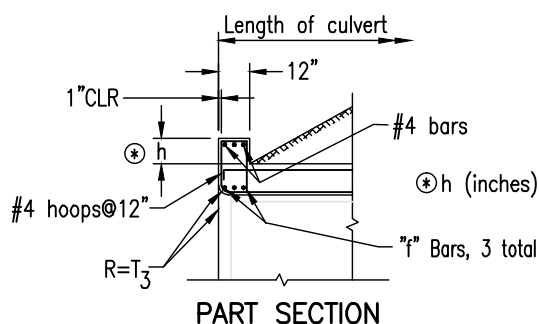
Classification "B" to "E": Top and bottom slabs #4 @ 18" max.

USE OF STANDARD DRAWING

"Strength Classification," as symbolized by the letters ("A", "B", "C" or "D") at the top of the data table is merely a convenient designation for a particular structural section for a culvert of any given opening. It is dictated by the cover or depth of fill over the the top slab.



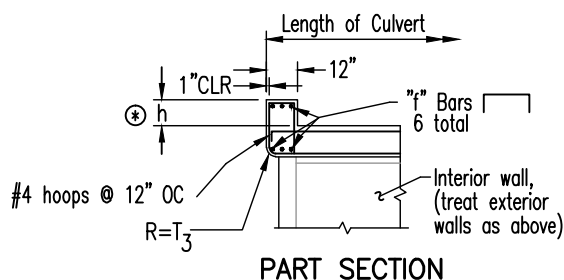
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			 7/26/2012 Chairperson R.C.E. 19246 Date	
Add Metric		T. Stanton	03/03	BOX CULVERT MISCELLANEOUS DETAILS No. 1			
Reviewed		T. Stanton	04/06				
Edited	S.S.	T. Regello	03/11				
						DRAWING NUMBER	D-81A



PART PLAN-SKEWED

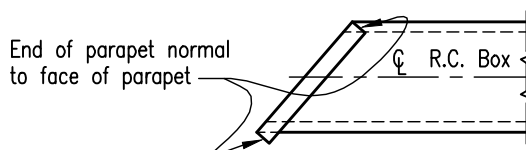
PARAPET DETAILS FOR SINGLE SPAN CULVERTS

PARAPET f BAR SIZE			
SPAN (S)	SKEW ANGLE	0° TO 15°	16° TO 30°
	31° TO 45°		
4'		#4	#4
6'		#4	#4
8'		#4	#5
10'		#5	#6
12'		#6	#7
14'		#7	#8

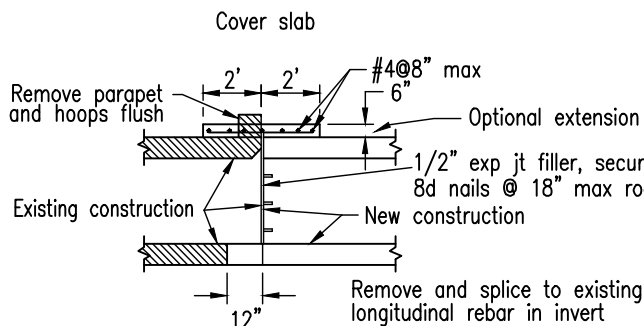


PART PLAN-SKEWED

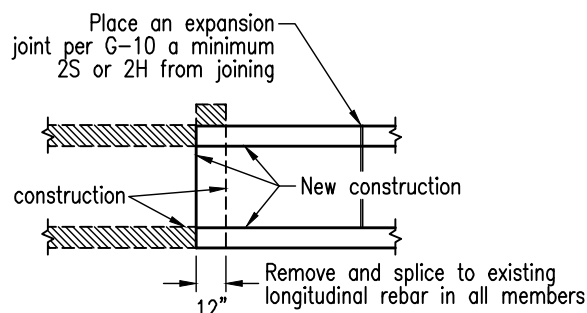
PARAPET DETAILS FOR MULTIPLE SPAN CULVERTS



PARAPET DETAIL FOR SKEWED CULVERTS W/O WINGWALLS



COVER: 1' AND GREATER



COVER: EXPOSED TOP AND LESS THAN 1'

CULVERT EXTENSION
20° SKEW MAXIMUM

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Edited	S.S.	T. Regello	03/11

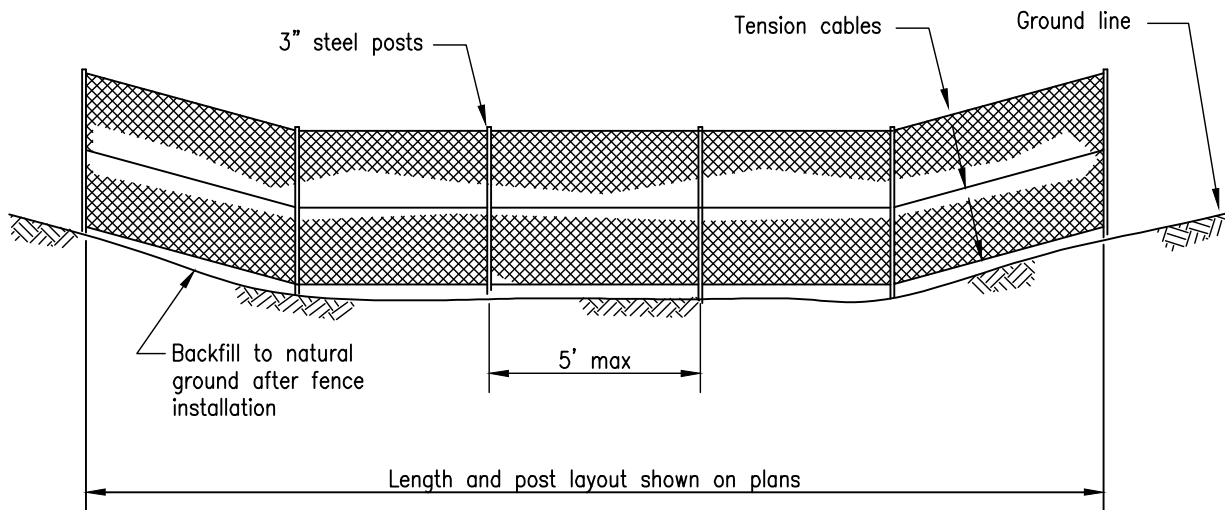
SAN DIEGO REGIONAL STANDARD DRAWING

BOX CULVERT
MISCELLANEOUS DETAILS NO. 2

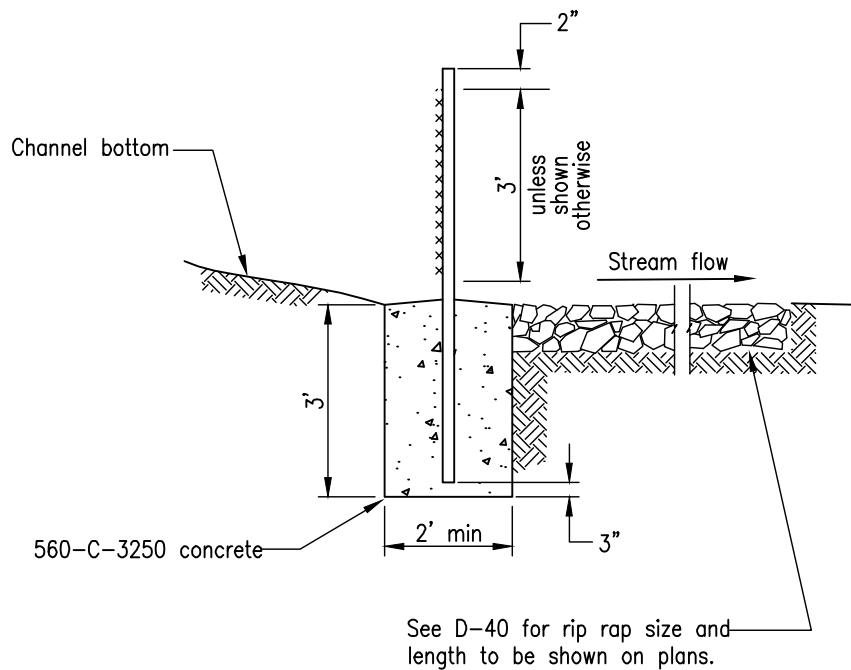
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **D-81B**



ELEVATION

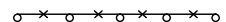


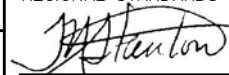
SECTION

NOTES

1. Fence fabric shall be 2" mesh, 9 gage galvanized steel wire, placed on the upstream side of the posts and tension cables.
2. Tension cable shall be 5/16" dia. steel at 18" OC, secured at ends with cable clamps. Secure fence to cable with 12 gage galvanized steel wire looped at 6" OC.
3. Posts shall be 3" steel pipe, 5.79 lb/ft. Fill with mortar after placing.
4. Fence fabric shall be secured to posts with 9 gage wire clips at 9" OC.

LEGEND ON PLANS

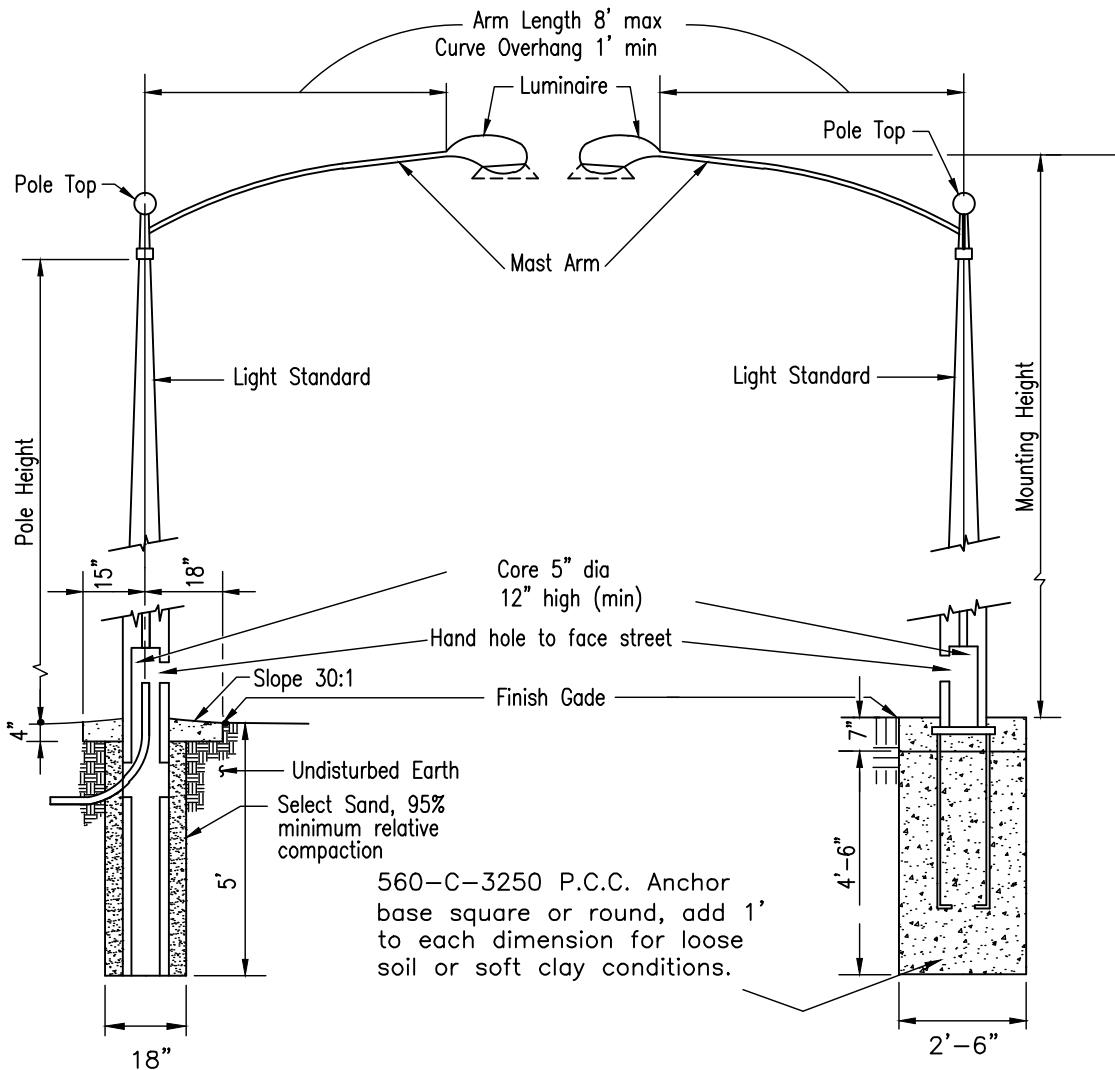


Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		H. Hecht	10/82	DEBRIS FENCE	
Add Metric		T. Stanton	03/03		
Reviewed		T. Stanton	04/06		
Edited	S.S.	T. Regello	03/11		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
				 7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER D-82	

ELECTRICAL SYSTEMS

ELECTRICAL SYSTEMS

E

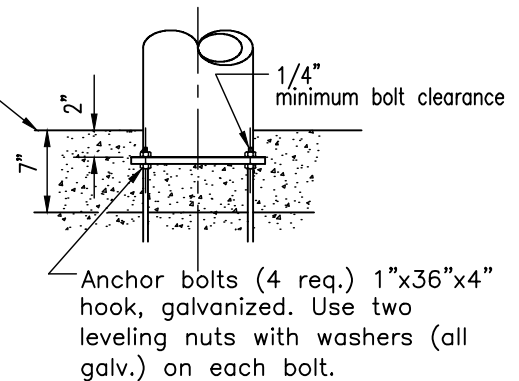


DIRECT BURIAL FOUNDATION

ANCHOR BASE FOUNDATION

POLE HEIGHT	MOUNTING HEIGHT	LAMP SIZE (WATTS)
25' ±2'	27' ±1'	170 M.V. 100 H.P.S. 90 L.P.S.
28' ±2'	30' ±1'	400 M.V. 250 H.P.S. 180 L.P.S.
23' -0"	26' -9"	70 H.P.S.
26' -6"	30' -0"	150 H.P.S.

Finished Grade
Anchor bolts must
not protrude



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Table		M. Bahmanian	05/86
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Delete Metric		D. Gerschoffer	06/12

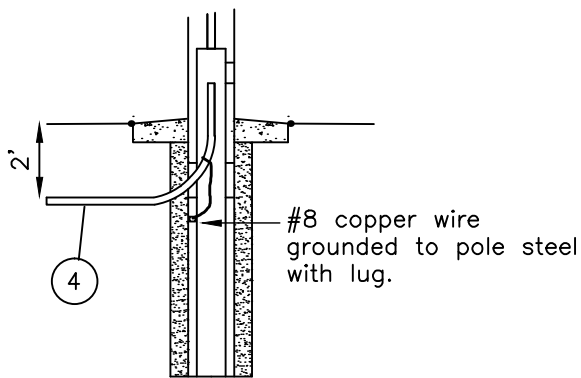
SAN DIEGO REGIONAL STANDARD DRAWING

**STREET LIGHTING
STANDARD**

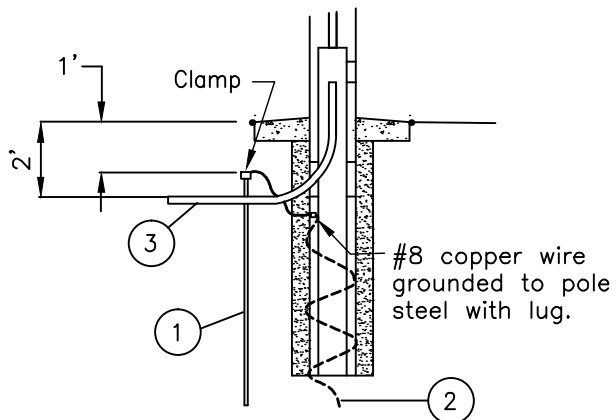
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **E-1**

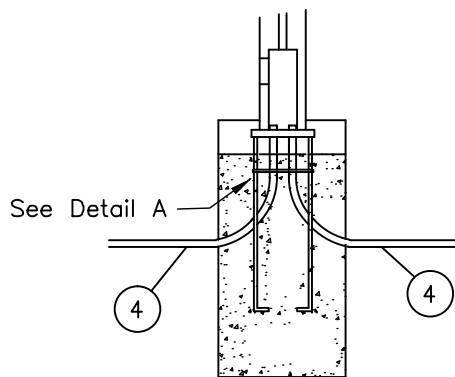


STEEL CONDUIT

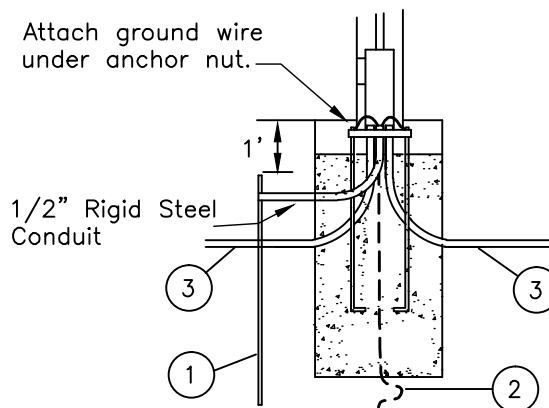


NON-METALLIC CONDUIT

DIRECT BURIAL FOUNDATION



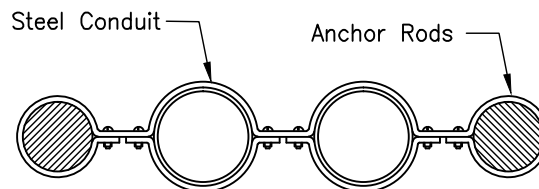
STEEL CONDUIT



NON-METALLIC CONDUIT

ANCHOR BASE FOUNDATION

- (1) 3/4" x 8' copper covered steel ground rod.
- (2) Alternate Ground: 15' no. 4 stranded copper wire, coiled.
- (3) Approved non-metallic conduit.
- (4) Steel conduit.



DETAIL A

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reformatted		T. Stanton	04/06
Delete Metric		D. Gerschoffer	06/12

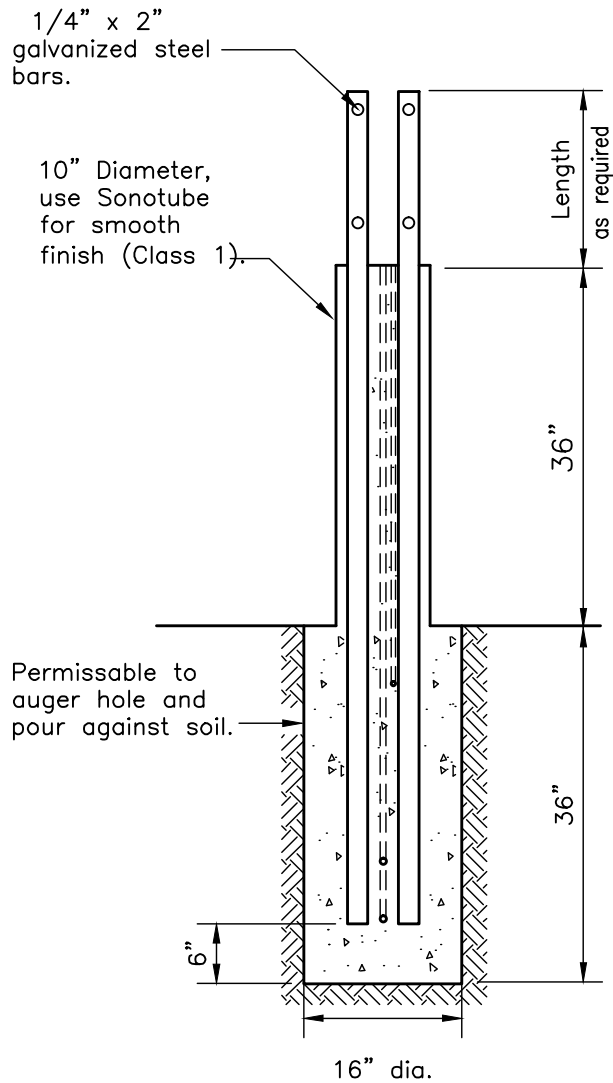
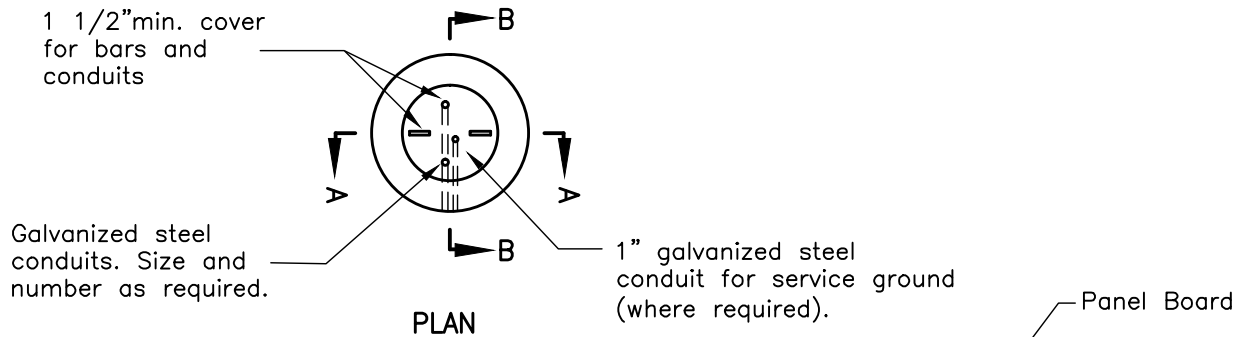
SAN DIEGO REGIONAL STANDARD DRAWING

GROUNDING
OF CONCRETE LIGHTING STANDARDS

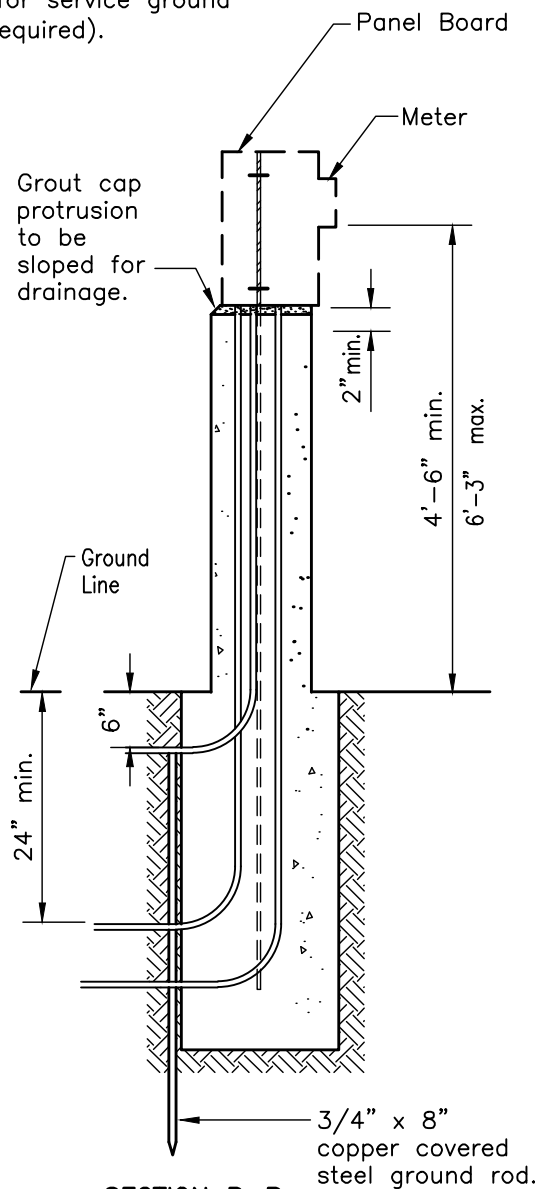
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **E-2**



SECTION A-A
STEEL & CONCRETE
DIMENSIONS



SECTION B-B
CONDUIT & EQUIPMENT

NOTE: Concrete shall be class 560-C-3250

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Delete Metric		D. Gerschoffer	06/12

SAN DIEGO REGIONAL STANDARD DRAWING

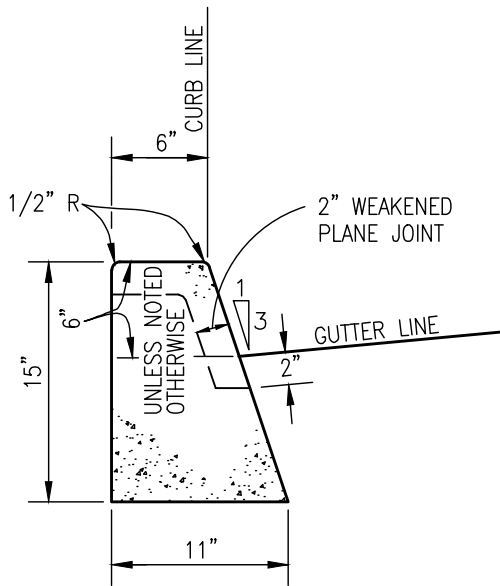
**PEDESTAL FOR
ELECTRICAL EQUIPMENT**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

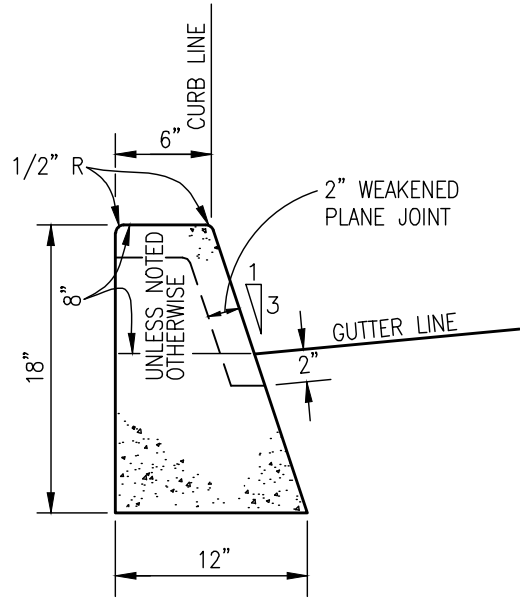
DRAWING
NUMBER **E-3**

GENERAL SURFACE IMPROVEMENTS



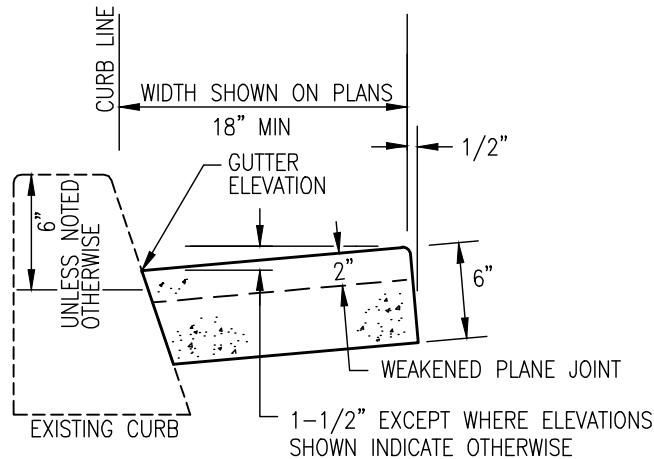
6" CURB

AREA=0.89 Sq. Ft.



8" CURB

AREA=1.12 Sq. Ft.



GUTTER

NOTES:

1. CONCRETE SHALL BE 520-C-2500.
2. SEE STANDARD DRAWINGS G-9 AND G-10 FOR JOINT DETAILS.
3. SLOPE TOP OF CURB 2% MAX TOWARD GUTTER.

LEGEND ON PLANS

REVISION	BY	APPROVED	DATE
ORIGINAL		KERCHEVAL	12/75
ADD METRIC		T. STANTON	03/03
REFORMATTED		T. STANTON	04/06
UPDATED	MR	MR/CV	11/11

SAN DIEGO REGIONAL STANDARD DRAWING

CURBS AND GUTTER - SEPARATE

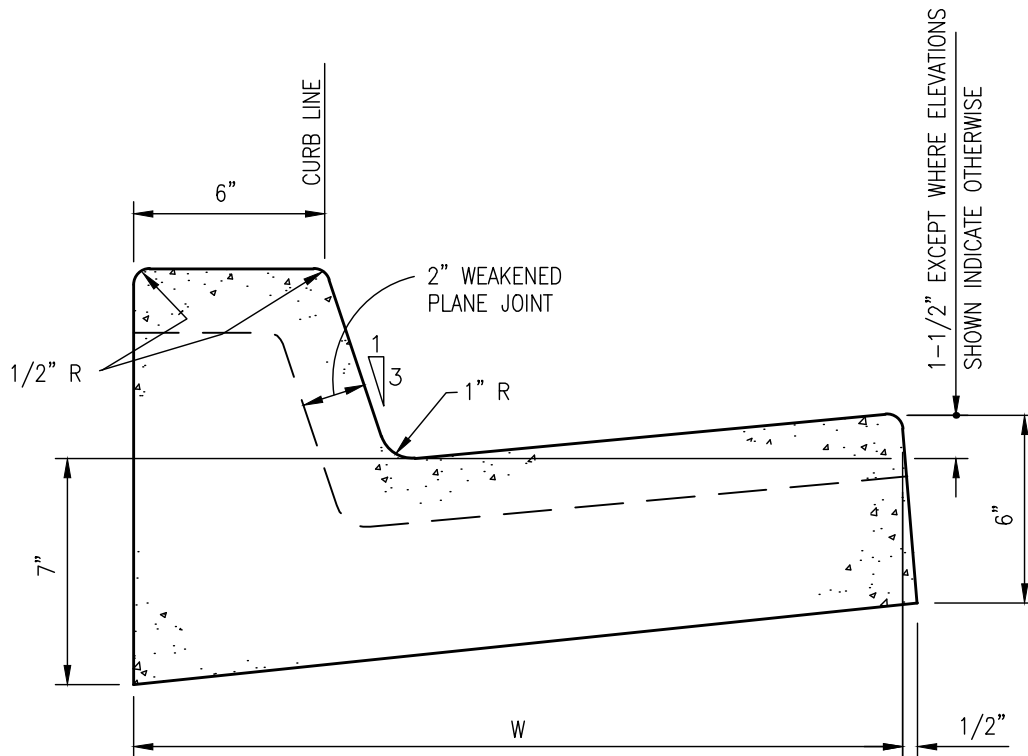
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

CHAIRPERSON R.C.E. 19246 DATE

DRAWING
NUMBER

G-1



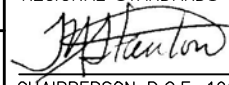
TYPE	W	*AREA
G	24"	1.34 SQ. FT.
H	30"	1.60 SQ. FT.

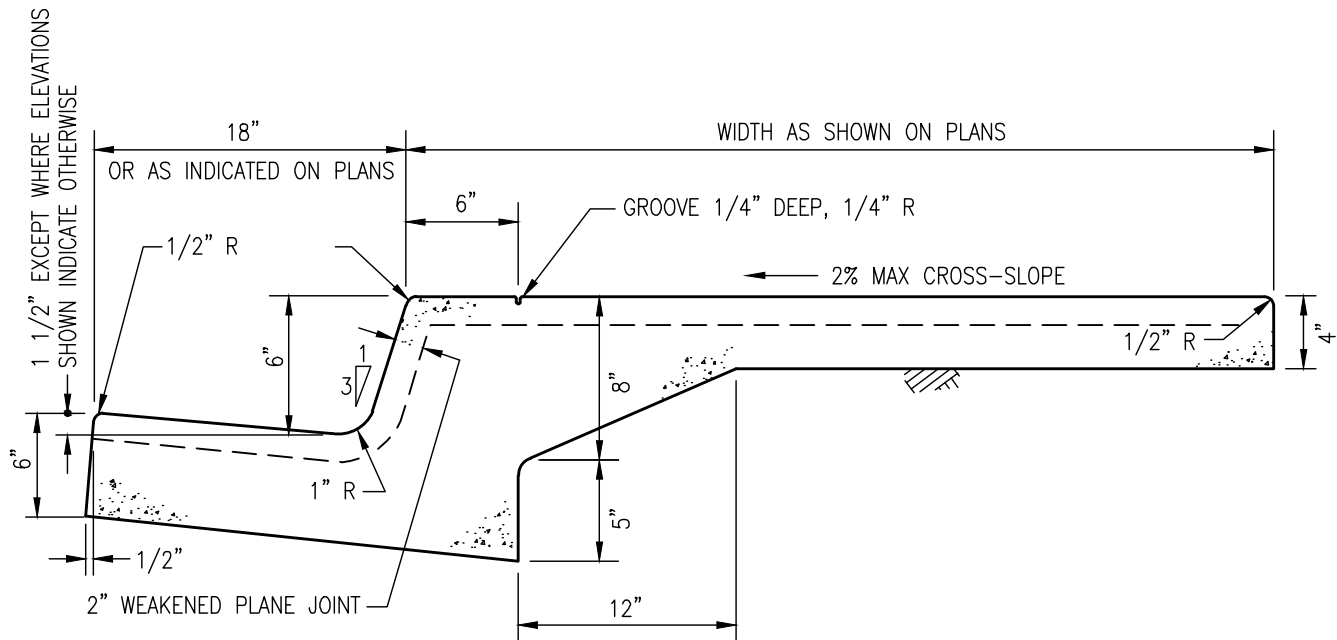
* 6" CURB FACE

NOTES:

1. CONCRETE SHALL BE 520-C-2500.
2. SEE STANDARD DRAWINGS G-9 AND G-10 FOR JOINT DETAILS.
3. SLOPE TOP OF CURB 2% MAX TOWARD GUTTER.

LEGEND ON PLANS

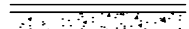
REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75		
ADD METRIC		T. STANTON	03/03	CURB AND GUTTER - COMBINED	 7/26/2012 CHAIRPERSON R.C.E. 19246 DATE
REFORMATTED		T. STANTON	04/06		
UPDATED	MR	MR/CV	11/11		
					DRAWING NUMBER G-2

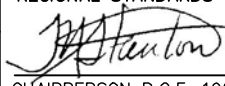


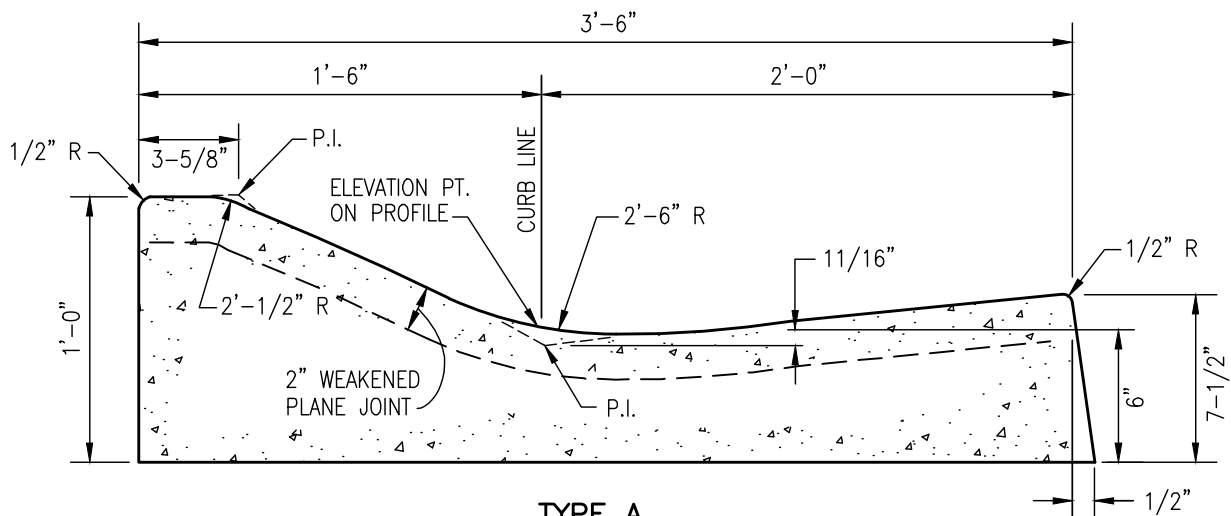
NOTES:

1. CONCRETE SHALL BE 520-C-2500.
2. SEE STANDARD DRAWINGS G-9 AND G-10 FOR JOINT DETAILS.
3. MONOLITHIC CURB, GUTTER AND SIDEWALK IS TO BE USED WITH AGENCY APPROVAL ONLY.
4. CURB HEIGHT=6" UNLESS OTHERWISE INDICATED ON PLANS.

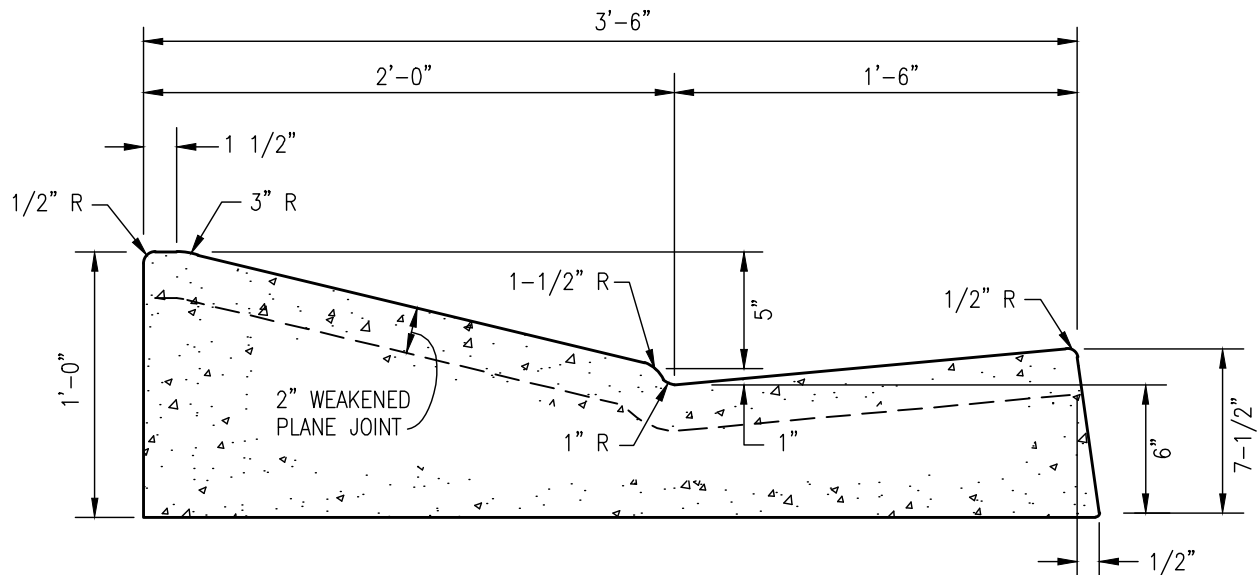
LEGEND ON PLANS



REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		KERCHEVAL	12/75	MONOLITHIC CURB, GUTTER AND SIDEWALK			7/26/2012
ADD METRIC		T. STANTON	03/03				
REFORMATTED		T. STANTON	04/06				
UPDATED	MR	MR/CV	11/11				
						CHAIRPERSON R.C.E. 19246	DATE
						DRAWING NUMBER	G-3



TYPE A
CURB AREA
(2.29 SQ. FT.)



TYPE B
CURB AREA
(2.44 SQ. FT.)

NOTES:

1. TRANSITION TO TYPE G OR H CURB AT ALL CURB RETURNS, EXCEPT WHERE CURB RAMPs ARE PROVIDED, AND AT ALL CUL-DE-SACS WITH DRAINAGE STRUCTURES. SEE STANDARD DRAWING G-4B FOR DETAILS.
2. CONCRETE SHALL BE 520-C-2500.
3. SEE STANDARD DRAWINGS G-9 AND G-10 FOR JOINT DETAILS.

LEGEND ON PLANS

REVISION	BY	APPROVED	DATE
ORIGINAL		KERCHEVAL	12/75
ADD METRIC		T. STANTON	03/03
REFORMATTED		T. STANTON	04/06
UPDATED	MR	MR/CV	11/11

SAN DIEGO REGIONAL STANDARD DRAWING

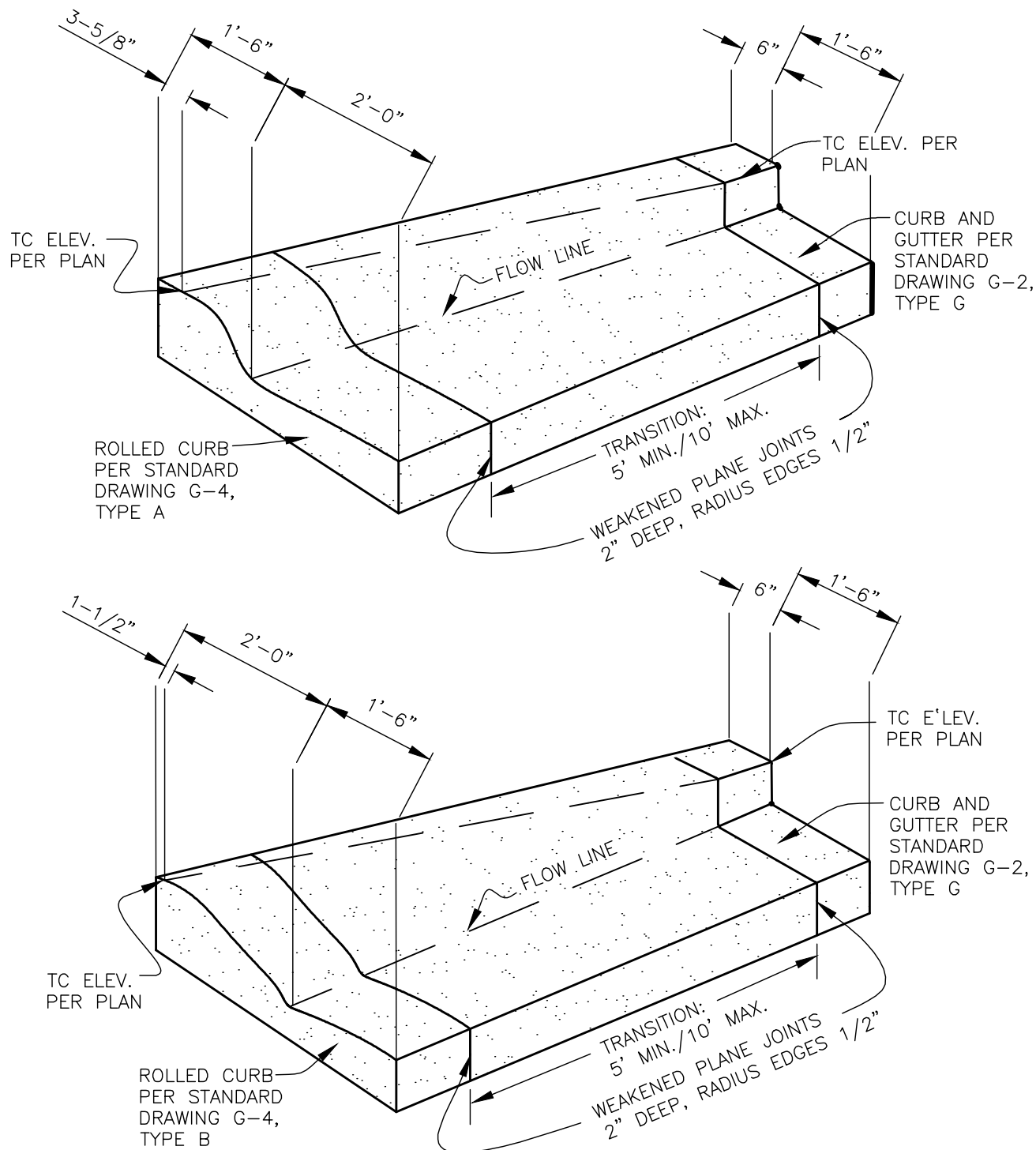
CURB AND GUTTER - ROLLED

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

CHAIRPERSON R.C.E. 19246 DATE

DRAWING
NUMBER **G-4A**

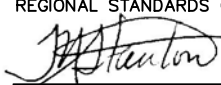


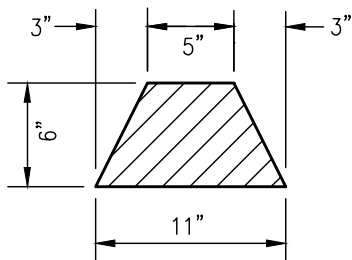
NOTES:

1. REFER TO RSD G-2, TYPE G AND G-4 FOR SPECIFIC DIMENSIONS RELATED TO EACH TYPE OF CURB.
2. TRANSITIONS SHOULD OCCUR ALONG THE BACK OF CURB, HOLDING EDGE OF PAVEMENT PARALLEL AND CONCENTRIC WITH STREET CENTERLINE. ALTERNATE ALIGNMENTS MAY BE REQUIRED AND ARE AT AGENCY'S DISCRETION.

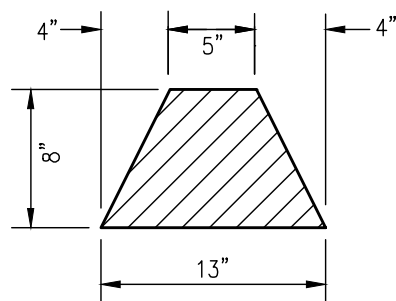
LEGEND ON PLANS



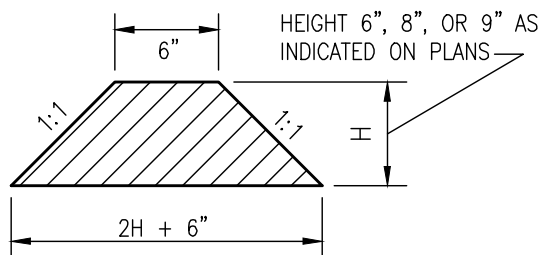
REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
NEW	DM	MR/CV	11/11		
				CURB AND GUTTER TO ROLLED CURB TRANSITION	 7/26/2012 CHAIRPERSON R.C.E. 19246 DATE
				DRAWING NUMBER	G-4B



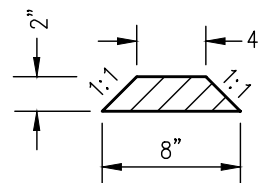
TYPE A



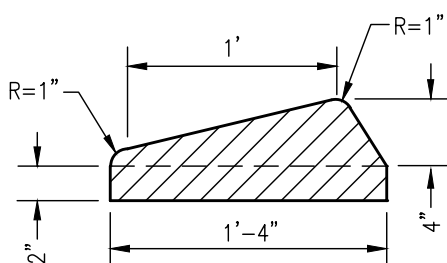
TYPE B



TYPE C

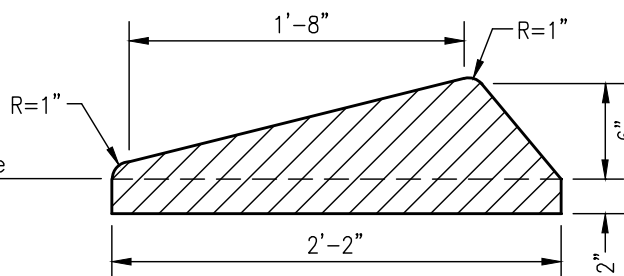


TYPE D

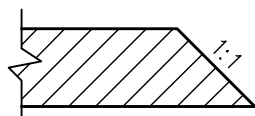


TYPE E
(MOUNTABLE DIKE)

Level Line



TYPE F
(MOUNTABLE DIKE)



SLOPE END OF DIKE 1:1
WHEN NOT JOINING
OTHER IMPROVEMENTS

ALL TYPES - SIDE VIEW

NOTES:

1. DIKES SHALL BE PLACED ON A 2" SECTION OF A.C. SURFACING, EXTENDING THROUGHOUT THE WIDTH OF THE DIKE.
2. PG-70-10 GRADE ASPHALT TO BE USED FOR ALL DIKES.
3. SHAPE AND COMPACT DIKES WITH AN EXTRUSION MACHINE OR OTHER EQUIPMENT CAPABLE OF SHAPING AND COMPACTING THE MATERIAL TO THE REQUIRED CROSS-SECTION.

APPROX. DIKE QUANTITIES

TYPE	REQD PER LIN. FT.
A	0.0250 TON
B	0.0375 TON
C-6"	0.0375 TON
C-8"	0.0583 TON
C-9"	0.0702 TON
D	0.0062 TON
E	0.0407 TON
F	0.0623 TON

LEGEND ON PLANS

REVISION	BY	APPROVED	DATE
ORIGINAL		KERCHEVAL	12/75
ADD METRIC		T. STANTON	03/03
REFORMATTED		T. STANTON	04/06
UPDATED	MR	MR/CV	11/11

SAN DIEGO REGIONAL STANDARD DRAWING

DIKES - ASPHALT CONCRETE

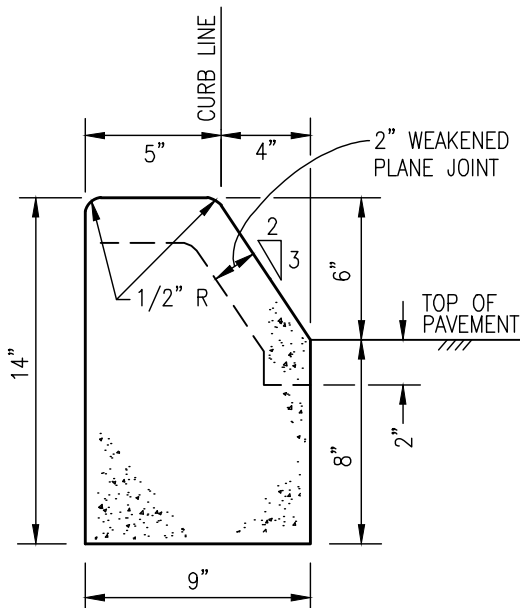
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

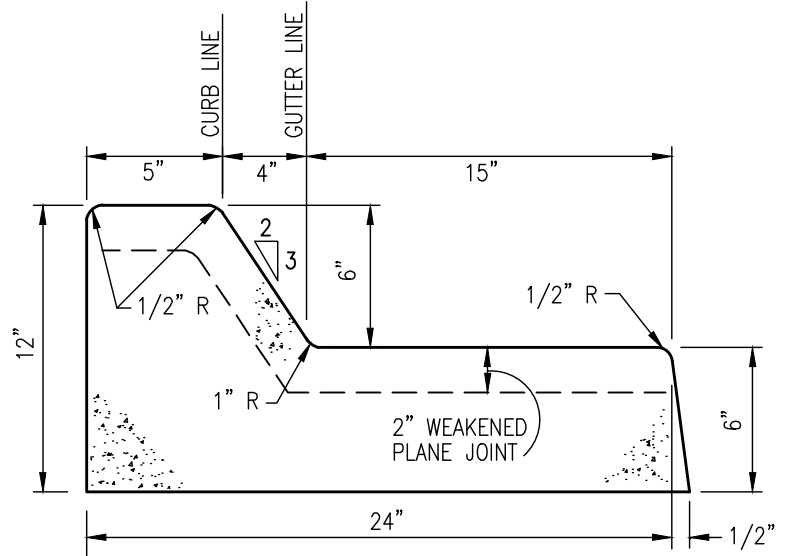
CHAIRPERSON R.C.E. 19246 DATE

DRAWING
NUMBER

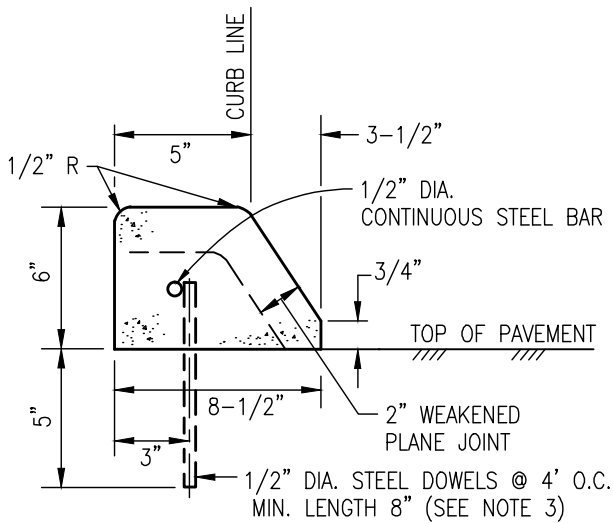
G-5



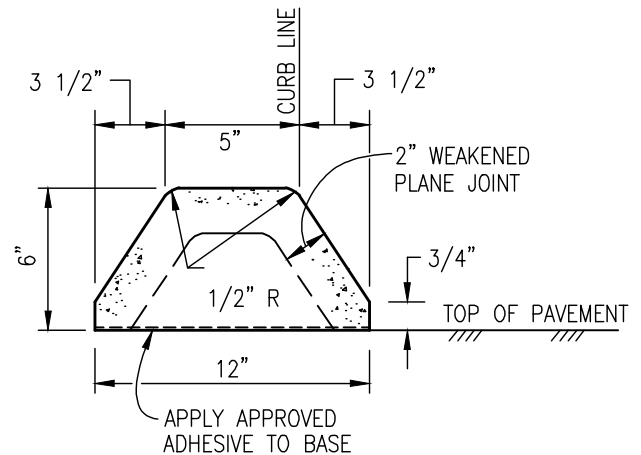
B-1
AREA=0.79 SQ. FT.



B-2
AREA=1.29 SQ. FT.



B-3
AREA=0.29 SQ. FT.



B-4
AREA=0.35 SQ. FT.

NOTES:

1. CONCRETE SHALL BE 520-C-2500.
2. SEE STANDARD DRAWINGS G-9 AND G-10 FOR JOINT DETAILS.
3. EXTRUDED TYPE B-3 CURB SHALL BE ANCHORED TO EXISTING PAVEMENT BY PLACING STEEL DOWELS AND REINFORCING STEEL AS SHOWN OR BY USING AN APPROVED ADHESIVE.
4. SLOPE TOP OF CURB 2% MAX TOWARD GUTTER/PAVEMENT.

LEGEND ON PLANS

(FOR TYPE B-2)

(FOR ALL OTHER TYPES)

REVISION	BY	APPROVED	DATE
ORIGINAL		KERCHEVAL	12/75
ADD METRIC		T. STANTON	03/03
REFORMATTED		T. STANTON	04/06
UPDATED	MR	MR/CV	11/11

SAN DIEGO REGIONAL STANDARD DRAWING

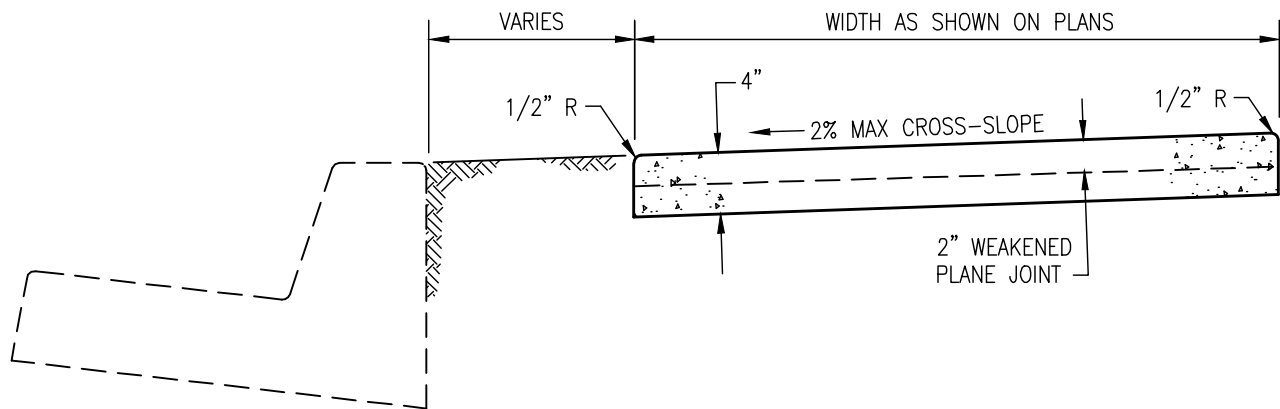
CURBS AND GUTTER - MEDIANS

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

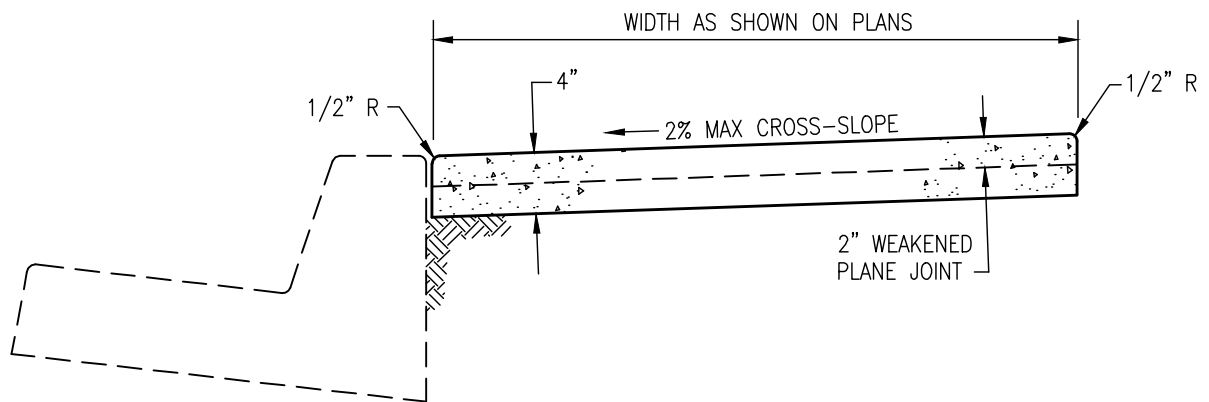
7/26/2012

CHAIRPERSON R.C.E. 19246 DATE

DRAWING NUMBER **G-6**



NON-CONTIGUOUS

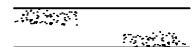


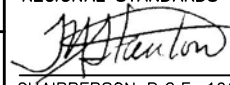
CONTIGUOUS

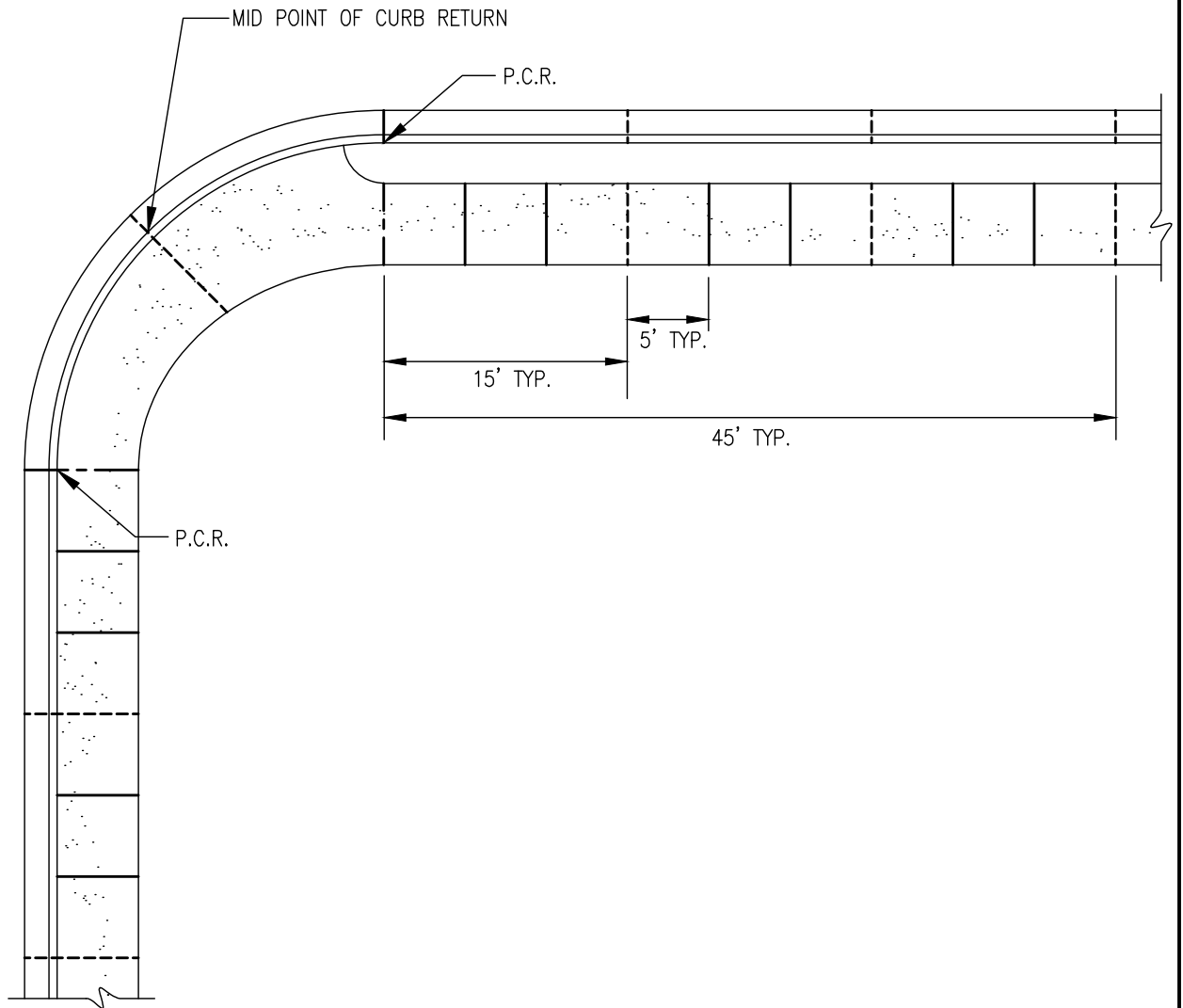
NOTES:

1. CONCRETE SHALL BE 520-C-2500.
2. SEE STANDARD DRAWINGS G-9 AND G-10 FOR JOINT DETAILS.

LEGEND ON PLANS

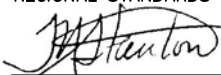


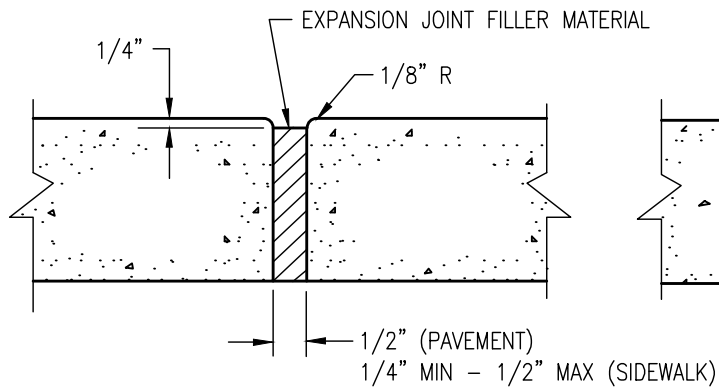
REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75		
ADD METRIC		T. STANTON	03/03	SIDEWALK - TYPICAL SECTIONS	 7/26/2012 CHAIRPERSON R.C.E. 19246 DATE
REFORMATTED		T. STANTON	04/06		
UPDATED	MR	MR/CV	11/11		
					DRAWING NUMBER G-7



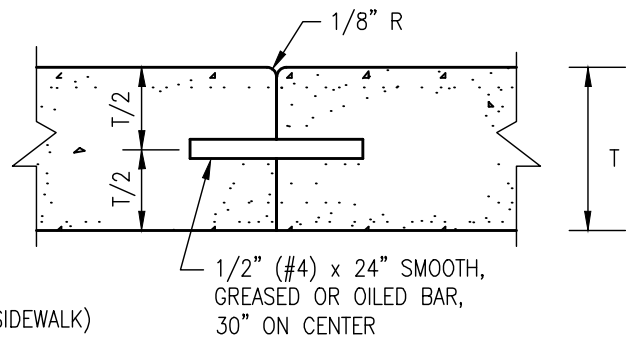
NOTES:

1. EXPANSION JOINTS ——— AT CURB RETURNS, ADJACENT TO STRUCTURES AND AT 45' INTERVALS.
(SEE STANDARD DRAWING G-10).
2. WEAKENED PLANE JOINTS ——— AT MID POINT OF CURB RETURN, WHEN REQUIRED, AND AT 15' INTERVALS FROM P.C.R.
(SEE STANDARD DRAWING G-10).
3. 1/4" GROOVES ——— WITH 1/4" RADIUS EDGES AT 5' INTERVALS.

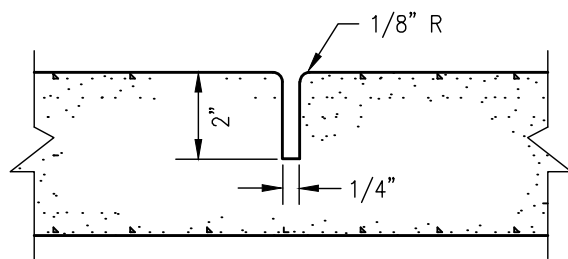
REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING SIDEWALK JOINT LOCATIONS		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012 CHAIRPERSON R.C.E. 19246 DATE	
ORIGINAL		KERCHEVAL	12/75				
ADD METRIC		T. STANTON	03/03				
REFORMATTED		T. STANTON	04/06				
UPDATED	MR	MR/CV	11/11				
						DRAWING NUMBER G-9	



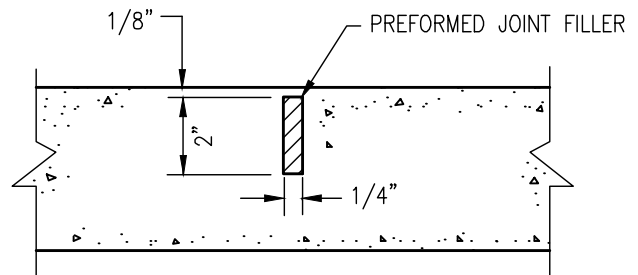
EXPANSION JOINT



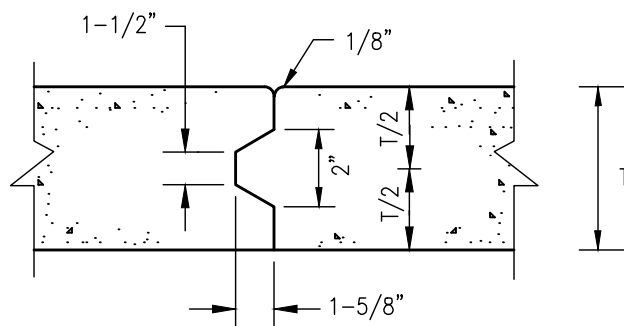
CONTACT JOINT



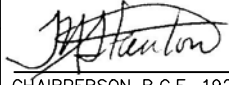
WEAKENED PLANE JOINT
CURB AND SIDEWALK

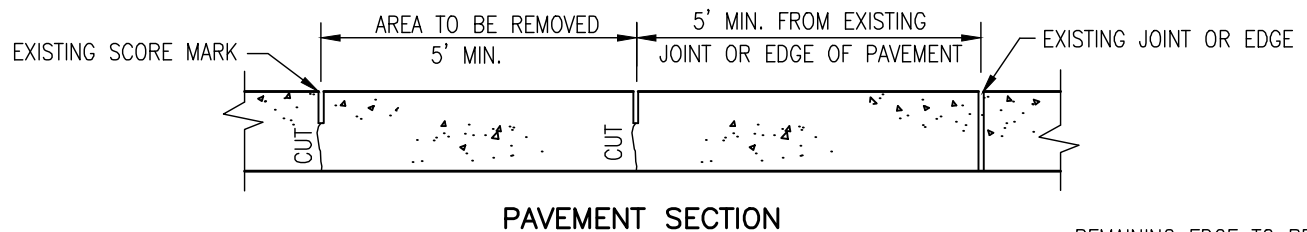
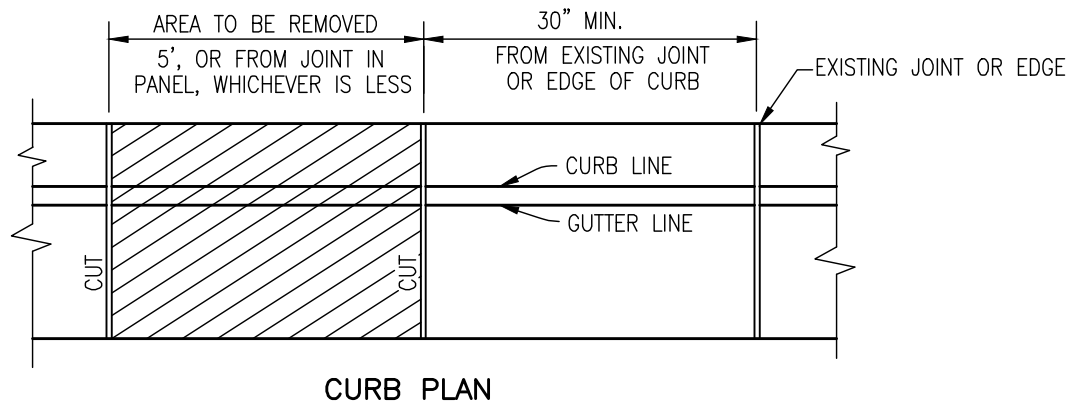
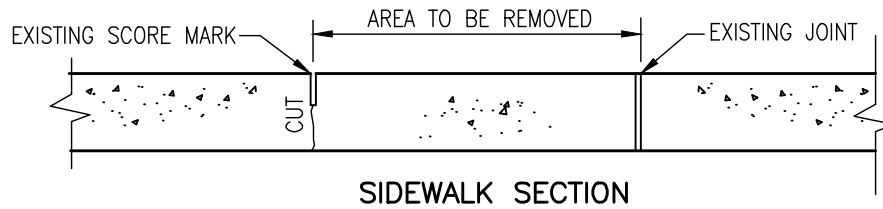
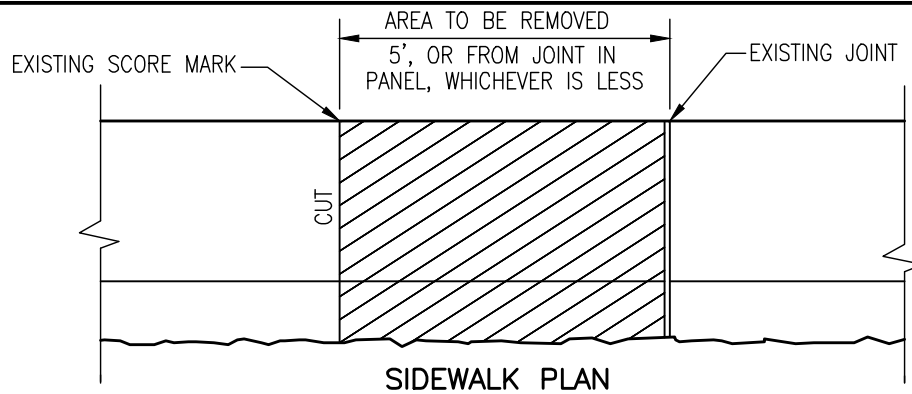


WEAKENED PLANE JOINT
GUTTER AND CONCRETE PAVEMENT



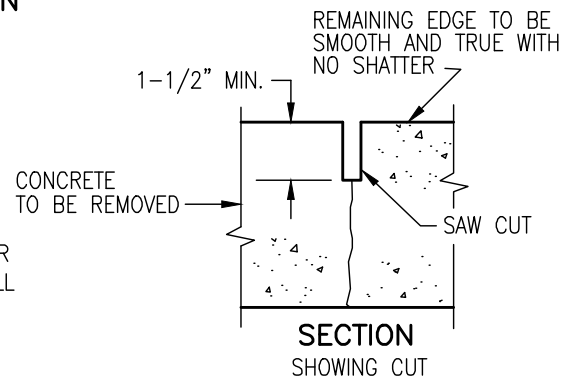
KEYED JOINT

REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING CONCRETE JOINT DETAILS	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		PARKINSON	02/95		 7/26/2012 CHAIRPERSON R.C.E. 19246 DATE
ADD METRIC		T. STANTON	03/03		
REFORMATTED		T. STANTON	04/06		
UPDATED	CV	MR/CV	11/11		
					DRAWING NUMBER G-10



NOTE:

WHEN DISTANCE FROM "AREA TO BE REMOVED" TO EXISTING JOINT, EDGE OR SCORE MARK IS LESS THAN MINIMUM SHOWN, "AREA TO BE REMOVED" SHALL BE EXTENDED TO JOINT, EDGE OR SCORE MARK.



REVISION	BY	APPROVED	DATE
ORIGINAL		KERCHEVAL	12/75
ADD METRIC		T. STANTON	03/03
REFORMATTED		T. STANTON	04/06
UPDATED	CV	MR/CV	11/11

SAN DIEGO REGIONAL STANDARD DRAWING

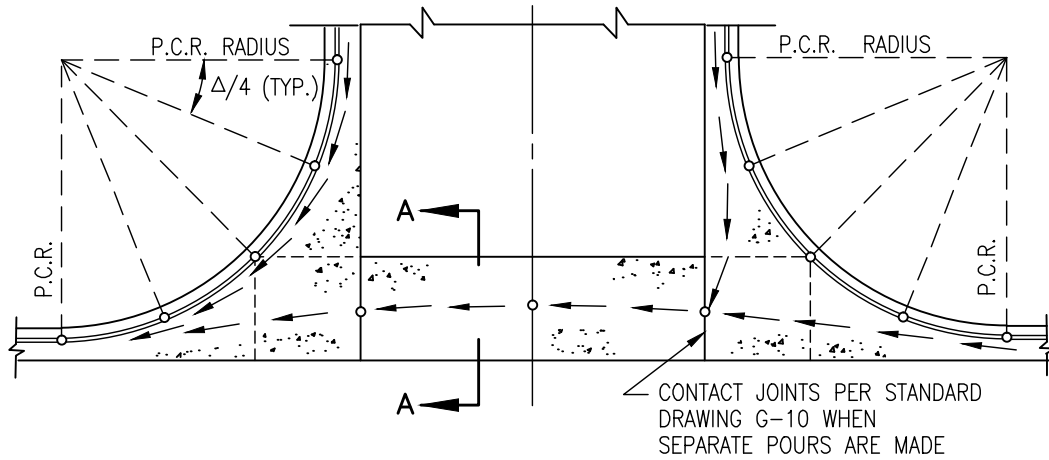
**CONCRETE CURB, GUTTER,
SIDEWALK AND PAVEMENT
REMOVAL AND REPLACEMENT**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

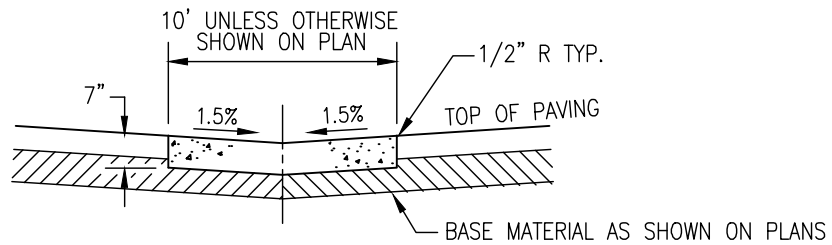
T. Stanton 7/26/2012

CHAIRPERSON R.C.E. 19246 DATE

DRAWING
NUMBER **G-11**



PLAN

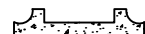


SECTION A-A

NOTES:

1. CONCRETE SHALL BE 560-C-3250.
2. ----- = WEAKENED PLANE JOINTS.
3. ← ← = TYPICAL FLOWLINES.
4. ○ = ELEVATIONS TO BE SHOWN ON PLANS.
5. RETURN SEGMENTS TO BE 7" THICK.
6. CURB BETWEEN P.C.R.S SHALL BE CONSIDERED AS PART OF THE CROSS GUTTER.
7. IN ALL CASES SUBGRADE SHALL BE COMPACTED TO 95% MIN. RELATIVE COMPACTION TO DEPTH OF 12".

LEGEND ON PLANS



REVISION	BY	APPROVED	DATE
ORIGINAL		KERCHEVAL	12/75
ADD METRIC		T. STANTON	03/03
REFORMATTED		T. STANTON	04/06
UPDATED	CV	MR/CV	11/11

SAN DIEGO REGIONAL STANDARD DRAWING

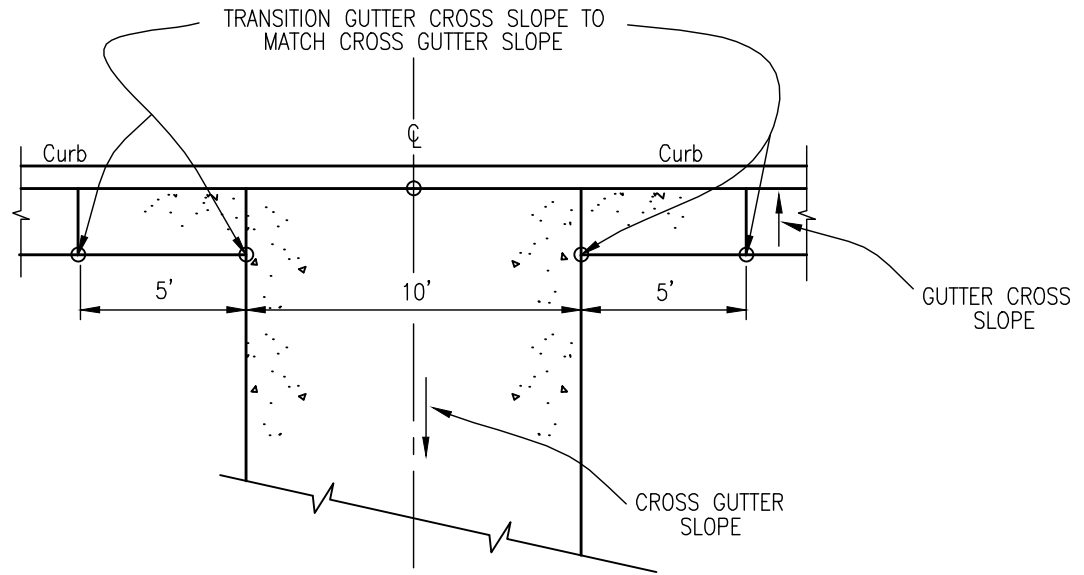
CROSS GUTTER

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

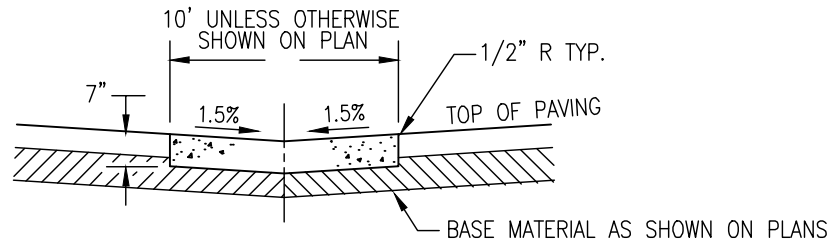
T. Stanton 7/26/2012

CHAIRPERSON R.C.E. 19246 DATE

DRAWING NUMBER **G-12**



PLAN

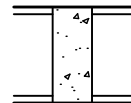


SECTION

NOTES:

1. CROSS GUTTER TO BE CONSTRUCTED WHERE THE DRAINAGE IS CARRIED ACROSS THE STREET.
2. MINIMUM ALLOWABLE CROSS GUTTER SLOPE IS 0.5%.
3. CONCRETE SHALL BE 560-C-3250.
4. IN ALL CASES SUBGRADE SHALL BE COMPACTED TO 95% MINIMUM RELATIVE COMPACTION TO DEPTH OF 12".
5. ○ = ELEVATIONS SHOWN ON PLANS.

LEGEND ON PLANS



REVISION	BY	APPROVED	DATE
ORIGINAL		KERCHEVAL	12/75
ADD METRIC		T. STANTON	03/03
REFORMATTED		T. STANTON	03/03
UPDATED	CV	MR/CV	11/11

SAN DIEGO REGIONAL STANDARD DRAWING

MID-BLOCK CROSS GUTTER

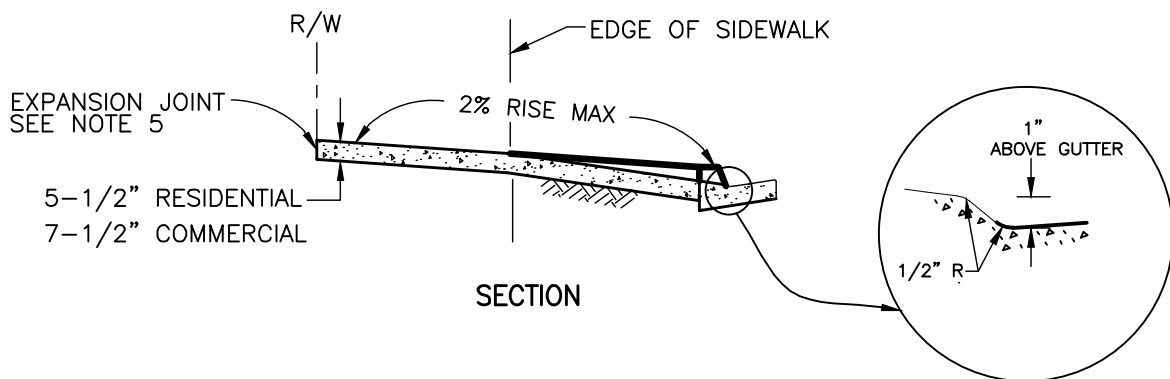
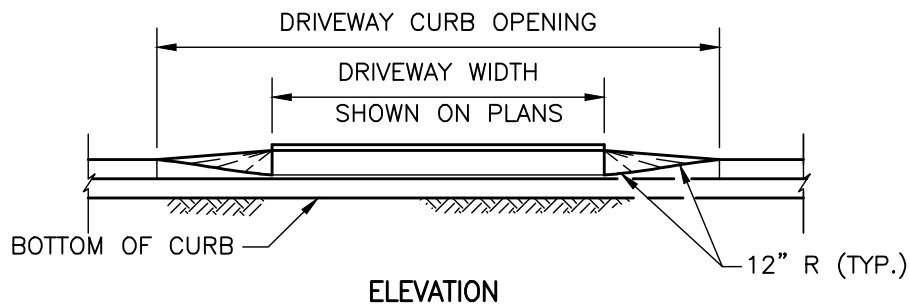
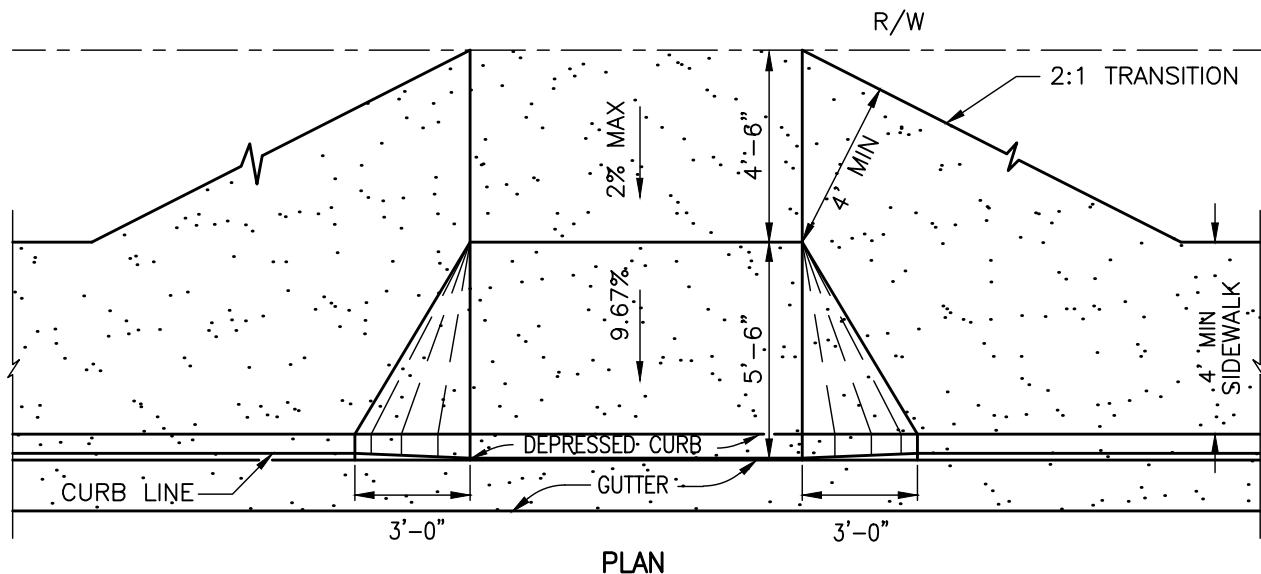
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

CHAIRPERSON R.C.E. 19246 DATE

DRAWING
NUMBER

G-13



NOTES:

1. NO CONCRETE SHALL BE PLACED UNTIL FORMS AND SUBGRADE ARE INSPECTED BY THE AGENCY.
2. FOR RESIDENTIAL USE, CONCRETE SHALL BE 520-C-2500; FOR COMMERCIAL USE, CONCRETE SHALL BE 560-C-3250.
3. SEE STANDARD DRAWINGS G-15 AND G-16 FOR WIDTH AND LOCATION REQUIREMENTS.
4. DRIVEWAY RAMP TO EXTEND 10' FROM CURB FACE OR TO PROPERTY LINE WHICHEVER IS LESS.
5. PLACE EXPANSION JOINT AT RIGHT-OF-WAY OR 10' WHICHEVER IS LESS.
6. SEE STANDARD DRAWINGS G-2 AND G-10 FOR CURB AND JOINT DETAILS.
7. DIMENSIONS SHOWN REFLECT A 6" CURB HEIGHT.

REVISION	BY	APPROVED	DATE
ORIGINAL		R. MUNOZ	4/97
ADD METRIC		T. STANTON	03/03
REVIEWED		T. STANTON	04/06
UPDATED	MR	MR/CV	02/12

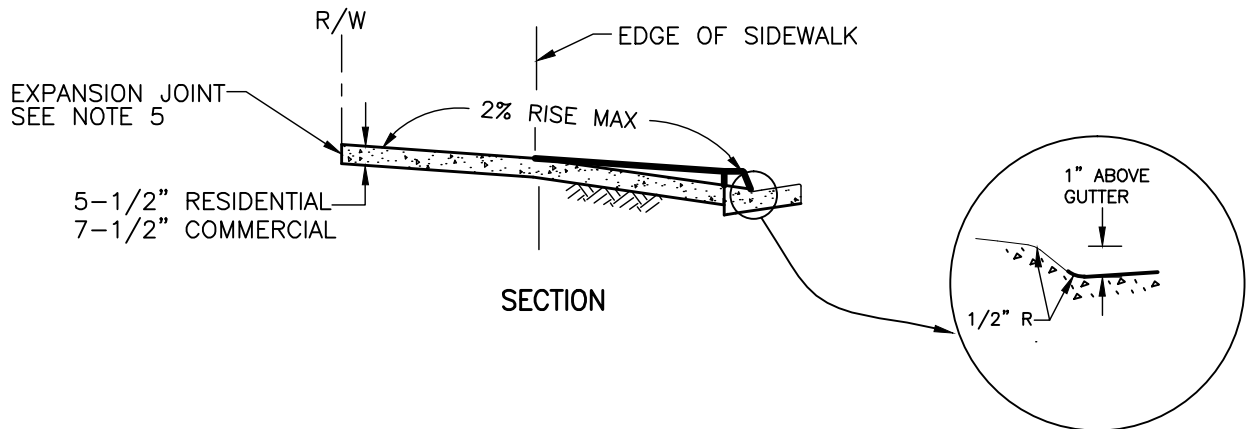
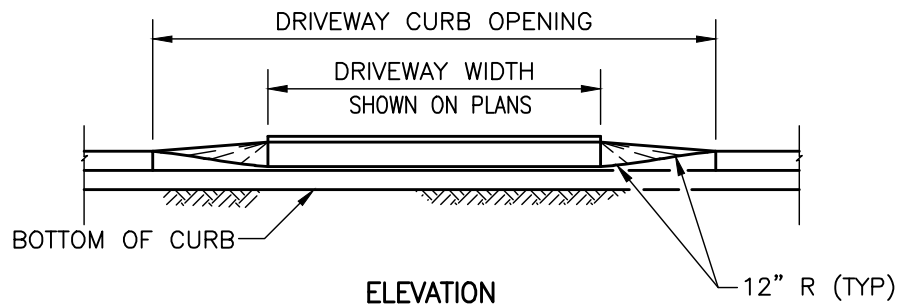
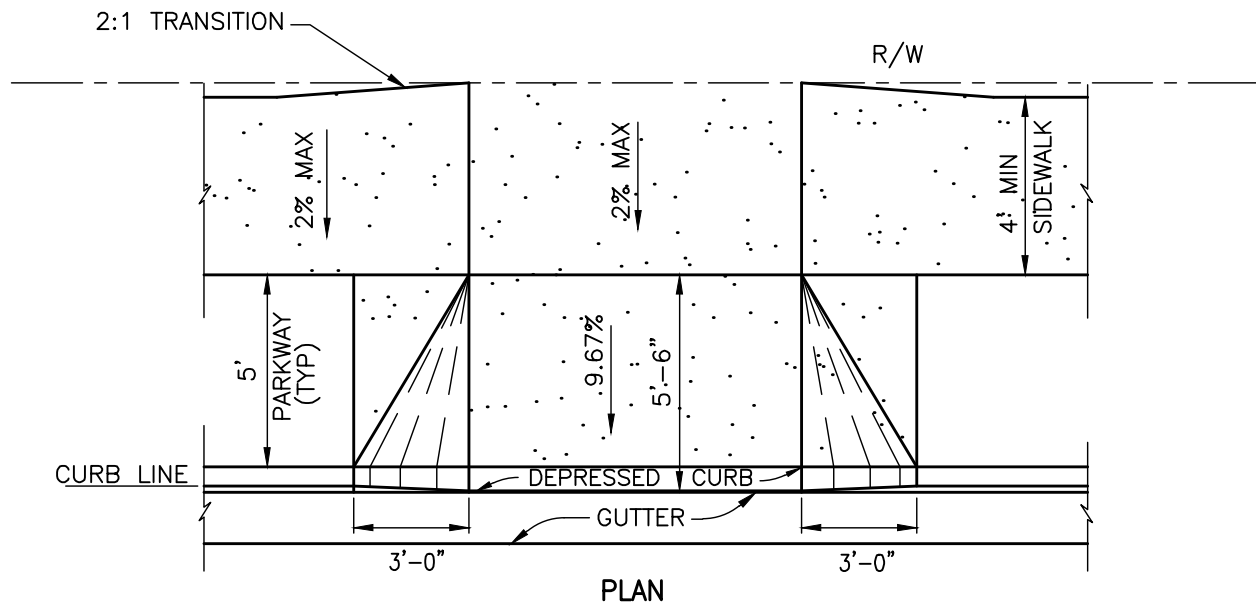
SAN DIEGO REGIONAL STANDARD DRAWING

CONCRETE DRIVEWAY - TYPE A (CONTIGUOUS SIDEWALK)

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
CHAIRPERSON R.C.E. 19246 DATE

DRAWING
NUMBER **G-14A**



NOTES:

1. NO CONCRETE SHALL BE PLACED UNTIL FORMS AND SUBGRADE ARE INSPECTED BY THE AGENCY.
2. FOR RESIDENTIAL USE, CONCRETE SHALL BE 520-C-2500; FOR COMMERCIAL USE, CONCRETE SHALL BE 560-C-3250.
3. SEE STANDARD DRAWINGS G-15 AND G-16 FOR WIDTH AND LOCATION REQUIREMENTS.
4. DRIVEWAY RAMP TO EXTEND TO 10' FROM CURB FACE OR TO PROPERTY LINE WHICHEVER IS LESS.
5. PLACE EXPANSION JOINT AT RIGHT-OF-WAY OR 10', WHICHEVER IS LESS.
6. SEE STANDARD DRAWINGS G-2 AND G-10 FOR CURB AND JOINT DETAILS.
7. DIMENSIONS SHOWN REFLECT A 6" CURB HEIGHT.

REVISION	BY	APPROVED	DATE
ORIGINAL		R. MUNOZ	4/97
ADD METRIC		T. STANTON	03/03
REFORMATTED		T. STANTON	04/06
UPDATED	MR	MR/CV	02/12

SAN DIEGO REGIONAL STANDARD DRAWING

CONCRETE DRIVEWAY (NON-CONTIGUOUS SIDEWALK)

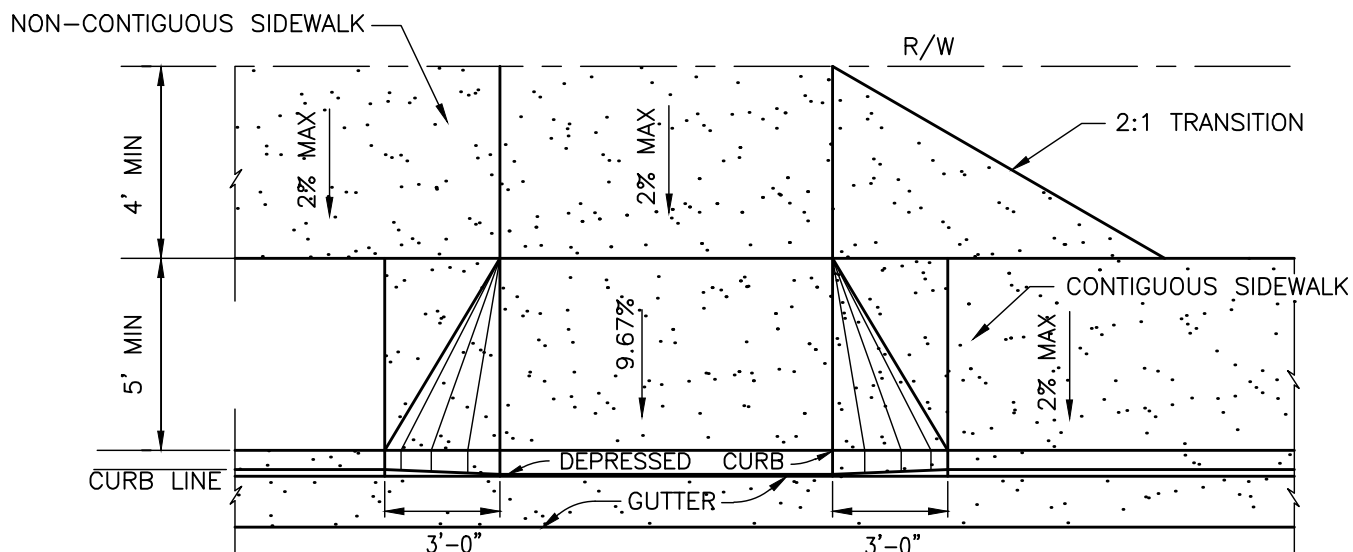
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

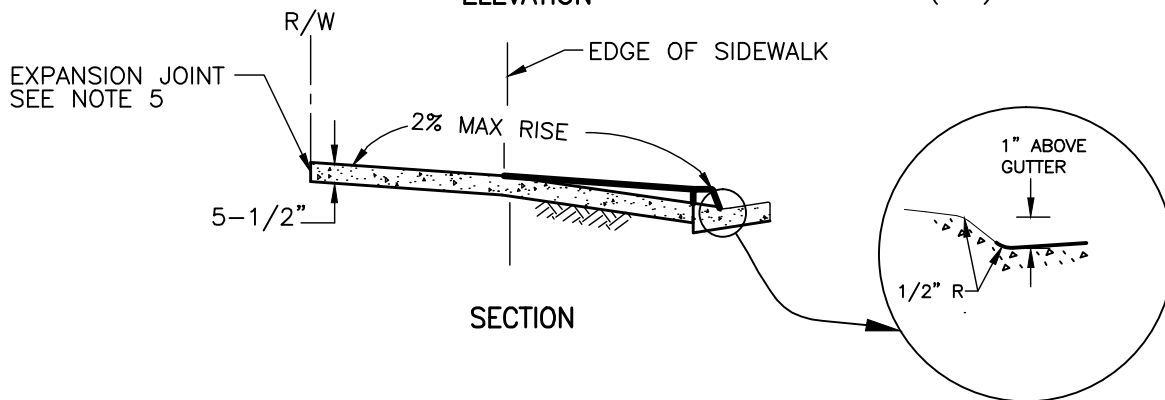
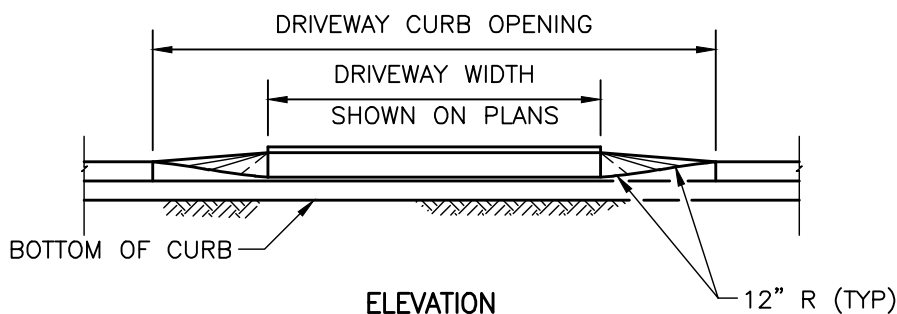
CHAIRPERSON R.C.E. 19246 DATE

DRAWING
NUMBER

G-14B



PLAN



NOTES:

1. NO CONCRETE SHALL BE PLACED UNTIL FORMS AND SUBGRADE ARE INSPECTED BY THE AGENCY.
2. CONCRETE SHALL BE 520-C-2500.
3. SEE STANDARD DRAWINGS G-15 AND G-16 FOR WIDTH AND LOCATION REQUIREMENTS.
4. DRIVEWAY RAMP TO EXTEND 10' FROM FACE OF CURB OR TO PROPERTY LINE WHICHEVER IS LESS.
5. PLACE EXPANSION JOINT AT RIGHT-OF-WAY OR 10', WHICHEVER IS LESS.
6. SEE STANDARD DRAWINGS G-2 AND G-10 FOR CURB AND JOINT DETAILS.
7. DIMENSIONS SHOWN REFLECT A 6" CURB HEIGHT.

REVISION	BY	APPROVED	DATE
ORIGINAL		R. MUNOZ	4/97
ADD METRIC		T. STANTON	03/03
REFORMATTED		T. STANTON	04/06
UPDATED	MR	MR/CV	02/12

SAN DIEGO REGIONAL STANDARD DRAWING

RESIDENTIAL
CONCRETE DRIVEWAY
(PARKWAY LESS THAN 10' IN DEPTH)

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

CHAIRPERSON R.C.E. 19246 DATE

DRAWING
NUMBER **G-14C**

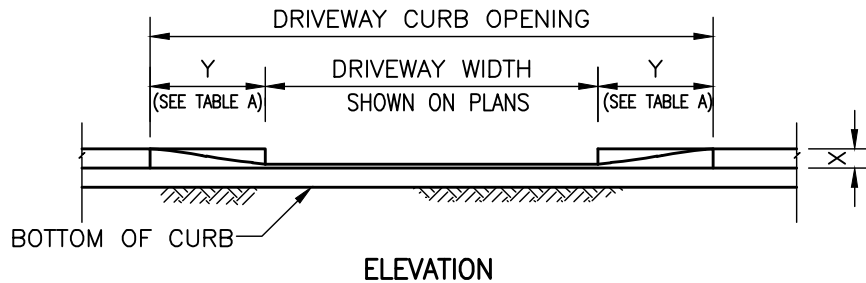
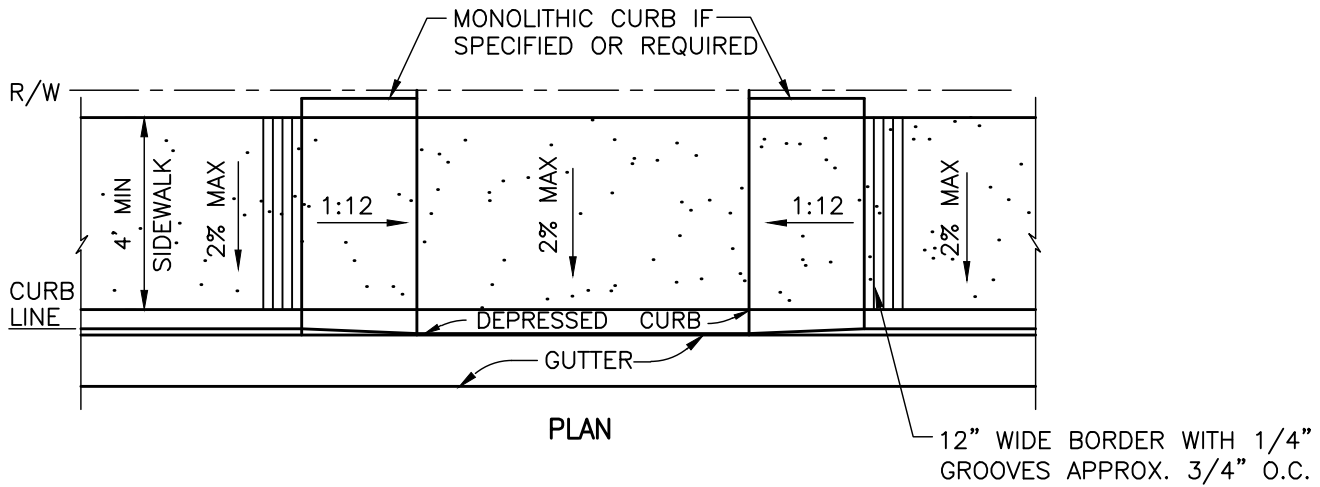
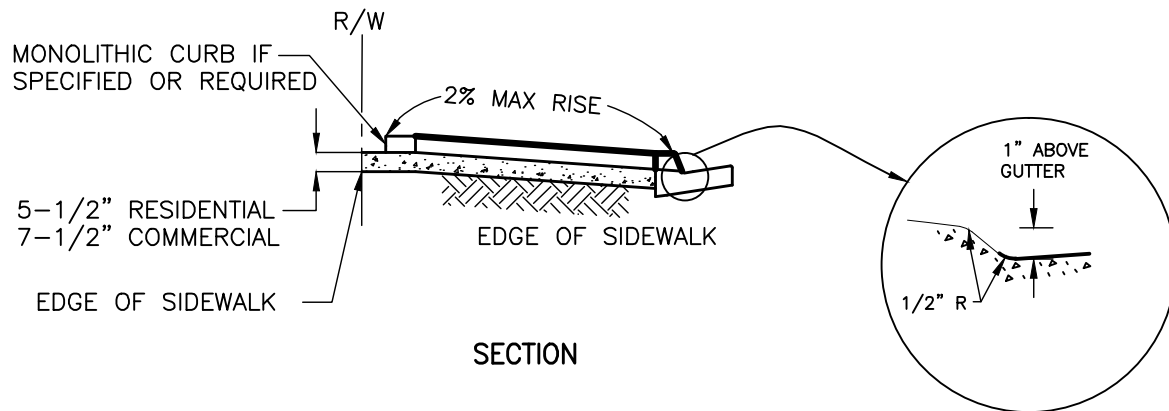


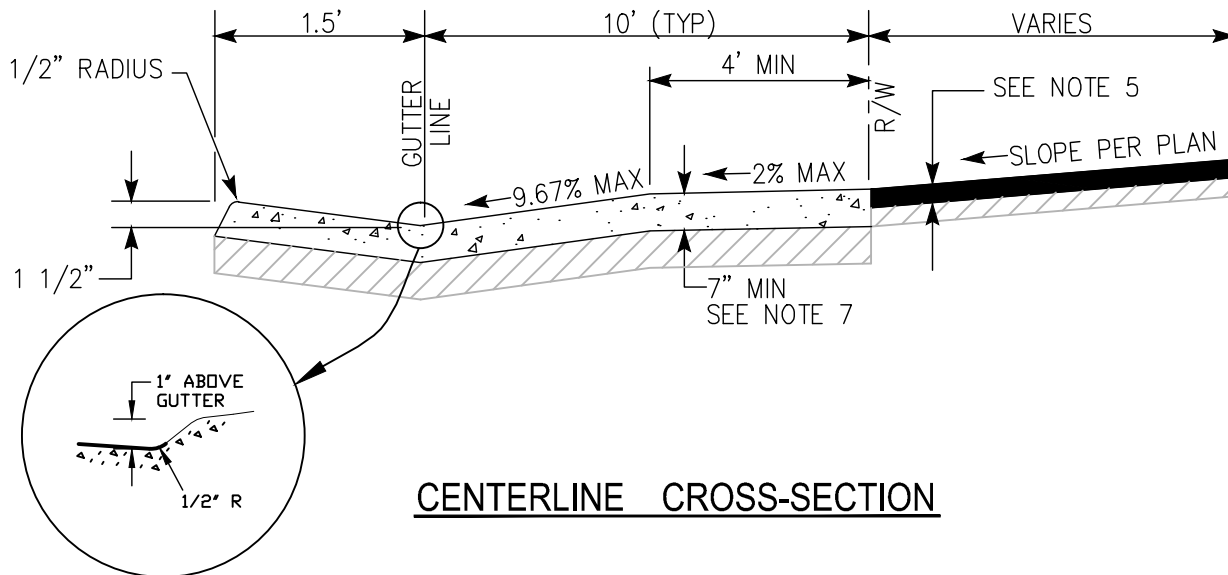
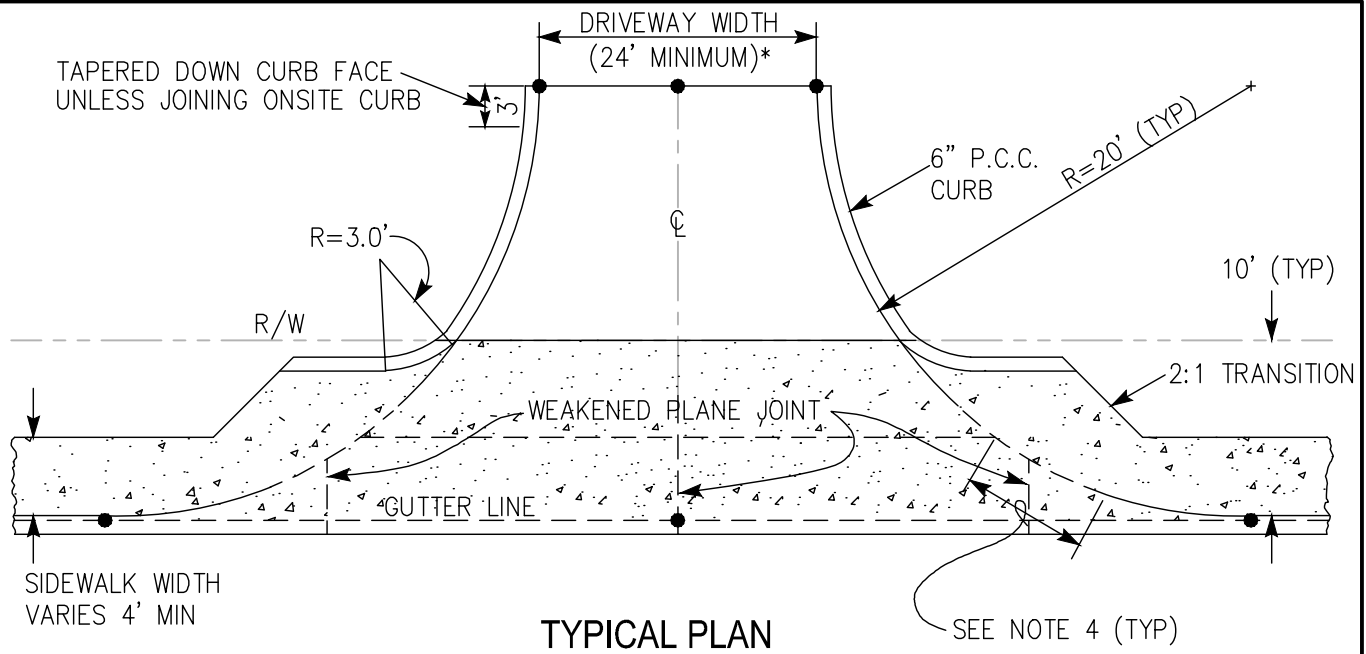
TABLE A	
X	Y
CURB HEIGHT	RAMP LENGTH
1"	0'-0"
2"	1'-0"
3"	2'-0"
4"	3'-0"
5"	4'-0"
6"	5'-0"
7"	6'-0"
8"	7'-0"



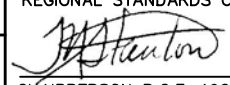
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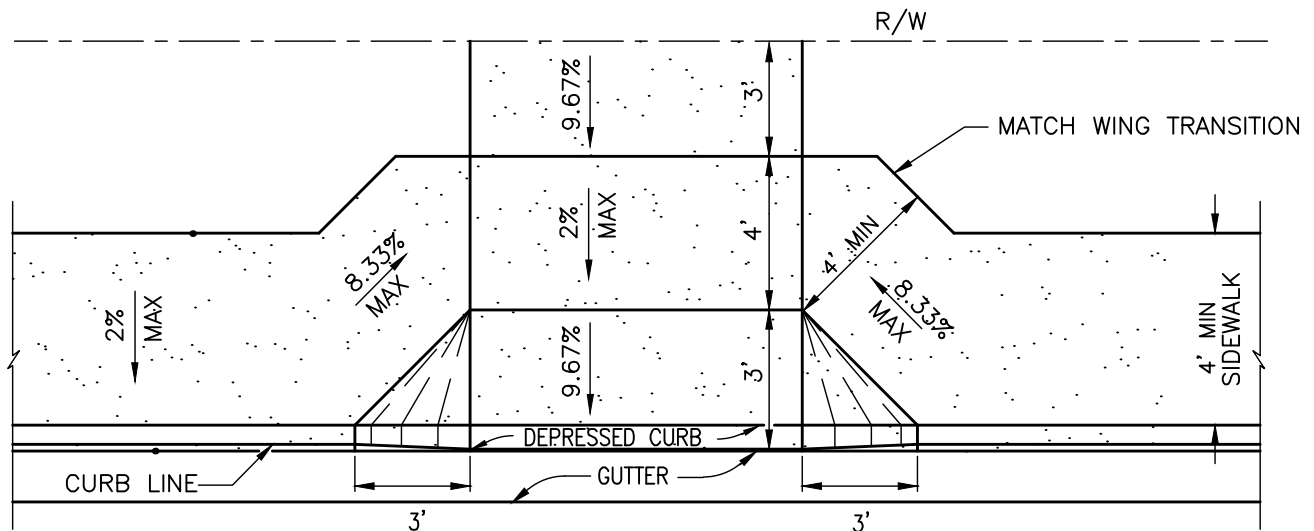
1. NO CONCRETE SHALL BE PLACED UNTIL FORMS AND SUBGRADE ARE INSPECTED BY THE AGENCY.
2. FOR RESIDENTIAL USE, CONCRETE SHALL BE 520-C-2500; FOR COMMERCIAL USE, CONCRETE SHALL BE 560-C-3250.
3. SEE STANDARD DRAWINGS G-15 AND G-16 FOR WIDTH AND LOCATION REQUIREMENTS.
4. SEE STANDARD DRAWINGS G-2 AND G-10 FOR CURB AND JOINT DETAILS.
5. PLACE EXPANSION JOINT AT RIGHT-OF-WAY.
6. DIMENSIONS SHOWN REFLECT A 6" CURB HEIGHT.
7. RAMP LENGTH CALCULATIONS ARE BASED ON X-1" TO ACCOUNT FOR THE 1" DRIVEWAY LIP.

REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING	<div>RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE</div> <div> 7/26/2012</div> <div>CHAIRPERSON R.C.E. 19246 DATE</div>
ORIGINAL	HH	T. STANTON	02/03		
ADD METRIC		T. STANTON	03/03	CONCRETE DRIVEWAY (FOR CONFINED RIGHT-OF-WAY)	<div>DRAWING NUMBER</div> <div>G-14D</div>
REVIEWED		T. STANTON	04/06		
UPDATED	MR	MR/CV	02/12		

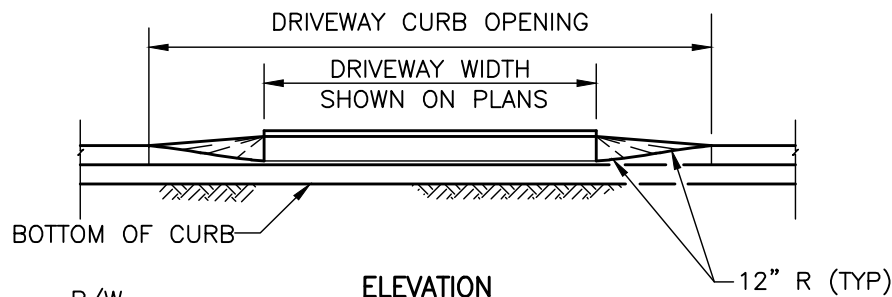


1. * OR AS REQUIRED BY THE AGENCY.
2. ● = ELEVATION SHOWN ON PLANS (TOP OF CURB, AND GUTTER ELEVATION)
3. ALL CONCRETE SHALL BE 560-C-3250
4. TRANSITION FROM FULL HEIGHT CURB TO NO CURB. 6FT TRANSITION FOR 5FT WIDE SIDEWALK AND 8FT TRANSITION FOR 6FT WIDE SIDEWALK.
5. PAVEMENT STRUCTURAL SECTION SHALL BE SHOWN ON PLANS.
6. SEE G-2 AND G-10 FOR CURB AND JOINT DETAILS.
7. BASE MATERIAL AS SHOWN ON PLANS.

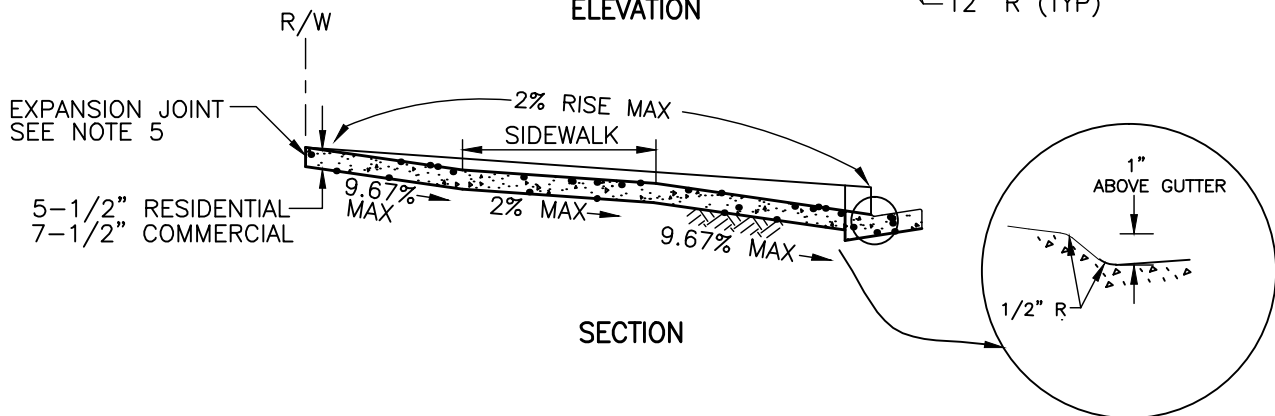
REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
NEW	MR	MR/CV	09/11		
				CONCRETE DRIVEWAY (ALLEY TYPE)	 7/26/2012 CHAIRPERSON R.C.E. 19246 DATE
					DRAWING NUMBER G-14E



PLAN




ELEVATION



SECTION

NOTES:

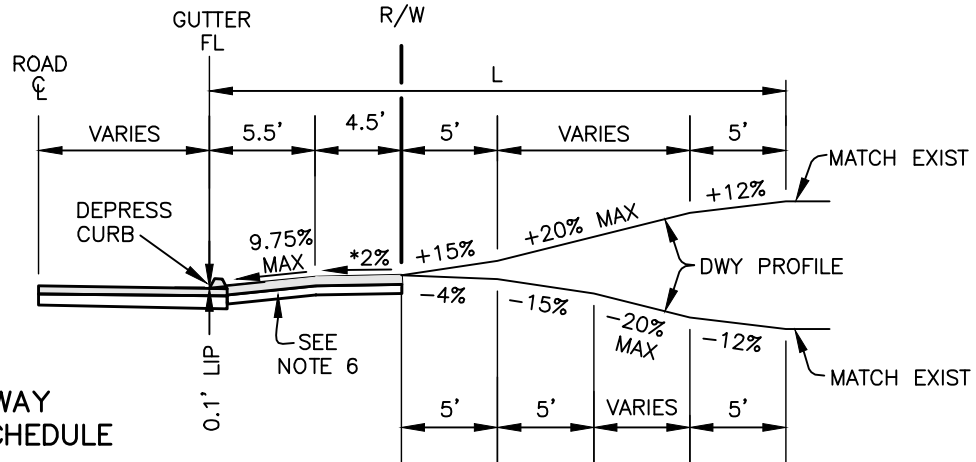
1. NO CONCRETE SHALL BE PLACED UNTIL FORMS AND SUBGRADE ARE INSPECTED BY AGENCY.
2. FOR RESIDENTIAL USE, CONCRETE SHALL BE 520-C-2500; FOR COMMERCIAL USE, CONCRETE SHALL BE 560-C-3250.
3. SEE STANDARD DRAWINGS G-15 AND G-16 FOR WIDTH AND LOCATION REQUIREMENTS.
4. DRIVEWAY RAMP TO EXTEND TO 10' FROM CURB FACE OR TO RIGHT-OF-WAY, WHICHEVER IS LESS.
5. PLACE EXPANSION JOINT AT RIGHT-OF-WAY OR 10', WHICHEVER IS LESS.
6. SEE STANDARD DRAWINGS G-2 AND G-10 FOR CURB AND JOINT DETAILS.
7. DIMENSIONS SHOWN REFLECT A 6" CURB HEIGHT.

REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
NEW	MR	MR/CV	02/12		
				CONCRETE DRIVEWAY - TYPE B (CONTIGUOUS SIDEWALK)	 7/26/2012
					CHAIRPERSON R.C.E. 19246 DATE
				DRAWING NUMBER	G-14F

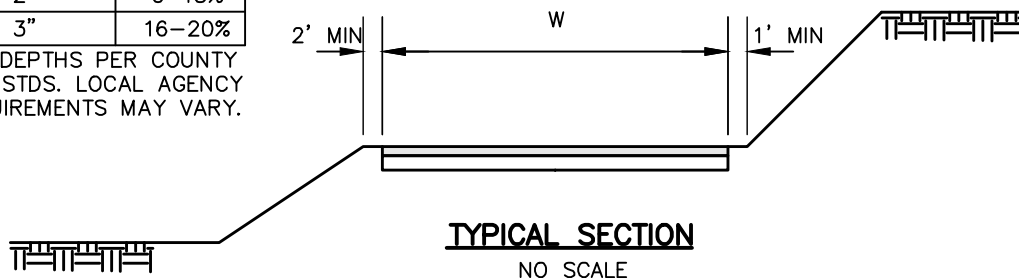
DRIVEWAY PAVING SCHEDULE

MINIMUM DEPTH OF A.C.	GRADE
2"	0-15%
3"	16-20%

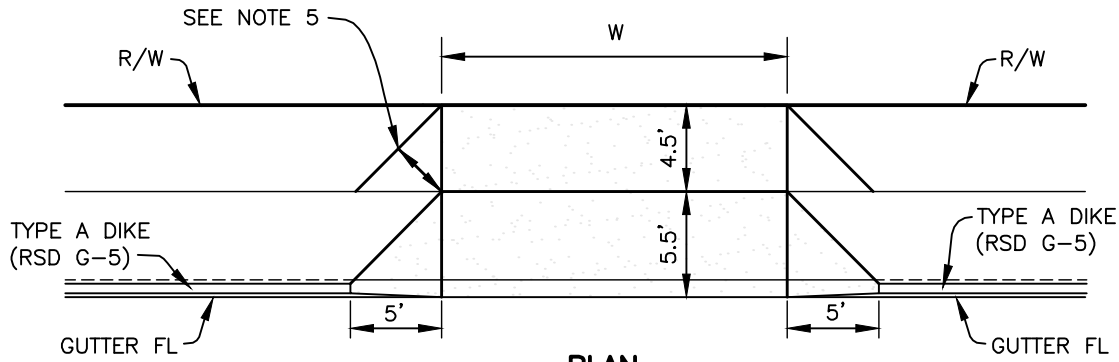
MIN DEPTHS PER COUNTY
FIRE STDS. LOCAL AGENCY
REQUIREMENTS MAY VARY.



PROFILE
NO SCALE



TYPICAL SECTION
NO SCALE

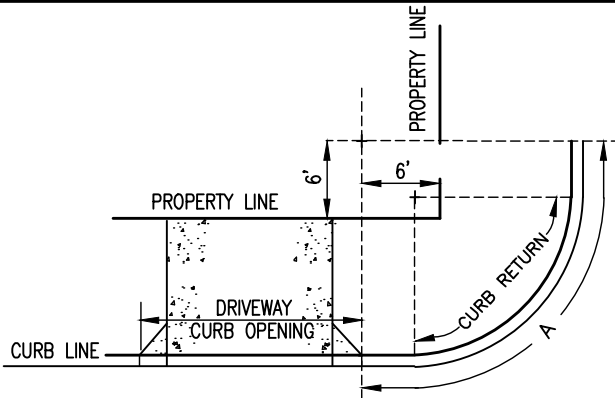


PLAN
NO SCALE

NOTES:

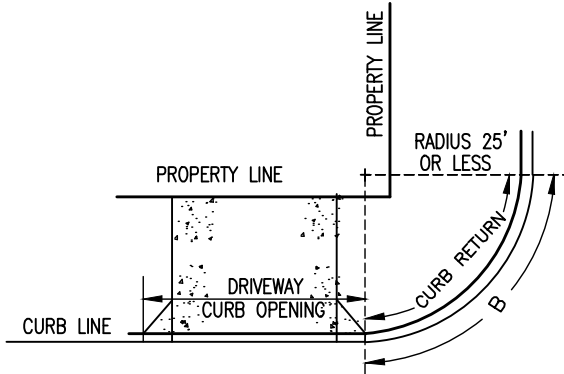
1. DRIVEWAY PROFILE, WIDTH (W) AND LENGTH (L) SHALL BE SHOWN ON PLANS.
 2. DRIVEWAYS WITH GRADES GREATER THAN 15% SHALL BE SURFACED WITH ASPHALT CONCRETE (AC) OR PORTLAND CEMENT CONCRETE (PCC).
 3. MAXIMUM GRADE BREAK 14% (5' MINIMUM VERTICAL CURVE PREFERRED).
 4. SEE SAN DIEGO AREA REGIONAL STANDARD DRAWINGS G-15 & G-16 FOR DRIVEWAY LOCATION & WIDTH REQUIREMENTS AND G-14 SERIES FOR PCC DRIVEWAYS.
 5. 4' MINIMUM ADA ACCESS WHEN WALKWAYS ARE PROVIDED.
 6. 4" MINIMUM AC OVER 6" MINIMUM BASE, UNLESS OTHERWISE INDICATED ON PLANS.
- * 1.5% PER CITY OF SAN DIEGO ADA REQUIREMENTS.

REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
NEW	MR	MR/CV	09/11			<i>[Signature]</i> 7/26/2012	
				ASPHALT CONCRETE DRIVEWAY		CHAIRPERSON R.C.E. 19246	DATE
						DRAWING NUMBER	G-14G



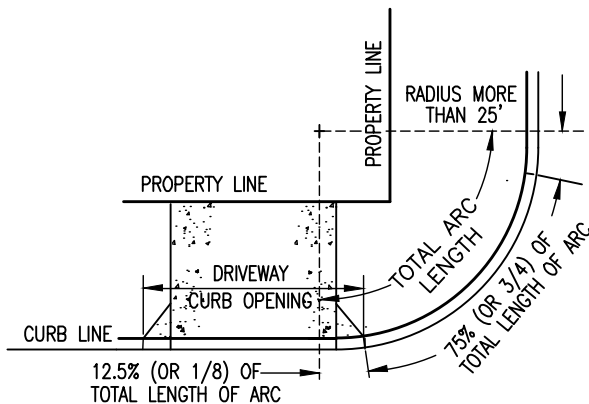
REQUIREMENT 1

NO PORTION OF ANY CURB OPENING SHALL BE PERMITTED WITHIN 6' OF THE INTERSECTION OF THE PROLONGED PROPERTY LINES AND THE CURB SHOWN BY ARC A.



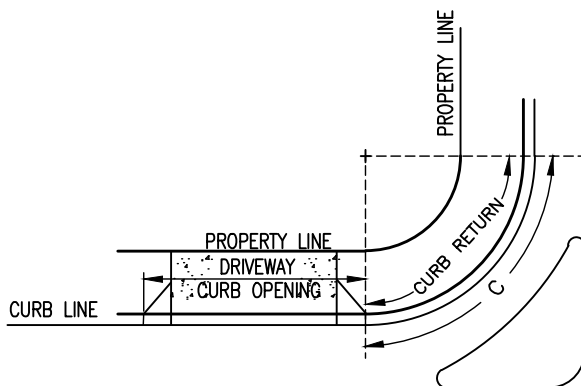
REQUIREMENT 2

NO PORTION OF ANY CURB OPENING SHALL BE PERMITTED IN THE CURB RETURN WHERE THE RADIUS OF CURB IS 25' OR LESS, AS SHOWN BY ARC B.



REQUIREMENT 3

ON ALL CURB RETURNS WHERE THE RADIUS IS MORE THAN 25', CURB OPENINGS MAY ENCROACH UPON EACH END OF THE RETURN A DISTANCE EQUAL TO 12.5% (OR 1/8) OF THE TOTAL LENGTH OF THE ARC ON THE CURB RETURN, THUS LEAVING AT LEAST 75% (OR 3/4) OF THE LENGTH OF ARC ON THE RETURN FACE FREE FROM DRIVEWAY ENCROACHMENT, PROVIDED REQUIREMENT 1 IS MET.



REQUIREMENT 4

NO PORTION OF ANY CURB OPENING SHALL BE PERMITTED IN THE CURB RETURN WHERE A SEPARATE TURNING MOVEMENT IS PROVIDED, AS SHOWN BY ARC C.

REVISION	BY	APPROVED	DATE
ORIGINAL		KERCHEVAL	12/75
ADD METRIC		T. STANTON	03/03
REVIEWED		T. STANTON	04/06
UPDATED	MR	MR/CV	02/12

SAN DIEGO REGIONAL STANDARD DRAWING

DRIVEWAY LOCATION - ADJACENT TO CURB RETURNS AND STREET LINES

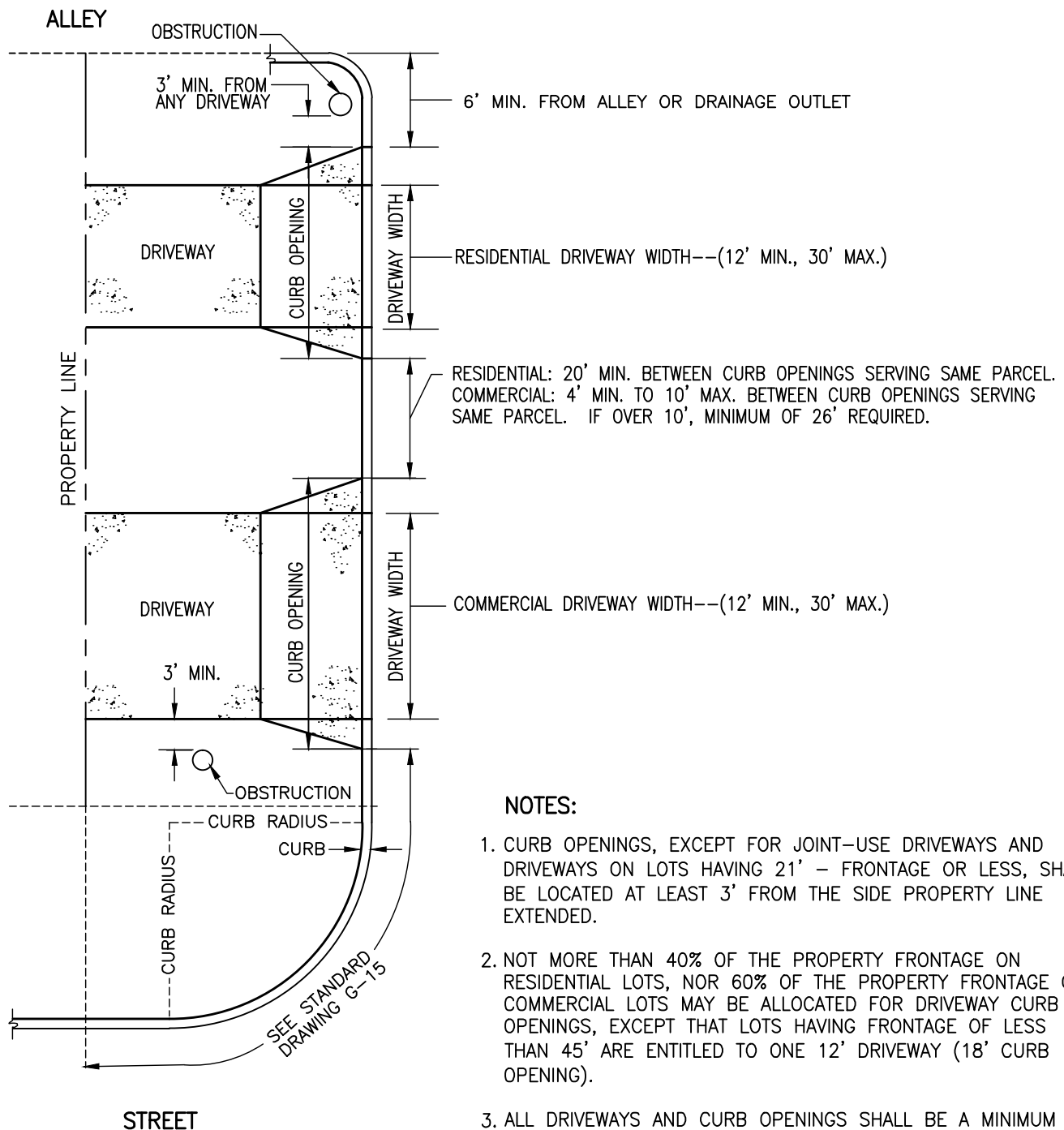
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

CHAIRPERSON R.C.E. 19246 DATE

DRAWING
NUMBER

G-15



NOTES:

1. CURB OPENINGS, EXCEPT FOR JOINT-USE DRIVEWAYS AND DRIVEWAYS ON LOTS HAVING 21' - FRONTAGE OR LESS, SHALL BE LOCATED AT LEAST 3' FROM THE SIDE PROPERTY LINE EXTENDED.
2. NOT MORE THAN 40% OF THE PROPERTY FRONTAGE ON RESIDENTIAL LOTS, NOR 60% OF THE PROPERTY FRONTAGE ON COMMERCIAL LOTS MAY BE ALLOCATED FOR DRIVEWAY CURB OPENINGS, EXCEPT THAT LOTS HAVING FRONTAGE OF LESS THAN 45' ARE ENTITLED TO ONE 12' DRIVEWAY (18' CURB OPENING).
3. ALL DRIVEWAYS AND CURB OPENINGS SHALL BE A MINIMUM OF 3' FROM ANY OBSTRUCTION, I.E. POLES, HYDRANTS, ETC.
4. NO PORTION OF ANY DRIVEWAY SHALL BE ALLOWED ACROSS A LINE EXTENDING NORMAL TO THE DRIVEWAY FROM THE FRONT CORNER OF THE PROPERTY, EXCEPT THAT JOINT-USE DRIVEWAYS MAY BE PERMITTED IN SPECIAL INSTANCES WHERE WRITTEN APPROVAL OF BOTH PROPERTY OWNERS IS FILED WITH THE AGENCY.

REVISION	BY	APPROVED	DATE
ORIGINAL		KERCHEVAL	12/75
ADD METRIC		T. STANTON	03/03
REVIEWED		T. STANTON	04/06
UPDATED	MR	MR/CV	03/12

SAN DIEGO REGIONAL STANDARD DRAWING

DRIVEWAY LOCATION AND WIDTH REQUIREMENTS

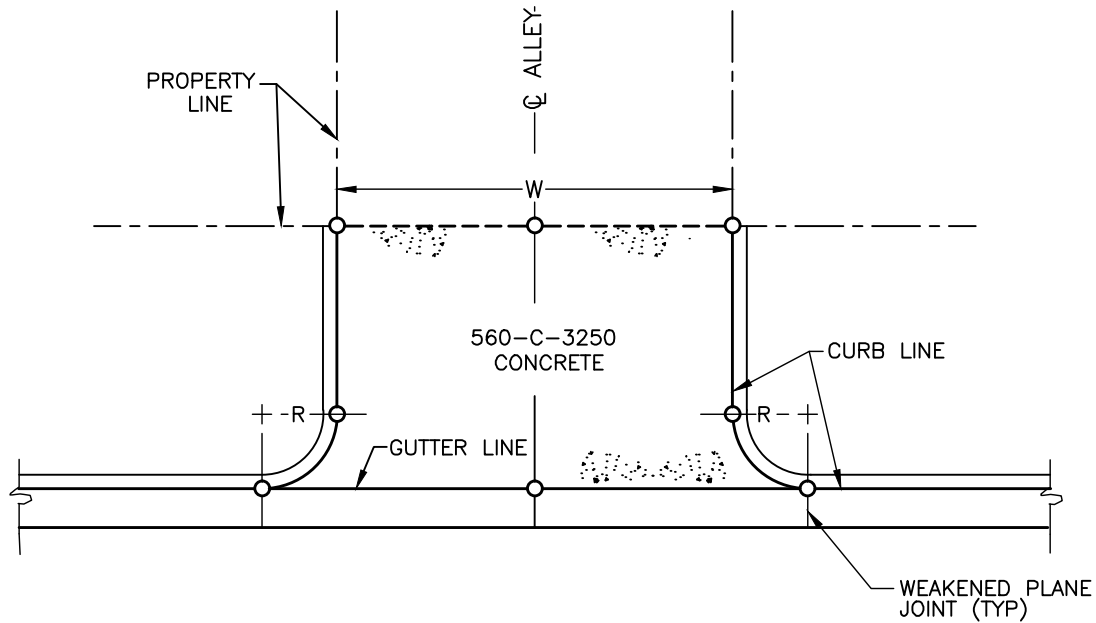
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

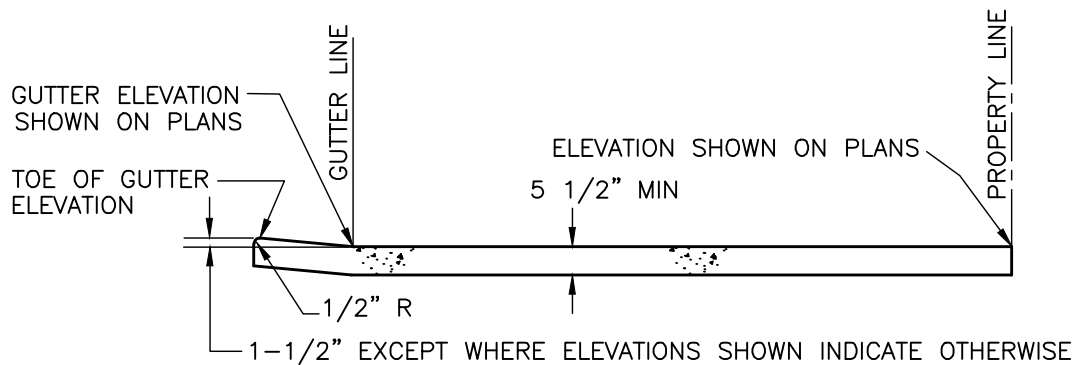
CHAIRPERSON R.C.E. 19246 DATE

DRAWING
NUMBER

G-16



PLAN



SECTION

NOTES:

1. SIDEWALK RAMPS SHALL BE INSTALLED AS REQUIRED BY AGENCY.
2. W = WIDTH SHOWN ON PLANS.
3. R = RADIUS SHOWN ON PLANS (3' MINIMUM).
4. O = ELEVATION SHOWN ON PLANS (TOP OF CURB AND GUTTER ELEV.)
5. --- = 1/2" EXPANSION JOINTS.

LEGEND ON PLANS



REVISION	BY	APPROVED	DATE
ORIGINAL		KERCHEVAL	12/75
ADD METRIC		T. STANTON	03/03
REVIEWED		T. STANTON	04/06
UPDATED	MR	MR/CV	03/12

SAN DIEGO REGIONAL STANDARD DRAWING

ALLEY APRON

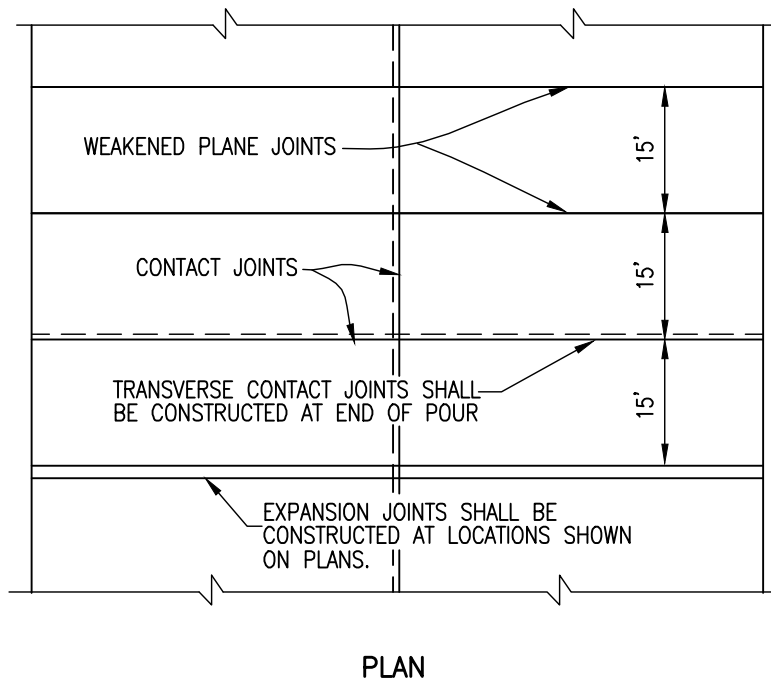
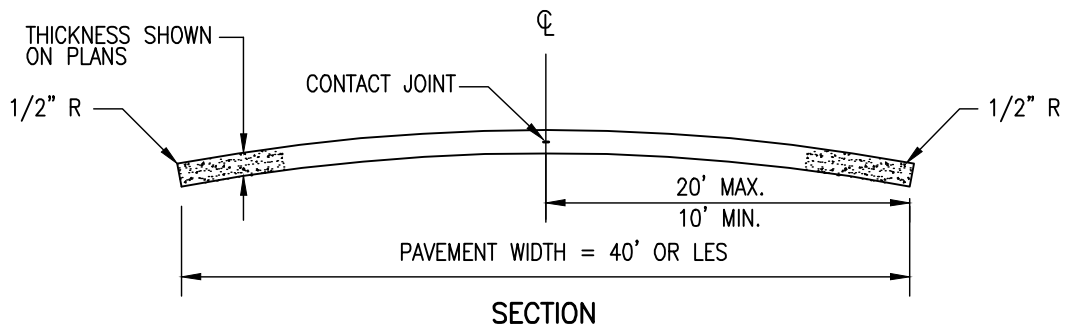
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

CHAIRPERSON R.C.E. 19246 DATE

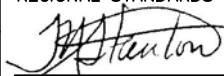
DRAWING
NUMBER

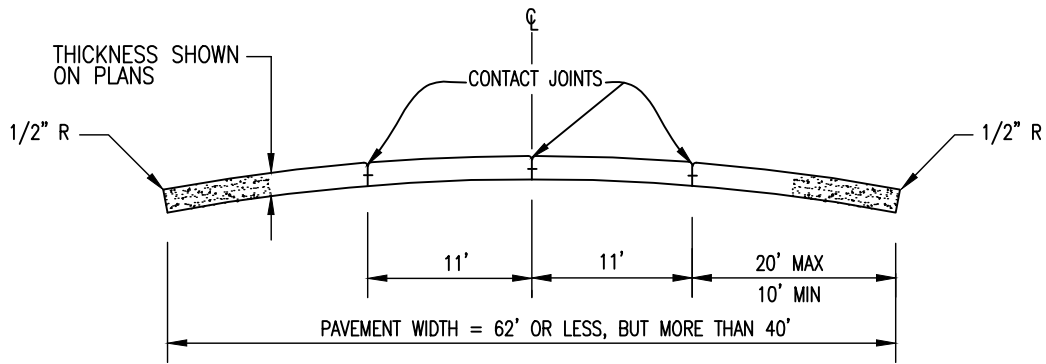
G-17



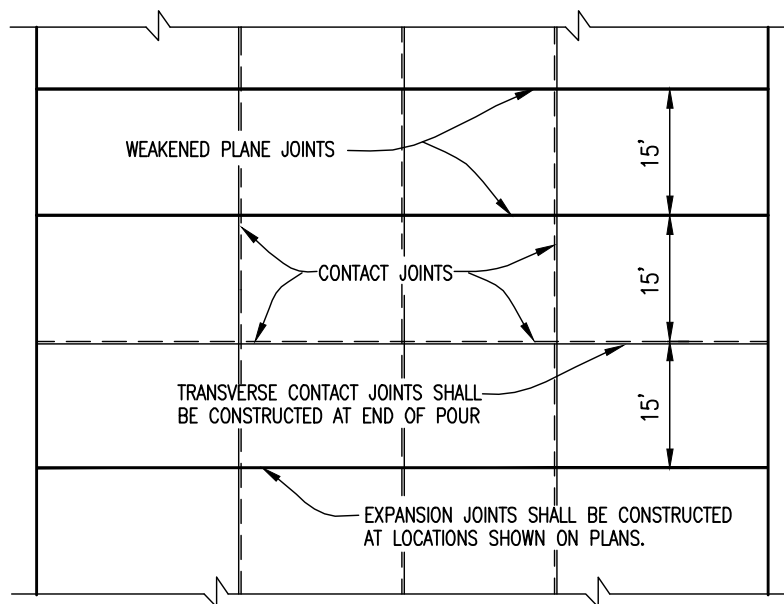
NOTES:

1. CONCRETE SHALL BE 560-C-3250.
2. SEE STANDARD DRAWING G-10 FOR JOINT DETAILS.
3. ADJUST 15' INTERVAL BETWEEN TRANSVERSE JOINTS TO MATCH ADJACENT EXISTING IMPROVEMENTS.

REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75		
ADD METRIC		T. STANTON	03/03	CONCRETE PAVEMENT WIDTH 40' OR LESS	 7/26/2012 CHAIRPERSON R.C.E. 19246 DATE
REVIEWED		T. STANTON	04/06		
UPDATED	MR	MR/CV	03/12		
					DRAWING NUMBER G-18



SECTION



PLAN

NOTES:

1. CONCRETE SHALL BE 560-C-3250.
2. SEE STANDARD DRAWING G-10 FOR JOINT DETAILS.
3. ADJUST 15' INTERVAL BETWEEN TRANSVERSE JOINTS TO MATCH ADJACENT EXISTING IMPROVEMENTS.

REVISION	BY	APPROVED	DATE
ORIGINAL		KERCHEVAL	12/75
ADD METRIC		T. STANTON	03/03
REVIEWED		T. STANTON	04/06
UPDATED	MR	MR/CV	03/12

SAN DIEGO REGIONAL STANDARD DRAWING

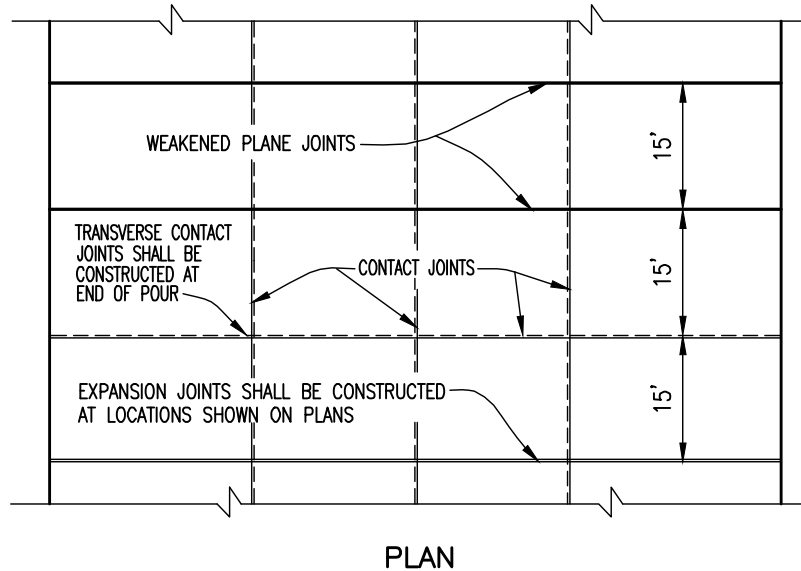
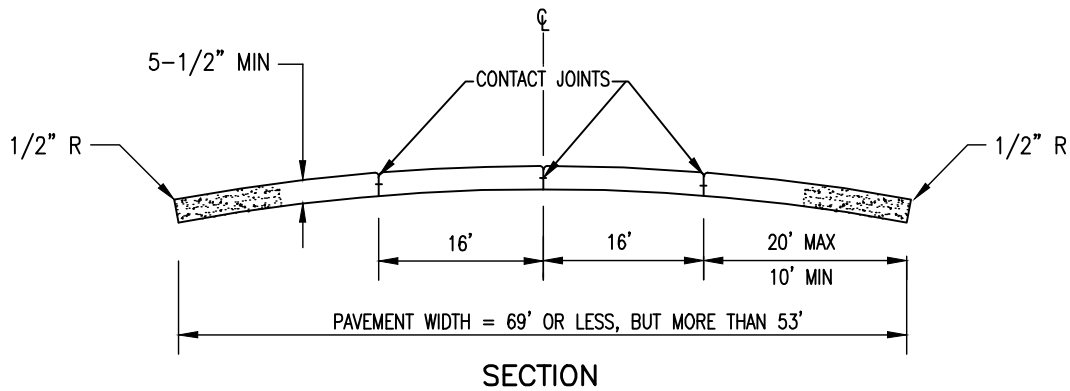
CONCRETE PAVEMENT
WIDTH 40' TO 62'

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

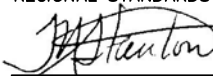
CHAIRPERSON R.C.E. 19246 DATE

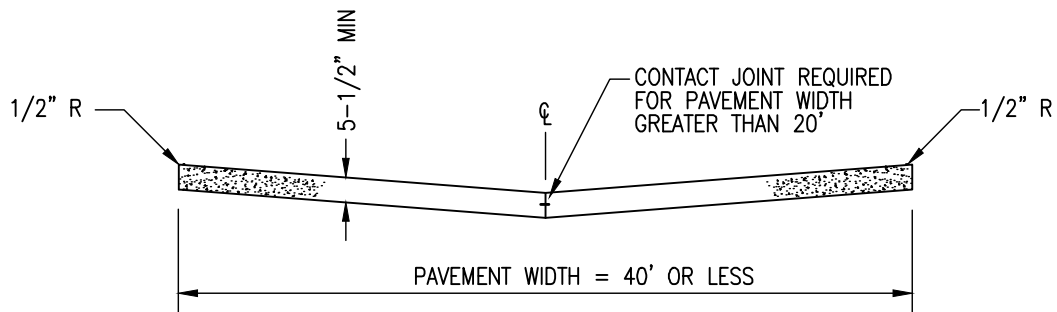
DRAWING
NUMBER **G-19**



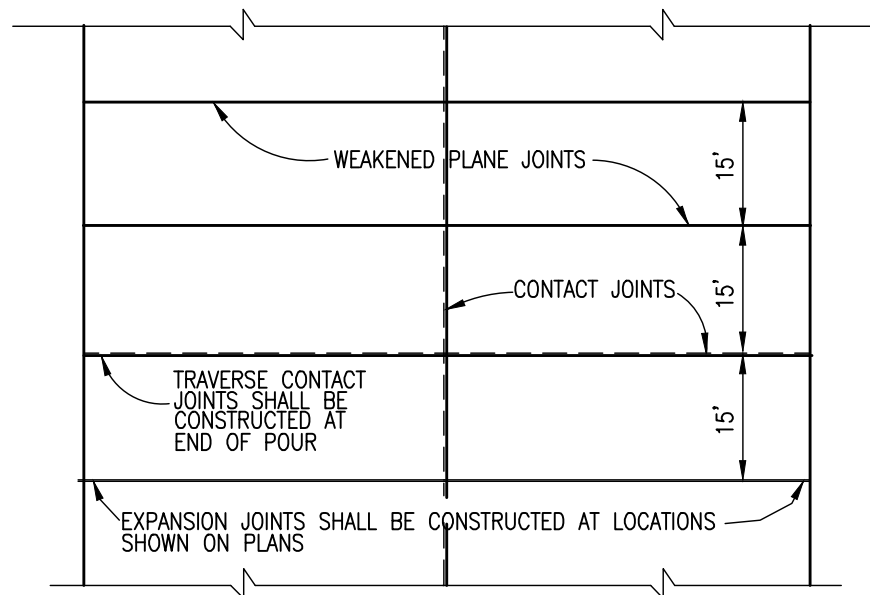
NOTES:

1. CONCRETE SHALL BE 560-C-3250.
2. SEE STANDARD DRAWING G-10 FOR JOINT DETAILS.
3. ADJUST 15' INTERVAL BETWEEN TRANSVERSE JOINTS TO MATCH ADJACENT EXISTING IMPROVEMENTS.

REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		KERCHEVAL	12/75	CONCRETE PAVEMENT, ALLEY SECTION WIDTH 53' TO 69'		 7/26/2012	CHAIRPERSON R.C.E. 19246 DATE
ADD METRIC		T. STANTON	03/03				
REVIEWED		T. STANTON	04/06				
UPDATED	MR	MR/CV	03/12				
						DRAWING NUMBER	G-20



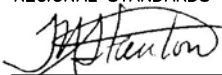
SECTION

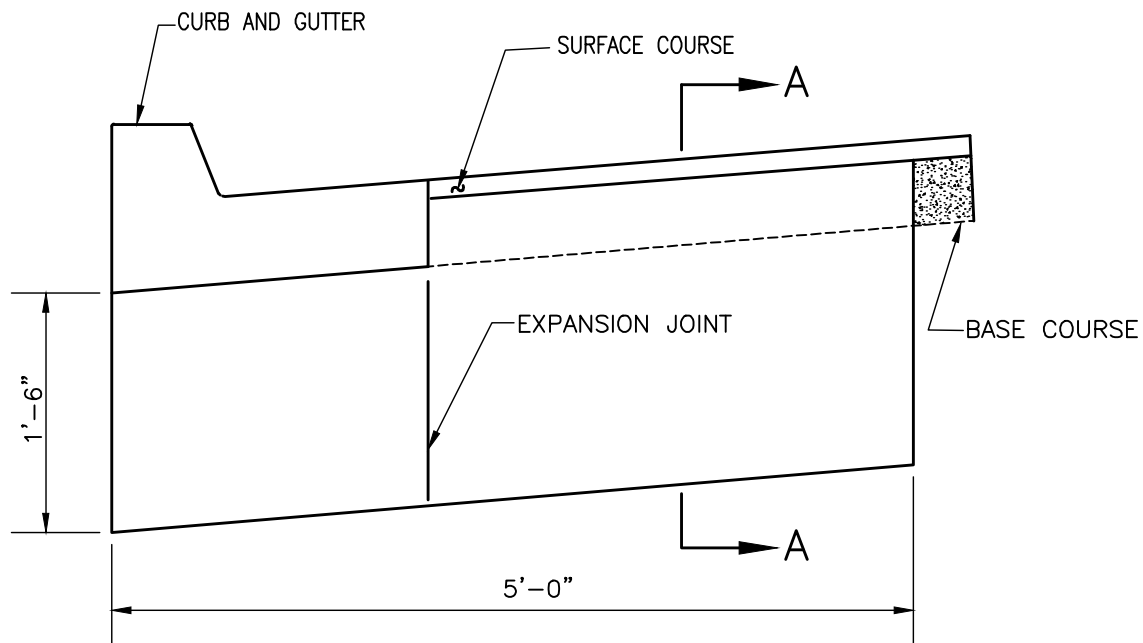


PLAN

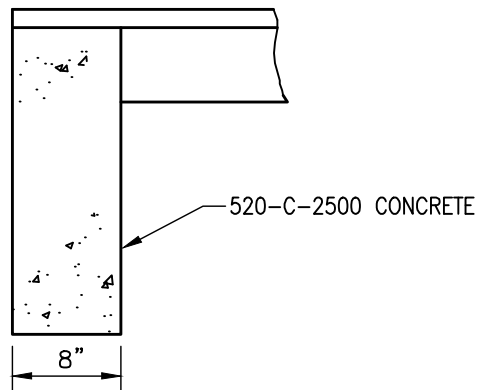
NOTES:

1. CONCRETE SHALL BE 560-C-3250.
2. SEE STANDARD DRAWING G-10 FOR JOINT DETAILS.
3. ADJUST 15' INTERVAL BETWEEN TRANSVERSE JOINTS TO MATCH ADJACENT EXISTING IMPROVEMENTS.

REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		KERCHEVAL	12/75	CONCRETE PAVEMENT ALLEY SECTION, WIDTH 40' OR LESS		 7/26/2012	CHAIRPERSON R.C.E. 19246 DATE
ADD METRIC		T. STANTON	03/03				
REVIEWED		T. STANTON	04/06				
UPDATED	MR	MR/CV	03/12				
						DRAWING NUMBER	G-21



ELEVATION

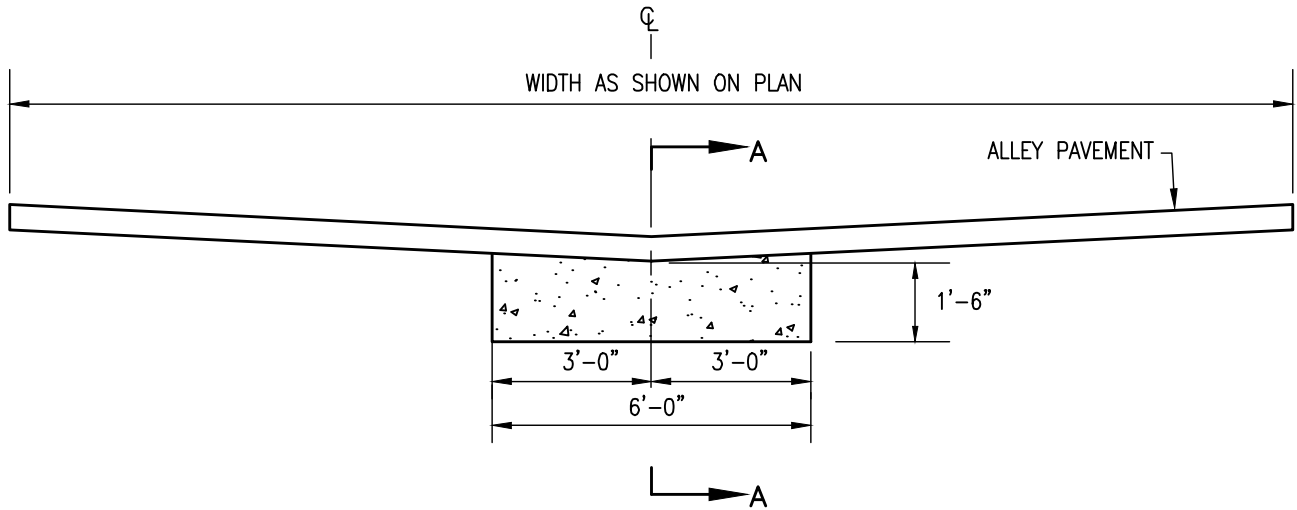


SECTION A-A

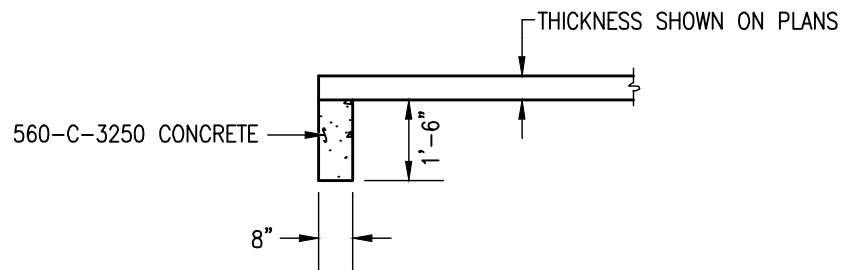
LEGEND ON PLANS



REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		KERCHEVAL	12/75			<i>T. Stanton</i> 7/26/2012	
ADD METRIC		T. STANTON	03/03	CUTOFF WALL AT END OF PAVEMENT		CHAIRPERSON R.C.E. 19246	DATE
REVIEWED		T. STANTON	04/06				
UPDATED	MR	MR/CV	03/12				
						DRAWING NUMBER	G-22

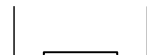


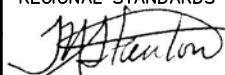
ELEVATION

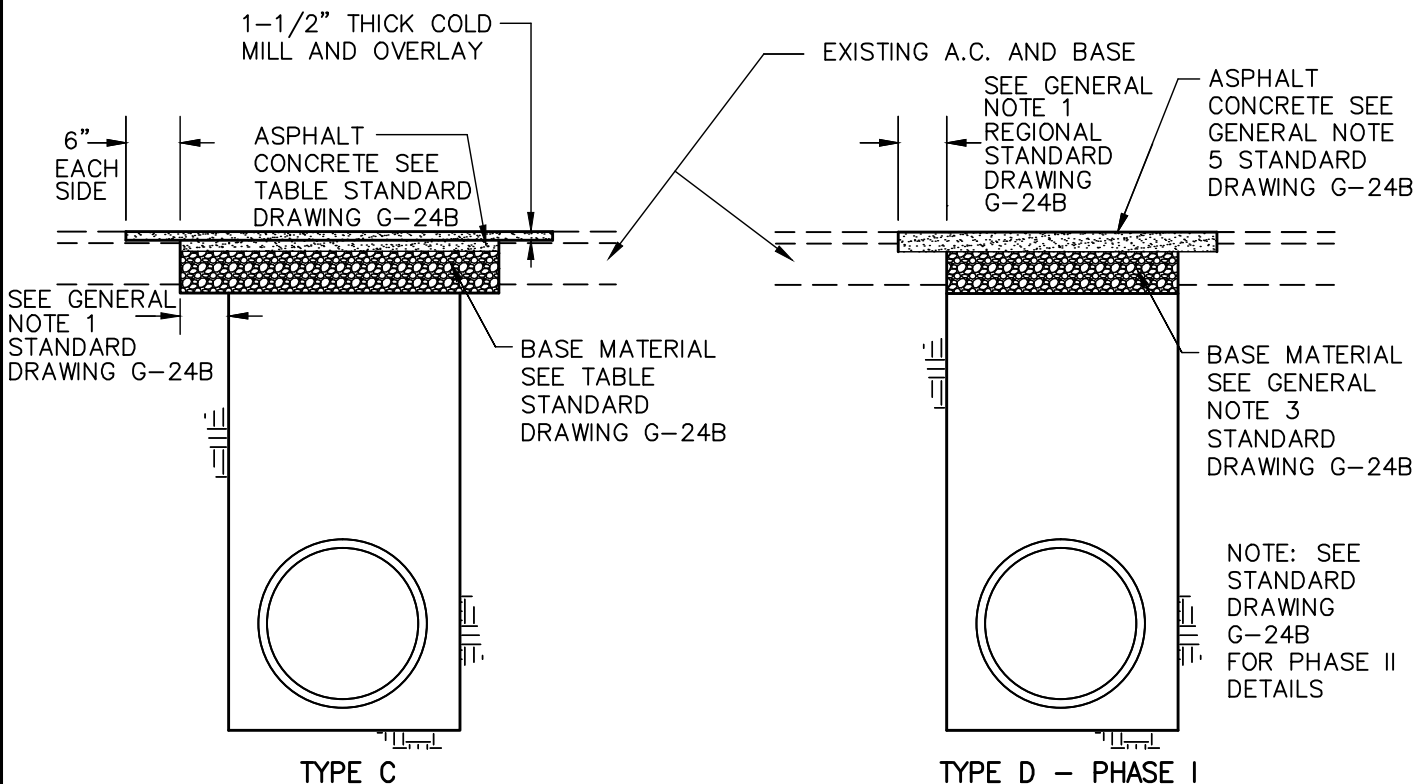
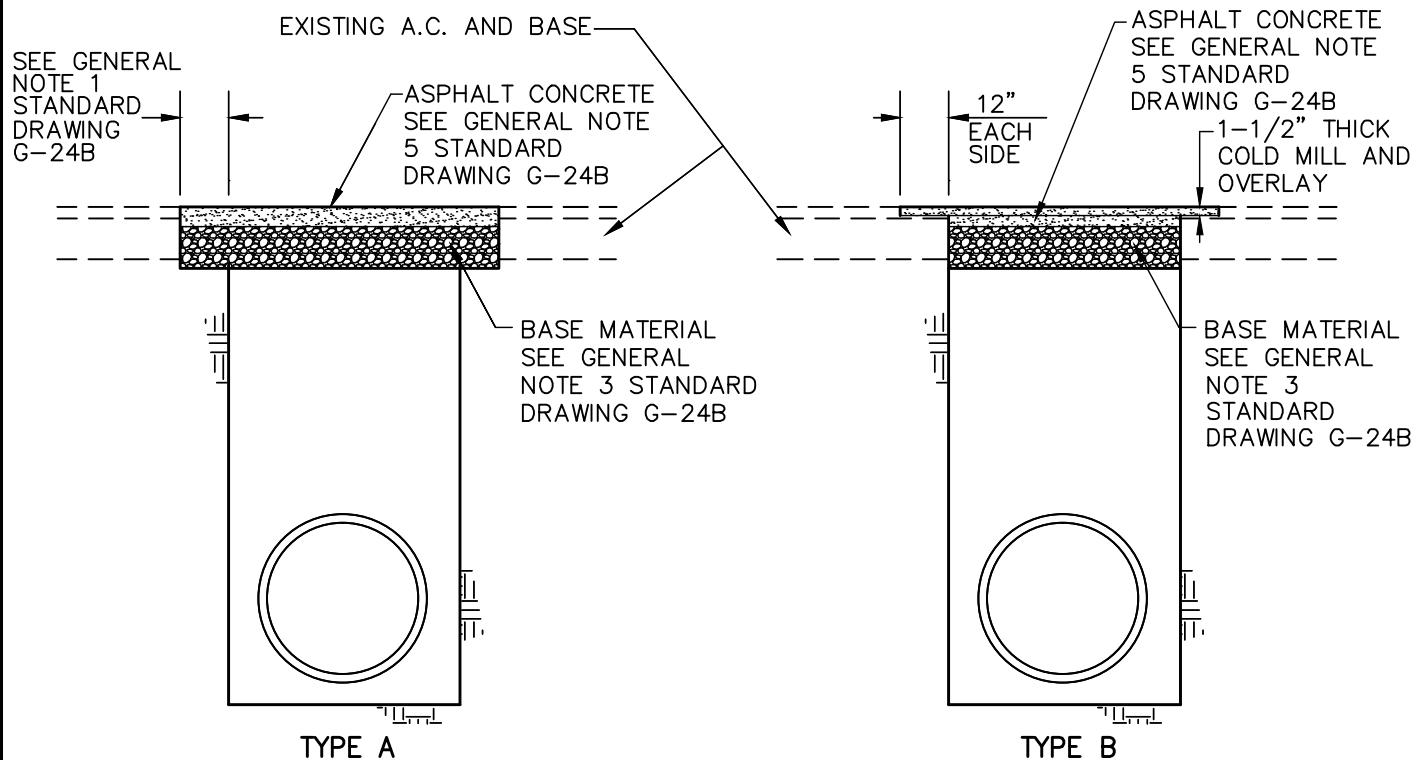


SECTION A-A

LEGEND ON PLANS



REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		KERCHEVAL	12/75			 7/26/2012 CHAIRPERSON R.C.E. 19246 DATE	
ADD METRIC		T. STANTON	03/03				
REVIEWED		T. STANTON	04/06				
UPDATED	MR	MR/CV	03/12				
				CUTOFF WALL AT END OF ALLEY PAVEMENT		DRAWING NUMBER G-23	



REVISION	BY	APPROVED	DATE
ORIGINAL		PARKINSON	02/95
ADD METRIC		T. STANTON	03/03
REVIEWED		T. STANTON	04/06
UPDATED	MR	MR/CV	03/12

SAN DIEGO REGIONAL STANDARD DRAWING

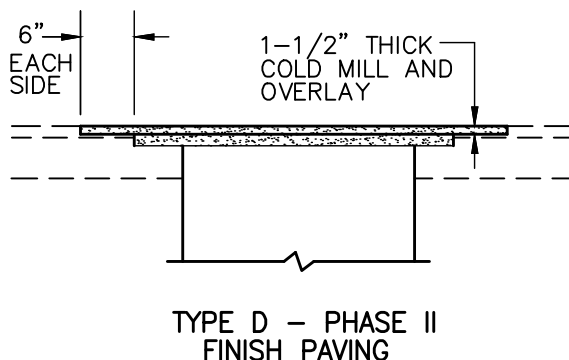
**TRENCH RESURFACING
ASPHALT CONCRETE STREETS**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

CHAIRPERSON R.C.E. 19246 DATE

DRAWING
NUMBER **G-24A**



TYPE C TRENCH		
	ASPHALT	ASPHALT PLUS BASE
MIX DESIGN	3/4" TYPE III CLASS B3	3/4" TYPE III CLASS B3 PLUS CLASS II BASE
ALLEYS	8.0"	ASPHALT THICKNESS TO EQUAL EXISTING PLUS 1", MIN 4" TO MAX 9" COMBINED ASPHALT PLUS BASE 18" MIN.
LOCAL - 4 LANE COLLECTOR	10.0"	
MAJOR OR GREATER	12.0"	

GENERAL NOTES:

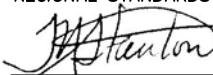
- TRENCH EDGES TO BE SAWCUT A MINIMUM OF 6" WIDER THAN TRENCH FOR 3' WIDE OR LESS, AND 12" WIDER FOR TRENCHES OVER 3' WIDE ON EACH SIDE OF TRENCH, EXCEPT TYPE B.
- EXISTING A.C. SHALL BE SAWCUT AND REMOVED IN SUCH A MANNER SO AS NOT TO TEAR, BULGE, OR DISPLACE ADJACENT PAVEMENT. EDGES SHALL BE CLEAN AND VERTICAL. ALL CUTS SHALL BE PARALLEL OR PERPENDICULAR TO STREET CENTERLINE, WHEN PRACTICAL.
- BASE MATERIAL SHALL MATCH THE THICKNESS OF EXISTING BASE OR AS SHOWN ON PLAN. A.C. MAY BE SUBSTITUTED FOR BASE MATERIAL WITH PRIOR AGENCY APPROVAL. TYPE C - SEE TABLE.
- A TACK COAT OF ASPHALTIC EMULSION OR PAVING ASPHALT SHALL BE APPLIED TO EXISTING A.C. OR P.C.C. CONTACT SURFACES PRIOR TO RESURFACING.
- ASPHALT CONCRETE RESURFACING:
 - MINIMUM TOTAL THICKNESS SHALL BE ONE INCH GREATER THAN EXISTING A.C. OR AS SHOWN ON PLAN.
 - A.C. SHALL BE HOT PLANT MIX.
 - TYPE C - SEE TABLE.
- ALL A.C. RESURFACING SHALL BE SEAL COATED WITH AN EMULSIFIED ASPHALT AND COVERED WITH SAND. CHIP SEALING SHALL BE APPLIED AS REQUIRED BY AGENCY.
- PAVEMENT FABRIC SHALL BE INSTALLED WHEN REQUIRED BY AGENCY.

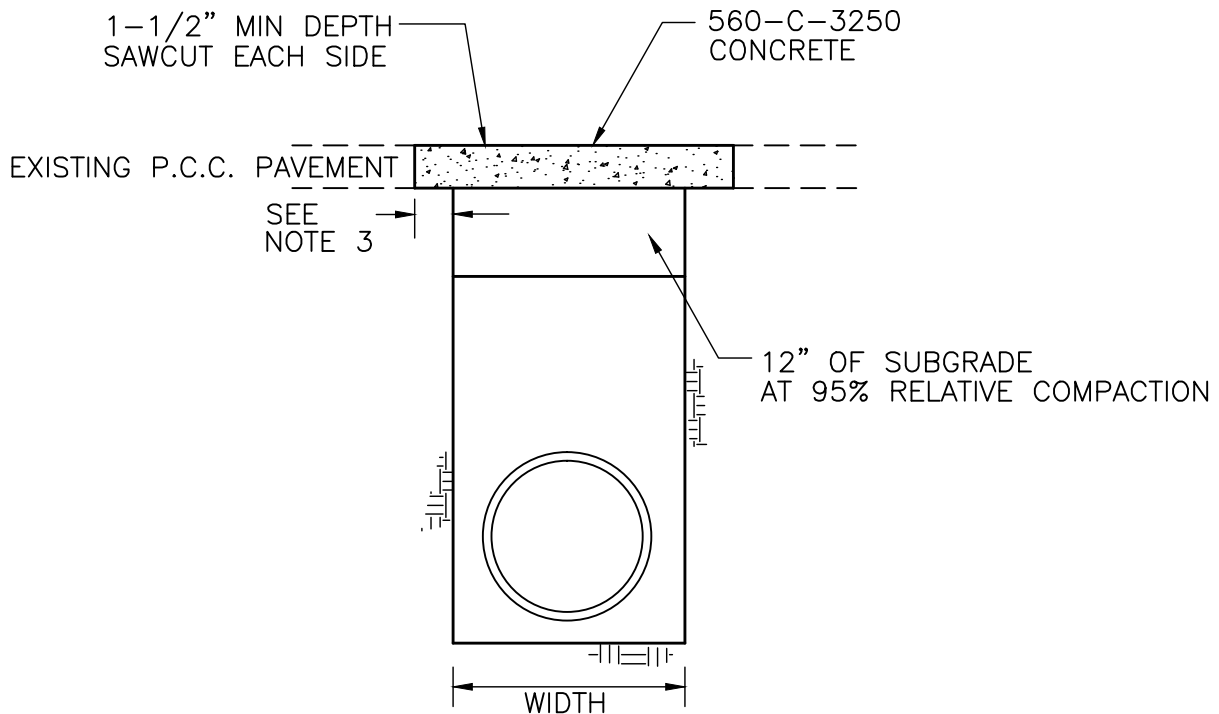
TYPE B & C NOTES:

- ASPHALT TRENCH CAPS IN STREETS NOT RECEIVING A FULL WIDTH OVERLAY PRIOR TO ACCEPTANCE SHALL BE BASE-PAVED TO MATCH EXISTING ADJACENT PAVEMENT SURFACE. NO LESS THAN 30 DAYS AFTER INITIAL ASPHALT PLACEMENT, TRENCH CAP SHALL BE MILLED AS SHOWN AND RESURFACED WITH 1/2" TYPE III CLASS C2 ASPHALT.
- UPON APPROVAL OF ALL PIPELINE TESTING AND TIE-INS FROM THE AGENCY, THE CONTRACTOR SHALL COLD MILL THE TRENCH REPAIR TO A DEPTH OF 1-1/2", ONE FOOT WIDER THAN THE TRENCH WIDTH ON BOTH SIDES. WHEN EDGE OF COLD MILL LINE IS WITHIN 18" OF ANY STRUCTURE, EDGE OF PAVEMENT, ADJACENT TRENCH, OR OTHER PAVING JOIN LINE, THE COLD MILL SHALL BE EXTENDED TO THE EXISTING STRUCTURE, JOIN LINE, OR EDGE OF PAVEMENT.
- ANY STREET TRENCH 7 FEET IN WIDTH OR GREATER AND LONGER THAN 100 FEET IN OVERALL LENGTH SHALL BE RECONSTRUCTED AS DIRECTED BY AGENCY.

TYPE D NOTES:

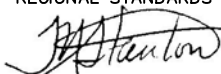
- ALL AREAS OF EXISTING AC LESS THAN 48" WIDE REMAINING AFTER TRENCHING SHALL BE COLD MILLED AND PAVED PER TYPE D - PHASE II FINISH PAVING DETAIL.
- PHASE II PAVING SHALL BE COMPLETED NOT EARLIER THAN 14 CALENDAR DAYS AND NOT LATER THAN 75 CALENDAR DAYS AFTER PHASE I PAVING.

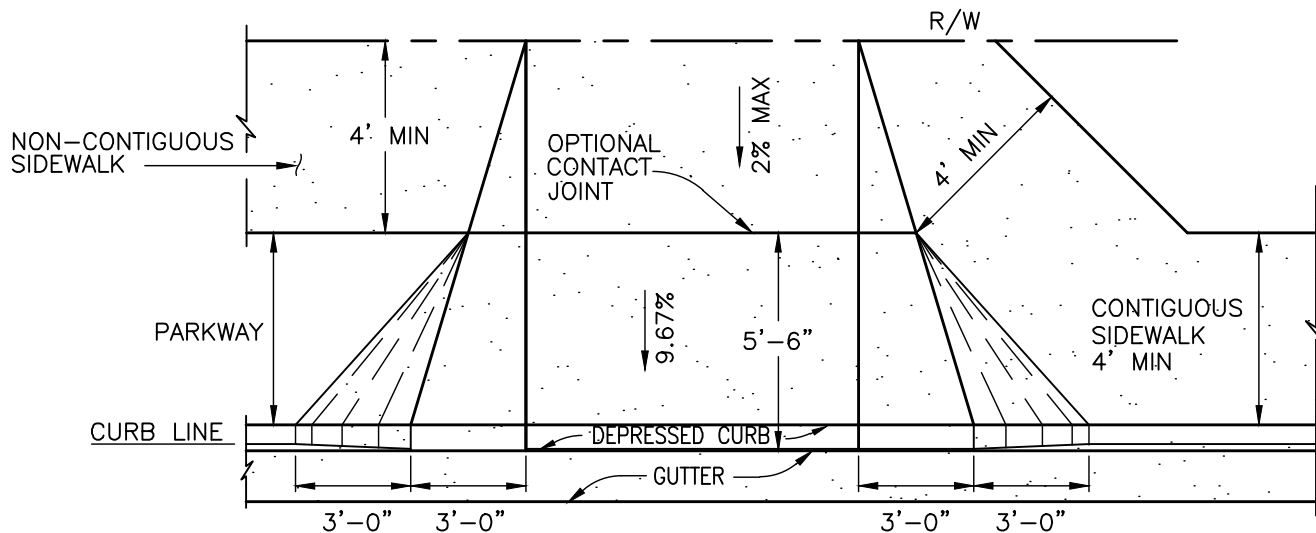
REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL	MR	MR/CV	03/12			 7/26/2012	
				TRENCH RESURFACING NOTES AND DETAILS		CHAIRPERSON R.C.E. 19246	DATE
						DRAWING NUMBER	G-24B



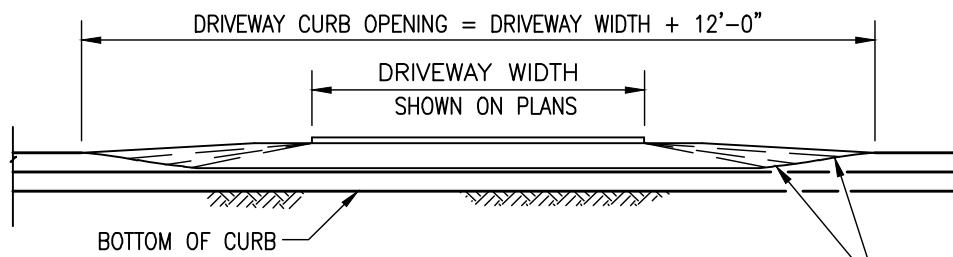
NOTES:

1. EXISTING CONCRETE PAVEMENT SHALL BE SAWCUT AND REMOVED. PRIOR TO PLACING CONCRETE, PAVEMENT EDGES SHALL BE TRIMMED TO NEAT HORIZONTAL AND VERTICAL LINES.
2. UNLESS OTHERWISE SPECIFIED, CONCRETE TRENCH COVER SHALL BE A MINIMUM OF 5-1/2" FOR ALLEYS, 7" FOR LOCAL THROUGH FOUR LANE COLLECTOR STREETS, AND 9" THICK FOR ALL MAJOR OR GREATER STREET CLASSIFICATIONS.
3. TRENCH EDGES TO BE CUT A MINIMUM OF 6" WIDER THAN TRENCH FOR 3' WIDE OR LESS AND 12" WIDER FOR TRENCHES OVER 3' WIDE, ON EACH SIDE OF TRENCH.
4. ANY STREET TRENCH 7' IN WIDTH OR GREATER AND LONGER THAN 100' IN LENGTH SHALL BE CONSTRUCTED WITH THE PAVEMENT SECTION PER PLAN OR LOCAL AGENCY REQUIREMENT. STREET TRENCH SECTIONS 7' IN WIDTH OR GREATER BUT LESS THAN 100' IN OVERALL LENGTH SHALL BE SURFACED TO A THICKNESS OF 1" GREATER THAN REQUIRED BY NOTE 2 OR AS INDICATED ON PLAN.
5. IN FOUR-LANE MAJOR OR GREATER STREETS, AN APPROVED SET ACCELERATING ADMIXTURE SUCH AS CALCIUM CHLORIDE SHALL BE USED IN CONCRETE.

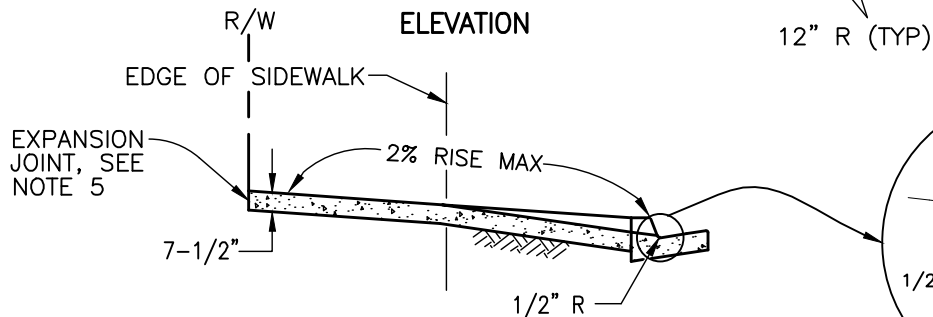
REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING	<div>RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE</div> <div> 7/26/2012</div> <div>CHAIRPERSON R.C.E. 19246 DATE</div>
ORIGINAL		PARKINSON	02/95		
ADD METRIC		T. STANTON	03/03	TRENCH RESURFACING PCC SURFACED STREETS	DRAWING NUMBER G-25
REVIEWED		T. STANTON	04/06		
UPDATED	MR	MR/CV	03/12		



PLAN



ELEVATION



SECTION

NOTES:

1. NO CONCRETE SHALL BE PLACED UNTIL FORMS AND SUBGRADE ARE INSPECTED BY THE AGENCY.
2. CONCRETE SHALL BE 560-C-3250.
3. SEE STANDARD DRAWINGS G-15 AND G-16 FOR WIDTH AND LOCATION REQUIREMENTS.
4. DRIVEWAY RAMP TO EXTEND TO 10' FROM CURB FACE OR TO PROPERTY LINE WHICHEVER IS LESS. (FOR COMMERCIAL DRIVEWAYS ONLY)
5. PLACE EXPANSION JOINT AT R/W OR 10', WHICHEVER IS LESS.
6. SEE STANDARD DRAWINGS G-2 AND G-10 FOR CURB AND JOINT DETAILS.
7. DIMENSIONS REFLECT A 6' CURB HEIGHT.

REVISION	BY	APPROVED	DATE
ORIGINAL		H. HECHT	10/82
ADD METRIC		T. STANTON	03/03
REVIEWED		T. STANTON	04/06
UPDATED	MR	MR/CV	03/12

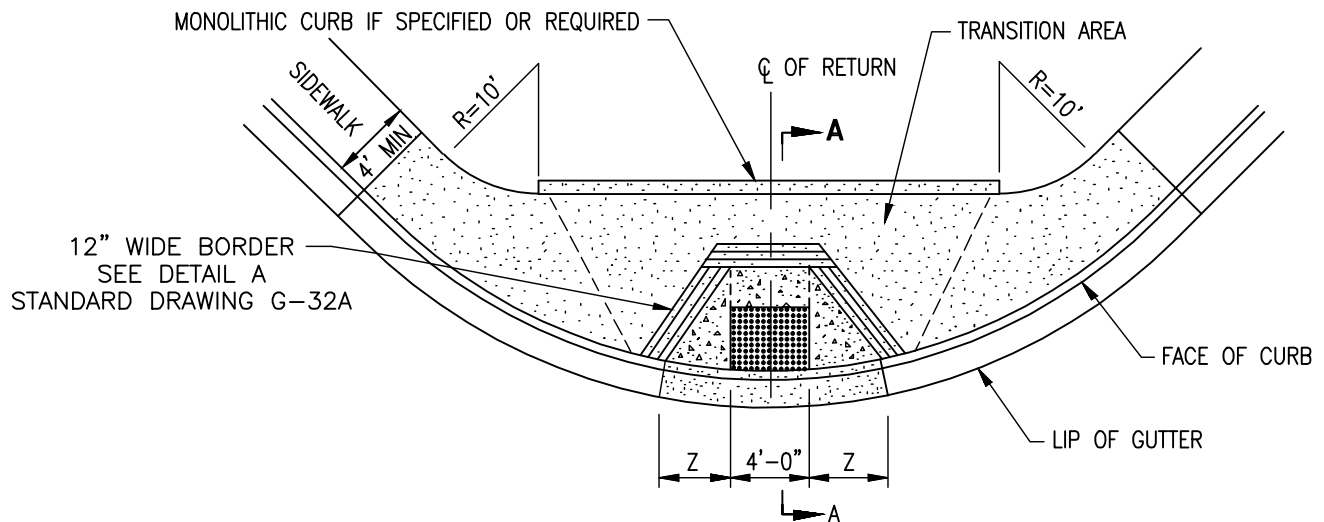
SAN DIEGO REGIONAL STANDARD DRAWING

CONCRETE DRIVEWAY
COMMERCIAL ALTERNATE

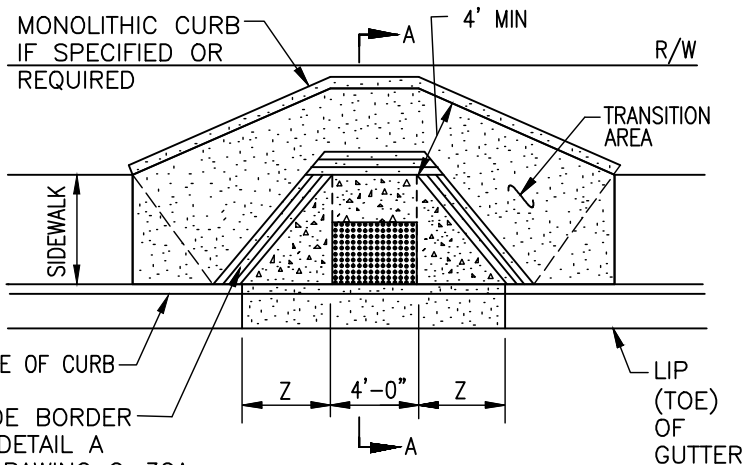
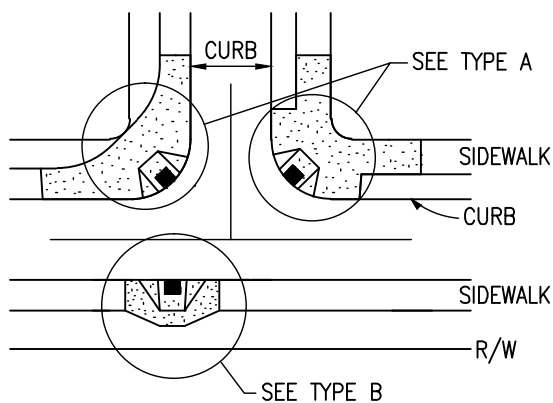
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
CHAIRPERSON R.C.E. 19246 DATE

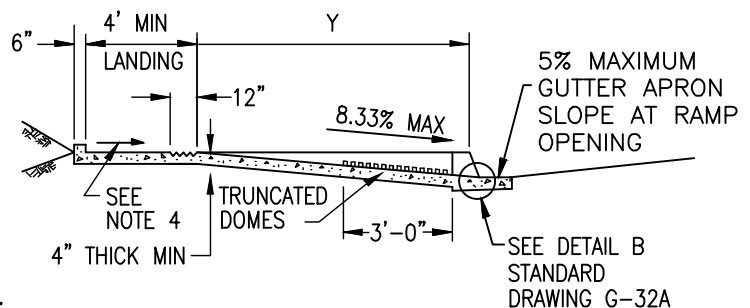
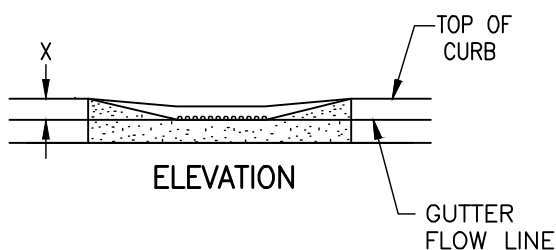
DRAWING
NUMBER **G-26**



PLAN - TYPE A



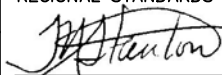
PLAN - TYPE B

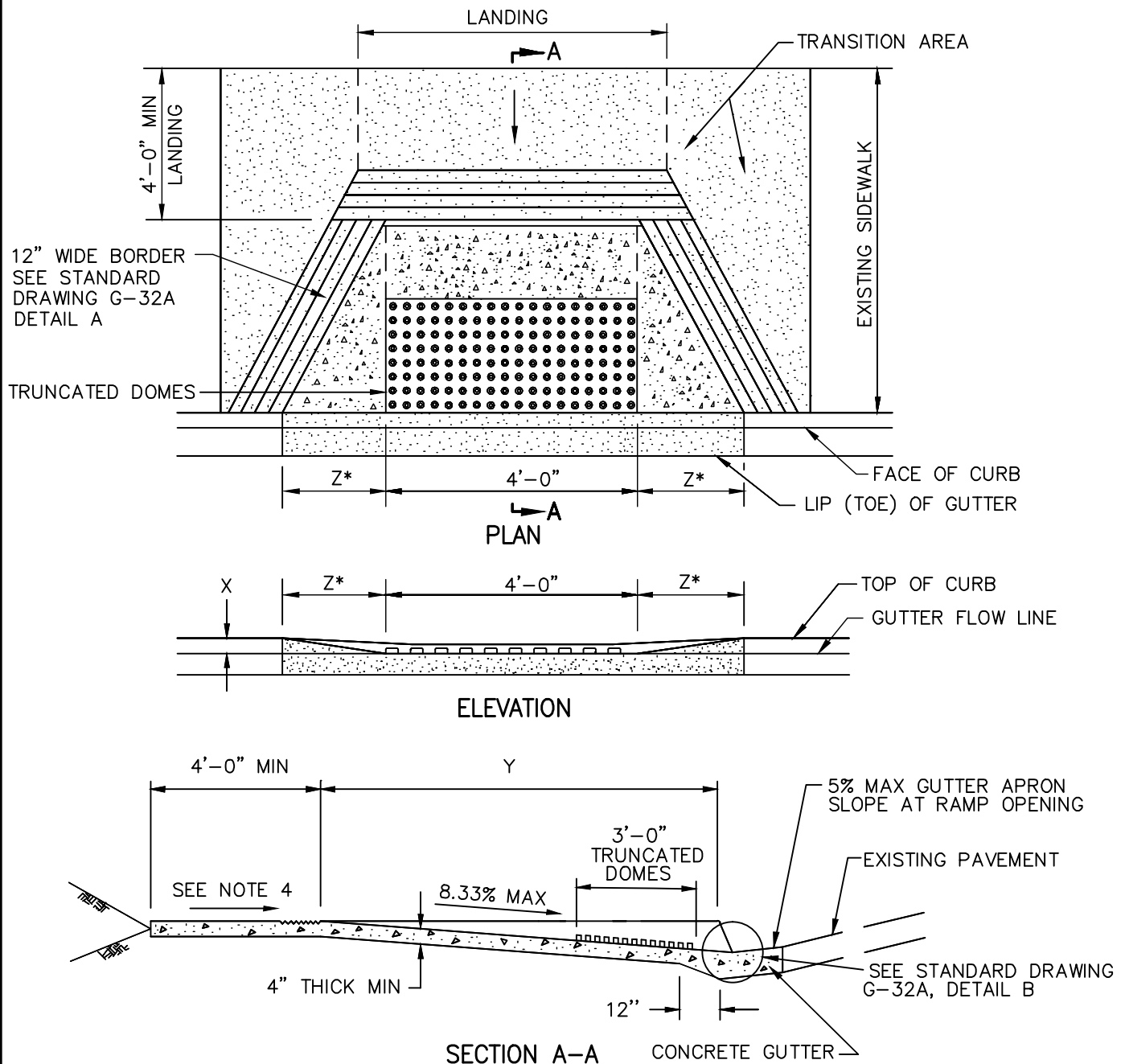


SECTION A-A

NOTES:

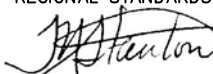
1. SEE STANDARD DRAWING G-32A FOR GENERAL NOTES.
2. FOR TRUNCATED DOMES DETAILS, SEE STANDARD DRAWING G-30.
3. Z SIDE SLOPE SHALL BE 10:1.
4. LANDING CROSS SLOPE SHALL BE 2.0% MAX IN BOTH DIRECTIONS.
5. SEE STANDARD DRAWING G-32B FOR X, Y, AND Z DETAILS.

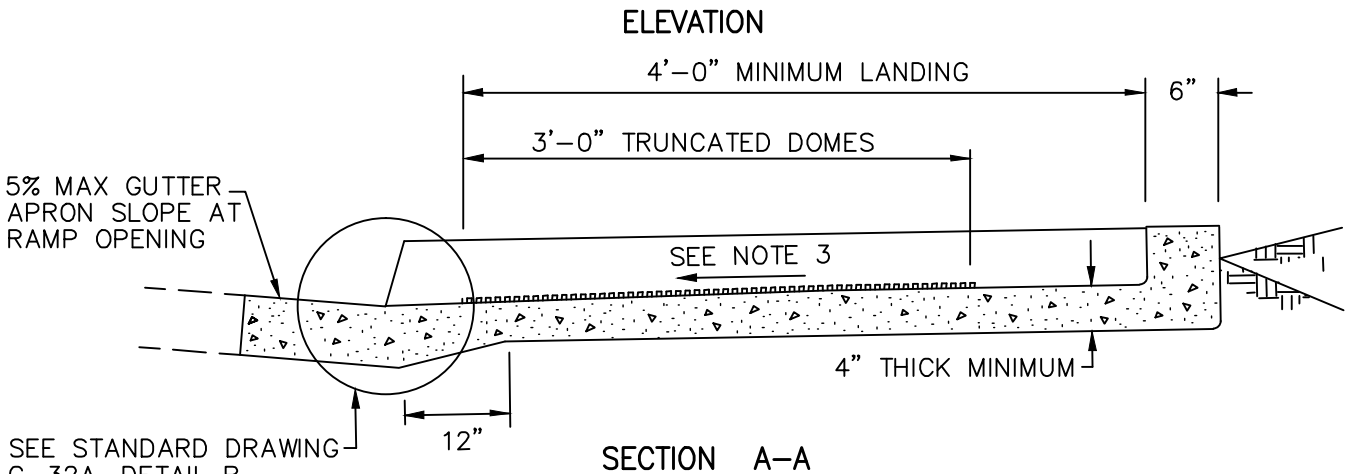
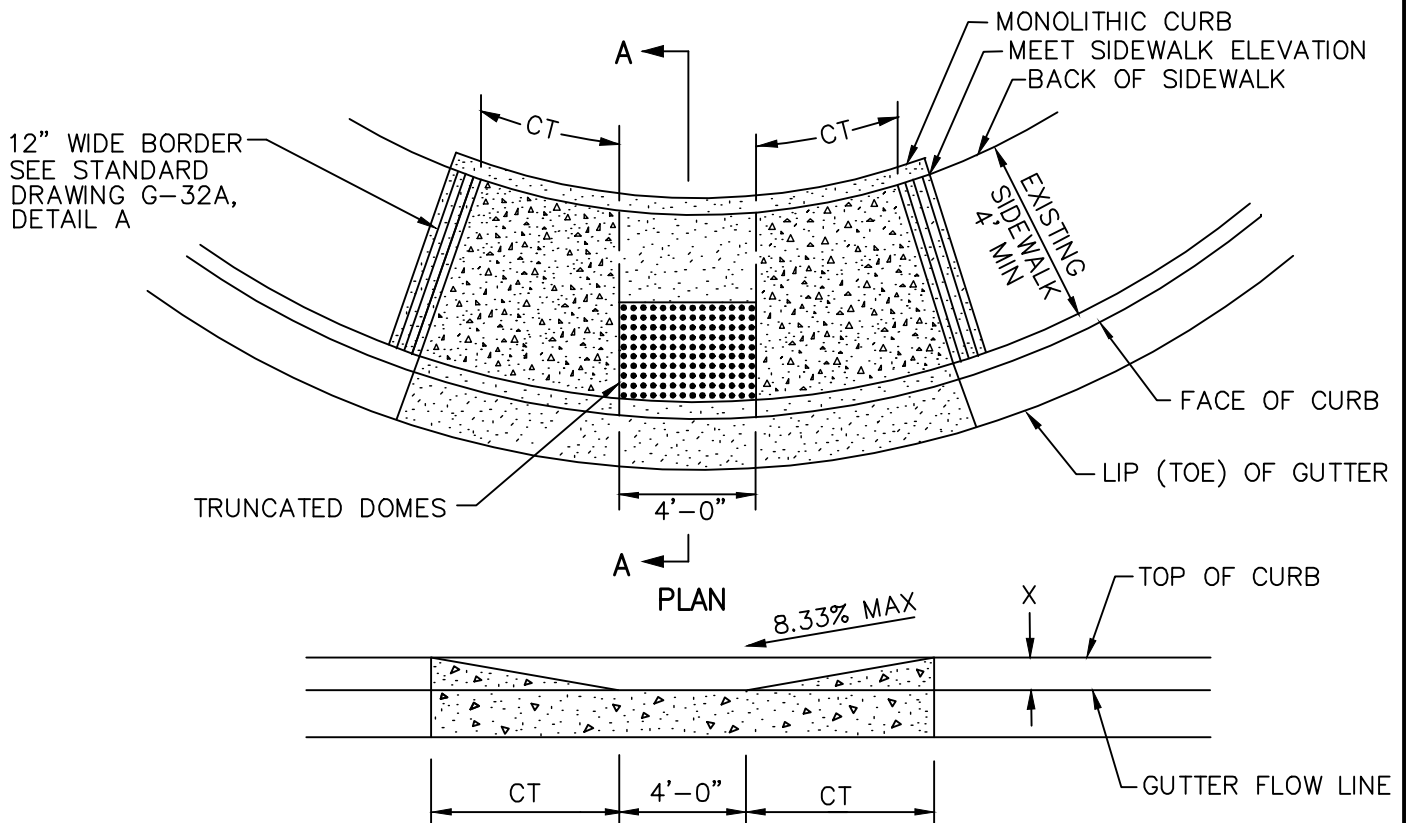
REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		BAHMANIAN	04/86	CURB RAMP - TYPES A AND B (NEW CONSTRUCTION)		 7/26/2012 CHAIRPERSON R.C.E. 19246 DATE
ADD METRIC		T. STANTON	03/03			
UPDATE		D. DAVIES	12/04			
REVISED		T. STANTON	04/06			
UPDATED	MR	MR/CV	03/12			
						DRAWING NUMBER G-27



NOTES:

1. SEE STANDARD DRAWING G-32A 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 2.0% MAX IN BOTH DIRECTIONS.
5. FOR TRUNCATED DOMES DETAIL, SEE STANDARD DRAWING G-30.
6. SEE STANDARD DRAWING G-32B FOR X, Y, AND Z* DETAILS.

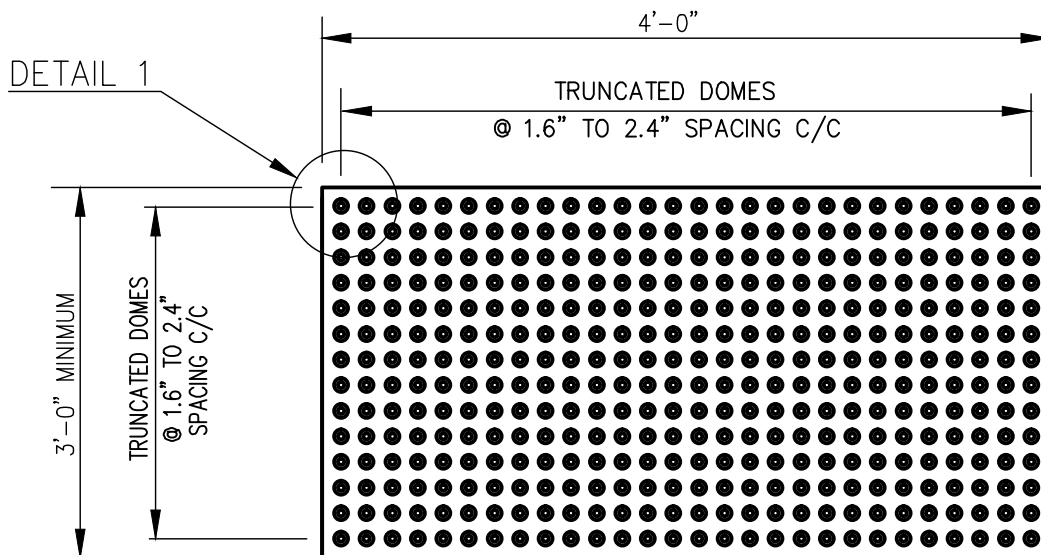
REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		BAHMANIAN	02/95	CURB RAMP - TYPES A-1 AND B-1 (FOR EXISTING SIDEWALK)		<div> 7/26/2012</div> <div>CHAIRPERSON R.C.E. 19246 DATE</div>	
ADD METRIC		T. STANTON	03/03				
UPDATE		D. DAVIES	12/04				
REVISED		T. STANTON	04/06				
UPDATED	MR	MR/CV	03/12				
				DRAWING NUMBER		G-28	



NOTES:

1. TYPE C ARE ONLY TO BE USED TO MITIGATE EXISTING CONDITIONS WHERE INADEQUATE RIGHT OF WAY EXISTS. TYPE C RAMP IS NOT TO BE USED IN NEW CONSTRUCTION, UNLESS APPROVED BY AGENCY.
2. SEE STANDARD DRAWING G-32A FOR GENERAL NOTES.
3. LANDING CROSS SLOPE SHALL BE 2.0% MAX IN BOTH DIRECTIONS.
4. FOR TRUNCATED DOMES, SEE STANDARD DRAWING G-30.
5. CT (CURB TRANSITION) SHALL BE 8.33% MAXIMUM.
6. SEE STANDARD DRAWING G-32B FOR X, Y, AND CT DETAILS.

REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		R. MUNOZ	05/97	CURB RAMP - TYPE C (FOR EXISTING SIDEWALK)		<i>T. Stanton</i> 7/26/2012
ADD METRIC		T. STANTON	03/03			CHAIRPERSON R.C.E. 19246 DATE
UPDATE		D. DAVIES	12/04			DRAWING NUMBER G-29
REVISED		T. STANTON	04/06			
UPDATED	MR	MR/CV	03/12			

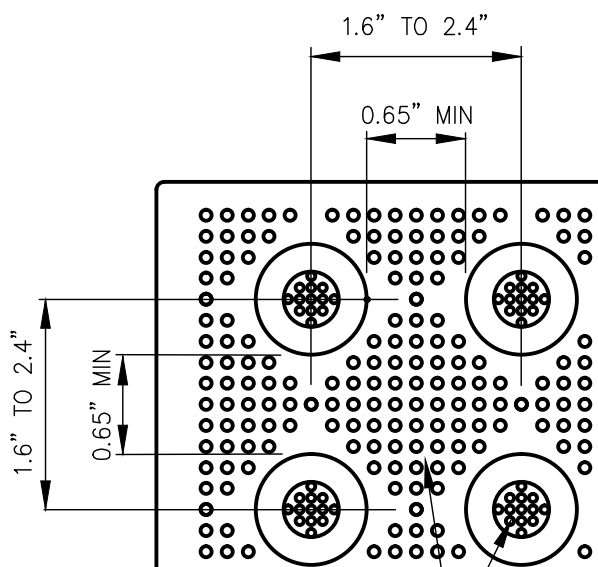


PLAN — TILE

NOT TO SCALE

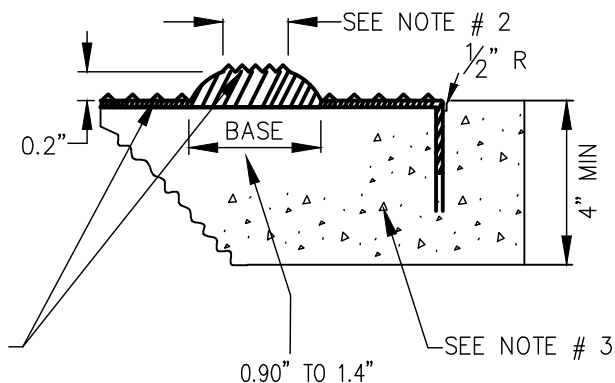
NOTES

1. DETECTABLE WARNING SURFACE COLOR SHALL BE YELLOW CONFORMING TO FEDERAL STANDARDS 595B TABLE IV, COLOR NO. 33538, OR AS SPECIFIED BY THE AGENCY. 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 THE TILE AND THE CONCRETE.



DETAIL 1
NOT TO SCALE

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



REVISION	BY	APPROVED	DATE
ORIGINAL		PARKINSON	02/95
ADD METRIC		T. STANTON	03/03
UPDATE		D. DAVIES	12/04
UPDATED	MR	MR/CV	03/12

SAN DIEGO REGIONAL STANDARD DRAWING

TRUNCATED DOMES

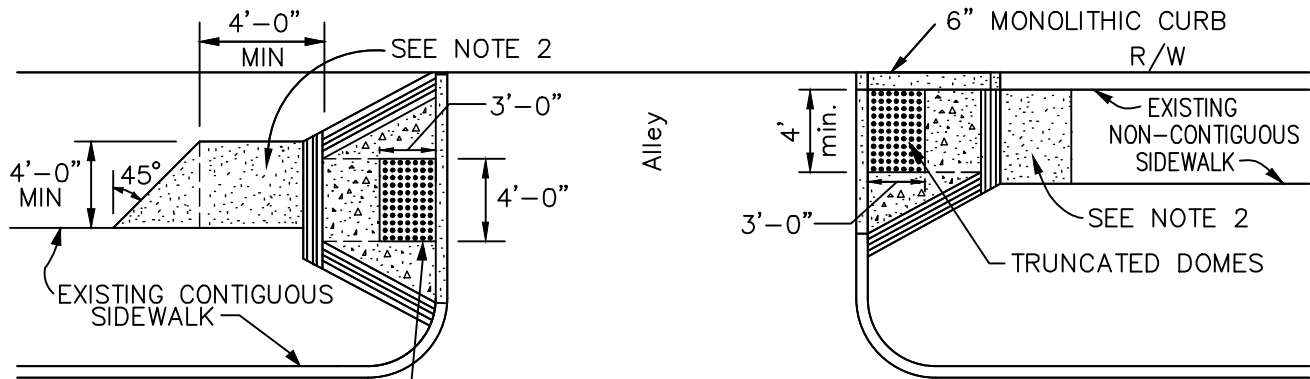
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

CHAIRPERSON R.C.E. 19246 DATE

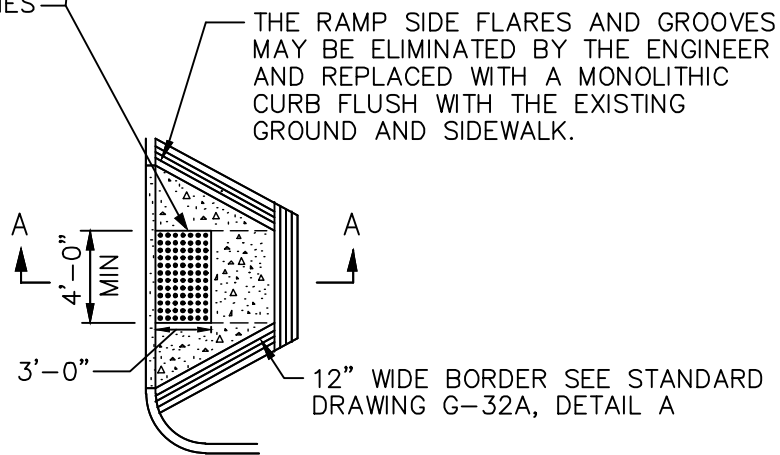
DRAWING
NUMBER

G-30

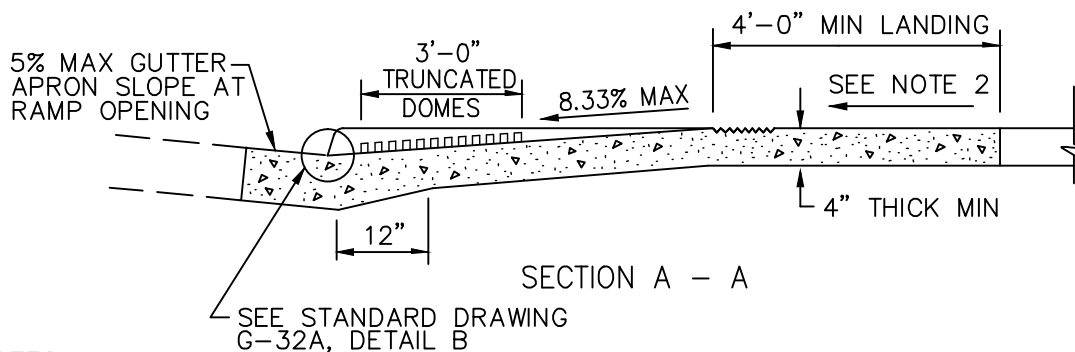


STREET
TYPICAL PLAN

TRUNCATED DOMES



PLAN VIEW



SECTION A - A

NOTES

1. SEE STANDARD DRAWING G-32A FOR GENERAL NOTES.
2. LANDING CROSS SLOPE SHALL BE 2.0% MAX IN BOTH DIRECTIONS.
3. FOR TRUNCATED DOMES DETAILS, SEE STANDARD DRAWING G-30.

REVISION	BY	APPROVED	DATE
ORIGINAL		PARKINSON	02/95
ADD METRIC		T. STANTON	03/03
UPDATE		D. DAVIES	12/04
REVISED		T. STANTON	04/06
UPDATED	MR	MR/CV	03/12

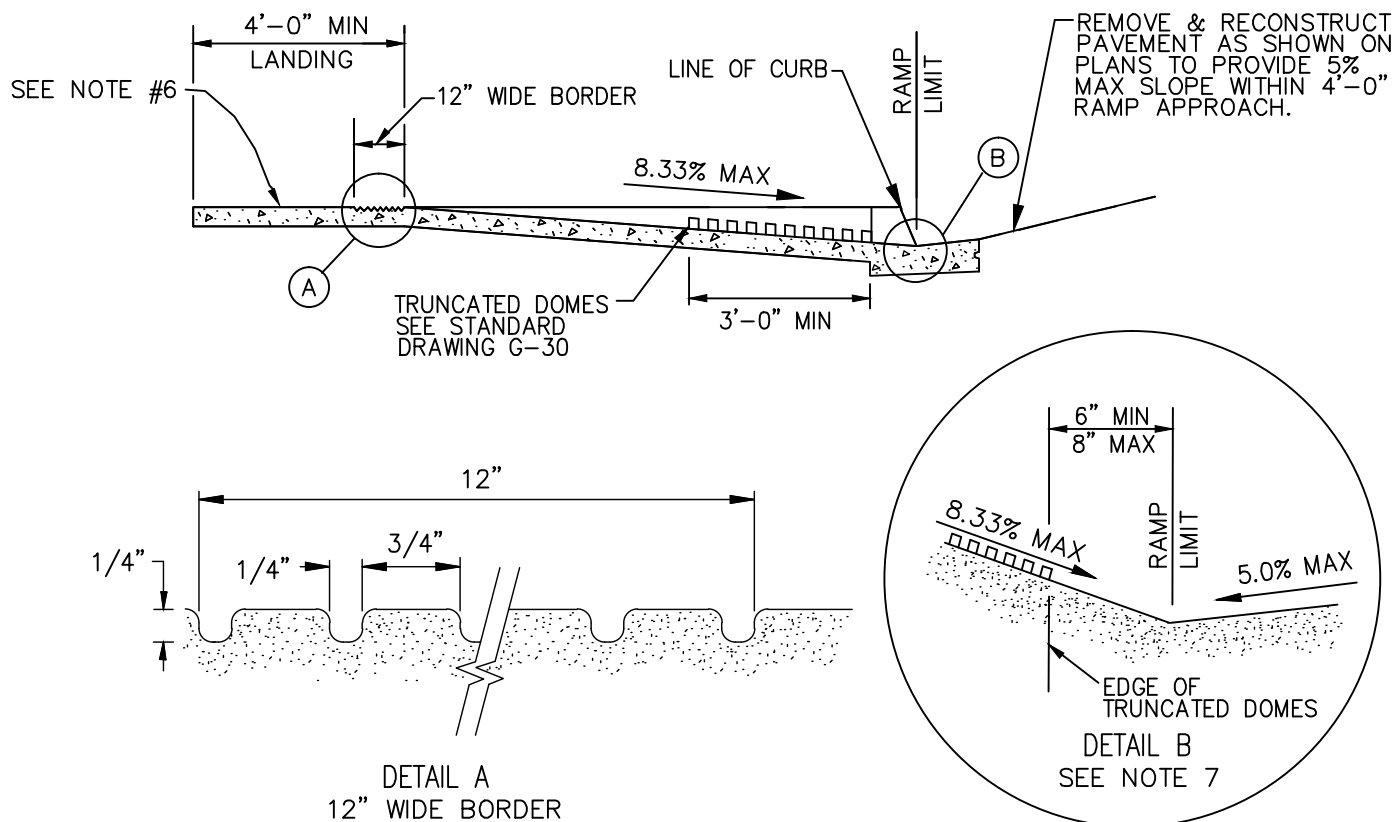
SAN DIEGO REGIONAL STANDARD DRAWING

CURB RAMP - TYPE D



RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
CHAIRPERSON R.C.E. 19246 DATE

DRAWING
NUMBER **G-31**



NOTES

1. 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 EXISTING GRADE.
2. CONCRETE SHALL BE CLASS 520-C-2500.
3. 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.
4. IF OBSTRUCTIONS SUCH AS INLETS, UTILITY POLES, FIRE HYDRANTS, ETC., ARE ENCOUNTERED, THE RAMP LOCATIONS MAY BE ADJUSTED UPON THE APPROVAL OF THE AGENCY.
5. THE RAMP SLOPES WILL BE MEASURED RELATIVE TO THE SIDEWALK SLOPE. ADJOINING SLOPE BEYOND THE RAMP SHALL NOT EXCEED 20:1 (5%).
6. LANDING CROSS SLOPE SHALL BE 2.0% MAX IN BOTH DIRECTIONS.
7. EDGE OF TRUNCATED DOME PANEL SHALL BE LOCATED 6" MINIMUM AND 8" MAXIMUM FROM THE GUTTER FLOWLINE.

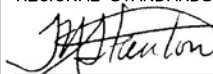
REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		PARKINSON	02/95	GENERAL NOTES FOR CURB RAMPS		 7/26/2012	
ADD METRIC		T. STANTON	03/03				
UPDATE		D. DAVIES	12/04				
REVISED		T. STANTON	04/06				
UPDATED	MR	MR/CV	03/12				
						CHAIRPERSON R.C.E. 19246	
				DRAWING NUMBER		G-32A	

TABLE A			
X	Y	Z	CT
CURB HEIGHT	RAMP LENGTH (12:1)	SIDE SLOPE (10:1)	CURB TRANS.
1"	1'-0"	1'-6"	0'-0"
2"	2'-0"	1'-8"	0'-0"
3"	3'-0"	2'-6"	0'-0"
4"	4'-0"	3'-4"	0'-0"
5"	5'-0"	4'-2"	0'-0"
6"	6'-0"	5'-0"	0'-0"
7"	7'-0"	5'-10"	1'-0"
8"	8'-0"	6'-8"	2'-0"

TYPE A AND B CURB RAMPS

TABLE B			
X	Y	Z	Z1
CURB HEIGHT	RAMP LENGTH (12:1)	SIDE SLOPE (10:1)	SIDE SLOPE (12:1)
1"	1'-0"	1'-6"	1'-0"
2"	2'-0"	1'-8"	2'-0"
3"	3'-0"	2'-6"	3'-0"
4"	4'-0"	3'-4"	4'-0"
5"	5'-0"	4'-2"	5'-0"
6"	6'-0"	5'-0"	6'-0"
7"	7'-0"	5'-10"	7'-0"
8"	8'-0"	6'-8"	8'-0"

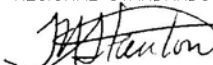
TYPE A-1 AND B-1 CURB RAMPS

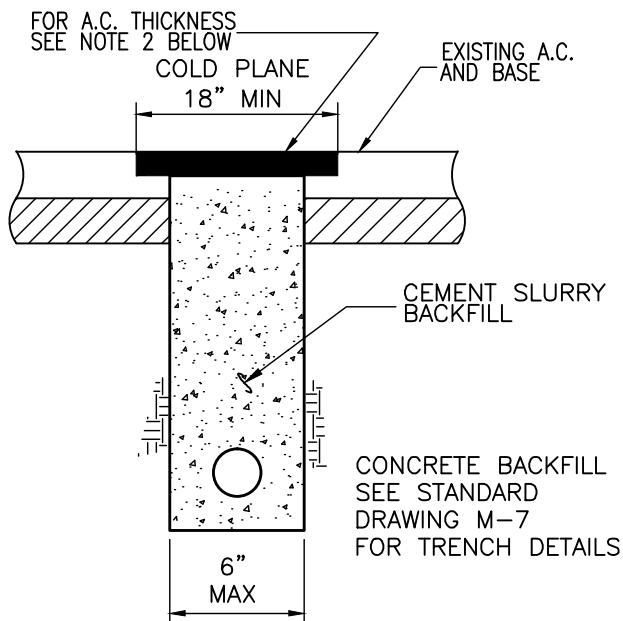
TABLE C	
X	CT
CURB HEIGHT	CURB TRANS. (12:1)
4"	4'-0"
5"	5'-0"
6"	6'-0"
7"	7'-0"
8"	8'-0"
9"	9'-0"
10"	10'-0"
11"	11'-0"
12"	12'-0"
13"	13'-0"

TYPE C CURB RAMP

NOTES

1. DIMENSIONS X, Y, Z, Z1, AND CT MAY BE DETERMINED BY USING THE TABLES ON THIS SHEET WITH PRIOR AGENCY APPROVAL. WITHOUT AGENCY APPROVAL, DIMENSIONS SHOULD NOT EXCEED THE MAXIMUM SLOPE OR RATIO PROVIDED.
2. Z* REFERS TO Z OR Z1 IN TABLE B. Z SIDE SLOPE SHALL BE 10:1, EXCEPT PER NOTE 3.
3. FOR TYPE A-1 AND B-1 CURB RAMPS, WHERE A 4' LANDING CANNOT BE CONSTRUCTED DUE TO INADEQUATE RIGHT OF WAY, A 3' MINIMUM LANDING IS ACCEPTABLE WITH PRIOR AGENCY APPROVAL AND PROVIDED THE SIDE SLOPES ARE REVISED TO 12:1 PER SIDE SLOPE Z1 IN TABLE B.

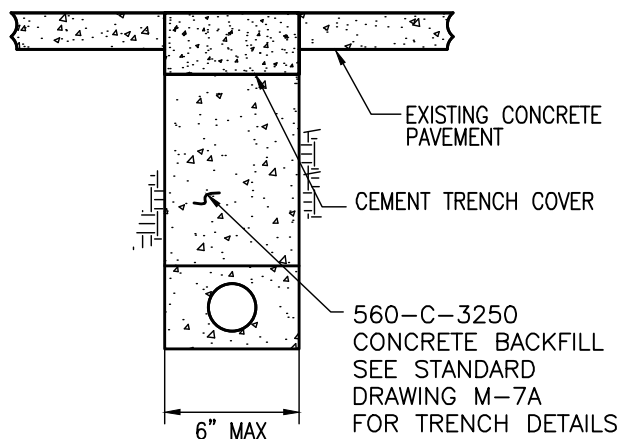
REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL	MR	MR/CV	03/12		
				NOTES FOR CURB RAMPS	
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012 CHAIRPERSON R.C.E. 19246 DATE	
				DRAWING NUMBER G-32B	



TYPE B

NOTES

1. A TACK COAT SHALL BE APPLIED TO THE CEMENT SLURRY BACKFILL AND EXISTING ASPHALT PAVEMENT PRIOR TO PLACING THE NEW ASPHALT SURFACE.
2. ASPHALTIC CONCRETE RESURFACING:
 - A. ALLOW CEMENT SLURRY BACKFILL SEVEN DAYS MINIMUM TO CURE BEFORE COLD PLANING.
 - B. THICKNESS OF ASPHALTIC CONCRETE SHALL BE A MINIMUM OF 2" OR AS SPECIFIED BY THE AGENCY'S ENGINEER.
 - C. A.C. SHALL BE HOT MIX.
3. A.C. SHALL BE SEALED OR CHIP SEALED WHEN REQUIRED BY THE AGENCY'S ENGINEER.



TYPE C

NOTES

1. CONCRETE SHALL BE SCREEDED OFF TO MATCH EXISTING PAVEMENT GRADE AND FLOATED TO ASSURE PROPER EDGE MATCH.
2. CONCRETE TRENCH COVER SHALL BE A MINIMUM OF 5-1/2" THICK IN ALLEY OR LOCAL RESIDENTIAL STREETS AND 7" THICK IN OTHER STREETS.
3. EXISTING CONCRETE PAVEMENT WILL REQUIRE SAWCUTTING WHEN USING ROCKWHEEL FOR EXCAVATION.
4. 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.

REVISION	BY	APPROVED	DATE
ORIGINAL	HH	T. STANTON	11/02
ADD METRIC		T. STANTON	03/03
REVIEWED		T. STANTON	04/06
UPDATED	MR	MR/CV	03/12

SAN DIEGO REGIONAL STANDARD DRAWING

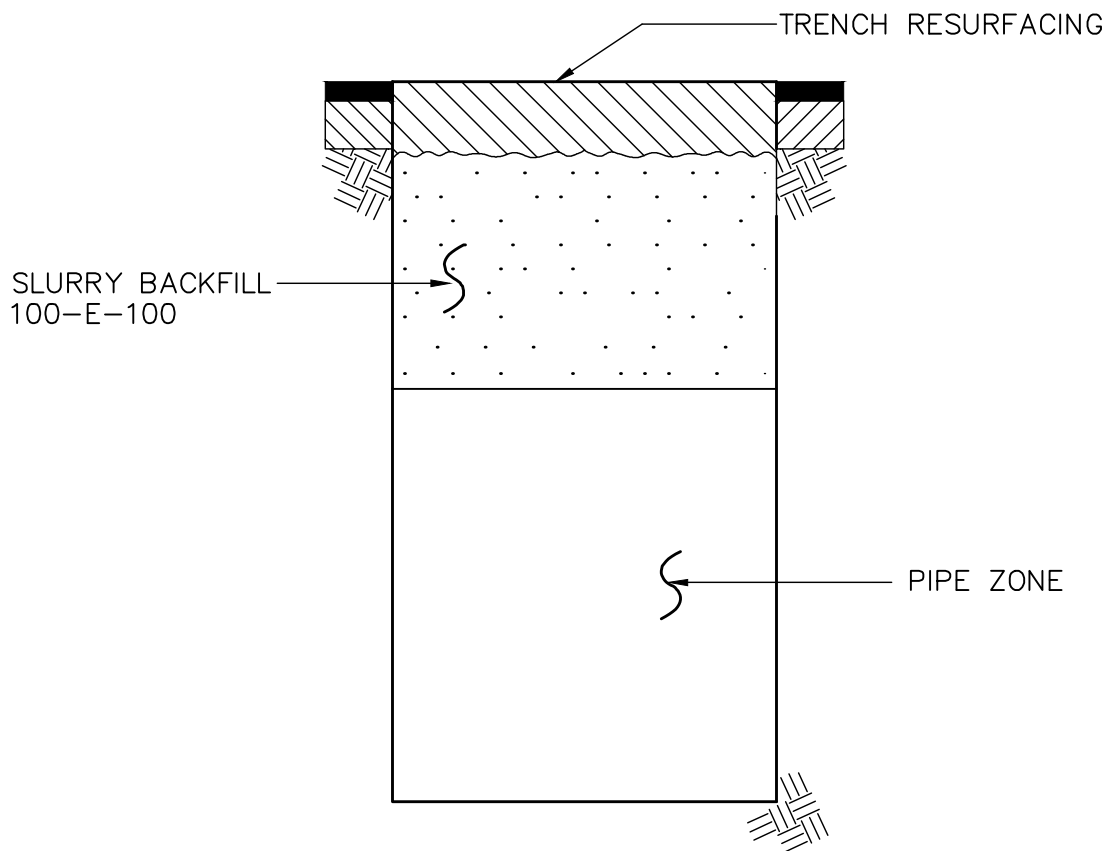
NARROW TRENCHES TRENCHING & BACKFILLING

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
CHAIRPERSON R.C.E. 19246 DATE

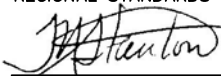
DRAWING
NUMBER

G-33

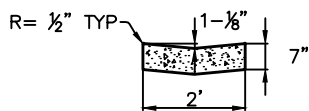
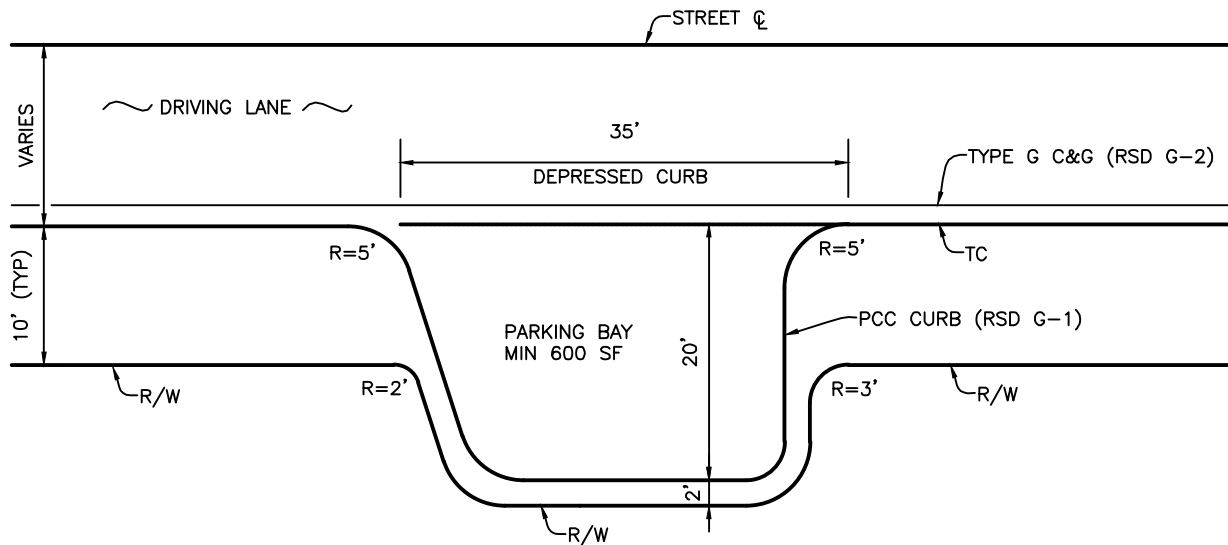


NOTES

1. TRENCH RESURFACING SHALL BE DONE ACCORDING TO AGENCY'S REQUIREMENTS.
2. THE SAND USED FOR THE SLURRY BACKFILL SHALL MEET THE REQUIREMENTS (SUBSECTION 200-1.5.3) LISTED IN THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION. SLURRY SHALL CURE FOR SEVEN DAYS PRIOR TO TRENCH RESURFACING.
3. SLURRY BACKFILL SHALL NOT BE USED WHERE IT WILL IMPEDE SUBSURFACE DRAINAGE.

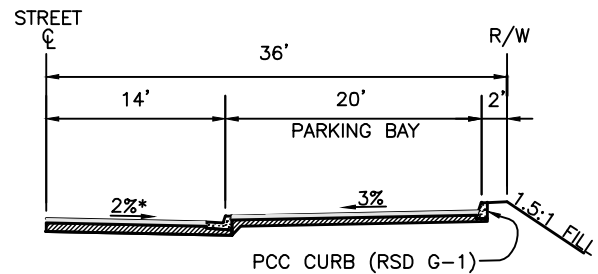
REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		PARKINSON	09/88	SLURRY BACKFILL		 7/26/2012	CHAIRPERSON R.C.E. 19246 DATE
ADD METRIC		T. STANTON	03/03				
REVIEWED		T. STANTON	04/06				
UPDATED	MR	MR/CV	03/12				
						DRAWING NUMBER	G-36

DRAWING NUMBER **G-37**



CONCRETE GUTTER DETAIL
NO SCALE

PLAN
NO SCALE



TYPICAL PARKING BAY SECTION
NO SCALE

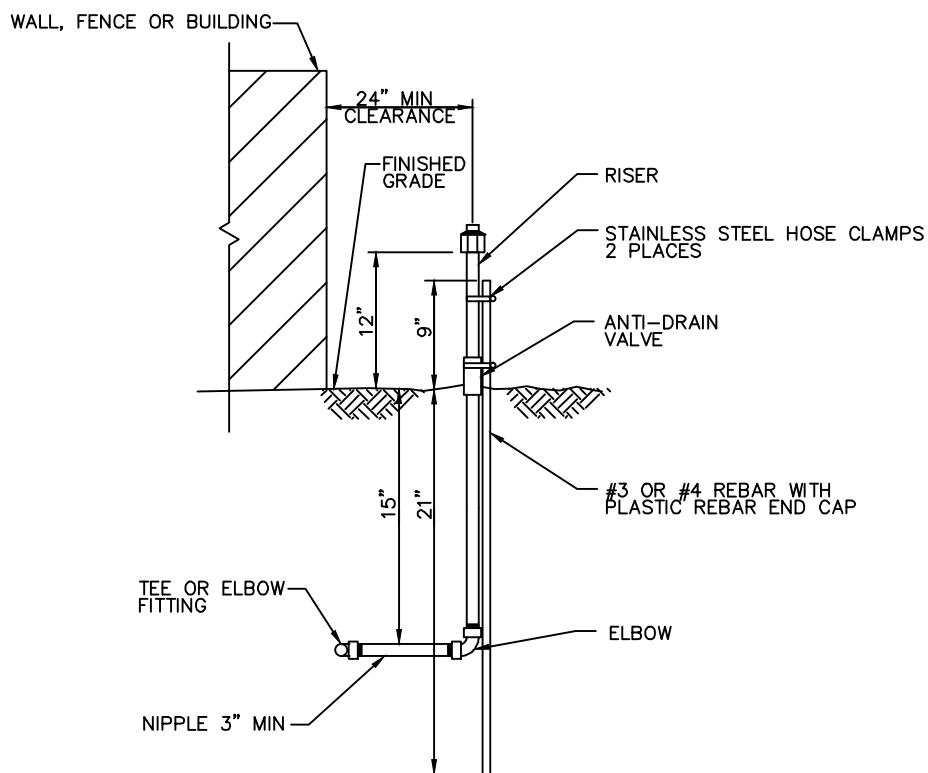
* MAX 3% CROSSFALL/SUPERELEVATION

NOTES:

- CURB AND GUTTER (C&G) SHALL CONFORM TO SAN DIEGO AREA REGIONAL STANDARD DRAWINGS (RSD)
- CONCRETE GUTTER SHALL BE POURED NON-CONTIGUOUS TO PROVIDE EXPANSION JOINTS.

REVISION	BY	APPROVED	DATE	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
NEW	AT	MR/CV	09/11	PARKING BAY		<i>[Signature]</i> 7/26/2012
						CHAIRPERSON R.C.E. 19246 DATE
						DRAWING NUMBER G-38

SPRINKLER IRRIGATION SYSTEMS



NOTES:

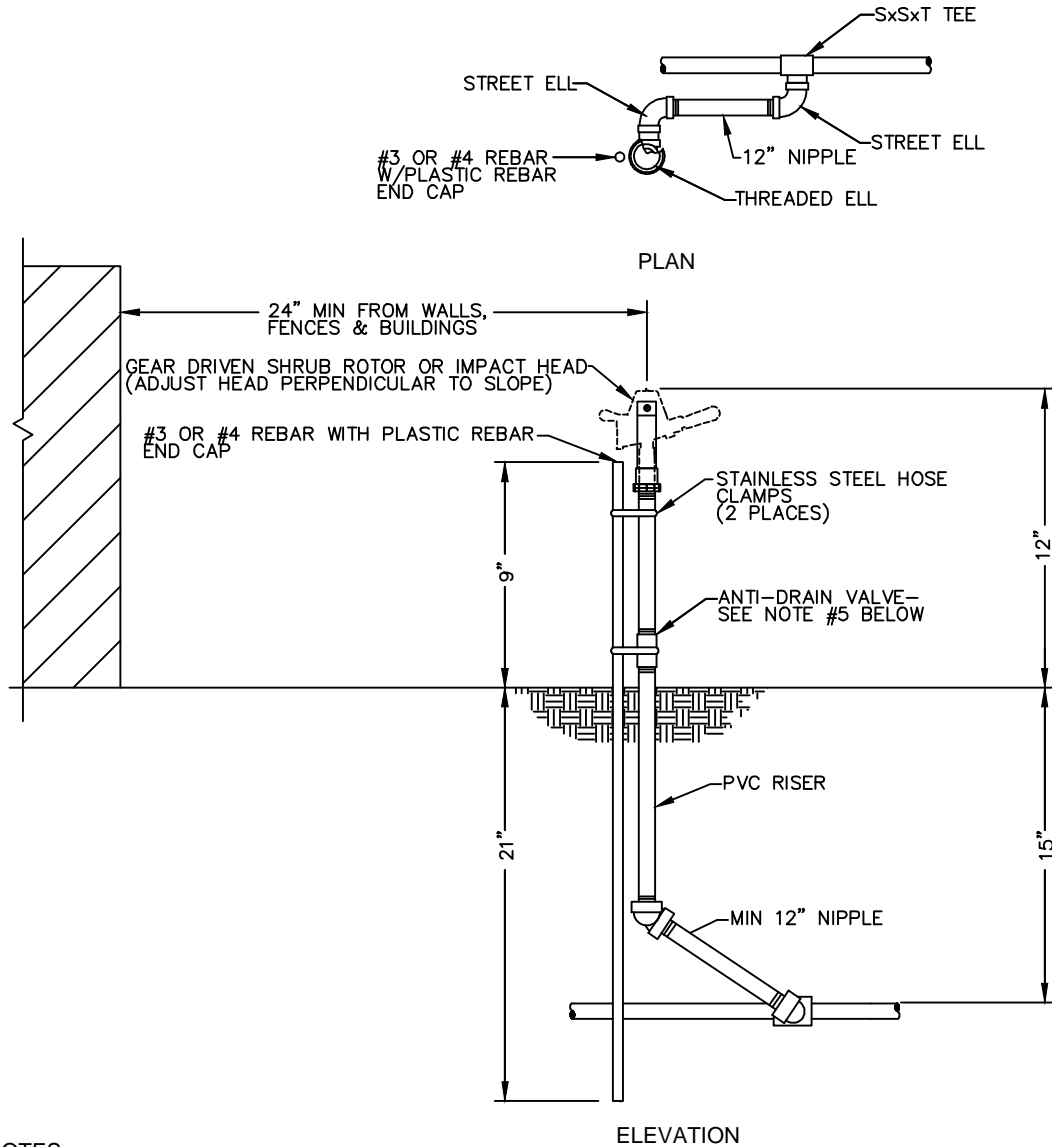
1. FITTINGS SHALL BE PVC SCH 40.
2. NIPPLES AND RISERS SHALL BE PVC SCH 80.
3. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS.
4. CLOSE NIPPLES SHALL NOT BE USED.
5. NO FIXED RISERS IN RIGHT-OF-WAY OR WITHIN 10' OF VEHICULAR OR PEDESTRIAN TRAFFIC.
6. ANTI-DRAIN VALVES SHALL BE INSTALLED UNDER ALL HEADS.

LEGEND ON PLANS

SHOW A NUMBER TO INDICATE TYPE HEAD



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03	SHRUB SPRAY HEAD ON FIXED RISER	<i>T. Stanton</i> 7/26/2012
Update		M. Caro	03/04		Chairperson R.C.E. 19246 Date
Delete Metric	KA	N. Batta	11/11		DRAWING NUMBER
					I-1

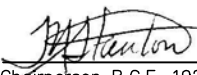


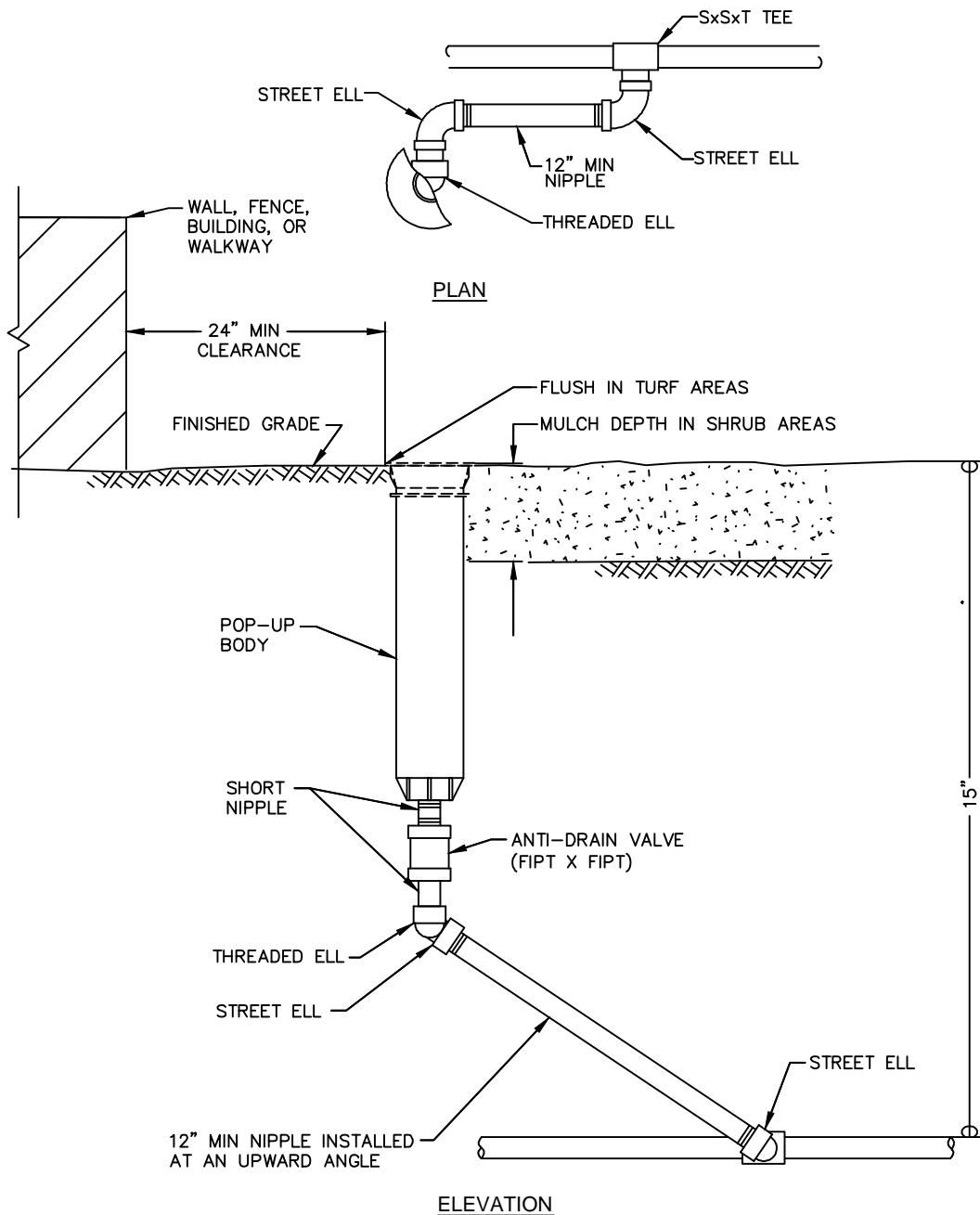
NOTES:

1. FITTINGS SHALL BE PVC SCH 40.
2. NIPPLES AND RISERS SHALL BE PVC SCH 80.
3. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS.
4. CLOSE NIPPLES SHALL NOT BE USED.
5. ANTI-DRAIN VALVES SHALL BE INSTALLED UNDER OR IN ALL HEADS.
6. NO FIXED RISERS ALLOWED IN RIGHT-OF-WAY OR WITHIN 10' OF VEHICULAR OR PEDESTRIAN TRAFFIC.

LEGEND ON PLANS

SHOW A NUMBER TO INDICATE HEAD TYPE

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Parkinson	05/92	ROTOR OR IMPACT HEAD ON FIXED RISER		 7/26/2012 Chairperson R.C.E. 19246 Date	
Add Metric		T. Stanton	03/03				
Update		M. Caro	06/04				
Delete Metric	KA	N. Batta	11/11				
						DRAWING NUMBER	I-2

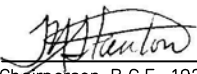


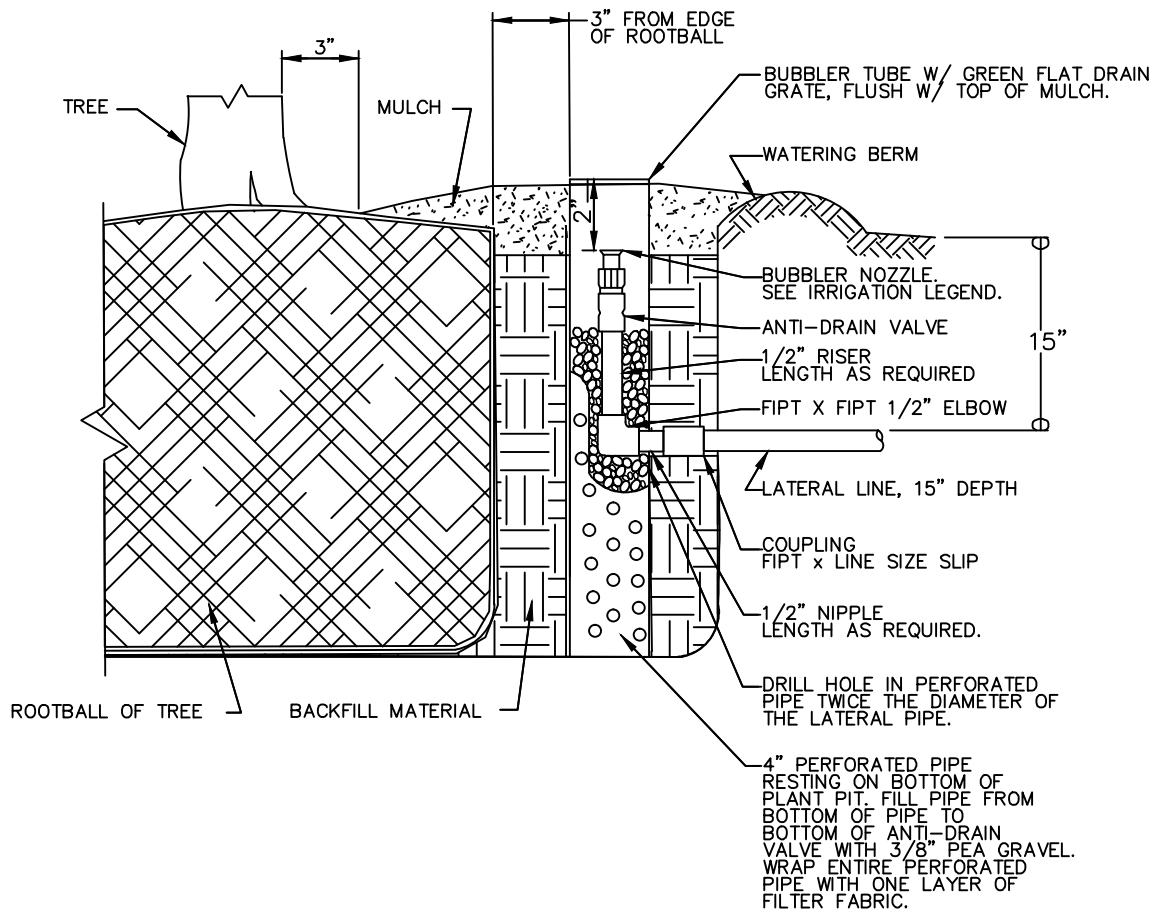
NOTES:

1. FITTINGS SHALL BE PVC SCH 40.
2. NIPPLES AND RISERS SHALL BE PVC SCH 80.
3. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS.
4. CLOSE NIPPLES SHALL NOT BE USED.
5. ANTI-DRAIN VALVES SHALL BE INSTALLED UNDER OR IN ALL HEADS.
6. LATERAL DEPTH SHALL BE 18" WHEN 12" POP-UP BODIES ARE USED.

LEGEND ON PLANS

SHOW A NUMBER TO INDICATE TYPE HEAD

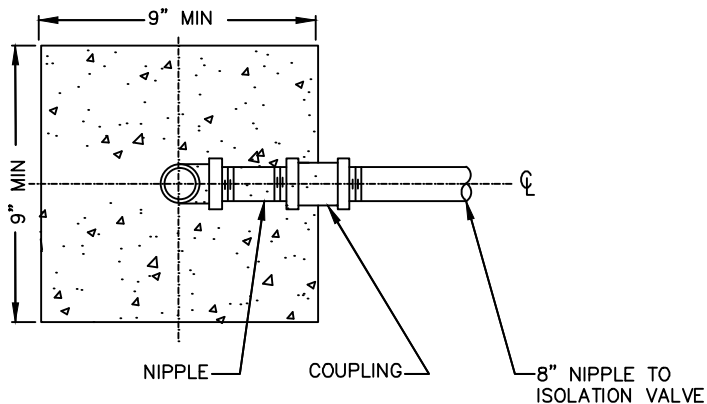
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	ROTOR, SPRAY, OR BUBBLER POP-UP HEAD		 7/26/2012 Chairperson R.C.E. 19246 Date	I-3
Add Metric		T. Stanton	03/03				
Update		M. Caro	06/04				
Delete Metric	KA	N. Batta	11/11				
						DRAWING NUMBER	



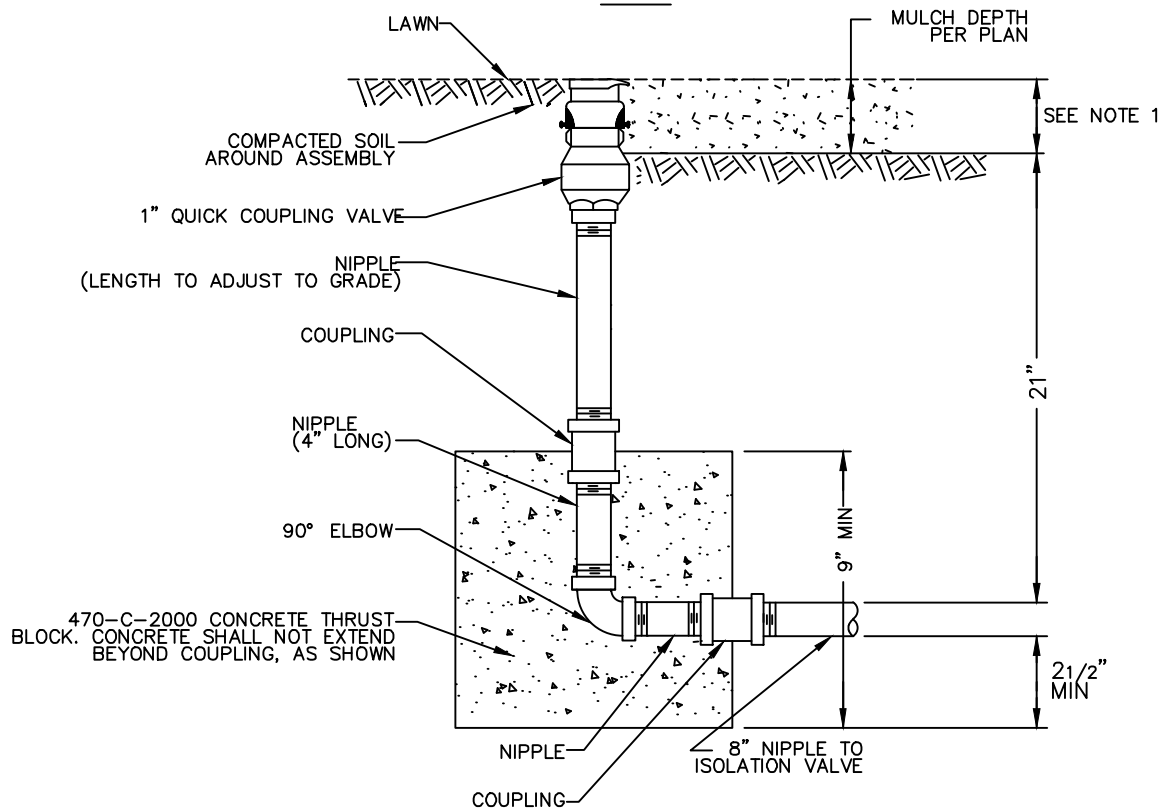
NOTES:

1. FOR BUBBLER LOCATION, REFER TO TREE PLANTING AND STAKING DRAWING.
2. EACH TREE SHALL HAVE A 2" POP-UP HEAD WITH BUBBLER NOZZLE PER I-3 AND A FIXED BUBBLER NOZZLE IN A PERFORATED PIPE.
3. NIPPLES AND RISERS SHALL BE PVC SCH 80.
4. FITTINGS SHALL BE PVC SCH 40.
5. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS.
6. CLOSE NIPPLES SHALL NOT BE USED.
7. ANTI-DRAIN VALVES SHALL BE INSTALLED UNDER ALL HEADS.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		M. CARO	02/05		
Update	KA	N. Batta	11/11	TREE BUBBLER TUBE	<i>R. Stanton</i> 7/26/2012
					Chairperson R.C.E. 19246 Date
					DRAWING NUMBER
					I-4



PLAN



ELEVATION

NOTES:

1. QUICK COUPLING VALVES SHALL BE SET FLUSH IN LAWN AND PER MULCH DEPTH ABOVE FINISH GRADE IN SHRUB / GROUND COVER AREAS.
2. CLOSE NIPPLES SHALL NOT BE USED.
3. NIPPLES, COUPLINGS, AND ELBOWS SIZE SHALL BE 1" RED BRASS.
4. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS.
5. UPON PROJECT ACCEPTANCE, THE CONTRACTOR SHALL PROVIDE TWO SETS OF APPROPRIATE QUICK COUPLER VALVE KEY WITH 1" BRASS BALL VALVE AND SWIVEL ADAPTER INCLUDED IN THE ASSEMBLY.
6. INSTALL VALVE BOX PER AGENCY STANDARDS.

LEGEND ON PLANS

QCV



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Update		M. Caro	05/04
Delete Metric	KA	N. Batta	11/11

SAN DIEGO REGIONAL STANDARD DRAWING

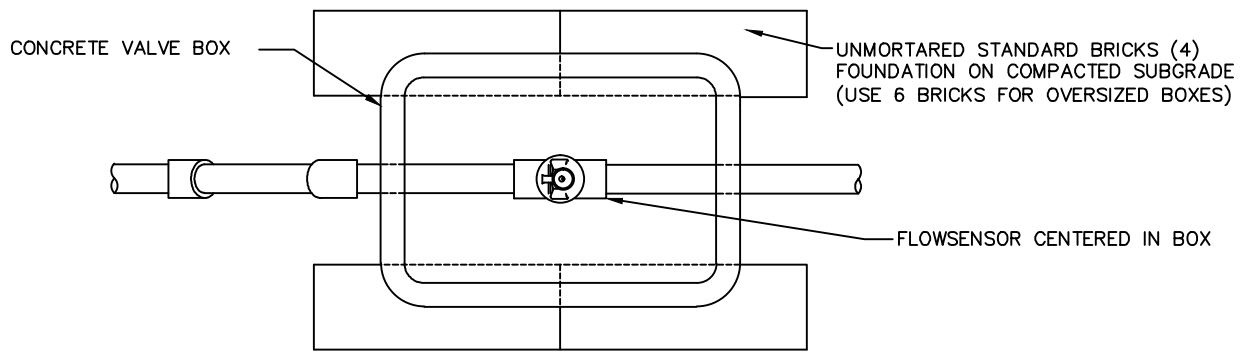
QUICK COUPLING VALVE

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

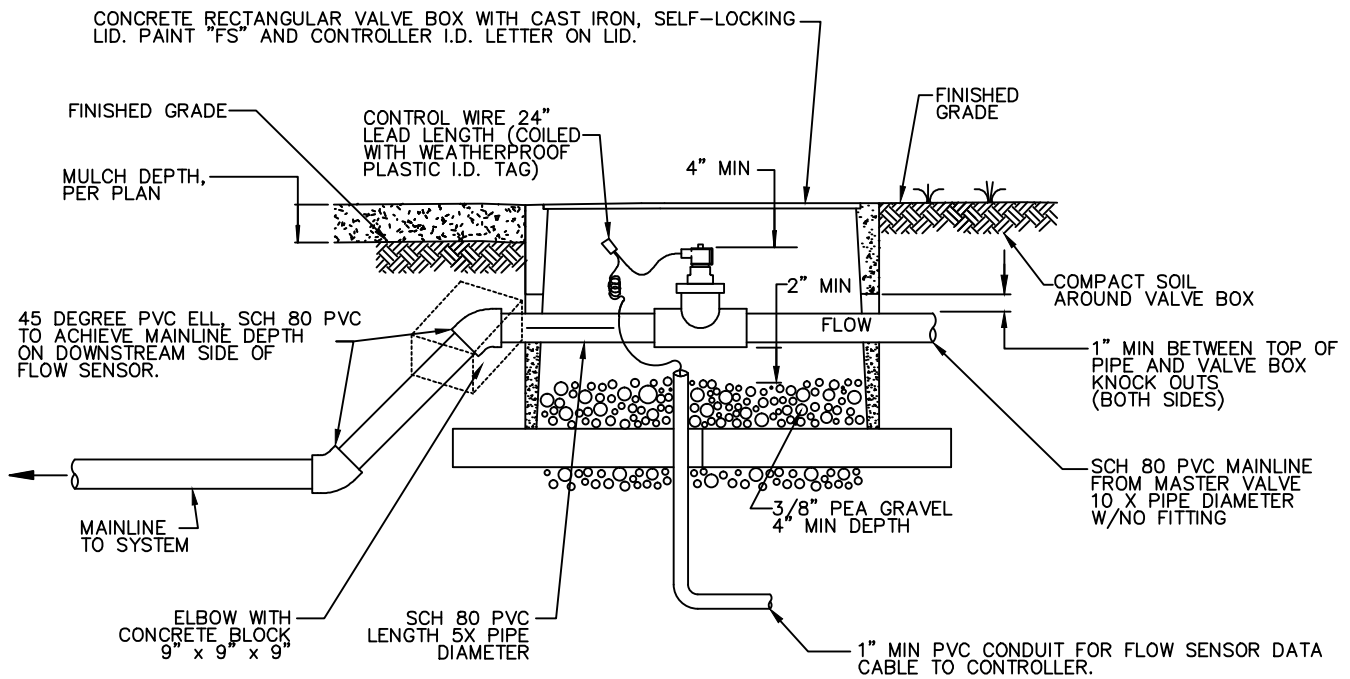
T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

I-5



PLAN



ELEVATION

NOTES:

1. SPLICES SHALL BE SOLDERED WITH A PROPERLY SET MECHANICAL SPLICE CONNECTOR, ENTIRELY ENCLOSED IN SELF-CURING RESIN AND SHALL BE COMPLETELY WATER-PROOF.
2. SEAL CONDUIT OPENINGS WITH ELECTRICAL SEALANT.
3. KNOCK OUTS SHALL NOT BE ENLARGED.
4. INSTALL ONLY ONE FLOW SENSOR PER BOX.
5. VALVE BOXES SHALL BE SET PERPENDICULAR TO HARDSCAPE PER MULCH DEPTH IN SHRUB / GROUND COVER AREAS. IF NECESSARY TO BE SET IN TURF, VALVE BOXES SHALL BE SET FLUSH WITH FINISHED GRADE.

LEGEND ON PLANS

(F) FS

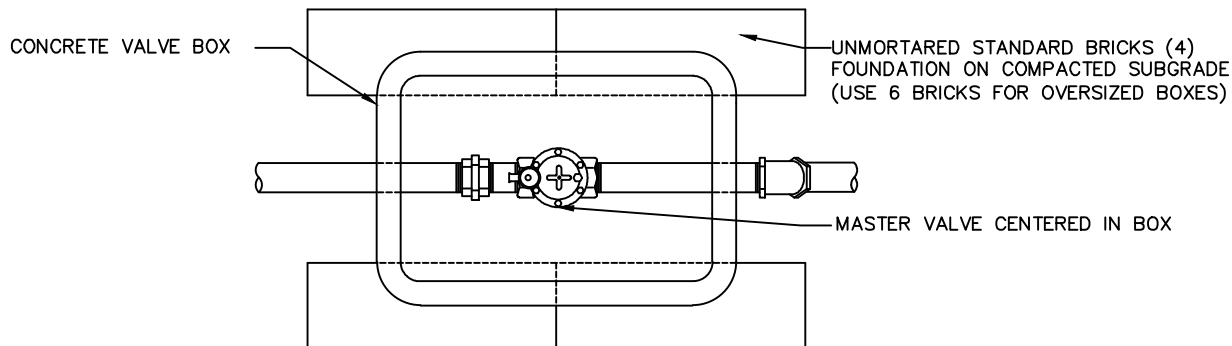
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL	KA	N. Batta	11/11		
				FLOW SENSOR	Chairperson R.C.E. 19246 Date

7/26/2012

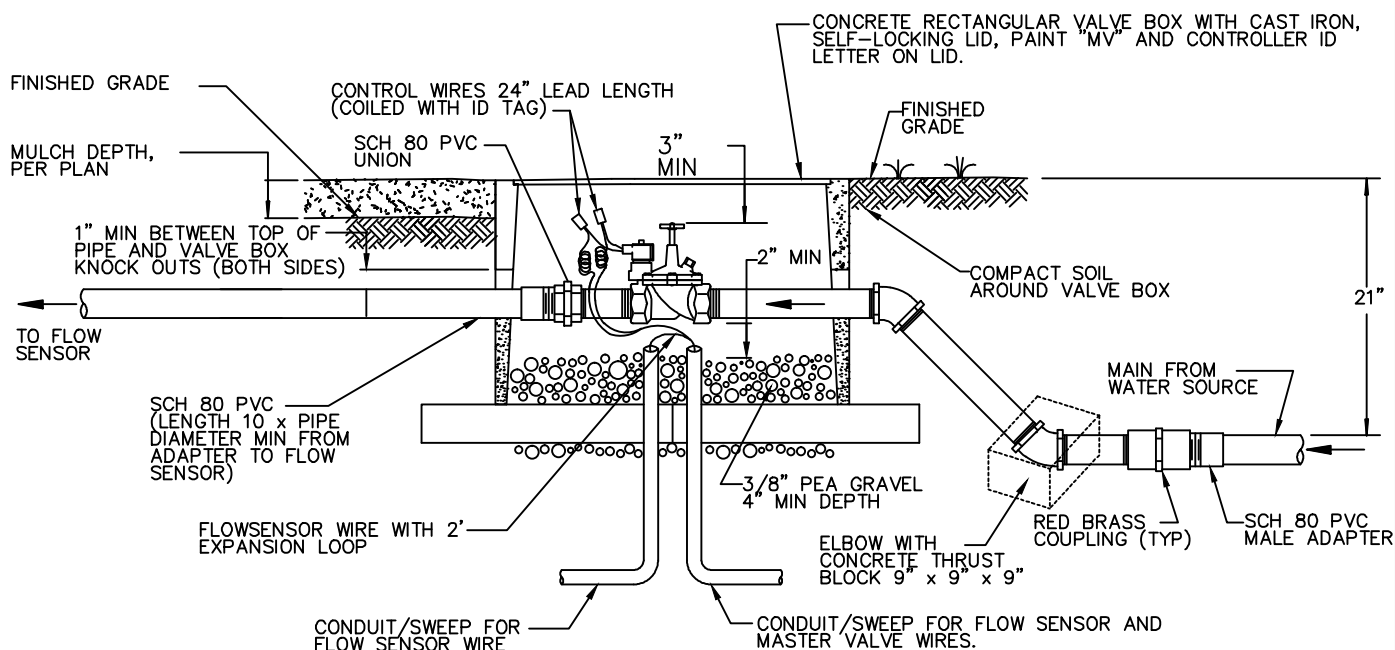
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

I-9



PLAN



ELEVATION

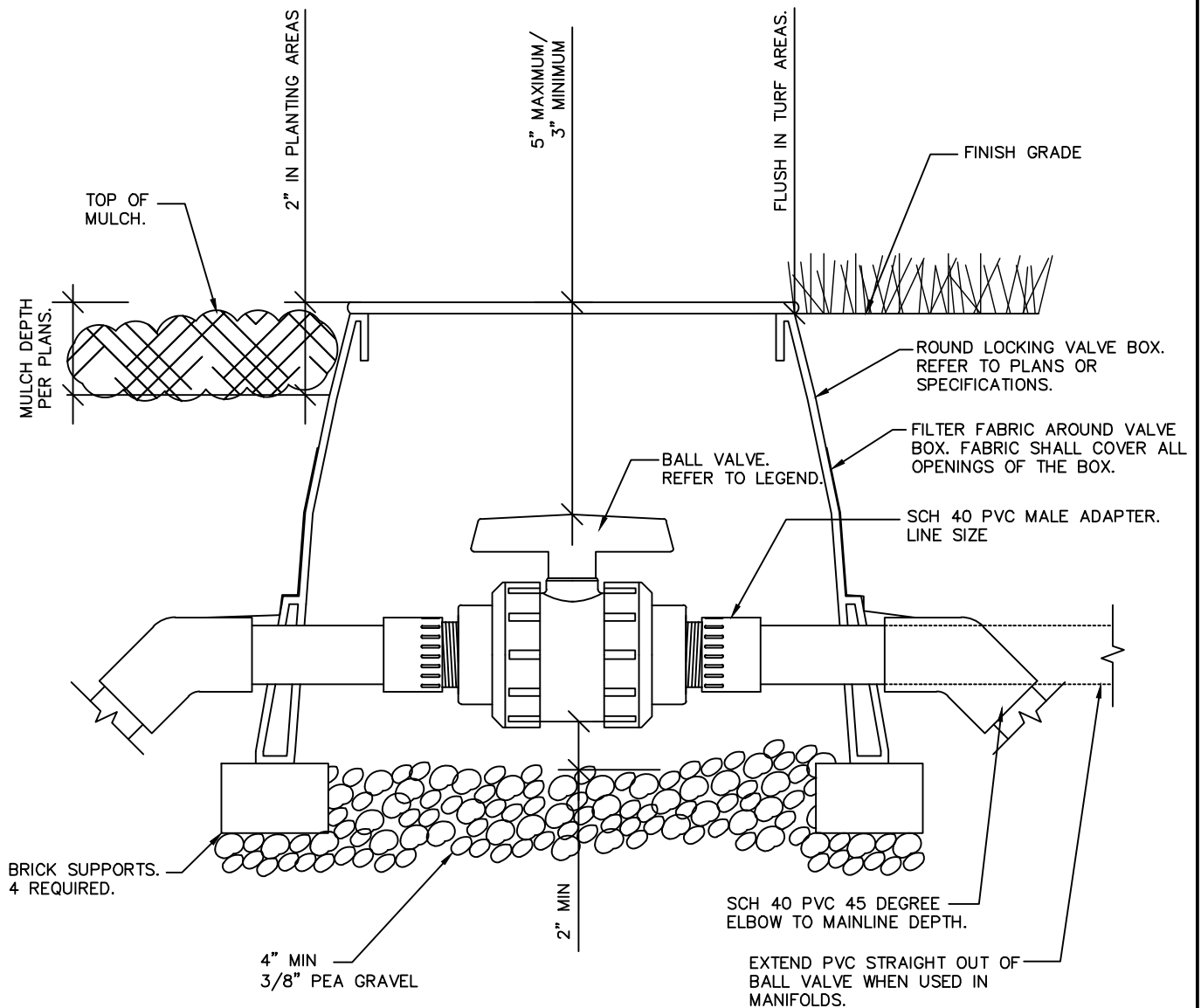
NOTES:

1. SPlicing SHALL BE MADE IN VALVE BOXES AND PULL BOXES ONLY. SEE STANDARD DRAWING SDI-115 FOR SPLICE / SOLDERING NOTES.
2. SPlices SHALL BE SOLDERED WITH A PROPERLY SET MECHANICAL SPLICE CONNECTOR, ENTIRELY ENCLOSED IN SELF-CURING RESIN AND SHALL BE COMPLETELY WATER-PROOF.
3. SEAL CONDUIT OPENINGS WITH ELECTRICAL CONDUIT SEALANT AS APPROVED BY THE AGENCY.
4. PVC CONDUIT SHALL BE 1" MINIMUM.
5. VALVE / CONTROLLER IDENTIFICATION SHALL BE LABELED OUTSIDE ON THE VALVE BOX LID AND TAGGED INSIDE THE BOX ON THE VALVE.
6. KNOCK OUTS SHALL NOT BE ENLARGED.
7. INSTALL ONLY ONE VALVE PER BOX.
8. VALVE BOXES SHALL BE SET PERPENDICULAR TO HARDSCAPE, ABOVE FINISHED GRADE IN SHRUB / GROUNDCOVER AREAS, PER MULCH DEPTH. IF NECESSARY TO BE SET IN TURF, VALVE BOXES SHALL BE SET FLUSH WITH FINISHED GRADE.
9. CLOSE NIPPLES SHALL NOT BE USED.
10. NIPPLES, ELBOWS, AND FITTINGS SHALL BE THREADED RED BRASS, FROM COUPLING THROUGH THE MASTER VALVE. PIPE AND FITTINGS DOWNSTREAM SHALL BE SCH 80 PVC.
11. TEFLON TAPE SHALL BE USED ON THREADED CONNECTOR.

LEGEND ON PLANS

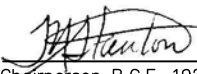
▼ MV

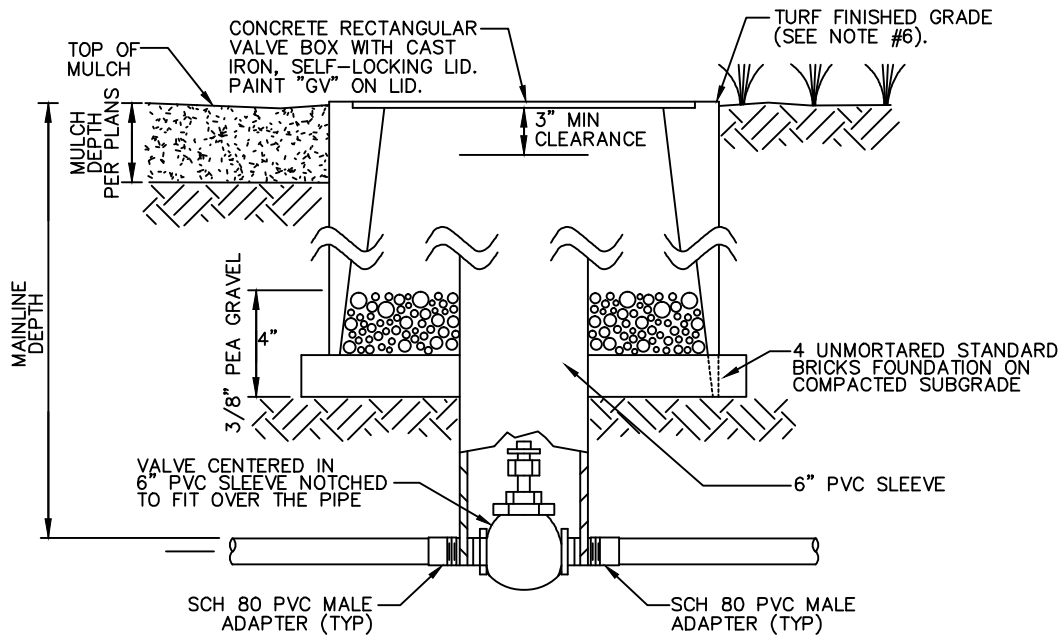
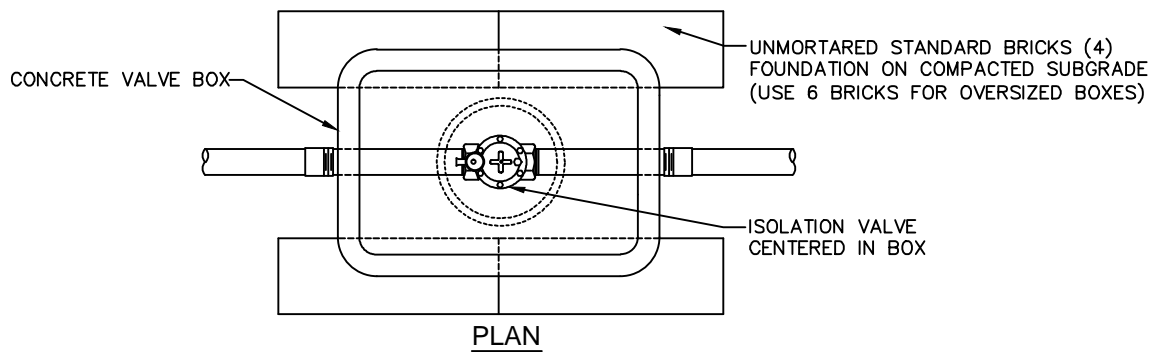
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	MASTER VALVE		 7/26/2012	Chairperson R.C.E. 19246 Date
Add Metric		T. Stanton	03/03				
Update		M. Caro	04/05				
Delete Metric	KA	N. Batta	11/11				
						DRAWING NUMBER	I-10



NOTES:

1. TEFLON TAPE, 3/4" WIDE, SHALL BE USED ON ALL THREADED CONNECTIONS
2. CLOSE NIPPLES SHALL NOT BE USED.
3. ALL PVC PIPE USED IN MANIFOLD ASSEMBLIES SHALL BE OF THE SAME CLASS AS SPECIFIED FOR THE MAINLINE.
4. ALL PLASTIC VALVE BOXES SHALL BE HEAT BRANDED WITH THE APPROPRIATE IDENTIFICATION. REFER TO PLANS AND SPECIFICATIONS.
5. DO NOT CUT ADDITIONAL HOLES IN VALVES BOXES.
6. ADD SINGLE UNIONS ON EACH SIDE OF VALVE WHEN TRUE UNION BALL VALVES ARE NOT USED.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	ISOLATION BALL VALVE 2" AND SMALLER		 7/26/2012	Chairperson R.C.E. 19246 Date
Add Metric		T. Stanton	03/03				
Update		M. Caro	02/05				
Delete Metric	KA	N. Batta	11/11				
						DRAWING NUMBER	I-11




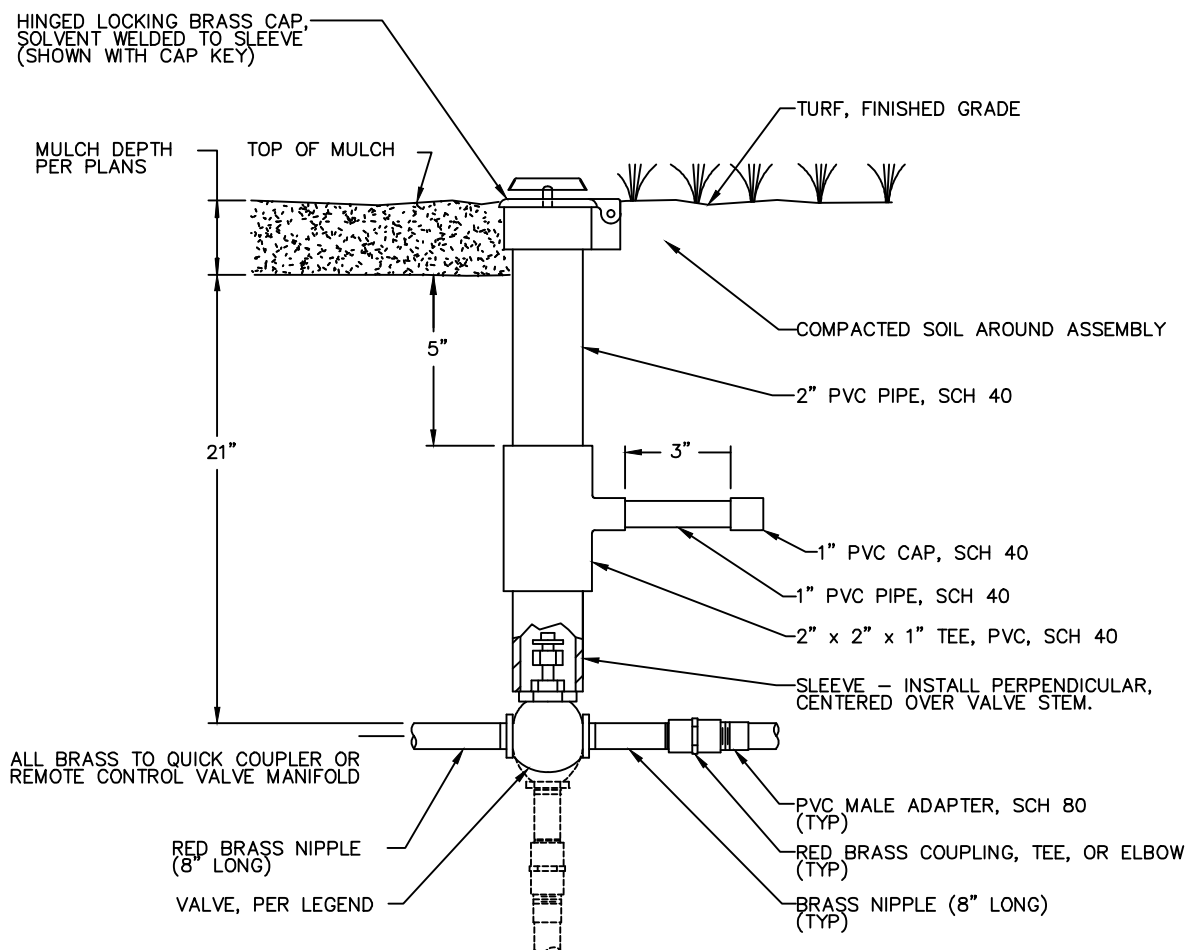
NOTES:

1. GLOBE VALVES SHALL BE FURNISHED WITH A STANDARD BRONZE CROSS HANDLE, CENTERED IN PIPE SLEEVE.
2. VALVE SHALL BE INSTALLED WITHIN 12" OF HARDSCAPE.
3. GLOBE VALVES SHALL BE FURNISHED WITH A REMOVABLE BONNET AND PACKING GLAND NUT.
4. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS.
5. VALVE BOX SHALL BE MOUNTED FLUSH WITH FINISH GRADE IN TURF AREAS AND PER MULCH DEPTH IN SHRUB AREAS.
6. LOCATE OUTSIDE OF TURF WHEN POSSIBLE.
7. GATE VALVE SHALL BE USED ONLY ON LOOPED MAINLINE.
8. VALVE BOX SHALL BE SET PERPENDICULAR TO HARDSCAPE.
9. PROVIDE TWO VALVE KEYS TO OPERATE VALVE AT DEPTH.

LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL	KA	N. Batta	11/11		
				ISOLATION GLOBE/GATE VALVE 2½" AND LARGER	
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
				 7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER I-12	




NOTES:

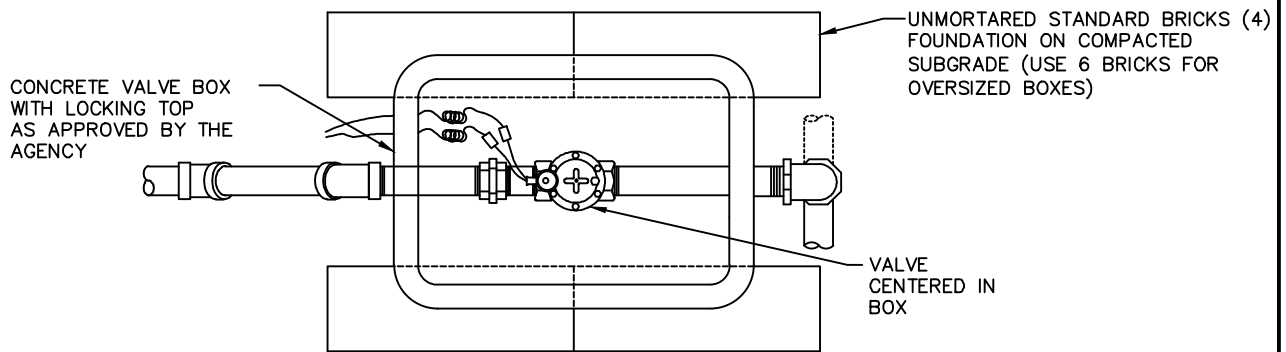
1. GLOBE VALVES SHALL BE FURNISHED WITH A STANDARD BRONZE CROSS HANDLE, CENTERED IN PIPE SLEEVE.
2. VALVES SHALL BE INSTALLED WITHIN 12" OF HARDSCAPE.
3. GLOBE VALVES SHALL BE FURNISHED WITH A REMOVABLE BONNET AND PACKING GLAND NUT.
4. CLOSE NIPPLES SHALL NOT BE USED.
5. LOCKING CAP SHALL BE MOUNTED FLUSH WITH FINISHED GRADE IN TURF AREAS AND ABOVE FINISHED GRADE IN SHRUB AREAS, PER DEPTH OF MULCH.
6. PROVIDE APPROPRIATE LOCKING CAP KEY AND VALVE KEY TO OPERATE VALVE AT DEPTH.
7. LOCATE OUTSIDE OF TURF WHEN POSSIBLE.
8. TEFLON TAPE SHALL BE USED ON ALL THREADED CONNECTIONS.
9. WHEN INSTALLED AS MAINLINE ISOLATION VALVE, NIPPLES AND FITTINGS MAY BE SCH 80 PVC.
10. INSTALL VALE BOX PER AGENCY STANDARDS.

LEGEND

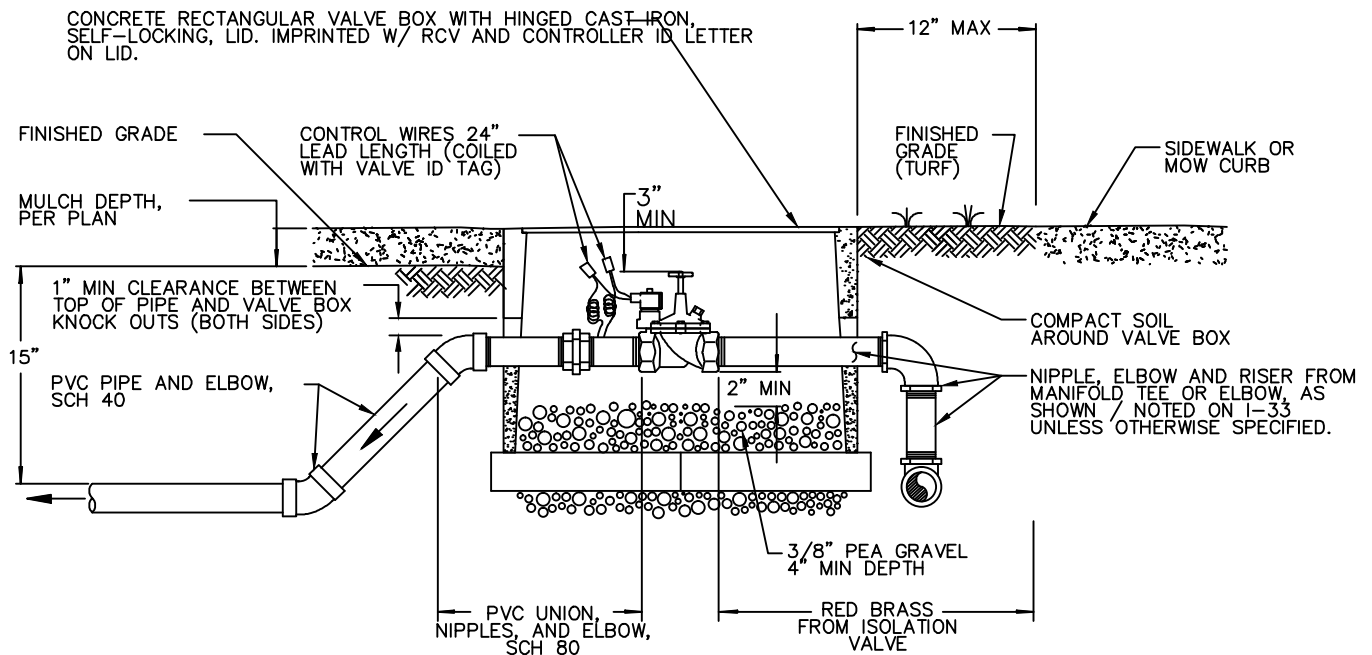


GV

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		Kercheval	12/75	ISOLATION BALL VALVE 2" AND SMALLER	
Add Metric		T. Stanton	03/03		
Update		M. Caro	02/05		
Delete Metric	KA	N. Batta	11/11		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER I-13	



PLAN



ELEVATION

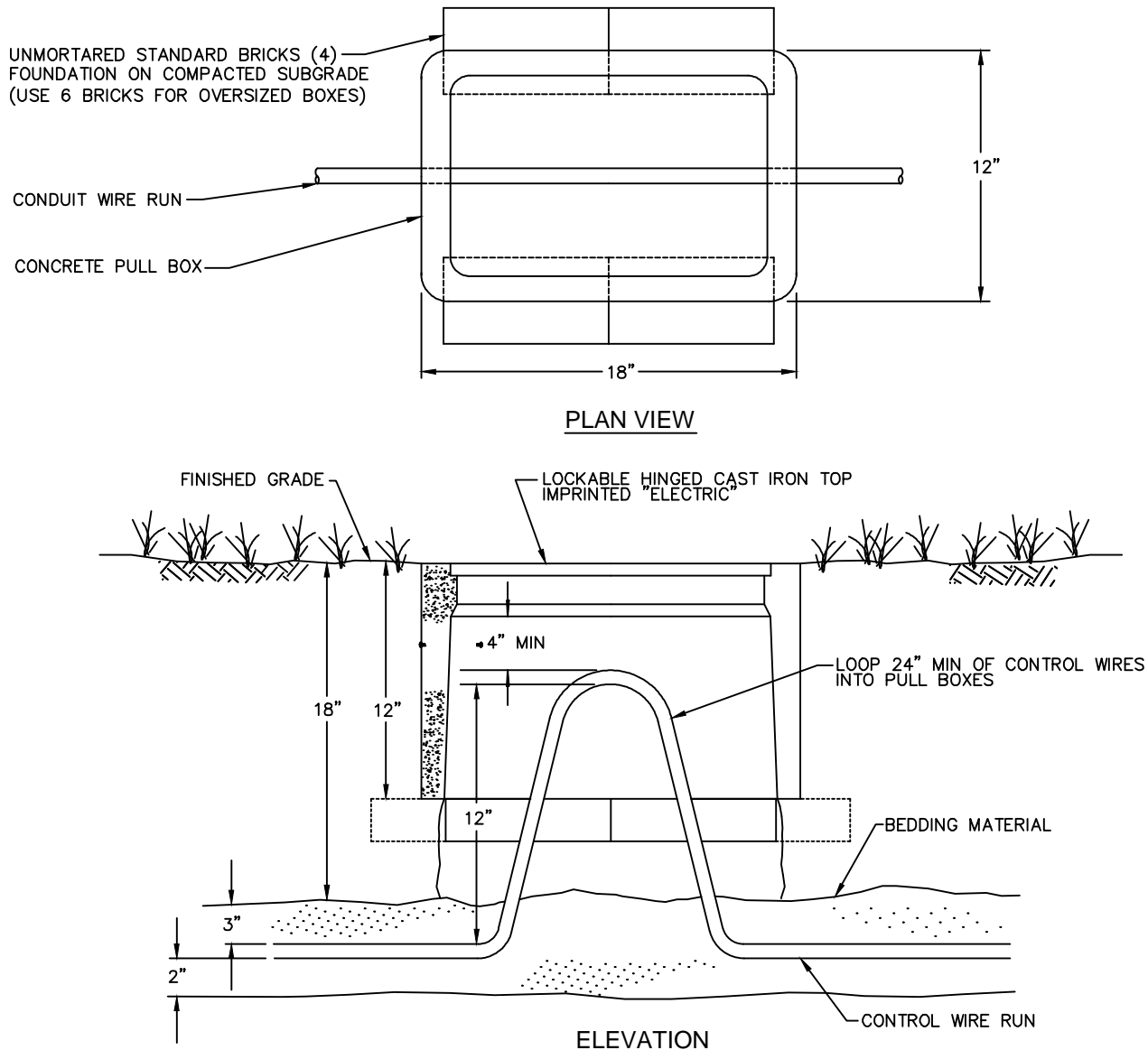
NOTES:

1. SPlicing SHALL BE MADE IN VALVE BOXES AND PULL BOXES ONLY. SEE I-15 FOR SPlice /SOLDERING NOTES.
2. SPlices SHALL BE SOLDERED WITH A PROPERLY SET MECHANICAL SPlice CONNECTOR, ENTIRELY ENCLOSED IN SELF-CURING RESIN AND SHALL BE COMPLETELY WATER-PROOF.
3. KNOCK OUTS SHALL NOT BE ENLARGED.
4. INSTALL ONLY ONE VALVE PER BOX.
5. VALVE BOXES SHALL BE SET PERPENDICULAR TO HARDSCAPE, ABOVE FINISHED GRADE IN SHRUB / GROUNDcover AREAS, PER MULCH DEPTH. IF NECESSARY TO BE SET IN TURF, VALVE BOXES SHALL BE SET FLUSH WITH FINISHED GRADE.
6. CLOSE NIPPLES SHALL NOT BE USED.
7. NIPPLES, ELBOWS, AND FITTINGS SHALL BE THREADED RED BRASS FROM ISOLATION VALVE THROUGH THE VALVE, UNLESS OTHERWISE SPECIFIED.
8. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS

LEGEND ON PLANS

▼ RCV

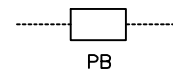
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		R. Munoz	03/97				
Add Metric		T. Stanton	03/03	REMOTE CONTROL VALVE		 7/26/2012	
Update		M. Caro	04/05			Chairperson R.C.E. 19246 Date	
Delete Metric	KA	N. Batta	11/11			DRAWING NUMBER	
						I-14	



NOTES:

1. INSTALL PULL BOXES AS SHOWN ON PLANS AND AT EACH END OF CONDUITS. SWEEPS RUNNING UNDER VEHICULAR PAVEMENT.
2. PULL BOX COVER SHALL BE PERMANENTLY MARKED "ELECTRIC".
3. CONDUCTORS FOR EACH CONTROLLER CLOCK SHALL BE HARNESSSED SEPARATELY AND AT SUFFICIENT INTERVALS TO MAINTAIN A DEFINITE BUNDLE.
4. SPLICES SHALL ONLY BE MADE IN PULL BOXES, WITH A PROPERLY SET MECHANICAL SPLICE CONNECTOR, SOLDERED WITH METALLIC ALLOY, ENTIRELY ENCLOSED IN SELF-CURING RESIN AND SHALL BE COMPLETELY WATER-PROOF.
5. SPARE WIRE ENDS SHALL BE INSULATED IN THE SAME MANNER AS WIRE SPLICES.
6. MINIMUM SIZE PULL BOX SHALL BE AS SHOWN ABOVE. LARGER BOXES MAY BE NECESSARY TO MEET 4" CLEARANCE REQUIRED.
7. NO SPLICES SHALL BE PERMITTED ON WIRE RUNS OF LESS THAN 300'.
8. THE LETTER "E" SHALL BE STAMPED OR CHISELED ON THE IMPROVEMENT (CURB-SIDEWALK) DIRECTLY ABOVE THE CONTROL WIRE.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Delete Metric	KA	N. Batta	11/11

SAN DIEGO REGIONAL STANDARD DRAWING

**ELECTRICAL PULL BOX
FOR DIRECT BURIAL CONTROL WIRES
AND SPLICING NOTES**

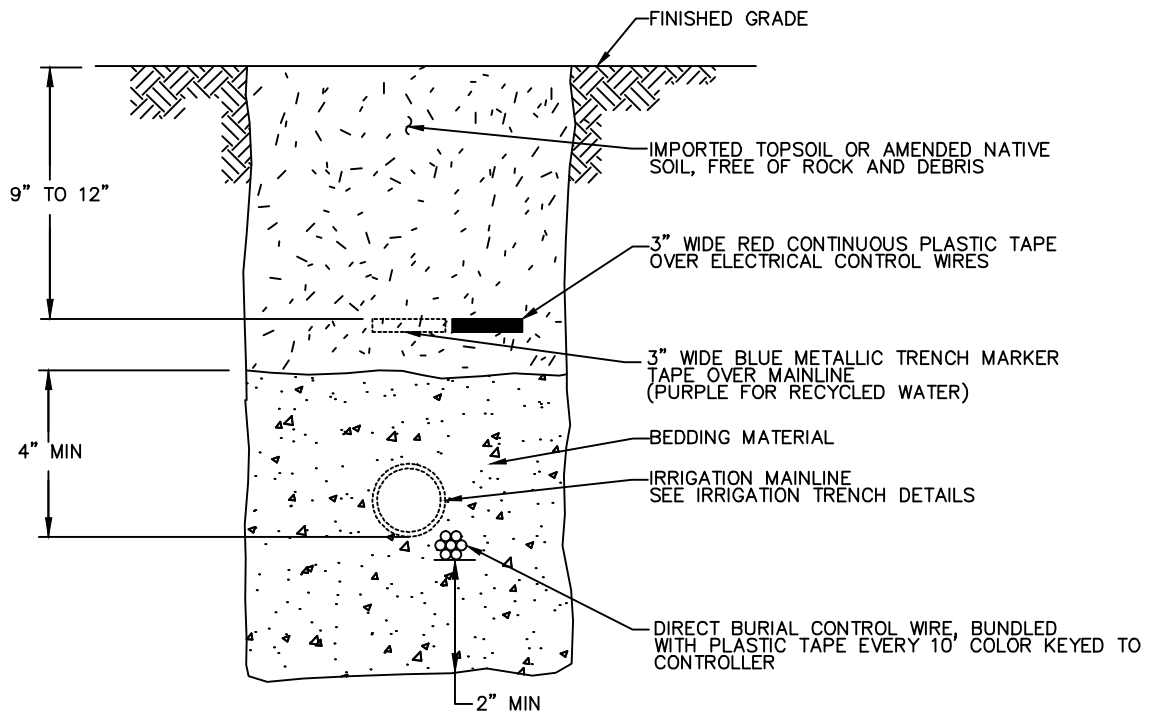
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

I-15

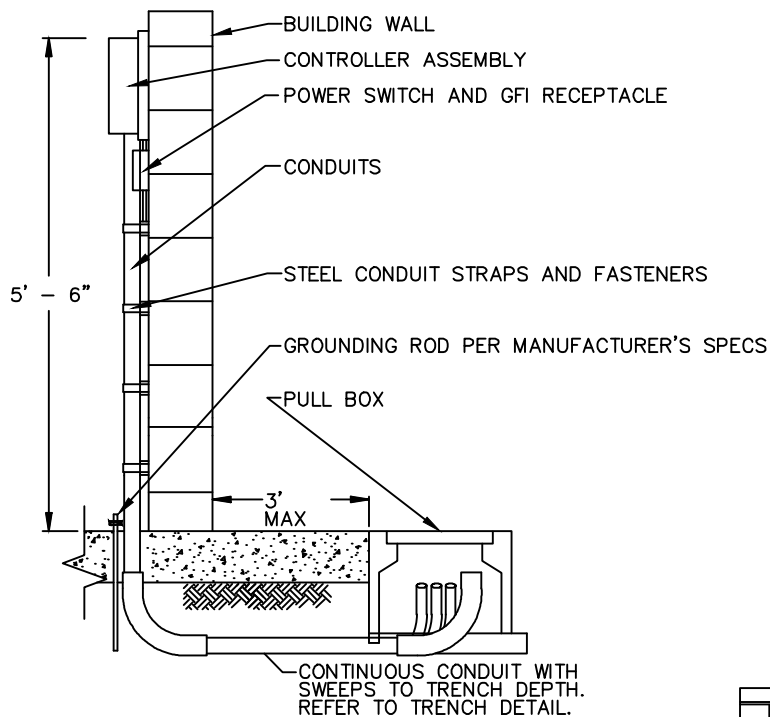


NOTES:

1. BEDDING MATERIAL SHALL BE SE 50 PLASTER OR MORTAR SAND.
2. WIRES WHICH RUN UNDER PAVED AREAS SHALL BE INSTALLED IN PVC CONDUIT TWICE THE DIAMETER OF THE WIRE BUNDLE (2" MINIMUM SIZE), EXTENDING 12" MINIMUM BEYOND EDGE OF PAVEMENT.
3. THE LETTER E SHALL BE STAMPED OR CHISELED ON THE IMPROVEMENT(CURB-SIDEWALK) DIRECTLY ABOVE THE CONTROL WIRE / CABLE.
4. WHEN CONTROL WIRING CANNOT BE INSTALLED IN A PIPE TRENCH, IT SHALL BE INSTALLED A MINIMUM 18" BELOW FINISH GRADE BUNDLED WITH PLASTIC TAPE.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			
Add Metric		T. Stanton	03/03	CONTROL WIRE INSTALLATION	<i>T. Stanton</i> 7/26/2012	
Update		M. Caro	02/05		Chairperson R.C.E. 19246 Date	
Delete Metric	KA	N. Batta	11/11		DRAWING NUMBER	
					I-16	

I-17



LEGEND ON PLANS



SIDE
VIEW

LABEL ENCLOSURE DOOR WITH CONTROLLER
DESIGNATION
USING 2" BLACK VINYL LETTERS/NUMBERS.

CONTROLLER

POWER SOURCE CONDUIT

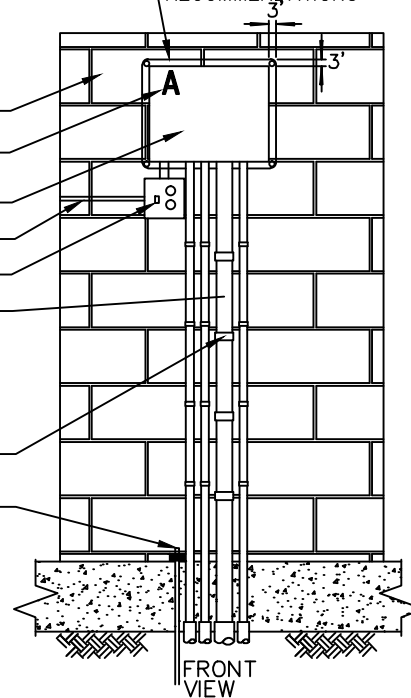
POWER SWITCH AND GFI RECEPTACLE

CONDUITS - PVC SCH 40
SEAL CONDUITS AT BOTH ENDS
(1) FOR CONTROL WIRES.
SEE NOTE #1 BELOW.
(1) 1" FOR MASTER VALVE WIRE.
(1) 1" FOR FLOW SENSING CABLE.
(2) 1" SPARE.

STEEL CONDUIT STRAPS AND FASTENERS,
4 PER CONDUIT.


GROUNDING ROD
PER MANUFACTURER SPECS

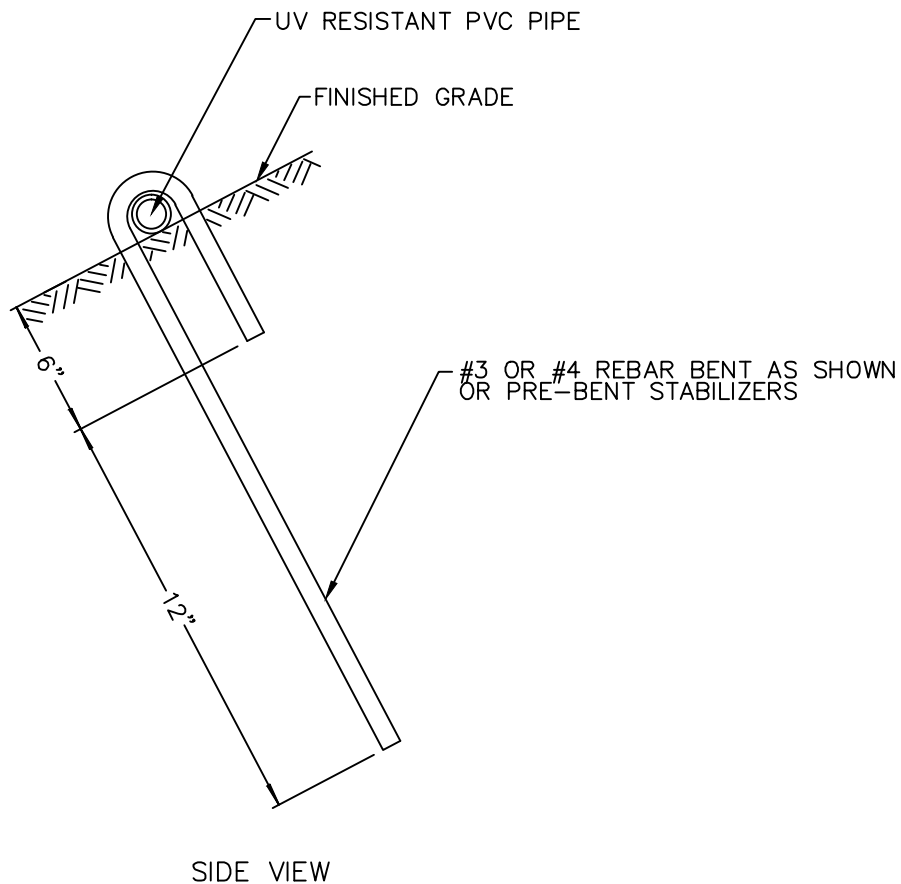
PRE ASSEMBLED STAINLESS
STEEL BACK BOARD MOUNTED
PER MANUFACTURERS
RECOMMENDATIONS



NOTES:


1. CONTROL WIRE CONDUIT SHALL BE TWICE THE DIAMETER OF THE WIRE BUNDLE, 2" MINIMUM.
2. PROVIDE SEPARATE CIRCUIT BREAKERS FOR CONTROLLER(S) AT ELECTRICAL CONTROL PANEL, AND LABEL.
3. PROVIDE RAIN SENSOR AND INSTALL IN AN APPROVED LOCATION.

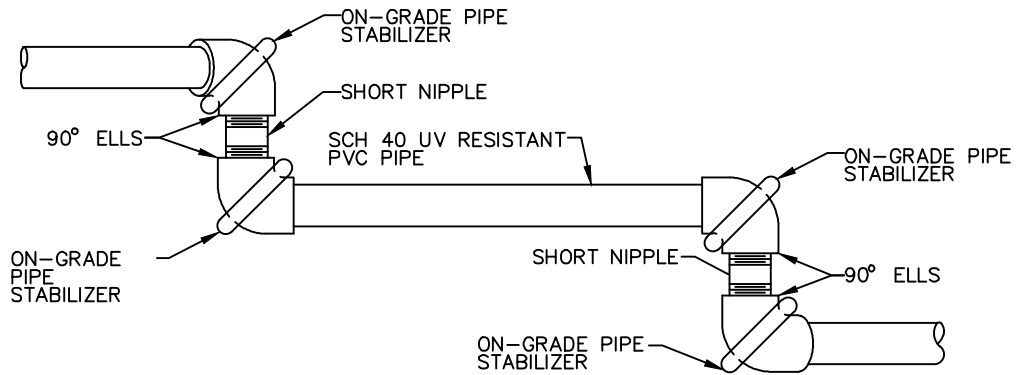
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	AUTOMATIC IRRIGATION CONTROLLER INDOOR WALL MOUNTED		 7/26/2012 Chairperson R.C.E. 19246 Date	DRAWING NUMBER I-18
Add Metric		T. Stanton	03/03				
Update		M. Caro	06/04				
Delete Metric	KA	N. Batta	11/11				



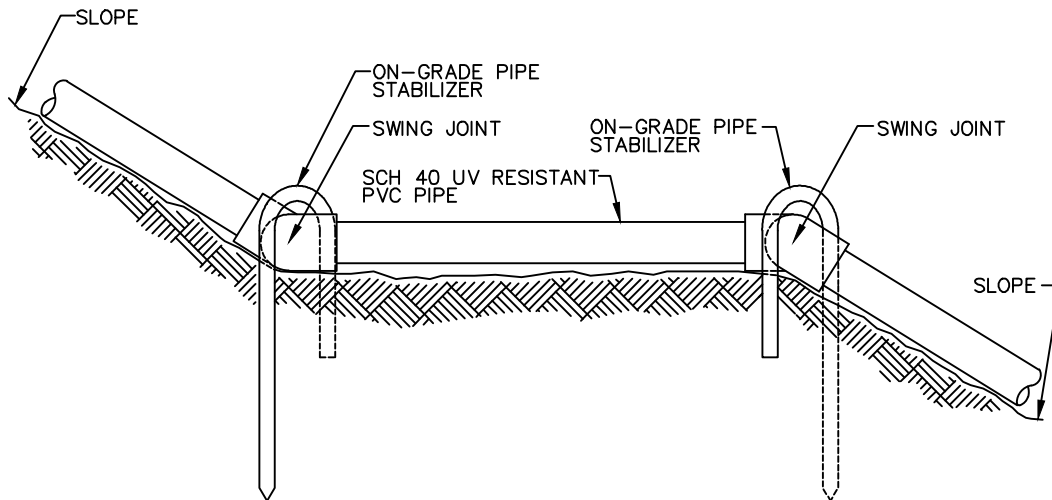
NOTE:

STABILIZERS SHALL BE PLACED NO GREATER THAN 10' APART,
AT EACH RISER AND AT ALL FITTINGS.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	ON-GRADE PIPE STABILIZATION TEMPORARY INSTALLATION		 7/26/2012 Chairperson R.C.E. 19246 Date	
Add Metric		T. Stanton	03/03				
UPDATE		M. Caro	06/04				
UPDATE	KA	N. Batta	11/11				
						DRAWING NUMBER I-20	



PLAN

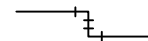



ELEVATION

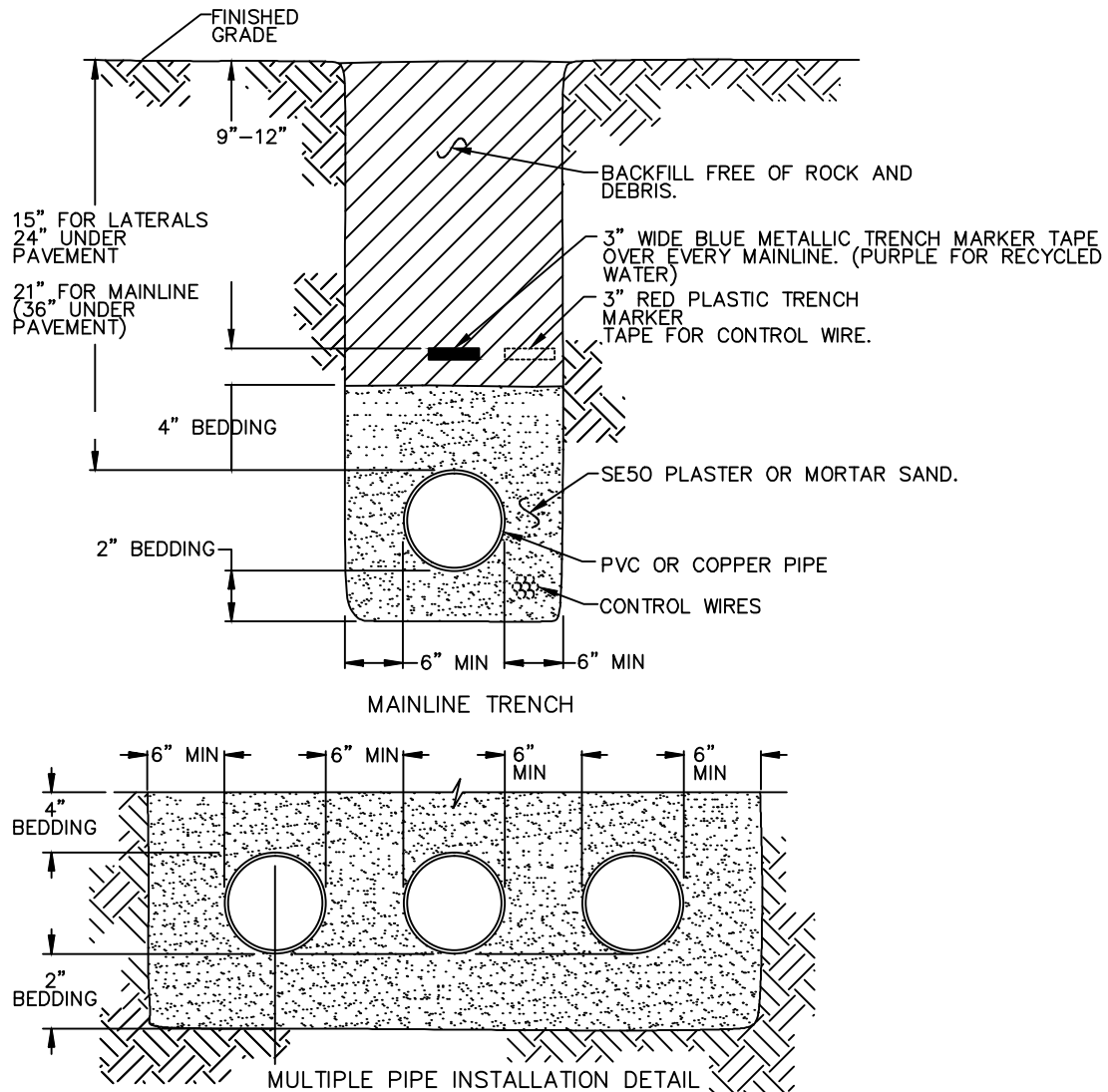
NOTE:

SWING JOINTS SHALL BE USED AT EACH CHANGE OF GRADE.

LEGEND ON PLANS



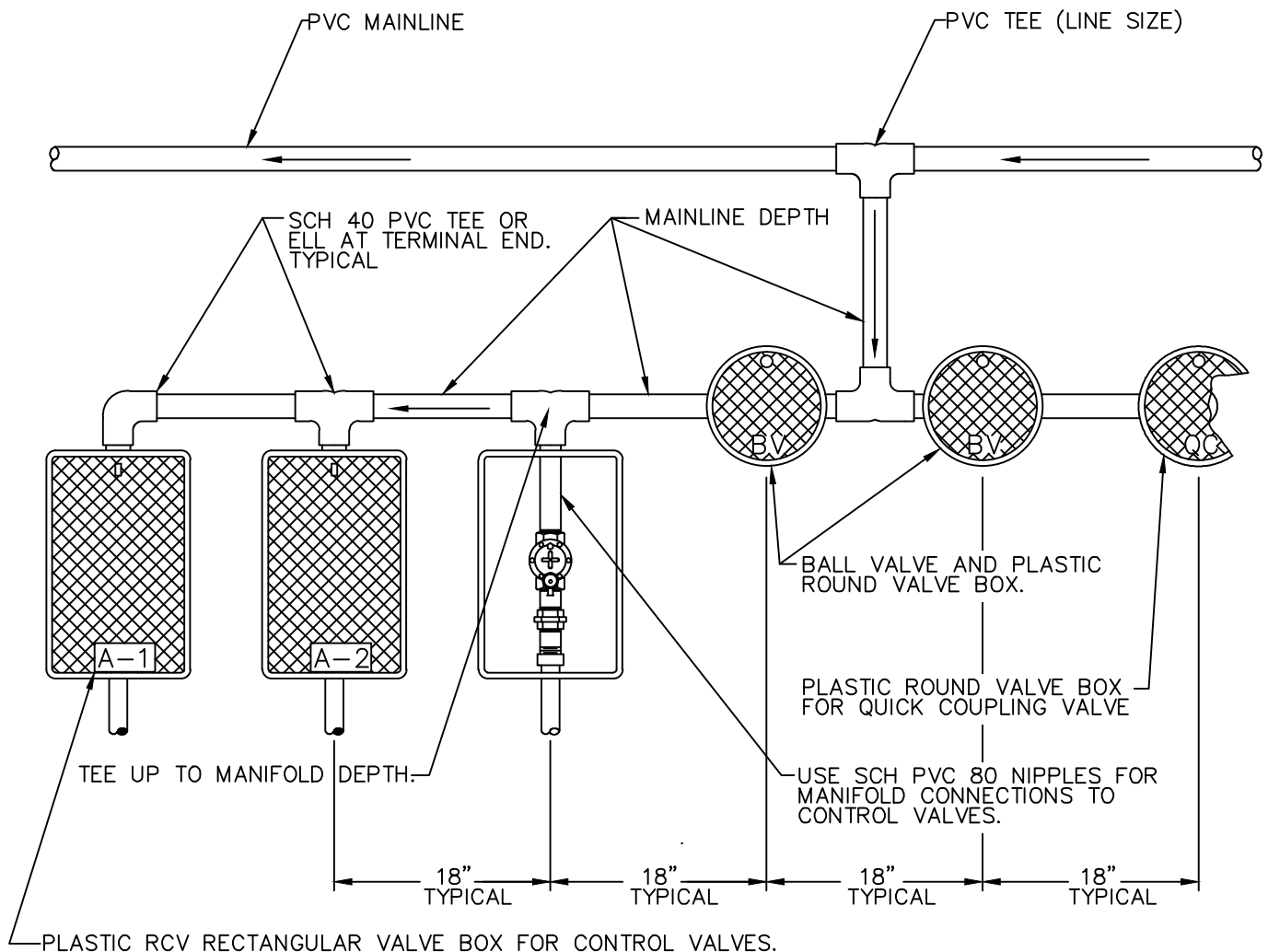
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	ROTOR, SPRAY, OR BUBBLER POP-UP HEAD		 7/26/2012 Chairperson R.C.E. 19246 Date	
Add Metric		T. Stanton	03/03				
Reviewed		T. Stanton	06/04				
UPDATED	KA	N. Batta	11/11				
						DRAWING NUMBER I-23	



NOTES:


1. BACKFILL MATERIAL SHALL BE COMPACTED TO A RELATIVE COMPACTION OF 90% MINIMUM.
2. PIPE SHALL LAY FREE IN THE TRENCH WITH NO INDUCED STRAIN AND WITH SUFFICIENT ALLOWANCE FOR EXPANSION AND CONTRACTION.
3. PVC PIPE UNDER PAVEMENT SHALL BE INSTALLED IN A SCH 40 PVC SLEEVE TWICE THE DIAMETER OF THE PIPE (2" MINIMUM SIZE) AND EXTEND 12" MINIMUM BEYOND THE EDGE OF PAVEMENT.
4. THE LETTER "W" SHALL BE STAMPED OR CHISELED ON THE IMPROVEMENT (CURB/ SIDEWALK) DIRECTLY ABOVE THE PRESSURE PIPELINE SLEEVE.
5. NO PVC PRESSURE PIPELINE SHALL BE INSTALLED WITHIN 3' OF ANY UTILITY, UNLESS OTHERWISE SPECIFIED.

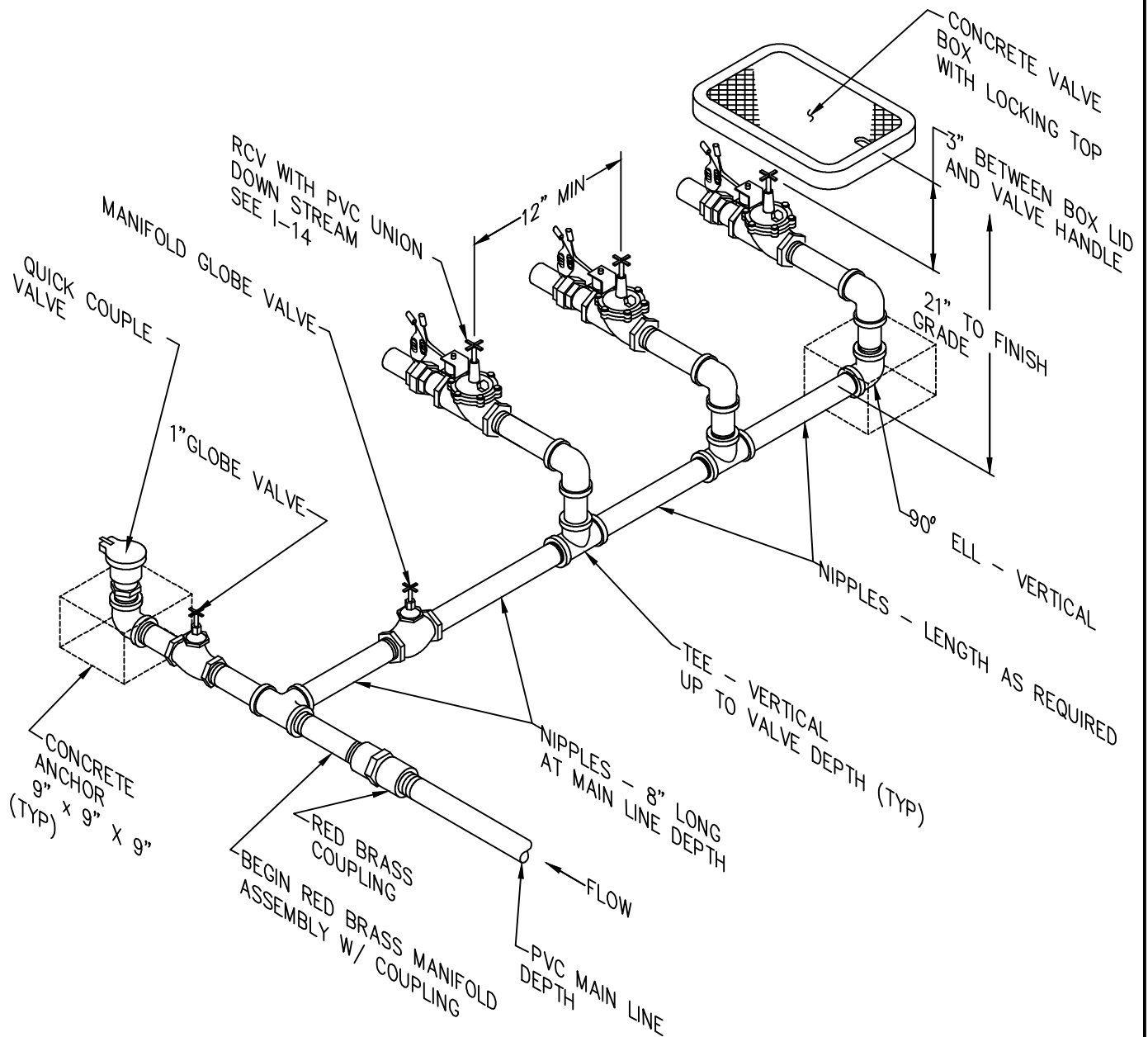
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE			
ORIGINAL		Kercheval	12/75			IRRIGATION TRENCH PVC OR COPPER PIPE		 7/26/2012	
Add Metric		T. Stanton	03/03	Chairperson R.C.E. 19246				Date	
Update		M. Caro	06/04	DRAWING NUMBER				I-25	
Update	KA	N. Batta	11/11						



NOTES:

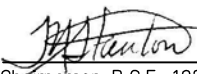
1. PVC PIPE USED IN MANIFOLD ASSEMBLIES SHALL BE THE SAME CLASS AS SPECIFIED FOR THE MAINLINE.
2. VALVE BOXES SHALL BE HEAT BRANDED WITH CONTROLLER AND VALVE IDENTIFICATION.

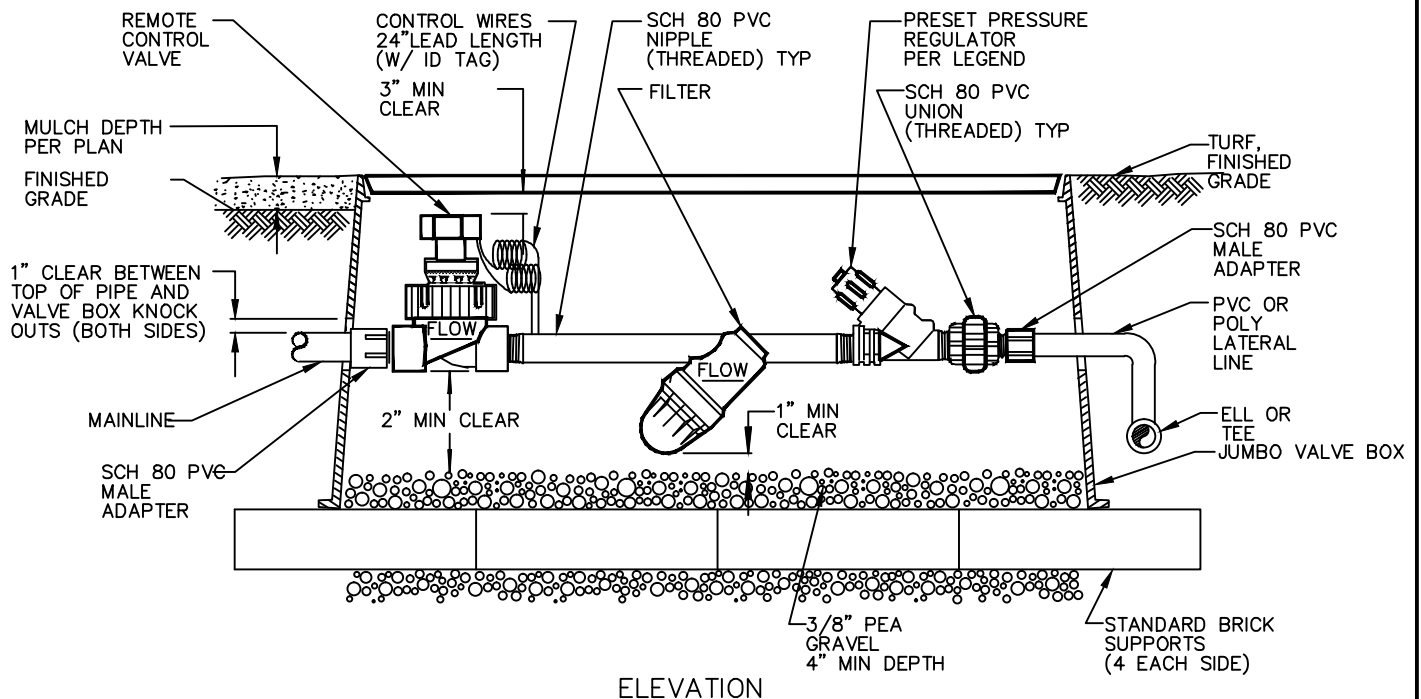
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING REMOTE CONTROL VALVE MANIFOLD ASSEMBLY WITH PVC PIPE (TEMPORARY SYSTEMS)		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			 7/26/2012 Chairperson R.C.E. 19246 Date	
Add Metric		T. Stanton	03/03			DRAWING NUMBER	
Update		M. Caro	06/04				
Update	KA	N. Batta	11/11				
						I-32	



NOTES:

1. ALL PIPES, NIPPLES, AND FITTINGS AFTER MALE ADAPTER SHALL BE RED BRASS.
2. VALVE AND CONTROLLER IDENTIFICATION SHALL BE LABELED OUTSIDE ON THE VALVE BOX LID AND TAGGED INSIDE THE BOX ON THE VALVE.
3. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	REMOTE CONTROL VALVE MANIFOLD ASSEMBLY WITH BRASS PIPE		 7/26/2012 Chairperson R.C.E. 19246 Date	I-33
Add Metric		T. Stanton	03/03				
UPDATE		M. Caro	4/05				
UPDATE	KA	N. Batta	11/11				
						DRAWING NUMBER	



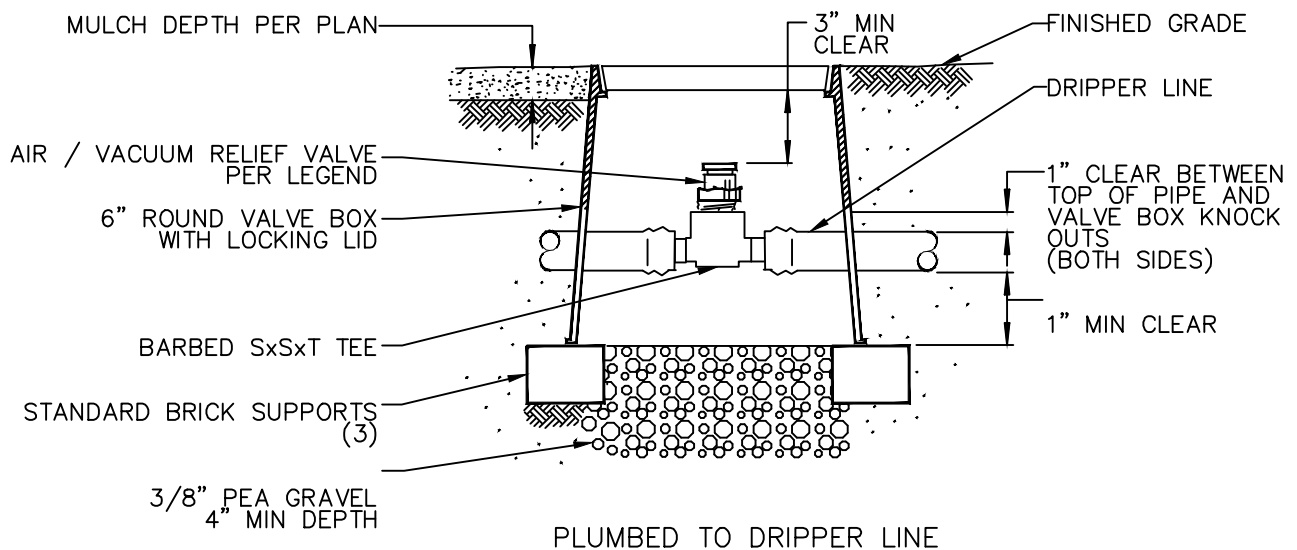
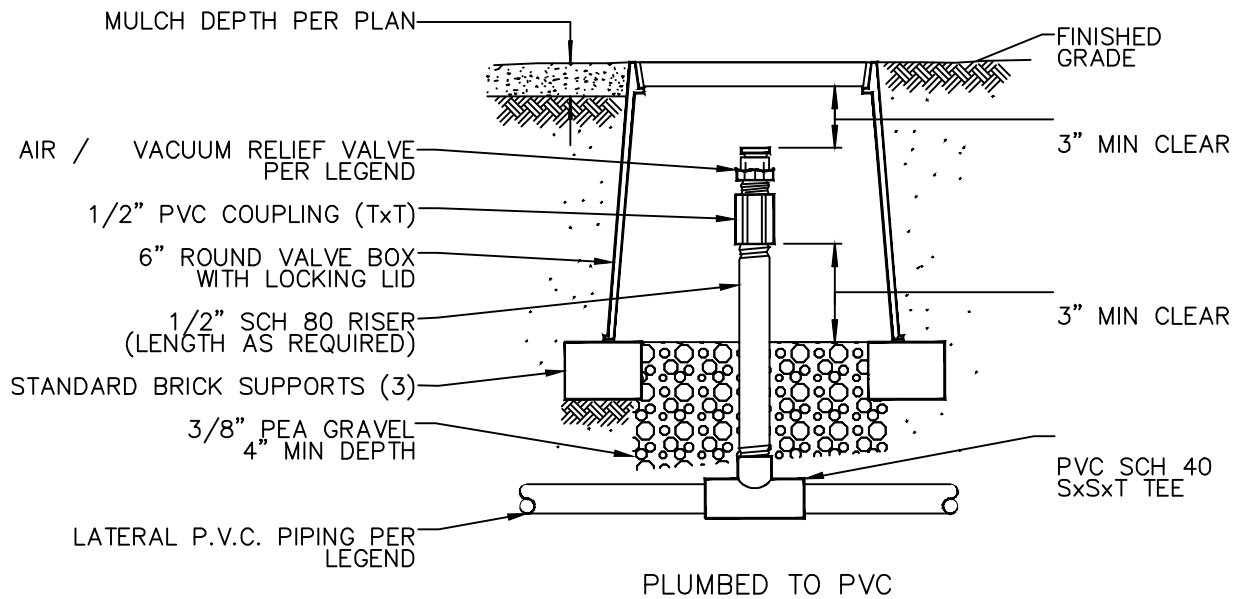
NOTES:

1. WIRE SPLICING SHALL BE MADE IN VALVE BOXES AND PULL BOXES ONLY. SEE SDI-115 FOR SPLICE / SOLDERING NOTES.
2. SPARE WIRES TERMINATING IN VALVE BOXES SHALL HAVE THEIR ENDS INSULATED, THE SAME AS FOR A SPLICE.
3. WHEN TWO OR MORE VALVES ARE INSTALLED IN THE SAME LOCATION, SEE REMOTE CONTROL VALVE MANIFOLD ASSEMBLY.
4. VALVE / CONTROLLER IDENTIFICATION SHALL BE PERMANENTLY LABELED EXTERNALLY ON THE VALVE BOX AND INTERNALLY, WITH A PERMANENT IDENTIFICATION TAG ATTACHED TO THE VALVE.
5. KNOCK OUTS SHALL NOT BE ENLARGED UNLESS APPROVED BY THE AGENCY.
6. INSTALL ONLY ONE VALVE ASSEMBLY PER BOX.
7. VALVE BOXES SHALL BE SET PERPENDICULAR TO HARDSCAPE, A MAXIMUM 12 INCHES FROM EDGE OF HARDSCAPE, 2\"/>

LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		M. Caro	12/75		
Update	KA	N. Batta	11/11	REMOTE CONTROL VALVE DRIP IRRIGATION	<i>[Signature]</i> 7/26/2012
					Chairperson R.C.E. 19246 Date
					DRAWING NUMBER
					I-35




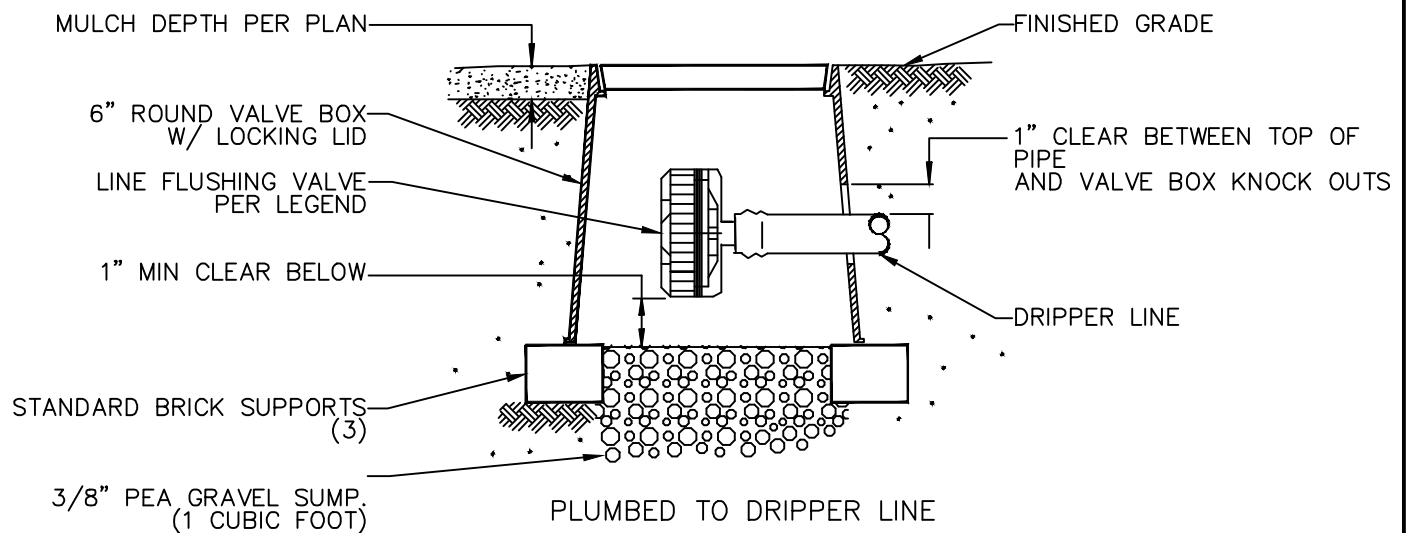
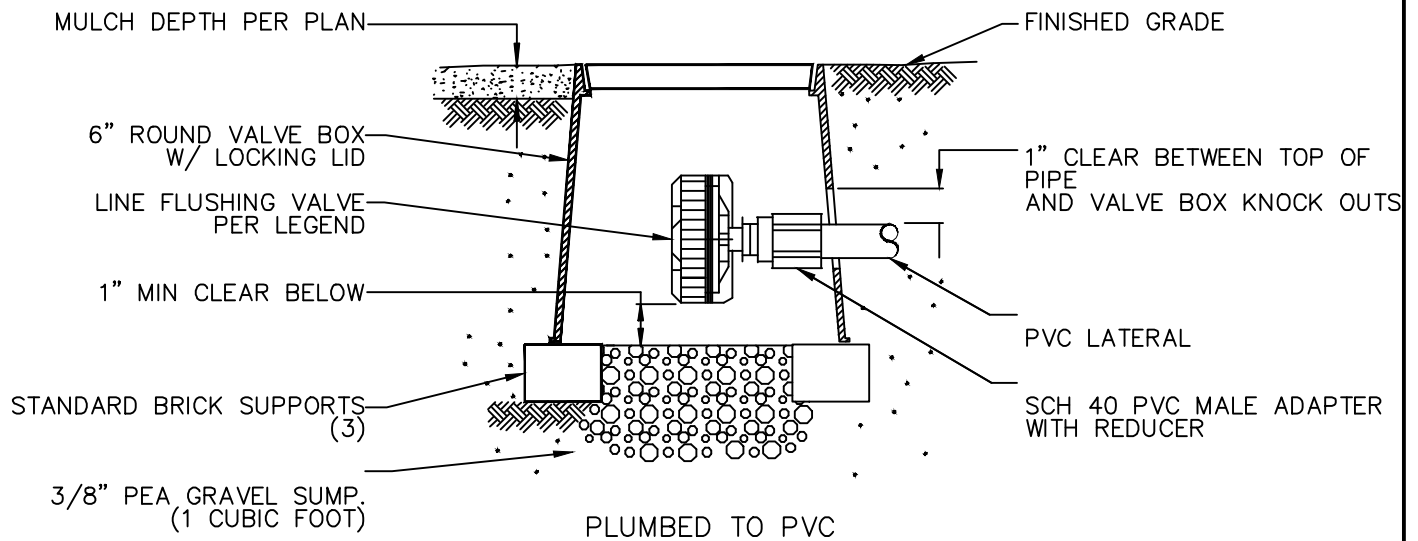
NOTES:

1. INSTALL AIR / VACUUM RELIEF VALVE AT HIGH POINT(S) IN VALVE CIRCUIT.
2. HEAT-BRAND VALVE BOX LID "AR".
3. VALVE SHALL BE CENTERED IN BOX.
4. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS.

LEGEND ON PLANS

(A)

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		M. Caro	1/06				
UPDATE	KA	N. Batta	11/11	AIR / VACUUM RELIEF VALVE		 7/26/2012 Chairperson R.C.E. 19246 Date	
						DRAWING NUMBER	
						I-36	




NOTES:

1. INSTALL FLUSH VALVE(S) AT THE LOWEST POINTS IN THE VALVE CIRCUIT
2. HEAT BRAND VALVE BOX LIDS "FV".
3. VALVE SHALL BE CENTERED IN BOX.

LEGEND ON PLANS

(FV)

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL	RH	A. Oskoui	12/75				
UPDATE	KA	N. Batta	11/11	DRIP IRRIGATION FLUSH VALVE (AUTOMATIC)		 7/26/2012 Chairperson R.C.E. 19246 Date	
						DRAWING NUMBER	
						I-37	

LANDSCAPING

LANDSCAPING

L

2" DIA. LODGEPOLE
STAKE. MIN 10'
LENGTH.

PLAN

RUBBER TREE TIES
LOOPE IN A 'FIGURE 8'
AROUND TRUNK AND
STAKE.

EACH TREE TIE SHALL BE
NAILED TO STAKE USING
GALVANIZED NAILS.

DO NOT REMOVE SIDE GROWTH
ALONG TRUNK. PRUNE ONLY AS
DIRECTED BY THE AGENCY.

2-2" DIA 10' MIN LENGTH LODGEPOLE
STAKES AND 4 TIES. TOP TREE TIES SHALL
BE 3" BELOW TOP OF STAKE. TIES SHALL
PROVIDE FLEXIBILITY OF TRUNK BUT NOT
ALLOW RUBBING OF TRUNK OR BRANCHES
AGAINST STAKE.

6" FROM
LOWEST OR
NEAREST
BRANCH.

CHAMFER AS
NEEDED TO
ELIMINATE SOIL
SLOUGHING.
1:1 MAX
SLOPE.

TOP OF ROOT BALL 1" ABOVE
FINISHED GRADE.

2"-3" MULCH, 3" CLEAR FROM TRUNK.

4" HIGH BERM FIRMLY COMPACTED

4" PERFORATED PVC BREATHER
TUBE W/ BLACK FLAT GRATE CAP
FASTENED STAINLESS STEEL SCREW
(2) WRAPPED IN FILTER FABRIC &
EXTENDING TO THE BOTTOM OF
PLANTING PIT.

PLANT
TABLETS
BURIED, MAX
3" DEEP

PLANT
TABLETS PER
SPECS., MAX
3" DEEP.

DEPTH
OF
ROOT
BALL
MIN
24"

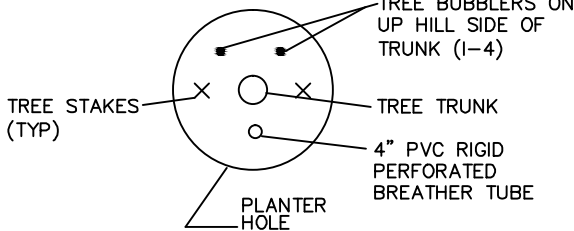
2 x BALL WIDTH

SCARIFY BOTTOM AND
EDGES OF PLANT PIT.

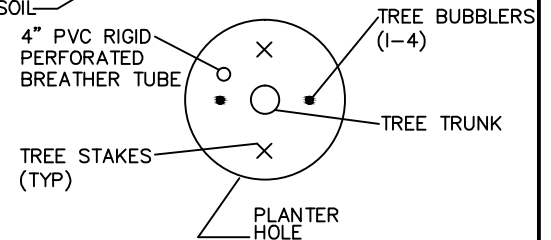
DEPTH
OF
ROOTBALL
MIN
24"

2 x BALL WIDTH
MINIMUM

UNDISTURBED NATIVE SOIL



A - SLOPES



B - LEVEL GROUND

NOTES

1. DOUBLE STAKE 15 GAL. AND LARGER TREES. SINGLE STAKE TREES SMALLER THAN 15 GAL.
2. FOR SINGLE STAKED TREES, PLACE STAKE ON WINDWARD SIDE OF TREE.
3. LOCATE STAKES OUTSIDE OF ROOTBALL.
4. PROVIDE MINIMUM DISTANCE FROM OTHER OBJECTS AS FOLLOWS:
20' TRAFFIC SIGNALS, 12' STREET LIGHTS, 10' FIRE HYDRANTS, SEWER LINES AND SDG&E FOR
PAD MOUNTED EQUIPMENT, AND 5' UNDERGROUND SDG&E ELECTRIC AND GAS LINES.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Update		M. Caro	02/05
Delete Metric	SJG	N. Batta	06/11

SAN DIEGO REGIONAL STANDARD DRAWING

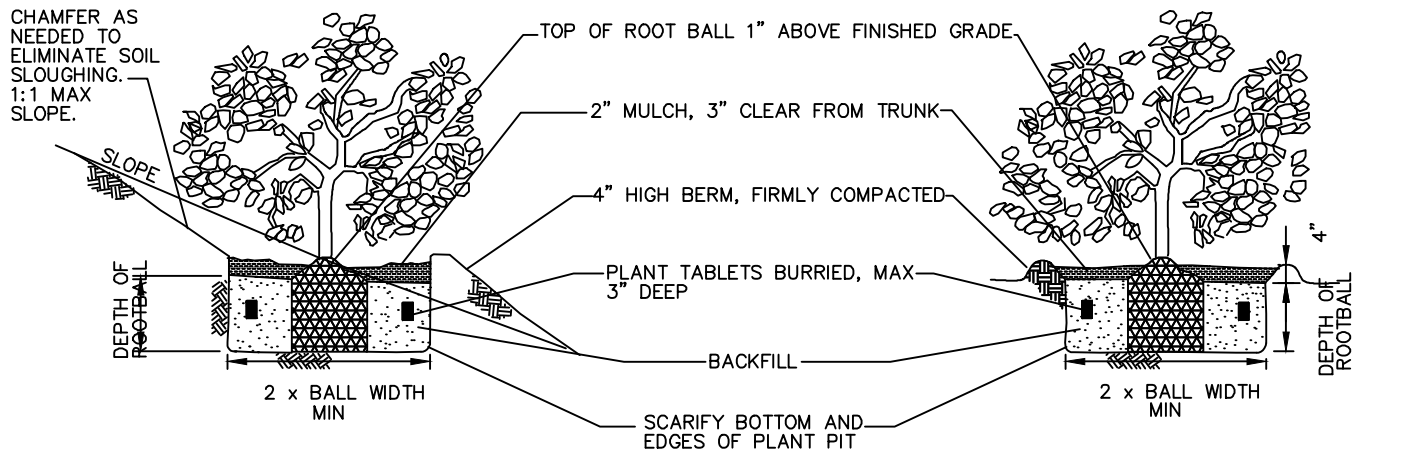
TREE PLANTING AND STAKING

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

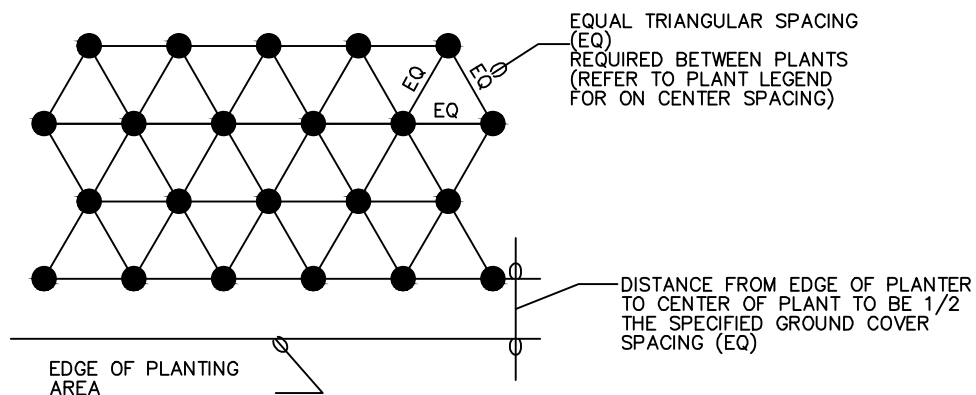
DRAWING
NUMBER

L-1



SHRUB PLANTING – SLOPES

SHRUB PLANTING – LEVEL GROUND



GROUND COVER SPACING

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Update		M. Caro	02/05
Delete Metric	KA	N. Batta	06/11

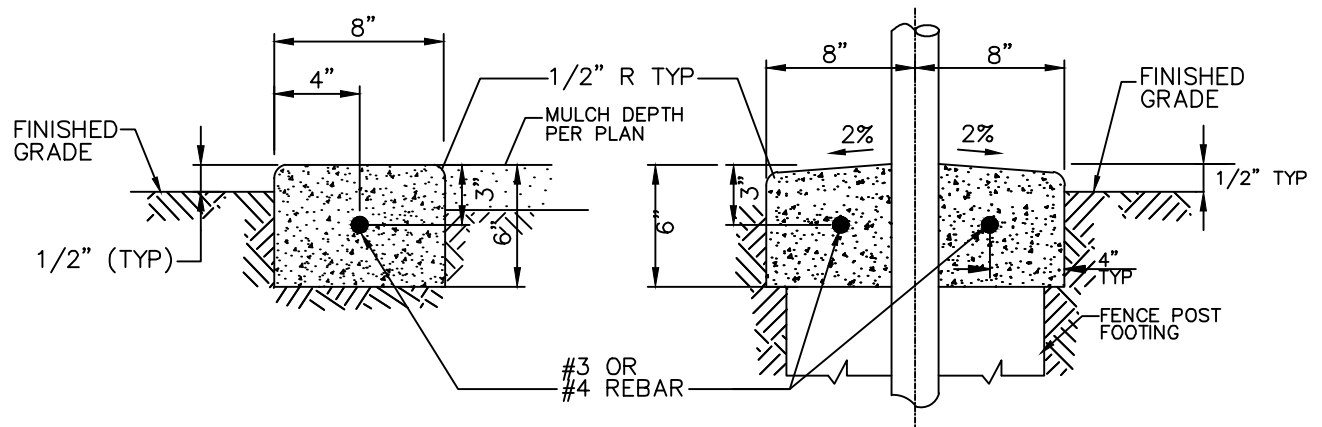
SAN DIEGO REGIONAL STANDARD DRAWING

**SHRUB PLANTING/GROUND
COVER SPACING**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

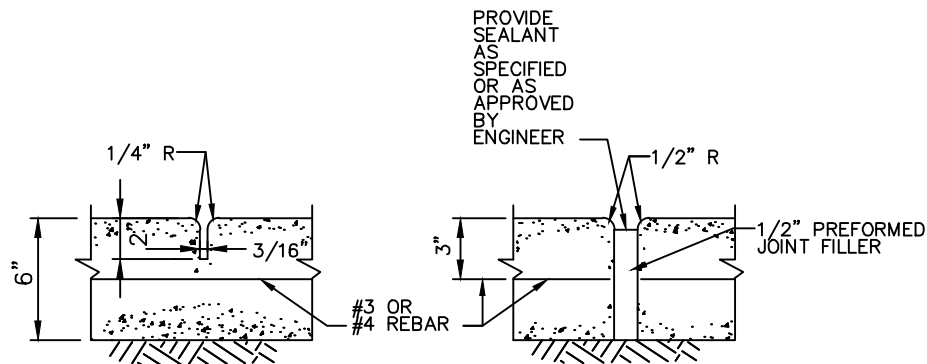
T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER **L-2**



TYPE A
ALL AREAS
EXCEPT
UNDER
FENCES

TYPE B
UNDER FENCES




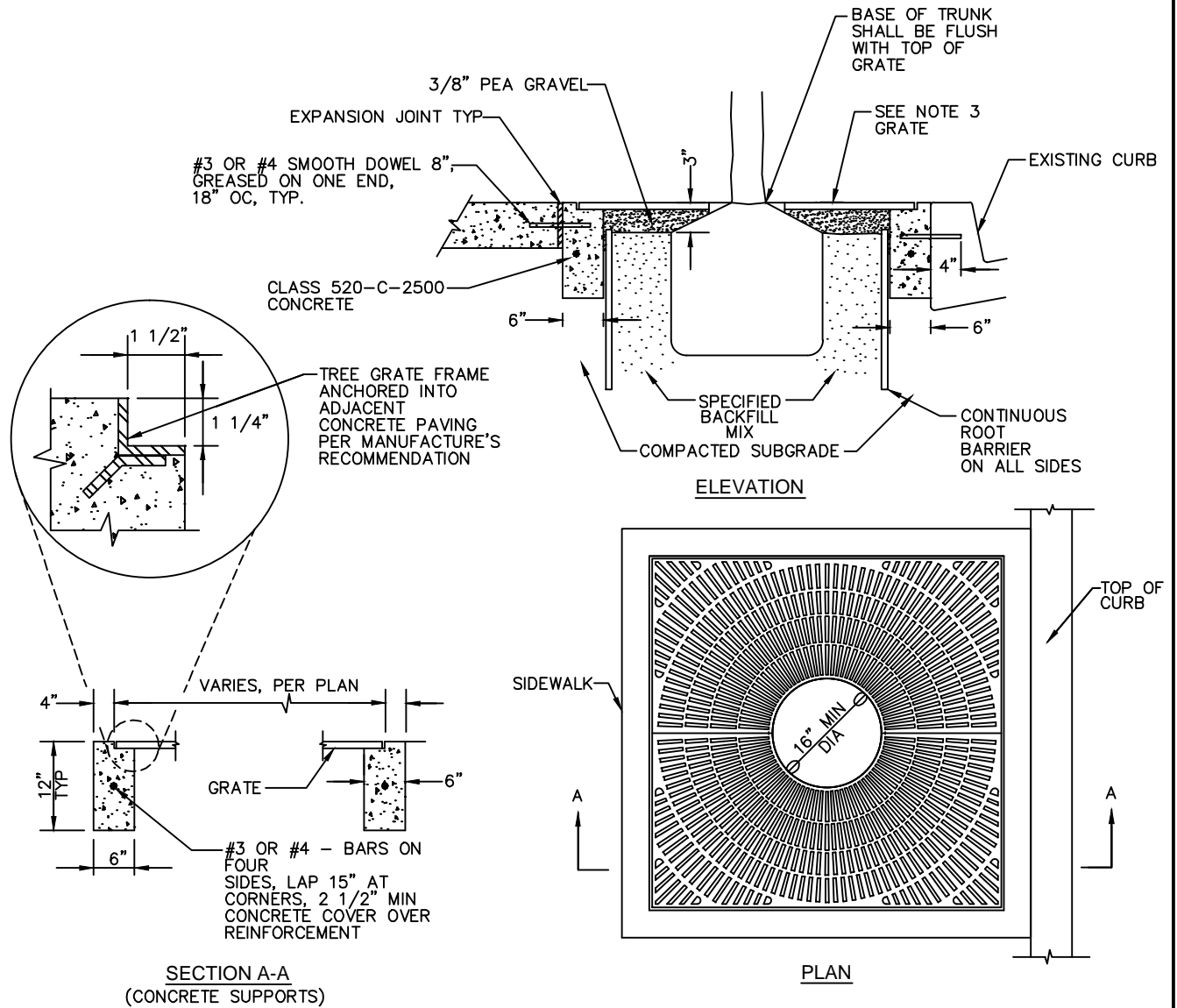
WEAKENED PLANE JOINT
MAX 20' OC

EXPANSION JOINT
MAX 120' OC

NOTES

1. REBAR SHALL BE CONTINUOUS WITH 12" OVERLAP WHERE SPICED.
2. CONCRETE SHALL BE CLASS 520-C-2500 AND SAME COLOR AS ADJACENT CONCRETE AND HAVE A SMOOTH TROWEL FINISH.
3. INSTALL WEAKENED PLANE JOINTS AT EACH FENCE POST.
4. INSTALL EXPANSION JOINTS WHERE THE MOWING STRIP ABUTS CONCRETE IMPROVEMENT AND AT LOCATION APPROVED BY THE AGENCY.

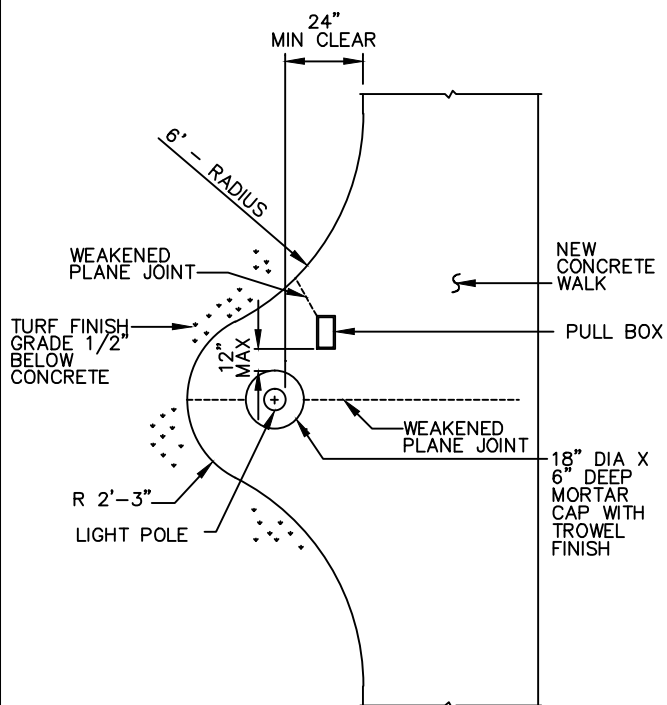
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03	CONCRETE MOWING STRIP	 7/26/2012 Chairperson R.C.E. 19246 Date
Update		M. Caro	02/05		
Delete Metric	KA	N. Batta	06/11		
					DRAWING NUMBER L-3



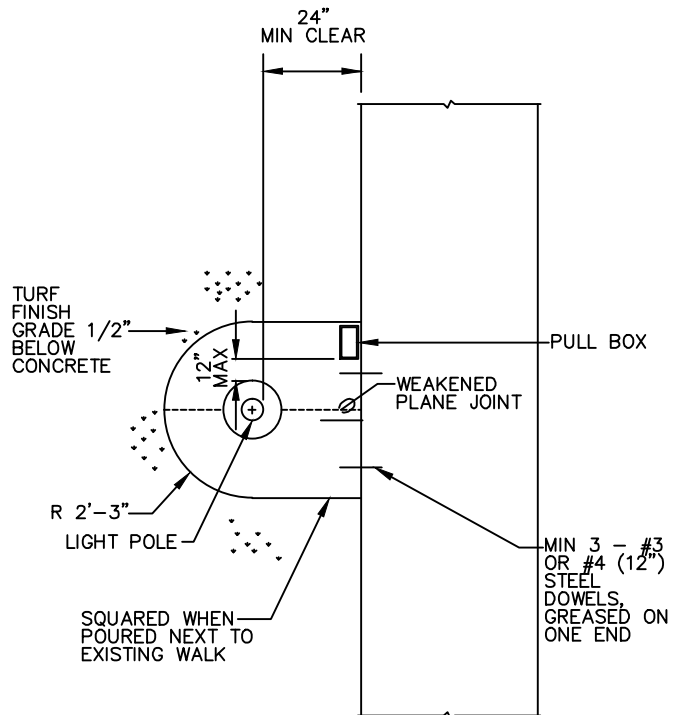
NOTES:

1. CONCRETE TO BE REMOVED FOR EACH TREE PLANTING SHALL BE SAW CUT FULL DEPTH.
2. BOLTS, NUTS AND WASHERS SHALL BE GRADE 316 STAINLESS STEEL. GRATE FRAME SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION. ALL GRATES SHALL BE REMOVABLE & FASTENERS SHALL BE ACCESSIBLE TO MAINTENANCE .
3. GRATES SHALL BE MINIMUM 40 SQUARE FEET IN SIZE, AND 2 SEPARATE PIECES, UNLESS OTHERWISE SPECIFIED ON THE PLANS. SLOT OPENINGS IN GRATE DESIGN SHALL HAVE 3/8" MAXIMUM WIDTH. GRATE DESIGNS AND INSTALLATION SHALL BE IN ACCORDANCE WITH CURRENT ADA STANDARDS AND THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE, WITH A MINIMUM UNIFORM LIVE LOAD OF 250 POUNDS PER SQUARE FOOT IN SIDEWALKS.
4. IMMEDIATE NOTIFICATION SHALL BE GIVEN TO THE ENGINEER OF ANY BELOW GRADE IMPROVEMENTS ENCOUNTERED.
5. SET GRATE IN FRAME PRIOR TO PLACEMENT OF PAVEMENT. ANY WARPED OR NON-FLUSH FITTING GRATES SHALL BE REPLACED.
6. TREE SHALL BE CENTERED IN GRATE OPENING. GRATES SHALL HAVE A PERMANENT SLIP RESISTANT FINISH.
7. ADJACENT SIDEWALK SHALL HAVE A MINIMUM CLEARANCE WIDTH OF 4' FROM THE EDGE OF GRATE.
8. GRATE SHALL BE UNIFORM WITH ADJACENT GRADE.
9. PROVIDE MINIMUM DISTANCE FROM OTHER OBJECTS AS FOLLOWS: 12' STREET LIGHTS, 10' FIRE HYDRANTS, 10' SEWER LINES, AND 20' TRAFFIC SIGNALS.
- 10.SUBMIT GRATE DESIGN FOR APPROVAL.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Parkinson	05/92				
Add Metric		T. Stanton	03/03	TREE GRATE		<i>T. Stanton</i> 7/26/2012	
Update		M. Caro	01/06			Chairperson R.C.E. 19246 Date	
Delete Metric	KA	N. Batta	06/11			DRAWING NUMBER L-4	



MONOLITHIC CONCRETE
PLACEMENT



PAD WHEN ADJACENT TO
EXISTING CONCRETE

NOTES:

1. USE MONOLITHIC PLACEMENT FOR NEW CONSTRUCTION.
2. POLE PADS SHALL DRAIN AT 1.5% MINIMUM IN SAME DIRECTION AS SIDEWALK.
3. CONCRETE PAD SHALL BE THE SAME AS SPECIFIED FOR SIDEWALK.
4. LOCATE LIGHT POLES OUTSIDE OF TURF AREAS AND AWAY FROM TREES AS APPROVED BY THE ENGINEER UNLESS SPECIFIED OTHERWISE
5. PULL BOX WITH BOLT-DOWN LID MINIMUM 6" FROM ALL EDGES (POLYMER EDGED BOX WITH BRICK FOUNDATION)

Revision	By	Approved	Date
ORIGINAL		Parkinson	09/88
Add Metric		T. Stanton	03/03
Update		M. Caro	08/05
Delete Metric	KA	N. Batta	06/11

SAN DIEGO REGIONAL STANDARD DRAWING

LIGHT POLE PAD IN TURF AREAS

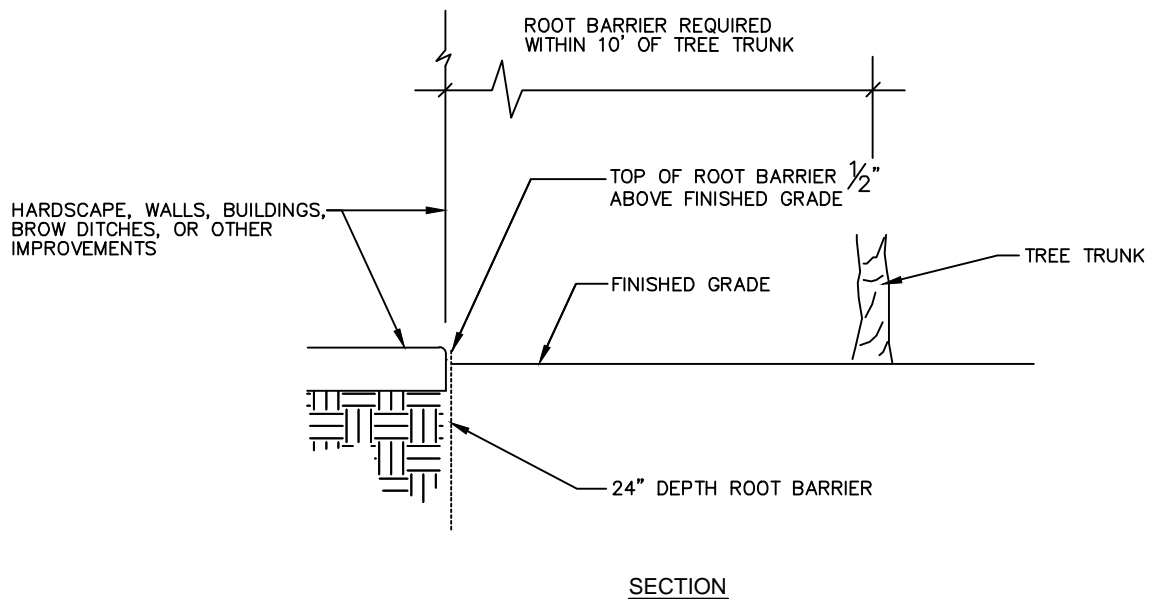
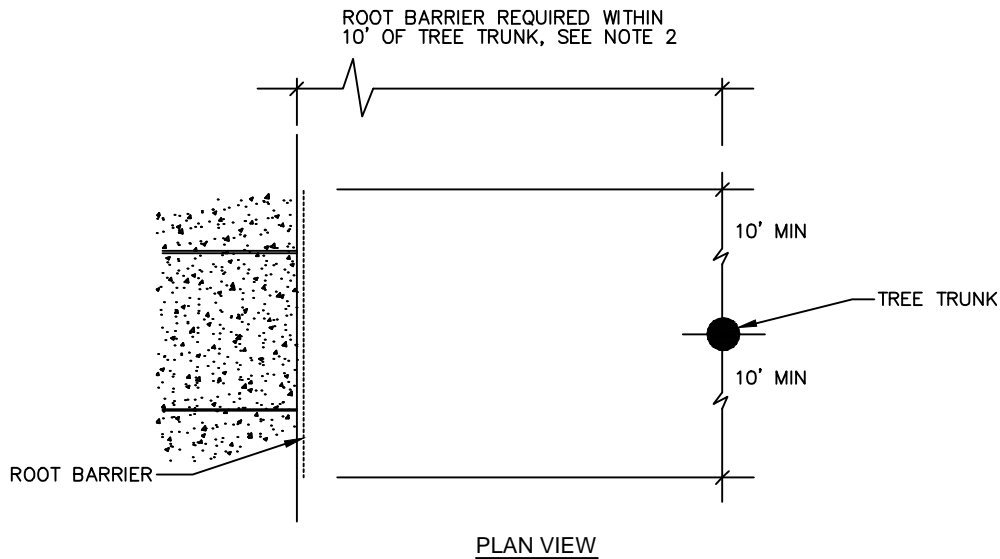
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

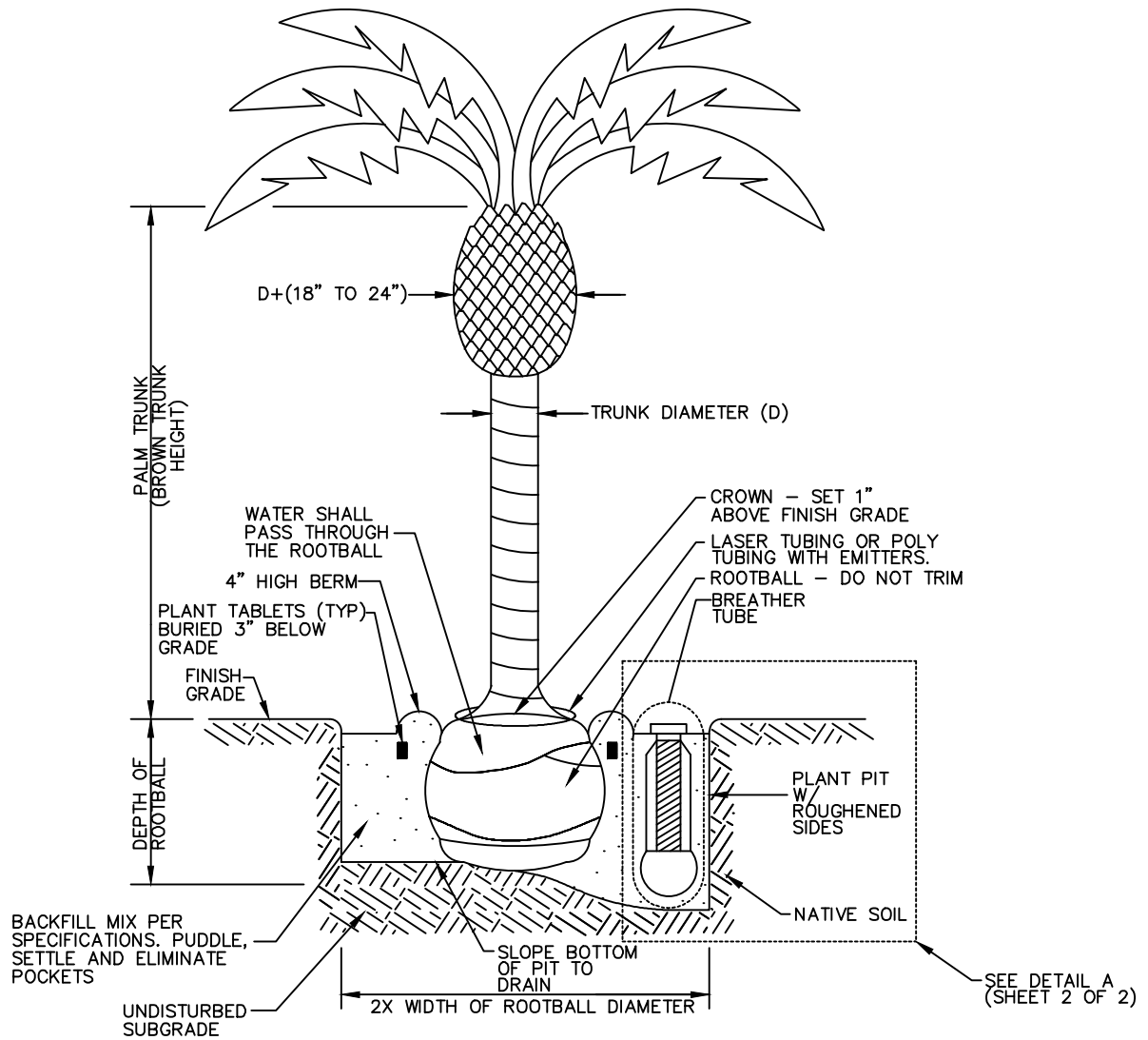
L-5



NOTES:

1. ROOT BARRIER SHALL BE INSTALLED ADJACENT TO THE IMPROVEMENT AND NOT AROUND THE ROOTBALL.
2. ROOT BARRIER REQUIRED WHEN TREE TRUNK IS WITHIN 10' OF HARDSCAPE, WALLS, BUILDINGS, BROW DITCHES, OR OTHER IMPROVEMENTS.
3. FOR ROOT BARRIER INSTALLATION WITH THE TREE GRATES SEE L-4.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		M. Caro	02/06			<div> 7/26/2012</div> <div>Chairperson R.C.E. 19246 Date</div> <div>DRAWING NUMBER L-6</div>	
Add Metric		T. Stanton	03/03				
Delete Metric	KA	N. Batta	06/11				
				ROOT CONTROL BARRIER			

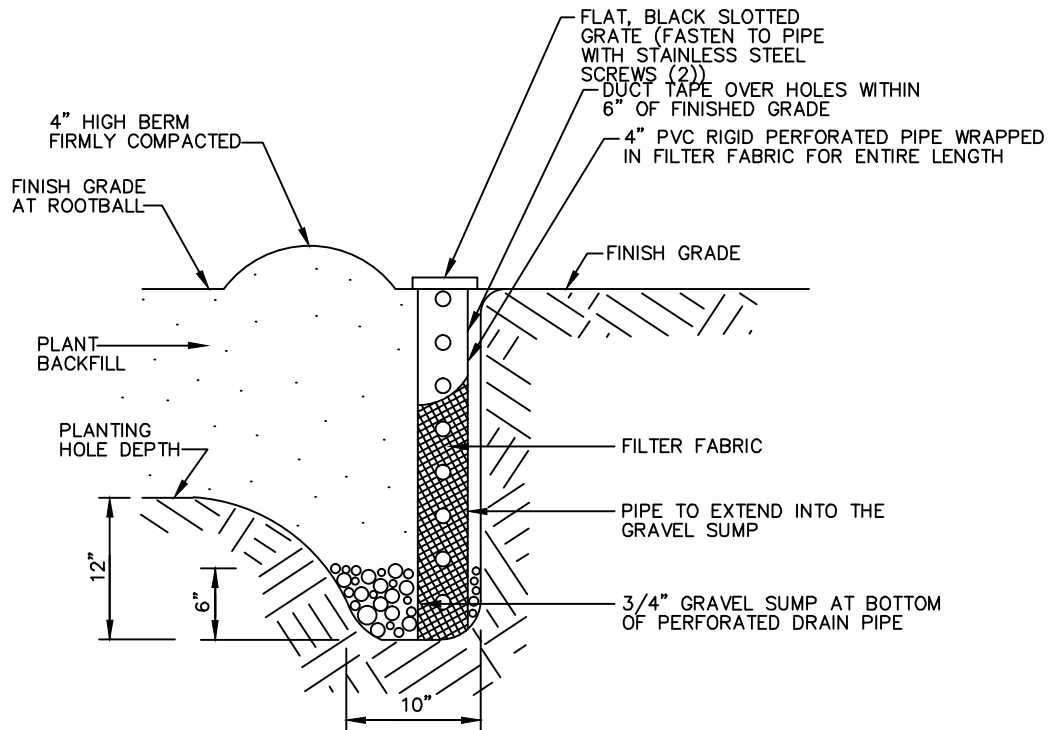


NOTES:

1. TIE PALM FRONDS TOGETHER WITH BIODEGRADABLE SISAL TWINE. TWINE SHALL BE REMOVED AFTER 90 DAYS OF TRANSPLANTING UNLESS OTHERWISE DIRECTED BY THE AGENCY.
2. PALM TRUNKS SHALL BE SKINNED, TRIMMED, AND VERTICAL.
3. STEM DIAMETER REQUIREMENT APPLIES ONLY TO PHOENIX SPECIES.

SHEET 1 OF 2

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL	KA	N. Batta	06/11	PALM TREE PLANTING		<i>[Signature]</i> 7/26/2012
						Chairperson R.C.E. 19246 Date
						DRAWING NUMBER L-7



DETAIL - A
BREATHING TUBE

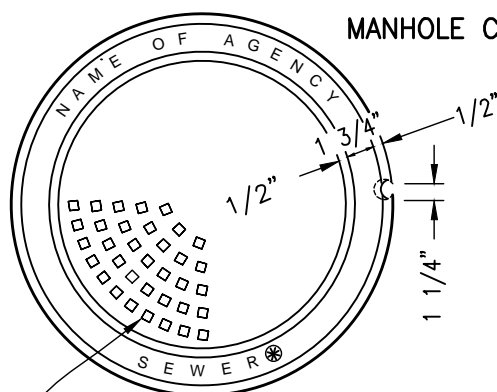
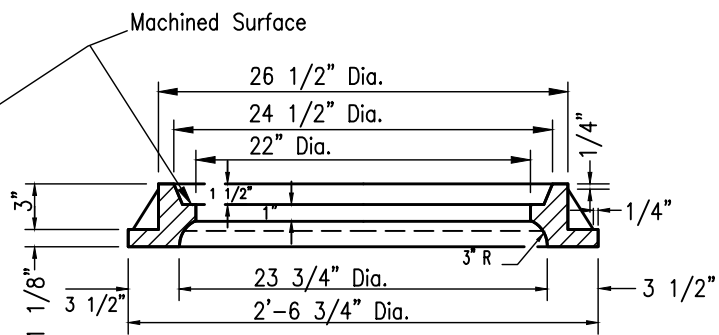
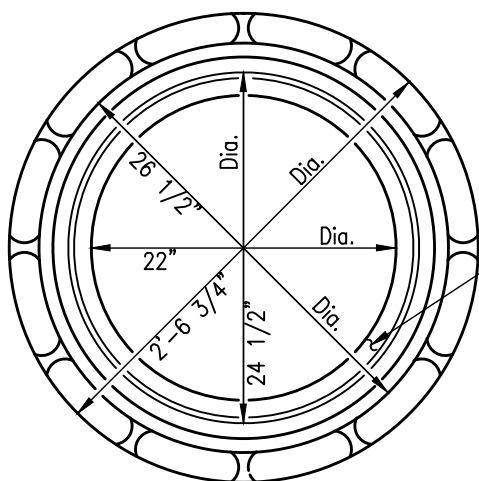
SHEET 2 OF 2

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL	KA	N. Batta	06/11	PALM TREE PLANTING		<i>[Signature]</i> 7/26/2012
						Chairperson R.C.E. 19246 Date
						DRAWING NUMBER
						L-7

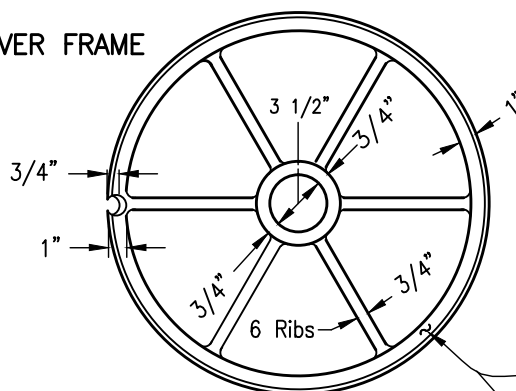
M

MISCELLANEOUS

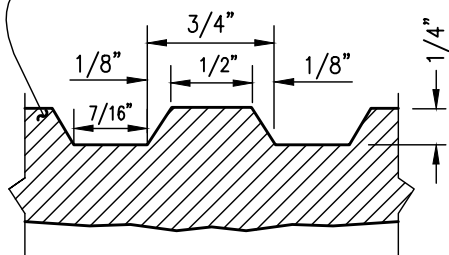
MISCELLANEOUS



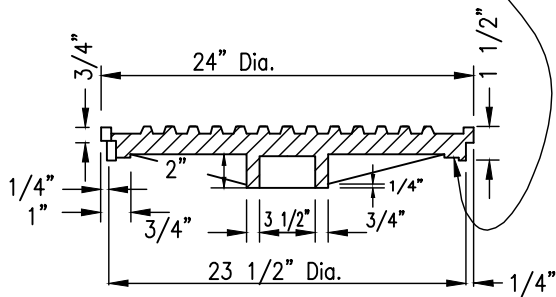
MANHOLE COVER FRAME



Machined Surface



DETAIL



NOTES

MANHOLE COVER

1. Frame and cover shall be cast iron. Cast iron shall conform to ASTM 48, Class 35B.
2. Weights: Frame 166 lbs - 193 lbs.
Cover 147 lbs - 171 lbs.
3. Machine all matching surfaces and seats of frame and cover to prevent rocking.
4. Imported frames and covers shall have the country of origin marked in compliance with federal regulations.



FOR	MARK
Sewer Projects	Sewer
Storm Drain Projects	Storm Drain
Water Projects	Water

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Delete Metric		D. Gerschoffer	05/12

SAN DIEGO REGIONAL STANDARD DRAWING

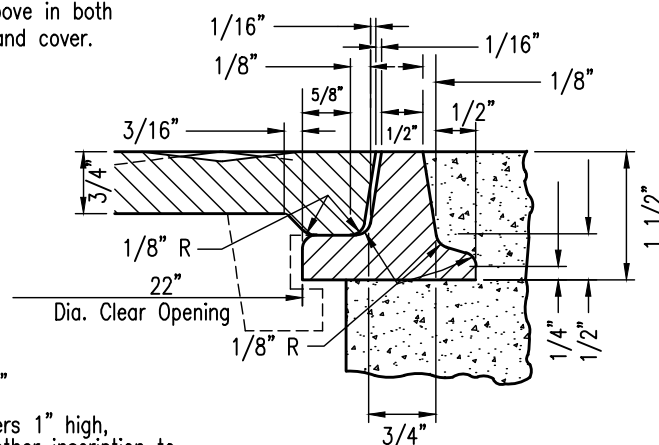
24" MANHOLE FRAME AND COVER
HEAVY DUTY

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

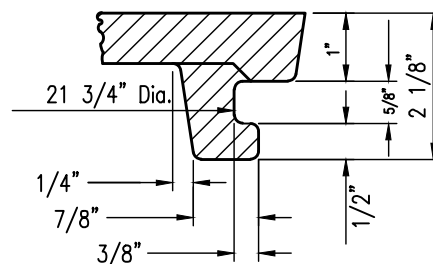
T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

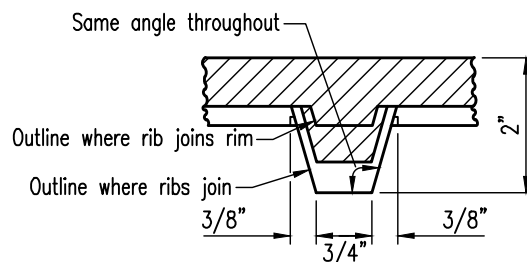
M-1



SECTION THROUGH RIM



SECTION THROUGH LUG



SECTION THROUGH
RIB AT MID RADIUS

FOR	MARK
Sewer Projects	Sewer
Storm Drain Projects	Storm Drain
Water Projects	Water

1. Frame and cover shall be cast iron. Cast iron shall conform to ASTM 48, Class 30.
2. Frame and cover for use in non-traffic area only.
3. Weights: Frame 29 lbs – 33 lbs.
Cover 95 lbs. – 110 lbs.
4. Imported frames and covers shall have the country of origin marked in compliance with federal regulations.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Delete Metric		D. Gerschoffer	05/12

**24" MANHOLE FRAME AND COVER
LIGHT DUTY**

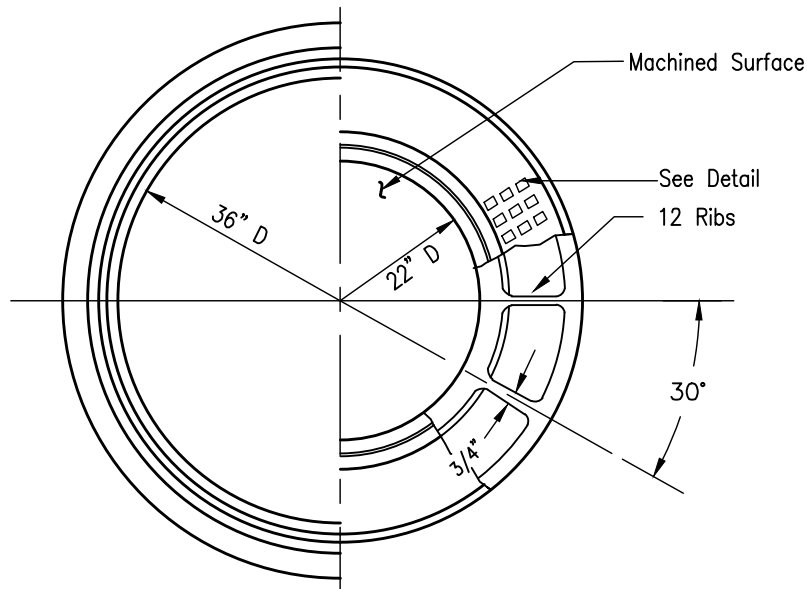
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

[Signature] 7/26/2012

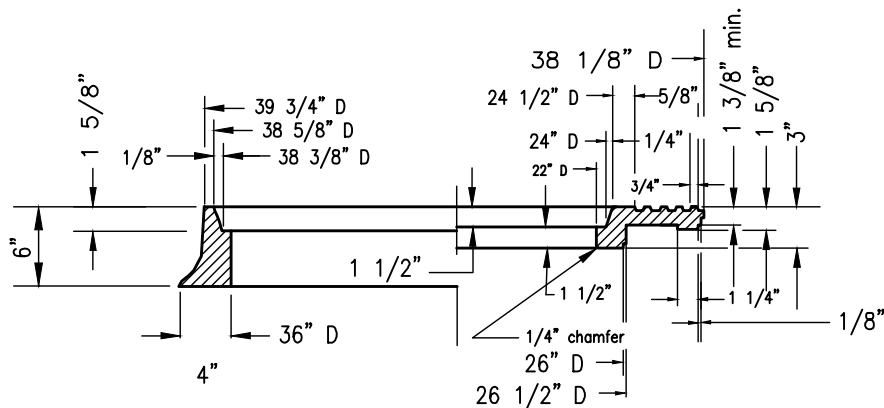
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

M-2



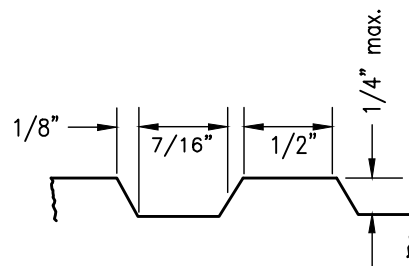
HALF PLAN FRAME & COVER




HALF SECTION FRAME & COVER

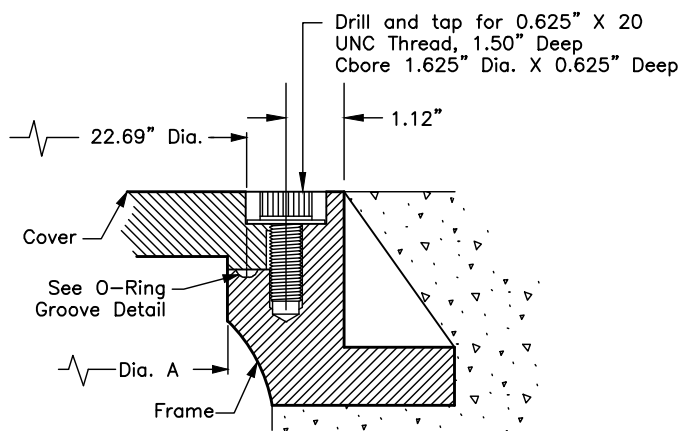
NOTES

1. Frame and cover shall be cast iron. Cast iron shall conform to ASTM 48, Class 35B.
2. Weights: Frame 314 lbs - 363 lbs.
Outer Cover 285 lbs - 330 lbs.
Inner Cover 147 lbs - 171 lbs.
3. Machine all matching surfaces and seats of frame and cover to prevent rocking.
4. Imported frames and covers shall have the country of origin marked in compliance with federal regulations.

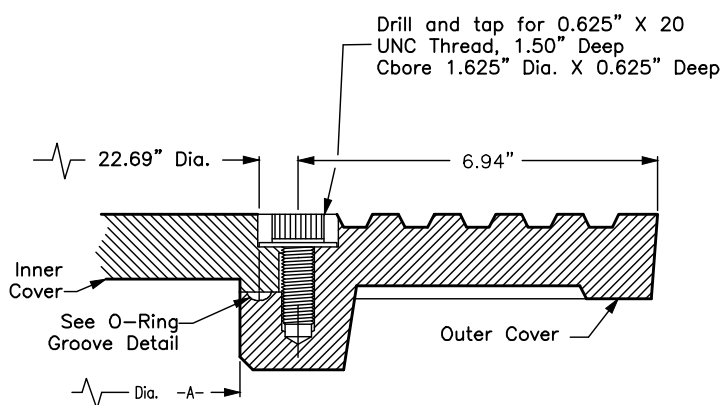


DETAIL

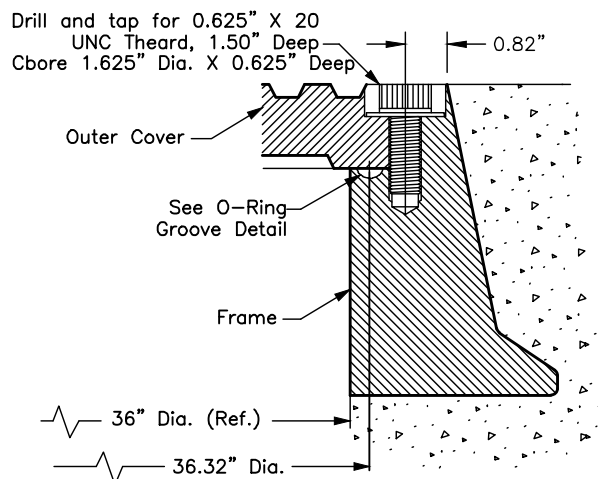
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	36" MANHOLE FRAME AND TWO CONCENTRIC COVERS HEAVY DUTY		 7/26/2012 Chairperson R.C.E. 19246 Date
Add Metric		T. Stanton	03/03			
Reviewed		T. Stanton	04/06			
Delete Metric		D. Gerschoffer	05/12			
						DRAWING NUMBER
						M-3



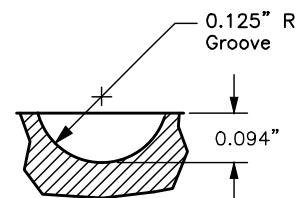
M-1 Detail:
COVER TO FRAME



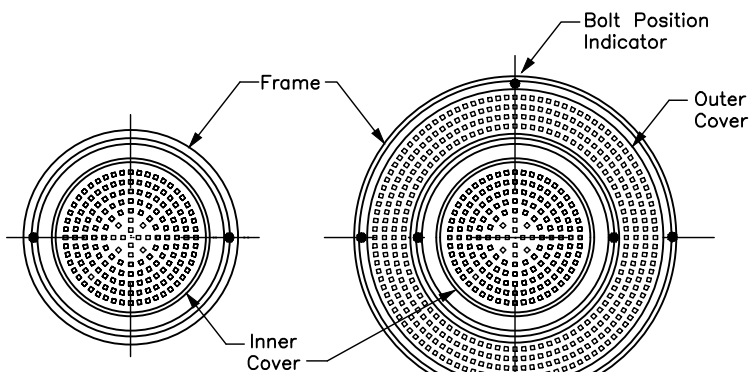
M-3A Detail:
INNER COVER TO OUTER COVER



M-3B Detail:
OUTER COVER TO FRAME



NEOPRENE O-RING
GROOVE DETAIL



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 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.

Revision	By	Approved	Date
ORIGINAL		Parkinson	2/95
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Delete Metric		D. Gerschoffer	05/12

SAN DIEGO REGIONAL STANDARD DRAWING

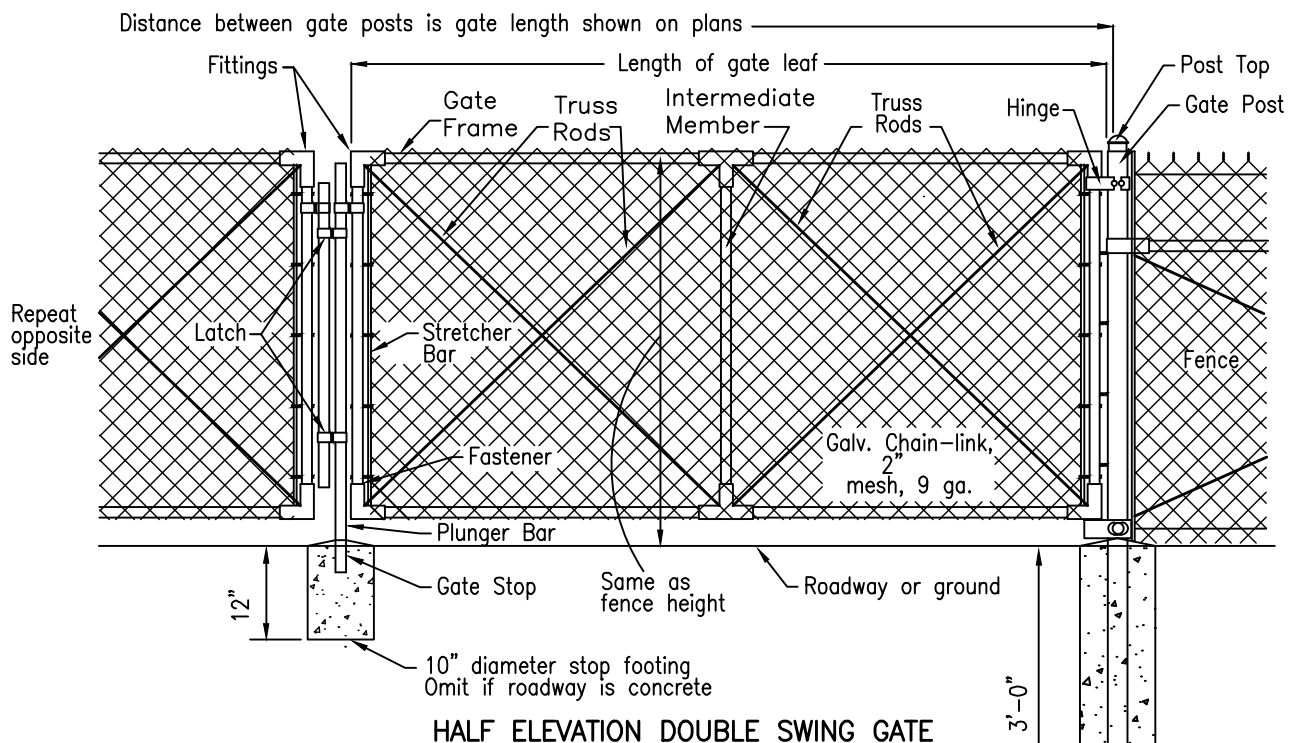
MANHOLE COVER - LOCKING DEVICE

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

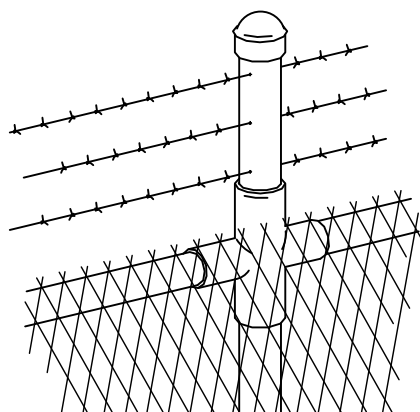
M-4



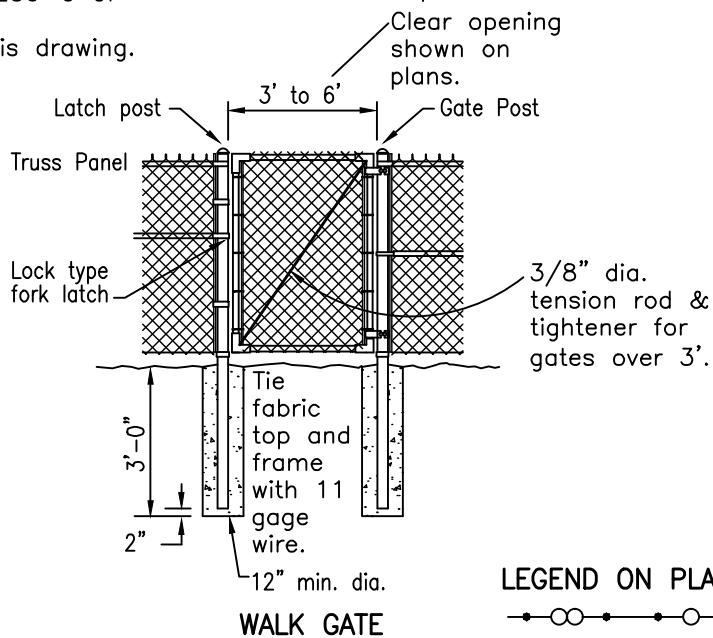
NOTES

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.

Diameter of footing = 4 times outside diameter of post.



EXTENSION POST AND BARBED WIRE



LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		A.Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Delete Metric		D. Gerschoffer	05/12

SAN DIEGO REGIONAL STANDARD DRAWING

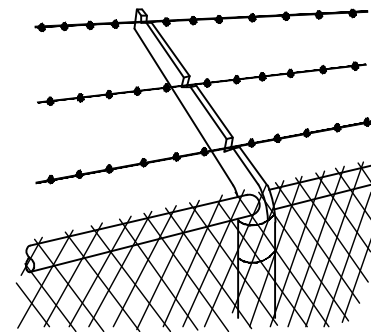
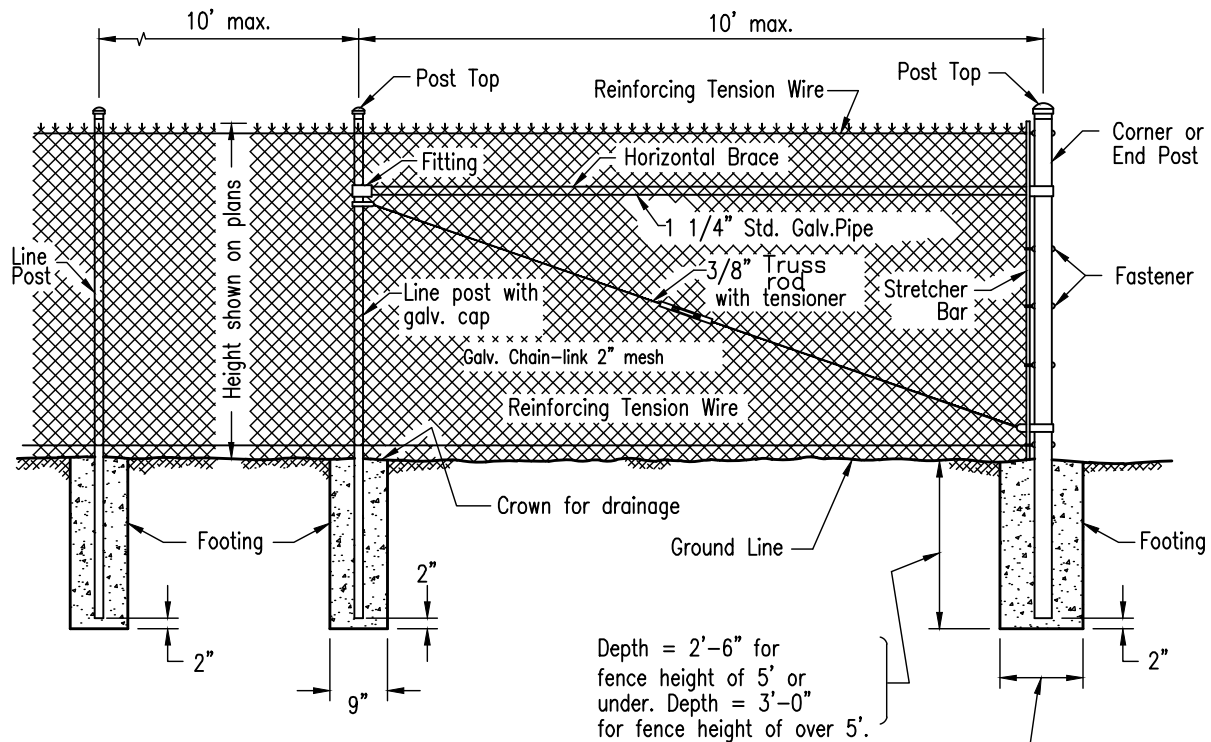
CHAIN LINK GATE

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

M-5

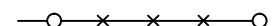



EXTENSION ARM AND BARBED WIRE

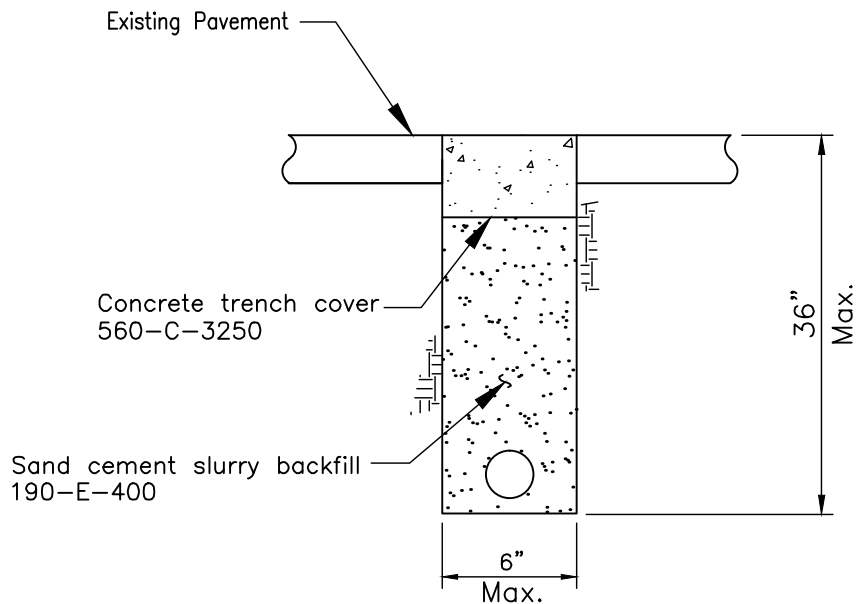
NOTES

- All footings shall be 520-C-2500 concrete.
- The following items shall be furnished and installed only when shown on the plans and/or called for in the special provisions.
 - Barbed Wire
 - Extension Arm
 - Top Horizontal Rail
- Chain link fence shall conform to Section 206-6 of the Standard Specifications for Public Works Construction unless specifically noted on this drawing.
- See Standard Drawing M-20 for additional details.

LEGEND ON PLANS



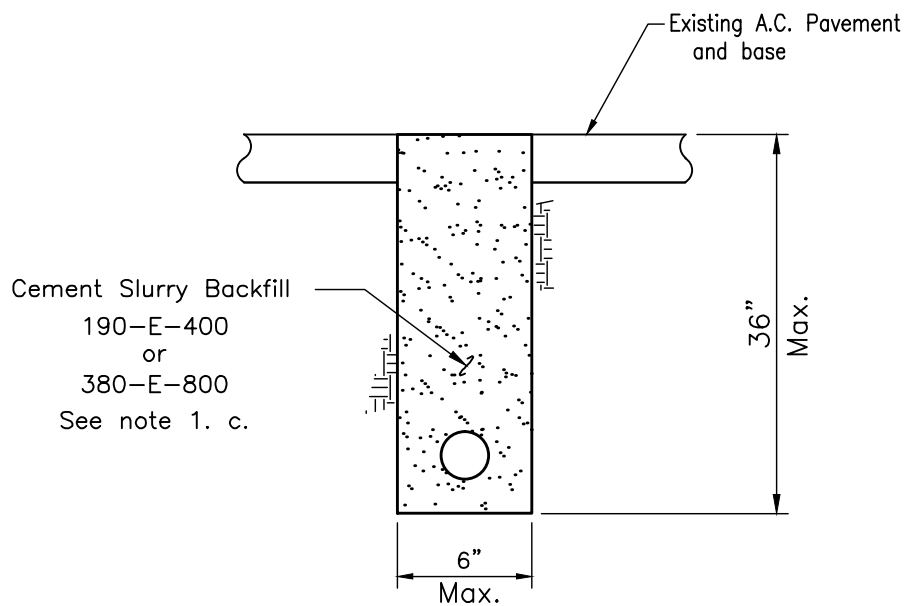
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		A. Kercheval	12/75	CHAIN LINK FENCE	
Add Metric		T. Stanton	03/03		
Reviewed		T. Stanton	04/06		
Delete Metric		D. Gerschoffer	05/12		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
				 7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER M-6	



NOTES

1. Concrete encasement or sand cement slurry backfill shall have a minimum slump of 4".
2. 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. Existing pavement will not require saw cutting when using rockwheel for excavation except when the existing pavement is concrete and trench finish is concrete.
5. All cuts shall be parallel or perpendicular to street centerline, when practical.
6. Allow concrete backfill or concrete trench cover 7 calendar days minimum, but no longer than 30 calendar days to cure and dry before applying any road surface finishes.
7. 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 otherwise the contractor shall protect the trench with the approval of the agency's Engineer.
8. See drawing G-33 for narrow trench resurfacing.
9. See table on drawing M-15 for standard minimum conduit depths.

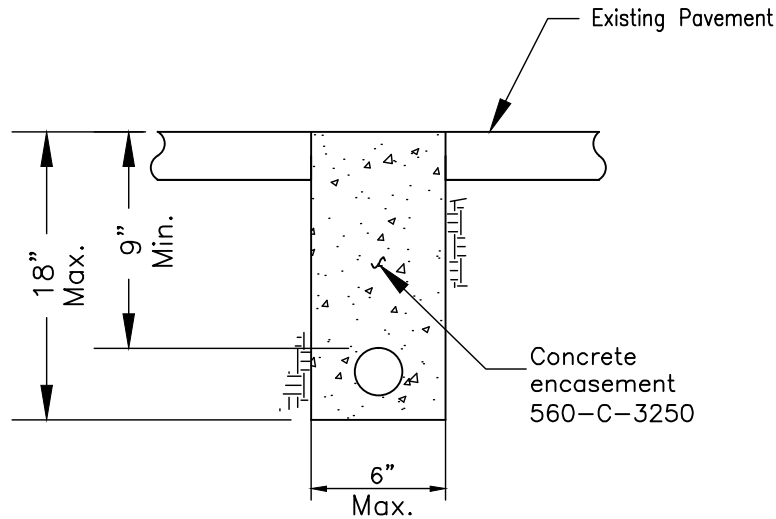
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		Hashemian	9/02		
Add Metric		T. Stanton	03/03	NARROW TRENCHES TRENCHING & BACKFILLING	
Reviewed		T. Stanton	04/06		
Delete Metric		D. Gerschoffer	05/12		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER M-7	



NOTES

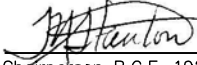
1. Cement Slurry Backfill:
 - a. Cement slurry backfill shall have a maximum slump of 4".
 - b. Cement slurry backfill shall be thoroughly consolidated to encase conduits. Tampers or vibrators shall be used.
 - c. Cement slurry backfill shall be as follows:
 - Alleys and local residential streets Class 190-E-400
 - All other streets Class 380-E-800
2. Existing A.C. pavement will not require sawcutting when using rockwheel for excavation.
3. All cuts shall be parallel or perpendicular to street centerline, when practical.
4. See drawing G-33 for narrow trench resurfacing.
5. See table on drawing M-15 for standard minimum conduit depths.

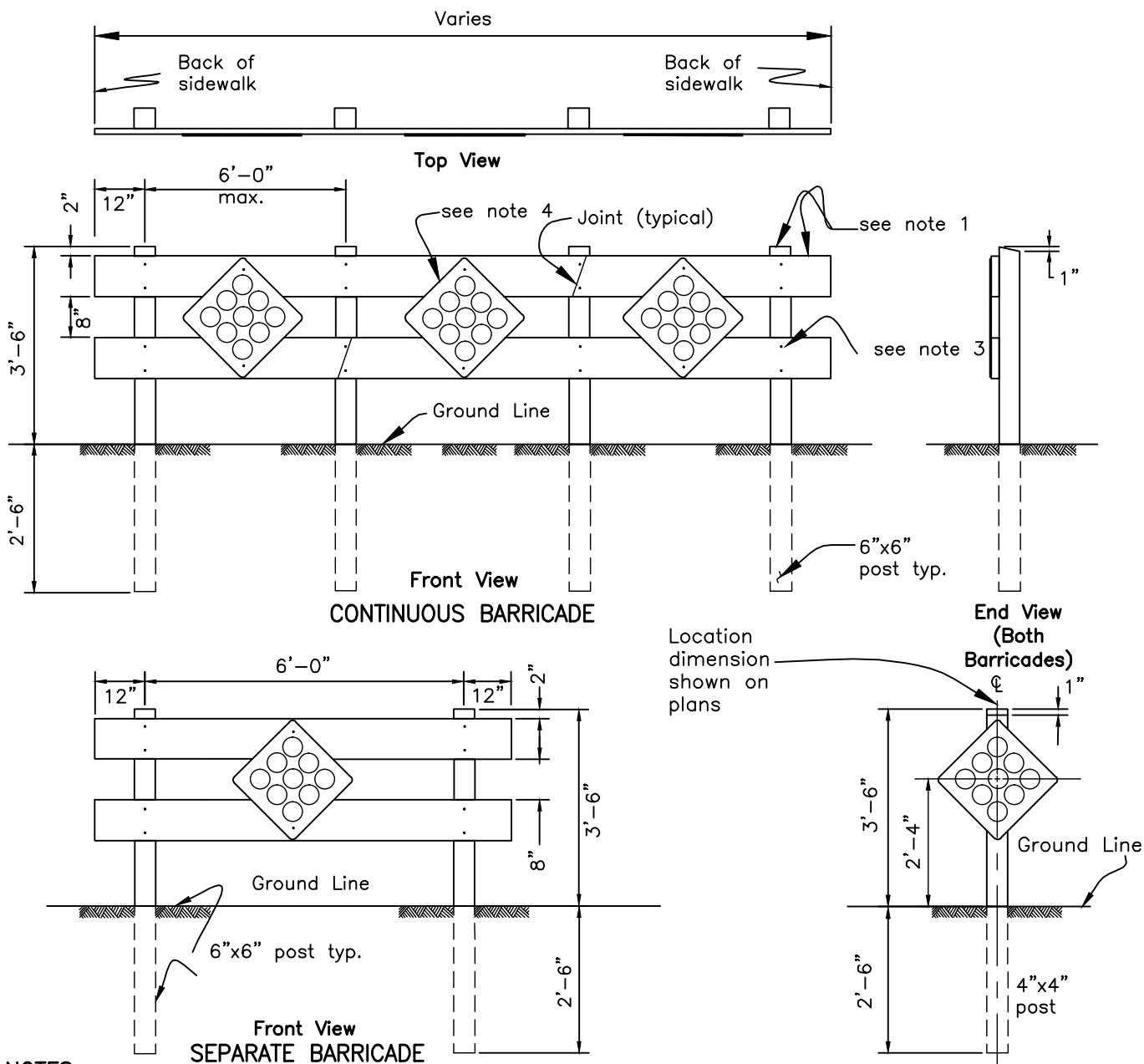
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Hashemian	9/02				
Add Metric		T. Stanton	03/03	NARROW TRENCHES TRENCHING & BACKFILLING		 7/26/2012	
Reviewed		T. Stanton	04/06			Chairperson R.C.E. 19246 Date	
Delete Metric		D. Gerschoffer	05/12			DRAWING NUMBER	
						M-7A	



NOTES

1. Concrete encasement or backfill shall have a minimum slump of 4".
2. Concrete encasement and/or 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. Existing pavement will not require saw cutting when using rockwheel for excavation except when the existing pavement is concrete and trench finish is concrete.
5. All cuts shall be parallel or perpendicular to street centerline, when practical.
6. Allow concrete backfill or concrete trench cover 7 calendar days minimum, but no longer than 30 calendar days to cure and dry before applying any road surface finishes.
7. 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 otherwise the contractor shall protect the trench with the approval of the Agency's Engineer.
8. This type of trench 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) and where the conduit can not be placed at the proper recommended depth.
9. See drawing G-33 for narrow trench resurfacing.
10. This detail shall be used only when there is underground conflicts. See table on drawing M-15 for standard minimum conduit depths.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		Hashemian	9/02		
Add Metric		T. Stanton	03/03	NARROW TRENCHES TRENCHING & BACKFILLING SHALLOW CONDUIT DEPTH	
Reviewed		T. Stanton	04/06		
Delete Metric		D. Gerschoffer	05/12		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER M-8	



NOTES

- Posts to be structural grade redwood or pressure treated (with wood preservative) Douglas Fir, surfaced four sides; cross pieces to be 2"x8" select grade Douglas Fir, surfaced four sides.
- All exposed portions of barricades shall be painted with two coats of white exterior enamel over prime coat.
- Connections shall be made with 3/8" x 6" galvanized lag screws with one (1) washer each.
- Reflector sign fasteners to be 3/8" x 1 1/2" galvanized lag screws.
- Reflector signs - California Type N. Size 18" x 18" - Yellow with nine (9) 3 1/4" reflectors (center mount).
 - Reflectors shall be red for use on dead end streets, in all other cases they shall be yellow. Reflector material shall be plastic or other approved reflectorized material.
 - Sign material shall be aluminum alloy 6061-T6 or 5052-H38, aluminum thickness 0.063".
- 6' long hat section metal post per Caltrans Std. Plan A74-A optional for guard post.

LEGEND ON PLANS

Barricade

Guard Post

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Delete Metric		D. Gerschoffer	05/12

SAN DIEGO REGIONAL STANDARD DRAWING

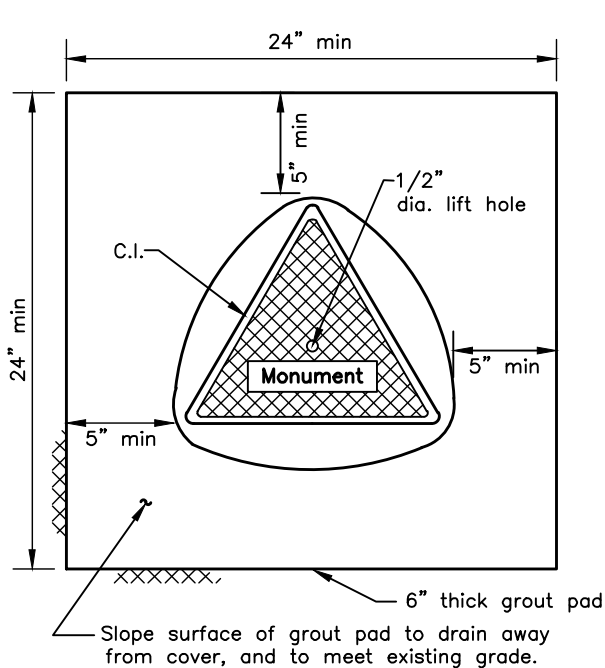
GUARD POST AND BARRICADE

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Chairperson R.C.E. 19246 Date 7/26/2012

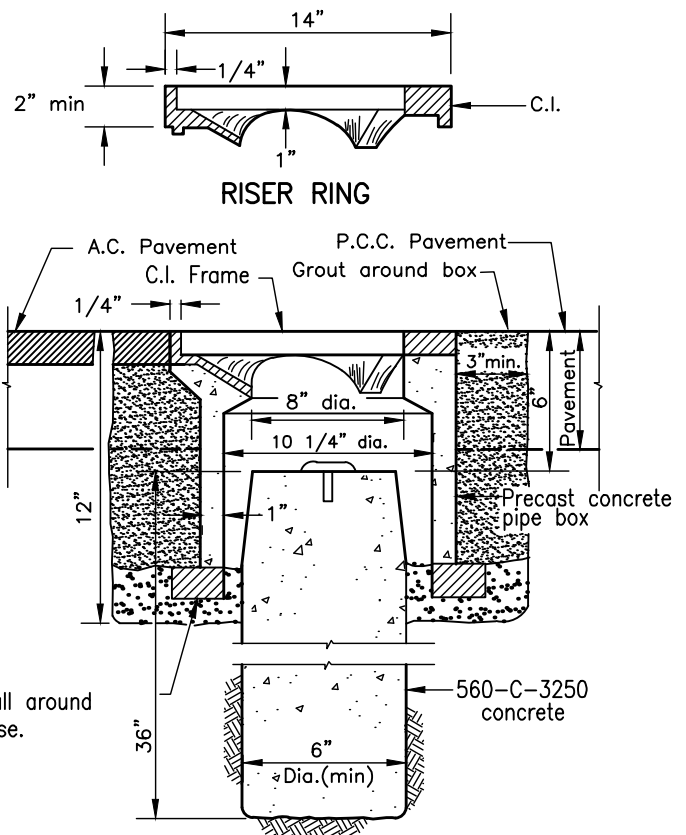
DRAWING
NUMBER

M-9



PLAN-IN UNPAVED AREA

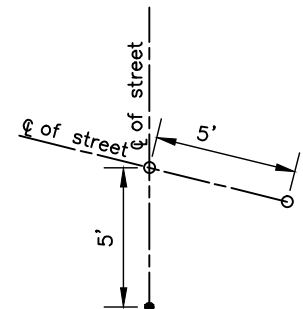
Brick support all around on 2" sand base.



TYPICAL MONUMENT SECTION IN PAVED AREA


NOTES

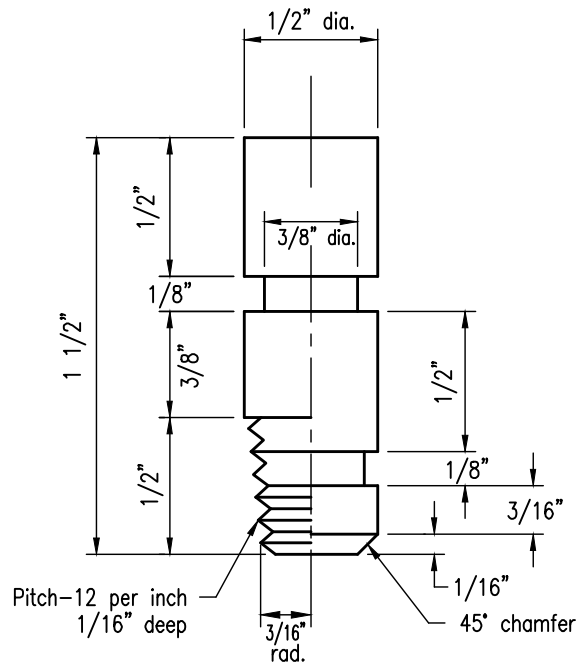
1. Cover and frame to be cast integrally with pipe box.
2. Monument base may be cast in place or precast.
3. Form and taper exposed upper 6" of cast-in-place base to a top diameter of 5". (Precast base shall be sand backfilled).
4. Monument marker shall be a domed brass, 3" in diameter.
5. Monument Location:
 - a) Set on all centerline intersections unless actual location is modified by the Agency and shown in modified location on map. When centerline intersection is impractical, offset 5' on centerline of major street, (see detail at right). If neither centerline can be occupied, two monuments will be set in line around the front on the perimeter of a 10' diameter circle, whose center is the point.
 - b) Set on centerline at intervals not exceeding 1000' on straight runs.
 - c) Set on centerline at points of curvature.
 - d) Set on center at center points of cul-de-sacs.
 - e) Set on centerline when center point of cul-de-sac is offset from centerline.
 - f) These standards may be modified at the discretion of the Agency in cases where strict compliance therewith results in more monuments than it considers necessary. The following technique for reducing the number of monuments will be routine.
 - g) Substitution of one monument on the "Point of Intersection" for monuments at the "Beginning of Curve" and the "Ending of Curve" when the "Point of Intersection" falls within the pavement area.
 - h) Deletion of any monument otherwise required by these standards when its position can be determined by turning one angle from a point on a straight line between two other monuments, providing such point is not more than 300' from the point on which the deleted monument would have been placed.



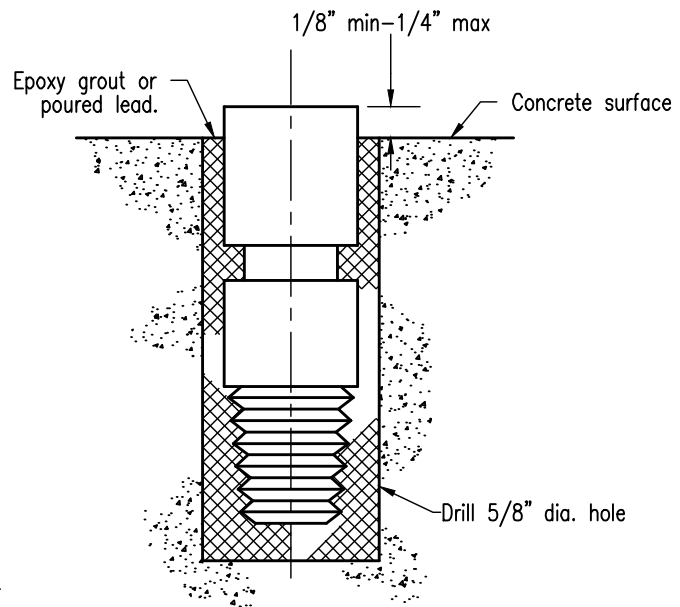
Alteration location of monument. Tie distances shown on final subdivision map if alternate location is used.

LOCATION OF STREET SURVEY MONUMENT

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		Kercheval	12/75	STREET SURVEY MONUMENT	
Add Metric		T. Stanton	03/03		
Reviewed		T. Stanton	04/06		
Delete Metric		D. Gerschoffer	05/12		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
				 7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER M-10	



TYPE-A TYPE-B
ELEVATION

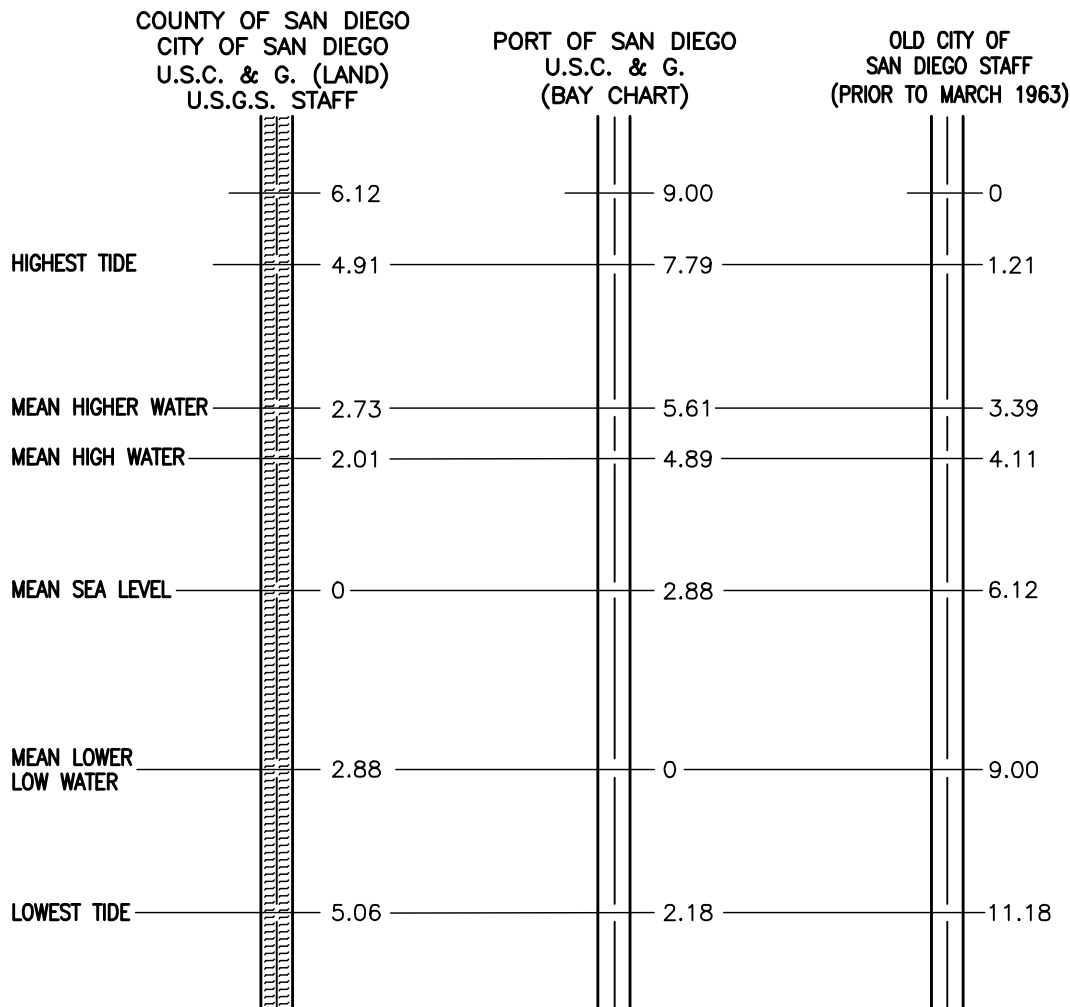


INSTALLATION IN EXISTING CONCRETE
(Typical for Type A or B)

NOTES

1. Material- Brass A.S.T.M. B-16. All machine tolerances $\pm 1/64$ " machine finish.
2. May be installed in fresh concrete at time of installation of concrete structure.
3. Location-in most stable, permanent location in vicinity, such as in base for street light standard or traffic signal (behind sidewalk), in curb (not near joint, on curve or near trees), on top of drainage headwall, in foundation for building or retaining wall or in concrete pads for transformers, pump stations etc.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		Kercheval	12/75	BENCH MARK - BRASS PLUG	
Add Metric		T. Stanton	03/03		
Reviewed		T. Stanton	04/06		
Delete Metric		D. Gerschoffer	05/12		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
				 7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER M-11	

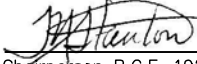


LEGEND

U.S.C. & G. = United States Coast and Geodetic Survey.
 U.S.G.S. = United States Geological Survey.
 MEAN HIGH WATER = Mean of all high water in San Diego Bay.
 MEAN HIGHER WATER = Mean of all higher water in San Diego Bay.
 Bay charts and topography up to the mean high tide based on zero at the mean lower low water.

SOURCE

Data based on U.S.C. & G. "Sea level Datum of 1929".

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING DATUMS	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		 7/26/2012 Chairperson R.C.E. 19246 Date
Add Metric		T. Stanton	03/03		
Reviewed		T. Stanton	04/06		
Delete Metric		D. Gerschoffer	05/12		
					DRAWING NUMBER M-12

FOUND MONUMENTS

Found monuments must denote the character of the monument, how it is identified and the record, or no record as applicable.

SET MONUMENTS – Criteria for Locating and Character

On subdivision boundaries, permanent monuments are required; and must be shown on the map at intervals as specified by the local agency. The location of such points that are unacceptable or will be destroyed by construction may be established by ties to permanent reference monuments shown on the final map.

A permanent monument shall be no less substantial than the following:

a. An iron pipe of minimum two inch diameter not less than 2' in length placed upright in the ground so that the top of said pipe is flush with the surface. Said pipe shall be filled with a metal or cement plug at least three inches in depth and centered with a metal tack and disc; or

b. A metal plug with tack and disc set flush with the surface in portland cement concrete sidewalk, curb or pavement; or other monument satisfactory to the City Engineer or County Surveyor. The metal plug shall be anchored 1" deep in sidewalk.

Lot corners and points of curves along street and alley right of way lines where portland cement concrete sidewalks, curbs or pavement exist, or will be constructed as part of the subdivision requirements, shall be identified with tack and disc set flush with the surface along an extension of the lot line at an approved offset, to be measured radially or at right angles to the right of way line in said sidewalk, curb pavement. In case the sideline of the lot is not radial or at right angles to the right of way line a disc shall be set along an extension of the sideline at an offset to be measured radially or at right angles to the right of way line. Where no such concrete work exists, and none will be required to be constructed, all lot corners, angle points and points of curve shall be marked with a monument no less substantial than a one-half inch steel rod or pipe, 18" long, set flush with the surface.

LEGEND

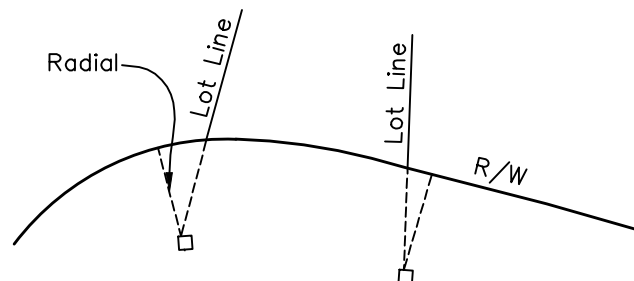
- Fd 2" Iron Pipe Marked RCE XXXX or per Map XXX unless otherwise noted
- ▲ Fd Street Survey Monument Stamped RCE XXXX or LS XXXX
- ◎ Set 2" x 24" Iron Pipe Marked RCE XXXX or LS XXXX
- Set Lead and Disc Stamped RCE XXXX or LS XXXX
- Set ½" x 18" Iron Pipe Marked RCE XXXX or LS XXXX
- △ Set Street Survey Monument Stamped RCE XXXX or LS XXXX per Standard Drawing M-10

The addition of other symbols is permissible where such will result in a clearer map.


The following notes should be used in the legend where applicable.

Unless otherwise shown on this map:

1. All lot corners except as described below will be monumented by a ½" by 18" iron pin stamped (RCE or LS number).
2. Lot corners along the sideline of dedicated street right of way will be monumented by a disc stamped (RCE or LS number), set along an extension of the lot line at an offset of ___ in the (curb, sidewalk). The offset shall be measured radially, or at right angles, to the right of way line. (See example below.)
3. All points of curve of the sidelines of dedicated streets will be monumented by a disc stamped (RCE or LS number), set at an offset of ___ in the (curb, sidewalk). The offset shall be measured radially.



EXAMPLE OF OFFSET DISCS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75				
Add Metric		T. Stanton	03/03	SURVEY MONUMENTS		 7/26/2012	
Reviewed		T. Stanton	04/06			Chairperson R.C.E. 19246 Date	
Delete Metric		D. Gerschoffer	05/12			DRAWING NUMBER M-13	

1 Gram = 15.4324 grains
 1 Gram = 0.0353 oz.
 1 Kg. = 2.2046 lb.
 1 Kg. = 0.0011 ton
 1 Ton (met) = 1.1023 ton

WEIGHT

1 Grain = 0.0648 g.
 1 Ounce = 28.3495 g.
 1 Pound = 0.4536 kg.
 1 Ton = 907.1848 kg.
 1 Ton = 0.9072 ton (met)

1 Sq. cm. = 0.1550 sq. in.
 1 Sq. m. = 10.7639 sq. ft.
 1 Sq. m. = 1.1960 sq. yd.
 1 Hectare = 2.4710 acres
 1 Sq. km. = 0.3861 sq. mile
 1 Sq. km. = 247.10 acres

AREA

1 Sq. in. = 6.4516 sq. cm.
 1 Sq. ft. = 0.0929 sq. m.
 1 Sq. yd. = 0.8361 sq. m.
 1 Acre = 0.4047 hectare
 1 Sq. mile = 2.5900 sq. km.
 1 Acre = 0.0040 sq. km.

1 Cu. cm. = 0.0610 cu. in.
 1 Cu. m. = 35.3134 cu. ft.
 1 Cu. m. = 1.3079 cu. yd.

VOLUME

1 Cu. in. = 16.3872 cu. cm.
 1 Cu. ft. = 0.0283 cu. m.
 1 Cu. yd. = 0.7646 cu. m.

1 Liter = 61.0250 cu. in.
 1 Liter = 0.0353 cu. ft.
 1 Liter = 0.2642 gal. (U.S)
 1 Liter = 0.0284 Bu.

CAPACITY

1 Cu. in. = 0.0164 liter
 1 Cu. ft. = 28.3162 liters
 1 Gal. = 3.7853 liters
 1 Bu. = 35.2383 liters

1 MM. = 0.0394 in.
 1 CM. = 0.3937 in.
 1 Meter = 3.2808 ft.
 1 Meter = 1.0936 yd.
 1 Km. = 0.6214 mile

LENGTH

1 In. = 25.4000 mm.
 1 In. = 2.5400 cm.
 1 Ft. = 0.3048 m.
 1 Yd. = 0.9144 m.
 1 Mile = 1.6093 km.

MULTIPLE
 1000000
 1000
 100
 10

PREFIX
 mega
 kilo
 hecto
 deka

METRIC PREFIX


MULTIPLE
 1/10
 1/100
 1/1000
 1/1000000

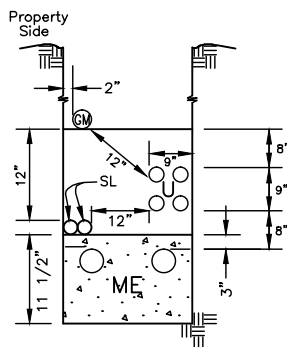
PREFIX
 deci
 centi
 milli
 micro

TEMPERATURE

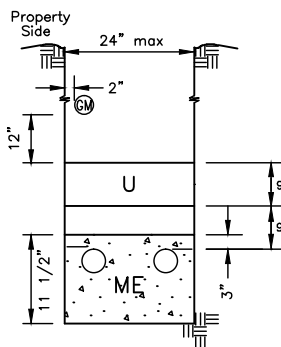
Degrees Fahrenheit = $9/5$ (Degrees Celsius) + 32

Degrees Centigrade = $5/9$ (Degrees Fahrenheit - 32)

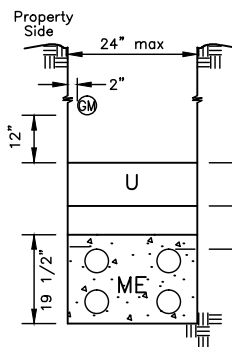
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		Kercheval	12/75	METRIC EQUIVALENTS	
Add Metric		T. Stanton	03/03		
Reviewed		T. Stanton	04/06		
Edited		T. Stanton	08/09		
Delete Metric		D. Gerschoffer	05/12		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
				 7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER M-14	



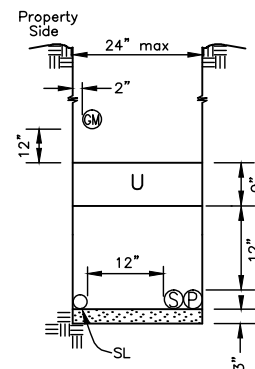
TYPE A



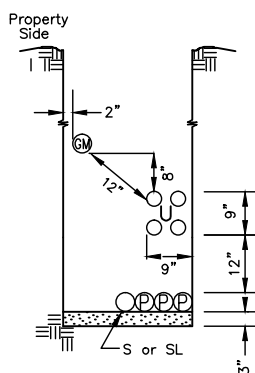
TYPE B



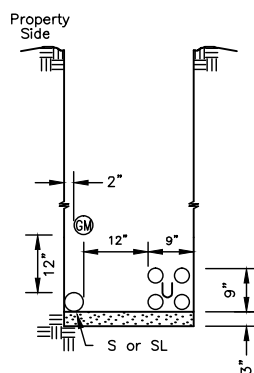
TYPE C



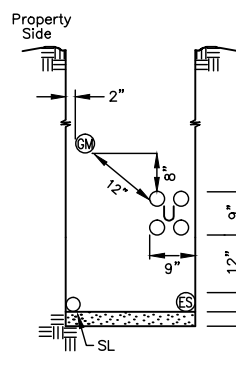
TYPE D



TYPE E



TYPE F



TYPE G

SERVICE TRENCH
ON
PUBLIC PROPERTY

	Legend	Minimum Cover
GM	Gas Main	30"
GS	Gas Service	30"
P	Primary Electric	42"
S	Secondary Electric	30"
ES	Electric Service	30"
ME	Multiple Electric (P, S or ES in Spacers) Concrete Encased	24"
SL	Street Light (not series)	30"
U	CATV TELCO	24"

NOTES

1. All dimensions are typical unless otherwise noted.
2. Generally utilities are to be installed under the applicable specifications for the particular utility and the specifications of the owner Agency.
3. The location of utilities as shown by the Standard Drawing shall in no way violate existing codes or regulations applicable to individual utilities.
4. Installation of sewer and/or water utilities are not permitted in the joint trenches shown above.
5. Minimum depth of gas pipe may, subject to gas company inspectors approval, be reduced to 24" where necessary to clear structure crossings.
6. Depth and width of trench varies.
7. CATV main or trunk line conduit required along all streets, except cul-de-sac streets less than 1,000' in length which may be served by feeder lines only.
8. CATV 1-1/2" feeder conduit shall run across streets with each power service line and capped at edge of sidewalk.
9. All CATV terminals and conduits shall be terminated at generally accepted locations and marked. A map shall be filed with the appropriate agency showing the locations of the CATV system.
10. In no case shall CATV conduits be placed within 12" of gas lines, also conduits are not to be placed directly over gas lines.
11. Catv conduit may be placed with the TELCO conduit provided the TELCO minimum depth is held.

Revision	By	Approved	Date
ORIGINAL		Parkinson	9/88
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Delete Metric		D. Gerschoffer	05/12

SAN DIEGO REGIONAL STANDARD DRAWING

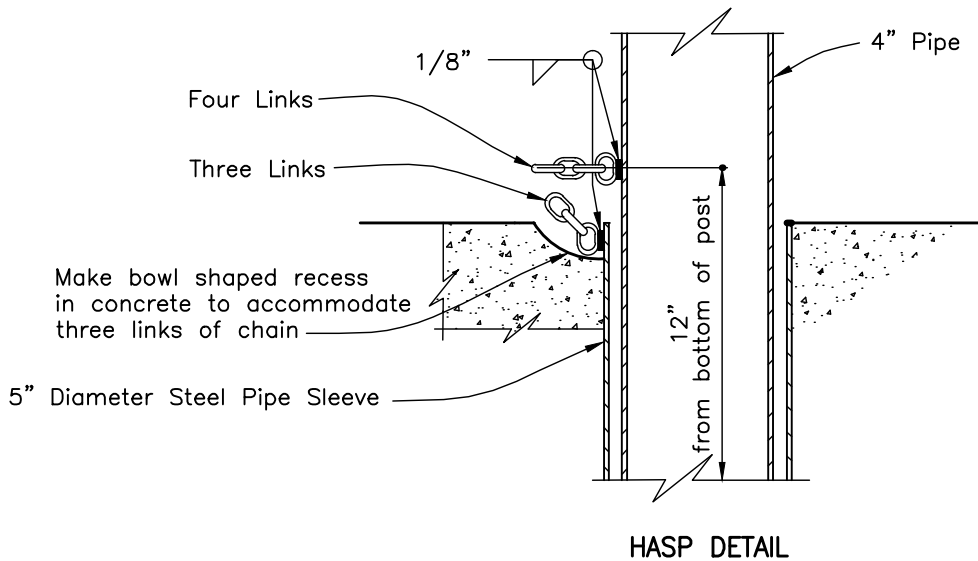
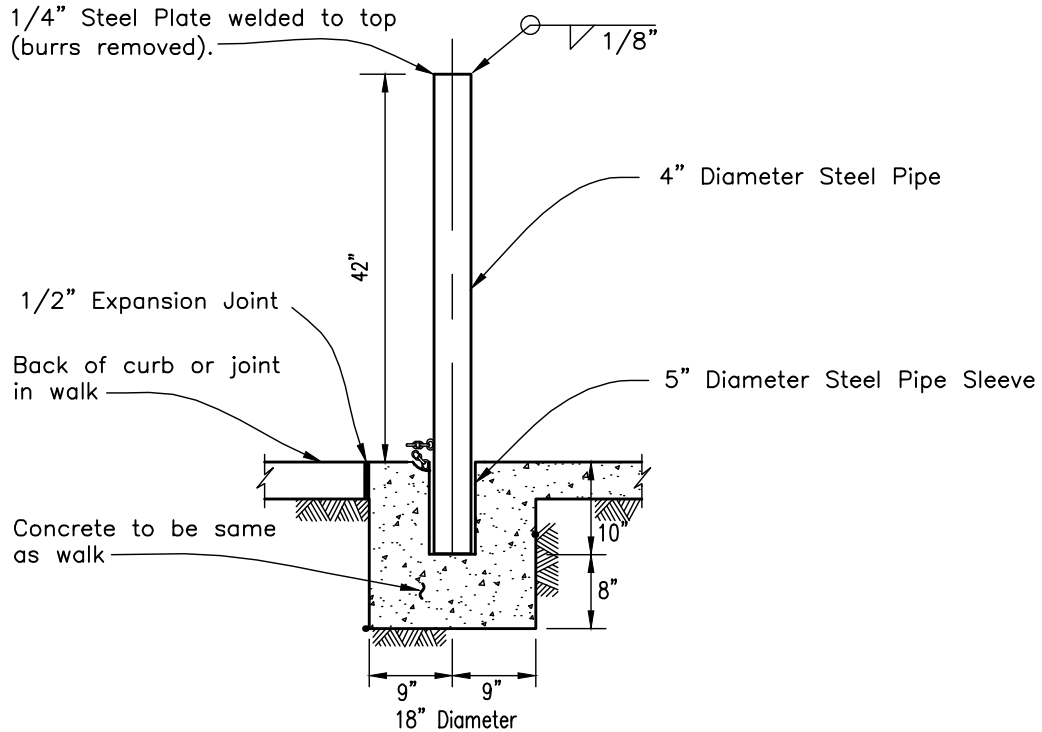
JOINT TRENCH LOCATIONS

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

M-15




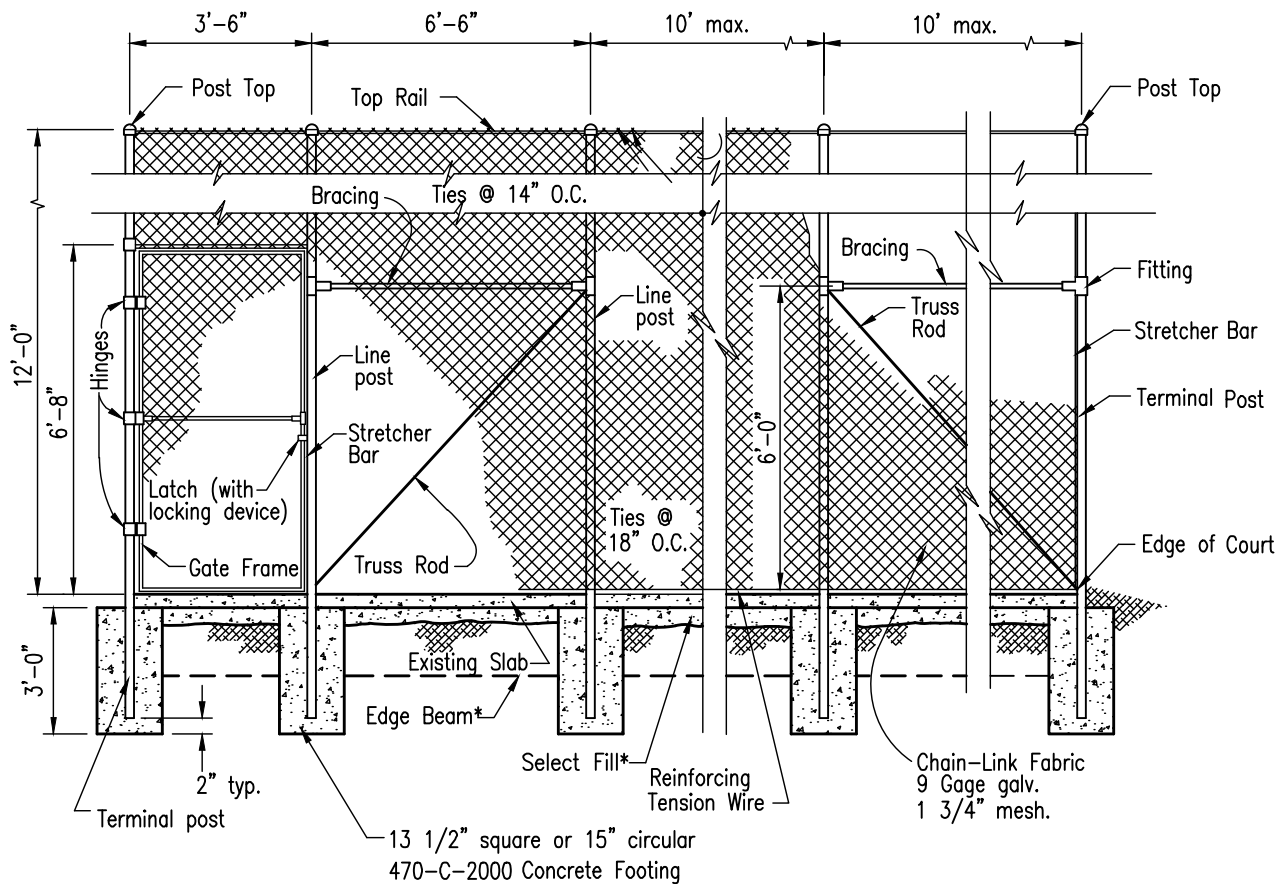
NOTES

- Chain to be 1/4" proof coil chain galvanized steel.
Weld four links to post and three links to pipe sleeve.
- All metal to be hot-dip galvanized after fabrication.

LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Solomon	7/79	DEMOUNTABLE POST		
Add Metric		T. Stanton	03/03			
Reviewed		T. Stanton	04/06			
Delete Metric		D. Gerschoffer	05/12			
						 7/26/2012 Chairperson R.C.E. 19246 Date
						DRAWING NUMBER M-16



* For Edge Beam, Slab, and
Select Fill details, see plans.

ELEVATION

DESCRIPTION	MIN. SIZE IN INCHES	MIN. WEIGHT PER LIN FT IN LBS.
Line Post	2.375 O.D.	3.65
Terminal Post	2.875 O.D.	5.79
Top Rail	1.660 O.D.	2.27
Bracing	1.660 O.D.	2.27
Gate Frame	1.660 O.D.	2.27

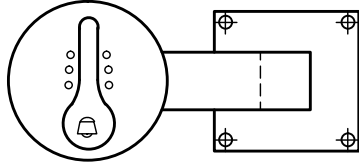
NOTE:

Chain link fabric shall be erected on the interior side of the courts.

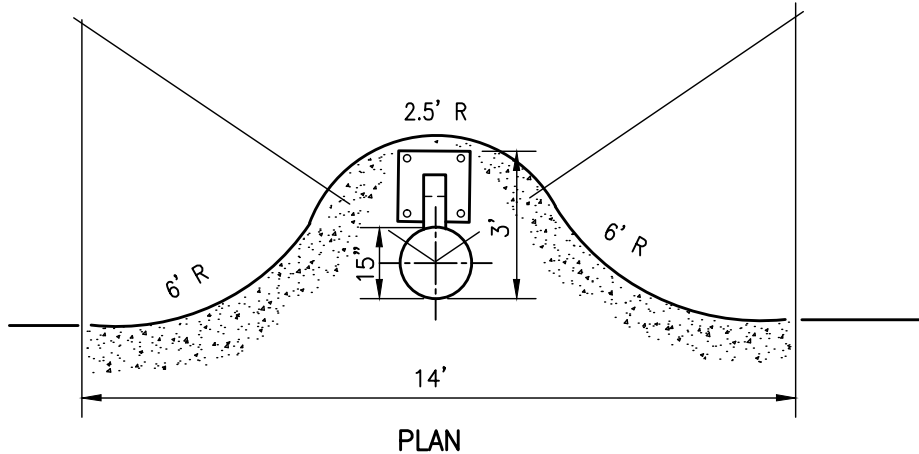
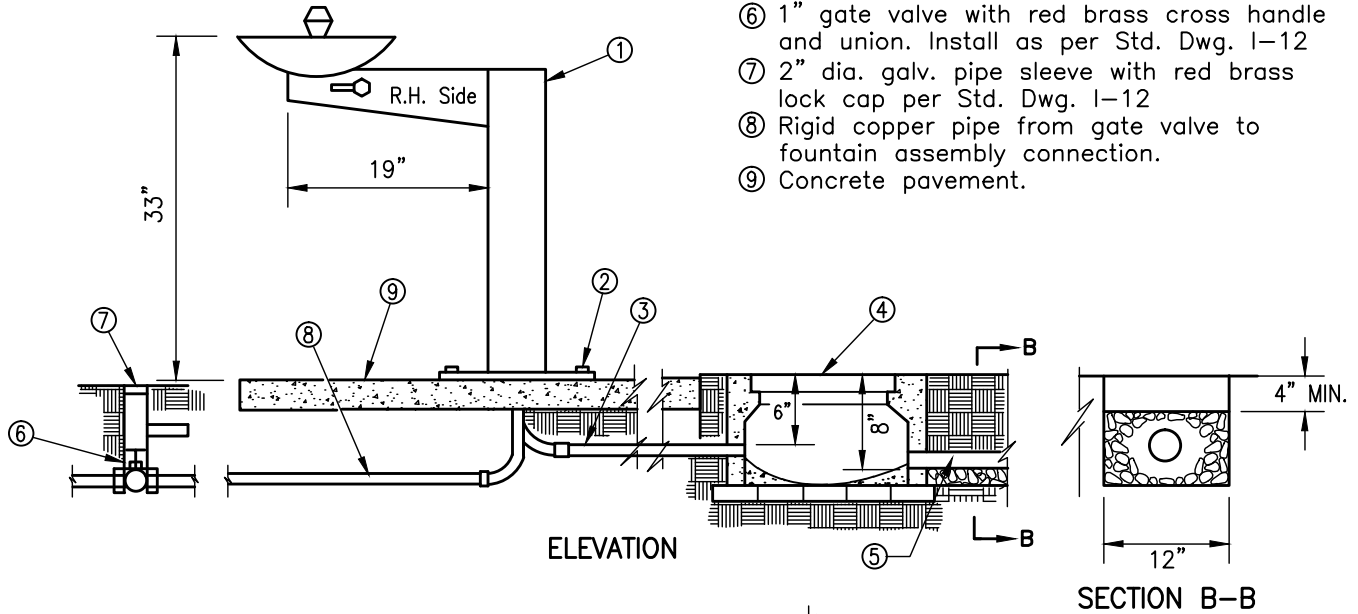
CAUTION:

This Standard Drawing is not to be used if any wind screen is to be applied to the fence.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Solomon	7/79				
Add Metric		T. Stanton	03/03	TENNIS COURT FENCE CHAIN LINK		 7/26/2012	
Reviewed		T. Stanton	04/06			Chairperson R.C.E. 19246 Date	
Delete Metric		D. Gerschoffer	05/12			DRAWING NUMBER M-17	



- ① Drinking Fountain – Haws model 3376 or approved equal.
- ② 3/8" dia. Expansion anchors with flat (recessed heads) screws 4 places.
- 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' 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. I-12
- ⑦ 2" dia. galv. pipe sleeve with red brass lock cap per Std. Dwg. I-12
- ⑧ Rigid copper pipe from gate valve to fountain assembly connection.
- ⑨ Concrete pavement.



NOTES

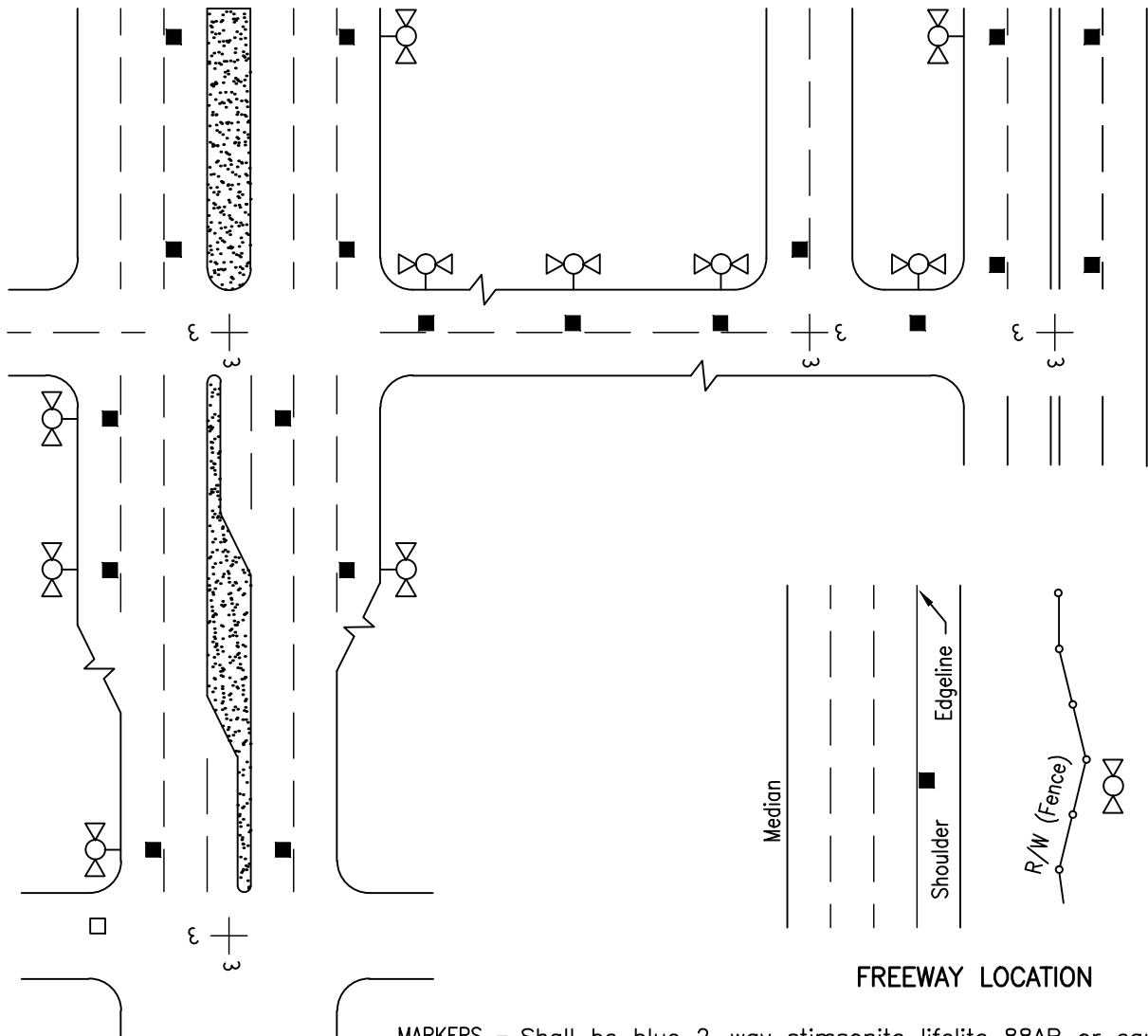
1. Install fountain so that right hand side faces prevailing wind.
2. Hand form a concrete bowl at bottom of yard box to facilitate sand clean out.
3. Perforated drain pipe and trench are to drain away from fountain at 1% min. slope. Keep drain in lawn areas.
4. Item no. 6 is a 1" gate valve. Use red brass bushing reducers to adapt to feed pipe.

LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		H. Hecht	10/82	DRINKING FOUNTAIN	
Add Metric		T. Stanton	03/03		
Reviewed		T. Stanton	04/06		
Delete Metric		D. Gerschoffer	05/12		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
				 7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER M-18	

STREET LOCATIONS

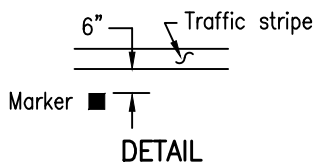


FREEWAY LOCATION

MARKERS - Shall be blue 2-way stimsonite lifelite 88AB or equal.

ADHESIVE - An ample amount of two (A&B) epoxy or equal.

SURFACES - Clean and dry prior to installation per manufacturer's recommendations. Install markers with reflective surfaces facing oncoming vehicles and offset 2" from lane lines toward fire hydrant.



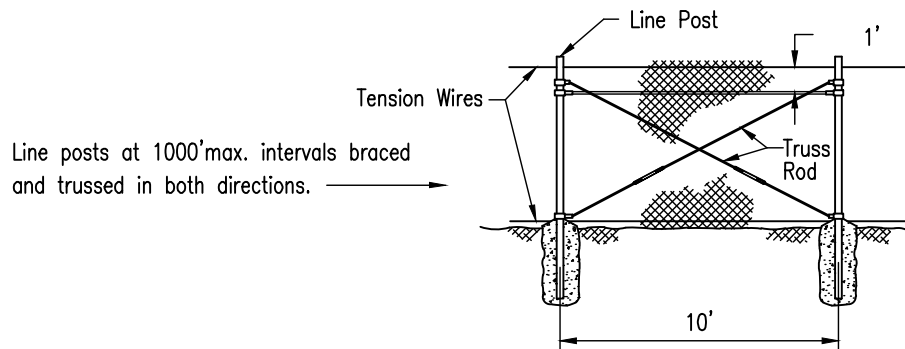
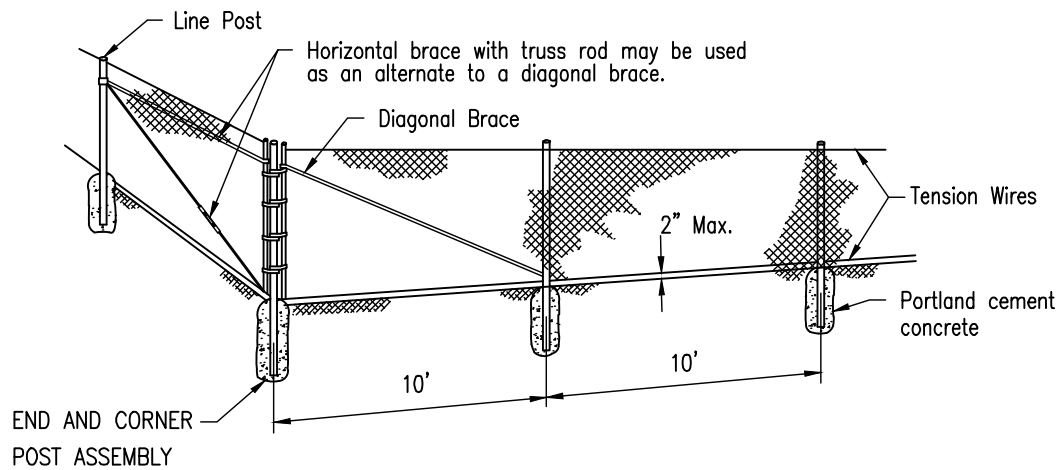
NOTES

1. Fire Department will provide location(s) for all markers in PRD's, Commercial Lots and other areas outside of Public Right of Way.
2. Markers must be installed at the new and relocated hydrants and within all resurfacing projects.
3. For streets without lane lines or streets with raised pavement markers and no painted lane lines, install markers 6" from centerline or existing markers.

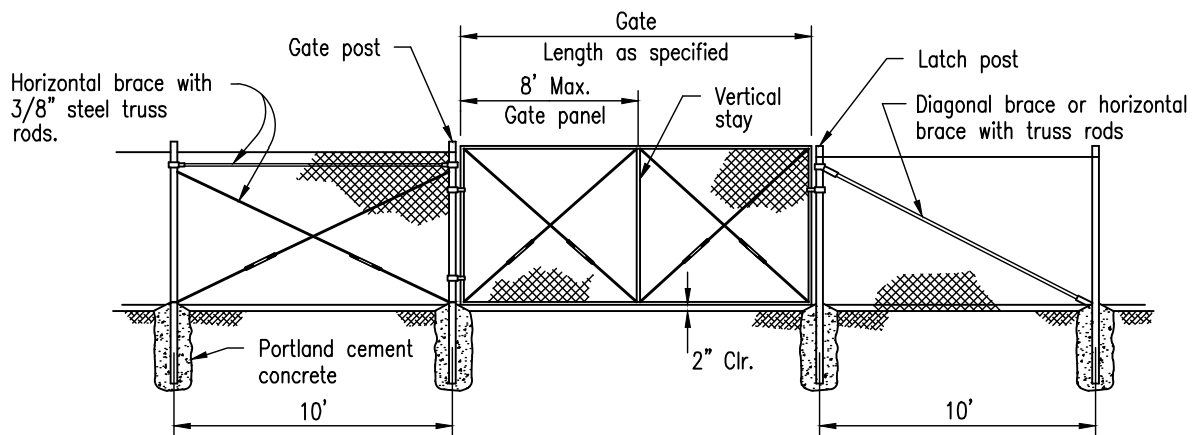
LEGEND ON PLANS

Marker ■
Fire Hydrant

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		H. Hecht	10/82	FIRE HYDRANT MARKERS	
Add Metric		T. Stanton	03/03		
Reviewed		T. Stanton	04/06		
Delete Metric		D. Gerschoffer	05/12		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
				7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER M-19	

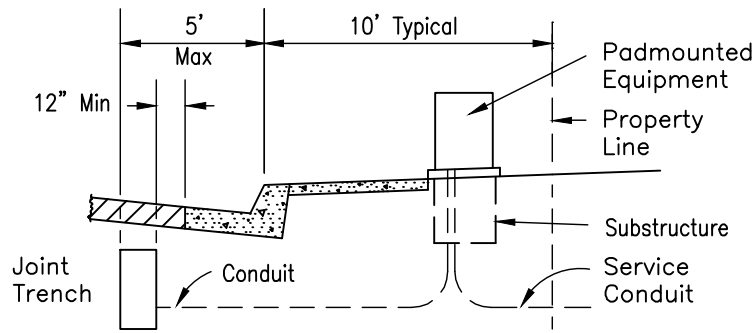


LINE POST BRACING

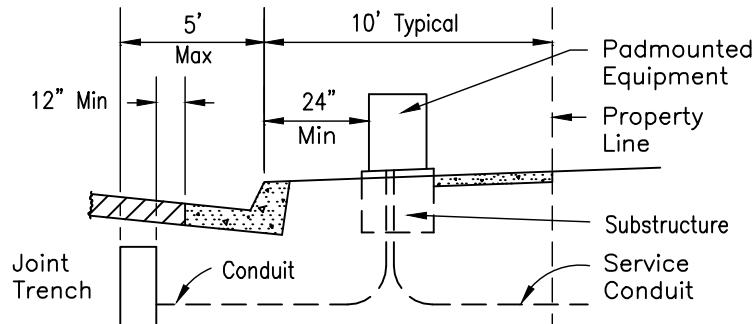


GATE ASSEMBLY

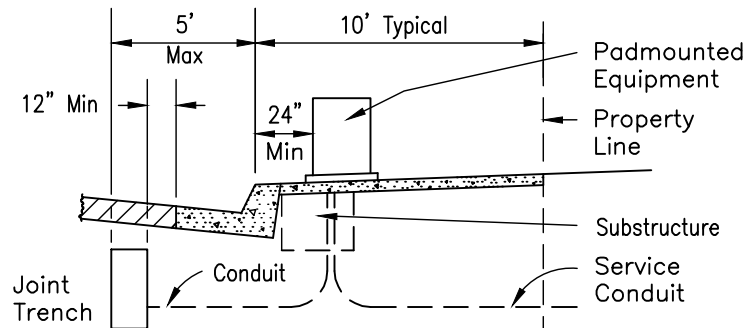
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Bahmanian	4/86				
Add Metric		T. Stanton	03/03	CHAIN LINK FENCE DETAILS		 7/26/2012	
Reviewed		T. Stanton	04/06			Chairperson R.C.E. 19246 Date	
Delete Metric		D. Gerschoffer	05/12			DRAWING NUMBER M-20	



SIDEWALK NEXT TO CURB



SIDEWALK NEXT TO PROPERTY LINE



SIDEWALK NEXT TO CURB AND PROPERTY LINE

NOTES

1. Sidewalk shall have a minimum of 4' clear area (path, not including curb) passing pedestals, pullboxes and other structures.
2. See Standard Drawing M-15 for joint trench.

Revision	By	Approved	Date
ORIGINAL		Parkinson	9/88
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Delete Metric		D. Gerschoffer	05/12

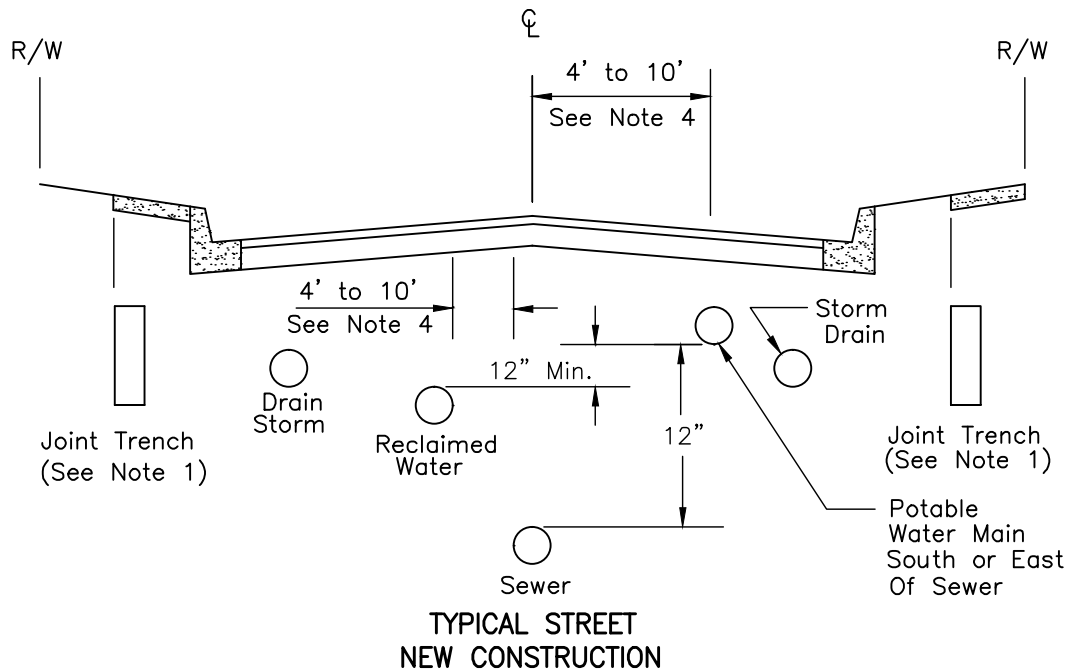
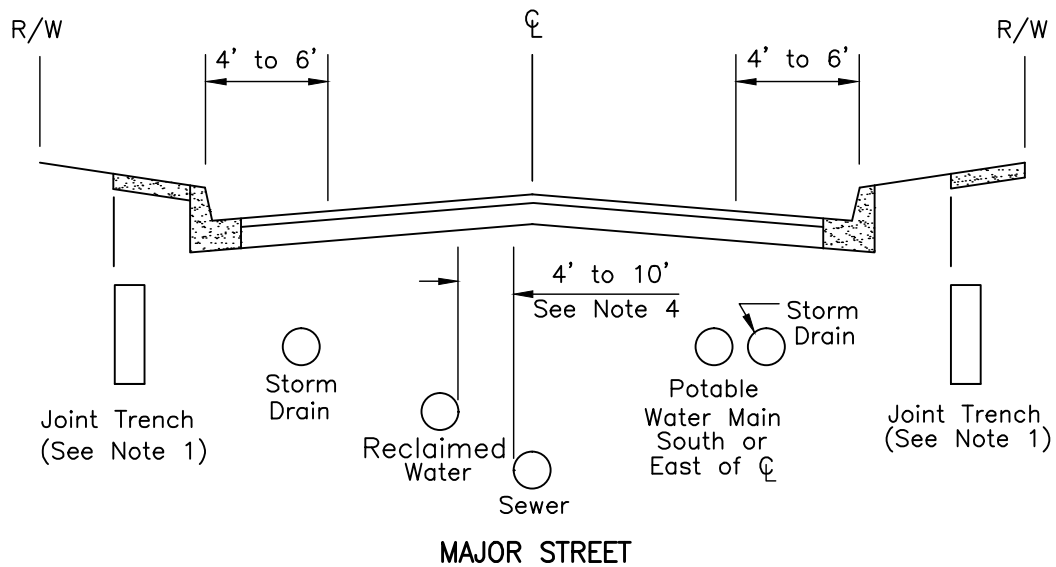
SAN DIEGO REGIONAL STANDARD DRAWING

**UNDERGROUND TYPICAL LOCATION
CONVERSION/REPLACEMENT/UPGRADE**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

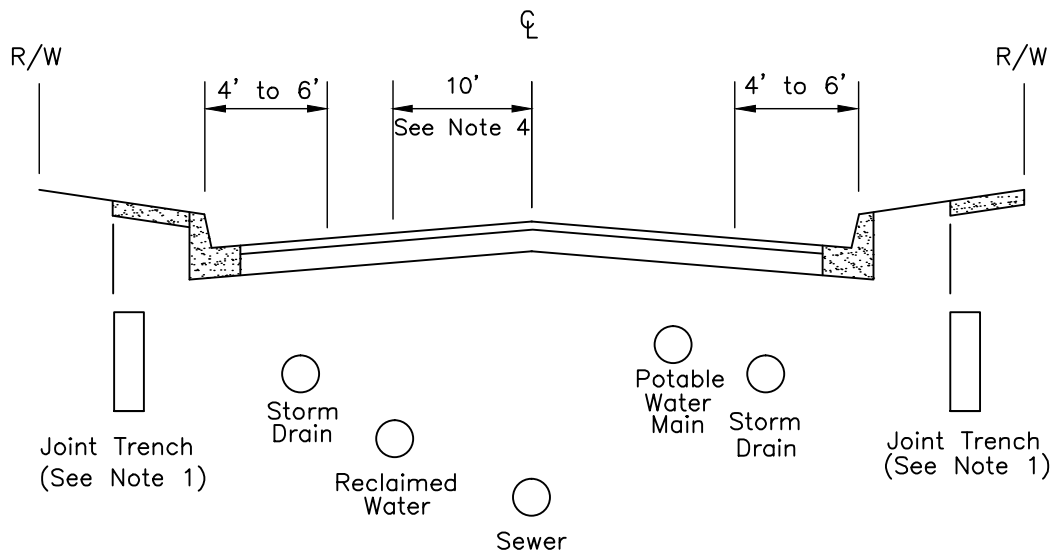
DRAWING
NUMBER **M-21**



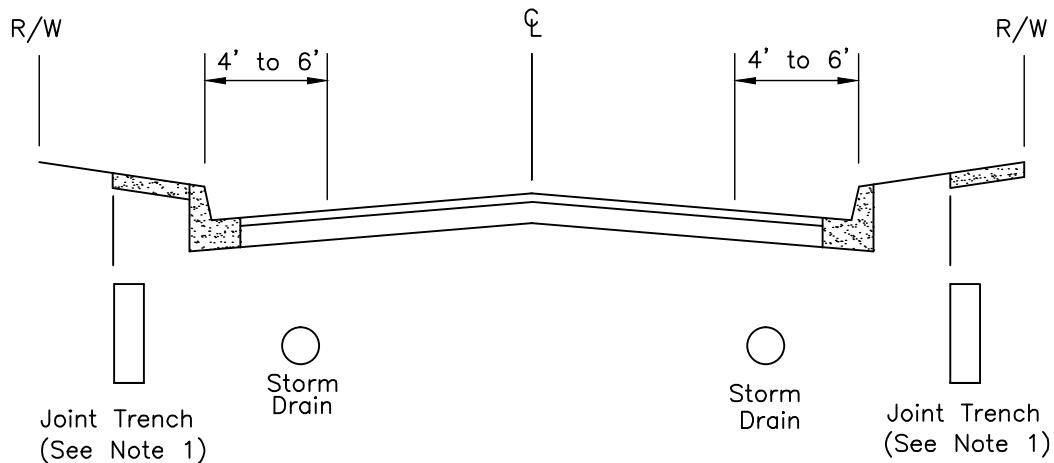
NOTES

1. At catch basin locations, joint trench shall be 4' minimum from back of curb to inside wall of trench. See Standard Drawing M-15 for configuration of utilities in joint trench.
2. Sewer and reclaimed water mains shall be designed to cross under potable water mains. The vertical separation between potable water and reclaimed water shall be a minimum of 12".
3. Sewer and reclaimed water laterals shall cross under potable water main, with a minimum vertical separation of 12".
4. Sewer and reclaimed water mains shall maintain a 10' minimum horizontal separation, O.D. to O.D., with any potable water or sewer/reclaimed main. This separation may be reduced utilizing special construction, with special approval from the Agency and the County Health Dept. For sewer or reclaimed water mains less than 24" in diameter, only Agency approval is required.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Parkinson	2/95				
Add Metric		T. Stanton	03/03	UTILITY LOCATIONS LOCAL AND MAJOR STREETS		 7/26/2012 Chairperson R.C.E. 19246 Date	
Reviewed		T. Stanton	04/06			DRAWING NUMBER	
Delete Metric		D. Gerschoffer	05/12				
						M-22	



PRIME ARTERIAL

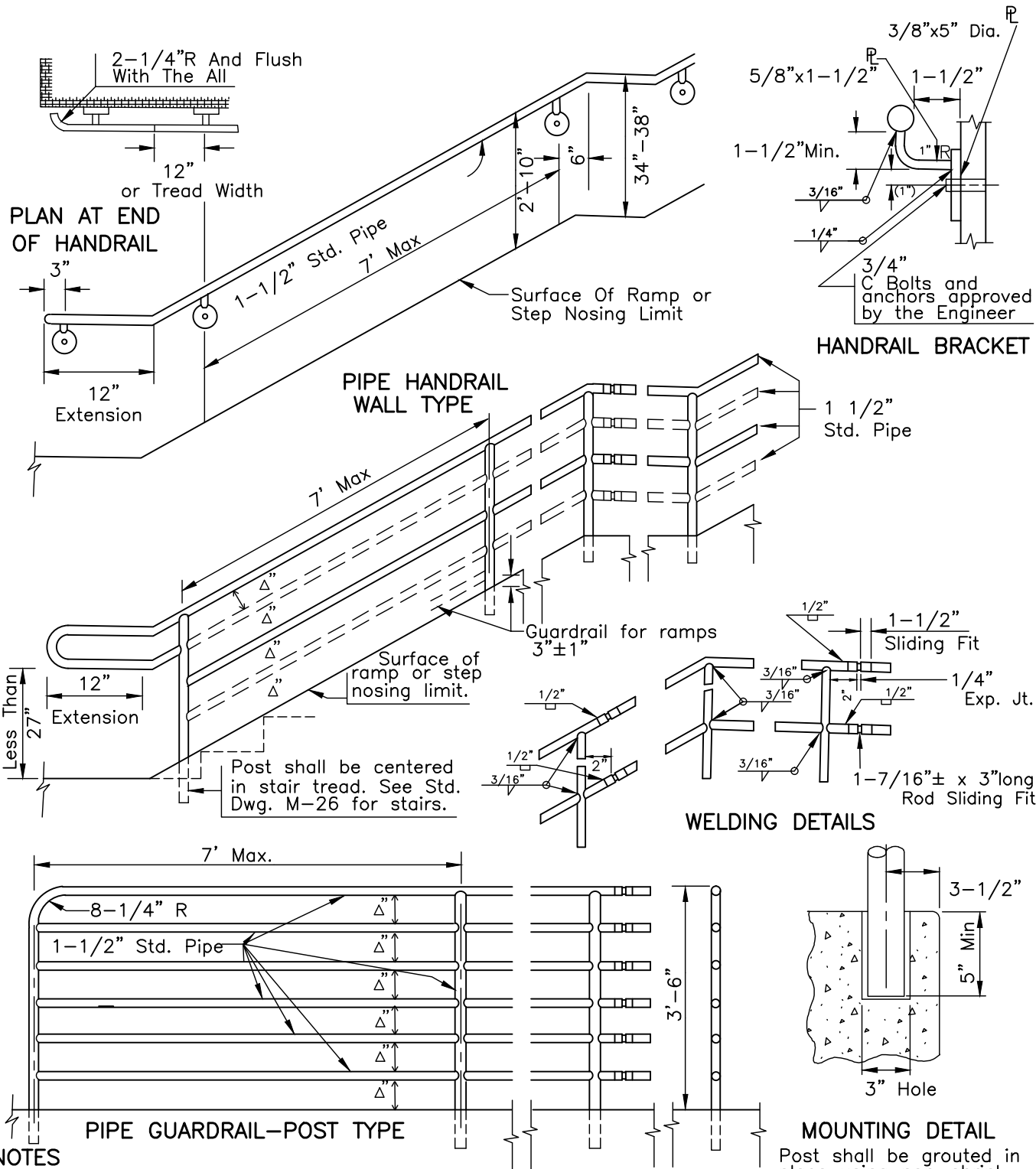


EXPRESSWAY

NOTES

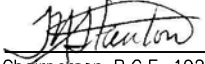
1. At catch basin locations, joint trench shall be 4' minimum from back of curb to inside wall of trench. See Standard Drawing M-15 for configuration of utilities in joint trench.
2. Sewer and reclaimed water mains shall be designed to cross under potable water mains. The vertical separation between potable water and reclaimed water shall be a minimum of 12".
3. Sewer and reclaimed water laterals shall cross under potable water main, with a minimum vertical separation of 12".
4. Sewer and reclaimed water mains shall maintain a 10' minimum horizontal separation, O.D. to O.D., with any potable water or sewer/reclaimed main. This separation may be reduced utilizing special construction, with special approval from the Agency and the County Health Dept. For sewer or reclaimed water mains less than 24" in diameter, only Agency approval is required.

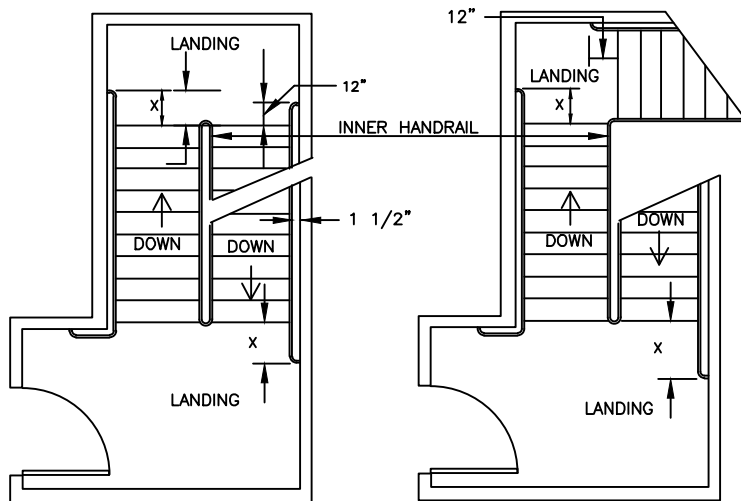
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		G. Parkinson	2/95				
Add Metric		T. Stanton	03/03	UTILITY LOCATIONS PRIME ARTERIALS AND EXPRESSWAYS		<i>T. Stanton</i> 7/26/2012	
Reviewed		T. Stanton	04/06			Chairperson R.C.E. 19246 Date	
Delete Metric		D. Gerschoffer	05/12			DRAWING NUMBER M-23	



NOTES

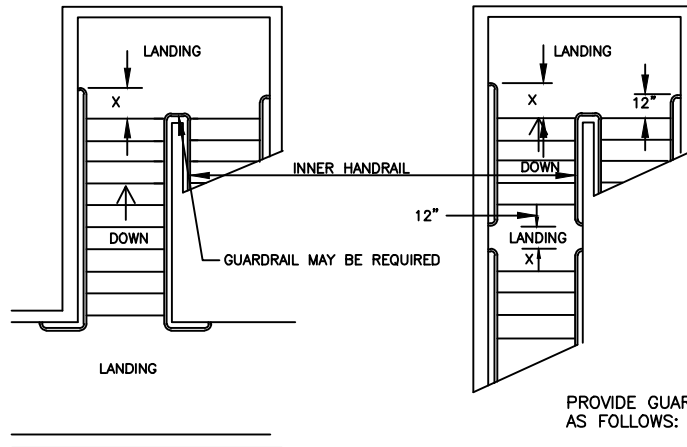
- 1/4" Expansion joints @ 16'± centers.
- Weld and grind smooth all connections.
- All railing to be hot dip galvanized after fabrication.
- Pipe shall seamless steel ASTM A53 Grade B.
- Maximum $\Delta = 4"$. Guardrails and handrails for stairs and ramps more than 30" above have intermediate rails equally spaced such that a sphere 4" in diameter cannot pass through.
- Handrail extension for stairs, at all bottom risers, shall be 12" plus one tread width.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		G.Parkinson	2/95	PEDESTRIAN PROTECTIVE RAILING DETAILS No. 1	
Add Metric		T. Stanton	03/03		
Reviewed		T. Stanton	04/06		
Delete Metric		D. Gerschoffer	05/12		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER M-24	



X IS THE MINIMUM HANDRAIL EXTENSION OF 12 INCHES PLUS THE WIDTH OF ONE TREAD AT EACH BOTTOM RISER.

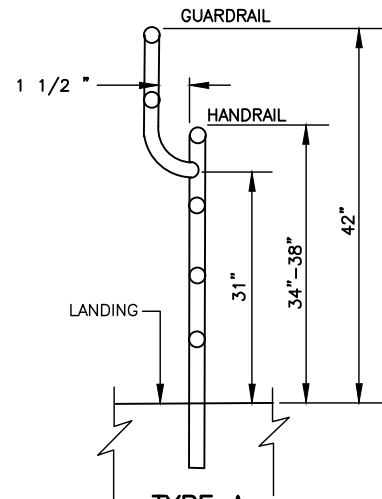
NOTE: INNER HANDRAIL AT LANDINGS OF STAIRS THAT DOUBLE BACK OR IMMEDIATELY TURN SHALL BE CONTINUOUS, AND SHALL NOT EXTEND ONTO LANDING OR PATH OF TRAVEL.



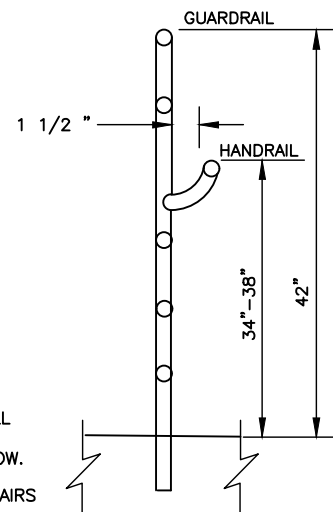
STAIR HANDRAILS

PROVIDE GUARDRAIL EXTENSIONS AS FOLLOWS:

1. TYPE A ON OPEN SIDE OF ALL LANDINGS MORE THAN 30" ABOVE GRADE OR FLOOR BELOW.
2. TYPE B ON OPEN SIDE OF STAIRS (INCLUDING LANDINGS) WHEN SPECIFIED.



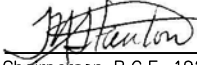
TYPE A
GUARDRAIL EXTENSION

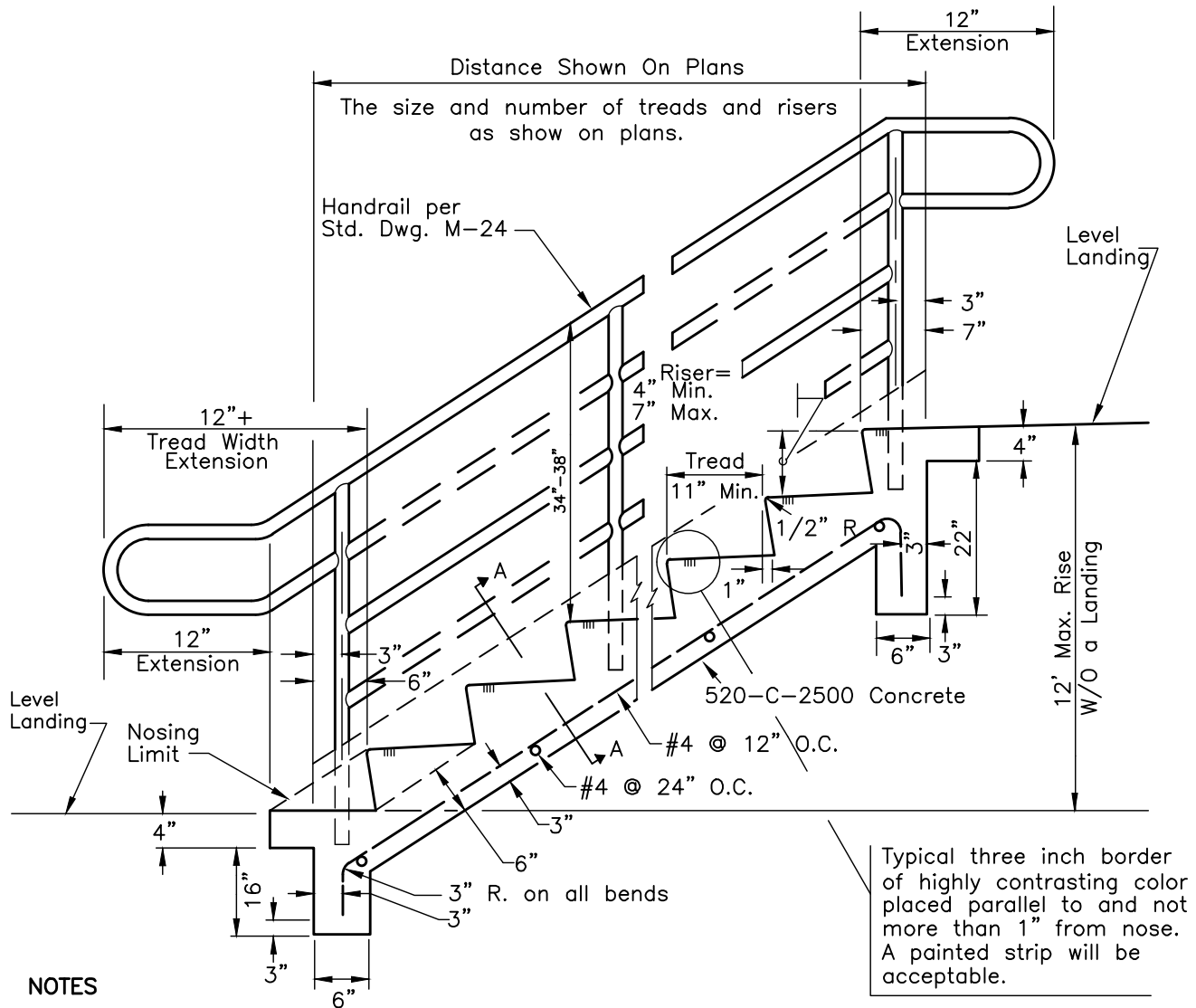


TYPE B
GUARDRAIL EXTENSION

NOTES

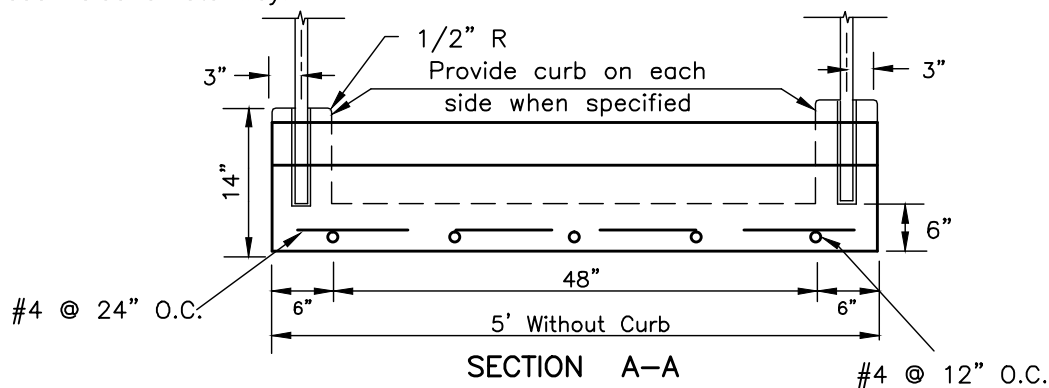
1. Post type guardrails, and handrails for stairs or landings 30" or less above grade or floor below shall have only one intermediate rail centered between the step nosing limit (or if specified the top of curb) and top of railing.
2. Post type guardrails, and handrails for stairs or landings more than 30" above grade or floor below shall have intermediate rails equally spaced such that a sphere 4" in diameter cannot pass through.
3. Where handrail extensions interfere with transverse walkways the horizontal portions shall not encroach but be turned away from stairs and parallel to walkway.
4. The top of guardrails for stairways, exclusive of their landings, may have a height as specified for handrails.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		G.Parkinson	2/95	PEDESTRIAN PROTECTIVE RAILING DETAILS No. 2		 7/26/2012 Chairperson R.C.E. 19246 Date	
Add Metric		T. Stanton	03/03				
Reviewed		T. Stanton	04/06				
Delete Metric		D. Gerschoffer	05/12				
						DRAWING NUMBER	M-25



NOTES

1. Broom finish on treads, trowel finish on all other exposed surfaces.
2. 1/4" per 1' slope on treads for drainage.
3. Locate handrails on both sides.
4. Handrail may project into the required width a distance of 3-1/2" from each side of stairway.



Revision	By	Approved	Date
ORIGINAL		G.Parkinson	2/95
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Delete Metric		D. Gerschoffer	05/12

SAN DIEGO REGIONAL STANDARD DRAWING

CONCRETE STEPS

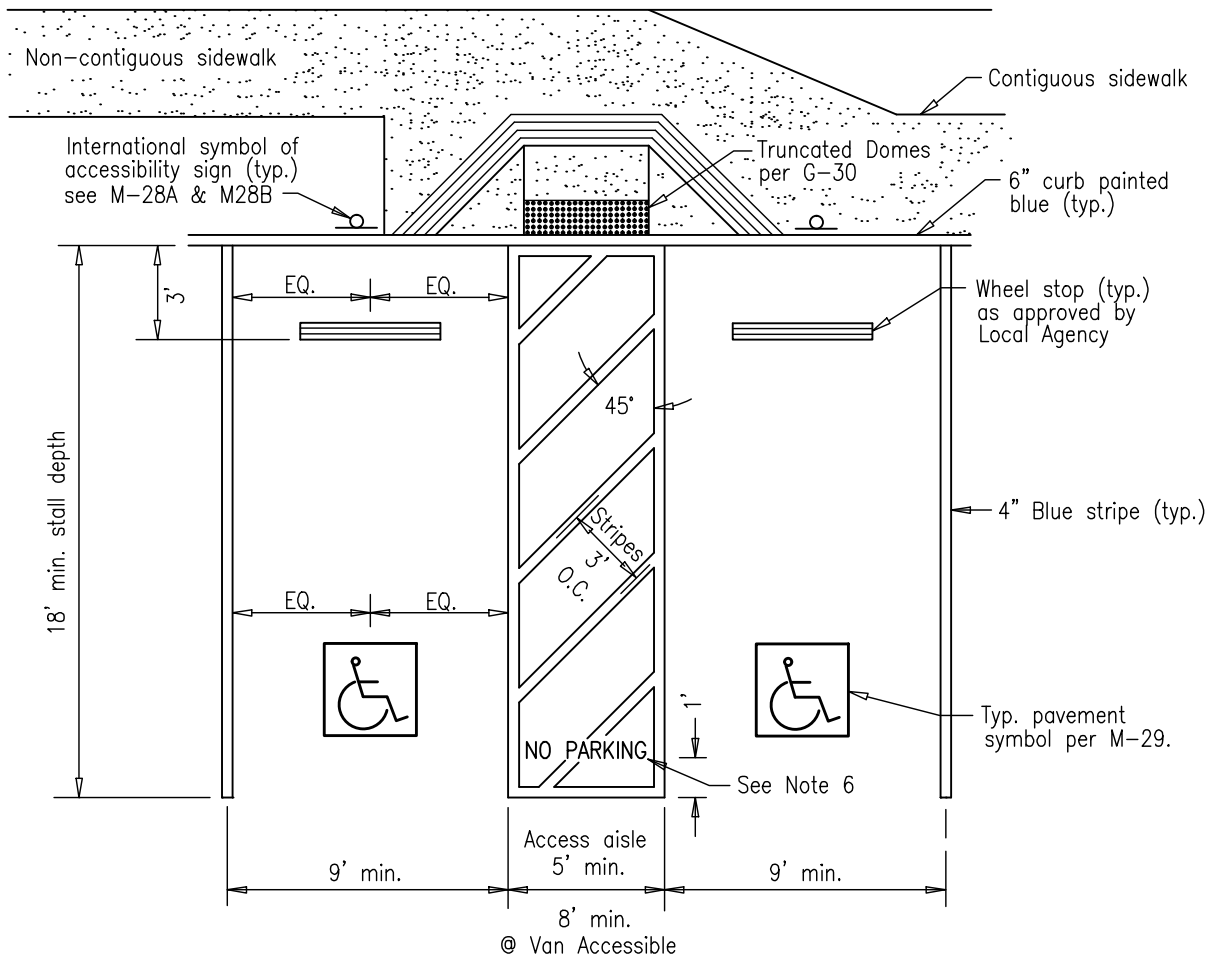
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012

Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

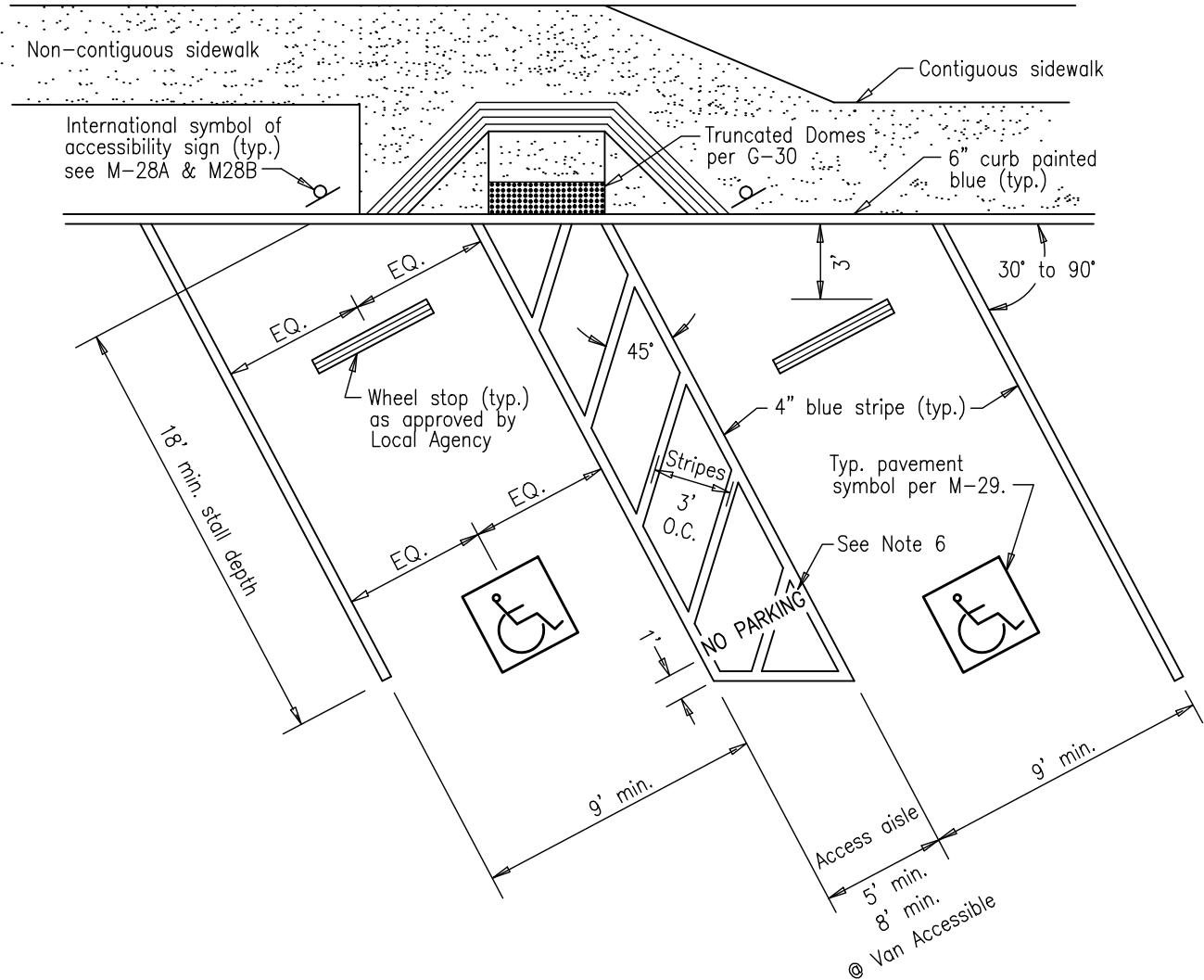
M-26



NOTES:

1. Provide for adequate drainage.
2. For appropriate ramp alternate to conform to topographical conditions, see standard drawings G-27 through G-32B.
3. Blue color should match color No. 15090 in the Federal Standard 595a as specified in Section 522(b)2.
4. If only one accessible parking stall is going to be provided, the access aisle shall be 8' (van accessible) and located on the passenger side.
5. Sidewalk cross slope shall not exceed 2.0%.
6. "NO PARKING" 12" high stencil marking, reflective white over blue stripes.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		Parkinson	02/95	DISABLED PARKING STALL(S)	
Add Metric		T.Stanton	03/03		
Update		D.Davis	04/06		
Delete Metric		D. Gerschoffer	05/12		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER M-27A	



NOTES:

1. Provide for adequate drainage.
2. For appropriate ramp alternate to conform to topographical conditions, see standard drawings G-27 through G-32B.
3. Blue color should match color No. 15090 in the Federal Standard 595a as specified in Section 522(b)2.
4. If only one accessible parking stall is going to be provided, the access aisle shall be 8' (van accessible) and located on the passenger side.
5. Sidewalk cross slope shall not exceed 2.0%.
6. "NO PARKING" 12" high stencil marking, reflective white over blue stripes.

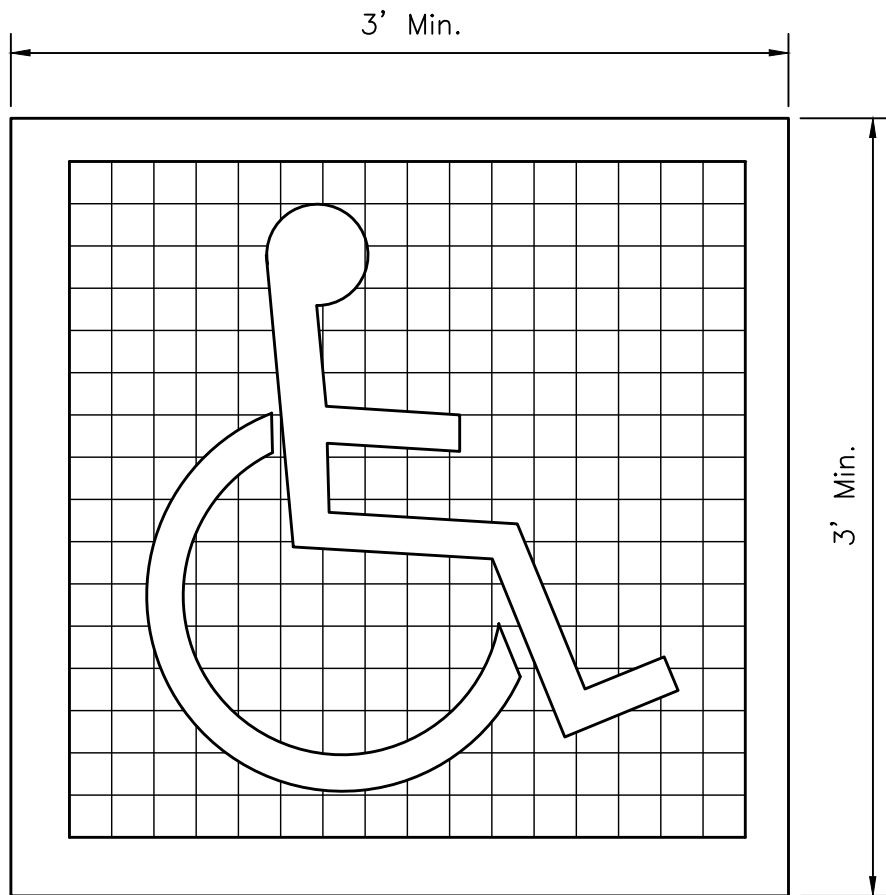
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		G.Parkinson	02/95	DIAGONAL DISABLED PARKING STALL(S)	
Add Metric		T.Stanton	03/03		
Update		D.Davis	04/06		
Delete Metric		D. Gerschoffer	05/12		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER M-27B	



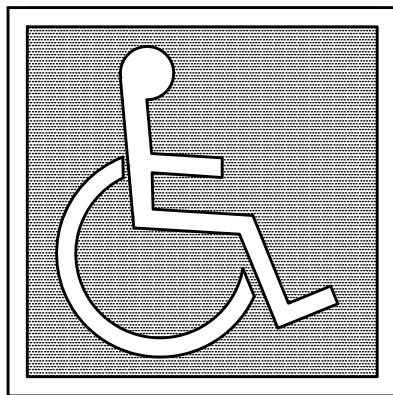
NOTES

1. Sign shall be constructed of aluminum, 0.062" minimum thickness.
2. Colors: Background—Reflectorized Blue
 Border and letters— Reflectorized White
 Blue color shall match color No. 15090 in the
 Federal Standard 595a as specified in Section 522(b)2.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		G.Parkinson	2/95	VAN ACCESSIBLE SIGN FOR DISABLED PARKING SPACE		 7/26/2012 Chairperson R.C.E. 19246 Date	
Add Metric		T. Stanton	03/03				
Reviewed		T. Stanton	04/06				
Delete Metric		D. Gerschoffer	05/12				
						DRAWING NUMBER	M-28B



(a) SYMBOL PROPORTIONS




INTERNATIONAL SYMBOL
OF ACCESSIBILITY


(b) DISPLAY CONDITIONS

NOTES

1. Pavement symbol shall be painted white on a blue background.
2. Blue color shall match color No. 15090 in the Federal Standard 595a as specified in Section 522(b)2.

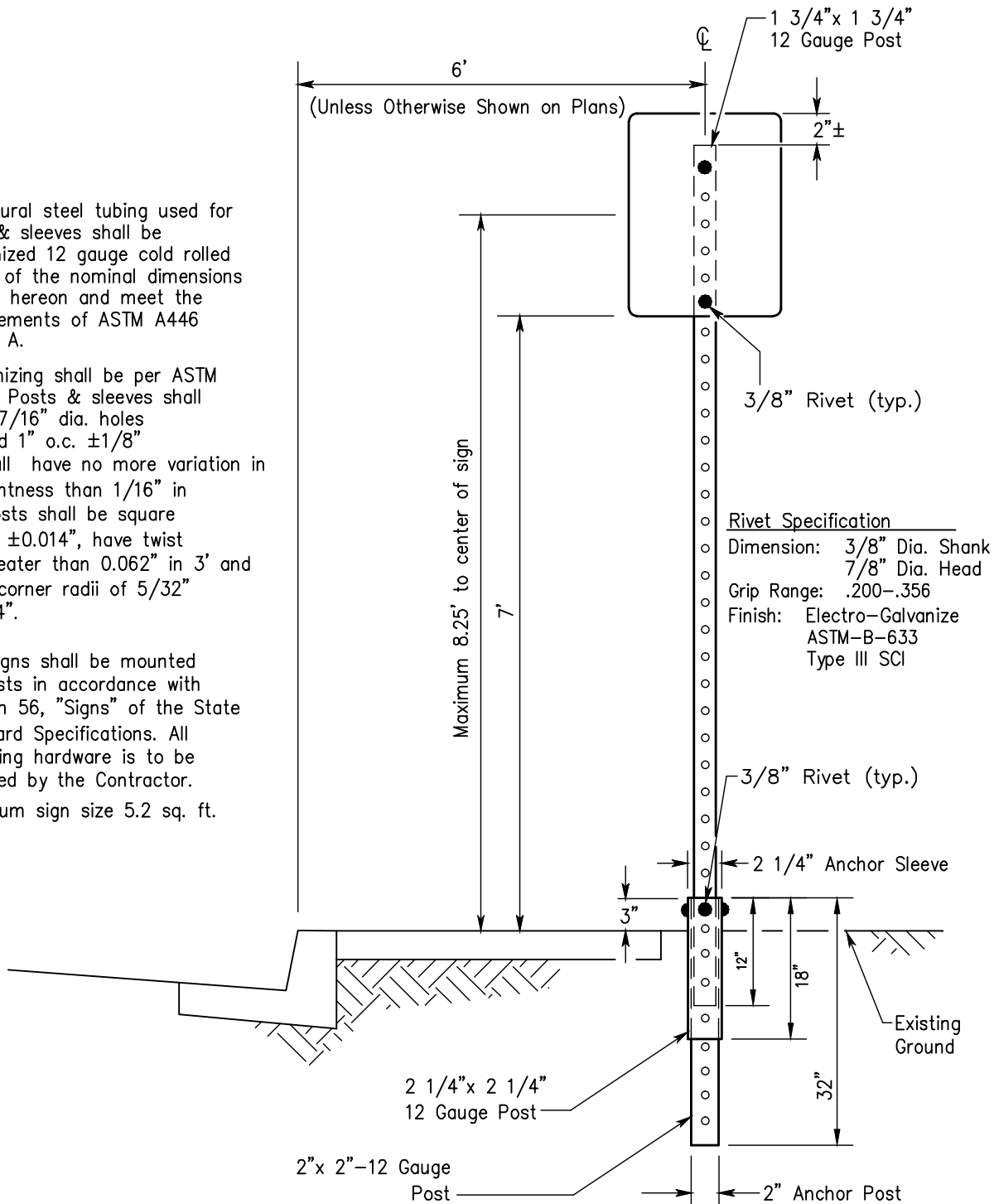
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		G. Parkinson	2/95	PAVEMENT SYMBOL - DISABLED PARKING	
Add Metric		T. Stanton	03/03		
Reviewed		T. Stanton	04/06		
Delete Metric		D. Gerschoffer	05/12		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
				 7/26/2012 Chairperson R.C.E. 19246 Date	
				DRAWING NUMBER M-29	

FOR GUARDRAIL STANDARDS USE:
Caltrans "Standard Plans for
Construction of Local
Streets and Roads"

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		G.Parkinson	5/92		
Add Metric		T. Stanton	03/03	GUARD RAIL REFERENCE NOTE	 7/26/2012
Remove GD Std. Dwgs.		T. Stanton	04/06		Chairperson R.C.E. 19246 Date
Reviewed		D. Gerschoffer	05/12		DRAWING NUMBER M-30

NOTES

1. Structural steel tubing used for post & sleeves shall be galvanized 12 gauge cold rolled steel, of the nominal dimensions shown hereon and meet the requirements of ASTM A446 Grade A.
2. Galvanizing shall be per ASTM A525. Posts & sleeves shall have 7/16" dia. holes spaced 1" o.c. $\pm 1/8"$ & shall have no more variation in straightness than 1/16" in 3'. Posts shall be square within $\pm 0.014"$, have twist no greater than 0.062" in 3' and have corner radii of 5/32" $\pm 1/64"$.
3. The signs shall be mounted on posts in accordance with Section 56, "Signs" of the State Standard Specifications. All fastening hardware is to be provided by the Contractor.
4. Maximum sign size 5.2 sq. ft.



Revision	By	Approved	Date
ORIGINAL		G.Parkinson	2/95
Add Metric		T. Stanton	03/03
Reviewed		T. Stanton	04/06
Delete Metric		D. Gerschoffer	05/12

SAN DIEGO REGIONAL STANDARD DRAWING

BREAK-AWAY SIGN POST

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

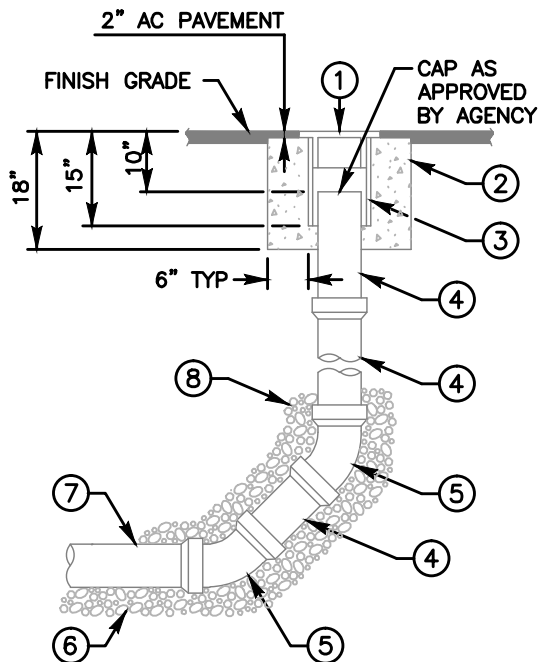
DRAWING
NUMBER

M-45

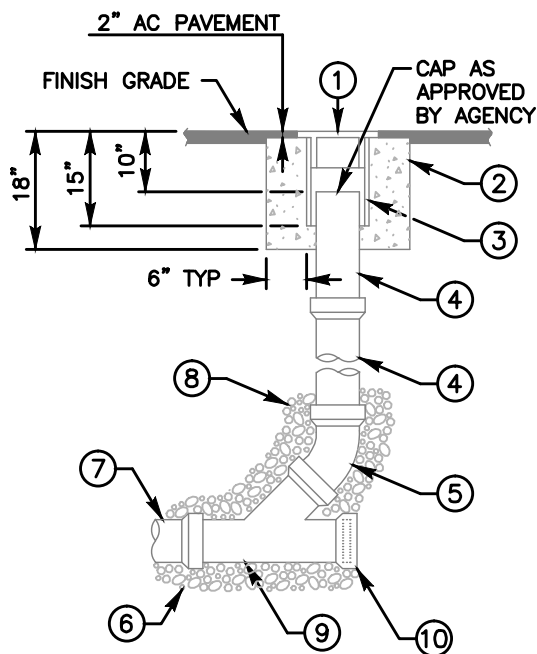
SEWERAGE SYSTEMS

SEWERAGE SYSTEMS

S



TYPE A
MAINS FOR 6" AND 8"




TYPE B
SEWER LATERAL
CLEANOUT

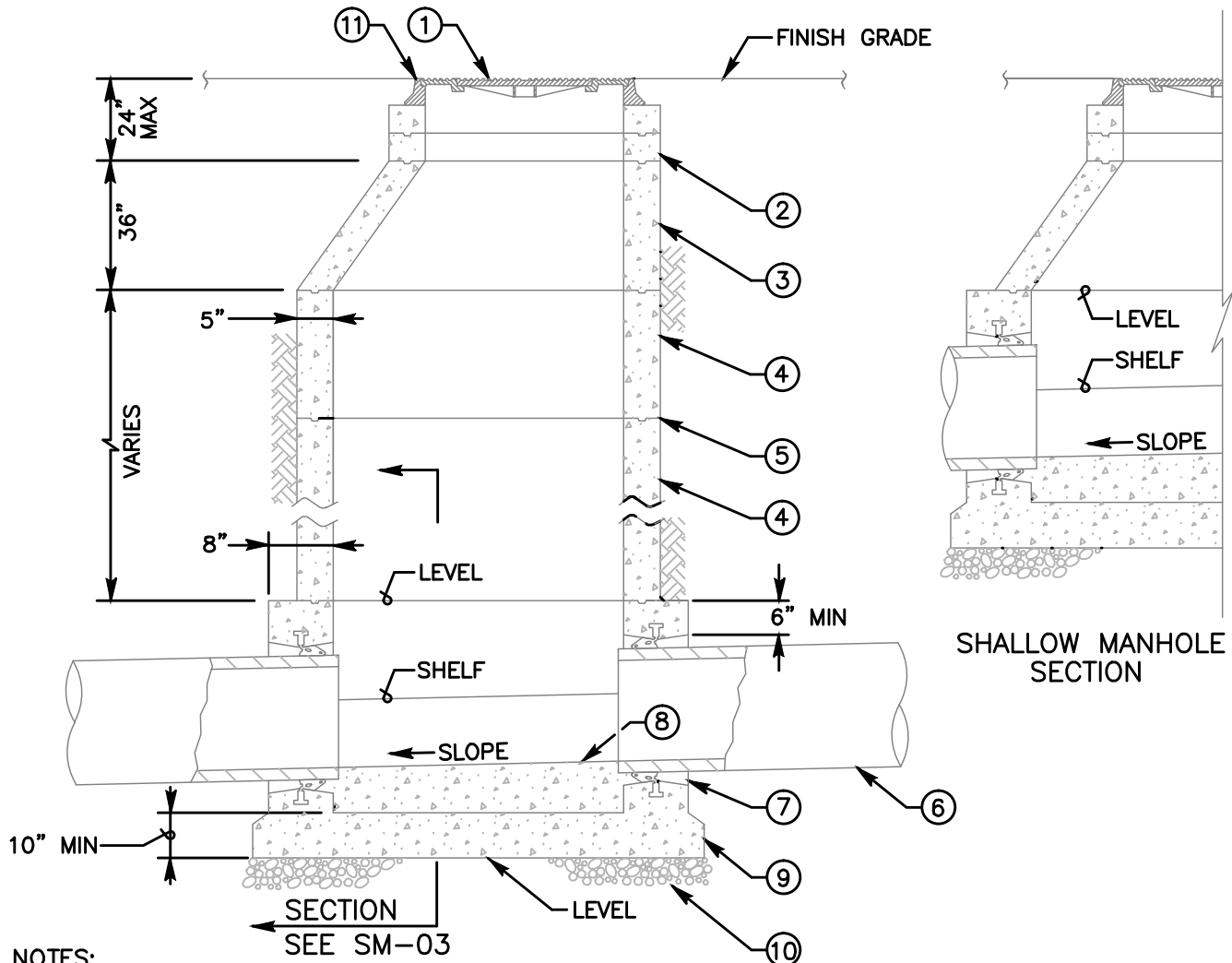
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) CLEANOUTS TO BE INSTALLED AT THE END OF MAINS WHERE INDICATED ON THE PLANS
- 3) CLEANOUT PIPE TO BE SAME SIZE AND MATERIAL AS SEWER MAIN UP TO 8"
- 4) BACKFILL TO TOP OF 45° BEND WITH 3/4" CRUSHED ROCK
- 5) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

— — — — —
LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	12" CI CLEANOUT BOX COVER MARKED 'SEWER' AND AGENCY NAME AS REQUIRED	⑤	45° ELBOW
②	CONCRETE RING	⑥	3/4" CRUSHED ROCK PIPE BEDDING
③	12" PVC, C-900 x 15" LONG (CLEANOUT BOX)	⑦	SEWER MAIN
④	SIZE x REQUIRED LENGTH PVC PIPE	⑧	3/4" CRUSHED ROCK SEE NOTE 4
		⑨	STANDARD WYE BRANCH
		⑩	INSTALL PLUG AND CONCRETE LUG

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING SEWER CLEANOUT	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012 Chairperson R.C.E. 19246 Date
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03		
Replaced S-03		J. Tomasulo	03/05		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER SC-01



SHALLOW MANHOLE SECTION

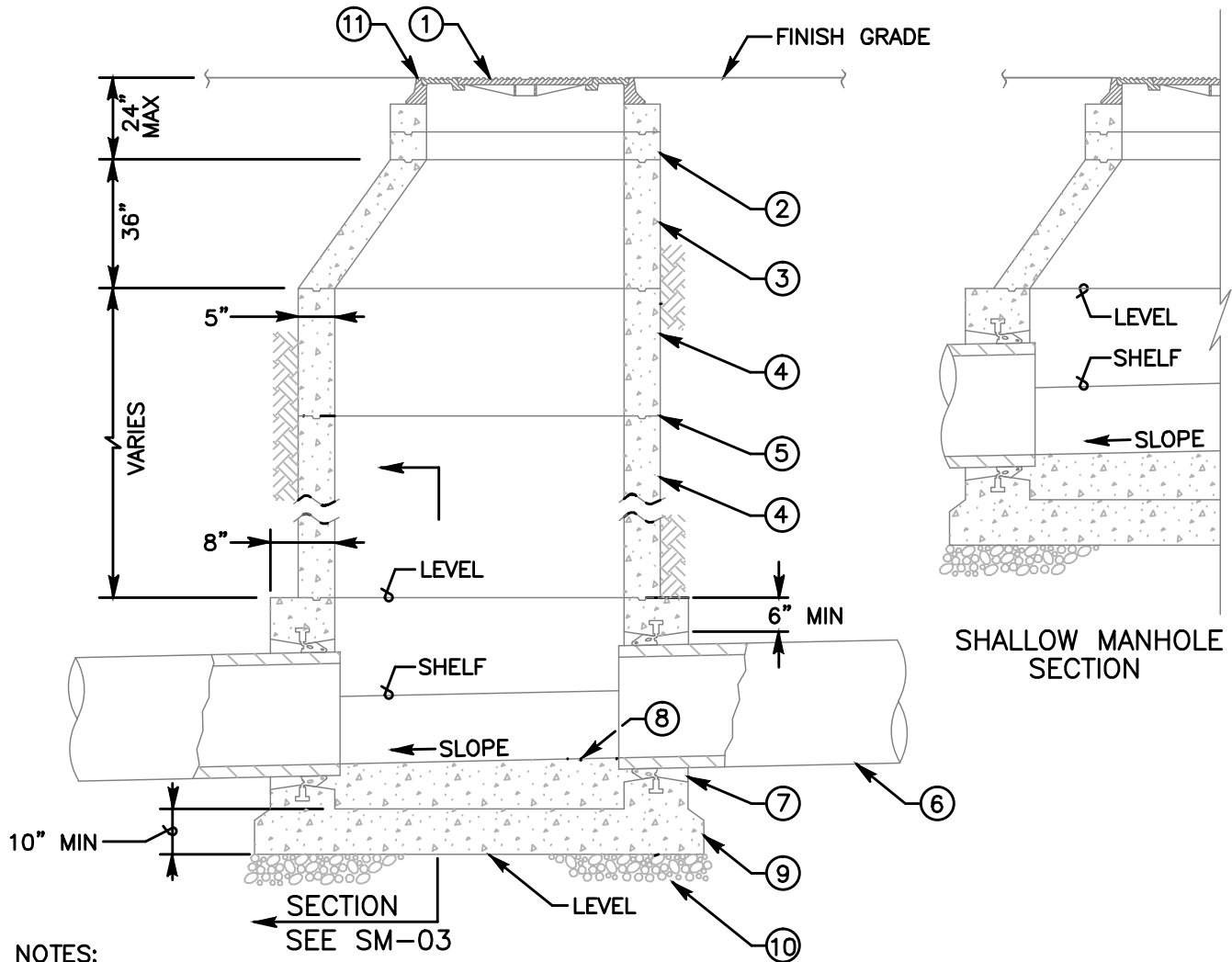
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) VERTICAL WALL OF CONE TO BE ON THE UPSTREAM SIDE OF MANHOLE SEE SM-05 FOR ACCESS LOCATIONS
- 3) FOR MANHOLE BASES SEE SM-03
- 4) MANHOLES FOR MAINS 18" AND LARGER SHALL BE COATED AND LINED PER SM-07
- 5) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

48"
—○—
LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	36" MANHOLE FRAME AND TWO CONCENTRIC COVERS SEE S.D.R.S.D. M-3	⑦	MANHOLE PIPE CONNECTOR SEE SM-04
②	36" DIA GRADE RING(S) 6" TO 18" HIGH	⑧	FIELD INSTALLED INVERT SEE SM-04
③	ECCENTRIC CONE SEE NOTE 2	⑨	CONCRETE BASE, PRECAST OR CAST IN PLACE
④	48" DIA RING(S) VARIABLE HEIGHT	⑩	6" OF 3/4" CRUSHED ROCK
⑤	WATER TIGHT JOINTS SEE SM-05	⑪	MANHOLE DETAIL SEE SM-05
⑥	SEWER MAIN		

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75			
Add Metric		T. Stanton	03/03	48" DIAMETER PRECAST MANHOLE INSTALLATION		<i>T. Stanton</i> 7/26/2012
Replaced S-02		J. Tomasulo	03/05			Chairperson R.C.E. 19246 Date
Delete Metric	MR	B. KNOLL	03/11			DRAWING NUMBER SM-01



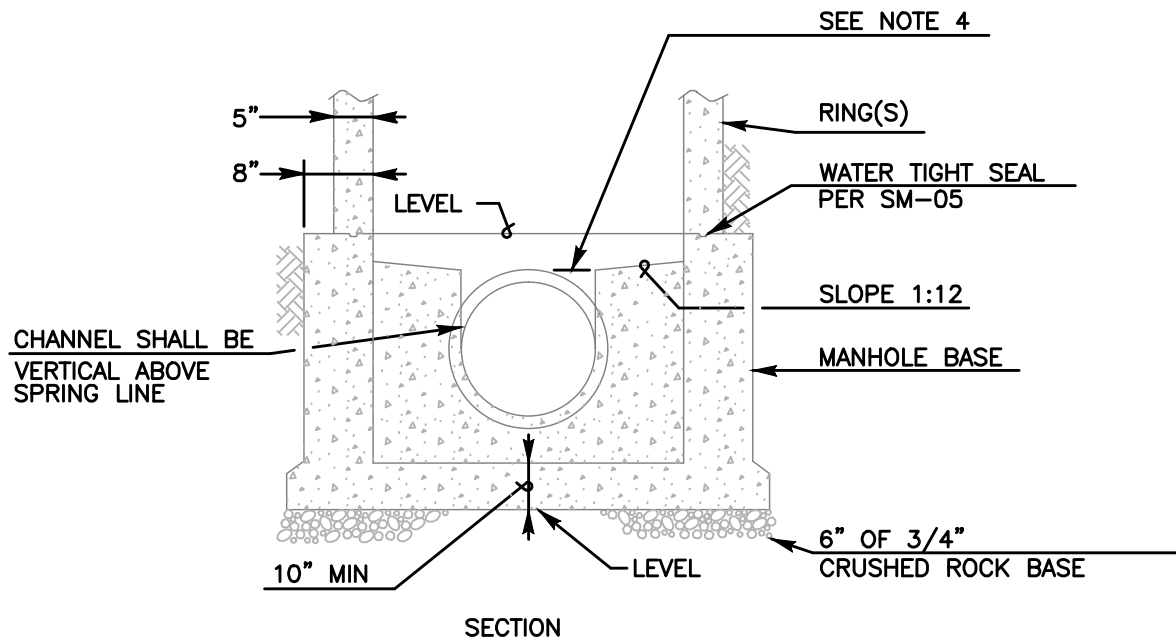
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) VERTICAL WALL OF CONE TO BE ON THE UPSTREAM SIDE OF MANHOLE SEE SM-05 FOR ACCESS LOCATIONS
- 3) FOR MANHOLE BASES SEE SM-03
- 4) MANHOLES FOR MAINS 18" AND LARGER SHALL BE COATED AND LINED PER SM-07
- 5) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

60"
—●—
LEGEND ON PLANS


ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	36" MANHOLE FRAME AND TWO CONCENTRIC COVERS SEE S.D.R.S.D. M-3	⑦	MANHOLE PIPE CONNECTOR SEE SM-04
②	36" DIA GRADE RING(S) 6" TO 18" HIGH	⑧	FIELD INSTALLED INVERT SEE SM-04
③	ECCENTRIC CONE SEE NOTE 2	⑨	CONCRETE BASE, PRECAST OR CAST IN PLACE
④	60" DIA RING(S) VARIABLE HEIGHT	⑩	6" OF 3/4" CRUSHED ROCK
⑤	WATER TIGHT JOINTS SEE SM-05	⑪	MANHOLE DETAIL SEE SM-05
⑥	SEWER MAIN		

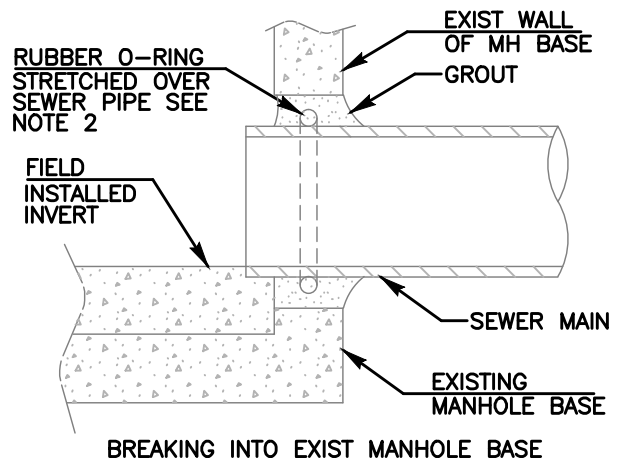
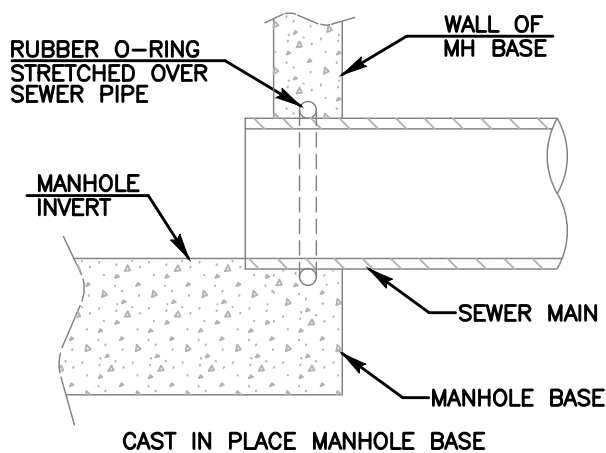
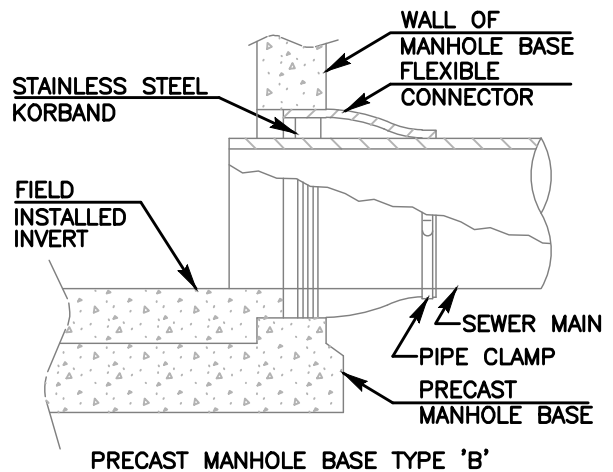
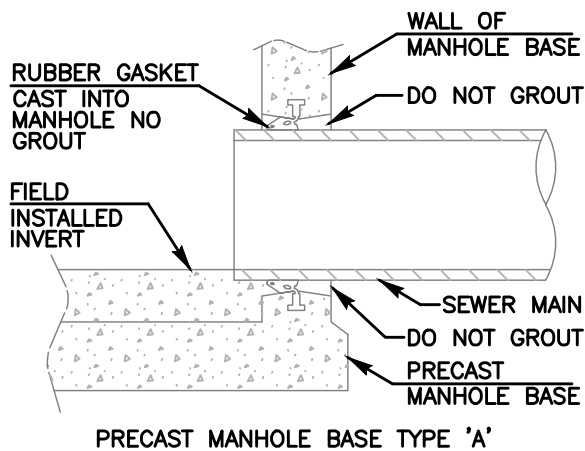
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75			
Add Metric		T. Stanton	03/03	60" DIAMETER PRECAST MANHOLE INSTALLATION		<i>T. Stanton</i> 7/26/2012
Replaced S-02		J. Tomasulo	03/05			Chairperson R.C.E. 19246 Date
Delete Metric	MR	B. KNOLL	03/11			DRAWING NUMBER SM-02



NOTES:


- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) FOR MANHOLE INSTALLATIONS SEE SM-01 AND SM-02
- 3) MANHOLE BASES FOR MAINS 18" AND LARGER SHALL BE COATED PER SM-07
- 4) LOWEST POINT ON SHELF SHALL BE EVEN WITH TOP OF PIPE
- 5) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

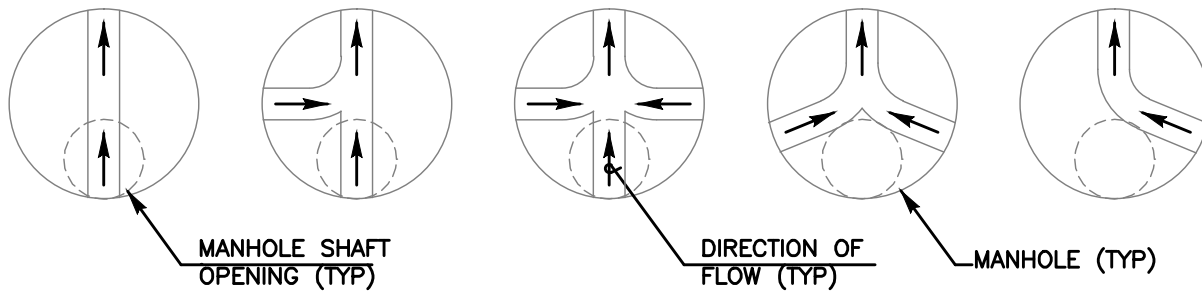
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE		
ORIGINAL		Kercheval	12/75			<div>SEWER MANHOLE BASE</div>		 7/26/2012
Add Metric		T. Stanton	03/03	Chairperson R.C.E. 19246	Date			
Replaced S-02		J. Tomasulo	03/05	DRAWING NUMBER				SM-03
Delete Metric	MR	B. KNOLL	03/11					



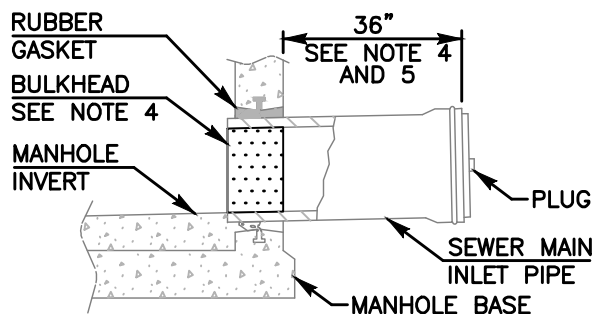
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) A RUBBER O-RING OR A FLEXIBLE CONNECTOR (AS SHOWN IN PRECAST MANHOLE BASE TYPE 'B') CAN BE USED WHEN BREAKING INTO EXISTING MANHOLE
- 3) FOR MANHOLES REQUIRING COATING AND LINING SEE SM-07
- 4) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

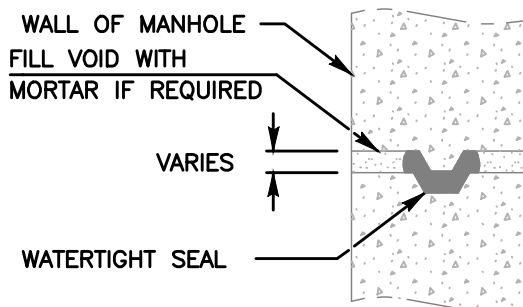
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03	MANHOLE PIPE CONNECTORS	 7/26/2012 Chairperson R.C.E. 19246 Date
Replaced S-02		J. Tomasulo	03/05		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER SM-04



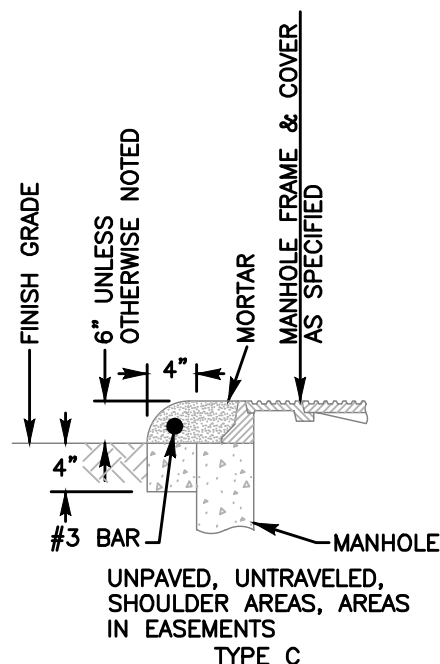
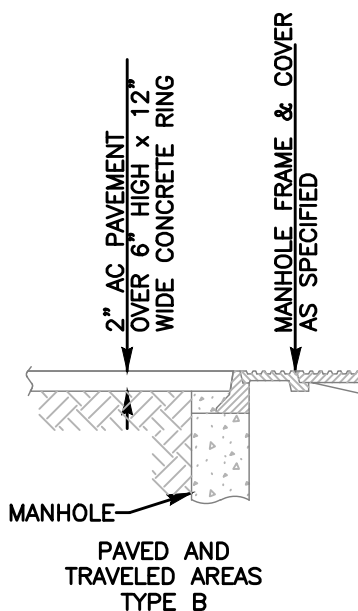
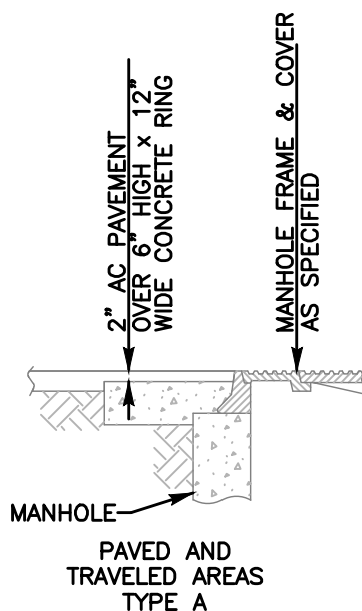
MANHOLE ACCESS LOCATION PLAN VIEW



MANHOLE STUB OUT FOR FUTURE CONNECTION



WATERTIGHT MANHOLE JOINT



NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) VERTICAL WALL OF CONE TO BE ON THE UP STREAM SIDE OF MANHOLE
- 3) FOR MANHOLES REQUIRING COATING AND LINING SEE SM-07
- 4) STUBS SHALL BE BULKHEADED AT THE MANHOLE END
- 5) SEWER MAIN TO BE LAID WITH BELLS UP-GRADE
- 6) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Replaced S-02		J. Tomasulo	03/05
Edited		T. Stanton	05/08
Delete Metric	MR	B. KNOLL	03/11

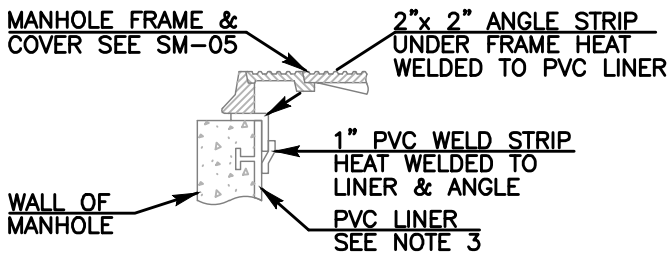
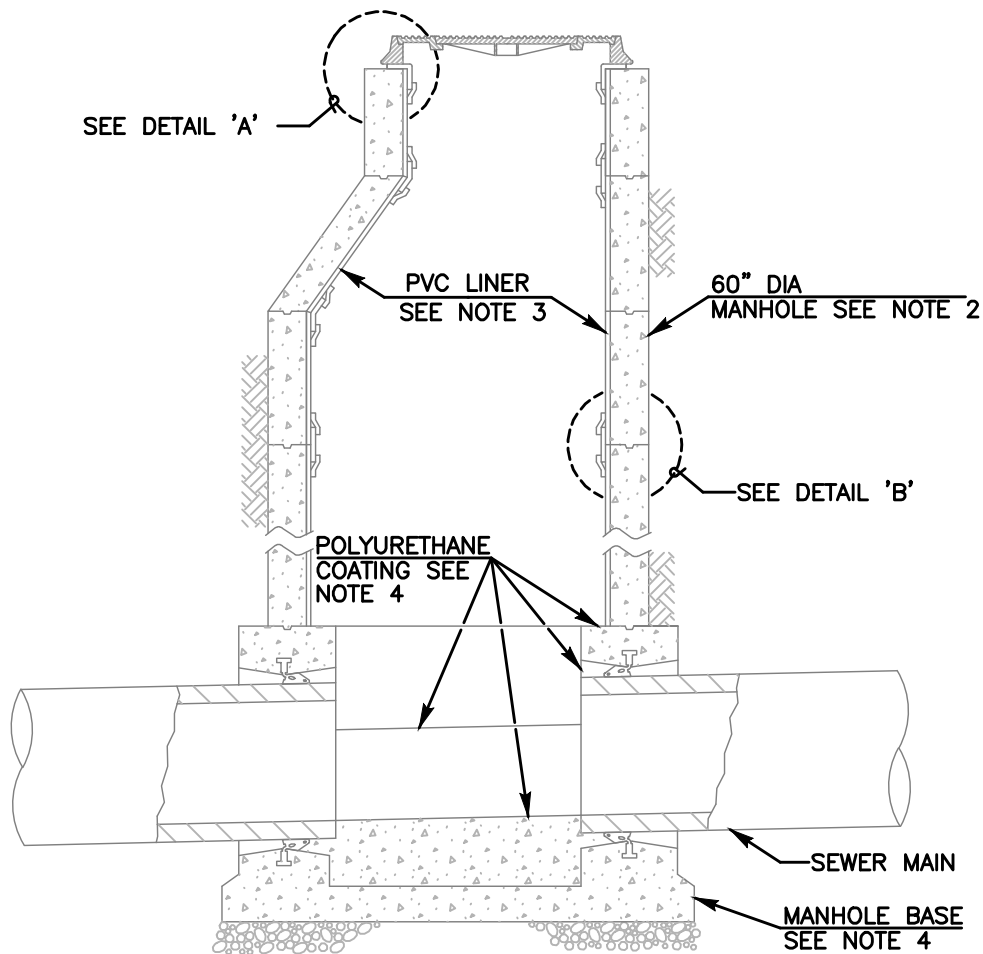
SAN DIEGO REGIONAL STANDARD DRAWING

MANHOLE MISCELLANEOUS
DETAILS

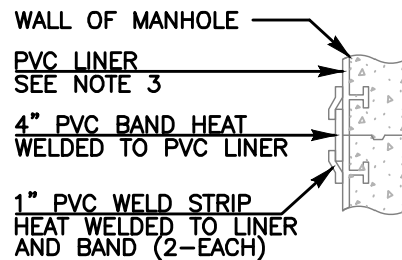
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER SM-05



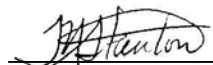
DETAIL "A" MANHOLE
FRAME & COVER

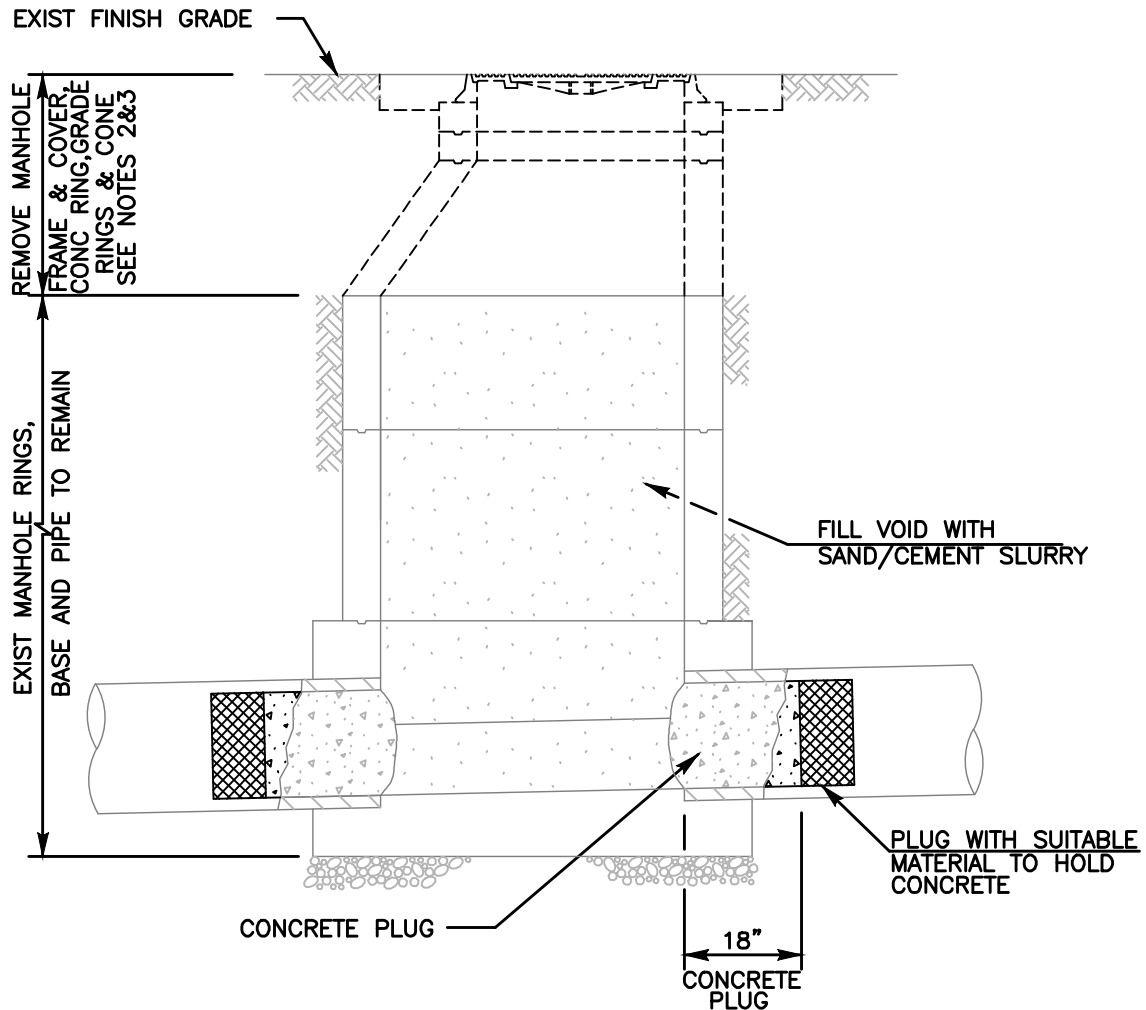


DETAIL "B" MANHOLE
JOINT SECTIONS

NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) MANHOLES FOR SEWER MAINS 18" AND LARGER SHALL BE COATED AND LINED
- 3) MANHOLE SHAFT AND CONE SECTIONS, AND GRADE RINGS SHALL HAVE A PVC LINER PLACED WITH T-SHAPED SUPPORTS INTEGRALLY CAST INTO THE CONCRETE
- 4) ELASTOMERIC POLYURETHANE COATING SHALL BE APPLIED TO THE INTERIOR OF MANHOLE BASES
- 5) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	MANHOLE COATING AND LINING SYSTEM		 7/26/2012 Chairperson R.C.E. 19246 Date
Add Metric		T. Stanton	03/03			
Replaced S-02		J. Tomasulo	03/05			
Delete Metric	MR	B. KNOLL	03/11			
						DRAWING NUMBER SM-07

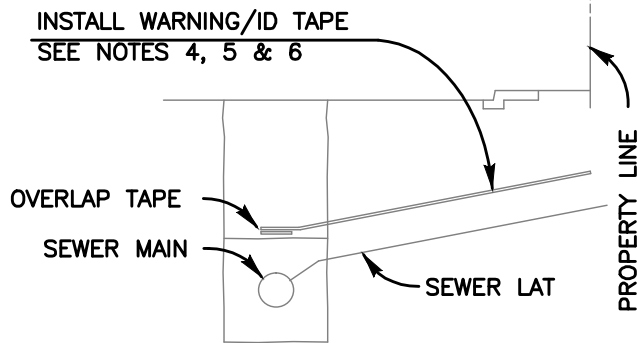


NOTES:

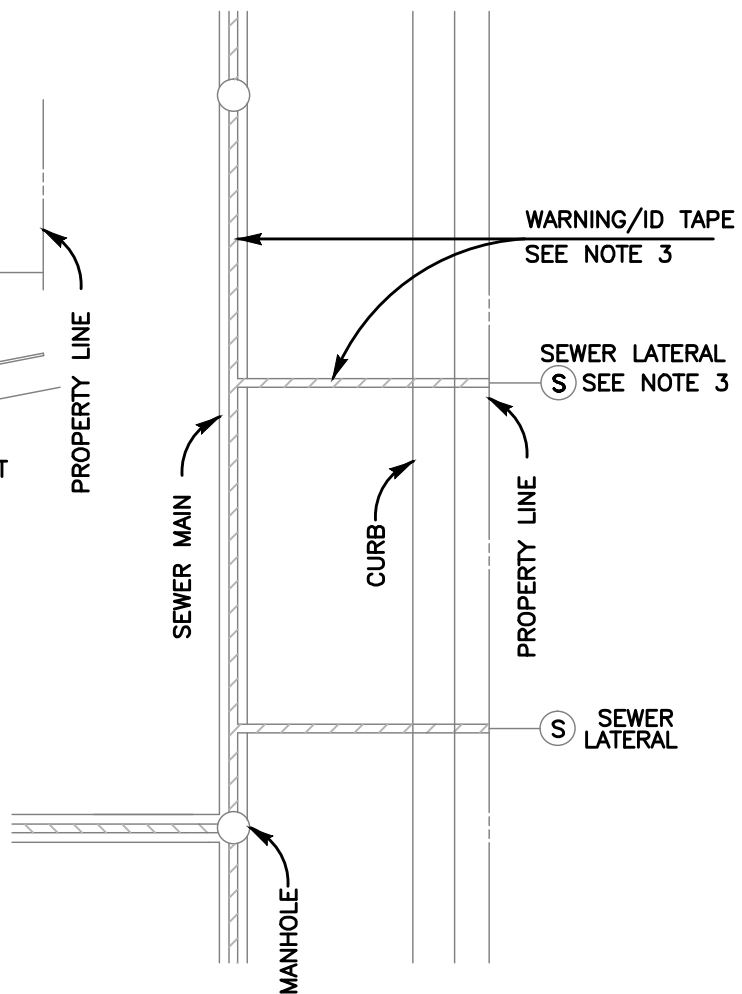
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) ALL SALVAGED MATERIAL BECOMES PROPERTY OF AGENCY OF JURISDICTION
- 3) BACKFILL PER AGENCY'S REQUIREMENT
- 4) FOR CUTTING & PLUGGING ABANDONED SEWER MAINS SEE WP-03

LEGEND ON PLANS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03	EXISTING MANHOLE ABANDONMENT	<i>T. Stanton</i> 7/26/2012
Replaced S-02		J. Tomasulo	03/05		Chairperson R.C.E. 19246 Date
Delete Metric	MR	B. KNOLL	03/11		DRAWING NUMBER SM-08




SECTION AT SEWER LATERALS

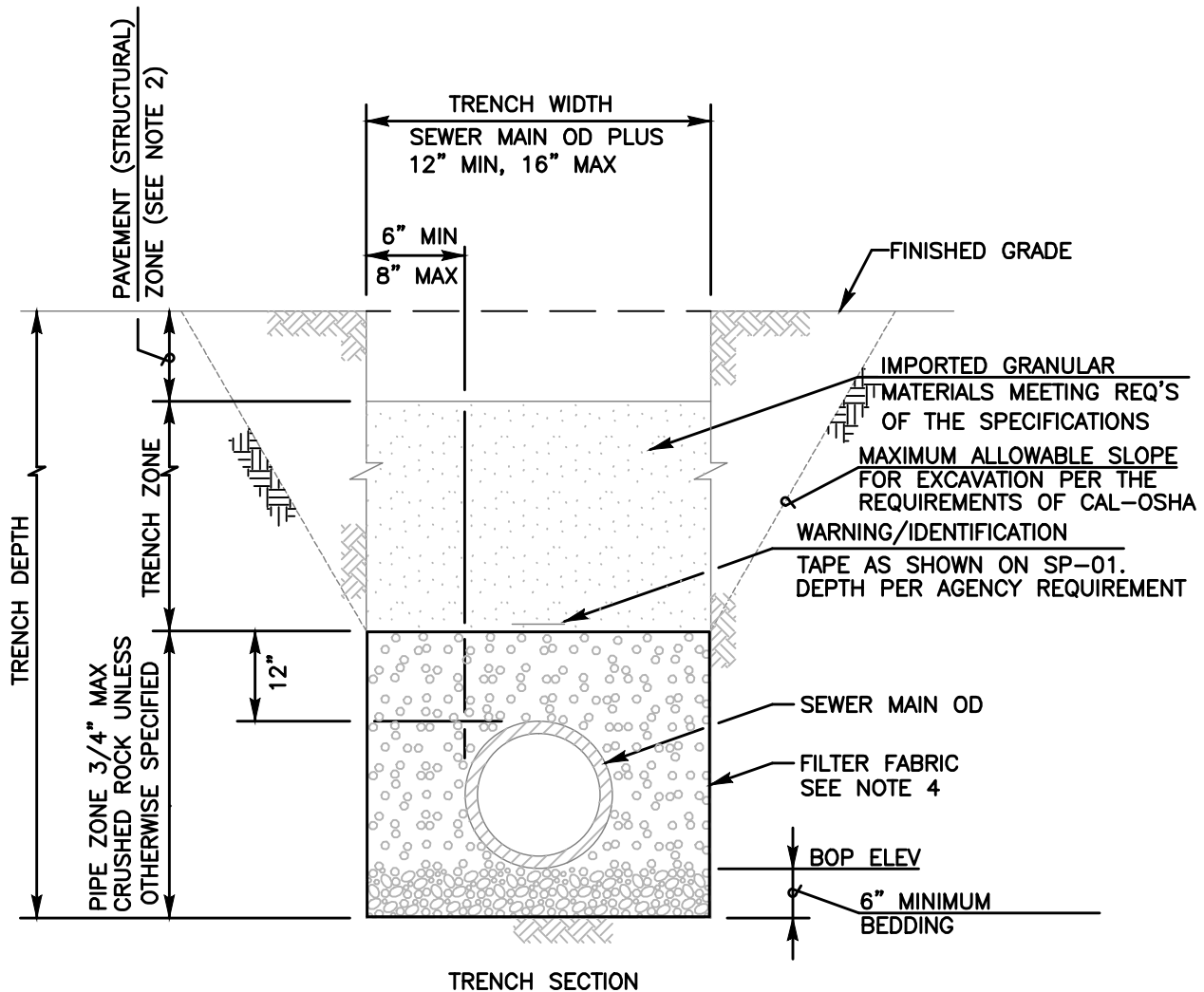


PLAN

NOTES:


- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) WARNING/IDENTIFICATION TAPE SHALL BE INSTALLED AS SPECIFIED BY AGENCY
- 3) STAMP OR CHISEL A 2" HIGH 'S' IN CURB FACE TO IDENTIFY SEWER LATERAL LOCATION
- 4) FOR SEWER LATERALS EXTEND TAPE TO PROPERTY LINE
- 5) DEPTH OF WARNING/IDENTIFICATION TAPE AS SPECIFIED BY AGENCY
- 6) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

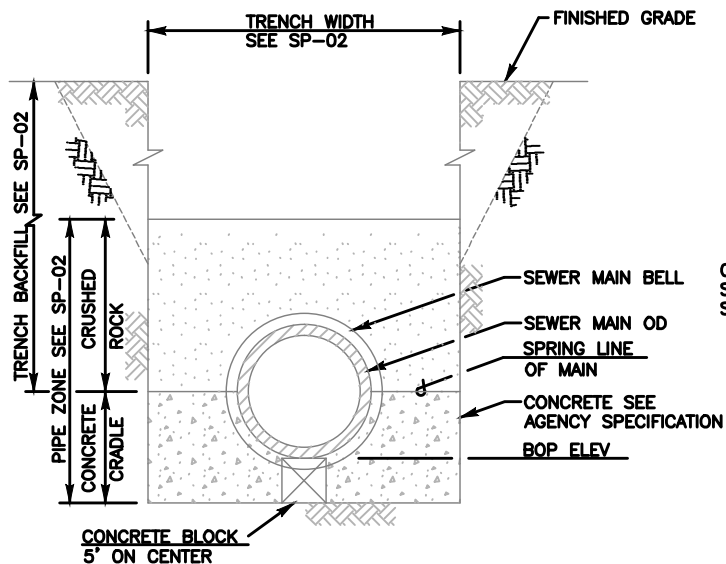
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03	WARNING/IDENTIFICATION TAPE INSTALLATION	<div> 7/26/2012</div> <div>Chairperson R.C.E. 19246 Date</div> <div>DRAWING NUMBER SP-01</div>
Replaced S-19		J. Tomasulo	03/05		
Delete Metric	MR	B. KNOLL	03/11		



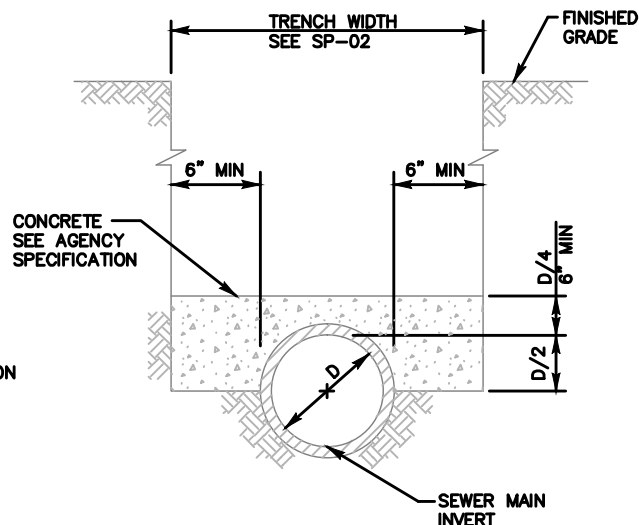
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS FOR TRENCHING, BACKFILLING AND COMPACTING WHERE APPLICABLE
- 2) PAVING OR PAVEMENT REPAIR TO BE DONE IN ACCORDANCE WITH AGENCY OF JURISDICTION
- 3) EXCAVATE BELL HOLES AT EACH JOINT TO PERMIT PROPER ASSEMBLY AND INSPECTION OF THE ENTIRE JOINT
- 4) FILTER FABRIC AS REQUIRED BY AGENCY OF JURISDICTION (WITH A MINIMUM 12" OVERLAP).

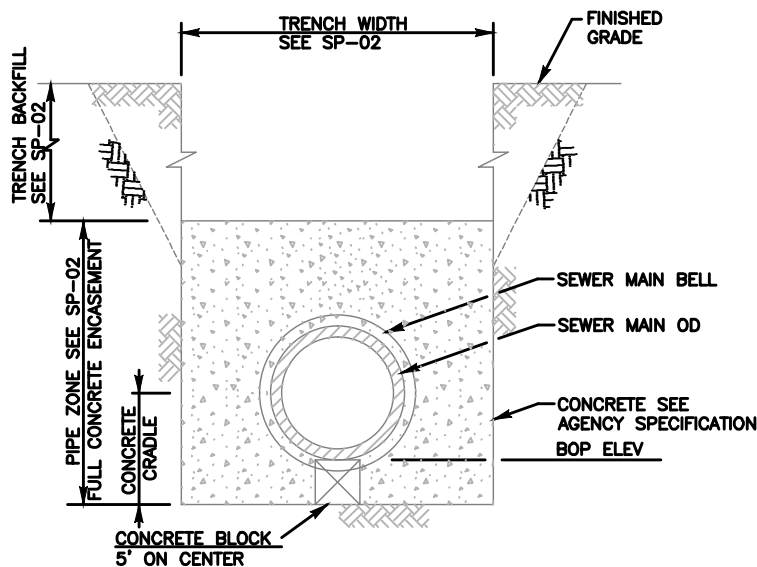
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	PIPE BEDDING AND TRENCH BACKFILL FOR SEWER FACILITIES		 7/26/2012 Chairperson R.C.E. 19246 Date
Add Metric		T. Stanton	03/03			
Replaced S-04		J. Tomasulo	03/05			
Delete Metric	MR	B. KNOLL	03/11			
						DRAWING NUMBER SP-02



TRENCH SECTION
CONCRETE PIPE CRADLE



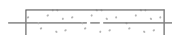
TRENCH SECTION
CONCRETE PROTECTION



TRENCH SECTION
CONCRETE PIPE ENCASEMENT

NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS FOR TRENCHING, BACKFILLING AND COMPACTING WHERE APPLICABLE
- 2) CONCRETE CRADLE SHALL BE USED WHEN THE TRENCH WIDTH AT THE UPPER LIMIT OF THE PIPE ZONE EXCEEDS THE MAX WIDTH SPECIFIED ON SP-02 AND OR DIRECTED BY AGENCY'S ENGINEER
- 3) FOR PIPE BEDDING AND TRENCH BACKFILL SEE SP-02



LEGEND ON PLANS

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Replaced S-06		J. Tomasulo	03/05
Delete Metric	MR	B. KNOLL	03/11

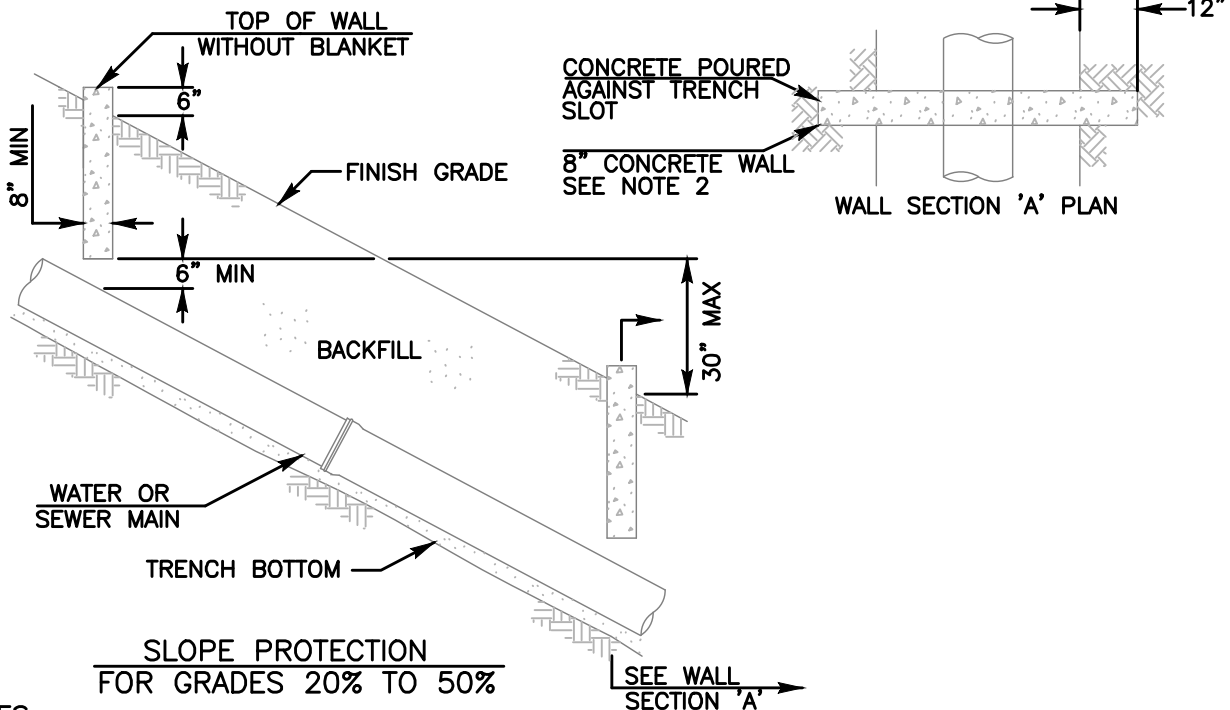
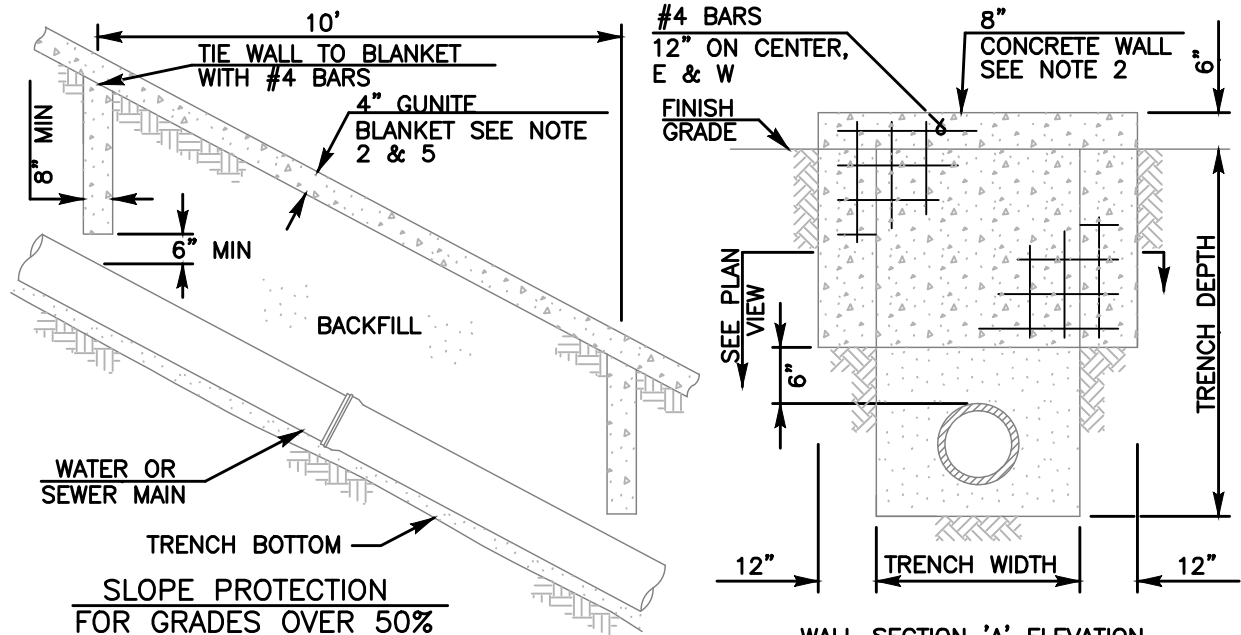
SAN DIEGO REGIONAL STANDARD DRAWING

CONCRETE PROTECTION FOR
SEWER PIPE

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

T. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER SP-03

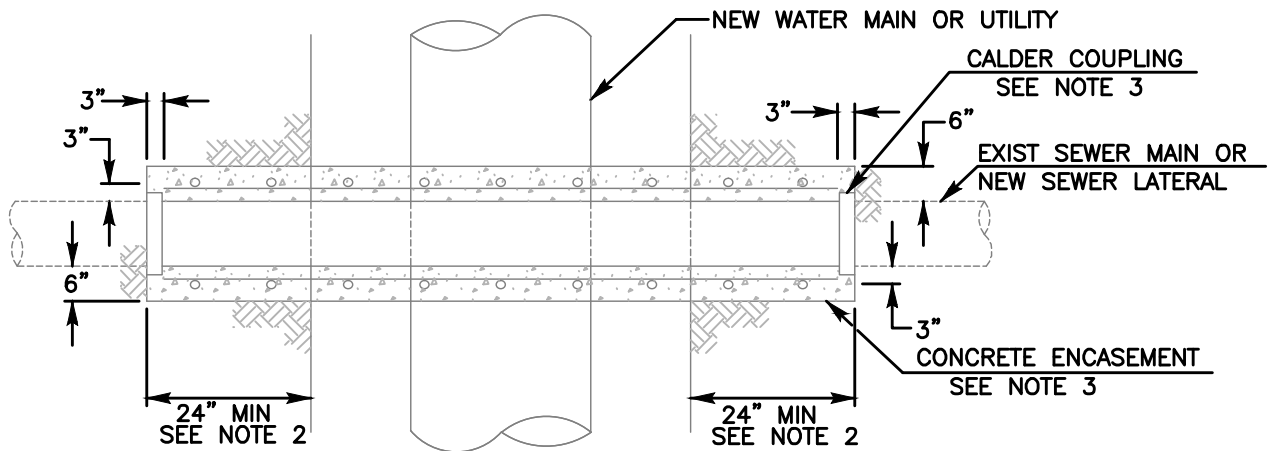


NOTES:

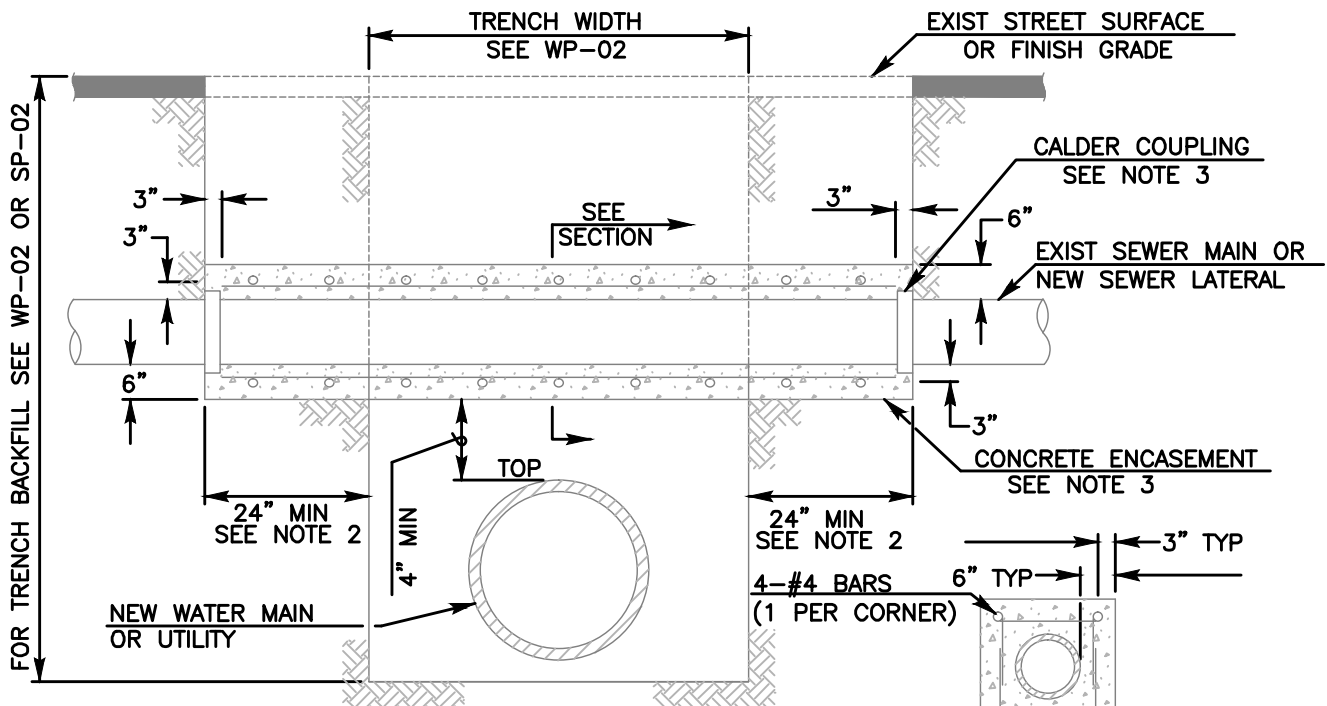
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) THE DETAILS SHOWN REPRESENT THE MINIMUM REQUIRED. THE ENGINEER OF WORK IS REQUIRED TO PROVIDE A SUBMITTAL TO THE AGENCY OF JURISDICTION FOR REVIEW AND APPROVAL BY THE AGENCY'S ENGINEER PRIOR TO INSTALLATION
- 3) WALLS SHALL BE REINFORCED CONCRETE OR 8" x 8" x 16" CONCRETE BLOCK, REINFORCED AND ALL CORES FILLED WITH GROUT SEE SPECIFICATIONS
- 4) FOR GRADES OVER 50%, SLOPE PROTECTION SHALL ALSO INCLUDE AC PAVING, CONCRETE SLAB OR GUNITITE BLANKET PLACED OVER THE PIPELINE ALIGNMENT
- 5) 4" GUNITITE BLANKET WITH 6" SQUARE x 10 GAGE WIRE FABRIC AT THE ENGINEERS DISCRETION

LEGEND ON PLANS

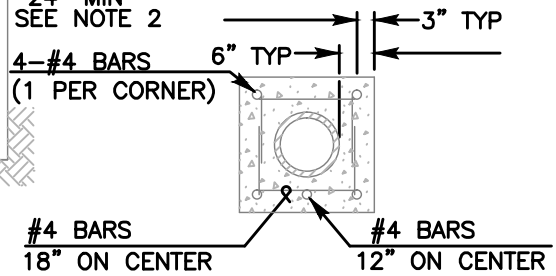
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		J. Tomasulo	03/05		
Delete Metric	MR	B. KNOLL	03/11	SLOPE PROTECTION INSTALLATIONS	 7/26/2012 Chairperson R.C.E. 19246 Date
					DRAWING NUMBER SP-05



PLAN



ELEVATION

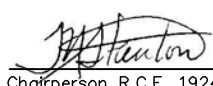


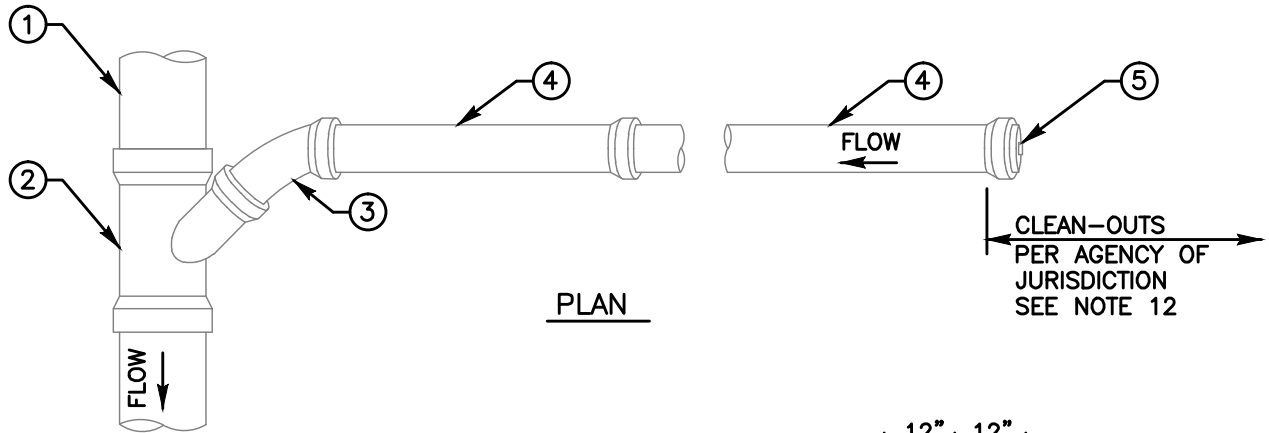
ENCASEMENT SECTION

NOTES:

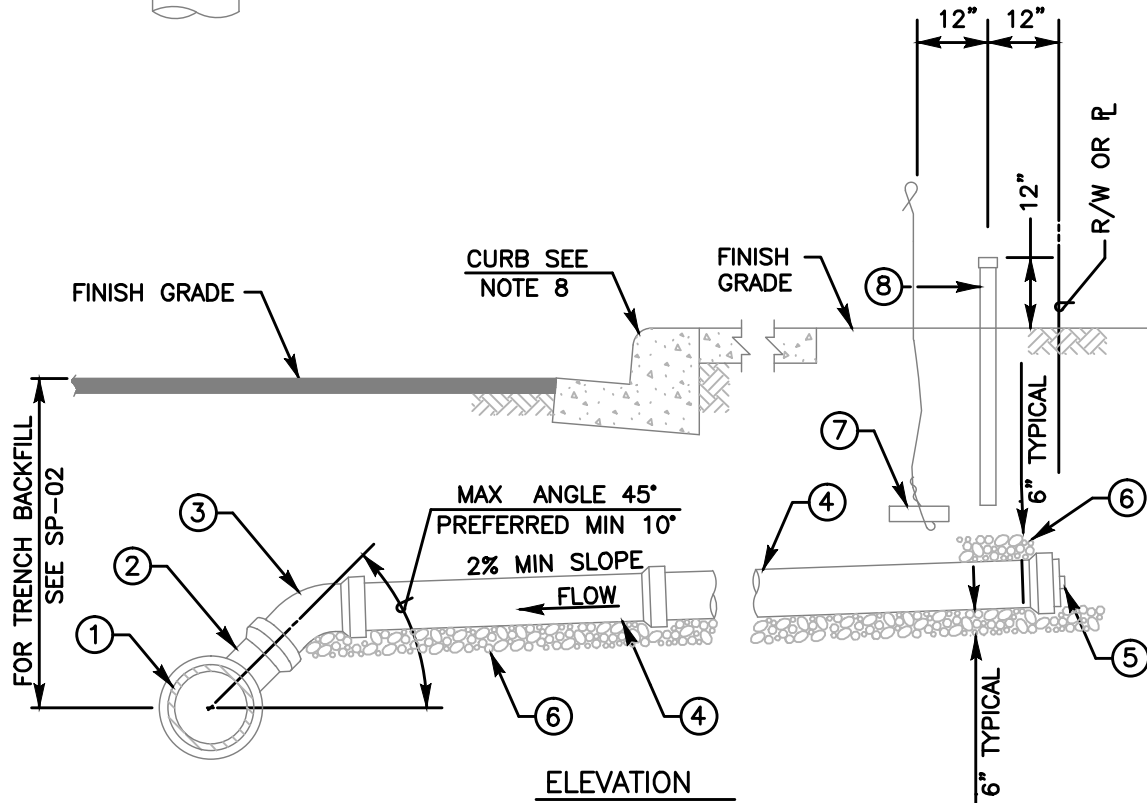
- 1) REFER TO AGENCY SPECIFICATIONS FOR PROTECTION OF EXISTING FACILITIES
- 2) ENCASEMENT SHALL EXTEND TO FIRST JOINT BEYOND BOTH SIDES OF TRENCH (24" MIN, 48" MAX OF SUITABLE NATIVE SUPPORT BEYOND EDGE OF TRENCH).
- 3) CONCRETE ENCASEMENT REQUIRED FOR SEWER MAINS ONLY. CALDER COUPLINGS REQUIRED FOR SEWER LATERALS ONLY. SEWER LATERALS TO BE REPLACED WITH SCH. 80 PVC WITH NO INTERMEDIATE JOINTS.
- 4) FOR PIPE BEDDING AND TRENCH BACKFILL SEE WP-02 OR SP-02.

LEGEND ON PLANS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		J. Tomasulo	03/05				
Delete Metric	MR	B. KNOLL	03/11	PIPE SUPPORT FOR UNDERCUT SEWER MAINS OR SEWER LATERALS		 7/26/2012 Chairperson R.C.E. 19246 Date	
						DRAWING NUMBER SP-09	



PLAN




ELEVATION

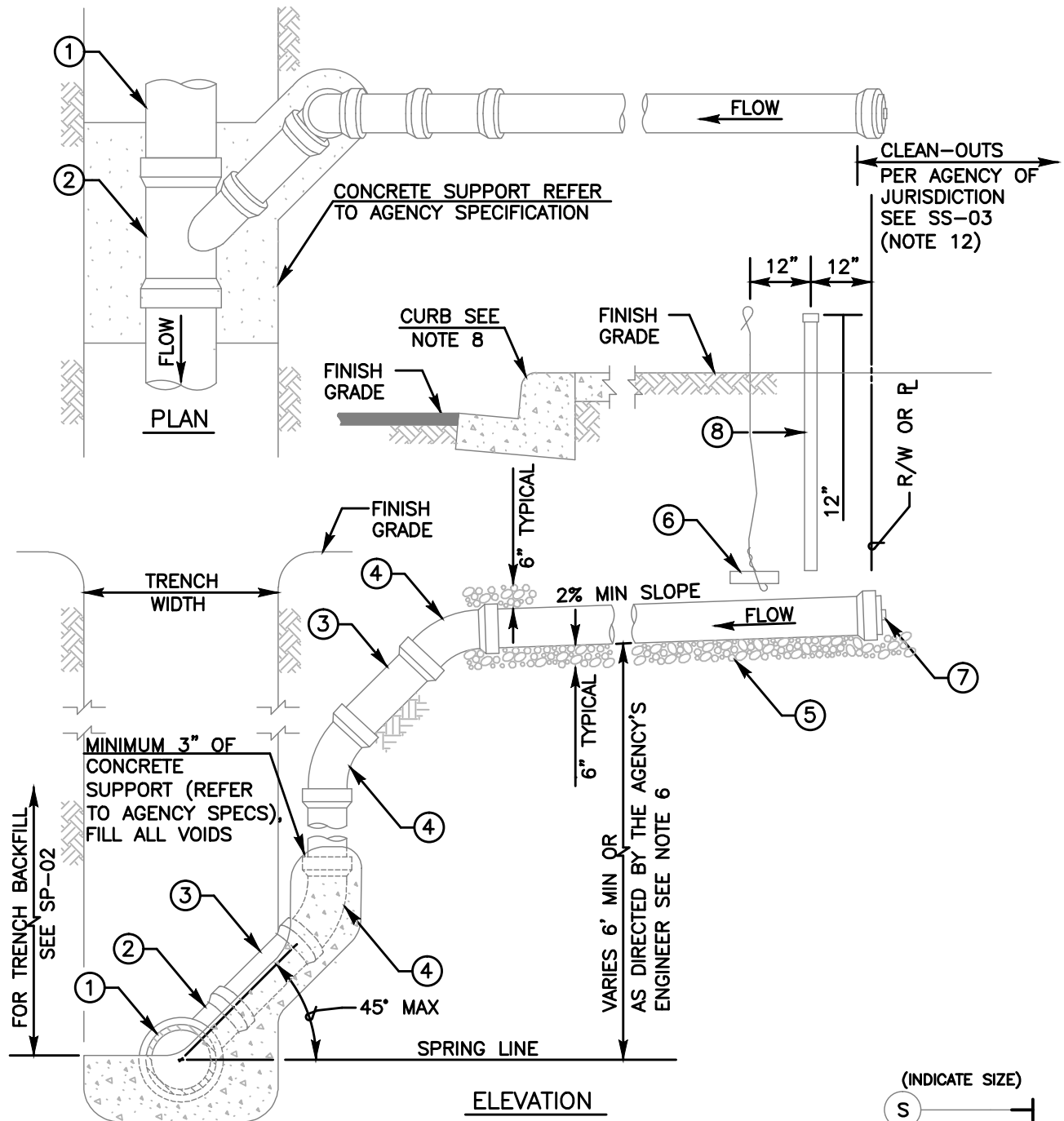
(INDICATE SIZE)



LEGEND ON PLANS

FOR SEWER LATERAL NOTES SEE DETAIL SS-03


ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	SEWER MAIN	⑤	PLUG OR CAP
②	45° WYE	⑥	3/4" MAXIMUM CRUSHED ROCK
③	45° ELBOW	⑦	#9 WIRE ATTACHED TO A BRICK
④	PIPE LATERAL SEE NOTE 3 & 5	⑧	4" PVC PIPE WITH GLUED CAP
Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Replaced S-13		J. Tomasulo	03/05
Delete Metric	MR	B. KNOLL	03/11
SAN DIEGO REGIONAL STANDARD DRAWING			
4" AND 6" SEWER LATERAL INSTALLATION			
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE			
 7/26/2012 Chairperson R.C.E. 19246 Date			
DRAWING NUMBER SS-01			

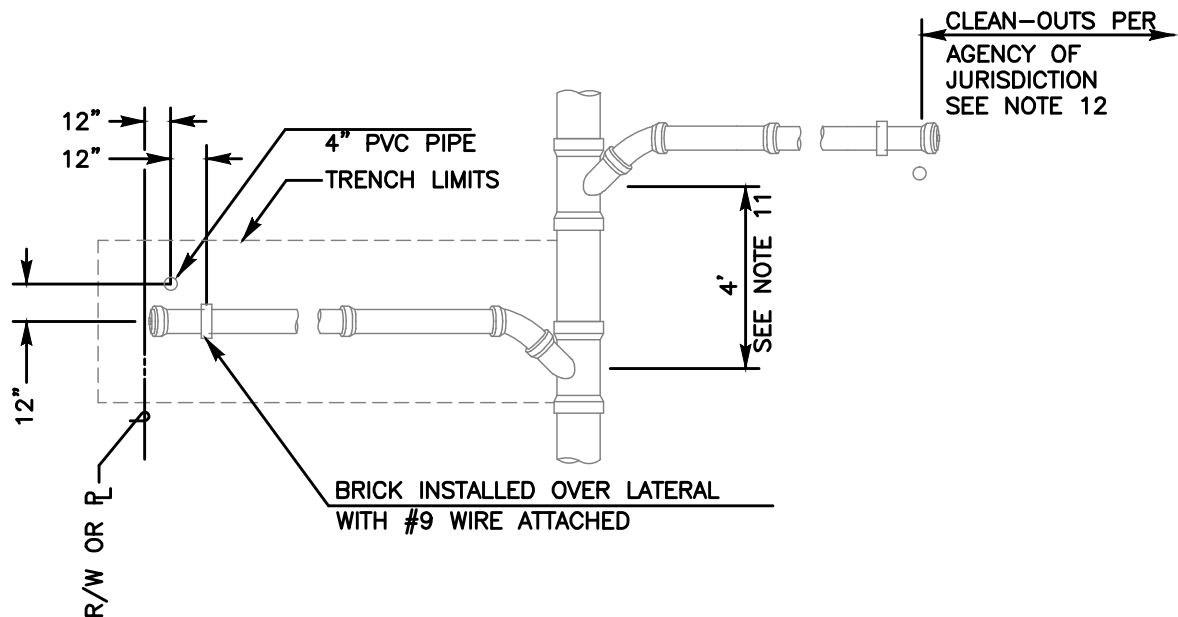


FOR SEWER LATERAL NOTES SEE DETAIL SS-03

(INDICATE SIZE)
S ————
LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	SEWER MAIN	⑤	3/4" MAXIMUM CRUSHED ROCK
②	45° WYE	⑥	#9 WIRE ATTACHED TO A BRICK
③	PIPE	⑦	PLUG OR CAP
④	45° ELBOW	⑧	4" PVC PIPE WITH GLUED CAP

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 4" AND 6" DEEP-CUT SEWER LATERAL INSTALLATION		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012 Chairperson R.C.E. 19246 Date	
ORIGINAL		Kercheval	12/75			DRAWING NUMBER SS-02	
Add Metric		T. Stanton	03/03				
Replaced S-14		J. Tomasulo	03/05				
Delete Metric	MR	B. KNOLL	03/11				



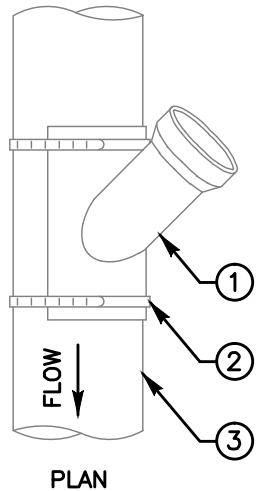
SEWER LATERAL DETAIL
SEE NOTE 10 BELOW

NOTES:

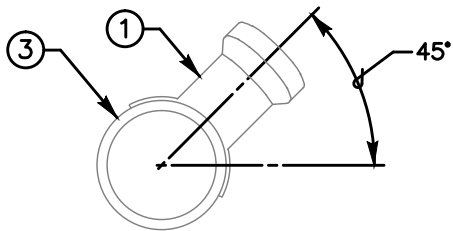
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) IN NO CASE SHALL LATERAL CONNECT DIRECTLY ON TOP OF SEWER MAIN
- 3) LATERAL SHALL BE INSTALLED TO PROPERTY LINE UNLESS SPECIFIED ON PLANS
- 4) MINIMUM 4' COVER ABOVE LATERAL AT PROPERTY LINE
- 5) LATERAL TO HAVE A MINIMUM SLOPE OF 2%
- 6) VERTICAL PIPE SHALL BE BRACED WHILE BACKFILLING TRENCH
- 7) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON SP-01
- 8) STAMP OR CHISEL A 2" HIGH "S" IN CURB FACE OVER LATERAL TO IDENTIFY SEWER LATERAL LOCATION
- 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST
- 10) FOR SEWER LATERAL INSTALLATIONS SEE SS-01 AND SS-02
- 11) FOR SEWERS SPECIFIED AS PVC PIPE, A MINIMUM 3' SECTION OF PIPE IS REQUIRED BETWEEN FITTINGS
- 12) SEWER CLEAN-OUT SEE SC-01 TYPE B AS REQUIRED BY AGENCY OF JURISDICTION

(INDICATE SIZE)
S ————
LEGEND ON PLANS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING SEWER LATERAL NOTES AND DETAIL	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03		
Replaced S-13		J. Tomasulo	03/05		
Delete Metric	MR	B. KNOLL	03/11		
					7/26/2012 Chairperson R.C.E. 19246 Date
					DRAWING NUMBER SS-03

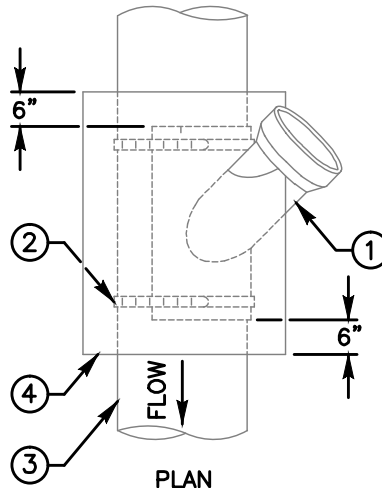


PLAN

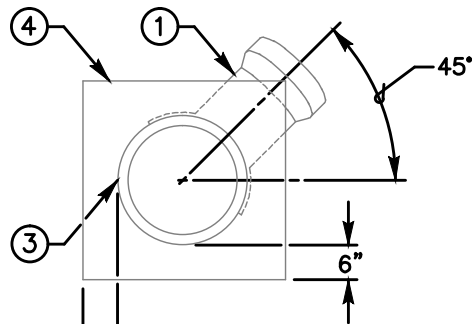


ELEVATION

CUT IN WYE CONNECTION
TYPE A



PLAN



ELEVATION

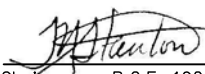
CUT IN WYE CONNECTION
TYPE B

NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) CONNECTIONS TO EXISTING SEWER MAINS TO BE MADE BY AGENCY PERSONNEL IN ACCORDANCE WITH SPECIFICATIONS UNLESS OTHERWISE NOTED ON PLANS
- 3) IN NO CASE SHALL CONNECTION BE MADE DIRECTLY ON TOP OF SEWER MAIN
- 4) NO MORE THAN ONE CUT IN WYE WILL BE ALLOWED FOR EACH LENGTH OF EXISTING VCP SEWER MAIN
- 5) FOR SEWER LATERAL INSTALLATION SEE SS-01 AND SS-02
- 6) FOR TRENCH BACKFILL SEE SP-02
- 7) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

(INDICATE SIZE)
S ———— |
LEGEND ON PLANS

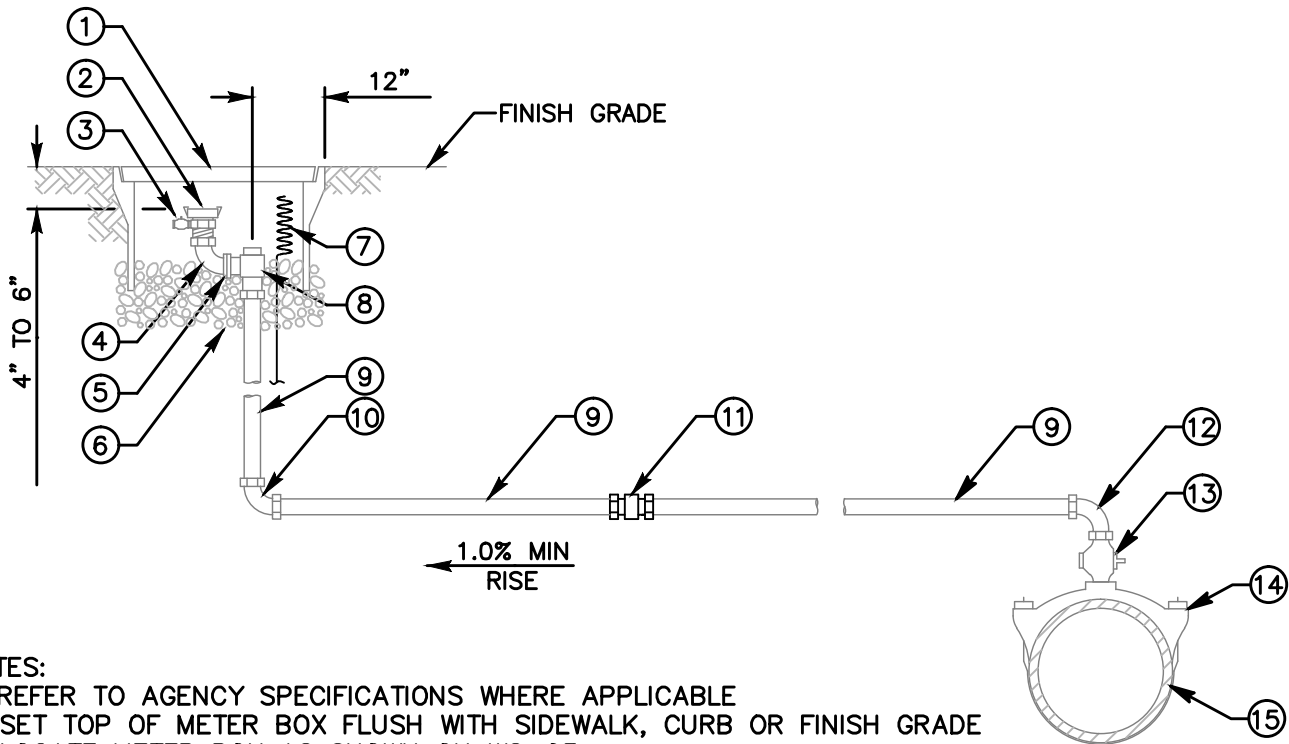
ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	45° SADDLE WYE WITH GASKET	③	EXISTING SEWER MAIN
②	STAINLESS STEEL HOSE CLAMPS (2-EACH)	④	CONCRETE ENCASEMENT

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 4" AND 6" SEWER CUT-IN WYE CONNECTIONS	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012 Chairperson R.C.E. 19246 Date
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03		
Replaced S-13		J. Tomasulo	03/05		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER SS-04

WATER SYSTEMS

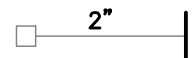
WATER SYSTEMS

W



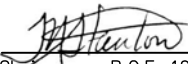
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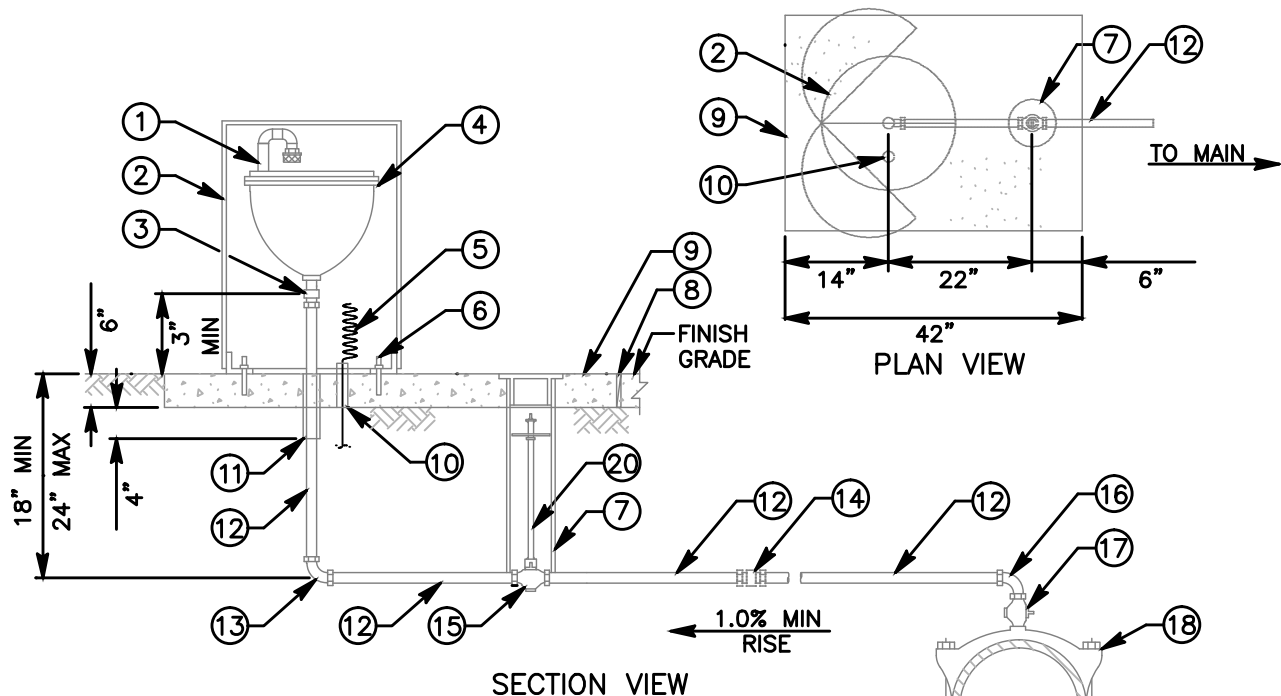
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) SET TOP OF METER BOX FLUSH WITH SIDEWALK, CURB OR FINISH GRADE
- 3) LOCATE METER BOX AS SHOWN ON WS-03
- 4) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 5) MANUAL AIR VALVE INSTALLATION AT END OF MAIN TO BE SADDLED 24" FROM END CAP
- 6) MANUAL AIR VALVE ASSEMBLIES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 7) ON STEEL MAINS USE WELD ON COUPLINGS, ON DUCTILE IRON MAINS USE DUCTILE IRON SERVICE SADDLES (INSULATING BUSHINGS ARE REQUIRED)
- 8) CAM & GROOVE ADAPTER SHALL BE DRILLED AND TAPPED AS REQUIRED FOR THE PRESSURE RELEASE PET COCK
- 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



LEGEND ON PLANS

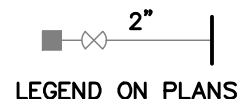
ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	POLYMER METER BOX WITH LID 17" x 30", SEE NOTE 3	⑧	2" BRONZE COMP x FLG ANGLE METER STOP WITH LOCK WING
②	2" CAM & GROOVE ADAPTER x MIPT WITH LOCKING DUST CAP, SEE NOTE 8	⑨	2" x REQUIRED LENGTH COPPER PIPE TYPE "K" RIGID OR SOFT
③	1/4" PRESSURE PET COCK	⑩	2" 90° BRONZE COMPRESSION ELL
④	2" 90° BRONZE MIPT x FIPT ELL	⑪	2" BRONZE COMPRESSION COUPLING COPPER TO COPPER (IF REQUIRED)
⑤	2" OVAL METER FLANGE FLG x FIPT, WITH GASKET	⑫	2" 90° BRONZE FIPT x COMP ELL
⑥	3/8" ROCK 4" TO 6" DEEP	⑬	2" BRONZE MIPT x MIPT CORPORATION STOP
⑦	TRACER WIRE (AS REQUIRED), SEE WP-01	⑭	SIZE x 2" SERVICE SADDLE
		⑮	WATER MAIN

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 2" MANUAL AIR VALVE	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012 Chairperson R.C.E. 19246 Date
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03		
Replaced W-03		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER WA-01




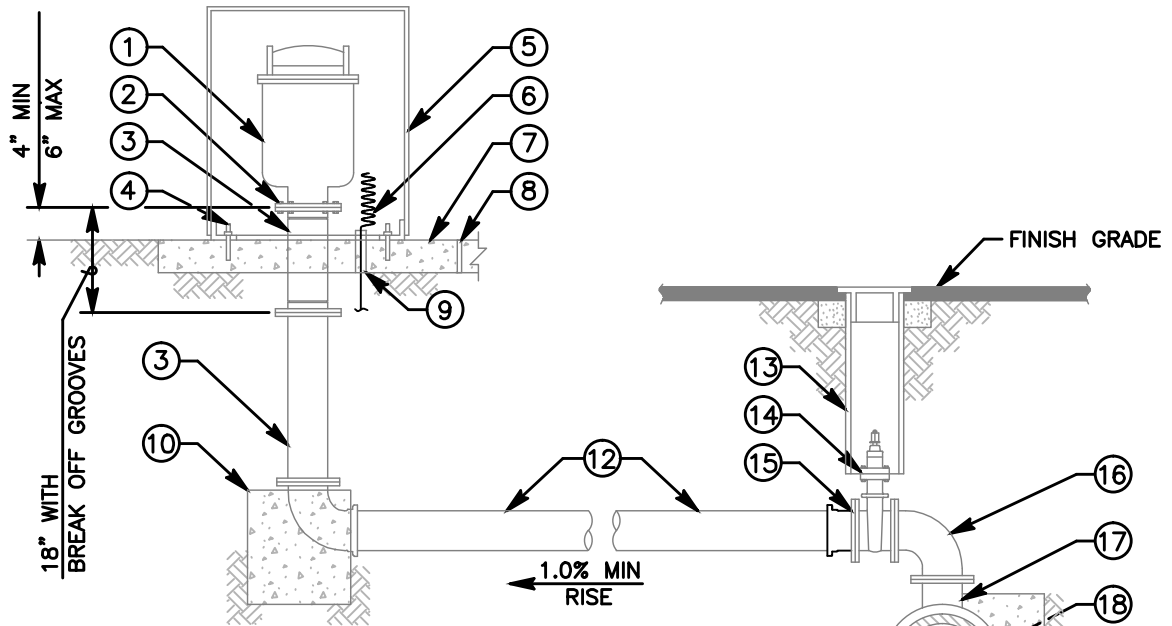
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) NO DIPS OR LOW SPOTS WILL BE ALLOWED IN PIPING INSTALLATION
- 3) LOCATE ENCLOSURE AS SHOWN ON WA-06
- 4) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 5) AIR & VACUUM VALVES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 6) ON STEEL MAINS USE WELD ON COUPLINGS, ON DUCTILE IRON MAINS USE DUCTILE IRON SERVICE SADDLES (INSULATING BUSHINGS ARE REQUIRED)
- 7) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



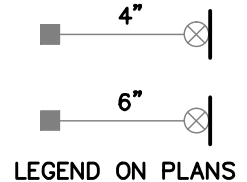
ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	2" PVC SCH 80 CLOSE NIPPLE & 2-SCH 80 STREET ELLS & INSECT SCREEN	⑪	2" x 1/2" BLACK FOAM SLEEVE
②	VALVE ENCLOSURE	⑫	2" x REQUIRED LENGTH COPPER PIPE TYPE "K" RIGID OR SOFT
③	2" MIPT x COMPRESSION ADAPTER	⑬	2" 90° BRONZE COMPRESSION ELL
④	2" AUTOMATIC COMBINATION AIR RELEASE & AIR/VACUUM VALVE	⑭	2" BRONZE COMPRESSION COUPLING COPPER TO COPPER (IF REQUIRED)
⑤	TRACER WIRE (AS REQUIRED), SEE WP-01	⑮	2" COMP BALL VALVE W/ TEE HEAD
⑥	1/2" x 3" STAINLESS STEEL DROP-IN ANCHORS (3 EA @ 120° APART)	⑯	2" 90° BRONZE FIPT x COMP ELL
⑦	4" SDR 35 SEWER PIPE GATE WELL WITH CAP	⑰	2" BRONZE MIPT x MIPT CORPORATION STOP
⑧	COLD JOINT STRIP	⑱	SIZE x 2" SERVICE SADDLE
⑨	3'-6" x 2'-6" x 6" THICK CONCRETE SLAB	⑲	WATER MAIN
⑩	1" PVC CONDUIT FOR TRACER WIRE INSTALLED 2" ABOVE SLAB	⑳	VALVE STEM EXTENSION, SEE WV-05

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE		
ORIGINAL		Kercheval	12/75				
Add Metric		T. Stanton	03/03		2" AUTOMATIC COMBINATION AIR RELEASE & AIR/VACUUM VALVE INSTALLATIONS	 7/26/2012	
Replaced W-04		J. Tomasulo	10/04			Chairperson R.C.E. 19246	Date
Delete Metric	MR	B. KNOLL	03/11				
					DRAWING NUMBER	WA-02	



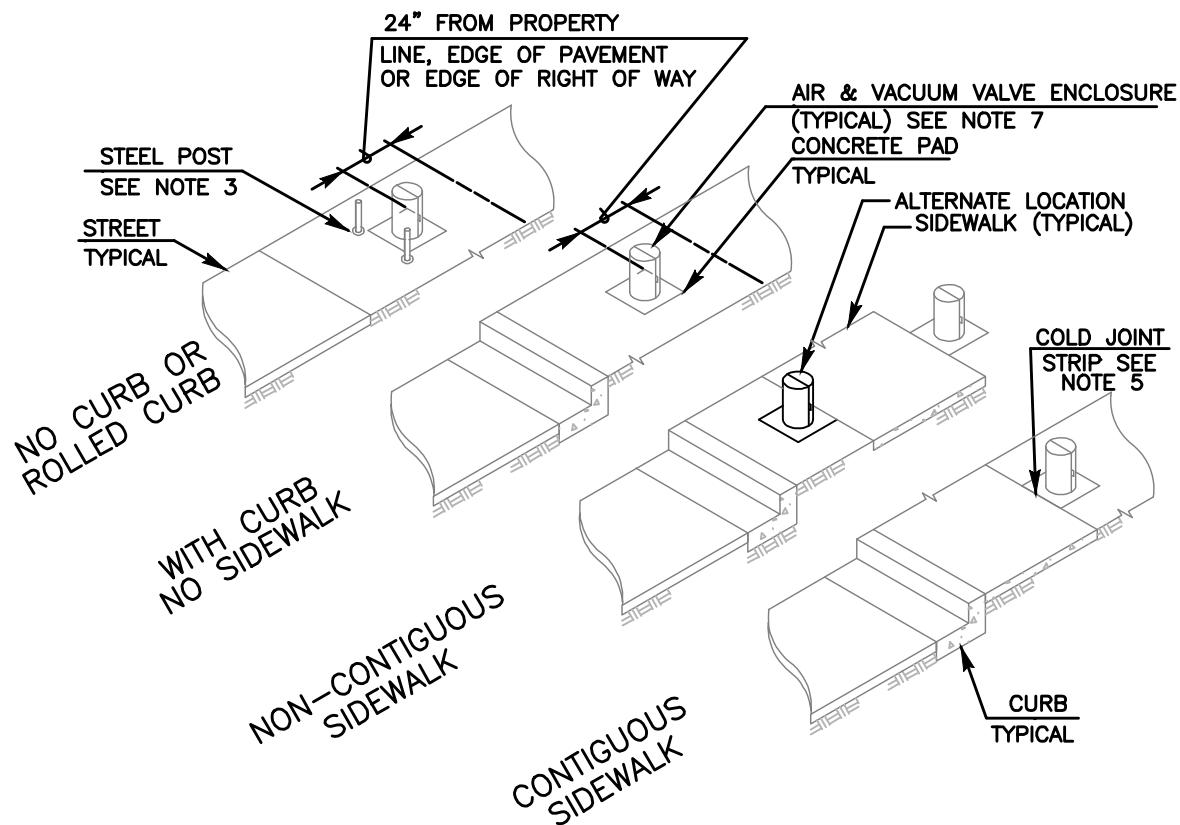
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) NO DIPS OR LOW SPOTS WILL BE ALLOWED IN PIPING INSTALLATION
- 3) LOCATE ENCLOSURE AS SHOWN ON WA-06
- 4) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 5) BREAK-AWAY BOLTS SHALL BE 5/8" x 3" WITH 3/8" HOLE DRILLED IN THE SHAFT OF THE BOLT. INSTALL WITH NUTS ON TOP OF THE FLANGE. BOLT SHAFT SHALL BE FILLED WITH SILICONE SEALANT
- 6) AIR & VACUUM VALVES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 7) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST




ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	4" OR 6" AUTOMATIC COMBINATION AIR RELEASE & AIR/VACUUM VALVE ASSEMBLY	⑩	CONCRETE THRUST/ANCHOR BLOCK SEE WT-01
②	BREAK-AWAY BOLTS, SEE NOTE 5	⑪	4" OR 6" FLG x MJ/PO 90° BEND
③	4" OR 6" FLANGED 8-BOLT DUCTILE IRON PIPE x REQ'D LENGTH (MAX OF 2 SPOOLS)	⑫	4" OR 6" C-900 PVC PIPE
④	5/8" x 3" STAINLESS STEEL DROP-IN ANCHORS (3 EA @ 120° APART)	⑬	GATE WELL WITH CAP SEE WV-01 OR WV-02
⑤	VALVE ENCLOSURE	⑭	4" OR 6" FLG x MJ/PO/FLG RWGV
⑥	TRACER WIRE (AS REQUIRED), SEE WP-01	⑮	4" OR 6" FLG x MJ/PO ADAPTER (IF REQUIRED)
⑦	42" x 42" x 6" THICK CONCRETE SLAB	⑯	4" OR 6" FLANGE 90° BEND
⑧	COLD JOINT STRIP	⑰	SIZE x 4" OR 6" MJ/PO/FLG x FLG TEE
⑨	1" PVC CONDUIT FOR TRACER WIRE INSTALLED 2" ABOVE SLAB	⑱	WATER MAIN

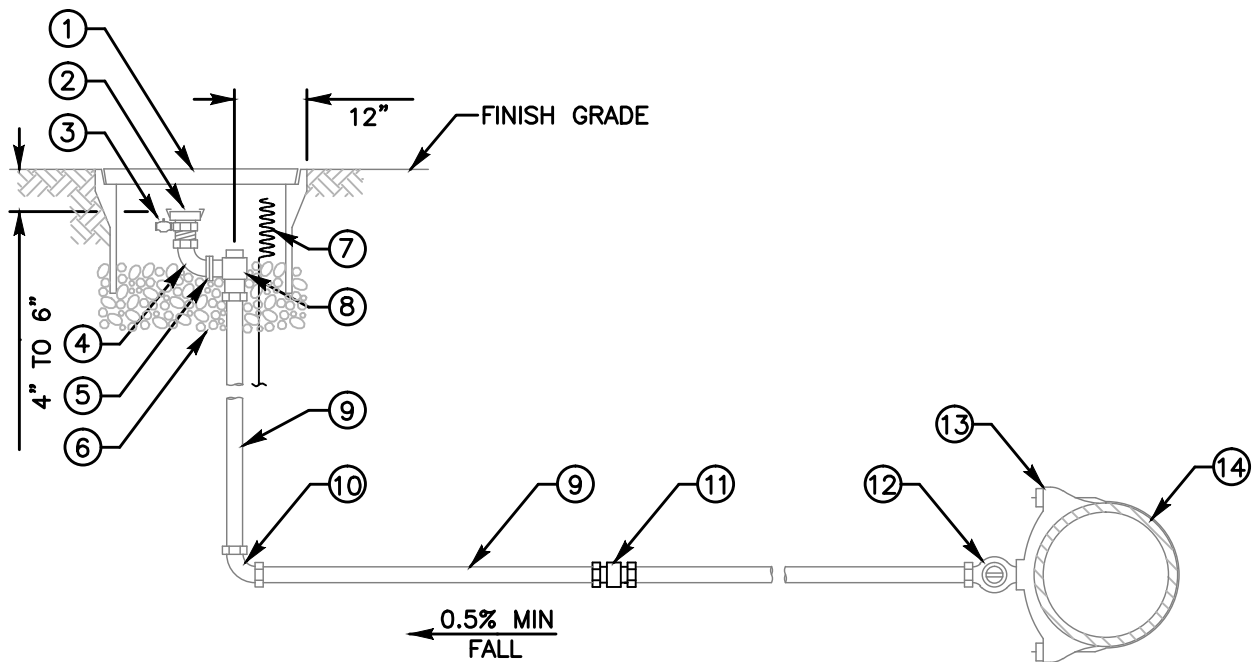
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 4" & 6" AUTOMATIC COMBINATION AIR RELEASE & AIR/VACUUM VALVE INSTALLATIONS	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE <i>T. Stanton</i> 7/26/2012 Chairperson R.C.E. 19246 Date
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03		
Replaced W-05		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER WA-04



NOTES:

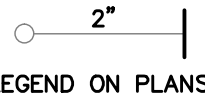
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) REFER TO WA-02 AND WA-04
- 3) PROTECTION POSTS SHALL BE INSTALLED AS CALLED FOR ON THE PLANS OR AS DIRECTED BY THE ENGINEER PER WM-04
- 4) AN EASEMENT MAY BE NEEDED DEPENDING ON LOCATION OF ENCLOSURE
- 5) IF THE CONCRETE SLAB IS TO BE INSTALLED ADJACENT TO A CONCRETE CURB OR SIDEWALK A COLD JOINT STRIP SHALL BE INSTALLED
- 6) AIR & VACUUM VALVES & APPURTENANCES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN THE AGENCY'S SPECIFICATIONS
- 7) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03	AIR & VACUUM VALVE ENCLOSURE LOCATIONS	 7/26/2012 Chairperson R.C.E. 19246 Date
Replaced W-14		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER WA-06




NOTES:

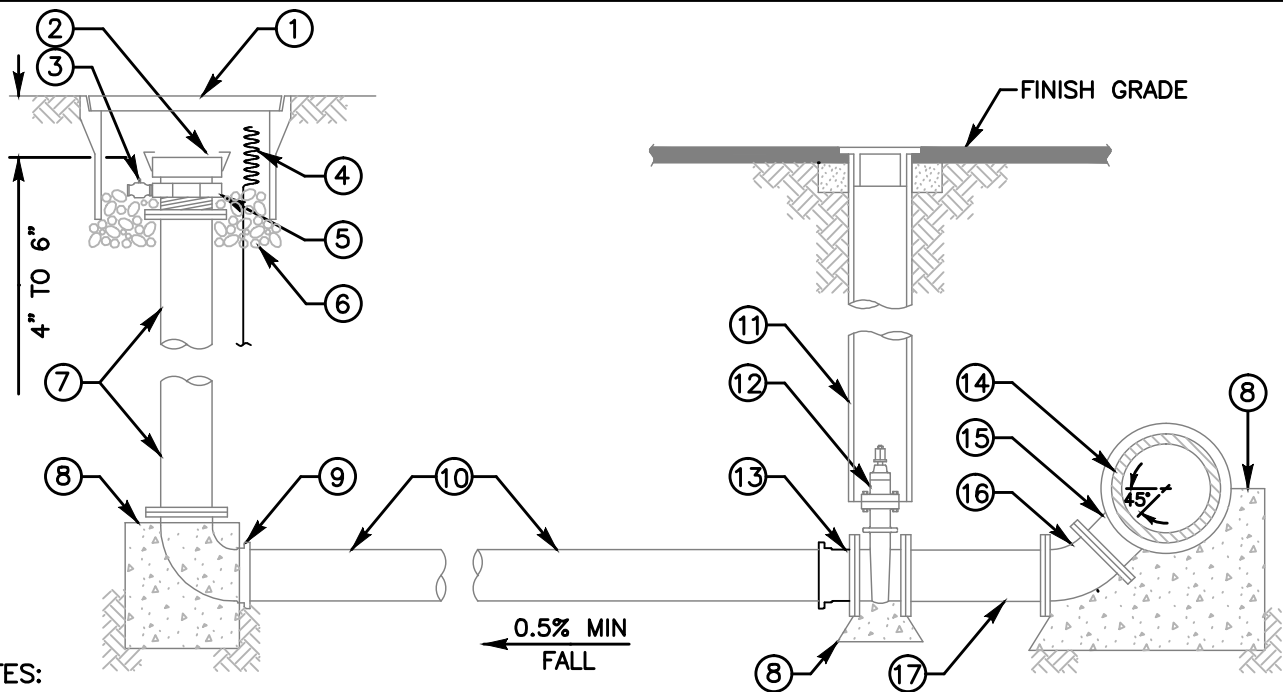
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) SET TOP OF METER BOX FLUSH WITH SIDEWALK, CURB OR FINISH GRADE
- 3) LOCATE METER BOX AS SHOWN ON WS-03
- 4) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 5) FOR BLOW-OFF INSTALLATION AT END OF MAIN SEE WB-04
- 6) BLOW-OFF ASSEMBLIES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 7) ON STEEL MAINS USE WELD ON COUPLINGS, ON DUCTILE IRON MAINS USE DUCTILE IRON SERVICE SADDLES (INSULATING BUSHINGS ARE REQUIRED)
- 8) CAM & GROOVE ADAPTER SHALL BE DRILLED AND TAPPED AS REQUIRED FOR THE PRESSURE PET COCK
- 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



LEGEND ON PLANS

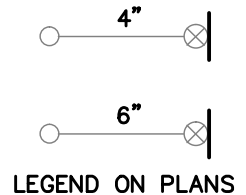
ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	POLYMER METER BOX WITH LID 17" x 30", SEE NOTE 3	⑧	2" BRONZE COMP x FLG ANGLE METER STOP WITH LOCK WING
②	2" CAM & GROOVE ADAPTER x MIPT WITH LOCKING DUST CAP, SEE NOTE 8	⑨	2" x REQUIRED LENGTH COPPER PIPE TYPE "K" RIGID OR SOFT
③	1/4" PRESSURE PET COCK	⑩	2" 90° BRONZE COMPRESSION ELL
④	2" 90° BRONZE MIPT x FIPT ELL	⑪	2" BRONZE COMPRESSION COUPLING COPPER TO COPPER (IF REQUIRED)
⑤	2" OVAL METER FLANGE FLG x FIPT, WITH GASKET	⑫	2" BRONZE MIPT x COMP CORPORATION STOP
⑥	3/8" ROCK 4" TO 6" DEEP	⑬	SIZE x 2" SERVICE SADDLE
⑦	TRACER WIRE (AS REQUIRED), SEE WP-01	⑭	WATER MAIN

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 2" BLOW-OFF INSTALLATION	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012 Chairperson R.C.E. 19246 Date
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03		
Replaced W-06		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER WB-01




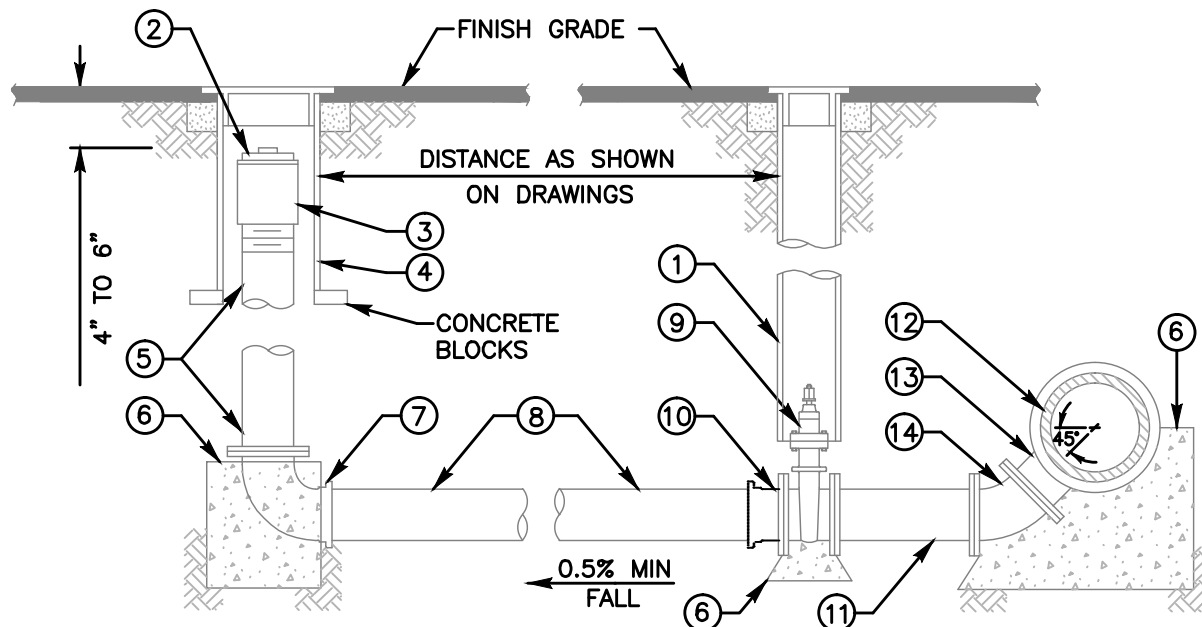
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) SET TOP OF METER BOX FLUSH WITH SIDEWALK, CURB OR FINISH GRADE
- 3) LOCATE METER BOX AS SHOWN ON WS-03
- 4) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 5) FOR BLOW-OFF INSTALLATION AT END OF MAIN SEE WB-04
- 6) BLOW-OFF ASSEMBLIES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 7) 45° BEND SHALL BE USED FOR MAINS UP TO 30". 90° BEND SHALL BE USED FOR MAINS IN EXCESS OF 30" AS DIRECTED BY THE ENGINEER
- 8) CAM & GROOVE ADAPTER SHALL BE DRILLED AND TAPPED AS REQUIRED FOR THE PRESSURE PET COCK
- 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



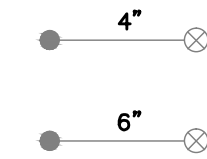
ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	POLYMER METER BOX WITH LID 17" x 30", SEE NOTE 3	⑨	4" OR 6" FLG x MJ/PO 90° BEND
②	4" OR 6" CAM & GROOVE ADAPTER x MIPT WITH LOCKING DUST CAP, SEE NOTE 8	⑩	4" OR 6" C-900 PVC PIPE
③	1/4" PRESSURE PET COCK	⑪	GATE WELL WITH CAP SEE WV-01 OR WV-02
④	TRACER WIRE (AS REQUIRED), SEE WP-01	⑫	4" OR 6" FLG x MJ/PO/FLG RWGV
⑤	4" OR 6" FLANGED COMPANION x FIPT	⑬	4" OR 6" FLG x MJ/PO ADAPTER (IF REQUIRED)
⑥	3/8" ROCK 4" TO 6" DEEP	⑭	WATER MAIN
⑦	4" OR 6" FLG DI PIPE x REQUIRED LENGTH (MAXIMUM OF 2 SPOOLS)	⑮	SIZE x 4" OR 6" MJ/PO/FLG x FLG TEE
⑧	CONCRETE THRUST BLOCK SEE WT-01	⑯	4" OR 6" FLANGED 45° BEND
		⑰	4" OR 6" x 24" FLG DI SPOOL

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03	4" & 6" BLOW-OFF INSTALLATION TYPE A	 Chairperson R.C.E. 19246 Date
Replaced W-08		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER WB-02




NOTES:

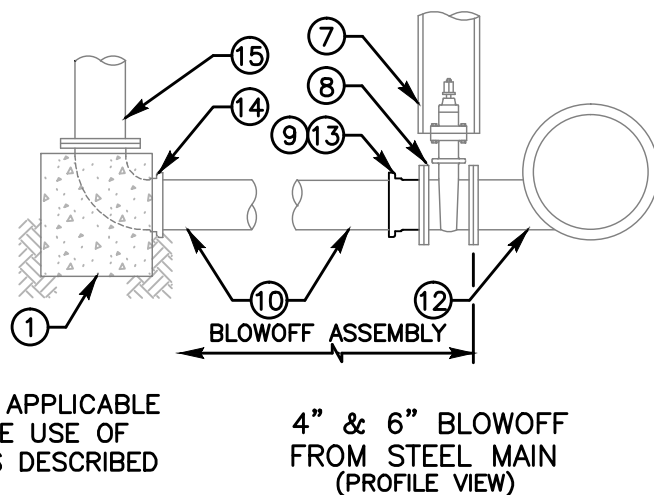
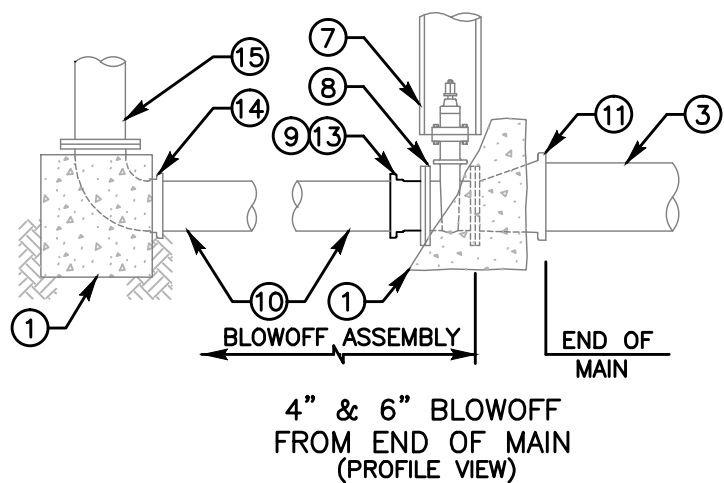
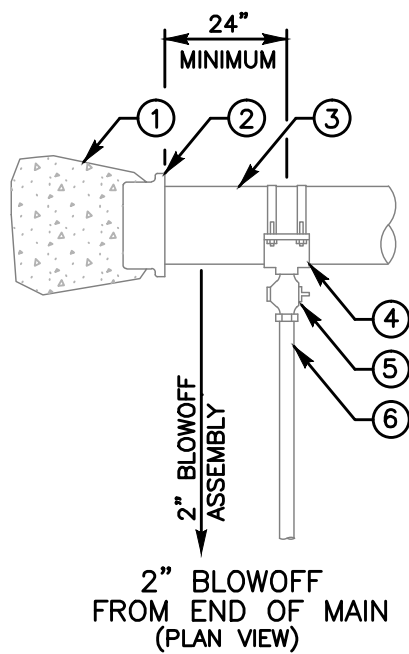
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) FOR BLOW-OFF INSTALLATION AT END OF MAIN SEE WB-04
- 3) BLOW-OFF ASSEMBLIES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 4) ON STEEL MAINS USE WELD ON COUPLINGS, ON DUCTILE IRON MAINS USE DUCTILE IRON SERVICE SADDLES (INSULATING BUSHINGS ARE REQUIRED)
- 5) 45° BEND SHALL BE USED FOR MAINS UP TO 30". 90° BEND SHALL BE USED FOR MAINS IN EXCESS OF 30" AS DIRECTED BY THE ENGINEER
- 6) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	GATE WELL WITH CAP SEE WV-01 OR WV-02	⑧	4" OR 6" C-900 PVC PIPE
②	GALVANIZED IRON PLUG	⑨	4" OR 6" FLG x MJ/PO/FLG RWGV
③	GALVANIZED IRON COUPLING, THREADED	⑩	4" OR 6" FLG x MJ/PO ADAPTER (IF REQUIRED)
④	10" STEEL GATE WELL WITH CAP	⑪	4" OR 6" x 24" FLG DI SPOOL
⑤	4" OR 6" FLG DI PIPE x REQUIRED LENGTH (MAXIMUM OF 2 SPOOLS)	⑫	WATER MAIN
⑥	CONCRETE THRUST BLOCK SEE WT-01	⑬	SIZE x 4" OR 6" MJ/PO/FLG x FLG TEE
⑦	4" OR 6" FLG x MJ/PO 90° BEND	⑭	4" OR 6" FLANGED 45° BEND, SEE NOTE 5


Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			
Add Metric		T. Stanton	03/03		 7/26/2012	
Replaced W-09		J. Tomasulo	10/04			Chairperson R.C.E. 19246 Date
Delete Metric	MR	B. KNOLL	03/11			
					DRAWING NUMBER WB-03	

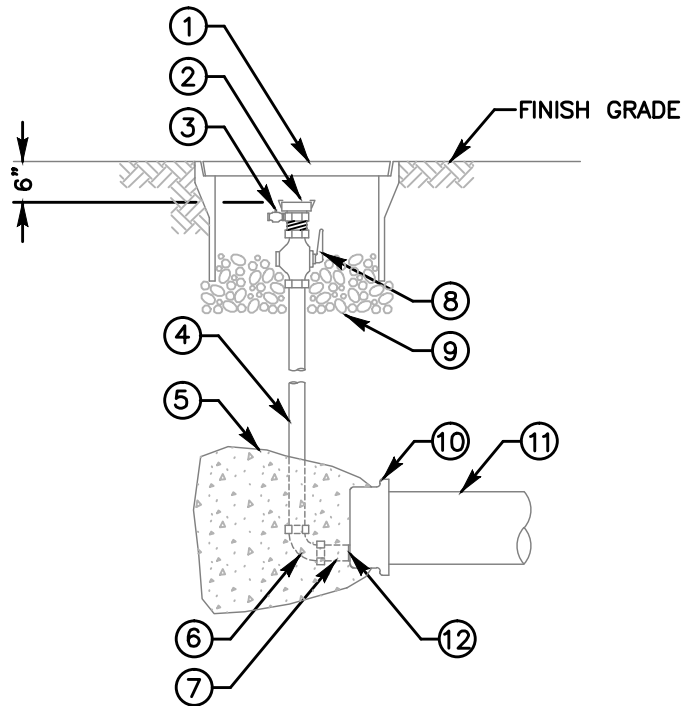


NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) BLOW-OFF ASSEMBLIES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 3) FOR 2" BLOW-OFFS ON STEEL MAINS USE WELD ON COUPLINGS, ON DUCTILE IRON MAINS USE DUCTILE IRON SERVICE SADDLES (INSULATING BUSHINGS ARE REQUIRED)
- 4) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	CONCRETE THRUST BLOCKS SEE WT-01	⑧	FLG x MJ/PO/FLG RWGV
②	DI END CAP	⑨	FLG x MJ/PO ADAPTER (IF REQUIRED)
③	WATER MAIN	⑩	C-900 PVC PIPE
④	SIZE x 2" SERVICE SADDLE	⑪	FLG x MJ/PO ECCENTRIC DI REDUCER
⑤	2" BRONZE MIPT x COMP CORPORATION STOP	⑫	MAIN SIZE x BLOWOFF SIZE FLANGE MANUFACTURED STEEL TANGENTIAL OUTLET
⑥	2" x REQ'D LENGTH COPPER PIPE TYPE "K" RIGID OR SOFT	⑬	FLG x MJ/PO BEND (IF REQUIRED)
⑦	GATE WELL WITH CAP SEE WV-01 & WV-02	⑭	FLG x MJ/PO 90° BEND
		⑮	FLG DI PIPE x REQUIRED LENGTH (MAXIMUM OF 2 SPOOLS)

Revision	By	Approved	Date	<div>SAN DIEGO REGIONAL STANDARD DRAWING</div> <div>BLOW-OFF INSTALLATION FROM END OF MAINS AND FROM STEEL MAINS</div>	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03		
Replaced W-07		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					<div><div> Chairperson R.C.E. 19246</div><div>7/26/2012 Date</div></div>
					<div>DRAWING NUMBER</div> <div>WB-04</div>



NOTES:

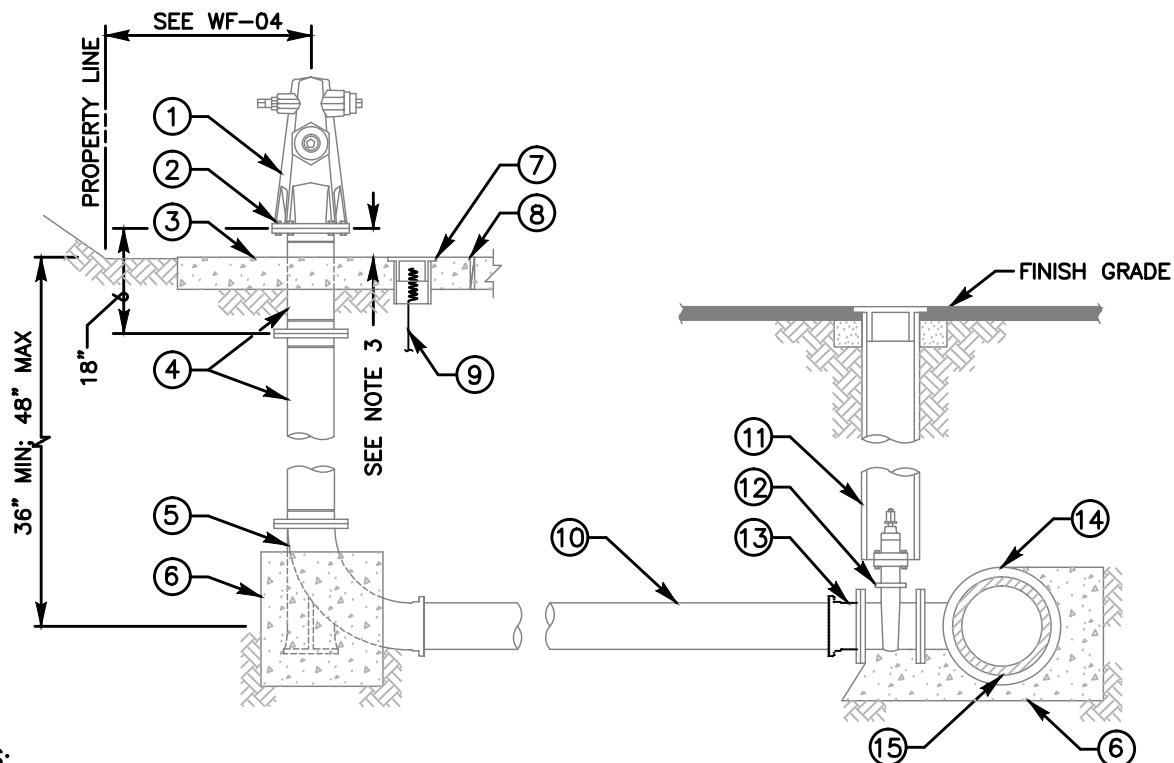
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) SET TOP OF METER BOX 2" ABOVE FINISH GRADE
- 3) BLOW-OFF ASSEMBLIES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 4) THE CONSTRUCTION OF A TEMPORARY BLOW-OFF FOR THE USE OF TESTING AND FLUSHING OF NEW MAINS ONLY
- 5) CAM & GROOVE ADAPTER SHALL BE DRILLED AND TAPPED AS REQUIRED FOR THE PRESSURE PET COCK
- 6) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

TEMP 2"

 LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	POLYMER METER BOX WITH LID 17" x 30"	⑥	2" 90° BRONZE IRON PIPE THREAD BY COMPRESSION ELL
②	2" CAM & GROOVE ADAPTER x MIPT WITH LOCKING DUST CAP, SEE NOTE 5	⑦	2" CLOSE NIPPLE IPT
③	1/4" PRESSURE PET COCK	⑧	2" COMPRESSION x FIPT BALL VALVE WITH HANDLE
④	2" x REQUIRED LENGTH COPPER PIPE TYPE "K" RIGID OR SOFT	⑨	3/8" ROCK 6" DEEP
⑤	CONCRETE THRUST BLOCK SEE WT-01	⑩	DI END CAP WITH 2.5" FIPT OUTLET
		⑪	WATER MAIN
		⑫	NYLON DIELECTRIC BUSHING (2.5" x 2")

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING TEMPORARY 2" BLOW-OFF INSTALLATION	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE Chairperson R.C.E. 19246 Date 7/26/2012
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03		
Replaced W-07		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER WB-05



NOTES:

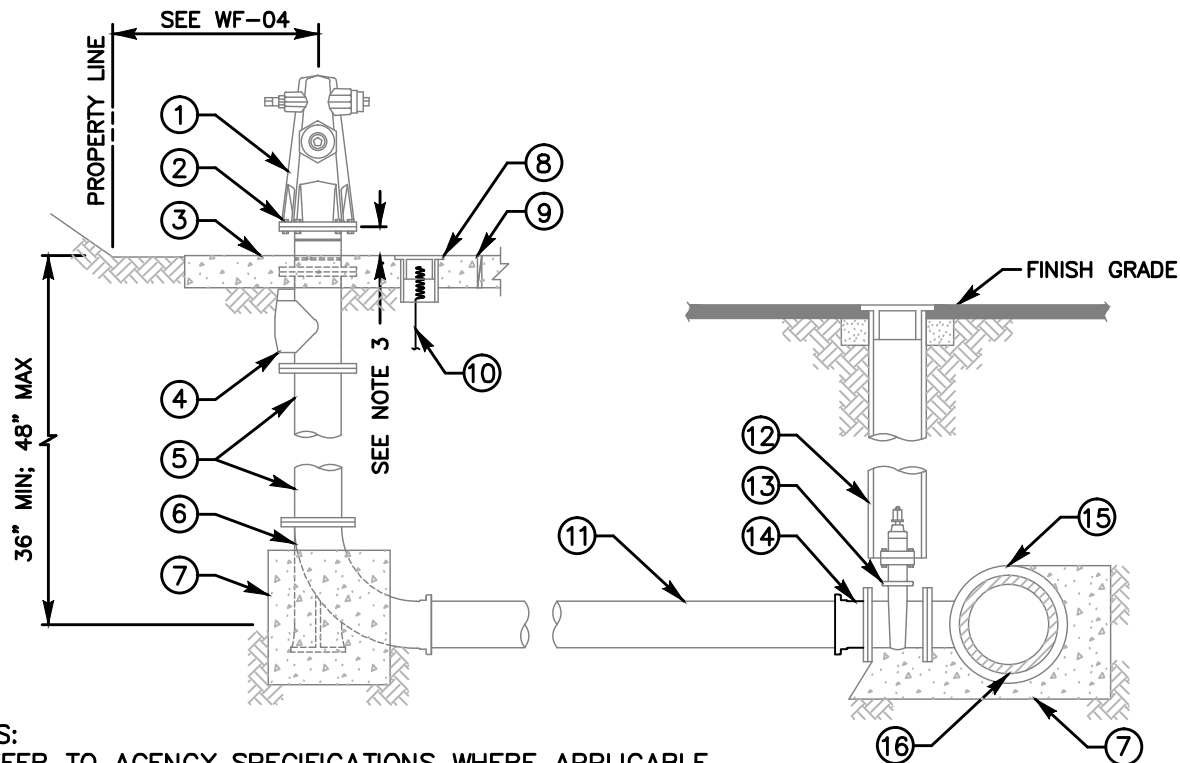
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) THE NUMBER OF OUTLETS SHALL BE AS SHOWN ON PLANS
- 3) FIRE HYDRANT FLANGE SHALL BE 6" \pm 1" ABOVE TOP OF CURB OR SPLASH PAD SEE PLANS FOR ELEVATION
- 4) LOCATE FIRE HYDRANT AS SHOWN ON WF-04
- 5) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 6) FIRE HYDRANT FLANGE BOLTS SHALL BE BREAK AWAY BOLTS INSTALLED WITH NUTS ON TOP OF THE FLANGE. BOLT SHAFT SHALL BE FILLED WITH SILICONE SEALANT
- 7) CONNECTIONS TO STEEL MAINS WILL BE MADE IN ACCORDANCE WITH AGENCY'S SPECIFICATIONS
- 8) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



LEGEND ON PLANS

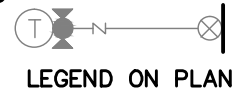
ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	6" FIRE HYDRANT SEE NOTE 2	⑧	COLD JOINT STRIP
②	BREAK-AWAY BOLTS, SEE NOTE 6	⑨	TRACER WIRE (AS REQUIRED) PER WP-01
③	4' x 4' x 6" THICK CONCRETE SPLASH PAD	⑩	6" C-900 PVC PIPE
④	6" FLANGE DI HYDRANT EXTENSION SPOOL(S) WITH BREAK OFF GROOVES (MAXIMUM OF 2 SPOOLS)	⑪	GATE WELL WITH CAP SEE WV-01 OR WV-02
⑤	6" x 16" LONG RADIUS FLG x MJ/PO BURY ELL	⑫	6" FLG x MJ/PO/FLG RWGV
⑥	CONCRETE THRUST BLOCK SEE WT-01	⑬	6" FLG x MJ/PO ADAPTER (IF REQUIRED)
⑦	TRACER WIRE ACCESS PORT, 4" x 8" LONG SDR 35 SEWER PIPE W/ CAP (AS-REQUIRED)	⑭	SIZE x 6" MJ/PO/FLG x FLG TEE
		⑮	WATER MAIN

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 6" FIRE HYDRANT INSTALLATION	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03		
Replaced W-10		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					 Chairperson R.C.E. 19246 Date 7/26/2012
					DRAWING NUMBER WF-01



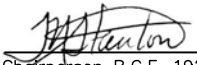
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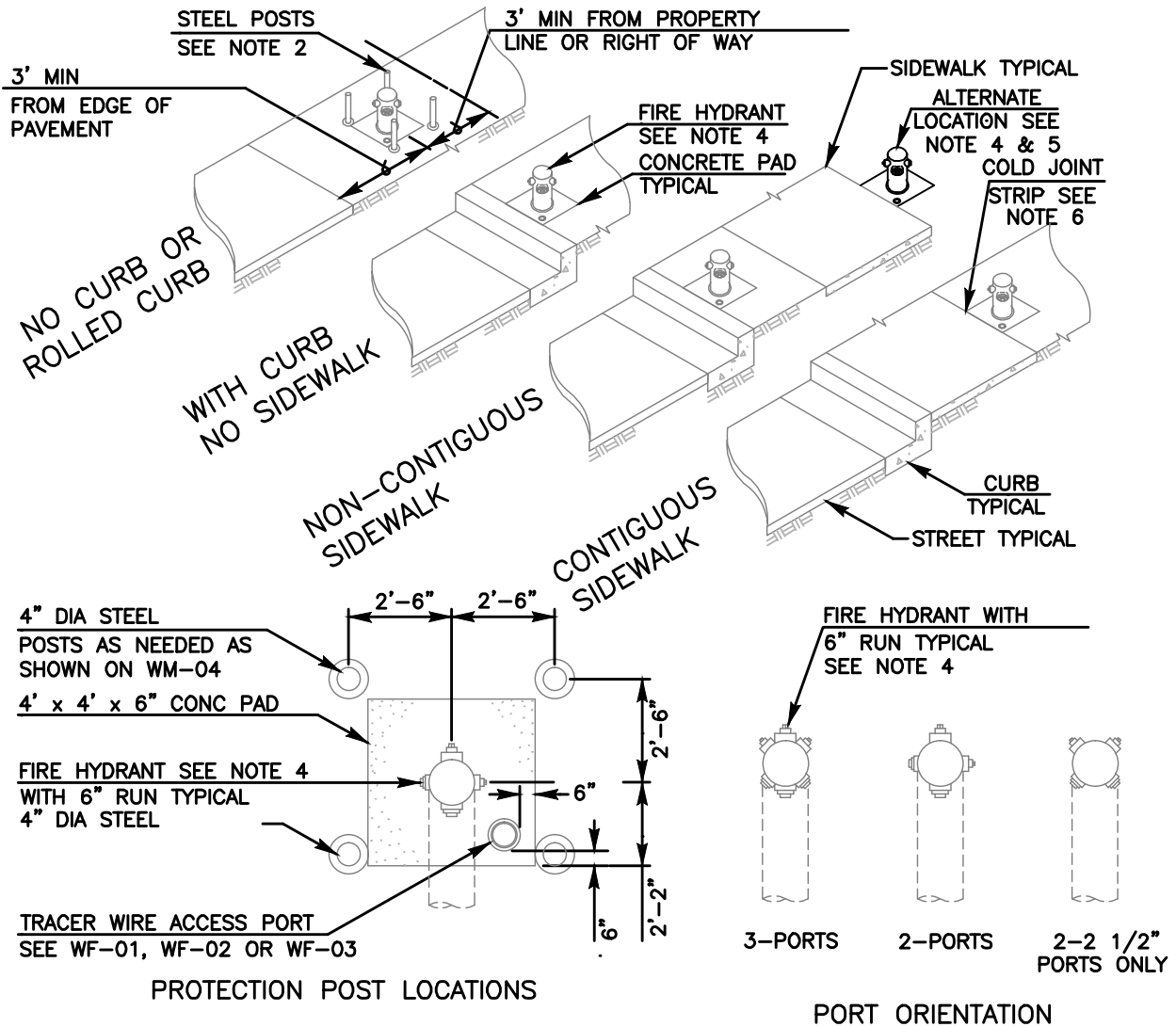
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) THE NUMBER OF OUTLETS SHALL BE AS SHOWN ON PLANS
- 3) TOP FLANGE OF BREAK-OFF CHECK VALVE SHALL BE SET WITHIN THE CONCRETE PAD. BREAK OFF GROOVE, MINIMUM OF ONE, SHALL BE PLACED ABOVE THE PAD
- 4) LOCATE FIRE HYDRANT AS SHOWN ON WF-04
- 5) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 6) FIRE HYDRANT FLANGE BOLTS SHALL BE A307 ZINC-PLATED BOLTS INSTALLED WITH NUTS ON TOP OF THE FLANGE. BREAK AWAY BOLTS SHALL NOT BE USED
- 7) CONNECTIONS TO STEEL MAINS WILL BE MADE IN ACCORDANCE WITH AGENCY'S SPECIFICATIONS
- 8) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	6" FIRE HYDRANT SEE NOTE 2	⑨	COLD JOINT STRIP
②	BOLTS, SEE NOTE 6	⑩	TRACER WIRE (AS REQUIRED) PER WP-01
③	4' x 4' x 8" THICK CONCRETE SPLASH PAD	⑪	6" C-900 PVC PIPE
④	6" BREAK-OFF CHECK VALVE	⑫	GATE WELL WITH CAP SEE WV-01 OR WV-02
⑤	6" FLANGE DI SPOOL(S) (MAXIMUM OF 2 SPOOLS) NO GROOVES	⑬	6" FLG x MJ/PO/FLG RWGV
⑥	6" x 16" LONG RADIUS FLG x MJ/PO BURY ELL	⑭	6" FLG x MJ/PO ADAPTER (IF REQUIRED)
⑦	CONCRETE THRUST BLOCK SEE WT-01	⑮	SIZE x 6" MJ/PO/FLG x FLG TEE
⑧	TRACER WIRE ACCESS PORT, 4" x 8" LONG SDR 35 SEWER PIPE W/ CAP (AS-REQUIRED)	⑯	WATER MAIN

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 6" FIRE HYDRANT INSTALLATION WITH BREAK-OFF CHECK VALVE	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012 Chairperson R.C.E. 19246 Date
ORIGINAL		Kercheval	12/75		DRAWING NUMBER WF-02
Add Metric		T. Stanton	03/03		
Replaced W-10		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		



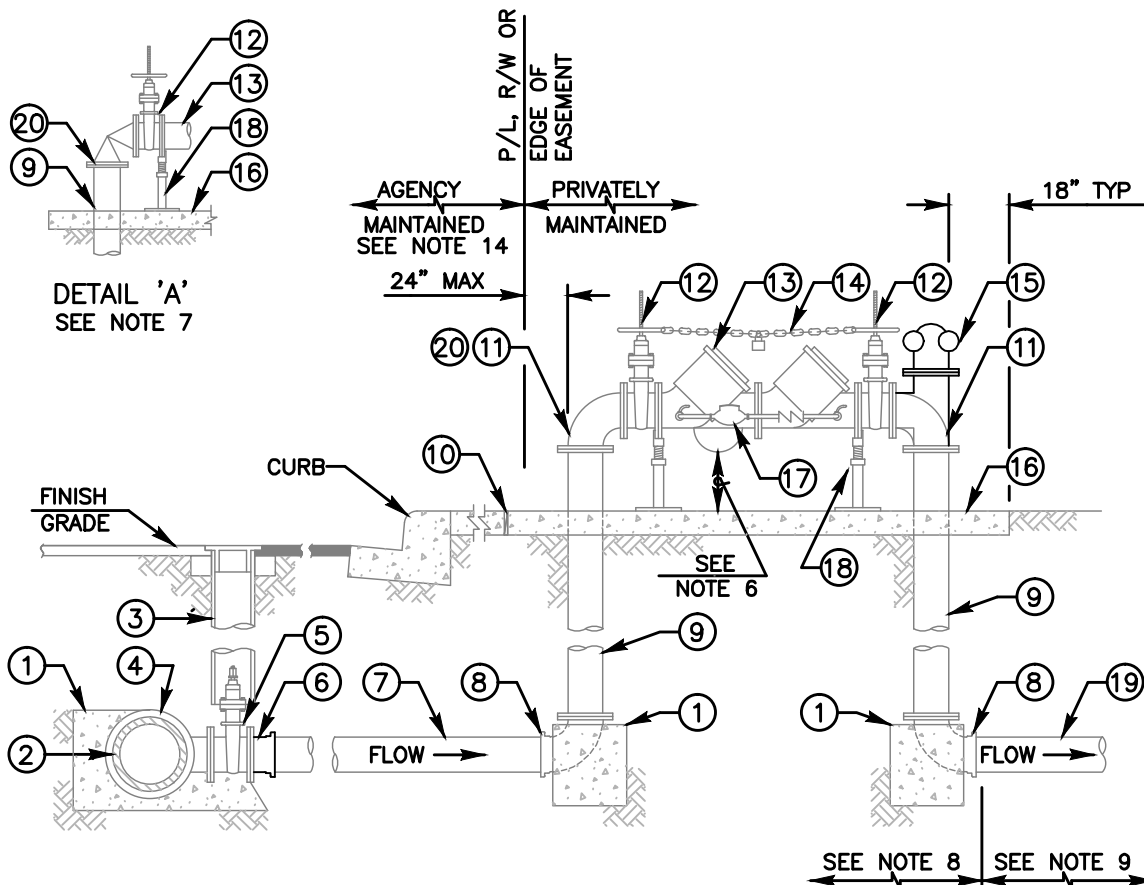
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) PROTECTION POSTS SHALL BE INSTALLED AS CALLED FOR ON THE PLANS OR AS DIRECTED BY THE ENGINEER PER WM-04
- 3) LOCATE FIRE HYDRANT AS SHOWN ABOVE OR AS DIRECTED BY THE ENGINEER
- 4) FIRE HYDRANTS SHALL BE INSTALLED WITH THE LARGEST PORT PERPENDICULAR TO THE STREET
- 5) AN EASEMENT MAY BE NEEDED DEPENDING ON LOCATION OF FIRE HYDRANT
- 6) IF THE CONCRETE SLAB IS TO BE INSTALLED ADJACENT TO A CONCRETE CURB OR SIDEWALK A COLD JOINT STRIP SHALL BE INSTALLED
- 7) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



LEGEND ON PLANS


Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	FIRE HYDRANT LOCATIONS AND PORT ORIENTATION		
Add Metric		T. Stanton	03/03			
Replaced W-11		J. Tomasulo	10/04			
Delete Metric	MR	B. KNOLL	03/11			
						 7/26/2012 Chairperson R.C.E. 19246 Date
						DRAWING NUMBER WF-04



FOR NOTES REGARDING THE INSTALLATION OF
FIRE SERVICES SEE WF-05 SHEET 2 OF 2

RPFS 
LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	CONCRETE THRUST BLOCK SEE WT-01	⑬	RPDA UNLESS OTHERWISE SPECIFIED BY AGENCY OF JURISDICTION SEE NOTE 4
②	WATER MAIN	⑭	CHAIN WITH KNOX LOCK SEE NOTE 4
③	GATE WELL WITH CAP SEE WV-01 OR WV-02	⑮	FLANGED TEE WITH "FDC" SEE NOTE 4
④	SIZE x SIZE MJ/PO/FLG x FLG TEE	⑯	CONCRETE SLAB AS REQUIRED BY AGENCY OF JURISDICTION. MINIMUM 4" THICK x 36" WIDE x AS REQUIRED
⑤	FLG x MJ/PO/FLG RWGV	⑰	3/4" BYPASS, METER & RP DEVICE
⑥	FLG x MJ/PO ADAPTER (IF REQUIRED)	⑱	ADJUSTABLE VALVE SUPPORT
⑦	C-900 PVC PIPE	⑲	PVC OR DI PIPE SEE NOTE 9
⑧	MJ/PO x FLG 90° BEND	⑳	FLANGED ANGLE PRESSURE REDUCING VALVE SEE NOTE 7
⑨	FLANGED DUCTILE IRON PIPE		
⑩	COLD JOINT STRIP		
⑪	FLANGED 90° BEND, SEE NOTE 7		
⑫	FLANGED OS&Y RWGV WITH HAND WHEEL		

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 4" AND LARGER FIRE SERVICE INSTALLATION	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012 Chairperson R.C.E. 19246 Date DRAWING NUMBER WF-05 (1 OF 2)
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03		
Replaced W-26		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		

NOTES:

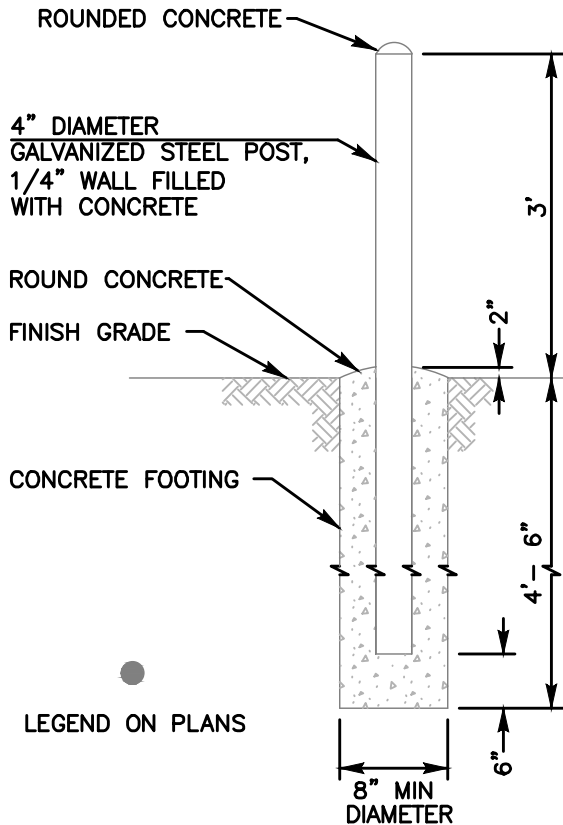
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 3) LOCATION OF FIRE SERVICES SHALL BE AS DIRECTED BY THE FIRE DEPARTMENT OF JURISDICTION. FIRE SERVICES SHOULD BE LOCATED IN SUCH A MANNER THAT WILL ALLOW THE DEVICE TO BE READILY ACCESSIBLE FOR INSPECTION, REPAIR, AND USAGE
- 4) TAMPER SWITCH, AUTOMATIC RESET, CHAIN WITH KNOX LOCK, AND FIRE DEPARTMENT CONNECTION ("FDC") SHALL BE AS REQUIRED BY THE FIRE DEPARTMENT OF JURISDICTION
- 5) BALL VALVE TEST COCKS SHALL BE PROVIDED AND LOCATED PER THE MANUFACTURES RECOMMENDATIONS AND THE REQUIREMENTS OF THE WATER AGENCY STANDARDS
- 6) INSTALL FIRE SERVICES SO THAT THE DISTANCE BETWEEN THE BOTTOM OF THE RELIEF DIAPHRAM AND THE CONCRETE SLAB OR FINISH GRADE IS 12" MINIMUM AND 24" MAXIMUM
- 7) INSTALL AN ANGLE PRESSURE REDUCING VALVE IN LIEU OF THE FIRST 90° BEND WHEN SYSTEM STATIC PRESSURE EXCEEDS 150 PSI OR WHEN RECOMMENDED BY THE BACKFLOW MANUFACTURER
- 8) INSTALL PIPE AND RELATED APPURTENANCES IN THIS AREA PER THE REQUIREMENTS OF THE WATER AGENCY STANDARDS
- 9) INSTALL PIPE AND RELATED APPURTENANCES IN THIS AREA AS REQUIRED BY THE FIRE DEPARTMENT OF JURISDICTION
- 10) ABOVE GROUND APPURTENANCES SHALL BE PAINTED AND IDENTIFIED AS CALLED FOR BY THE FIRE DEPARTMENT OF JURISDICTION
- 11) TESTING SHALL BE CONDUCTED AS CALLED FOR IN AGENCY'S SPECIFICATIONS PRIOR TO ACCEPTANCE BY THE DISTRICT
- 12) CONNECTIONS TO STEEL MAINS SHALL BE IN ACCORDANCE WITH AGENCY'S SPECIFICATIONS
- 13) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST
- 14) AGENCY RESPOSIBILITY ENDS AT EDGE OF PROPERTY LINE, RIGHT OF WAY, OR EASEMENT.

FOR DETAILS REGARDING THE INSTALLATION OF
FIRE SERVICES SEE WF-05 SHEET 1 OF 2

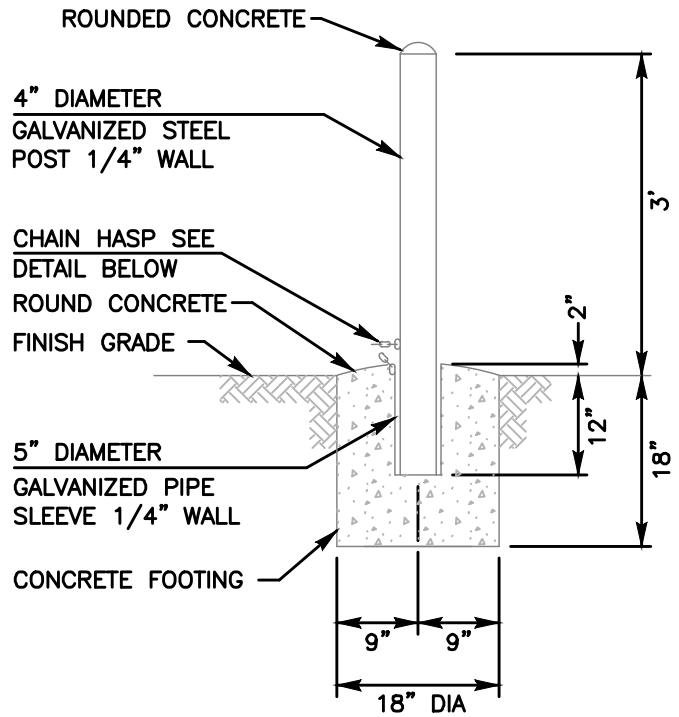


LEGEND ON PLANS

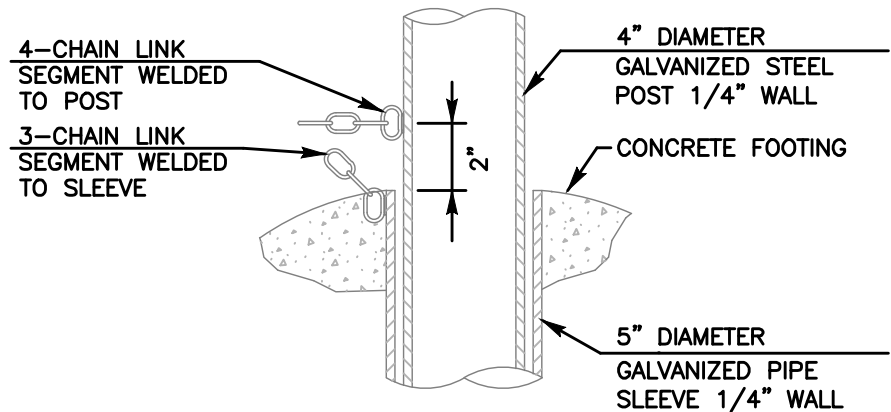
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 4" AND LARGER FIRE SERVICE INSTALLATION NOTES	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		 7/26/2012 Chairperson R.C.E. 19246 Date
Add Metric		T. Stanton	03/03		
Replaced W-26		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER WF-05 (2 OF 2)



PROTECTION POST
TYPE "A"



DEMOUNTABLE PROTECTION POST
TYPE "B"

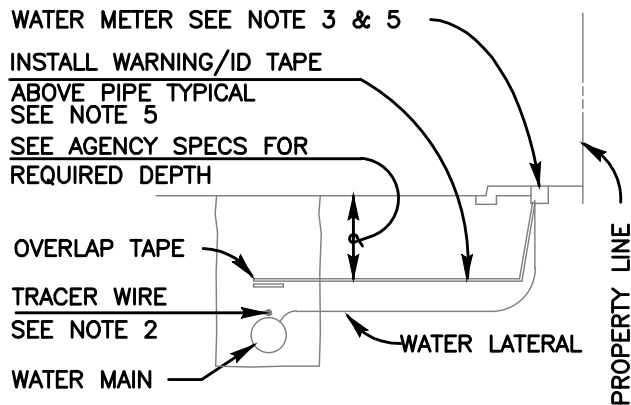


CHAIN HASP DETAIL

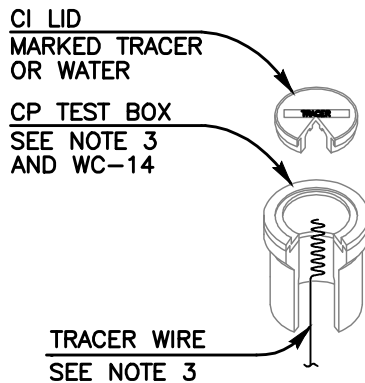
NOTES:

- 1) TYPE "A" AND TYPE "B" PROTECTION POSTS SHALL BE INSTALLED WHERE INDICATED ON THE APPROVED PLANS OR AS DIRECTED BY THE ENGINEER. SDG&E REQUIREMENTS DICTATE IN AREAS OF SDG&E EQUIPMENT
- 2) CHAIN TO BE 1/4" PROOF COIL CHAIN GALVANIZED STEEL. WELD 4-LINK SEGMENT TO POST AND 3-LINK SEGMENT TO SLEEVE
- 3) TYPE "A" AND TYPE "B" PROTECTION POSTS SHALL BE COATED USING SAFETY YELLOW IN ACCORDANCE WITH AGENCY'S STANDARDS

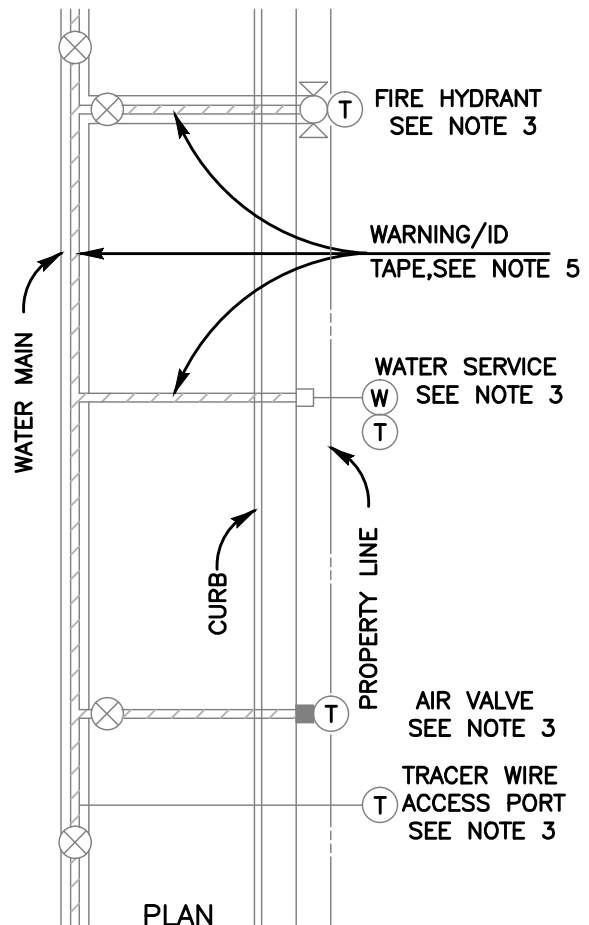
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03	PROTECTION POST INSTALLATION	 7/26/2012 Chairperson R.C.E. 19246 Date
Replaced W-16		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER WM-04



SECTION AT WATER LATERALS



TRACER WIRE ACCESS PORT (CP BOX)
DETAIL

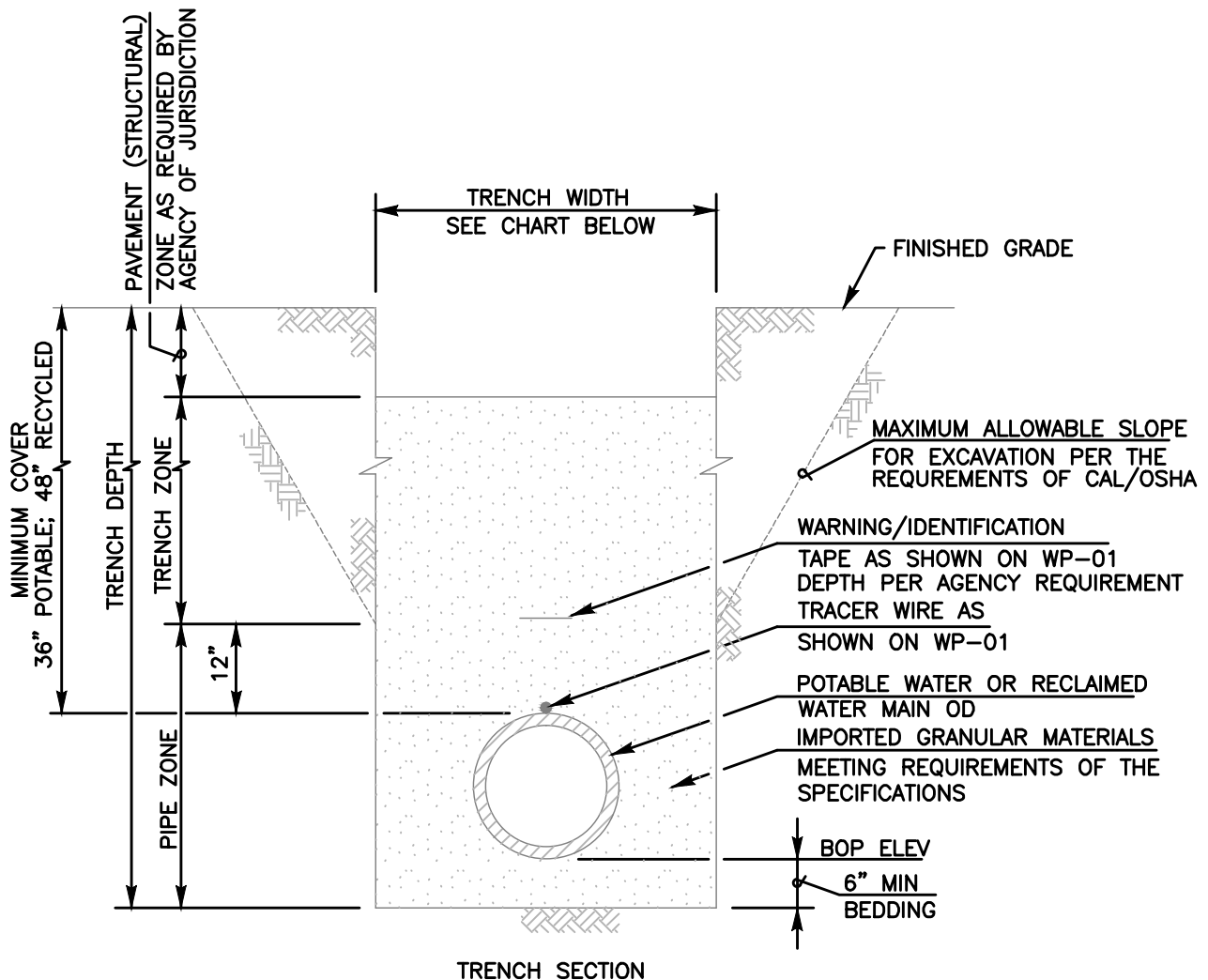


NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) WHERE SPECIFIED, TRACER WIRE AND OR WARNING ID TAPE, TO RUN CONTINUOUSLY ALONG THE ENTIRE LENGTH OF WATER MAINS. WIRE SHALL BE SECURED TO THE PIPE AND MAINTAINED ON PIPE CENTERLINE DURING TRENCH BACKFILL
- 3) TRACER WIRE ACCESS PORTS SHALL BE INSTALLED WITHIN THE CONCRETE SPLASH PAD OF ALL FIRE HYDRANTS IN ACCORDANCE WITH THE STANDARD DRAWINGS. TRACER WIRE MAY TERMINATE WITHIN METER BOX, BLOWOFF BOX OR AIR VALVE PER AGENCY'S SPECIFICATIONS. TRACER WIRE MAY TERMINATE IN A CP TEST BOX ONLY IF NO OTHER APPURTENANCE EXISTS WITHIN THE REQUIRED 1,000' INTERVAL. ALL BURIED WIRES THAT REQUIRE TRENCHING TO A TEST BOX LOCATION SHALL BE INSTALLED, WITHOUT SPLICE, IN A CONDUIT IN THE TRENCH AT A MINIMUM DEPTH OF 24"
- 4) WIRE SPLICE CONNECTORS SHALL BE SILICONE FILLED TYPE
- 5) WARNING/IDENTIFICATION TAPE SHALL BE INSTALLED ABOVE THE PIPE AS SPECIFIED AND RUN CONTINUOUSLY ALONG THE ENTIRE LENGTH OF THE PIPE AND ALL RELATED APPURTENANCES
- 6) FOR PIPE BEDDING AND TRENCH BACKFILL SEE WP-02
- 7) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

 ——— |
 LEGEND ON PLANS
 (TRACER WIRE)

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03	WARNING/IDENTIFICATION TAPE AND TRACER WIRE INSTALLATIONS	 7/26/2012 Chairperson R.C.E. 19246 Date
Replaced W-25		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER WP-01



TRENCH SECTION

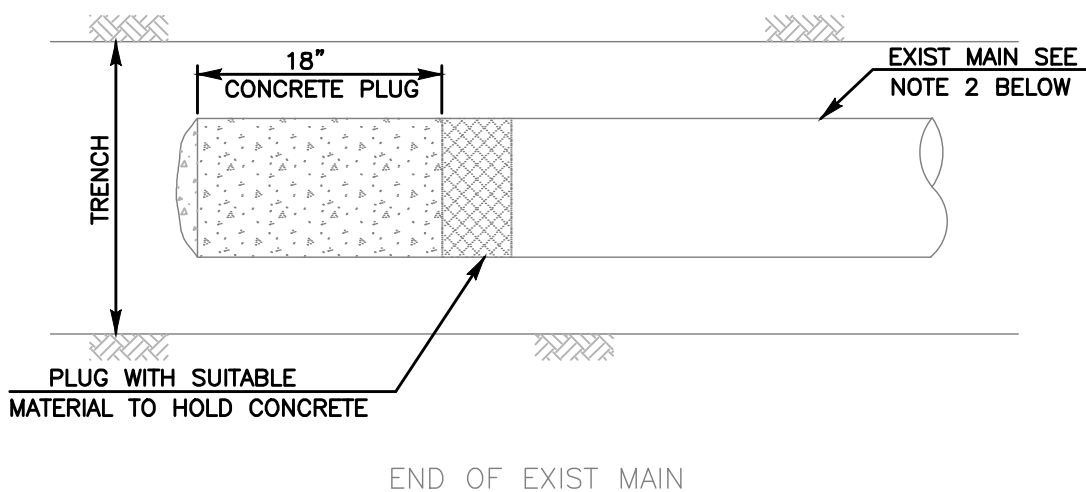
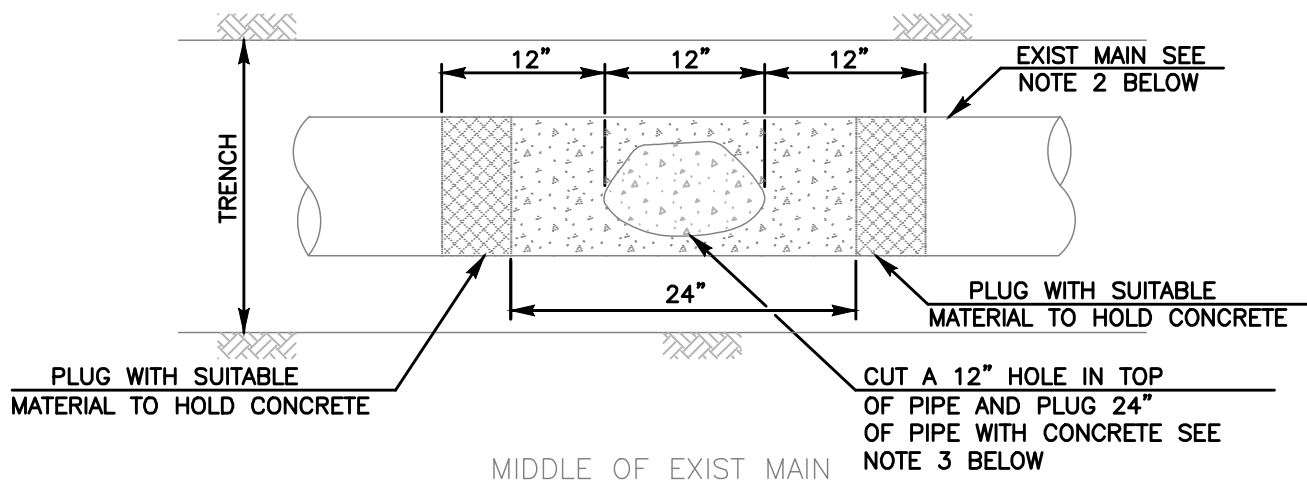
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) PAVING OR PAVEMENT REPAIR TO BE DONE IN ACCORDANCE TO CITY OR COUNTY STANDARDS
- 3) EXCAVATE BELL HOLES AT EACH PIPE JOINT TO PERMIT PROPER ASSEMBLY AND INSPECTION OF THE ENTIRE JOINT
- 4) ALL PIPELINE TRENCHES SHALL BE EXCAVATED SO THAT THE DISTANCE BETWEEN TRENCH WALLS AT THE TOP OF PIPE SHALL BE AS SHOWN BELOW:

TRENCH WIDTH

NOMINAL PIPE INSIDE DIAMETER	MINIMUM DISTANCE	MAXIMUM DISTANCE
4" & SMALLER	18"	28"
6" & 8"	24"	32"
10" & 12"	28"	36"
16" THRU 36"	OD PLUS 24"	OD PLUS 36"

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03	PIPE BEDDING AND TRENCH BACKFILL FOR POTABLE AND RECYCLED WATER MAINS	 Chairperson R.C.E. 19246 Date
Replaced W-21		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER WP-02



NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) WATER AND RECYCLED WATER MAINS AND SEWER LATERALS 4" DIAMETER AND SMALLER SHALL HAVE A SHORT SECTION OF PIPE REMOVED AND PIPE ENDS ENCASED IN CONCRETE
- 3) EXISTING MAIN TO BE PLUGGED WITH CONCRETE OR PRESSURE GROUTED AT INTERVALS OF ABOUT 200' OR AS DIRECTED BY THE ENGINEER
- 4) EXISTING MAINS 16" AND LARGER REQUIRE THE ENTIRE LENGTH OF THE PIPE TO BE FILLED BY PRESSURE GROUTING OR BY BLOWN SAND
- 5) EXISTING VALVES SHALL BE TURNED TO THE CLOSED POSITION. REMOVE GATE WELL AND REPLACE WITH COMPACTED BACKFILL
- 6) FOR ABANDONMENT OF MANHOLES SEE SM-08
- 7) PRIOR AGENCY APPROVAL REQUIRED FOR CUTTING AND PLUGGING

Revision	By	Approved	Date
ORIGINAL		J. Tomasulo	10/04
Delete Metric	MR	B. KNOLL	03/11

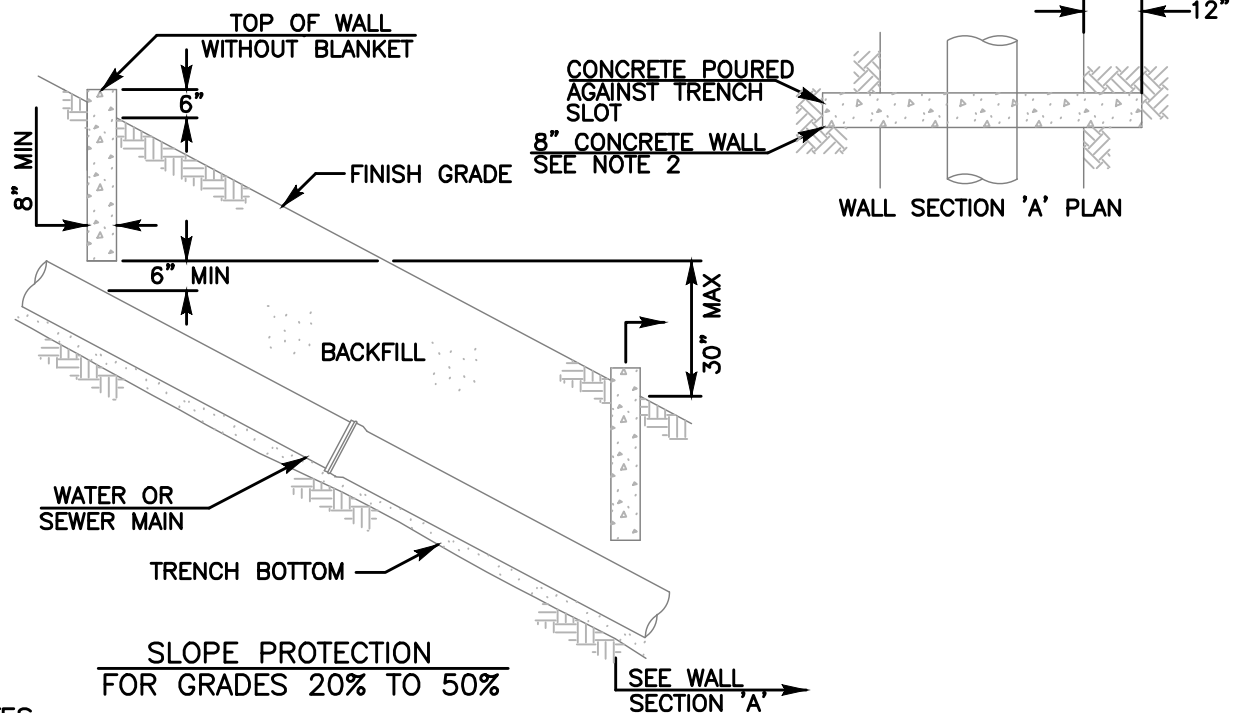
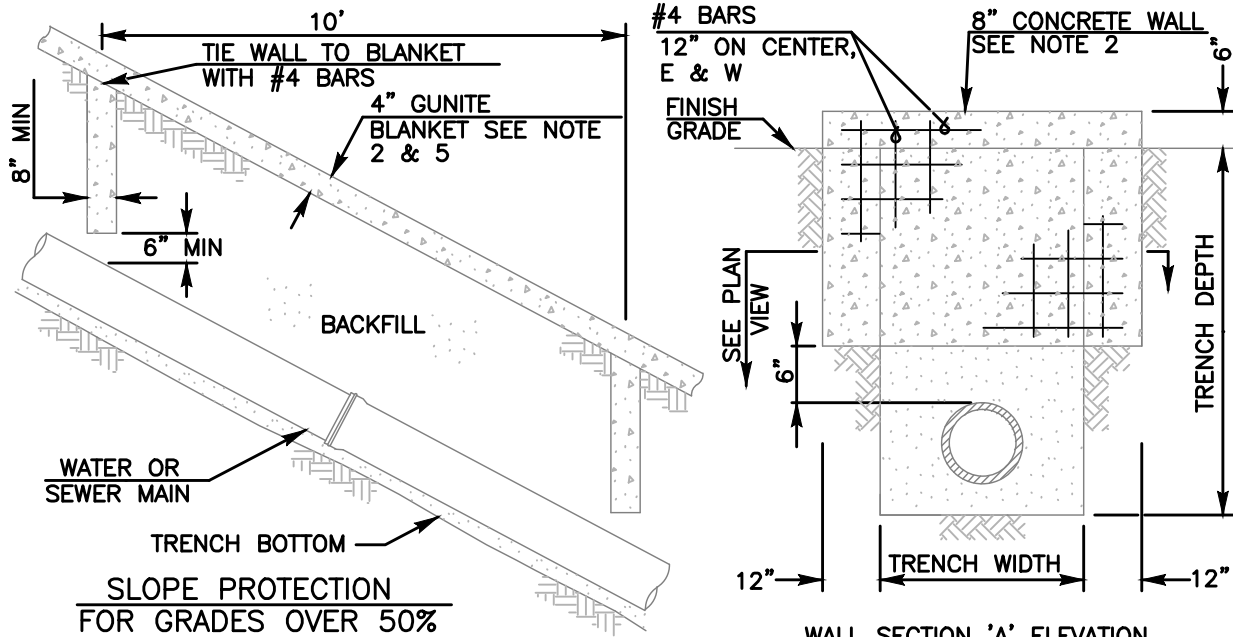
SAN DIEGO REGIONAL STANDARD DRAWING

CUTTING AND PLUGGING ABANDONED WATER,
RECYCLED WATER AND SEWER MAINS

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

[Signature] 7/26/2012
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER WP-03

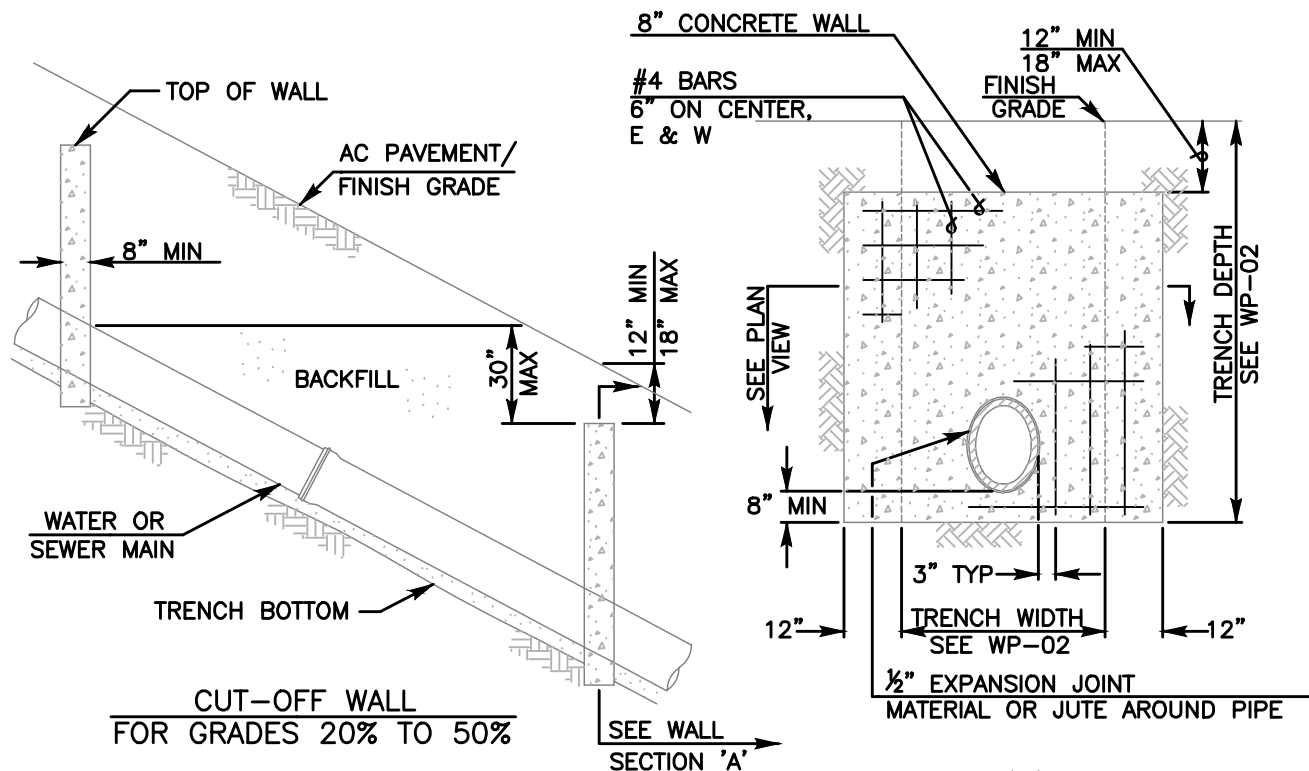


NOTES:

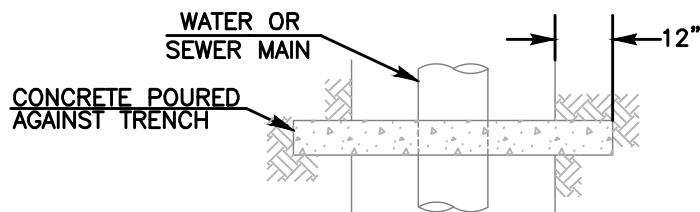
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) THE DETAILS SHOWN REPRESENT THE MINIMUM REQUIRED. THE ENGINEER OF WORK IS REQUIRED TO PROVIDE A SUBMITTAL TO THE AGENCY OF JURISDICTION FOR REVIEW AND APPROVAL BY THE AGENCY'S ENGINEER PRIOR TO INSTALLATION
- 3) WALLS SHALL BE REINFORCED CONCRETE OR 8" x 8" x 16" CONCRETE BLOCK, REINFORCED AND ALL CORES FILLED WITH GROUT SEE SPECIFICATIONS
- 4) FOR GRADES OVER 50%, SLOPE PROTECTION SHALL ALSO INCLUDE AC PAVING, CONCRETE SLAB OR GUNITE BLANKET PLACED OVER THE PIPELINE ALIGNMENT
- 5) 4" GUNITE BLANKET WITH 6" SQUARE x 10 GAGE WIRE FABRIC AT THE ENGINEERS DISCRETION

LEGEND ON PLANS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		J. Tomasulo	10/04				
Delete	Metric	MR	B. KNOLL	03/11	SLOPE PROTECTION INSTALLATIONS		Chairperson R.C.E. 19246 Date
						DRAWING NUMBER	WP-05



WALL SECTION 'A' ELEVATION



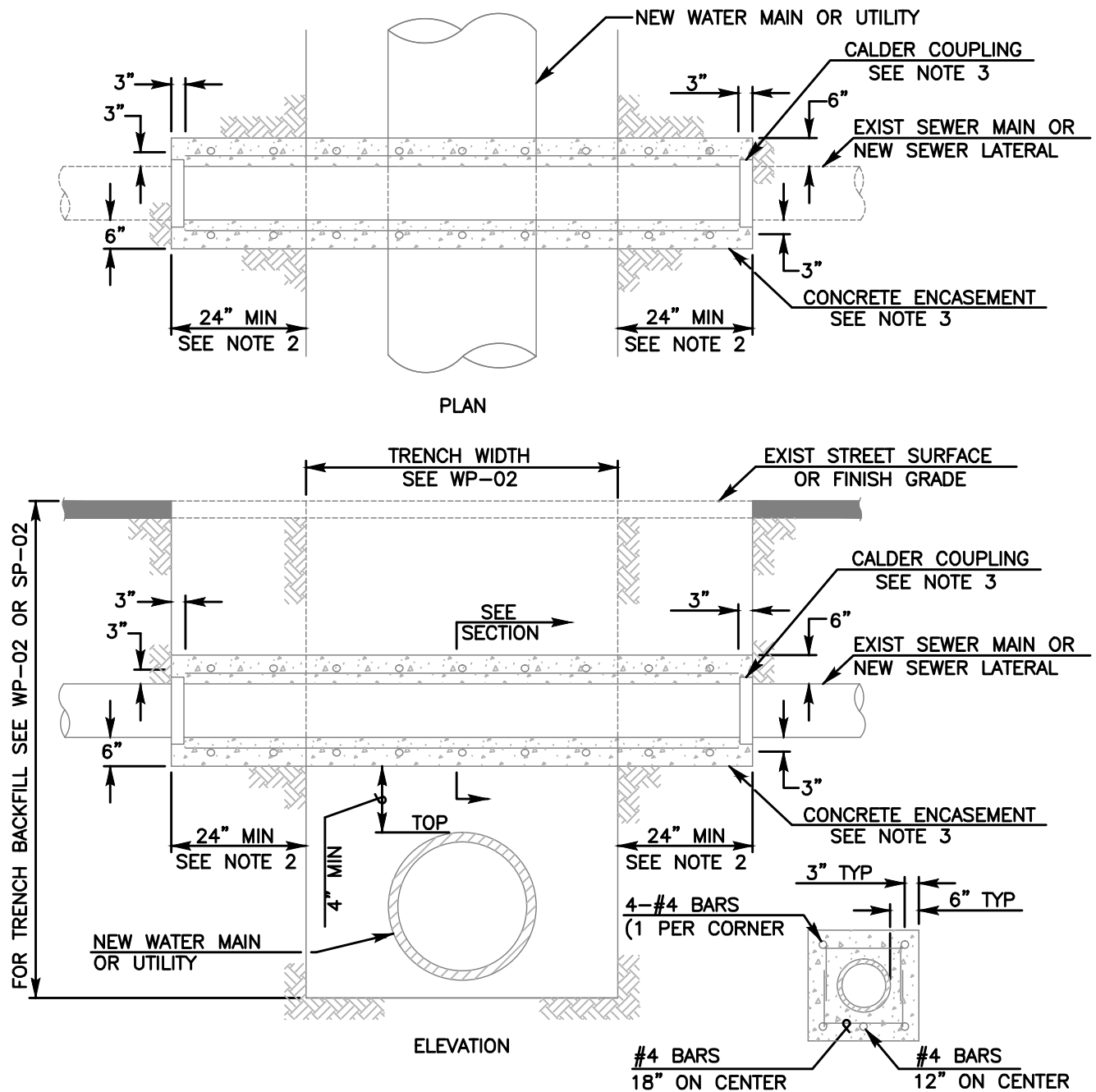
WALL SECTION 'A' PLAN

NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) FOR USE AS TRENCH BACKFILL STABILIZATION IN TRAVELED AREAS
- 3) THE DETAILS SHOWN REPRESENT THE MINIMUM REQUIRED. THE ENGINEER OF WORK IS REQUIRED TO PROVIDE A SUBMITTAL TO THE AGENCY OF JURISDICTION FOR REVIEW AND APPROVAL BY THE AGENCY'S ENGINEER PRIOR TO INSTALLATION
- 4) WALLS SHALL BE REINFORCED CONCRETE OR 8" x 8" x 16" CONCRETE BLOCK, REINFORCED AND ALL CORES FILLED WITH GROUT SEE SPECIFICATIONS
- 5) FOR GRADES OVER 50% SEE WP-05/SP-05

LEGEND ON PLANS

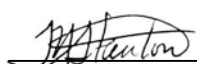
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11	CUT-OFF WALL INSTALLATION IN TRAVELED AREAS	 7/26/2012 Chairperson R.C.E. 19246 Date
					DRAWING NUMBER WP-07

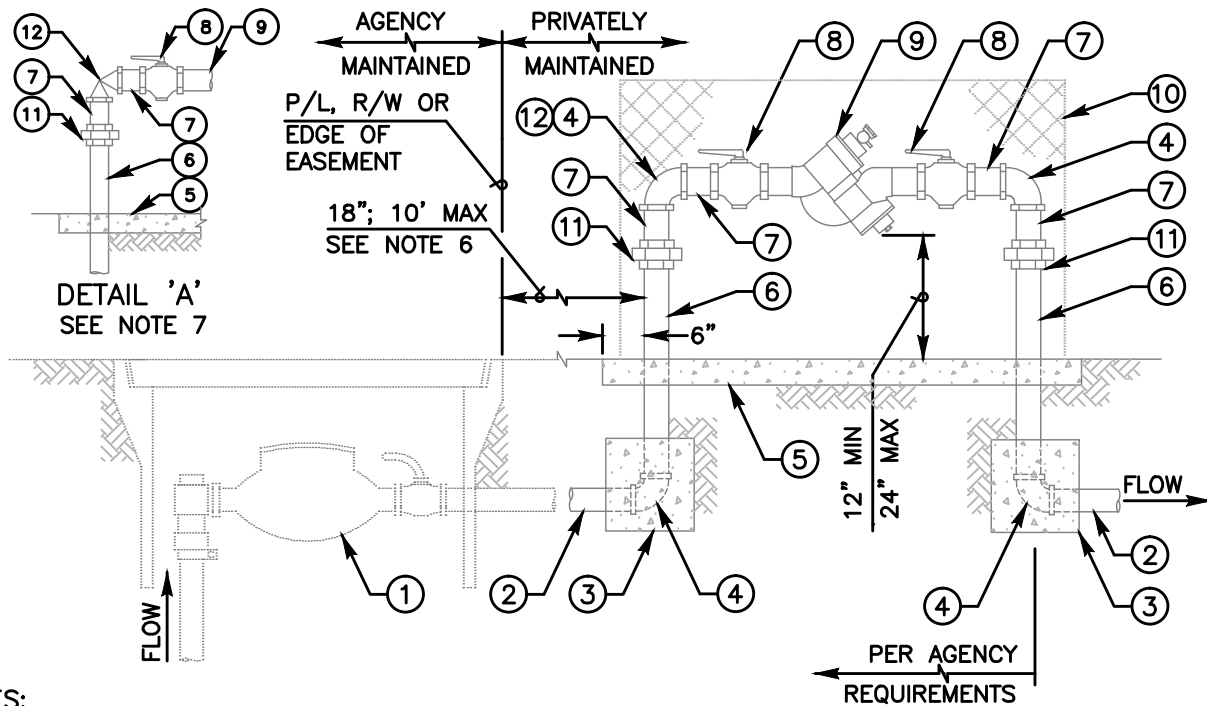


NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS FOR PROTECTION OF EXISTING FACILITIES
- 2) ENCASEMENT SHALL EXTEND TO FIRST JOINT BEYOND BOTH SIDES OF TRENCH (24" MIN, 48" MAX OF SUITABLE NATIVE SUPPORT BEYOND EDGE OF TRENCH).
- 3) CONCRETE ENCASEMENT REQUIRED FOR SEWER MAINS ONLY. CALDER COUPLINGS REQUIRED FOR SEWER LATERALS ONLY. SEWER LATERALS TO BE REPLACED WITH SCH. 80 PVC WITH NO INTERMEDIATE JOINTS.
- 4) FOR PIPE BEDDING AND TRENCH BACKFILL SEE WP-02 OR SP-02.

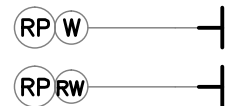
LEGEND ON PLANS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11	PIPE SUPPORT FOR UNDERCUT SEWER MAINS OR SEWER LATERALS	 7/26/2012 Chairperson R.C.E. 19246 Date
					DRAWING NUMBER WP-09



NOTES:

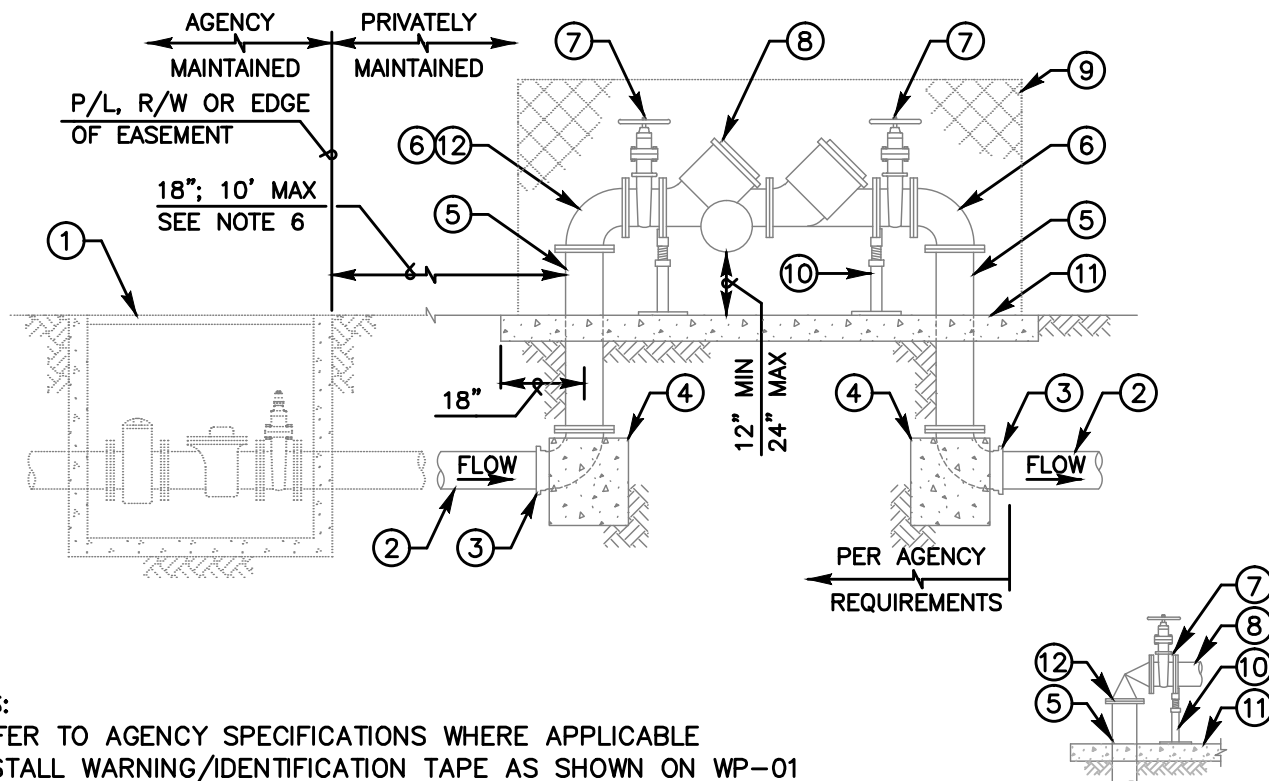
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 3) LOCATE BACKFLOW PREVENTION DEVICE (BPD) IN SUCH A MANNER THAT WILL ALLOW THE DEVICE TO BE READILY ACCESSIBLE FOR INSPECTION AND REPAIR
- 4) STRAINERS SHALL NOT BE INSTALLED PRIOR TO THE FIRST SHUT-OFF VALVE
- 5) ALL ABOVE GROUND PIPING, UNIONS, ELBOWS, & NIPPLES SHALL BE SOLDERED OR THREADED BRASS
- 6) INSTALL A CASING ENCASED IN CONCRETE WHEN THE DISTANCE BETWEEN THE METER BOX AND THE RISER TO THE BPD EXCEEDS 18"
- 7) INSTALL AN ANGLE PRESSURE REDUCING VALVE IN LIEU OF THE FIRST 90° ELL WHEN SYSTEM PRESSURE EXCEEDS 150 PSI PER AGENCY SPECIFICATIONS
- 8) TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH AGENCY SPECIFICATIONS PRIOR TO ACCEPTANCE
- 9) BPD & APPURTENANCES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY SPECIFICATIONS
- 10) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	METER BOX & METER ASSEMBLY SEE WS-01 & WS-02	⑥	BRASS OR COPPER PIPE SEE NOTE 5
②	SCH 80 PVC, BRASS OR COPPER PIPE	⑦	3" LONG NIPPLE SEE NOTE 5
③	CONCRETE THRUST BLOCK SEE WT-01	⑧	BALL VALVE "SHUT-OFF"
④	90° ELL SEE NOTES 5 & 7	⑨	REDUCED PRESSURE BACKFLOW DEVICE
⑤	CONCRETE SLAB, MINIMUM 4" THICK x 18" WIDE	⑩	ENCLOSURE (OPTIONAL)
		⑪	UNION SEE NOTE 5
		⑫	ANGLE PRV SEE NOTES 5 & 7

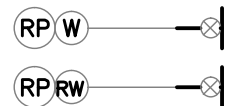
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 3/4" THRU 2" REDUCED PRESSURE BACKFLOW PREVENTION DEVICE	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE <i>[Signature]</i> 7/26/2012 Chairperson R.C.E. 19246 Date
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03		
Replaced W-27		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER WR-01



NOTES:


- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 3) LOCATE BACKFLOW PREVENTION DEVICE (BPD) IN SUCH A MANNER THAT WILL ALLOW THE DEVICE TO BE READILY ACCESSIBLE FOR INSPECTION AND REPAIR
- 4) STRAINERS SHALL NOT BE INSTALLED PRIOR TO THE FIRST SHUT-OFF VALVE
- 5) INSTALL A CASING ENCASED IN CONCRETE WHEN THE DISTANCE BETWEEN THE METER BOX AND THE RISER TO THE BPD EXCEEDS 18"
- 6) INSTALL AN ANGLE PRESSURE REDUCING VALVE IN LIEU OF THE FIRST 90° ELL WHEN SYSTEM PRESSURE EXCEEDS 150 PSI PER AGENCY SPECIFICATIONS
- 7) TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH AGENCY SPECIFICATIONS PRIOR TO ACCEPTANCE
- 8) BPD & APPURTENANCES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY SPECIFICATIONS
- 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

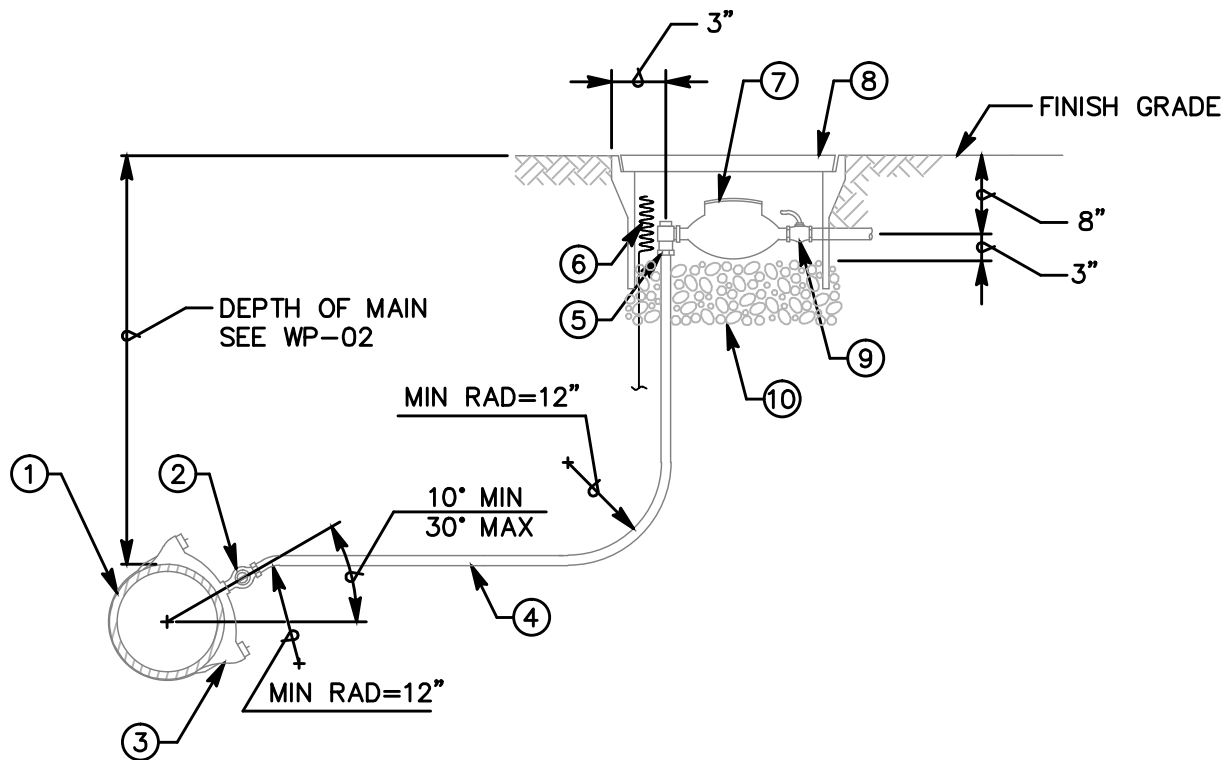
DETAIL 'A'
SEE NOTE 7



LEGEND ON PLANS

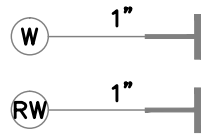
ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	METER VAULT & METER ASSEMBLY SEE WS-04	⑦	FLANGED RESILIENT WEDGE GATE VALVE
②	PVC OR DUCTILE IRON PIPE	⑧	REDUCED PRESSURE BACKFLOW DEVICE
③	FLG x FLG OR MJ/PO x FLG 90° BEND	⑨	ENCLOSURE (OPTIONAL)
④	CONCRETE THRUST BLOCK SEE WT-01	⑩	ADJUSTABLE VALVE SUPPORT
⑤	FLANGED DUCTILE IRON PIPE	⑪	CONCRETE SLAB, MINIMUM 4" THICK x 36" WIDE
⑥	FLANGED 90° BEND, SEE NOTE 6	⑫	FLANGED ANGLE PRESSURE REDUCING VALVE SEE NOTE 6

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03		
Replaced W-28		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
				3" AND LARGER REDUCED PRESSURE BACKFLOW PREVENTION DEVICE	 7/26/2012 Chairperson R.C.E. 19246 Date
					DRAWING NUMBER WR-02



NOTES:

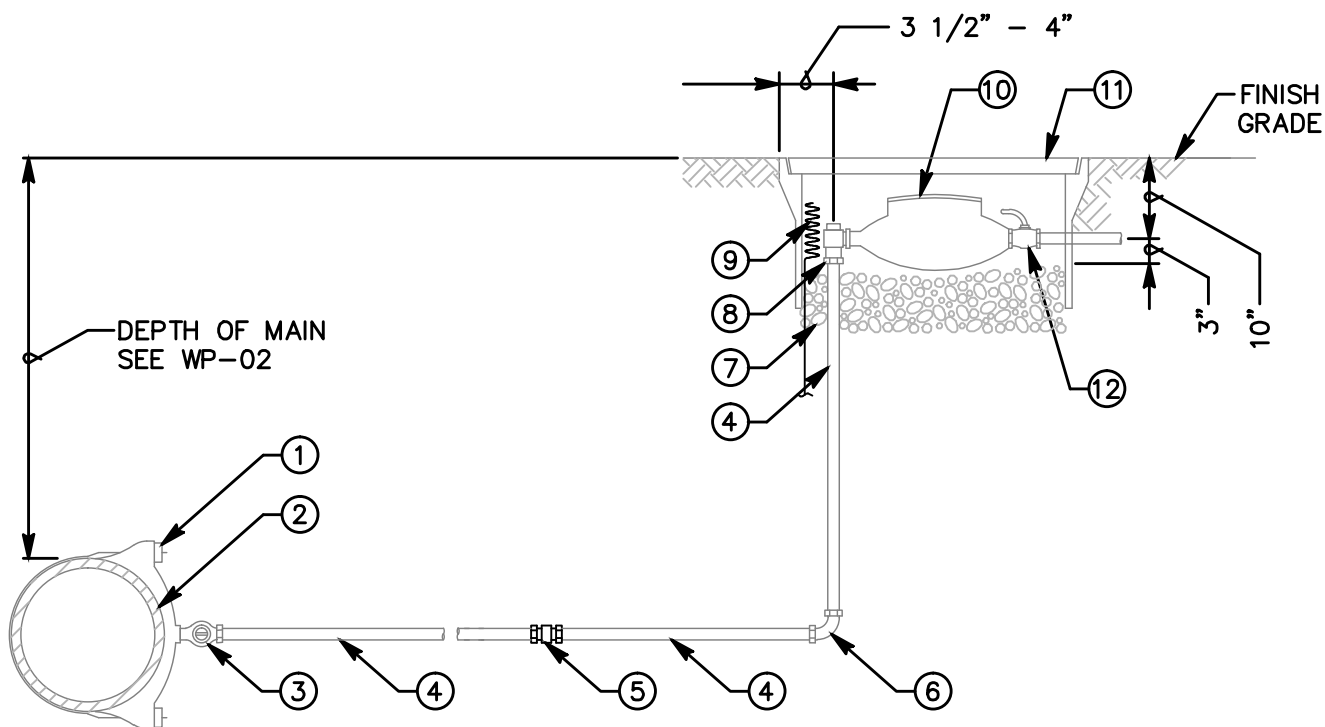
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) INSTALL CORPORATION STOP WITH KEY IN THE SIDE POSITION
- 3) SET TOP OF METER BOX FLUSH WITH SIDEWALK, CURB, OR FINISH GRADE
- 4) LOCATE METER BOX AS SHOWN ON WS-03
- 5) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 6) WATER LATERALS INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY SPECIFICATIONS
- 7) SILVER SOLDER JOINTS SHALL NOT BE USED
- 8) ON STEEL MAINS USE WELD ON COUPLINGS, ON DUCTILE IRON MAINS USE DUCTILE IRON SERVICE SADDLES (INSULATING BUSHINGS ARE REQUIRED)
- 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



LEGEND ON PLANS

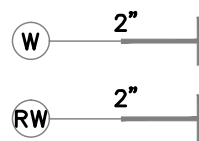
ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	WATER MAIN	⑦	WATER METER FURNISHED & INSTALLED BY THE WATER AGENCY OF JURISDICTION
②	1" BRONZE CORPORATION STOP	⑧	METER BOX WITH LID, 10" x 20"
③	SIZE x 1" SERVICE SADDLE	⑨	CUSTOMER SHUT-OFF VALVE (LOCKABLE) FURNISHED AND INSTALLED BY THE WATER AGENCY OF JURISDICTION
④	1" x REQUIRED LENGTH COPPER PIPE TYPE "K" SOFT	⑩	3/8" ROCK, 4" TO 6" DEEP
⑤	1" BRONZE ANGLE METER STOP WITH LOCKWING		
⑥	TRACER WIRE (AS REQUIRED), SEE WP-01		

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 1" WATER SERVICE INSTALLATION		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE <i>[Signature]</i> 7/26/2012 Chairperson R.C.E. 19246 Date	
ORIGINAL		Kercheval	12/75			DRAWING NUMBER WS-01	
Add Metric		T. Stanton	03/03				
Replaced W-01		J. Tomasulo	10/04				
Delete Metric	MR	B. KNOLL	03/11				



NOTES:

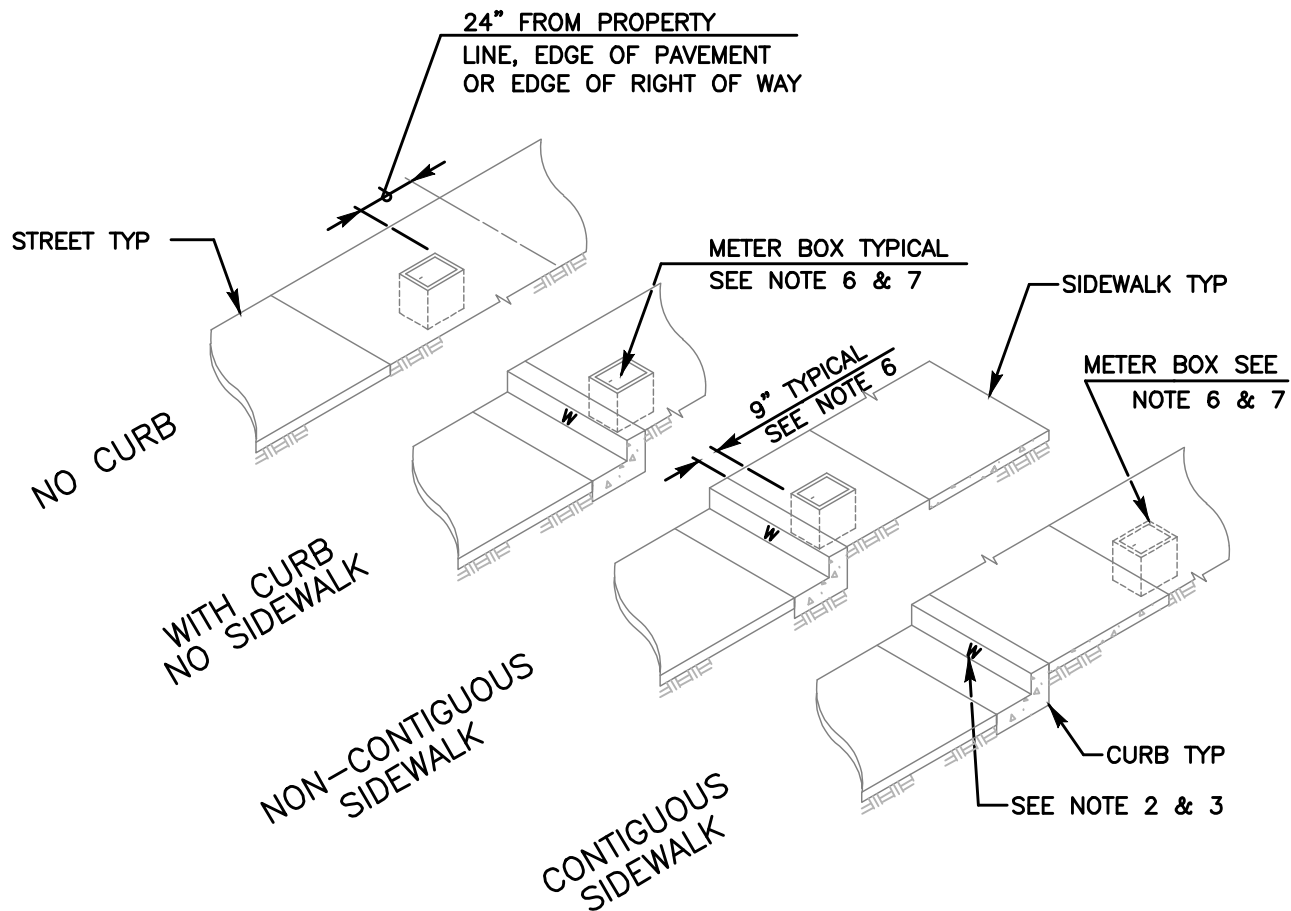
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) INSTALL CORPORATION STOP WITH KEY IN THE SIDE POSITION
- 3) SET TOP OF METER BOX FLUSH WITH SIDEWALK, CURB, OR FINISH GRADE
- 4) LOCATE METER BOX AS SHOWN ON WS-03
- 5) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 6) WATER LATERALS INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY SPECIFICATIONS
- 7) SILVER SOLDER JOINTS SHALL NOT BE USED
- 8) ON STEEL MAINS USE WELD ON COUPLINGS, ON DUCTILE IRON MAINS USE DUCTILE IRON SERVICE SADDLES (INSULATING BUSHINGS ARE REQUIRED)
- 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	SIZE x 2" SERVICE SADDLE	⑦	3/8" ROCK, 4" TO 6" DEEP
②	WATER MAIN	⑧	2" BRONZE ANGLE METER STOP WITH LOCKWING
③	2" BRONZE CORPORATION STOP	⑨	TRACER WIRE (AS REQUIRED), SEE WP-01
④	2" x REQUIRED LENGTH COPPER PIPE TYPE "K" SOFT/RIGID OR UNLESS OTHERWISE SPECIFIED BY AGENCY OF JURISDICTION	⑩	WATER METER FURNISHED AND INSTALLED BY THE WATER AGENCY OF JURISDICTION
⑤	2" BRONZE COMPRESSION COUPLING COPPER TO COPPER (IF REQUIRED)	⑪	METER BOX WITH LID, 17"x 30"
⑥	2" BRONZE COMPRESSION ELL	⑫	CUSTOMER SHUT-OFF VALVE (LOCKABLE)

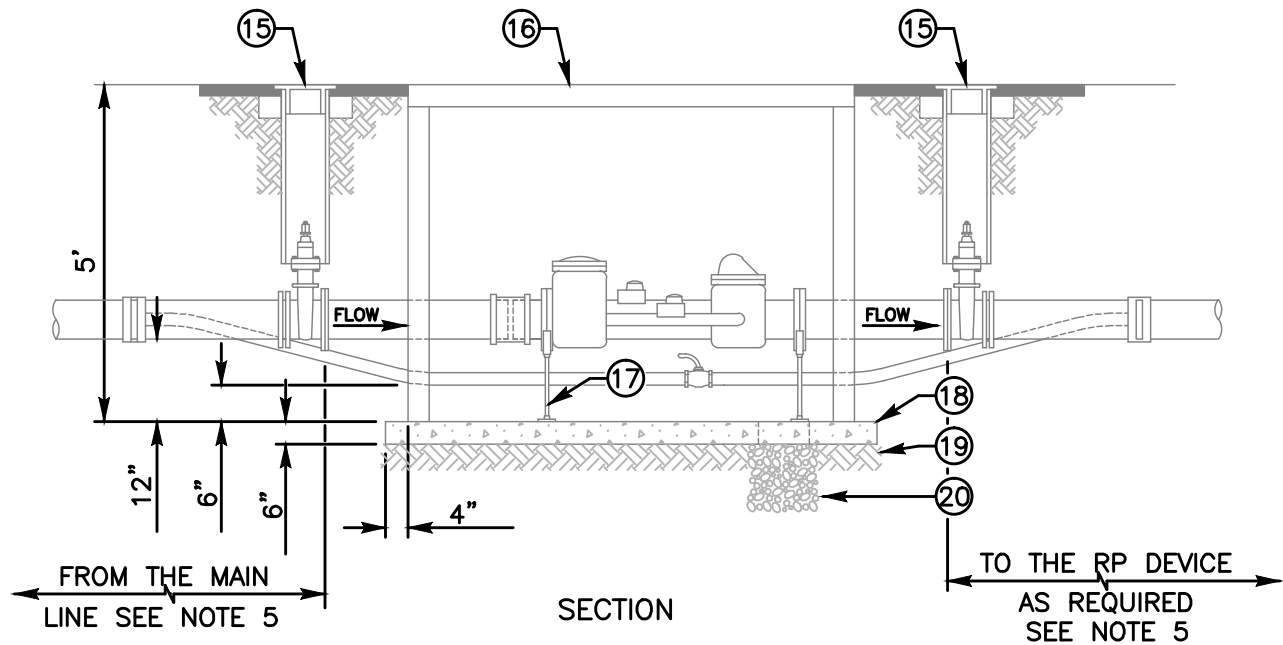
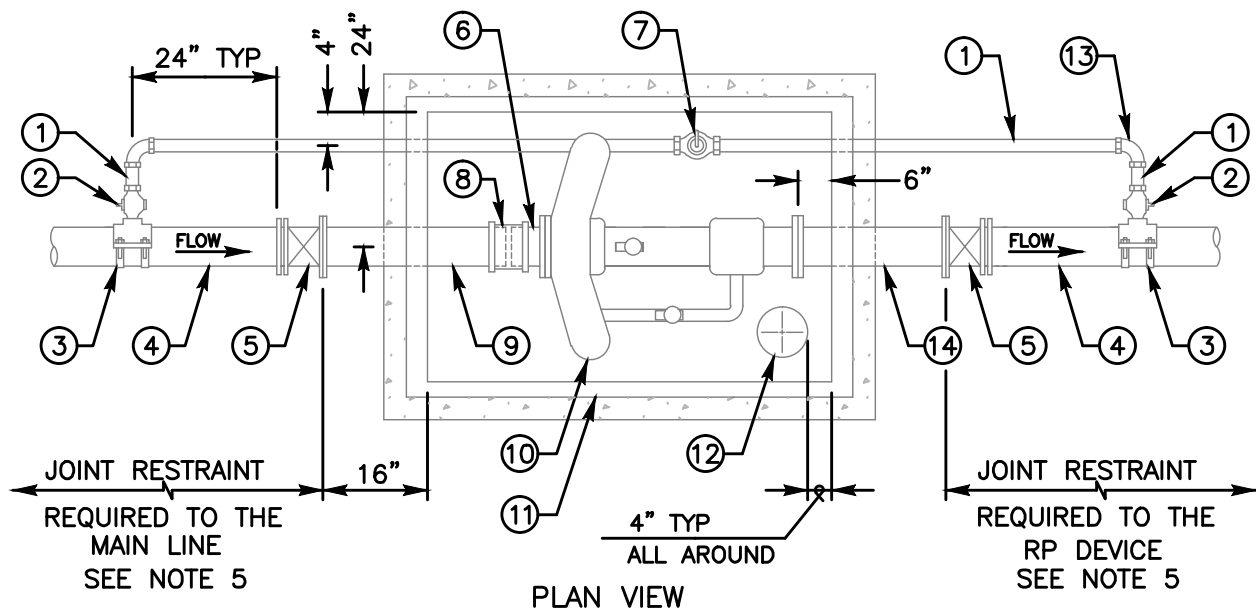
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 2" WATER SERVICE INSTALLATION	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE <i>[Signature]</i> 7/26/2012 Chairperson R.C.E. 19246 Date
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03		
Replaced W-02		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER WS-02



NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) STAMP OR CHISEL A 2" HIGH 'W' IN CURB FACE TO IDENTIFY POTABLE WATER SERVICE LOCATION
- 3) STAMP OR CHISEL A 2" HIGH 'RW' IN CURB FACE TO IDENTIFY RECYCLED WATER SERVICE LOCATION
- 4) METER BOXES ARE NOT TO BE INSTALLED IN DRIVEWAYS, SIDEWALKS OR WITHIN PAVED ROADWAYS
- 5) MULTIPLE METER BOXES SHALL BE INSTALLED WITH A MINIMUM OF 9" BETWEEN BOXES
- 6) METER BOX SHALL BE INSTALLED 9" FROM THE BACK OF BERM, CURB, OR SIDEWALK (TYP)
- 7) AN EASEMENT MAY BE NEEDED DEPENDING ON LOCATION OF METER BOX
- 8) METER BOXES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03	METER BOX LOCATIONS FOR WATER AND RECYCLED WATER APPURTENANCES	 7/26/2012
Replaced W-15		J. Tomasulo	10/04		Chairperson R.C.E. 19246 Date
Delete Metric	MR	B. KNOLL	03/11		DRAWING NUMBER
					WS-03



(INDICATE SIZE)



LEGEND ON PLANS

FOR MATERIAL DESCRIPTIONS AND NOTES SEE WS-04 (2 OF 2)

Revision	By	Approved	Date
ORIGINAL		J. Tomasulo	10/04
Delete Metric	MR	B. KNOLL	03/11

SAN DIEGO REGIONAL STANDARD DRAWING

4" OR 6" FIRELINE/MASTER METER
INSTALLATION

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

W. Stanton 7/26/2012
Chairperson R.C.E. 19246 Date


DRAWING
NUMBER WS-04 (1 OF 2)

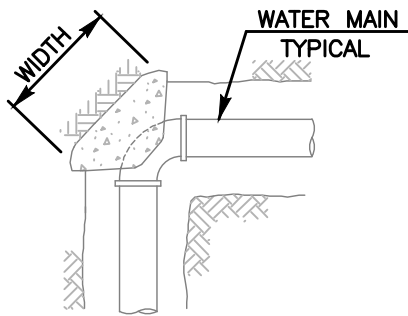
FOR DRAWING OF THE METER INSTALLATION SEE WS-04 (SHEET 1 OF 2)

NOTES:

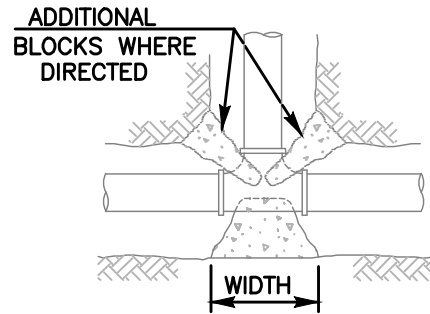
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) TO BE USED WHERE BOTH DOMESTIC SERVICE AND FIRE PROTECTION ARE INSTALLED ON THE SAME PRIVATE SYSTEM
- 3) LOCATION OF METER SHALL BE APPROVED BY THE DISTRICT ENGINEER PRIOR TO INSTALLATION IN ACCORDANCE WITH STANDARD DWG WS-06
- 4) 8" OR 10" METERS TO BE DESIGNED BY AN ENGINEER AND SUBMITTED FOR AGENCY'S APPROVAL AS NEEDED ON A CASE-BY-CASE BASIS
- 5) JOINT RESTRAINT SHALL BE IN ACCORDANCE WITH AGENCY SPECIFICATIONS
- 6) METERS SHALL BE FURNISHED AND INSTALLED BY THE AGENCY OF JURISDICTION
- 7) 4" METER REQUIRES A 48" x 60" VAULT 6" METER REQUIRES A 48" x 72" VAULT
- 8) IN AREAS WHERE GROUND WATER IS PRESENT THE AGENCY'S ENGINEER MAY REQUIRE A SEALED SUMP TO BE CONSTRUCTED
- 9) CONNECTIONS TO STEEL WATER MAINS SHALL BE IN ACCORDANCE WITH AGENCY SPECIFICATIONS
- 10) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	2" x REQUIRED LENGTH TYPE "K" COPPER PIPE	⑪	FRP VAULT WITH HINGED ACCESS DOOR, SEE NOTE 7
②	2" BRONZE CORPORATION STOP	⑫	12" DIAMETER x 6" LONG PVC PIPE
③	LINE SIZE x 2" SERVICE SADDLE	⑬	2" 90° COMPRESSION ELL (TYPICAL)
④	4" OR 6" PVC PIPE	⑭	LINE SIZE x 24" LONG FLANGED DUCTILE-IRON SPOOL
⑤	4" OR 6" FLG x MJ RWGV MECHANICALLY RESTRAINED, SEE NOTE 5	⑮	8" GATE WELL. SEE WV-01 & WV-02
⑥	LINE SIZE x 6" LONG FLG x PE DUCTILE-IRON SPOOL	⑯	HINGED VAULT ACCESS DOOR
⑦	2" COMPRESSION, LOCKABLE BALL VALVE	⑰	ADJUSTABLE PIPE SUPPORT (TYPICAL)
⑧	4" OR 6" FLEXIBLE COUPLING	⑱	6" CLASS "B" CONCRETE FLOOR WITH #3 BARS @ 12" C.C.
⑨	LINE SIZE x 30" LONG FLG x PE DUCTILE-IRON SPOOL	⑲	6" DG BASE COMPACTED TO 90%
⑩	4" OR 6" FIRELINE METER SEE NOTE 6	⑳	12" DIAMETER x 12" DEEP, ¾" GRAVEL SUMP, SEE NOTE 8

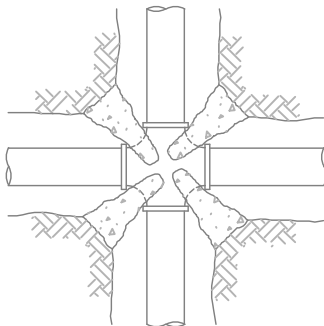
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		J. Tomasulo	10/04			
Delete Metric	MR	B. KNOLL	03/11		<div>4" OR 6" FIRELINE/MASTER METER INSTALLATION</div>	<div> 7/26/2012</div> <div>Chairperson R.C.E. 19246 Date</div>
				DRAWING NUMBER	WS-04 (2 OF 2)	



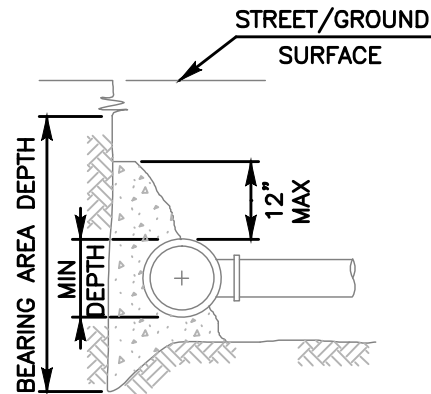
BEND



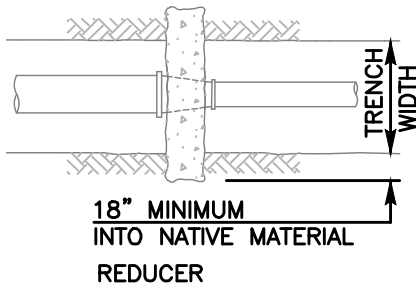
TEE PLAN



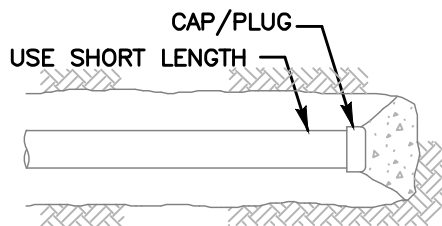
CROSS



TEE ELEVATION

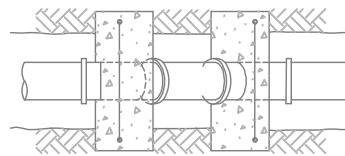


REDUCER

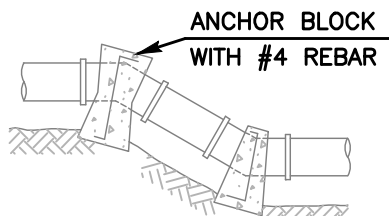


END CAP

SEE NOTE
2 BELOW



VERT BENDS PLAN



VERT BENDS ELEVATION

NOTES:

- 1) FOR ADDITIONAL THRUST BLOCKS, ANCHOR BLOCKS AND NOTES SEE WT-01 (2 OF 3) & (3 OF 3)
- 2) THE ANCHOR BLOCKS ON VERTICAL BENDS REQUIRE AGENCY APPROVAL

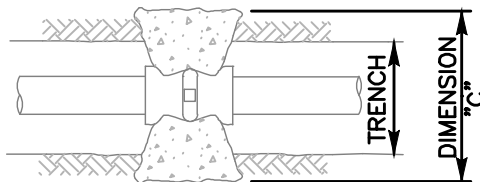
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	CONCRETE THRUST AND ANCHOR BLOCK INSTALLATIONS		
Add Metric		T. Stanton	03/03			
Repl. W-17 through W-22		J. Tomasulo	10/04			
Delete Metric	MR	B. KNOLL	03/11			
						 7/26/2012 Chairperson R.C.E. 19246 Date
						DRAWING NUMBER WT-01 (1 OF 3)

VALVE SUPPORT BLOCK

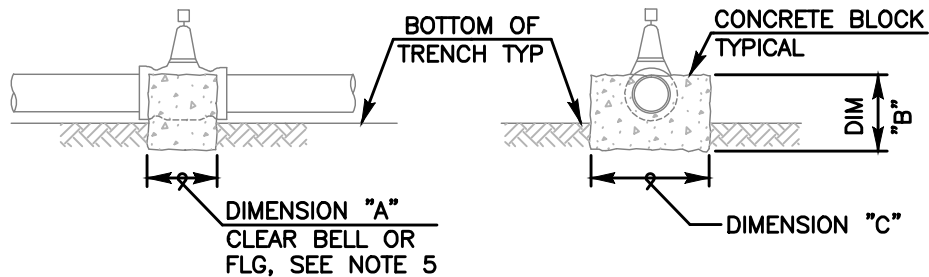
VALVE SIZE	DIMENSION "A"	DIMENSION "B"
4"	12"	12"
6"	12"	12"
8"	13"	14"
10"	14"	16"
12"	15"	18"
DIMENSION "C" = TRENCH WIDTH PLUS TWO TIMES THE PIPE DIAMETER		

THRUST AND ANCHOR BLOCKS

MINIMUM BEARING AREA IN SQUARE FOOT SEE NOTE 2				
MAIN SIZE	TEES	90° BEND	45° BEND	22½° BEND
4"	4	5	3	1.5
6"	8	10	5	2.5
8"	12	16	9	4.5
10"	17	24	13	6.5
12"	24	33	19	9.5



VALVE SUPPORT
PLAN

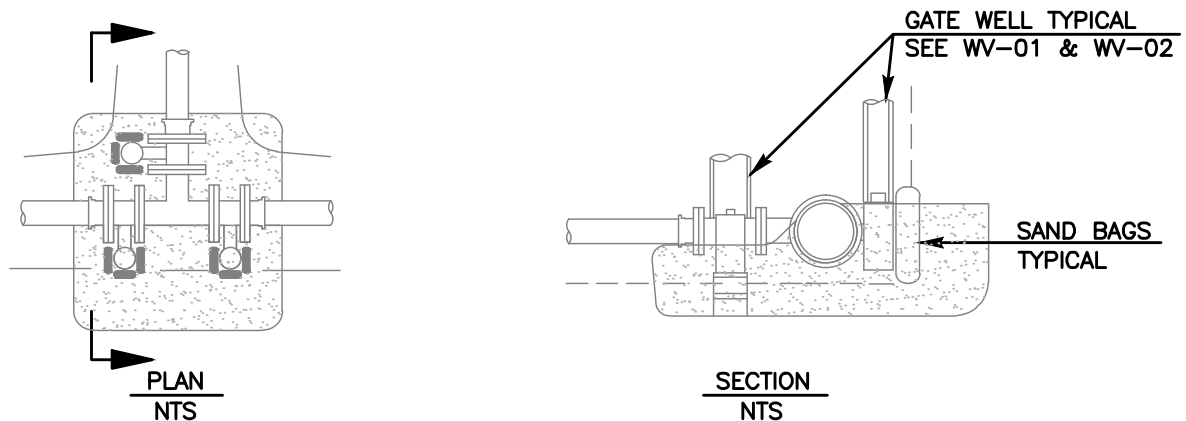
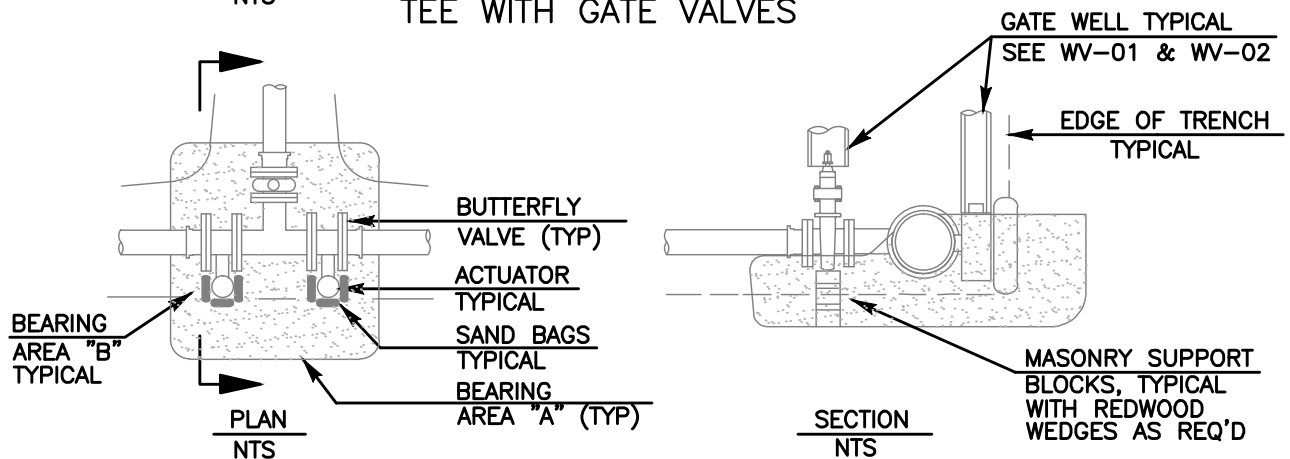
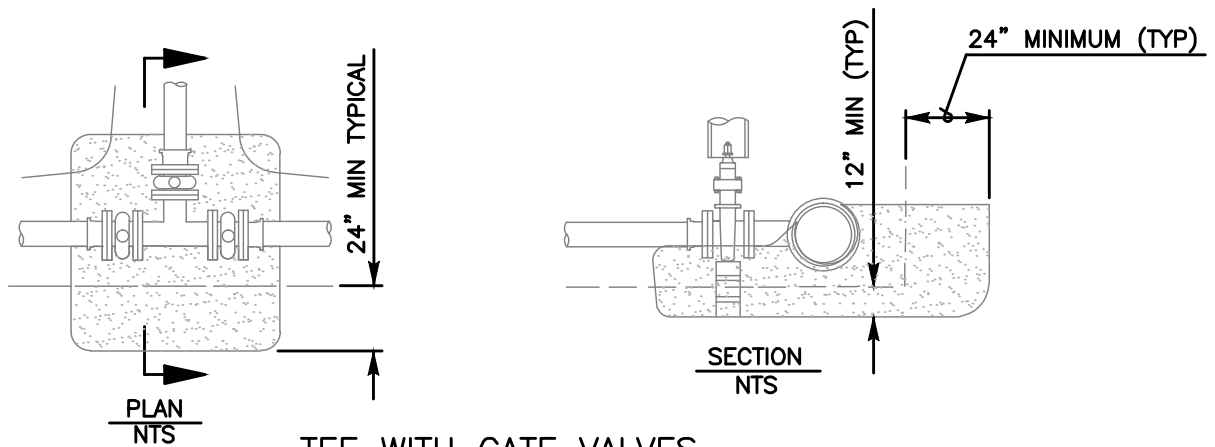


VALVE SUPPORT
ELEVATION

NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) BEARING AREA BASED ON SOIL BEARING VALUE OF 1500 PSF AND 225 PSI LINE PRESSURE AND A MINIMUM OF 36" COVER
FOR BEARING= 1000 PSF, 1.5 x AREA SHOWN
FOR BEARING= 500 PSF, 3.0 x AREA SHOWN
- 3) DESIGN ENGINEER SHALL DETERMINE SIZES, REFER TO AGENCY SPECIFICATIONS FOR THRUST AND ANCHOR BLOCK SIZING
- 4) THRUST BLOCKS SHALL BE CENTERED ON THE FITTING SO THAT THE BEARING AREA IS EXACTLY OPPOSITE THE RESULTANT DIRECTION OF THRUST
- 5) CONCRETE SHALL BE PLACED SO THAT FITTINGS AND VALVES WILL BE ACCESSIBLE FOR REPAIR OR REPLACEMENT
- 6) ALL THRUST AND ANCHOR BLOCKS SHALL BE POURED AGAINST WETTED UNDISTURBED SOIL
- 7) FOR MINIMUM CONCRETE CURING TIME REFER TO AGENCY SPECIFICATIONS
- 8) FOR ADDITIONAL THRUST BLOCKS SEE WT-01 (1 OF 3) & (3 OF 3)

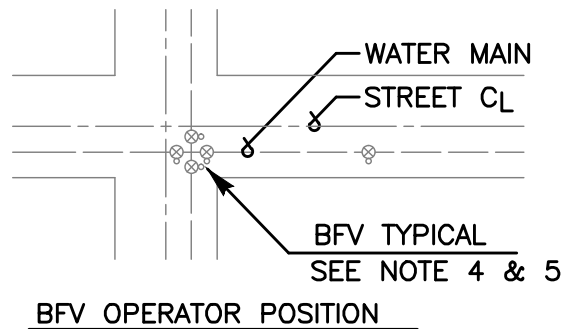
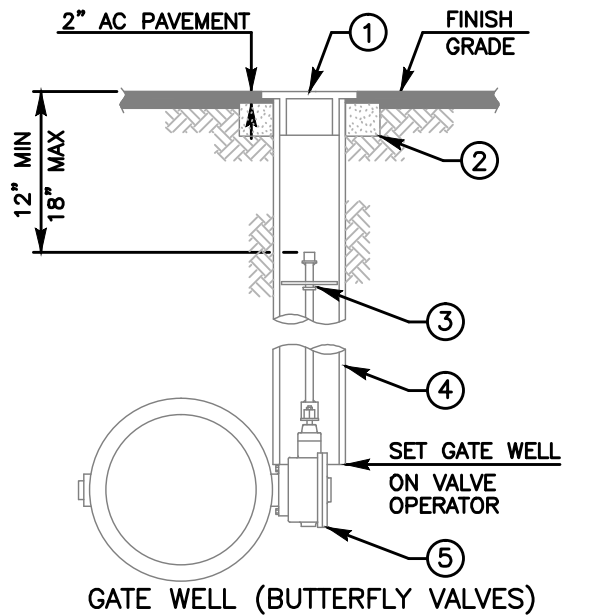
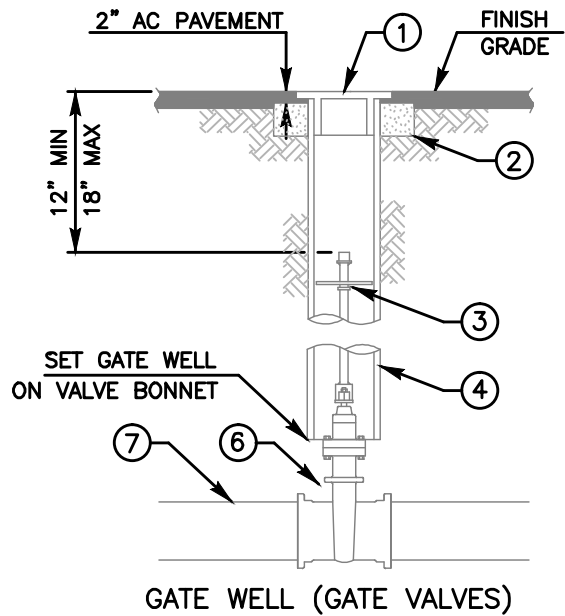
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03	CONCRETE THRUST AND ANCHOR BLOCK INSTALLATIONS	 7/26/2012 Chairperson R.C.E. 19246 Date
Repl. W-17 through W-22		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER WT-01 (2 OF 3)



NOTES:

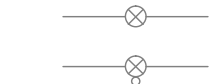
- 1) BEARING AREA "B" MUST BE EQUAL TO OR GREATER THAN THE AREA REQUIRED FOR A 90° ELBOW INSTALLATION
- 2) INSTALL SAND BAGS AROUND BUTTERFLY VALVE ACTUATOR TO ISOLATE IT FROM CONCRETE
- 3) BFV'S INSTALLED AT CROSSES OR TEES REQUIRE A FLANGED DUCTILE IRON SPOOL TO BE INSTALLED BETWEEN THE FITTING AND VALVE IN ACCORDANCE WITH THE AGENCY SPECIFICATIONS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03	CONCRETE THRUST AND ANCHOR BLOCK INSTALLATIONS	 7/26/2012 Chairperson R.C.E. 19246 Date
Repl. W-17 through W-22		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER WT-01 (3 OF 3)




NOTES:

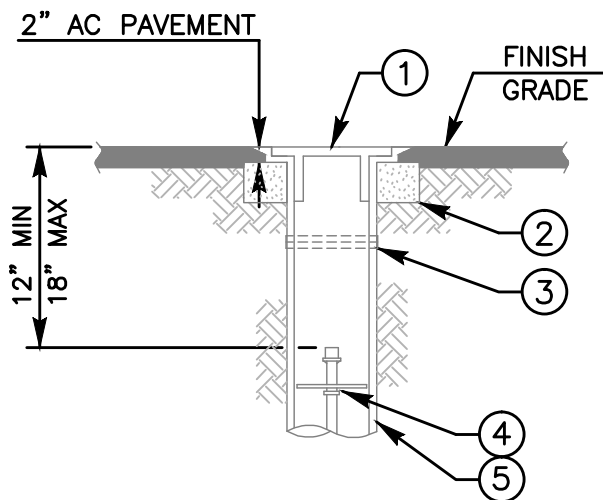
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) VALVES DEEPER THAN 5' REQUIRE A VALVE STEM EXTENSION
- 3) EXTENSION STEMS SHALL NOT BE ATTACHED/BOLTED TO OPERATING NUT
- 4) GATE WELL AND CAP SHALL BE SET SO THAT NO MORE THAN TWO 1" ADJUSTMENT RINGS ARE USED
- 5) BFV OPERATORS TO BE LOCATED TO THE CURBLINE SIDE OF WATER MAIN
- 6) BFV'S INSTALLED AT CROSSES OR TEES REQUIRE A FLANGED DUCTILE IRON SPOOL TO BE INSTALLED BETWEEN THE FITTING AND VALVE IN ACCORDANCE WITH THE AGENCY'S SPECIFICATIONS
- 7) GATE WELLS AND CAPS SHALL BE IDENTIFIED AS DESCRIBED ON WV-03
- 8) FOR INLINE VALVE ANCHOR BLOCK INSTALLATION SEE WT-02
- 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



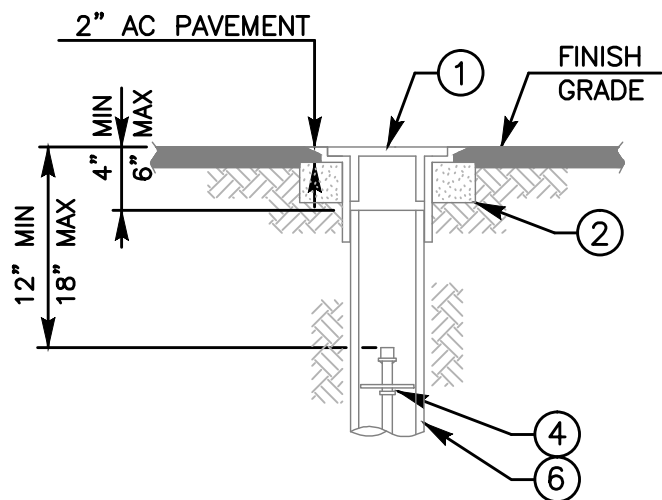
LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	GATE WELL WITH CAP SEE NOTE 7	④	8" PVC CL 200, C-900 PIPE x REQUIRED LENGTH GATE WELL SEE NOTE 7
②	6" HIGH x 6" WIDE COMPACTED ASPHALT-CONCRETE RING	⑤	BUTTERFLY VALVE
③	VALVE STEM EXTENSION SEE NOTES 2 & 3	⑥	RESILIENT WEDGE GATE VALVE
		⑦	WATER MAIN

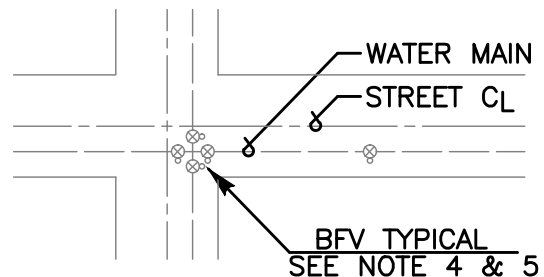
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING GATE WELL CAP INSTALLATION, FOR VALVES 4" AND LARGER	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012 Chairperson R.C.E. 19246 Date
ORIGINAL		Kercheval	12/75		DRAWING NUMBER WV-01
Add Metric		T. Stanton	03/03		
Repl. W-12A and W-12B		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		



8" GATE WELL TYPE A



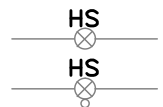
6" GATE WELL TYPE B



BFV OPERATOR POSITION

NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) VALVES DEEPER THAN 5' REQUIRE A VALVE STEM EXTENSION
- 3) EXTENSION STEMS SHALL NOT BE ATTACHED/BOLTED TO OPERATING NUT
- 4) GATE WELL AND CAP SHALL BE SET SO THAT NO MORE THAN TWO 1" ADJUSTMENT RINGS ARE USED
- 5) BFV OPERATORS TO BE LOCATED TO THE CURBLINE SIDE OF WATER MAIN
- 6) BFV'S INSTALLED AT CROSSES OR TEES REQUIRE A FLANGED DUCTILE IRON SPOOL TO BE INSTALLED BETWEEN THE FITTING AND VALVE IN ACCORDANCE WITH THE AGENCY'S SPECIFICATIONS
- 7) GATE WELLS AND CAPS SHALL BE IDENTIFIED AS DESCRIBED ON WV-03
- 8) FOR INLINE VALVE ANCHOR BLOCK INSTALLATION SEE WT-02
- 9) GATE WELL TYPE AS APPROVED BY AGENCY
- 10) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	GATE WELL WITH CAP SEE NOTE 7	④	VALVE STEM EXTENSION SEE NOTES 2 & 3
②	6" HIGH x 6" WIDE COMPACTED ASPHALT-CONCRETE RING	⑤	8" PVC CL 200, C-900 PIPE x REQUIRED LENGTH GATE WELL SEE NOTE 7
③	CAULDER COUPLING	⑥	6" PVC CL 200, C-900 PIPE x REQUIRED LENGTH GATE WELL SEE NOTE 7

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING GATE WELL CAP & CAN INSTALLATION, FOR VALVES 4" AND LARGER	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE <i>[Signature]</i> 7/26/2012 Chairperson R.C.E. 19246 Date
ORIGINAL		Kercheval	12/75		
Add Metric		T. Stanton	03/03		
Repl. W-12A and W-12B		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER WV-02



RECYCLED
WATER



POTABLE
WATER

GATE WELL LIDS

SEE NOTE 2 BELOW

COLOR	GATE WELL LIDS USED FOR:
RED	NORMALLY CLOSED SYSTEM VALVES (NCV)
PURPLE	RECYCLED WATER VALVES: LINE VALVES & AIR VALVES
YELLOW	POTABLE WATER VALVES: LINE VALVES, FIRE SERVICES, & AIR VALVES
WHITE	FIRE HYDRANTS

GATE WELL LID COLORS

SEE NOTE 5 BELOW

COLOR	GATE WELL AND LIDS USED FOR:
RED	NORMALLY CLOSED SYSTEM VALVES (NCV)
WHITE	RESILIENT WEDGE GATE VALVES
GREEN	BUTTERFLY VALVES

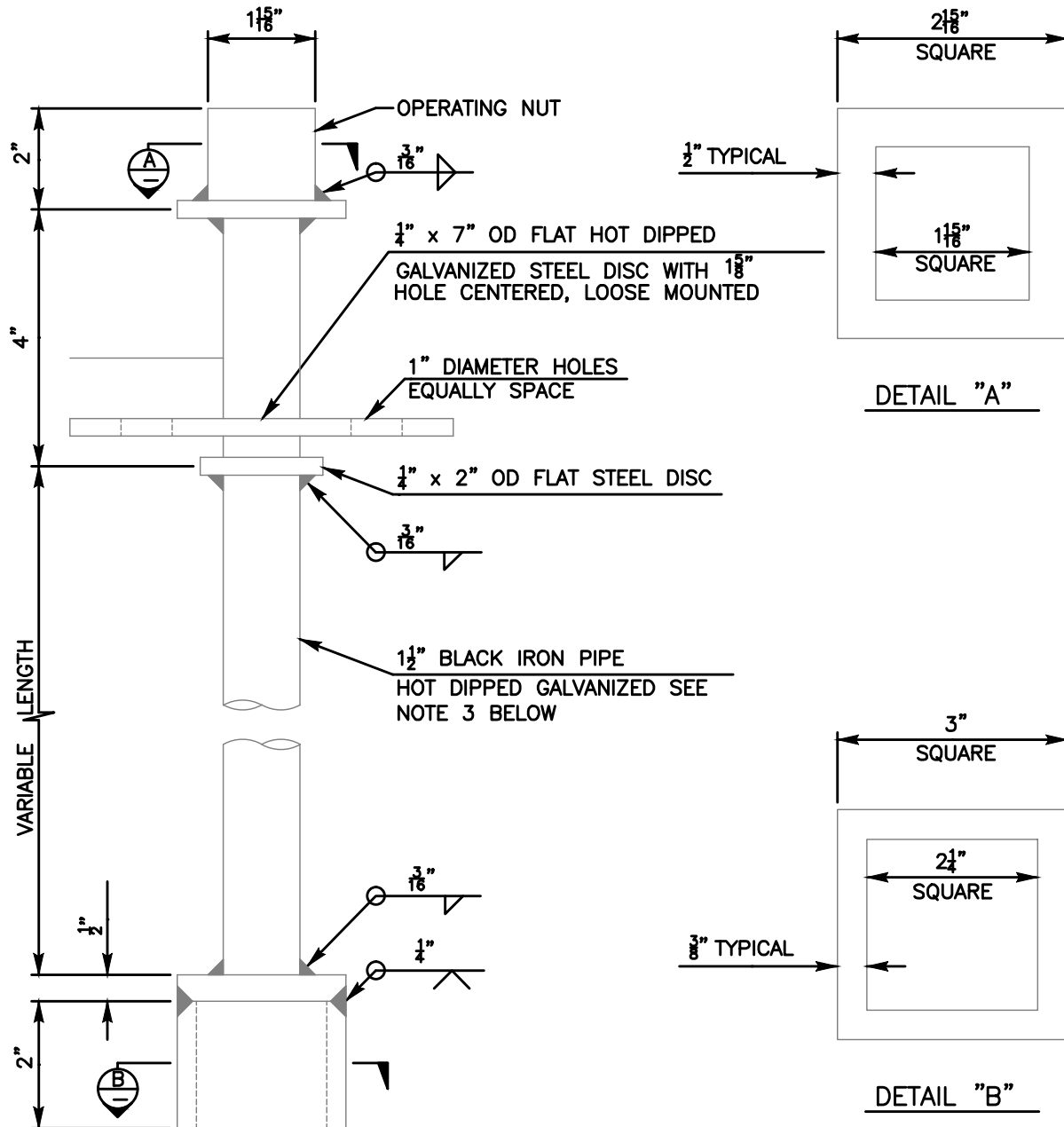
PAINTED IDENTIFICATION MARKING

SEE NOTE 4 BELOW

NOTES:


- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) GATE WELL LIDS SHALL BE CAST WITH THE "AGENCY NAME" AND THE WORD "WATER" FOR USE WITH POTABLE WATER SYSTEMS AND "RECYCLED" FOR USE WITH RECYCLED WATER SYSTEMS. LIDS SHALL INCLUDE A 1" LIFTING SLOT
- 3) PVC GATE WELLS SHALL BE MANUFACTURED IN WHITE OR BLUE FOR USE WITH POTABLE WATER, AND PURPLE FOR USE WITH RECYCLED WATER
- 4) THE INSIDE PORTIONS OF THE GATE WELL LID AND PVC GATE WELL SHALL BE IDENTIFIED WITH A PAINTED IDENTIFICATION MARKING.
- 5) THE TOP EXTERIOR PORTION OF GATE WELL LIDS SHALL BE PAINTED WITH COLORS TO IDENTIFY THE USE OF THE VALVE INSTALLED, AS SHOWN ABOVE
- 6) INSTALLATION FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS AND AS NOTED ABOVE
- 7) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

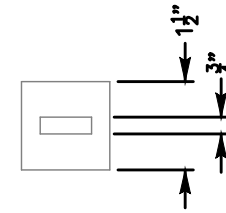
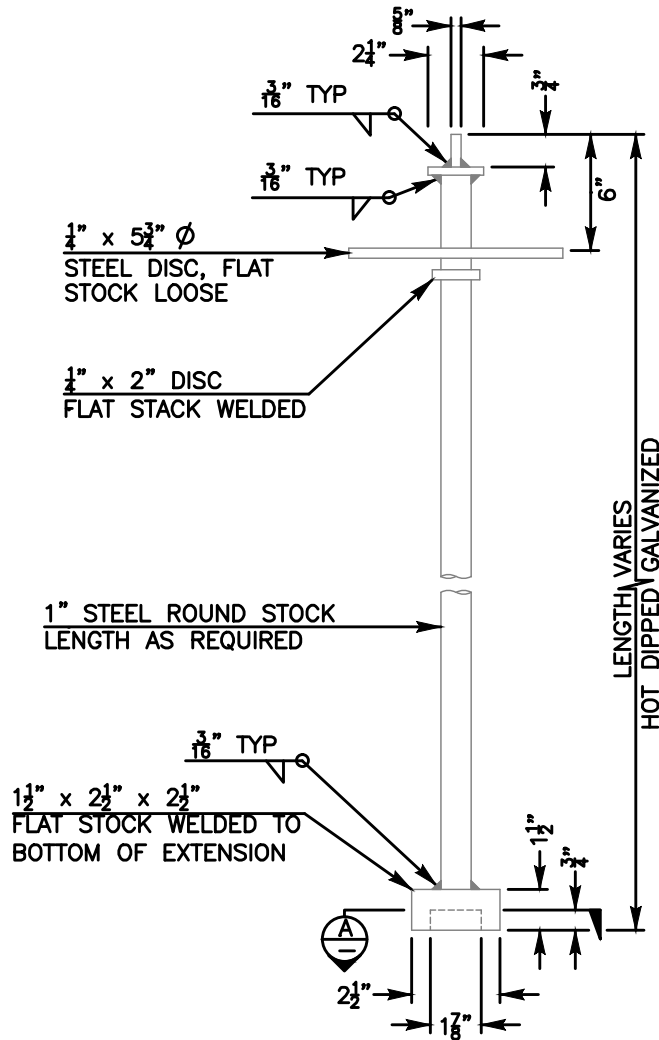
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		GATE WELL IDENTIFICATION
Add Metric		T. Stanton	03/03		
Repl. W-12A and W-12B		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		



NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE AND STANDARD DRAWINGS WV-01 AND WV-02
- 2) STEEL EXTENSION STEMS SHALL BE USED ONLY WHERE THE MAXIMUM LENGTHS OF THE EXTENSION EXCEEDS 8' AND AT THE REQUEST OF THE AGENCY'S ENGINEER
- 3) EXTENSION STEMS SHALL BE ROUND OR SQUARE STEEL TUBING OF SOLID DESIGN (NO PINNED COUPLINGS PERMITTED)
- 4) VALVES DEEPER THAN 5' REQUIRE A VALVE STEM EXTENSION
- 5) EXTENSION STEMS SHALL NOT BE ATTACHED/BOLTED TO OPERATING NUT OF THE VALVE
- 6) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST


Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		G.Parkinson	5/92		
Add Metric		T. Stanton	03/03	STEEL VALVE STEM EXTENSION FOR VALVES 4" AND LARGER	 7/26/2012 Chairperson R.C.E. 19246 Date
Replaced W-13		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11		
					DRAWING NUMBER WV-04



DETAIL "A"

NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) EXTENSION STEMS SHALL BE ROUND STEEL TUBING OF SOLID DESIGN (NO PINNED COUPLINGS PERMITTED)
- 3) VALVES DEEPER THAN 5' AND 2" AIR VALVES REQUIRE A VALVE STEM EXTENSION OR AS REQUIRED BY THE AGENCY OF JURISDICTION
- 4) EXTENSION STEMS SHALL NOT BE ATTACHED/BOLTED TO OPERATING NUT OF THE VALVE
- 5) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		G. Parkinson	5/92	STEEL VALVE STEM EXTENSION FOR VALVES 2" AND SMALLER		 7/26/2012 Chairperson R.C.E. 19246 Date	
Add Metric		T. Stanton	03/03				
Replaced W-13		J. Tomasulo	10/04				
Delete Metric	MR	B. KNOLL	03/11				
						DRAWING NUMBER	WV-05

APPENDIX "A"

TRAFFIC CONTROL PLANS

TRAFFIC CONTROL PLANS

APPENDIX "A"

TRAFFIC CONTROL PLANS

GENERAL INFORMATION

San Diego Regional Standards traffic control plans are compiled by utilizing previously developed and State approved Traffic Control Plans created by both the 2010 California Manual on Uniform Traffic Control Devices (CA MUTCD) and the 2010 California Joint Utilities Traffic Control Manual (CJUTCM). Their consistent commitment to safe and effective temporary traffic control are reflected in the Traffic Control Plans contained in this section.

Part 6 of the CA MUTCD manual "Temporary Traffic Control" is published by the Federal Highway Administration. The CJUTCM is prepared by a panel representing California utilities, who's work routinely impacts the Public Right of Way. Both manuals have been approved by the California Department of Transportation (Caltrans). These manuals in combination are issued to provide the basic standard for the uniform types of warning devices, lights, and other devices placed upon any public roadway or street. Any person engaged in performing work that interferes with or endangers the movement of traffic upon a street or highway must do so safely in accordance with sections 21367 and 21400 of the California Vehicle Code.

The typical application drawing found in this chapter can be used by any individual, utility or contractor who needs to provide temporary traffic control to complete their work. The intent of this chapter is to be a resource for municipalities and jurisdictions to refer others as well as their own crews who need to erect temporary traffic control.

Before work begins, traffic control plans addressing vehicle, bike, and pedestrian traffic through a construction zone may need to be approved by the public agency or authority having jurisdiction over the roadway. Nothing contained in this chapter shall prevent local jurisdictions from modifying, changing, or adopting new specifications they deem necessary. The text and typical drawings in this Chapter are not a legal standard. Criteria for position, location, and use of traffic control devices are furnished solely for the purpose of guidance and information to assist in the preparation of temporary traffic control plans.

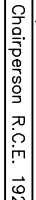
It is the responsibility of the Contractor or Organization performing work on, or adjacent to, a roadway to install and maintain the proper traffic control devices which are necessary to provide safety for both the traveling public and the workers.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
TEXT	BUSS		2/11		
TRAFFIC CONTROL PLANS					
</					

TRAFFIC CONTROL PLANS

TABLE OF CONTENTS

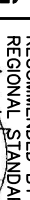
TCP-1	General Information
TCP-2	Table of Contents
TCP-3	Typical Construction Signs
TCP-4	Device Spacing Tables
TCP-5	Traffic Control Plan Cover Sheet
TCP-6	Side of the Road - Road w/o Centerline
TCP-7A	Side of the Road - Two Lane w/Centerline
TCP-7B	Multi-Lane edge of Gutter Closure
TCP-7C	Side of Road - Shoulder Closed
TCP-8	Center of Road - Two Lane w/o Centerline
TCP-9	Side of Road - Two Lane w/Flaggers One lane closed
TCP-10A	Side of Road - Multilane w/Centerline One lane closed
TCP-10B	Side of Road - Multilane w/Centerturn 1 lane closed
TCP-10C	Side of Road- Multilane w/Median 1 lane closed
TCP-11	Center of Road - Multilane w/Centerline Right 2 lanes closed
TCP-12A	Side of Road - Multilane w/Centerline Left 1 lane closed
TCP-12B	Side of Road - Multilane w/median Left 1 lane closed
TCP-13A	Center of Road - Multilane w/Centerline Left lane closed
TCP-13B	Center of Road - Multilane w/Centerturn Center and Lanes Closed
TCP-14	Side of Road - Multilane w/Centerturn lane closed
TCP-15	Center of Road - Multilane w/Centerturn closure
TCP-16A	Side of Road - Single Left lane closure One Way Street
TCP-16B	Center of Road- Double Left lane closure One Way Street
TCP-16C	Side of Road- Single Right lane closure One Way Street
TCP-16D	Center of Road- Double Right lane closure One Way Street
TCP-17	Center of Road - Multilane w/Centerturn as 2 Right lanes
TCP-18	Center of Road - Multilane closure of Centerturn & 2 RT lane
TCP-19	Side of Road - Multilane closure of Centerturn & 1 Left lane
TCP-20	Side of Road - Multilane w/median Left 2 lanes closed
TCP-21	Side of Road - Multilane w/median Right 2 lanes closed
TCP-22	Center of Road - Multilane Middle lane closed
TCP-23	Side of Road Multilane Beyond Intersection Right 1 lane closed
TCP-24	Side of Road - Multilane Beyond Intersection Left lane closed
TCP-25	Side of Road - Multilane Beyond Intersection Left 1 lane closed
TCP-26	Center of Road - Multilane Intersection Left lane closed
TCP-27A	Center of Road - Multilane Middle Intersection
TCP-27B	Center of Road - Multilane Middle Intersection w/medians & turns
TCP-28	Side of Road - Beyond Intersection Parking area closed
TCP-29	Side of Road - Beyond Intersection Traffic shift to Parking area
TCP-30	Side of Road - Multilane Intersection Right lane closed
TCP-31	Center of Road - Multilane Intersection lanes closed 2 directions

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  7/26/2012		SAN DIEGO REGIONAL STANDARD DRAWING			
Chairperson R.C.E. 19246					
DRAWING NUMBER	TCP-2A	TRAFFIC CONTROL PLANS			
		Revision	By	Approved	Date
		TEXT	BUSS		2/11

TRAFFIC CONTROL PLANS

TABLE OF CONTENTS

TCP-32	Side of Road - Multilane Left Turn Left lane closed
TCP-33	Side of Road - Multilane Left Turn Right lane closed
TCP-34	Side of Road - Multilane 2 Left Turn lanes, 1 closed Left lane closed
TCP-35	Side of Road - Multilane 2 Left Turn lanes, 1 closed Right lane closed
TCP-36	Side of Road - Multilane Right turn & lane closed
TCP-37	Side of Road - Multilane Right turn & left lane closed
TCP-38	Side of Road - Multilane 1 Right turn & lane closed
TCP-39	Side of Road - Multi-lane reduced Right Turn lanes
TCP-40	Center of Road - Right/Left Turn
TCP-41	Center of Road - Multilane closed Left Turn lanes
TCP-42	Center of Road - Right/Left lane closed
TCP-43	Center of Road - Multilane Right/Center lanes closed One Way
TCP-44	Center of Road - Multilane Left and Center lanes closed
TCP-45	Side of Road - Multilane Right/Left closed
TCP-46	Center of Road - Multilane Right/Left lanes closed
TCP-47A	Center of Road - Multilane Right/Left lanes closed
TCP-47B	Intersection - Multi-lane Right turn lanes closed
TCP-48A	Side of Road - Half Street Closed (1 of 2)
TCP-48B	Side of Road - Half Street Closed (2 of 2)
TCP-49	Center of Road - Full Street Closure - 1 way
TCP-50	Center of Road - Full Street Closure - 2 directions
TCP-51	Sidewalk - Sidewalk Closed
TCP-52	Sidewalk - Sidewalk closed 1/2 block w/mid block crossing
TCP-53	Sidewalk - Sidewalk closed & shift to parking area

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	TRAFFIC CONTROL PLANS	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  Chairperson R.C.E. 19246 7/26/2012
TEXT	BUSS		2/11			
				DRAWING NUMBER		TCP-2B

<div><div></div><div>R1-1</div></div> <div><div></div><div>R3-1R R3-2L</div></div> <div><div></div><div>R3-5R</div></div> <div><div></div><div>R3-7R R3-7L</div></div> <div><div></div><div>R4-7</div></div> <div><div></div><div>R4-7A</div></div> <div><div></div><div>R9-3A</div></div>	<div><div></div><div>R9-9</div></div> <div><div></div><div>R9-10</div></div> <div><div></div><div>R9-11</div></div> <div><div></div><div>R9-11a</div></div> <div><div></div><div>R10-11</div></div> <div><div></div><div>R11-2</div></div> <div><div></div><div>R11-4</div></div>	<div><div></div><div>R26</div></div> <div><div></div><div>W1-3R W1-3L</div></div> <div><div></div><div>W1-4R W1-4L</div></div> <div><div></div><div>W3-4</div></div> <div><div></div><div>W4-2R W4-2L</div></div> <div><div></div><div>W5-1</div></div> <div><div></div><div>W6-3</div></div>	<div><div></div><div>W8-6</div></div> <div><div></div><div>W12-1</div></div> <div><div></div><div>W20-1</div></div> <div><div></div><div>W20-2</div></div> <div><div></div><div>W20-3</div></div> <div><div></div><div>W20-4</div></div> <div><div></div><div>W20-5R W20-5L</div></div>	<div><div></div><div>W21-5</div></div> <div><div></div><div>W21-5B</div></div> <div><div></div><div>W20-5(BIKE)</div></div> <div><div></div><div>C12</div></div> <div><div></div><div>C20R C20L</div></div> <div><div></div><div>C-21</div></div> <div><div></div><div>C27</div></div>	<div><div></div><div>C30</div></div> <div><div></div><div>C30A</div></div> <div><div></div><div>C30(BIKE)</div></div> <div><div></div><div>M4-8</div></div> <div><div></div><div>M4-8A</div></div> <div><div></div><div>M4-10R M4-10L</div></div> <div><div></div><div>G20-2</div></div>	<div><div></div><div>C9A</div></div> <div><div></div><div>C28A (CA) C28B (CA) (FLAGGER PADDLES)</div></div> <div><div></div><div>C28A (CA) C28B (CA) (FLAGGER PADDLES)</div></div>
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TABLE 1

RECOMMENDED SIGN SPACING FOR ADVANCE WARNING SIGN SERIES AND
MINIMUM TAPER LENGTH

A	B	C
APPROACH SPEED (S) (MPH)	MINIMUM DISTANCE (FEET) BETWEEN SIGNS AND FROM LAST SIGN TO TAPER	MINIMUM TAPER LENGTHS (L) (FEET) FOR 12-FOOT LANE L 1/2L 1/3L
25	100	125 63 42
30	100	180 90 60
35	350	245 123 82
40	350	320 160 107
45	500	540 270 180
50	500	600 300 200
55+	1000	660 330 220

L for Merge Taper
1/2L for Shift Taper
1/3L for Shoulder Taper

TABLE 2

RECOMMENDED TAPER LENGTH AND MAXIMUM CHANNELIZER/CONE SPACING

A	B	C
APPROACH SPEED (S) (MPH)	BUFFER LENGTH (FEET)	MAX CONE SPACING TAPER TANGENT CONFLICT(*)
25	155	25 50 12
30	200	30 60 15
35	250	35 70 17
40	305	40 80 20
45	360	45 90 22
50	425	50 100 25
55+	495	55 100 27

NOTES:

Taper Formula

L = S x W for speeds greater
than 40 mph

$L = \frac{W \times S^2}{60}$ for speeds of
40 mph or less

Where:

L = Minimum length of taper (feet)

S = Approach Speed (mph) =

Posted Speed Limit or
off-peak 85th % speed

prior to work starting

or anticipated operating

speed

W = Width of offset (feet)

(*) Facing Opposing Traffic, Adjacent to Work Area
or Conflicting with Existing Striping

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
Revised	BUS5		2/11		<i>[Signature]</i> 7/26/2012
				DEVICE SPACING TABLES	
				SIGN SPACING TABLE	
				TAPER LENGTH AND CONE SPACING TABLE	DRAWING NUMBER TCP-4

DRAWING NUMBER TCP-5		Chairperson R.C.E. 19246 2/24/2011		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE		TRAFFIC CONTROL PLAN/PERMIT & PERMIT EXTENSION					
						Public Utility or Company: _____ Project Contact: _____				24 Hour Local Phone: _____	
						Address: _____ City: _____ State: _____ Zip Code: _____				Cellular: _____ Pager: _____ Fax: _____	
						Contractor/Subcontractor: _____ Project Contact: _____				24 Hour Local Phone: _____	
				Address: _____ City: _____ State: _____ Zip Code: _____				Cellular: _____ Pager: _____ Fax: _____			
COVER SHEET TRAFFIC CONTROL PLAN		SAN DIEGO REGIONAL STANDARD DRAWING		JOB LOCATION		BEGIN CROSS STREET		END CROSS STREET		PERMIT NO.	
				WORK HOURS continuous FROM A.M. TO A.M. P.M.		SPEED LIMIT		WORK TO BE DONE		THOMAS BROS. PAGE: _____	
				START DATE		END DATE		1st WORK DATE EXTENSION FROM		TO NEW END DATE	
								2nd WORK DATE EXTENSION FROM		TO NEW END DATE	
PERMIT WORK EXTENSIONS MUST BE OBTAINED BEFORE THE END OF PERMIT DATE											
<div style="display: flex; justify-content: space-between;"> <div style="width: 25%;"> <p>REQUIREMENTS:</p> <p>1. The contractor is responsible for promptly restoring the road back to satisfactory condition which includes, but is not limited to, paving, striping, markings, signing, and loop detection.</p> <p>2. The Agency reserves the right to observe these traffic control plans in operation and to make changes as field conditions warrant.</p> <p>3. Trenches shall be back-filled or steel-plated during non-work hours. Steel plates shall have an asphaltic ramp on all edges, or recessed and flush w/road surface securely supported so they won't rock and a sign posted near the plates identifying the contractors name and 24 hour emergency telephone number.</p> </div> <div style="width: 25%;"> <p>3. (cont.) All dirt, dust, and debris shall be removed from the street at the end of each day and at the end of the job with All USA markouts. The street shall be kept in a driveable condition at all times.</p> <p>4. Any work that creates an undue safety risk or that creates severe congestion may be shut down by the agency.</p> <p>5. A copy of all traffic requirements and traffic control plans issued by the Agency must be kept on the job site.</p> <p>6. Approval of this plan does not constitute an official Permit. Contact the Agency for information on obtaining a permit.</p> </div> <div style="width: 25%;"> <p>7. All travel lanes will typically be a minimum of 12 feet wide, 14 feet if adjacent to closed bike lanes, unless otherwise specifically approved by the Agency.</p> <p>8. Flashing arrow boards as required by the Agency.</p> <p>9. Warning (W) series signs used in work zones shall be Black on an Orange background.</p> <p>10. Cones and pylons shall have white reflectorized sleeves when placed along the centerline or along the outside shoulder.</p> <p>11. If parking is allowed in the advance warning area, advance warning signs shall be mounted on high level devices.</p> <p>12. All conflicting signs shall be covered</p> </div> <div style="width: 25%;"> <p>13. The contractor shall post tow-away/no parking signs at least twenty-four (24) hours in advance, with the day of week, date and work hours noted, and shall bag parking meters (where applicable). *</p> </div> </div>											
THIS TRAFFIC CONTROL PLAN IS NOT VALID UNLESS AN APPLICABLE AGENCY PERMIT OR APPROVAL IS ATTACHED/AFFIXED.						(CITY STAMP HERE)					
The applicant is responsible for complete representation of the actual road conditions shown on this plan including, but not limited to, existing striping and marking, signing, sidewalks, and bike lanes.											
APPLICANTS: Name (print) _____ Address _____ Phone Number _____ Signature _____ Agent of: <input type="checkbox"/> Owner <input type="checkbox"/> Contractor <input type="checkbox"/> Sign/Barricade co. <input type="checkbox"/> Other _____											
										PERMIT APPROVED By: _____ DATE: _____	
SEE ATTACHED SHEET(S) OR REFERENCED STANDARD DRAWING(S) THAT MAY BE APPLICABLE											

Revision	By	Approved	Date
Revised	BUSS		2/11

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA

TWO LANE TRAFFIC CONTROL

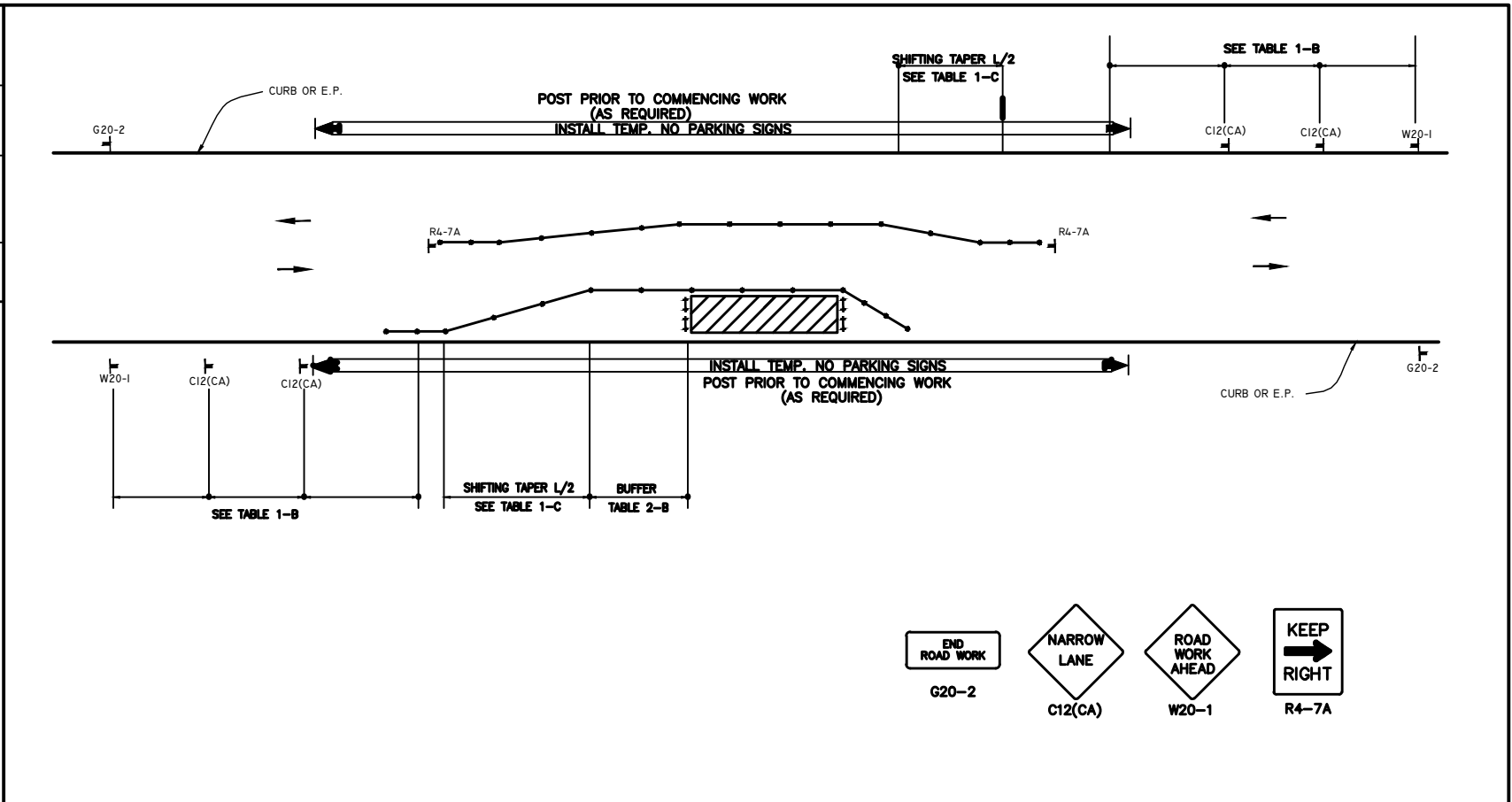
WITHOUT CENTERLINE

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

[Signature] 7/26/2012

Chairperson R.C.E. 19246

DRAWING NUMBER TCP-6



AGENCY ENGINEER'S COMMENTS				

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

For hours of darkness, change comes to vertical barricades with steady burn lights. This plan MAY NOT apply to signalized or multi-way stop intersections. Consult the local jurisdiction when preparing Traffic Control Plans near these intersections. This plan MAY NOT apply when the work areas affect bike lanes, sidewalks pedestrian access and curved or narrow roadways. Consult the approving agency when preparing the Traffic Control Plans or these areas.

Nothing contained on this drawing shall prevent local jurisdictions from modifying changing or adopting new specifications deemed necessary. Criteria for position, location and use of Traffic Control Devices is solely for the purpose of guidance to assist in the set up of the Traffic Control Plans.

TCP is required for all Traffic Control Plans.

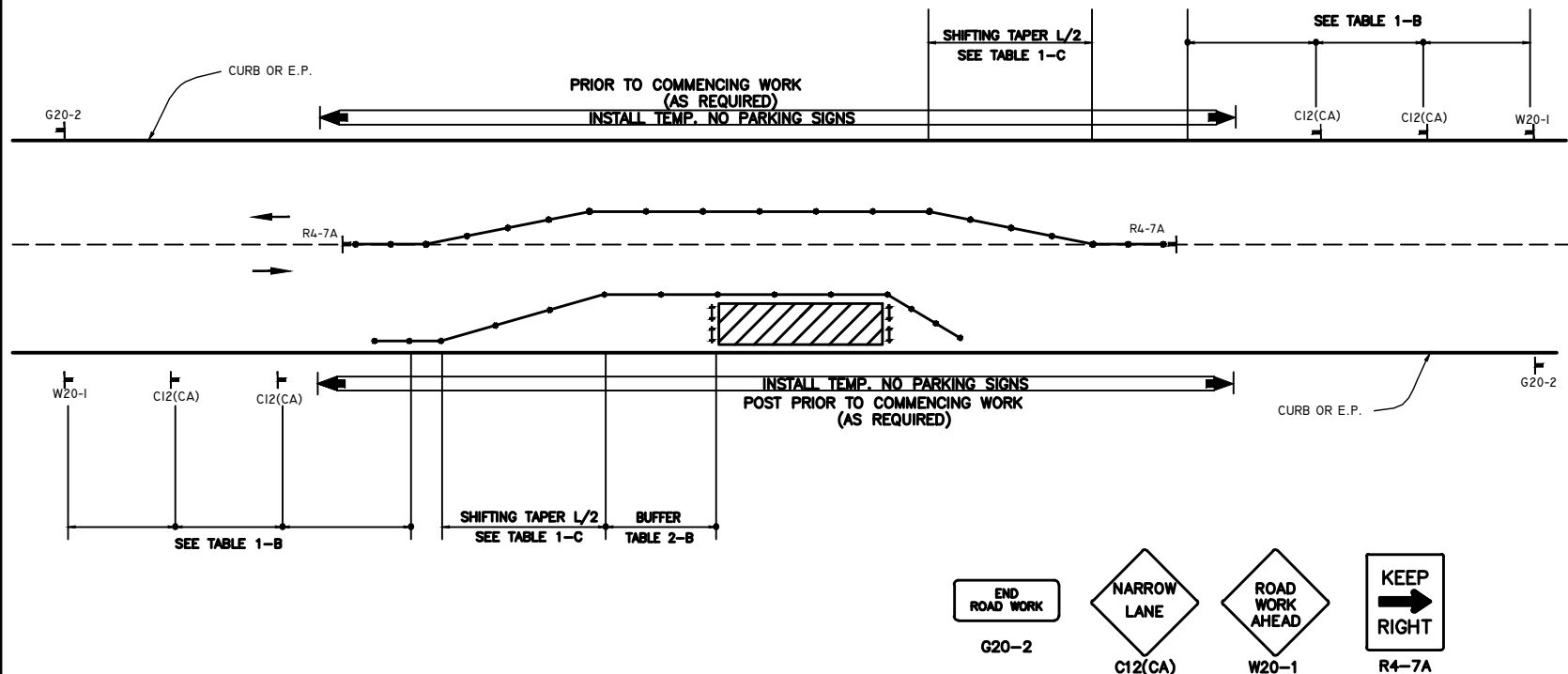
DRAWING
NUMBER TCP-7A

Chairperson R.C.E. 19246

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE
7/26/2012

SIDE OF ROAD WORK AREA
TWO LANE TRAFFIC CONTROL
WITH CENTERLINE

SAN DIEGO REGIONAL STANDARD DRAWING



LEGEND

- CONE + BARRICADE FLAGGER SIGN FLASHING ARROW SIGN WORK AREA TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

Revision	By	Approved	Date
Revised	Buss		2/11

SUBMITTED BY:

NAME _____
COMPANY _____
ADDRESS _____
PHONE _____

APPLICANT USE AGENCY USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

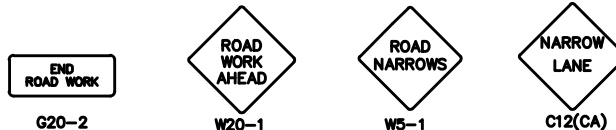
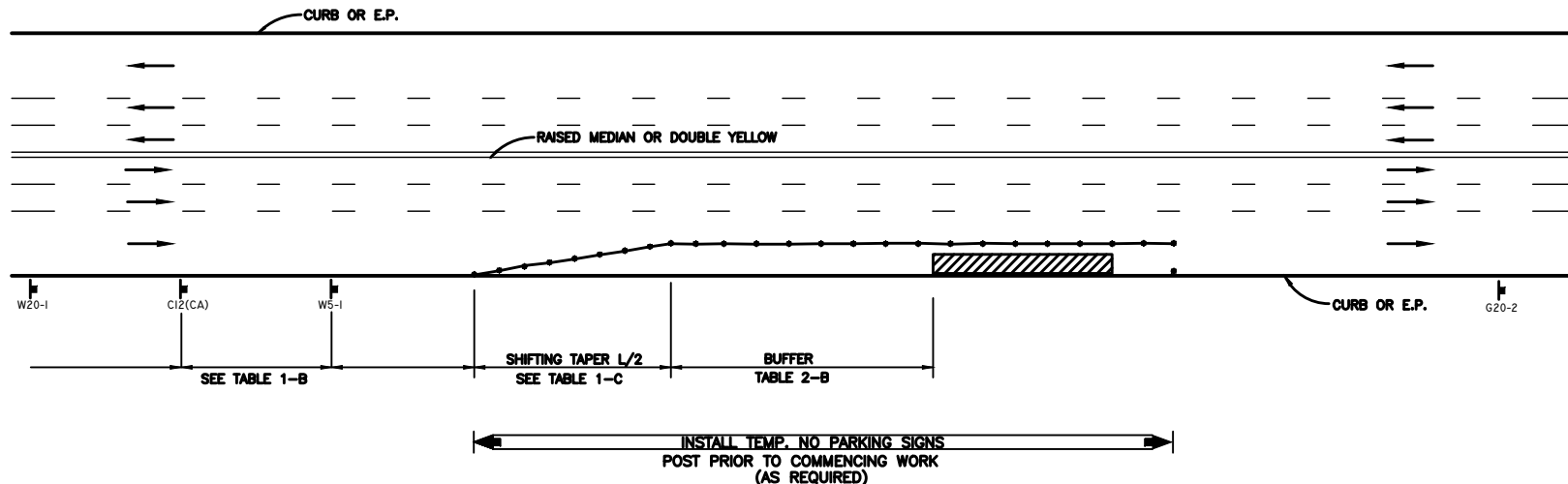
GENERAL NOTES

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TCP is required for all Traffic Control Plans.

Revision	By	Approved	Date
Revised	BUSS		2/11



LEGEND



AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____
 COMPANY _____
 ADDRESS _____
 PHONE _____

APPLICANT USE AGENCY USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

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SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF WORK AREA
 MULTI-EDGE OF GUTTER CLOSURE

DRAWING NUMBER TCP-7B

Chairperson R.C.E. 19246

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

7/26/2012

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Chairperson R.C.E. 19246

7/26/2012

DRAWING
NUMBER

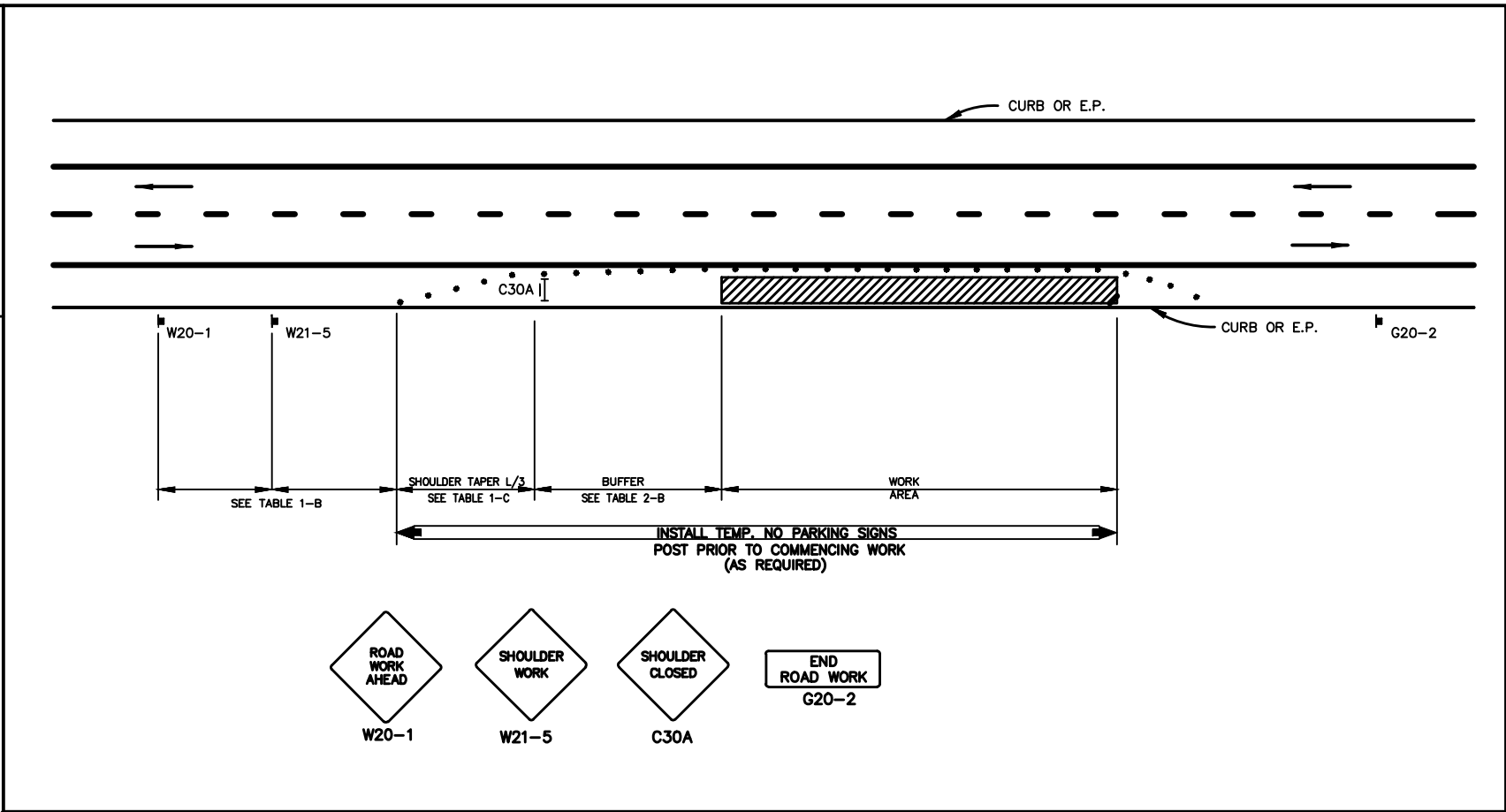
TCP-7C

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA

SHOULDER CLOSURE

Revision	By	Approval	Date
Revised	BUSS		2/11



LEGEND

● CONE ++ BARRICADE ■ FLAGGER ▬ SIGN ▨ FLASHING ARROW SIGN ▨ WORK AREA → TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

AGENCY USE

APPLICANT USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

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Revision	By	Approved	Date
Revised	BUSS		2/11

SAN DIEGO REGIONAL STANDARD DRAWING

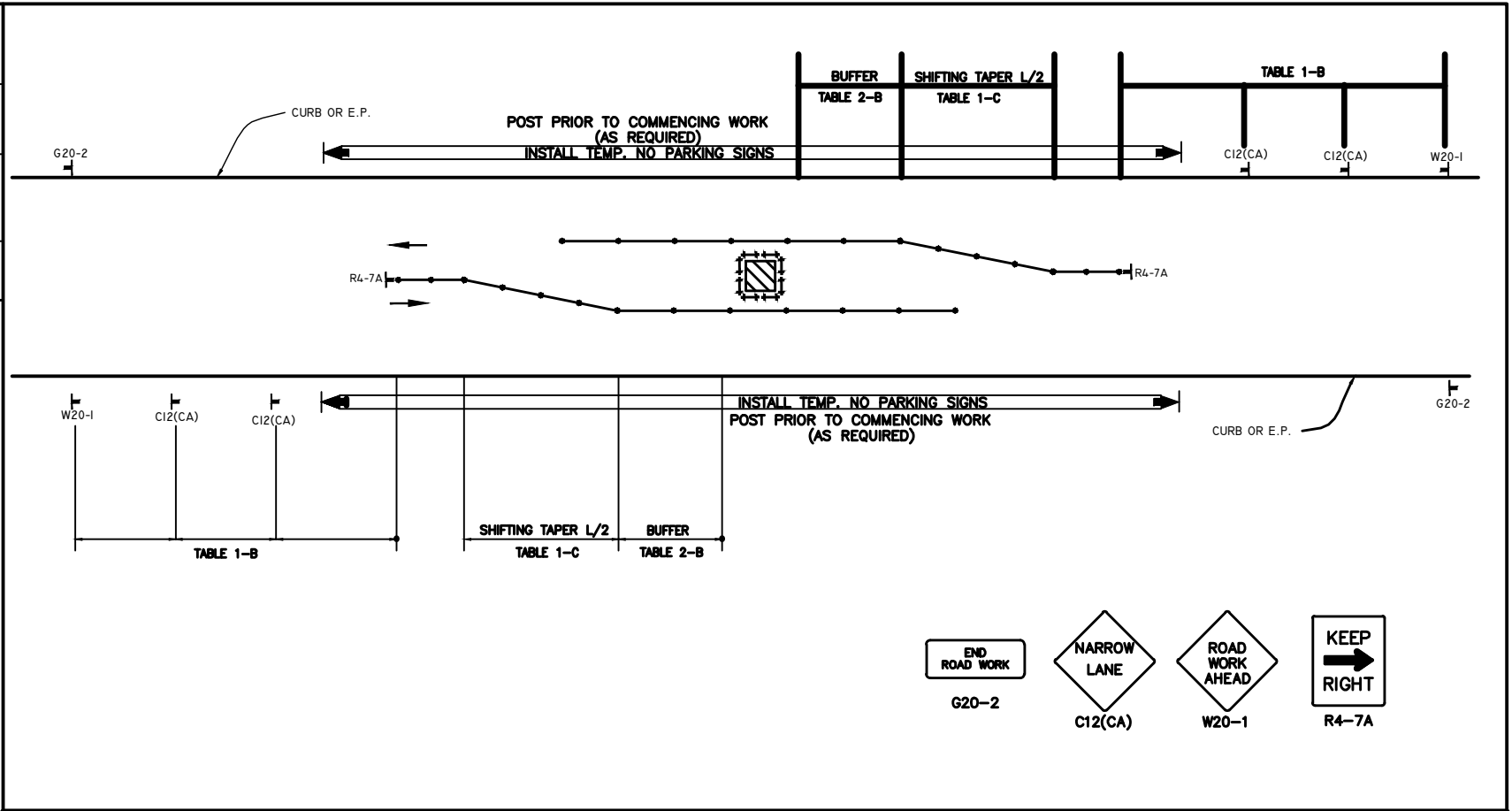
CENTER OF ROAD WORK AREA
TWO LANE TRAFFIC CONTROL
W/O CENTERLINE

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

[Signature] 7/26/2012

Chairperson R.C.E. 19246

DRAWING NUMBER TCP-8



LEGEND									
● CONE	⚡ BARRICADE	🚧 FLAGGER	🚧 SIGN	🚧 FLASHING ARROW SIGN	🚧 WORK AREA	➡ TRAFFIC DIRECTION			

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

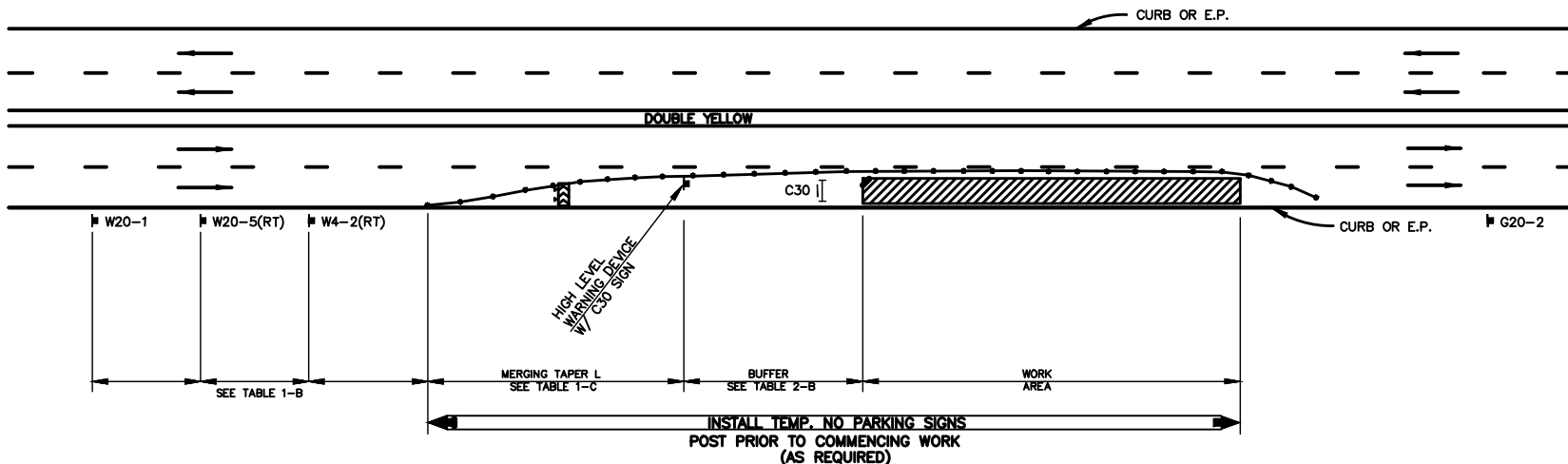
AGENCY USE		APPLICANT USE	
POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SIGN SPACING
GENERAL NOTES			
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TCP is required for all Traffic Control Plans.			

DRAWING NUMBER	TCP-9	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE 7/26/2012											
		Chairperson R.C.E. 19246											
SIDE OF ROAD WORK AREA TWO LANE TRAFFIC CONTROL WITH FLAGGERS		SAN DIEGO REGIONAL STANDARD DRAWING											
		LEGEND											
		● CONE +-+ BARRICADE FLAGGER SIGN FLASHING ARROW SIGN WORK AREA TRAFFIC DIRECTION											
		AGENCY ENGINEER'S COMMENTS											
		<div>APPLICANT USE</div> <div>AGENCY USE</div>											
		<table><tr><td>POSTED SPEED LIMIT</td><td>APPROACH SPEED</td><td>TAPER LENGTH</td><td>SPACING OF CONES</td><td>SIGN SPACING</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>		POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING					
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		SUBMITTED BY: NAME _____ COMPANY _____ ADDRESS _____ PHONE _____											

Revision	By	Approved	Date
Revised	BUSS		2/11

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA MULTILANE TRAFFIC CONTROL WITH CENTERLINE RIGHT LANE TRAFFIC CLOSURE - ONE LANE



LEGEND

- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:
NAME _____
COMPANY _____
ADDRESS _____
PHONE _____

AGENCY USE
APPLICANT USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

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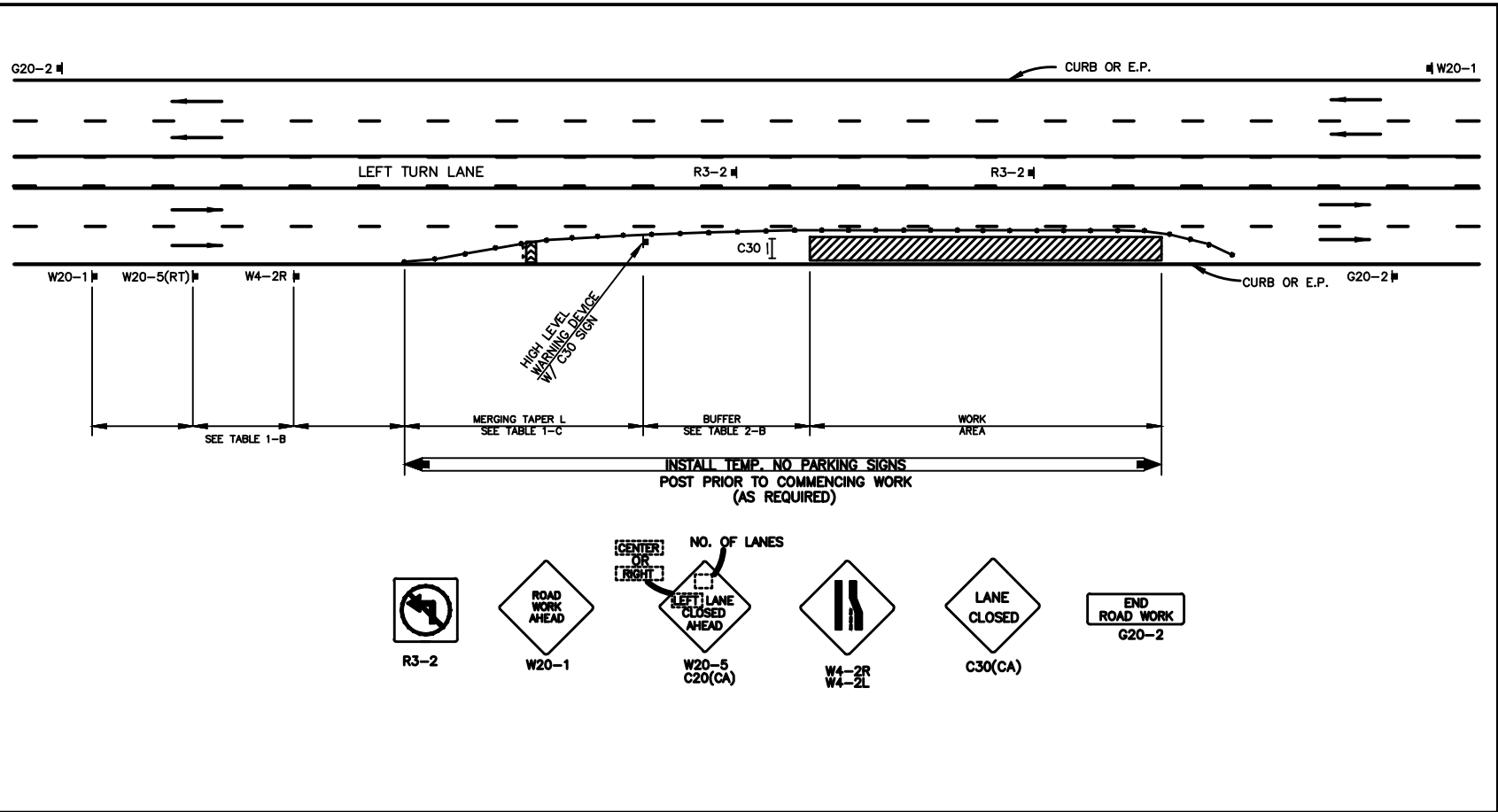
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TCP is required for all Traffic Control Plans.

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
[Signature] 7/26/2012
Chairperson R.C.E. 19246
DRAWING NUMBER TCP-10A

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE
[Signature] 7/26/2012
Chairperson R.C.E. 19246
DRAWING NUMBER TCP-10B

SAN DIEGO REGIONAL STANDARD DRAWING
SIDE OF ROAD WORK AREA
MULTILANE TRAFFIC CONTROL WITH TWO WAY LEFT TURN
RIGHT TRAFFIC LANE CLOSURE - ONE LANE CLOSED



LEGEND

● CONE ++ BARRICADE ■ FLAGGER — SIGN ▨ FLASHING ARROW SIGN ▨ WORK AREA ⇄ TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:
NAME _____
COMPANY _____
ADDRESS _____
PHONE _____

AGENCY USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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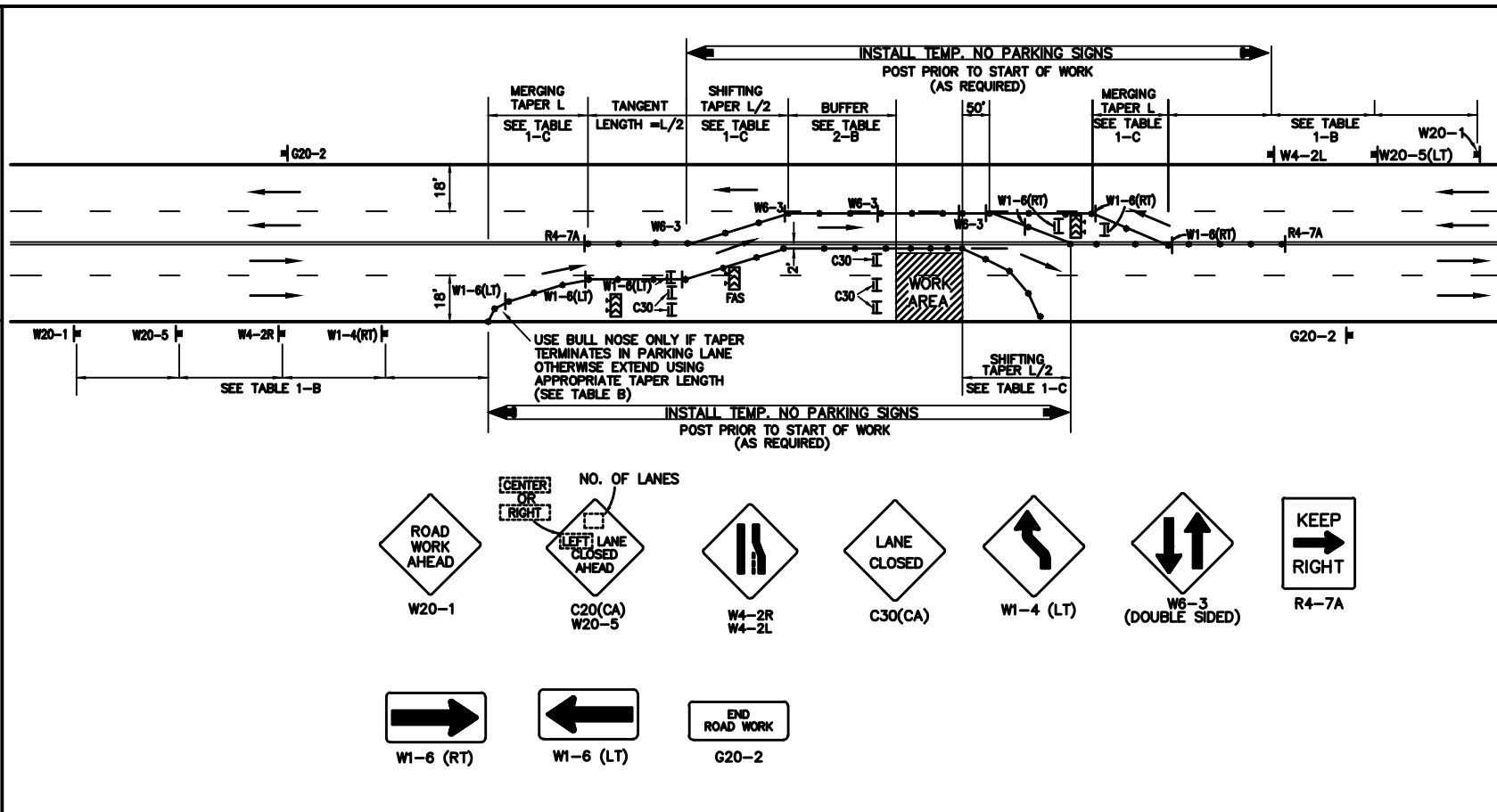
TCP is required for all Traffic Control Plans.

APPLICANT USE

**CENTER OF ROAD WORK AREA
MULTILANE TRAFFIC CONTROL WITH CENTERLINE
RIGHT TRAFFIC LANE CLOSURE – TWO LANES CLOSED**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

SAN DIEGO REGIONAL STANDARD DRAWING



LEGEND

● CONE ⚡ BARRICADE ■ FLAGGER ┃ SIGN ▤ FLASHING ARROW SIGN ▨ WORK AREA ⇨ TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

NAME _____
COMPANY _____

ADDRESS

PHONE

APPLICANT USE	AGENCY USE
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POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

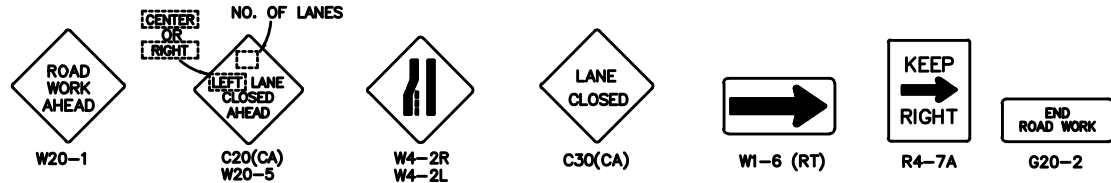
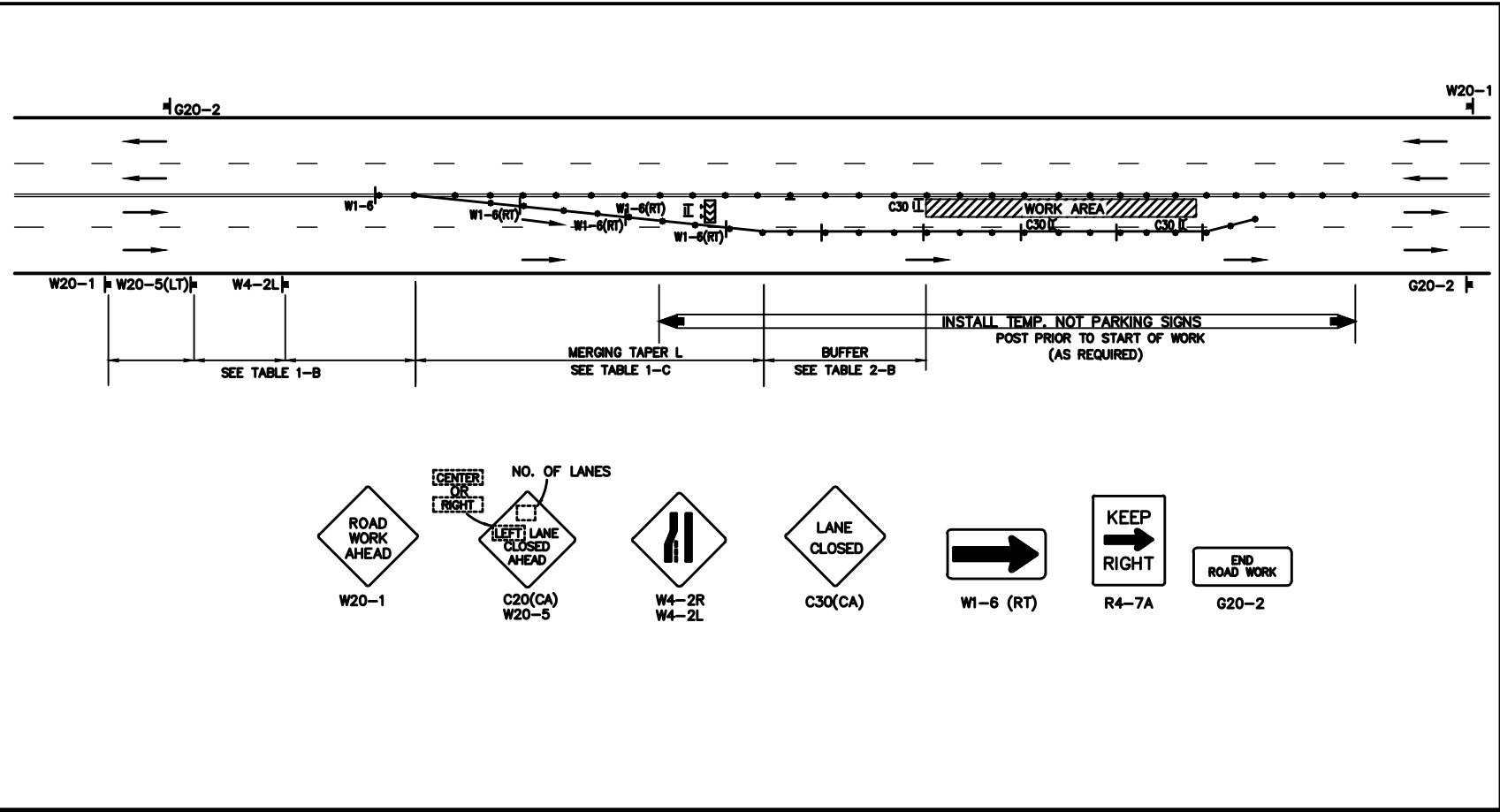
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Revision	By	Approved	Date
Revised	BUSS		2/11

Revision	By	Approved	Date
Revised	BUSS		2/11



LEGEND

- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- ⚡ FLASHING ARROW SIGN
- ▨ WORK AREA
- TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____
 COMPANY _____
 ADDRESS _____
 PHONE _____

AGENCY USE
 APPLICANT USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA

MULTILANE TRAFFIC CONTROL WITH CENTERLINE

LEFT TRAFFIC LANE CLOSURE - ONE LANE CLOSED

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

[Signature] 7/26/2012

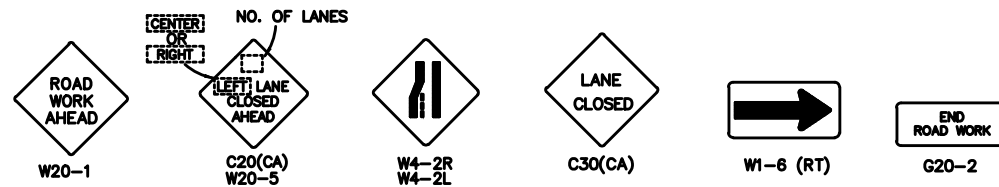
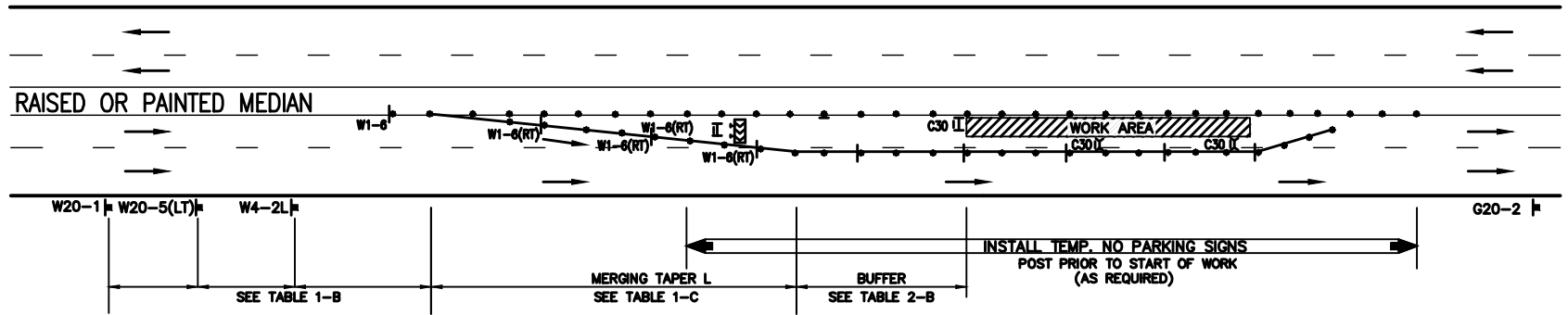
Chairperson R.C.E. 19246

DRAWING NUMBER TCP-12A

SIDE OF ROAD WORK AREA
MULTILANE TRAFFIC CONTROL WITH RAISED MEDIAN
LEFT LANE TRAFFIC LANE CLOSURE - ON LANE CLOSED

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

SAN DIEGO REGIONAL STANDARD DRAWING



● CONE ⚡ BARRICADE ■ FLAGGER — SIGN ⚡ FLASHING ARROW SIGN ▨ WORK AREA → TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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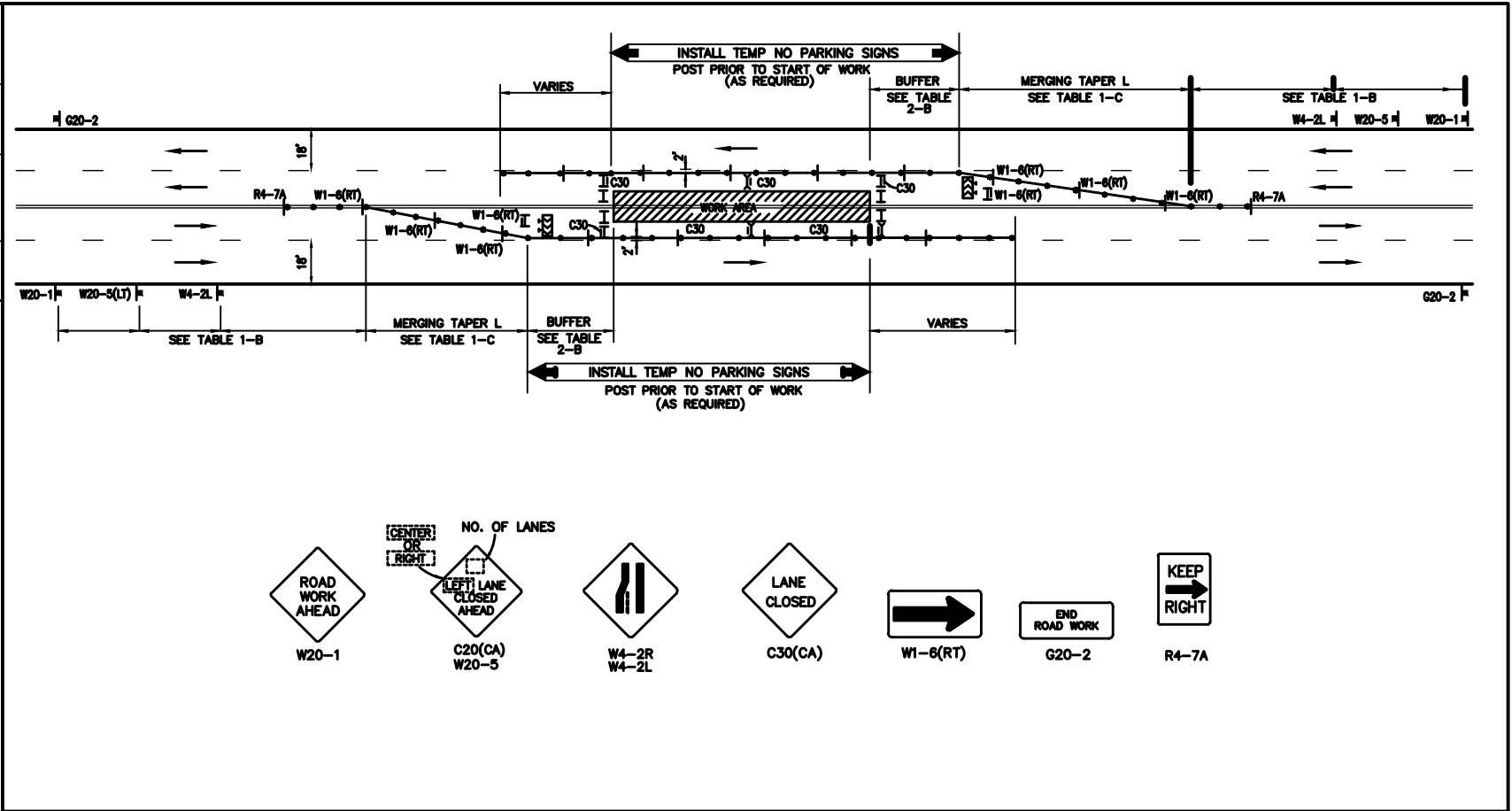
SUBMITTED BY:

NAME _____
COMPANY _____
ADDRESS _____
PHONE _____

APPLICANT USE	AGENCY USE
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Revision	By	Approved	Date
Revised	BUSS		2/11

Revision	By	Approved	Date
Revised	BUSS		2/11



SAN DIEGO REGIONAL STANDARD DRAWING

CENTER OF ROAD WORK AREA

MULTILANE TRAFFIC CONTROL WITH CENTERLINE

LEFT TRAFFIC LANE CLOSURE - ONE LANE

LEGEND					
● CONE	⚡ BARRICADE	🚧 FLAGGER	🚧 SIGN	🚧 FLASHING ARROW SIGN	🚧 WORK AREA
					➡ TRAFFIC DIRECTION

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Chairperson R.C.E. 19246

7/26/2012

DRAWING NUMBER TCP-13A

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

APPLICANT USE AGENCY USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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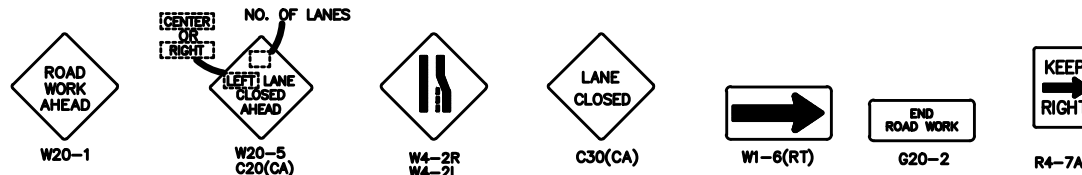
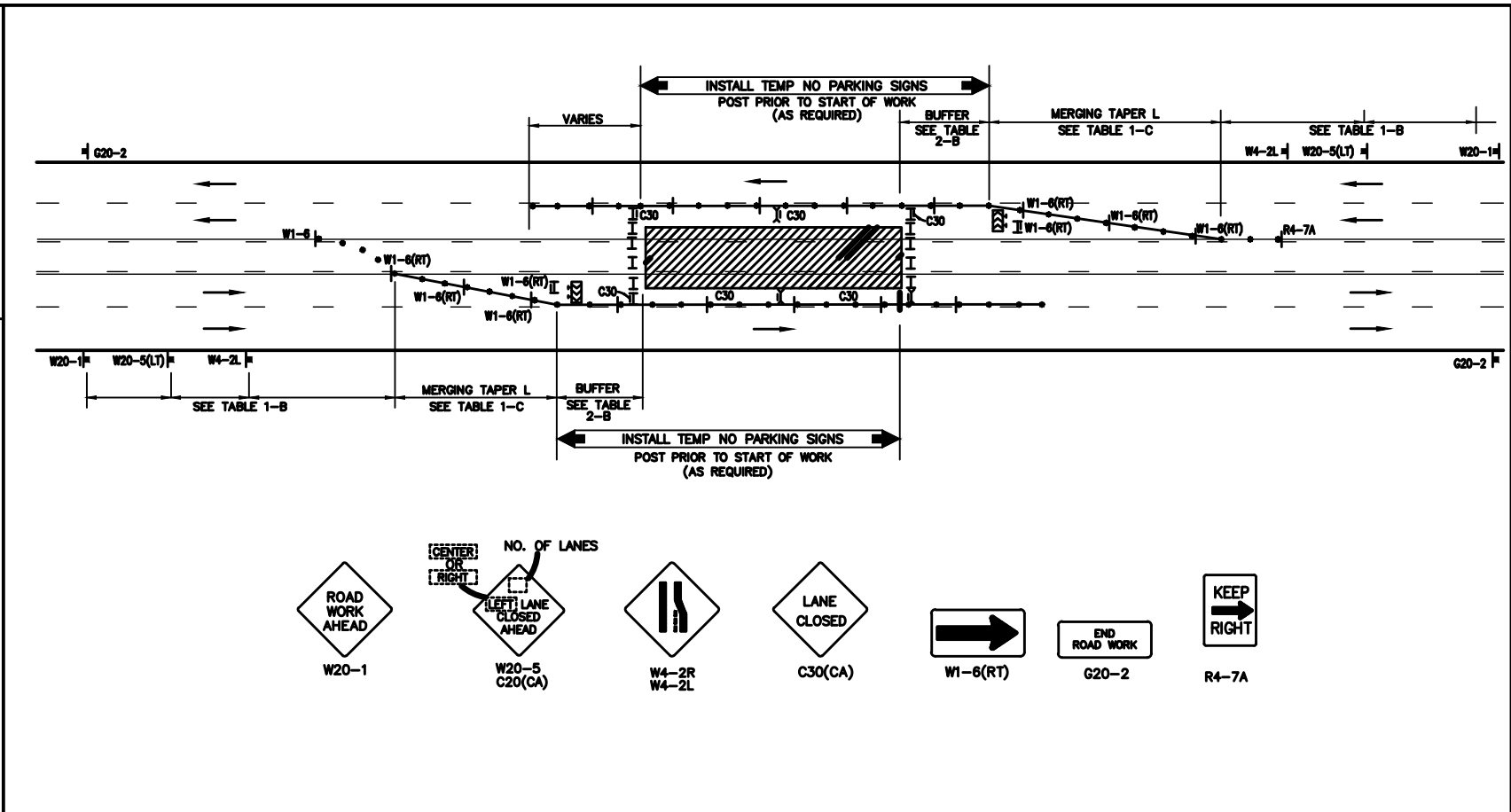
TCP is required for all Traffic Control Plans.

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE
[Signature] 7/26/2012
Chairperson R.C.E. 19246

DRAWING
NUMBER TCP-13B

SAN DIEGO REGIONAL STANDARD DRAWING

CENTER OF ROAD WORK AREA
MULTILANE TRAFFIC CONTROL WITH CENTER TURN LANE
LEFT TRAFFIC LANE CLOSURE - THREE LANES



LEGEND

● CONE ++ BARRICADE ■ FLAGGER — SIGN ▨ FLASHING ARROW SIGN ▨ WORK AREA → TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:
NAME _____
COMPANY _____
ADDRESS _____
PHONE _____

AGENCY USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

APPLICANT USE

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Revision	By	Approved	Date
Revised	BUSS		2/11

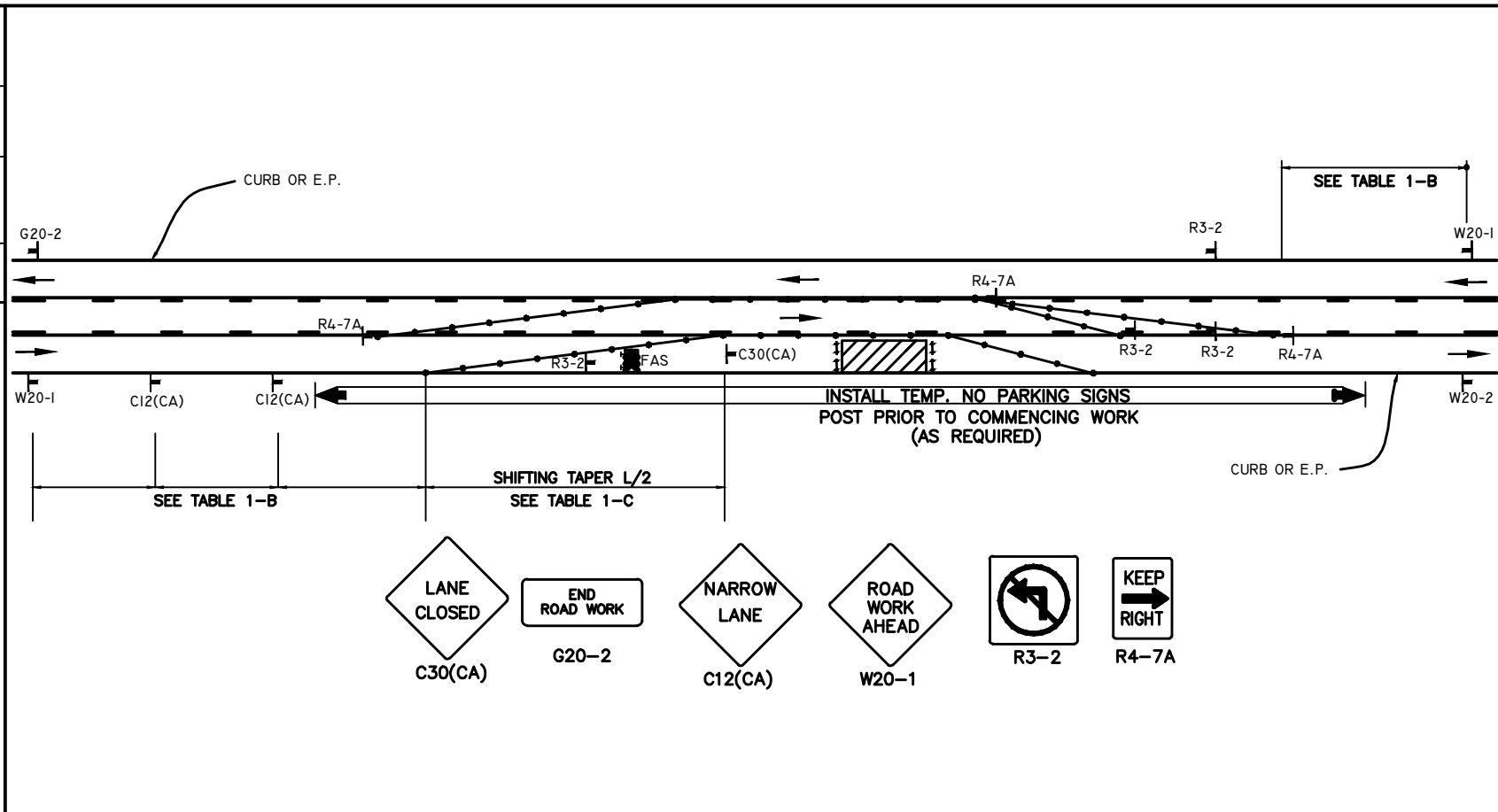
Revision	By	Approved	Date
Revised	BUSS		2/11

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA

MULTILANE TRAFFIC CONTROL WITH TWO WAY TURN

RIGHT LANE TRAFFIC CLOSURE - ONE LANE



LEGEND

- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____
 COMPANY _____
 ADDRESS _____
 PHONE _____

APPLICANT USE AGENCY USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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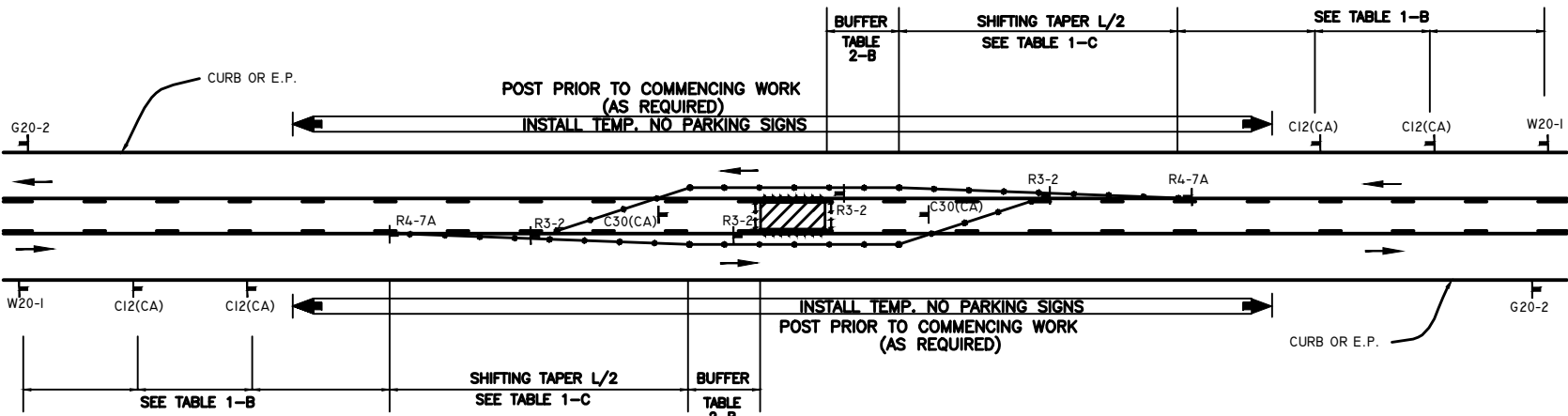
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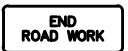




RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Chairperson R.C.E. 19246

DRAWING NUMBER TCP-14

DRAWING NUMBER	TCP-15	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  Chairperson R.C.E. 19246 7/26/2012	
		SAN DIEGO REGIONAL STANDARD DRAWING CENTER OF ROAD WORK AREA MULTILANE TRAFFIC CONTROL WITH TWO WAY LEFT TURN CENTER TURN LANE CLOSURE - ONE LANE	
Revision	By	Approved	Date
Revised	BUSS		2/11



LEGEND

● CONE

++ BARRICADE

■ FLAGGER

▬ SIGN

⚡ FLASHING ARROW SIGN

▨ WORK AREA

➡ TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

AGENCY USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

APPLICANT USE

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

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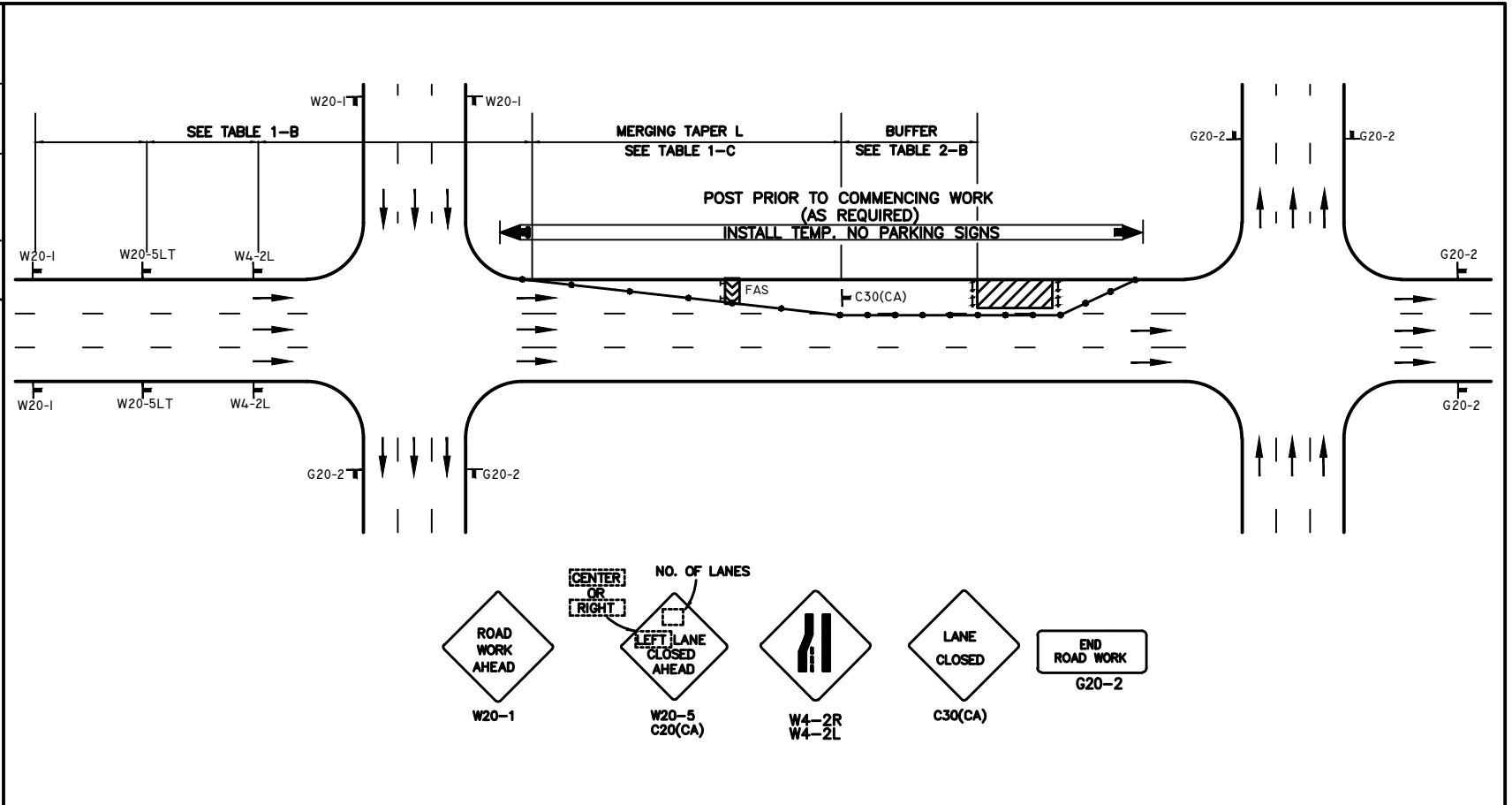
TCP is required for all Traffic Control Plans.

Revision	By	Approved	Date
Revised	BUSS		2/11

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA

SINGLE LEFT LANE CLOSURE FOR ONE WAY STREET



LEGEND

• CONE ++ BARRICADE ■ FLAGGER — SIGN ▤ FLASHING ARROW SIGN ▨ WORK AREA → TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

APPLICANT USE AGENCY USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

[Signature] 7/26/2012

Chairperson R.C.E. 19246

DRAWING NUMBER TCP-16A

DRAWING
NUMBER
TCP-16B

CENTER OF ROAD WORK AREA
DOUBLE LEFT LANE CLOSURE FOR ONE WAY STREET

SAN DIEGO REGIONAL STANDARD DRAWING

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

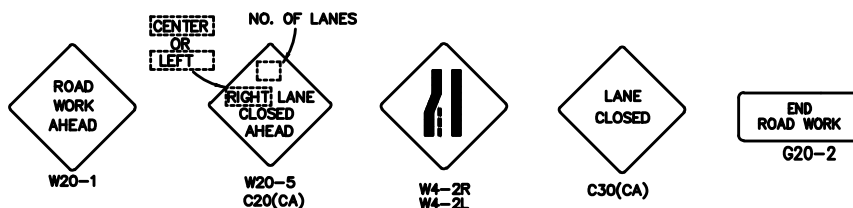
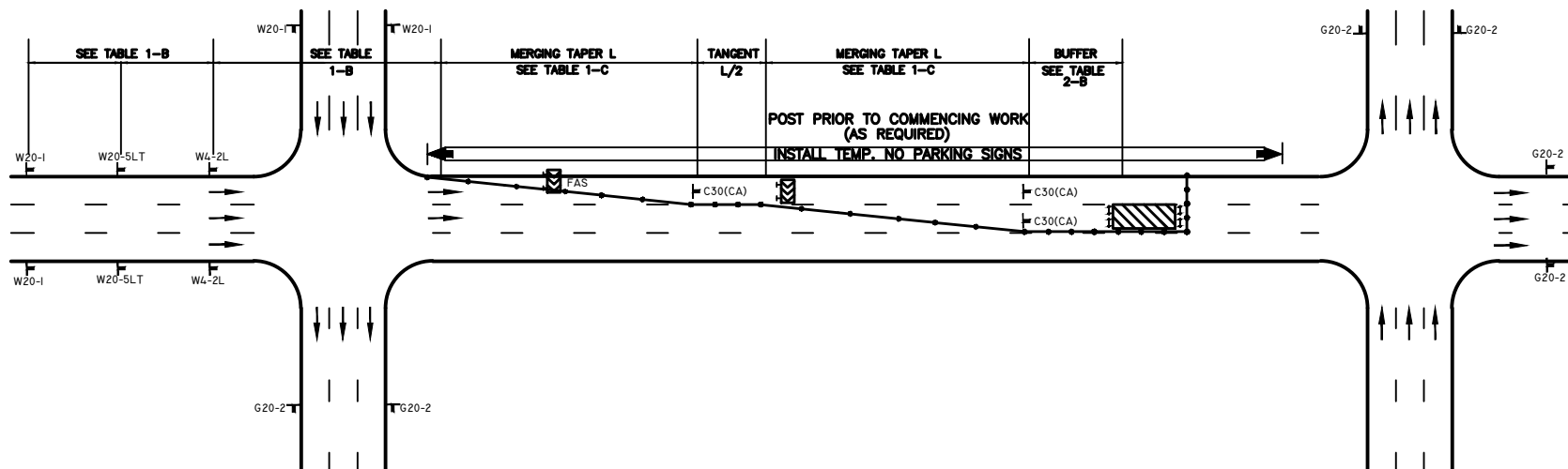
7/26/2012

Revision	By	Approved Date
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Revised

Buss

2/11



LEGEND

● CONE ⚡ BARRICADE 🚧 FLAGGER 🚧 SIGN 🚧 FLASHING ARROW SIGN 🚧 WORK AREA ➡ TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____
COMPANY _____
ADDRESS _____
PHONE _____

APPLICANT USE	AGENCY USE
<p>1. Agency Name: _____</p> <p>2. Agency Address: _____</p> <p>3. Agency Phone: _____</p> <p>4. Agency Fax: _____</p> <p>5. Agency Email: _____</p> <p>6. Agency Website: _____</p> <p>7. Agency Contact Person: _____</p> <p>8. Agency Contact Title: _____</p> <p>9. Agency Contact Address: _____</p> <p>10. Agency Contact Phone: _____</p> <p>11. Agency Contact Fax: _____</p> <p>12. Agency Contact Email: _____</p> <p>13. Agency Contact Website: _____</p> <p>14. Agency Contact Person: _____</p> <p>15. Agency Contact Title: _____</p> <p>16. Agency Contact Address: _____</p> <p>17. Agency Contact Phone: _____</p> <p>18. Agency Contact Fax: _____</p> <p>19. Agency Contact Email: _____</p> <p>20. Agency Contact Website: _____</p>	<p>1. Agency Name: _____</p> <p>2. Agency Address: _____</p> <p>3. Agency Phone: _____</p> <p>4. Agency Fax: _____</p> <p>5. Agency Email: _____</p> <p>6. Agency Website: _____</p> <p>7. Agency Contact Person: _____</p> <p>8. Agency Contact Title: _____</p> <p>9. Agency Contact Address: _____</p> <p>10. Agency Contact Phone: _____</p> <p>11. Agency Contact Fax: _____</p> <p>12. Agency Contact Email: _____</p> <p>13. Agency Contact Website: _____</p> <p>14. Agency Contact Person: _____</p> <p>15. Agency Contact Title: _____</p> <p>16. Agency Contact Address: _____</p> <p>17. Agency Contact Phone: _____</p> <p>18. Agency Contact Fax: _____</p> <p>19. Agency Contact Email: _____</p> <p>20. Agency Contact Website: _____</p>

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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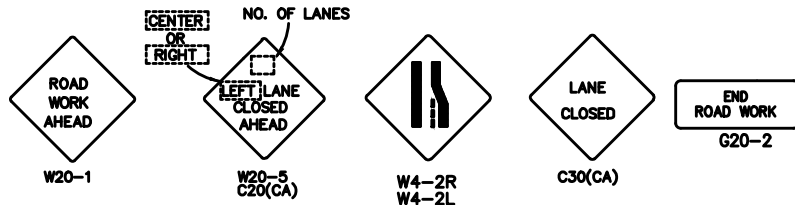
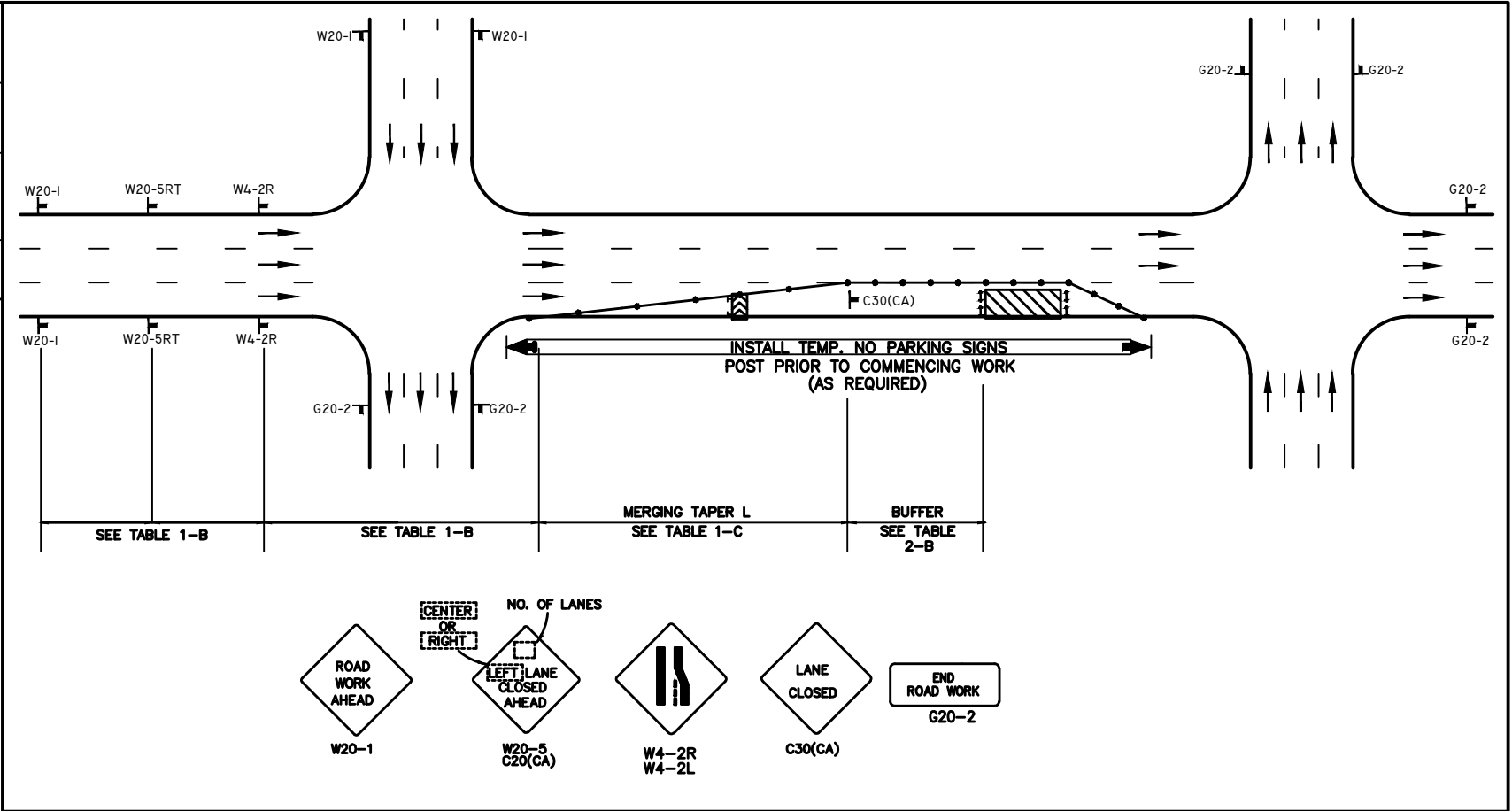
TCP is required for all Traffic Control Plans.

Revision	By	Approved	Date
Revised	BUSS		2/11

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA

SINGLE RIGHT LANE CLOSURE FOR ONE WAY ST



LEGEND

- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

AGENCY USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Chairperson R.C.E. 19246

7/26/2012

DRAWING NUMBER TCP-16C

**CENTER OF ROAD WORK AREA
DOUBLE RIGHT LANE CLOSURE FOR ONE WAY ST**

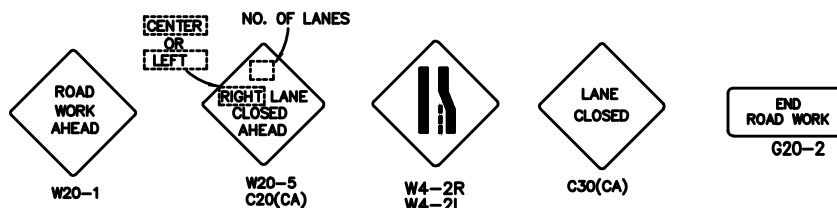
SAN DIEGO REGIONAL STANDARD DRAWING

Revision	By	Approved	Date
Revised	BUSS		2/11

Diagram illustrating a four-way intersection with traffic flow and lane markings. The intersection is divided into four quadrants by a horizontal and vertical centerline. The horizontal centerline is labeled "SEE TABLE 1-C" and "SEE TABLE 2-B". The vertical centerline is labeled "SEE TABLE 1-C" and "SEE TABLE 2-B". The intersection is divided into four quadrants by a horizontal and vertical centerline. The horizontal centerline is labeled "SEE TABLE 1-C" and "SEE TABLE 2-B". The vertical centerline is labeled "SEE TABLE 1-C" and "SEE TABLE 2-B".

Key features and labels include:

- Approach Lanes:** W20-I, W20-5RT, W4-2R (Westbound); G20-2-T, G20-2 (Northbound); G20-2-T, G20-2 (Southbound); W20-I, W20-5RT, W4-2R (Eastbound).
- Intersection Markings:** C30(CA) (Centerline Advance Stop), C30(CA) (Centerline Advance Stop), W4-2R (Right Turn Lane), G20-2-T (Through Lane), G20-2 (Through Lane).
- Signage:** "INSTALL TEMP. NO PARKING SIGNS" (Top Center), "POST PRIOR TO COMMENCING WORK (AS REQUIRED)" (Bottom Center), "SEE TABLE 1-C" (Left and Right Center), "SEE TABLE 2-B" (Left and Right Center).
- Geometric Features:** MERGING TAPER L (Left and Right), TANGENT L/2 (Center), BUFFER (Left and Right).



LEGEND

● CONE ⚡ BARRICADE 🚧 FLAGGER 🚧 SIGN 🚧 FLASHING ARROW SIGN 🚧 WORK AREA ➡ TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____
COMPANY _____
ADDRESS _____
PHONE _____

AGENCY USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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APPLICANT USE

MULTILANE TRAFFIC CONTROL WITH TWO WAY LEFT TURN RIGHT TRAFFIC LANE CLOSURE - TWO LANES		SAN DIEGO REGIONAL STANDARD DRAWING		<div style="text-align: center;"> </div>											
		LEGEND													
		AGENCY ENGINEER'S COMMENTS													
		GENERAL NOTES													
Revision By Approved Date Revised BUSS 2/11		POST PRIOR TO COMMENCING WORK (AS REQUIRED) INSTALL TEMP. NO PARKING SIGNS		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">BUFFER SEE TABLE 2-B</td> <td style="width:15%;">SHIFTING TAPER SEE TABLE 1-C</td> <td style="width:10%;">TANGENT L/2</td> <td style="width:15%;">MERGING TAPER SEE TABLE 1-C</td> <td colspan="2" style="width:35%;">SEE TABLE 1-B</td> </tr> </table>		BUFFER SEE TABLE 2-B	SHIFTING TAPER SEE TABLE 1-C	TANGENT L/2	MERGING TAPER SEE TABLE 1-C	SEE TABLE 1-B					
BUFFER SEE TABLE 2-B	SHIFTING TAPER SEE TABLE 1-C	TANGENT L/2	MERGING TAPER SEE TABLE 1-C	SEE TABLE 1-B											
SUBMITTED BY: NAME _____ COMPANY _____ ADDRESS _____ PHONE _____		AGENCY USE AGENCY USE AGENCY USE AGENCY USE AGENCY USE		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">POSTED SPEED LIMIT</td> <td style="width:15%;">APPROACH SPEED</td> <td style="width:10%;">TAPER LENGTH</td> <td style="width:10%;">SPACING OF CONES</td> <td style="width:50%;">SIGN SPACING</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table> <p>For hours of darkness, change comes to vertical barricades with steady burn lights. This plan MAY NOT apply to signalized or multi-way stop intersections. Consult the local jurisdiction when preparing Traffic Control Plans near these intersections. this plan MAY NOT apply when the work areas affect bike lanes, sidewalks pedestrian access and curved or narrow roadways. Consult the approving agency when preparing the Traffic Control Plans or these areas.</p> <p>Nothing contained on this drawing shall prevent local jurisdictions from modifying changing or adopting new specifications deemed necessary. Criteria for position, location and use of Traffic Control Devices is solely for the purpose of guidance to assist in the set up of the Traffic Control Plans.</p> <p>TCP is required for all Traffic Control Plans.</p>		POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING					
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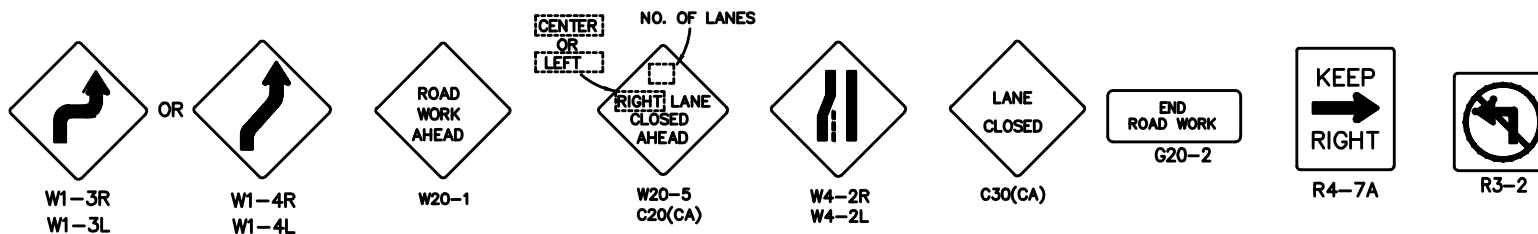
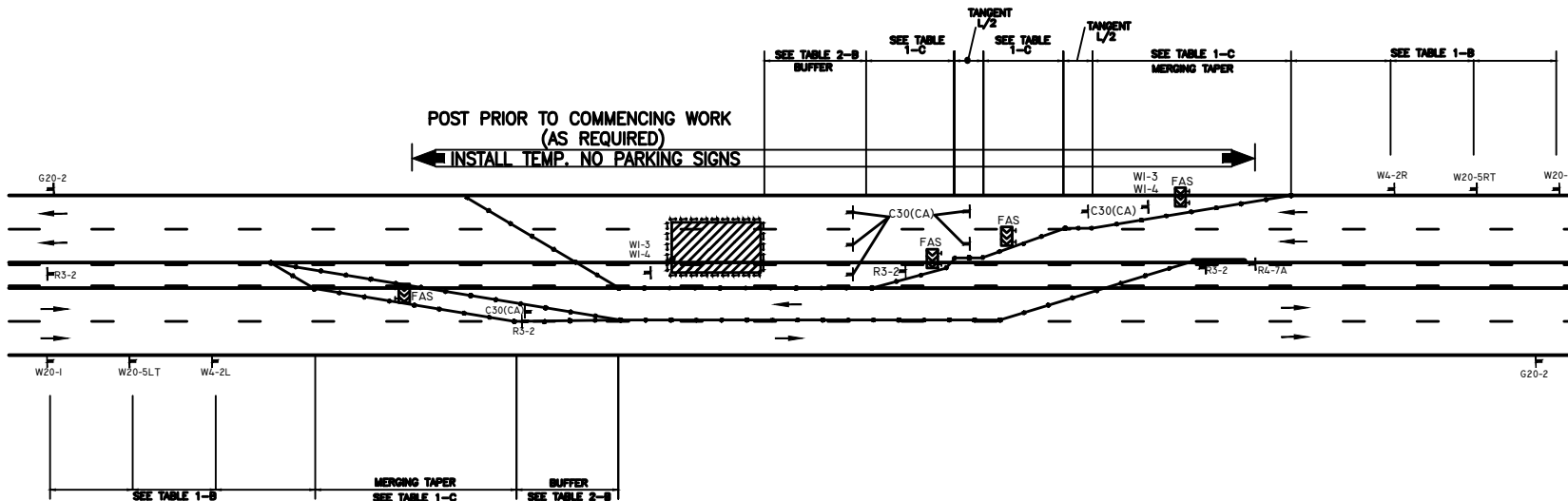
CENTER OF ROAD WORK AREA
MULTILANE TRAFFIC CONTROL WITH TWO WAY LEFT TURN
RIGHT TRAFFIC LANE CLOSURE - THREE LANES

Chairperson R.C.E. 19246

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

7/26/2012

SAN DIEGO REGIONAL STANDARD DRAWING



LEGEND

● CONE ⚡ BARRICADE ■ FLAGGER ┃ SIGN ⚡ FLASHING ARROW SIGN ▨ WORK AREA ⇄ TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____
COMPANY _____
ADDRESS _____
PHONE _____

APPLICANT USE	AGENCY USE
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POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

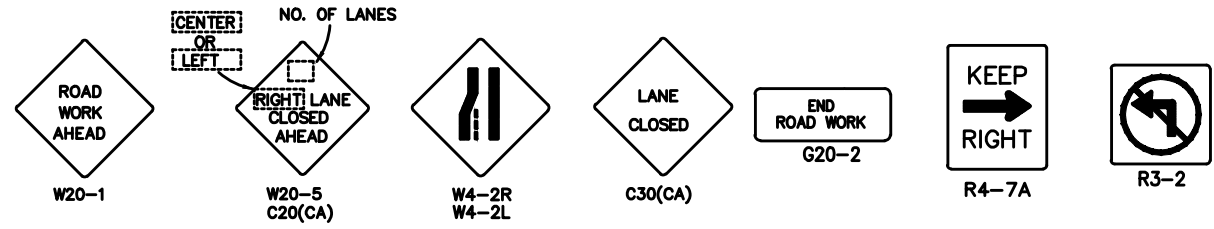
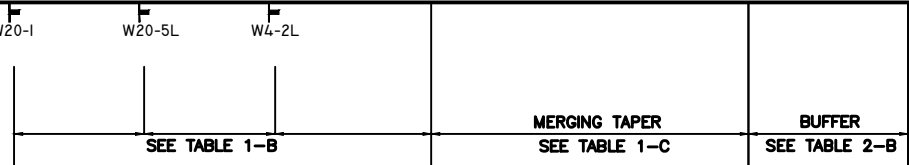
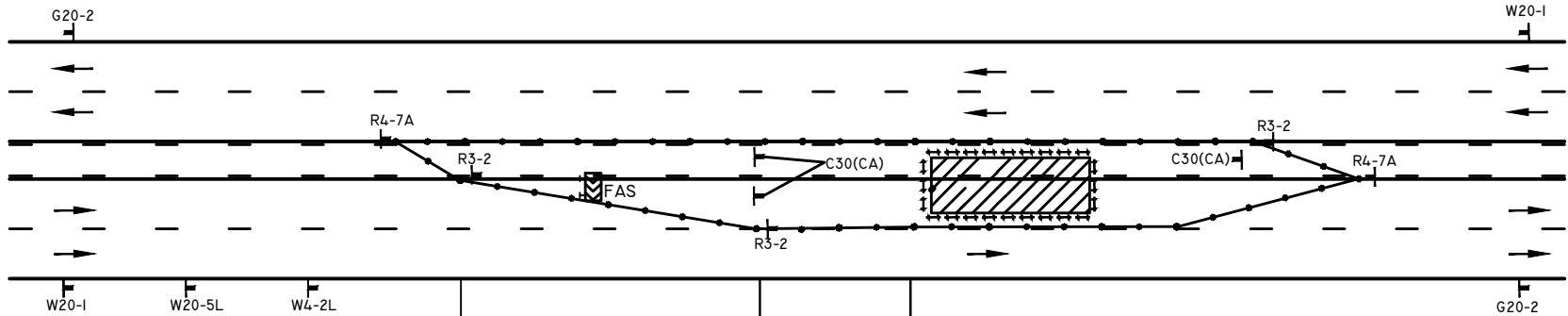
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Revision	By	Approved	Date
Revised	BUSS		2/11



LEGEND



AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____
 COMPANY _____
 ADDRESS _____
 PHONE _____

AGENCY USE
 APPLICANT USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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SAN DIEGO REGIONAL STANDARD DRAWING
 SIDE OF ROAD WORK AREA
 MULTILANE TRAFFIC CONTROL WITH TWO WAY LEFT TURN
 LEFT TRAFFIC LANE CLOSURE - TWO LANES

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
 7/26/2012
 Chairperson R.C.E. 19246
 DRAWING NUMBER TCP-19

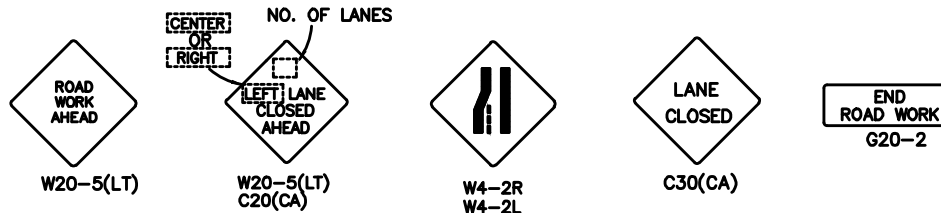
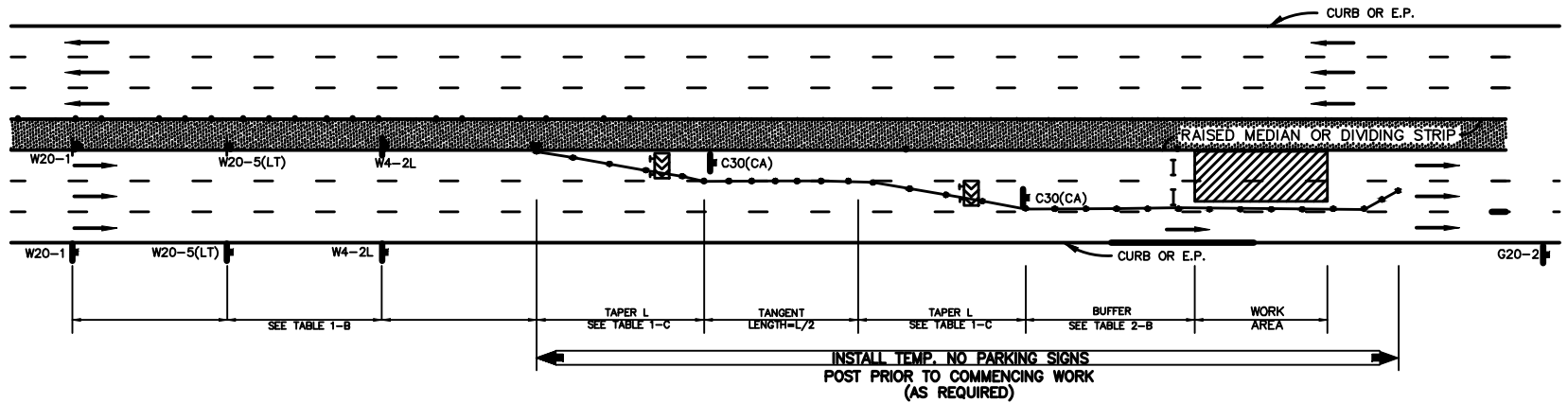
DRAWING NUMBER TCP-20

Chairperson R.C.E. 19246

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
7/26/2012

**SIDE OF ROAD WORK AREA
 MULTILANE ROADWAY WITH RAISED MEDIAN
 DOUBLE LEFT LANE CLOSURE**

SAN DIEGO REGIONAL STANDARD DRAWING



LEGEND

- CONE
- ⇄ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:
 NAME _____
 COMPANY _____
 ADDRESS _____
 PHONE _____

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

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Revision	By	Approved	Date
Revised	BUSS		2/11

Revision	By	Approved	Date
Revised	BUSS		2/11

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA

MULTILANE ROADWAY WITH RAISED MEDIAN

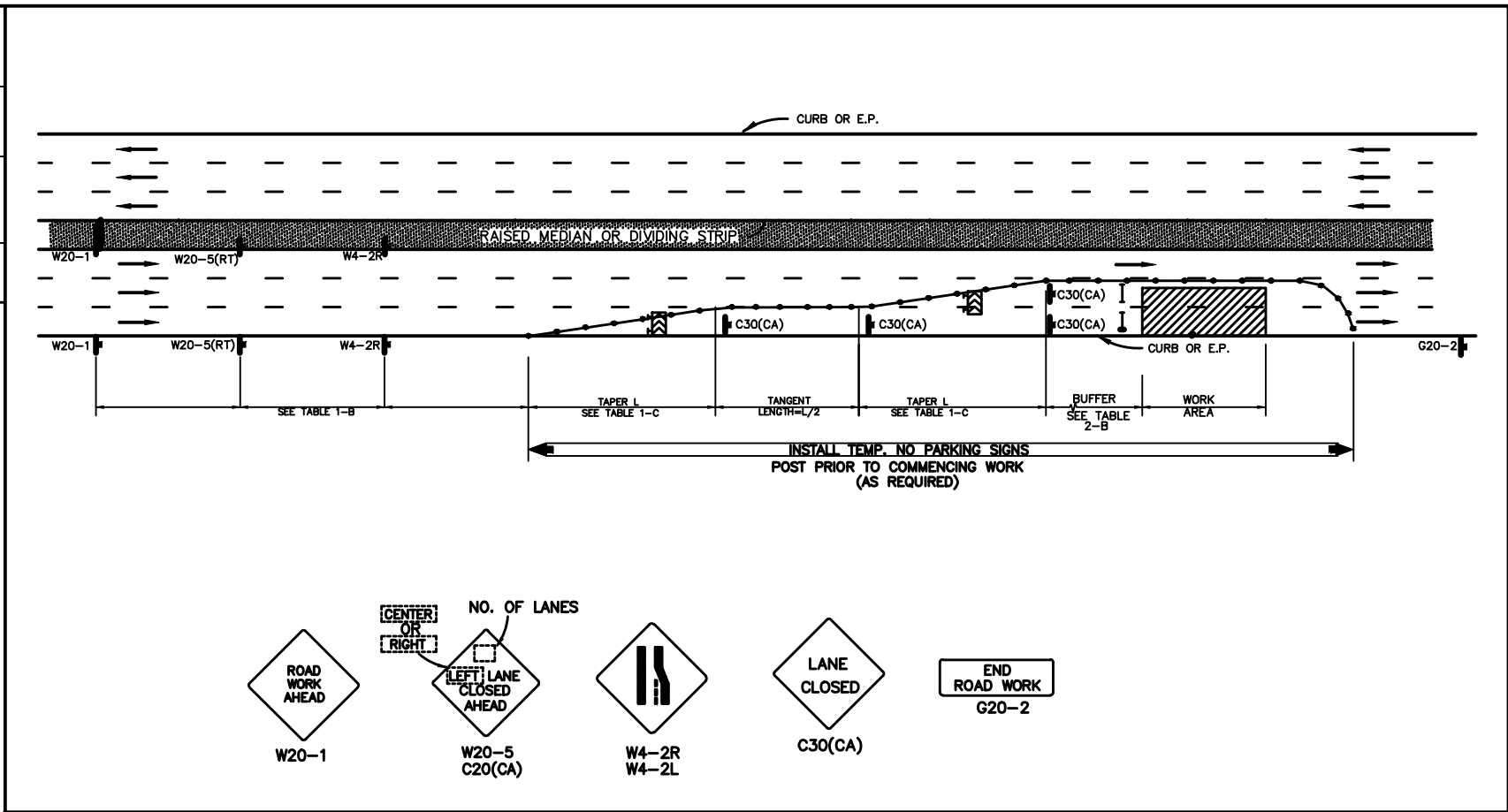
DOUBLE RIGHT LANE CLOSURE

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Chairperson R.C.E.: 19246

DRAWING NUMBER TCP-21

7/26/2012



LEGEND					
● CONE	⚡ BARRICADE	🚧 FLAGGER	🚧 SIGN	🚧 FLASHING ARROW SIGN	🚧 WORK AREA
					➡ TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS	AGENCY USE	GENERAL NOTES
<p>POSTED SPEED LIMIT</p> <p>APPROACH SPEED</p> <p>TAPER LENGTH</p> <p>SPACING OF CONES</p> <p>SIGN SPACING</p>		<p>For hours of darkness, change cones to vertical barricades with steady burn lights. This plan MAY NOT apply to signalized or multi-way stop intersections. Consult the local jurisdiction when preparing Traffic Control Plans near these intersections. This plan MAY NOT apply when the work areas affect bike lanes, sidewalks, pedestrian access and curved or narrow roadways. Consult the approving agency when preparing the Traffic Control Plans or these areas.</p> <p>Nothing contained on this drawing shall prevent local jurisdictions from modifying changing or adopting new specifications deemed necessary. Criteria for position, location and use of Traffic Control Devices is solely for the purpose of guidance to assist in the set up of the Traffic Control Plans.</p> <p>TCP is required for all Traffic Control Plans.</p>
<p>SUBMITTED BY:</p> <p>NAME _____</p> <p>COMPANY _____</p> <p>ADDRESS _____</p> <p>PHONE _____</p>	<p>APPLICANT USE</p>	

CENTER OF ROAD WORK AREA
MIDDLE LANE CLOSURE

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

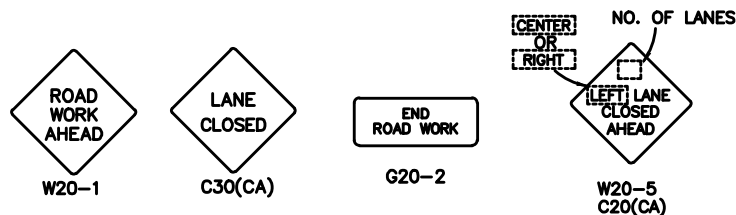
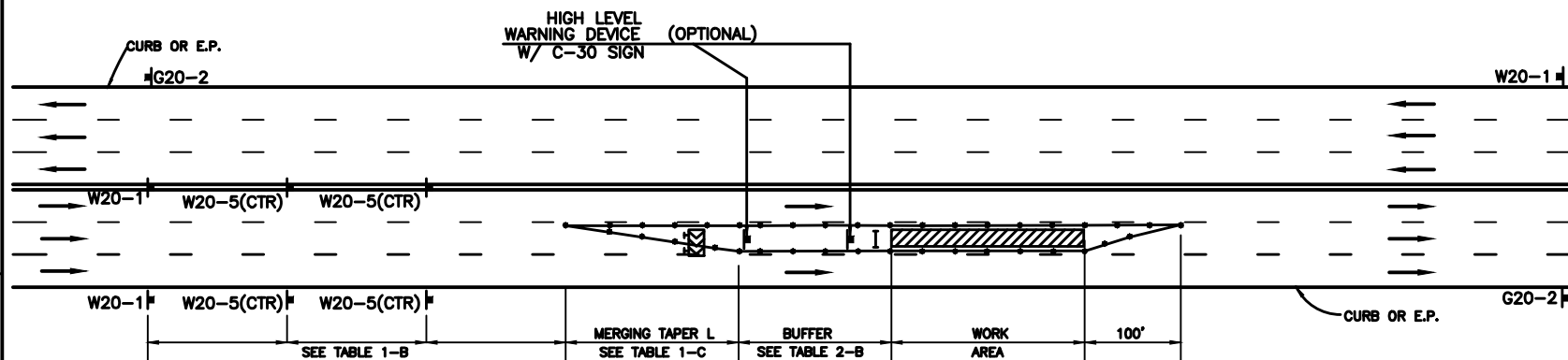
SAN DIEGO REGIONAL STANDARD DRAWING

Revision	By	Approved	Date
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Revised

Buss

	2/11
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LEGEND



AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY

ADDRESS

PHONE

[illegible]

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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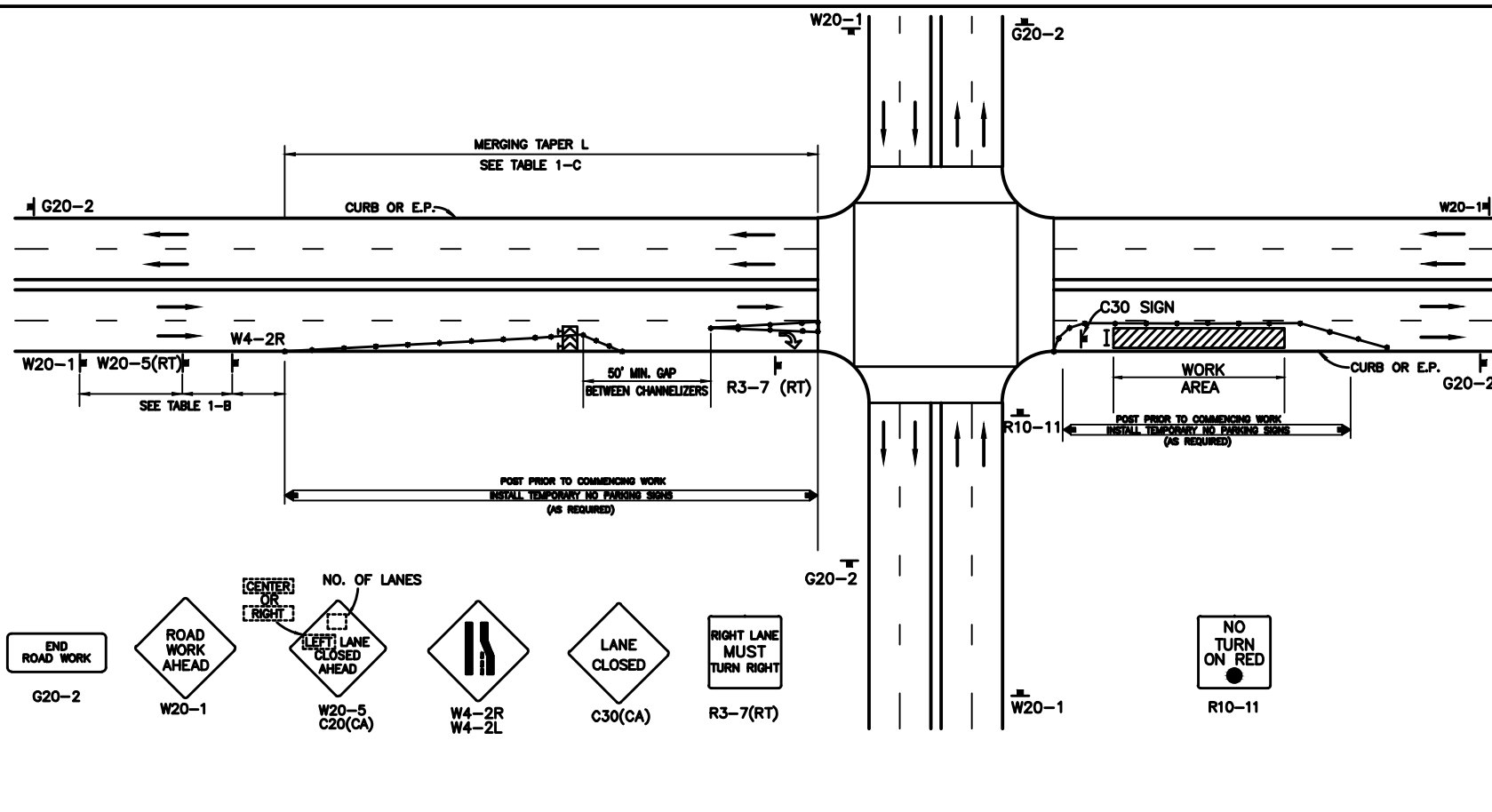
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Revision	By	Approved	Date
Revised	BUSS		2/11

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA WORK BEYOND INTERSECTION RIGHT LANE CLOSURE



LEGEND

- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

[Signature] 7/26/2012

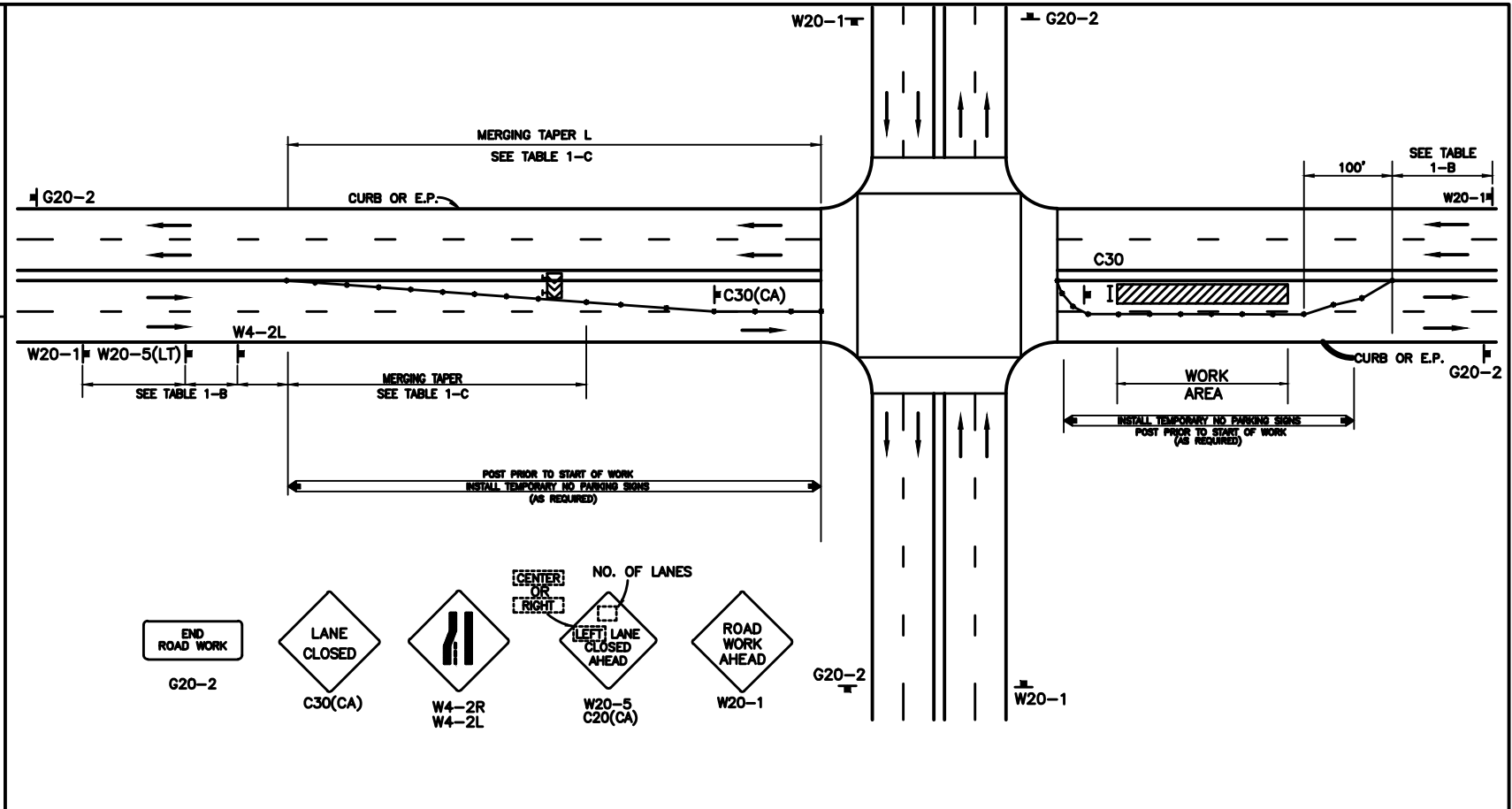
Chairperson R.C.E. 19246

DRAWING NUMBER TCP-23

**SIDE OF ROAD WORK AREA
WORK BEYOND INTERSECTION LEFT LANE CLOSURE**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE
[Signature] 7/26/2012

SAN DIEGO REGIONAL STANDARD DRAWING



● CONE ⚡ BARRICADE 🚧 FLAGGER 📋 SIGN ⚡ FLASHING ARROW SIGN 🚧 WORK AREA ➡ TRAFFIC DIRECTION

SUBMITTED BY:
NAME _____
COMPANY _____
ADDRESS _____
PHONE _____

[illegible]

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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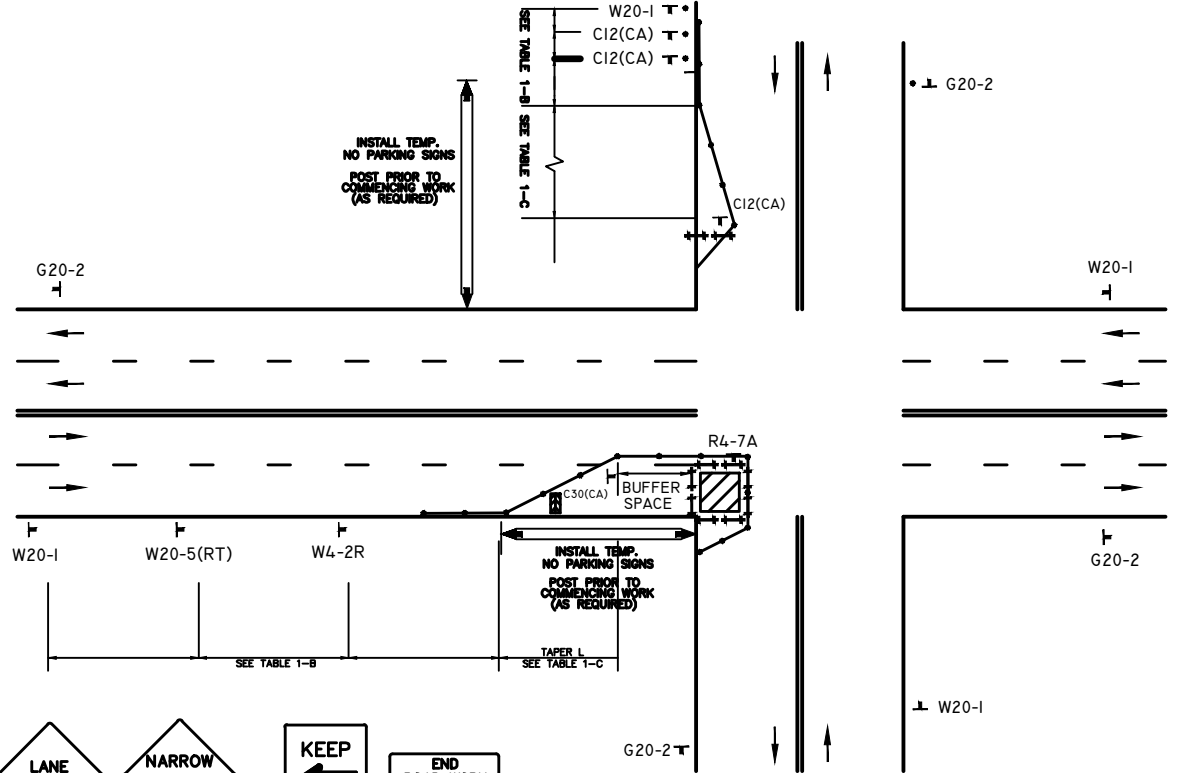
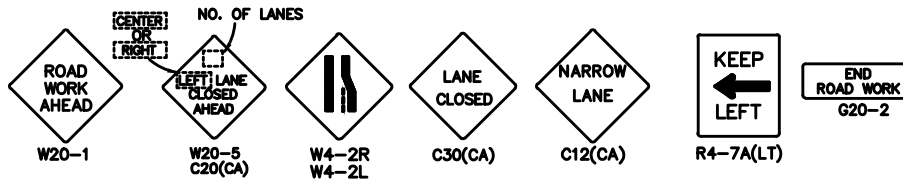
TCP is required for all Traffic Control Plans.

Revision	By	Approved	Date
Revised	Buss		2/11

Revision	By	Approved	Date
Revised	BUSS		2/11

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA INTERSECTION TRAFFIC CONTROL



LEGEND

- CONE
- ⚡ BARRICADE
- 🚧 FLAGGER
- 🚦 SIGN
- 🚦 FLASHING ARROW SIGN
- 🚧 WORK AREA
- ➡ TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____
COMPANY _____
ADDRESS _____
PHONE _____

AGENCY USE
APPLICANT USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

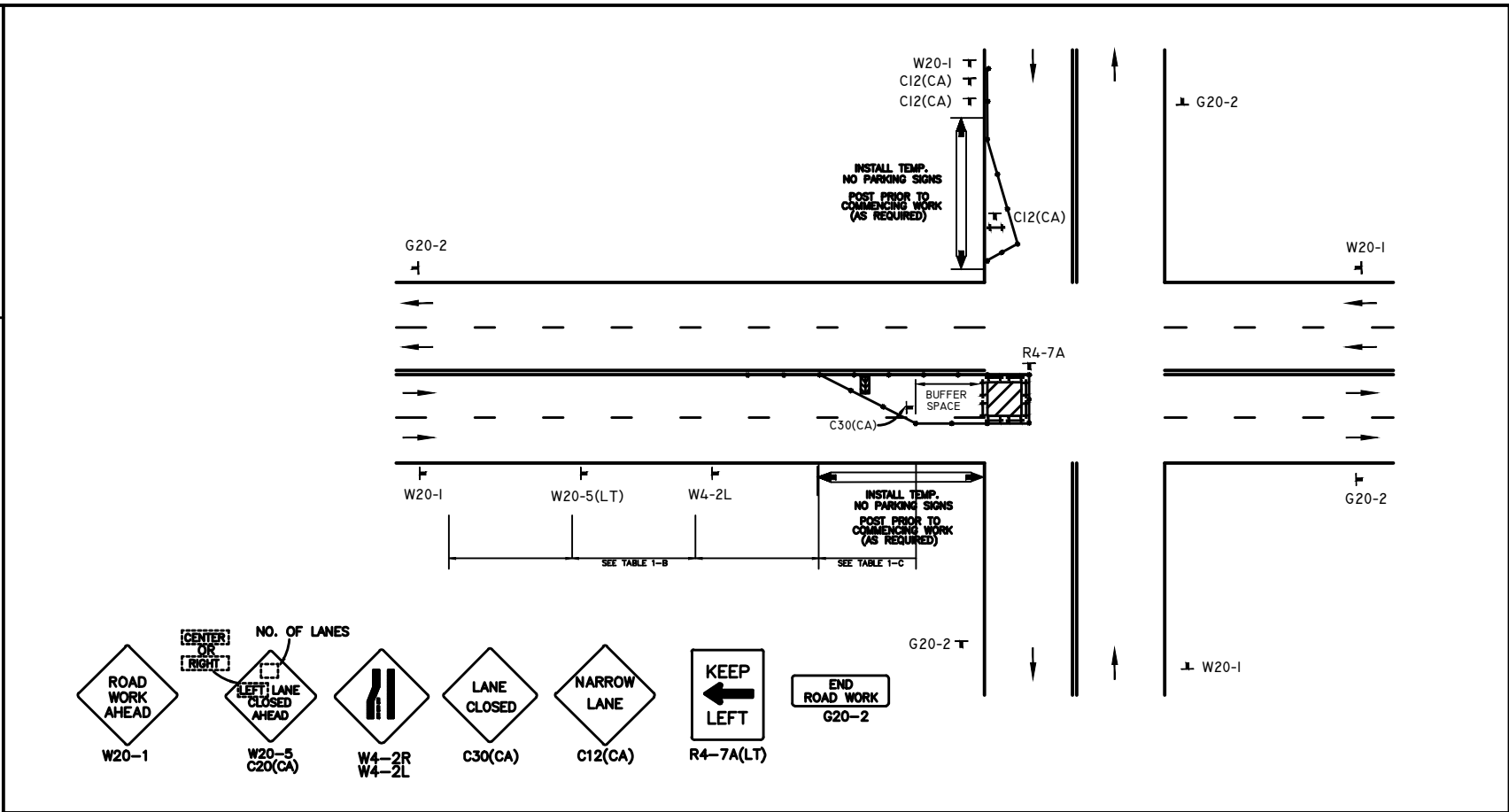
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RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
Chairperson R.C.E. 19246
7/26/2012
DRAWING NUMBER TCP-25

DRAWING NUMBER	TCP-26	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE 7/26/2012 <i>[Signature]</i>	
		Chairperson R.C.E. 19246	
SAN DIEGO REGIONAL STANDARD DRAWING CENTER OF ROAD WORK AREA INTERSECTION TRAFFIC CONTROL		Revision	By
		Revised	BUSS
		Approved	Date
			2/11



LEGEND					
● CONE	⚡ BARRICADE	🚧 FLAGGER	🚦 SIGN	🚦 FLASHING ARROW SIGN	▨ WORK AREA
					➡ TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:
 NAME _____
 COMPANY _____
 ADDRESS _____
 PHONE _____

APPLICANT USE AGENCY USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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Revision	By	Approved	Date
Revised	BUSS		2/11

SAN DIEGO REGIONAL STANDARD DRAWING

CENTER OF ROAD WORK AREA

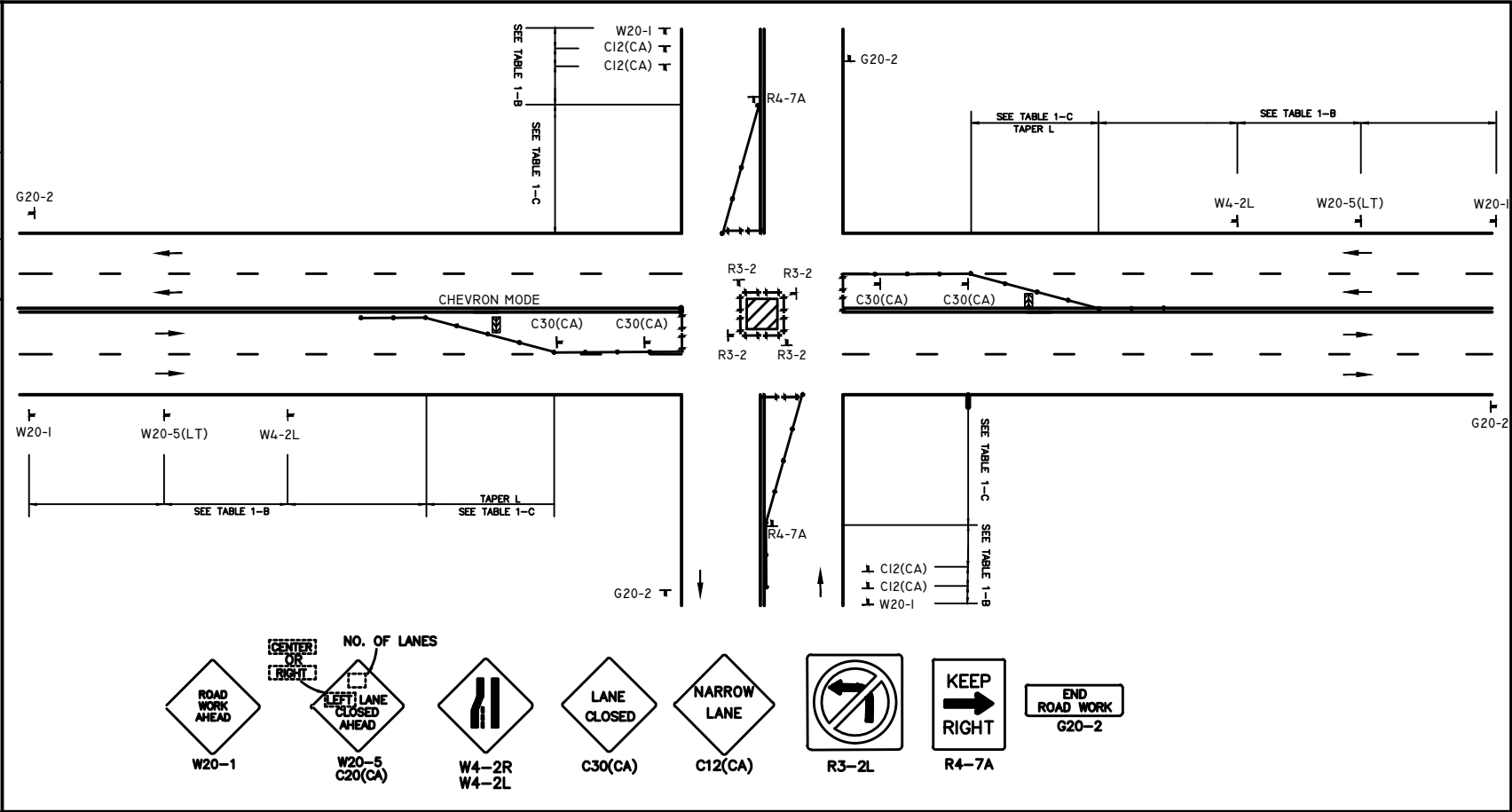
INTERSECTION TRAFFIC CONTROL

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

[Signature] 7/24/2012

Chairperson R.C.E. 19246

DRAWING NUMBER TCP-27A



AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

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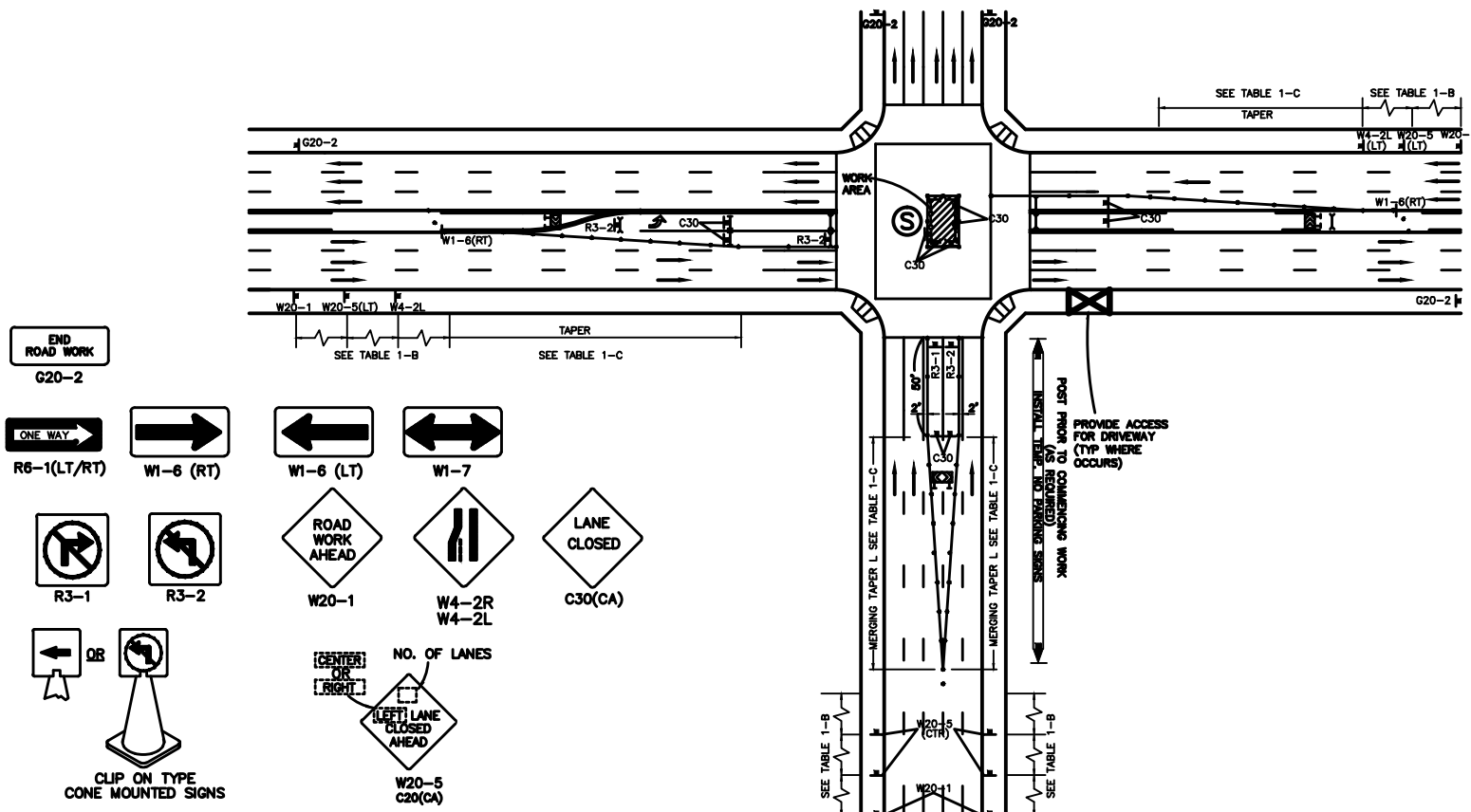
CENTER OF ROAD WORK AREA MULTILANE MIDDLE INTERSECTION W/MEDIANS & TURNS

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

7/26/2012

SAN DIEGO REGIONAL STANDARD DRAWING

Revision	By	Approval	Date
Revised	BUSS		2/11



● CONE ⚡ BARRICADE 🚧 FLAGGER 🚧 SIGN 🚧 FLASHING ARROW SIGN 🚧 WORK AREA ➡ TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY

ADDRESS

PHONE

[illegible]

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

For hours of darkness, change comes to vertical barricades with steady burn lights. This plan MAY NOT apply to signalized or multi-way stop intersections. Consult the local jurisdiction when preparing Traffic Control Plans near these intersections. this plan MAY NOT apply when the work areas affect bike lanes, sidewalks pedestrian access and curved or narrow roadways. Consult the approving agency when preparing the Traffic Control Plans or these areas.

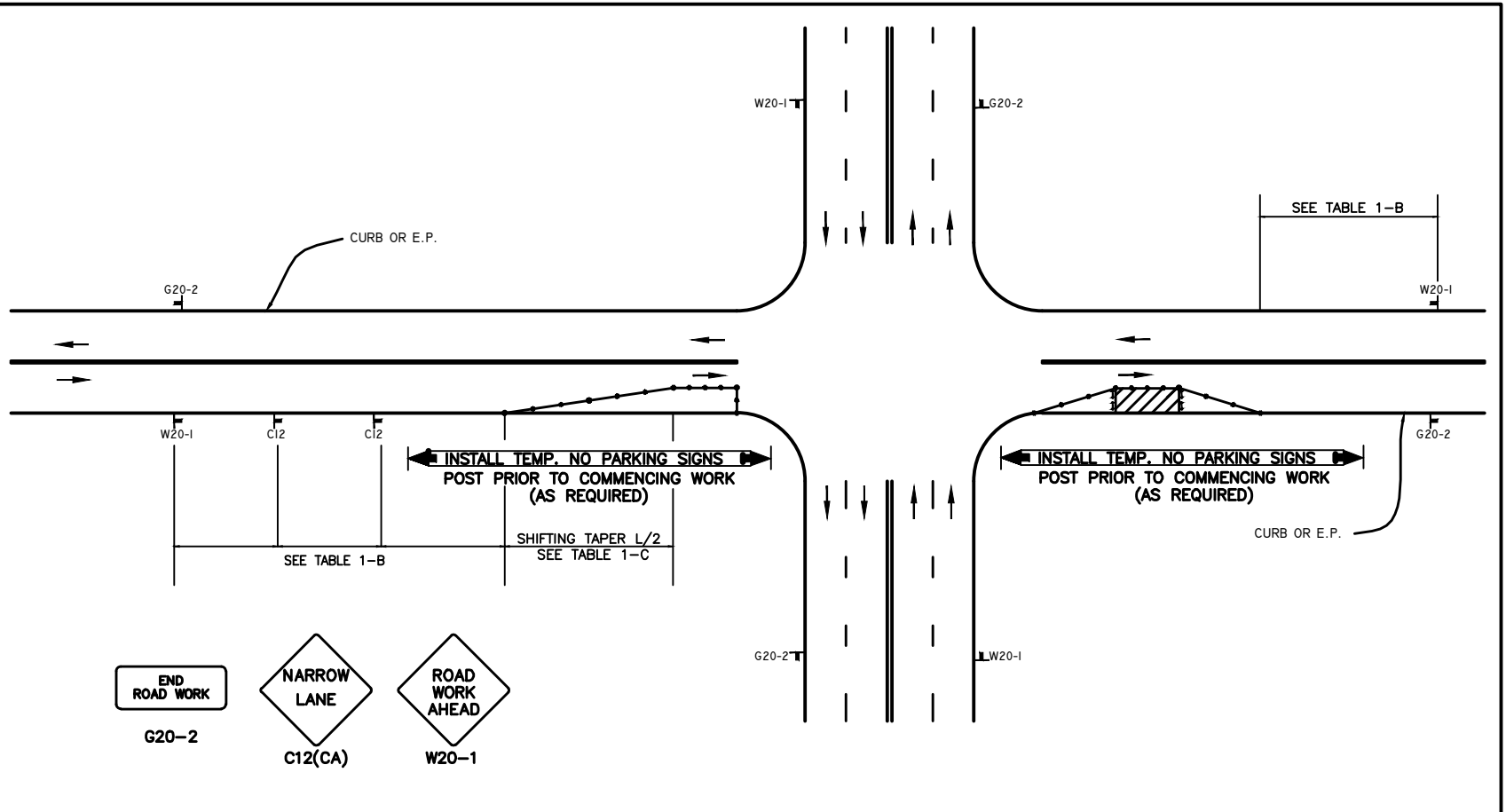
Nothing contained on this drawing shall prevent local jurisdictions from modifying changing or adopting new specifications deemed necessary. Criteria for position, location and use of Traffic Control Devices is solely for the purpose of guidance to assist in the set up of the Traffic Control Plans.

TCP is required for all Traffic Control Plans.

Revision	By	Approved	Date
Revised	BUSS		2/11

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA WORK BEYOND INTERSECTION TRAFFIC CONTROL



LEGEND

- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____
COMPANY _____
ADDRESS _____
PHONE _____

AGENCY USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

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APPLICANT USE

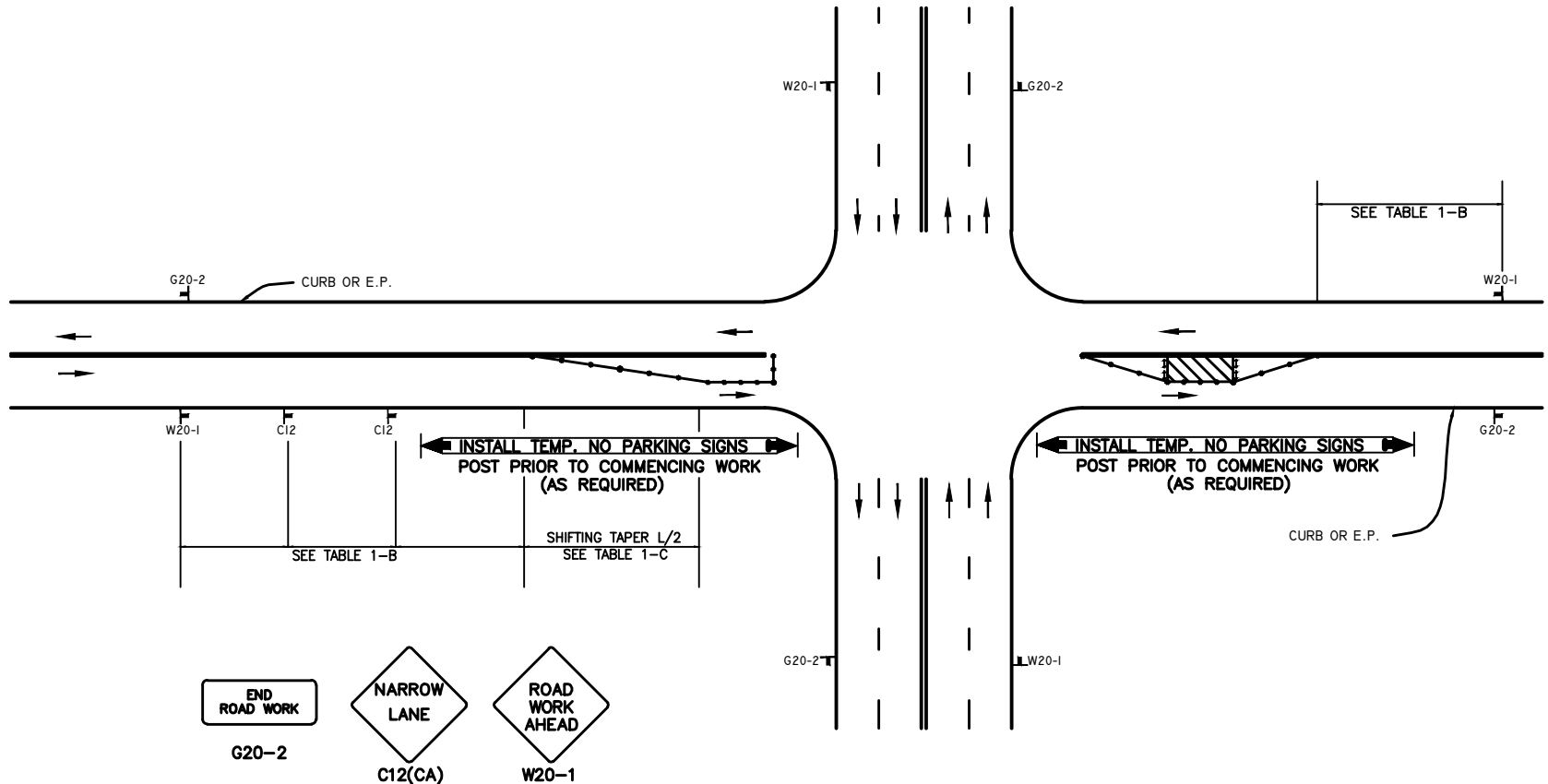
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
Chairperson R.C.E. 19246
7/26/2012
DRAWING NUMBER TCP-28

SIDE OF ROAD WORK AREA WORK BEYOND INTERSECTION TRAFFIC CONTROL

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

SAN DIEGO REGIONAL STANDARD DRAWING

Revision	By	Approved	Date
Revised	BUSS		2/11



● CONE ⚡ BARRICADE 🚧 FLAGGER 🚧 SIGN 🚧 FLASHING ARROW SIGN 🚧 WORK AREA ➡ TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:
NAME _____
COMPANY _____
ADDRESS _____
PHONE _____

APPLICANT USE	AGENCY USE
---------------	------------

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

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TCP is required for all Traffic Control Plans.

Revision	By	Approved	Date
Revised	BUSS		2/11
<div style="text-align: center;"> SAN DIEGO REGIONAL STANDARD DRAWING SIDE OF WORK AREA INTERSECTION TRAFFIC CONTROL </div>			
<div style="display: flex; justify-content: space-between;"> <div> DRAWING NUMBER TCP-30 </div> <div> Chairperson R.C.E. 19246 <i>[Signature]</i> 7/26/2012 </div> </div>			

LEGEND

● CONE ++ BARRICADE FLAGGER SIGN FLASHING ARROW SIGN WORK AREA TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

For hours of darkness, change comes to vertical barricades with steady burn lights. This plan MAY NOT apply to signalized or multi-way stop intersections. Consult the local jurisdiction when preparing Traffic Control Plans near these intersections. This plan MAY NOT apply when the work areas affect bike lanes, sidewalks, pedestrian access and curved or narrow roadways. Consult the approving agency when preparing the Traffic Control Plans or these areas.

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TCP is required for all Traffic Control Plans.

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

7/26/2012

DRAWING
NUMBER
TCP-31

**CENTER OF ROAD WORK AREA
INTERSECTION TRAFFIC CONTROL**



NO. OF LANES

W20-5
C20(CA)

W4-2R
W4-2L

C30(CA)

C12(CA)

KEEP
→
RIGHT

END
LOAD WORK
G20-2

RIGHT LANE
MUST
TURN RIGHT

R3-7R

- CONE

++ BARRICADE

1

FLAGGER

SIGN

FLASHING ARROW SIGN



WORK AREA

TRAFFIC DIRECTION

AGENCY USE

APPLICANT USE

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TCP is required for all Traffic Control Plans.

SUBMITTED BY:

NAME _____
COMPANY _____
ADDRESS _____
PHONE _____

Revision	By	Approval	Date
Revised	BUSS		2/11

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	<i>[Signature]</i> 7/26/2012
Chairperson R.C.E. 19246	
DRAWING NUMBER	TCP-32



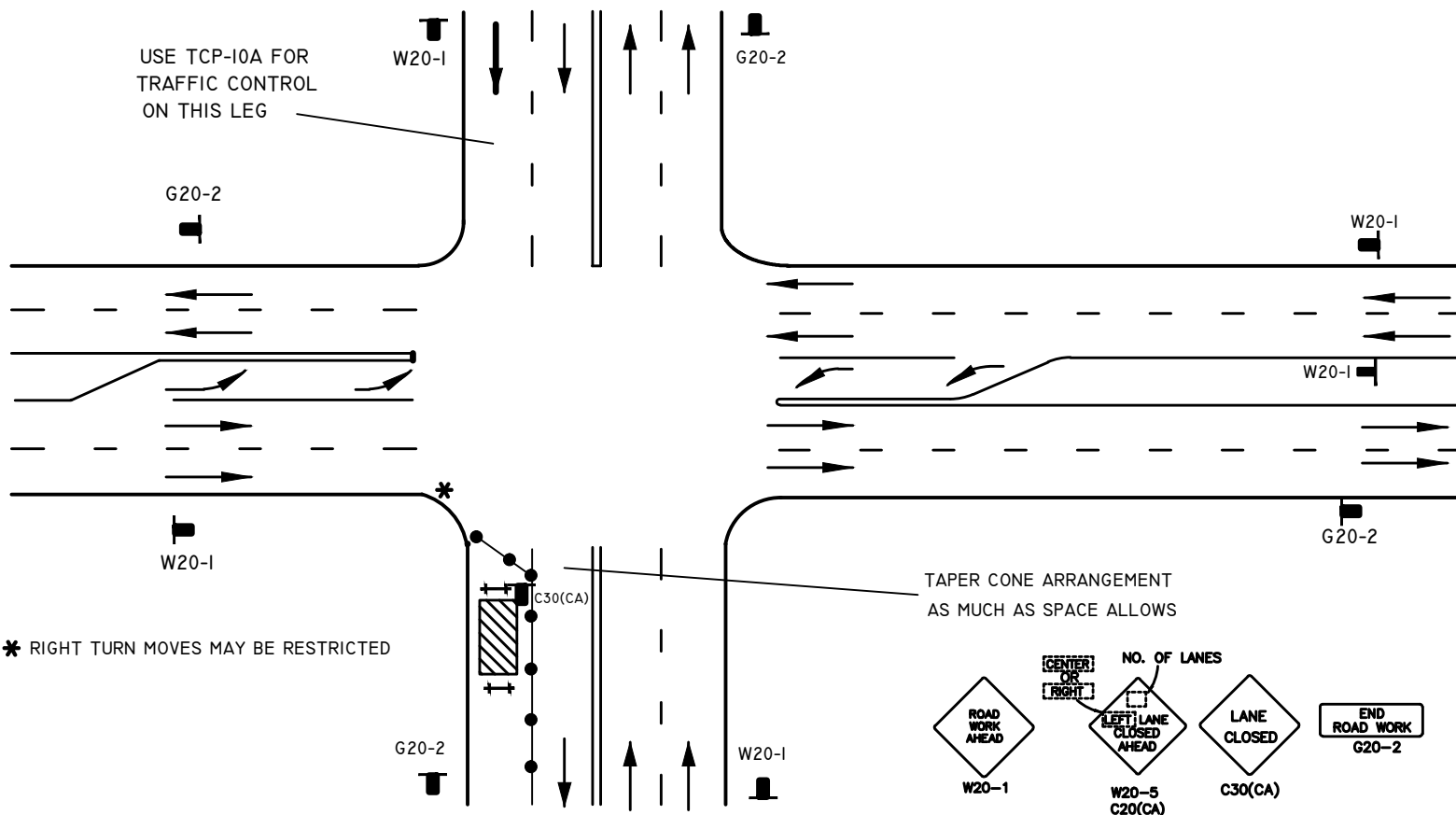
AGENCY ENGINEER'S COMMENTS

SIDE OF ROAD WORK AREA LEFT TURN INTERSECTION TRAFFIC CONTROL

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

7/26/2012

SAN DIEGO REGIONAL STANDARD DRAWING



● CONE ⚡ BARRICADE ■ FLAGGER — SIGN ⚡ FLASHING ARROW SIGN ▨ WORK AREA → TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS_

PHONE.

APPLICANT USE	AGENCY USE
---------------	------------

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

For hours of darkness, change comes to vertical barricades with steady burn lights. This plan MAY NOT apply to signalized or multi-way stop intersections. Consult the local jurisdiction when preparing Traffic Control Plans near these intersections. This plan MAY NOT apply when the work areas affect bike lanes, sidewalks pedestrian access and curved or narrow roadways. Consult the approving agency when preparing the Traffic Control Plans or these areas.

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TCP is required for all Traffic Control Plans.

Revision	By	Approval	Date
Revised	BUSS		2/11

Revision	By	Approved	Date	
Revised	BUSS		2/11	
SAN DIEGO REGIONAL STANDARD DRAWING LEFT TURN INTERSECTION TRAFFIC CONTROL				LEGEND ● CONE ⚡ BARRICADE 🚧 FLAGGER 🚦 SIGN ⚡ FLASHING ARROW SIGN 🚧 WORK AREA ➡ TRAFFIC DIRECTION
SIDE OF ROAD WORK AREA				
AGENCY ENGINEER'S COMMENTS				APPLICANT USE AGENCY USE
SUBMITTED BY: NAME _____ COMPANY _____ ADDRESS _____ PHONE _____				
GENERAL NOTES For hours of darkness, change comes to vertical barricades with steady burn lights. This plan MAY NOT apply to signalized or multi-way stop intersections. Consult the local jurisdiction when preparing Traffic Control Plans near these intersections. this plan MAY NOT apply when the work areas affect bike lanes, sidewalks pedestrian access and curved or narrow roadways. Consult the approving agency when preparing the Traffic Control Plans or these areas. Nothing contained on this drawing shall prevent local jurisdictions from modifying changing or adopting new specifications deemed necessary. Criteria for position, location and use of Traffic Control Devices is solely for the purpose of guidance to assist in the set up of the Traffic Control Plans. TCP is required for all Traffic Control Plans.				

Revision	By	Approved	Date
Revised	BUSS		2/11

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA

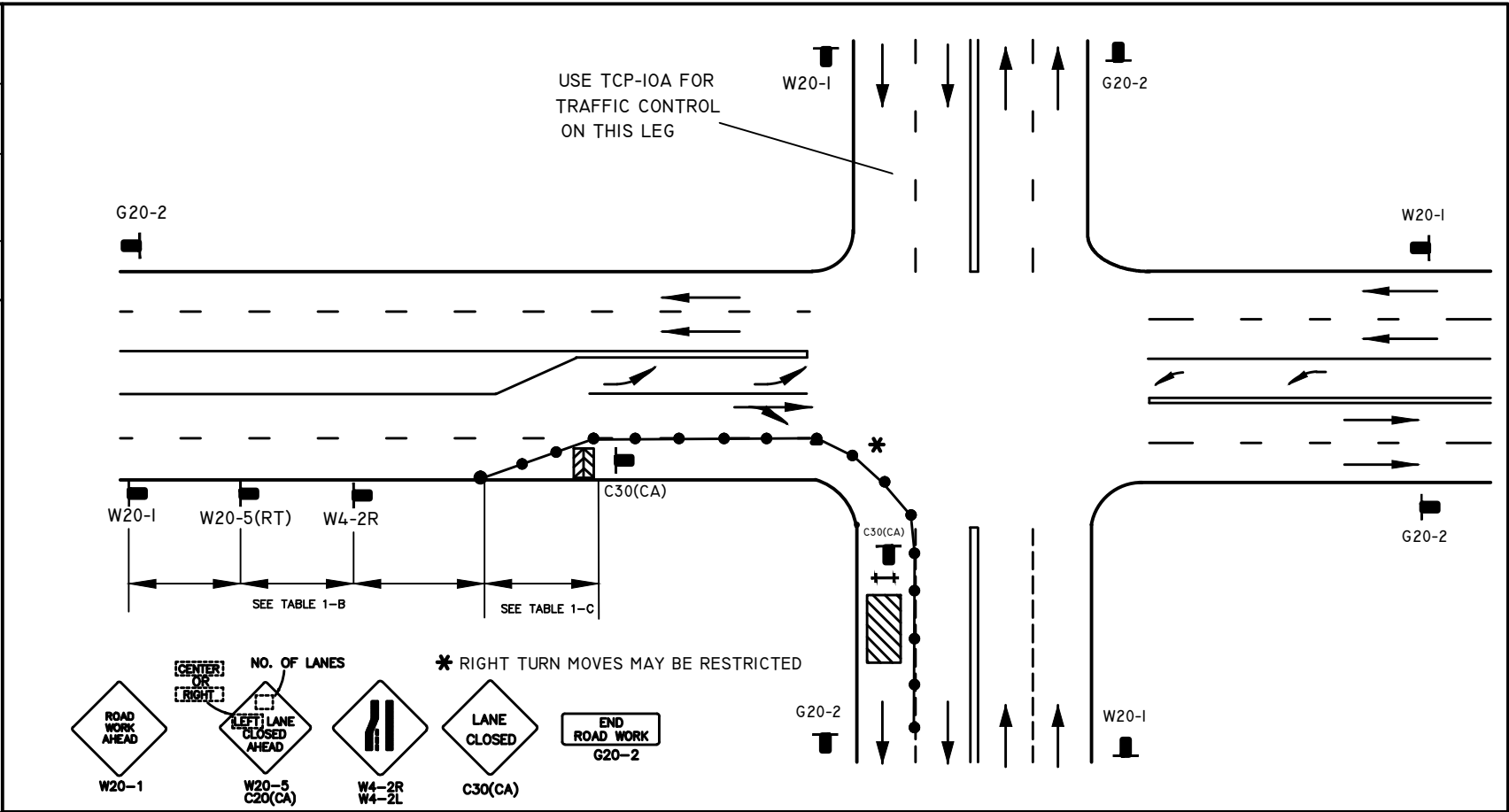
RIGHT TURN INTERSECTION TRAFFIC CONTROL

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

[Signature] 7/26/2012

Chairperson R.C.E. 19246

DRAWING NUMBER TCP-36



LEGEND					
● CONE	++ BARRICADE	FLAGGER	SIGN	FLASHING ARROW SIGN	WORK AREA
					TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

AGENCY USE	GENERAL NOTES				
	POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING
APPLICANT USE	For hours of darkness, change cones to vertical barricades with steady burn lights. This plan MAY NOT apply to signalized or multi-way stop intersections. Consult the local jurisdiction when preparing Traffic Control Plans near these intersections. This plan MAY NOT apply when the work areas affect bike lanes, sidewalks, pedestrian access and curved or narrow roadways. Consult the approving agency when preparing the Traffic Control Plans or these areas.				
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	TCP is required for all Traffic Control Plans.				

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE
7/26/2012

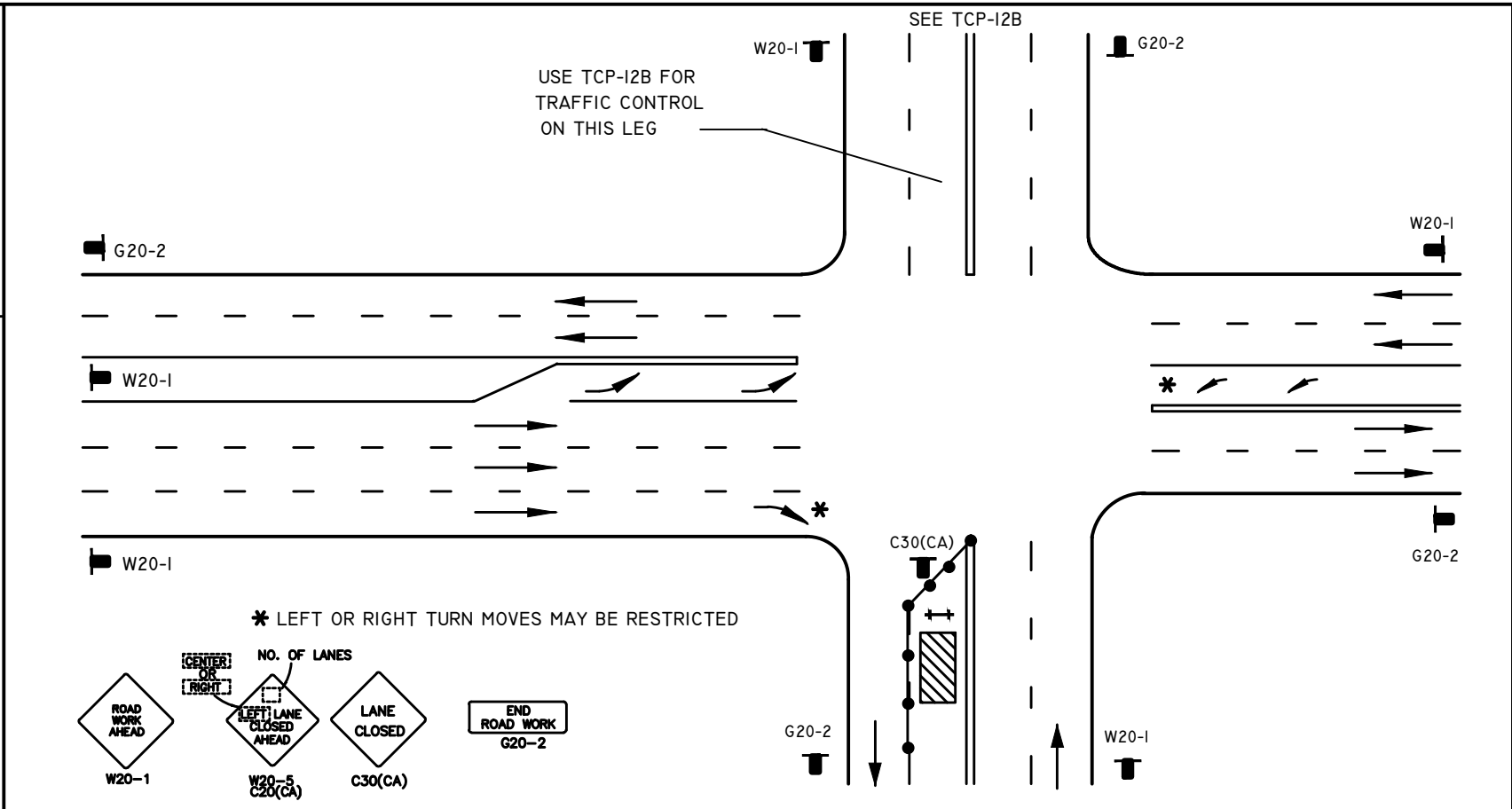
Chairperson R.C.E. 19246

DRAWING NUMBER TCP-37

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA
RIGHT TURN INTERSECTION TRAFFIC CONTROL

Revision	By	Approval	Date
Revised	BUSS		2/11



LEGEND

● CONE ++ BARRICADE FLAGGER SIGN FLASHING ARROW SIGN WORK AREA TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

For hours of darkness, change comes to vertical barricades with steady burn lights. This plan MAY NOT apply to signalized or multi-way stop intersections. Consult the local jurisdiction when preparing Traffic Control Plans near these intersections. this plan MAY NOT apply when the work areas affect bike lanes, sidewalks pedestrian access and curved or narrow roadways. Consult the approving agency when preparing the Traffic Control Plans or these areas.

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TCP is required for all Traffic Control Plans.

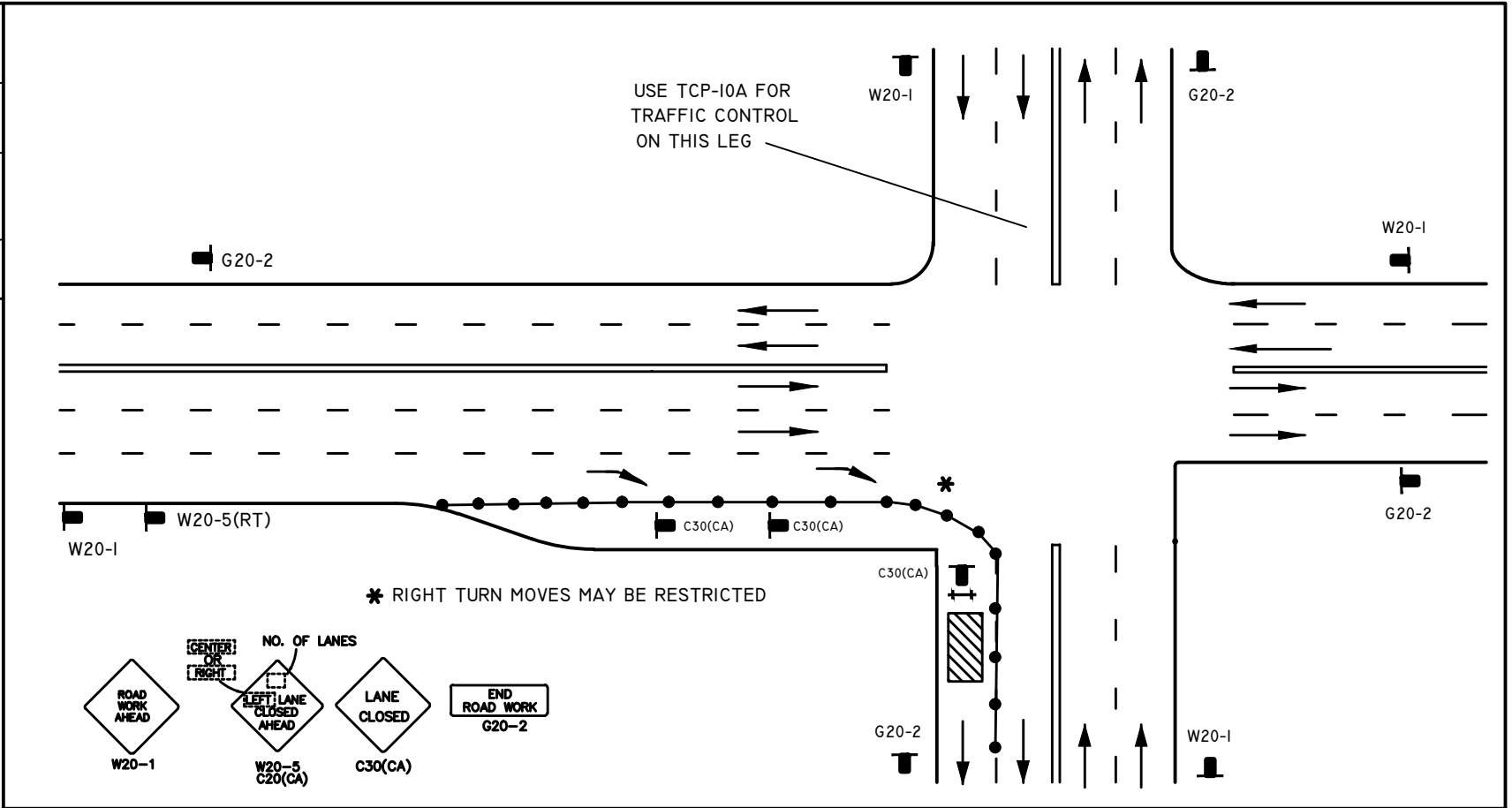
AGENCY USE

APPLICANT USE

Revision	By	Approved	Date
Revised	BUSS		2/11

SAN DIEGO REGIONAL STANDARD DRAWING	
SIDE OF ROAD WORK AREA	
RIGHT TURN INTERSECTION TRAFFIC CONTROL	

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	Chairperson R.C.E. 19246
 7/26/2012	
DRAWING NUMBER	TCP-38

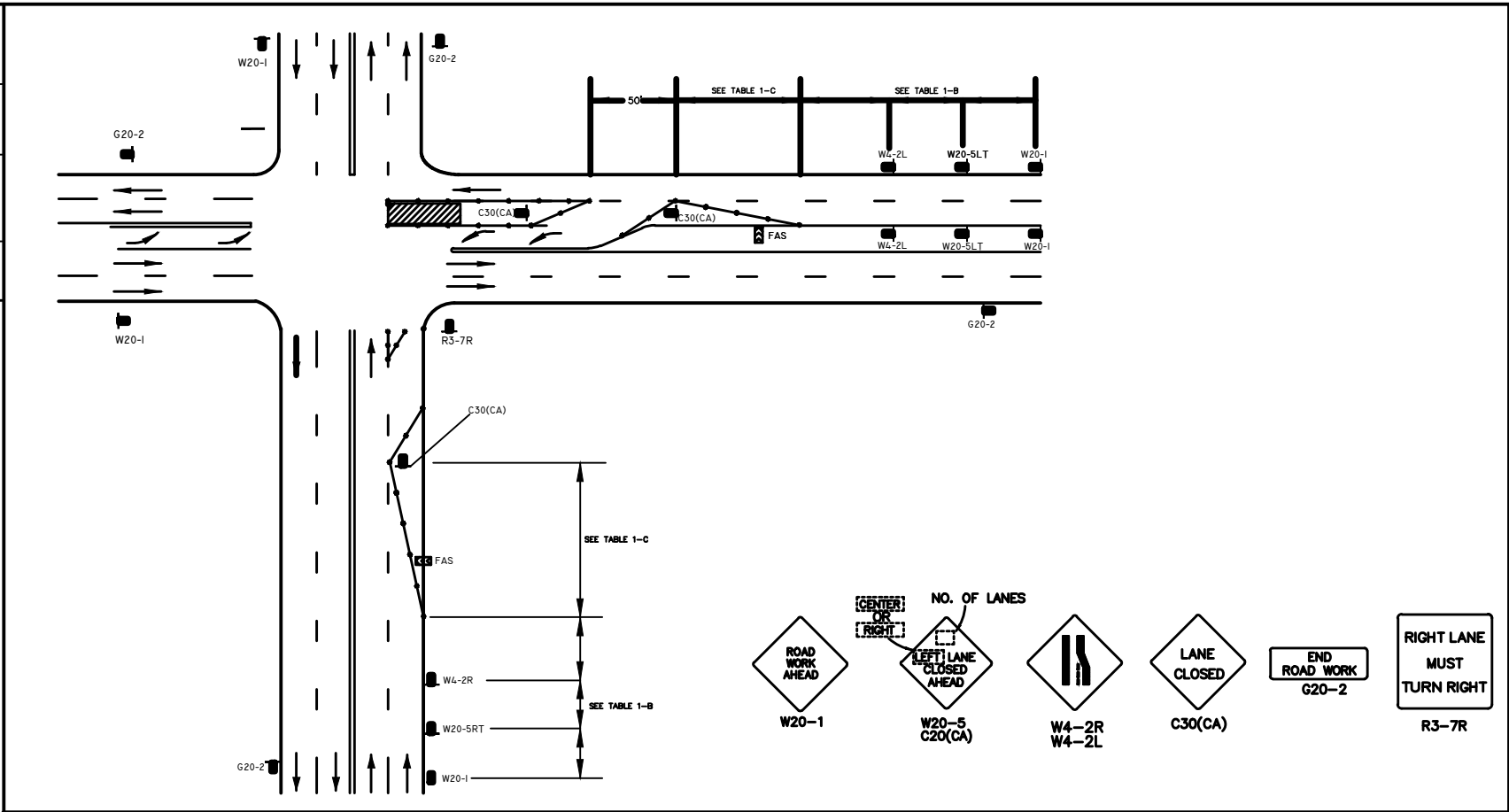


LEGEND					
● CONE	⚡ BARRICADE	🚧 FLAGGER	🚦 SIGN	🚦 FLASHING ARROW SIGN	▨ WORK AREA
					➡ TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS	
_____ _____ _____	
SUBMITTED BY:	
NAME _____	
COMPANY _____	
ADDRESS _____	
PHONE _____	

AGENCY USE	POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING
APPLICANT USE	GENERAL NOTES				
	For hours of darkness, change comes to vertical barricades with steady burn lights. This plan MAY NOT apply to signalized or multi-way stop intersections. Consult the local jurisdiction when preparing Traffic Control Plans near these intersections. this plan MAY NOT apply when the work areas affect bike lanes, sidewalks pedestrian access and curved or narrow roadways. Consult the approving agency when preparing the Traffic Control Plans or these areas.				
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	TCP is required for all Traffic Control Plans.				

Revision	By	Approved	Date
Revised	BUSS		2/11
SAN DIEGO REGIONAL STANDARD DRAWING CENTER OF ROADWORK AREA WORK WITHIN INTERSECTION RIGHT LANE / LEFT LANE			
DRAWING NUMBER TCP-40 Chairperson R.C.E. 19246 RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE 7/26/2012			



AGENCY USE	POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

For hours of darkness, change cones to vertical barricades with steady burn lights. This plan MAY NOT apply to signalized or multi-way stop intersections. Consult the local jurisdiction when preparing Traffic Control Plans near these intersections. This plan MAY NOT apply when the work areas affect bike lanes, sidewalks, pedestrian access and curved or narrow roadways. Consult the approving agency when preparing the Traffic Control Plans or these areas.

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RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE
[Signature] 7/26/2012
Chairperson R.C.E. 19246

DRAWING
NUMBER TCP-41

SAN DIEGO REGIONAL STANDARD DRAWING

CENTER OF ROAD WORK AREA

WORK BEYOND INTERSECTION LEFT TURN LANE CLOSURE

Revision

By

Approval

Date

Revised

BUSS

2/11

END ROAD WORK
G20-2

ROAD WORK AHEAD
W20-1

CENTER OR RIGHT

NO. OF LANES

LEFT LANE CLOSED AHEAD
W20-5
C20(CA)

R3-2

LANE CLOSED
C30(CA)

● CONE

++ BARRICADE

■ FLAGGER

— SIGN

⚡ FLASHING ARROW SIGN

▨ WORK AREA

➡ TRAFFIC DIRECTION

LEGEND

AGENCY ENGINEER'S COMMENTS

AGENCY USE

APPLICANT USE

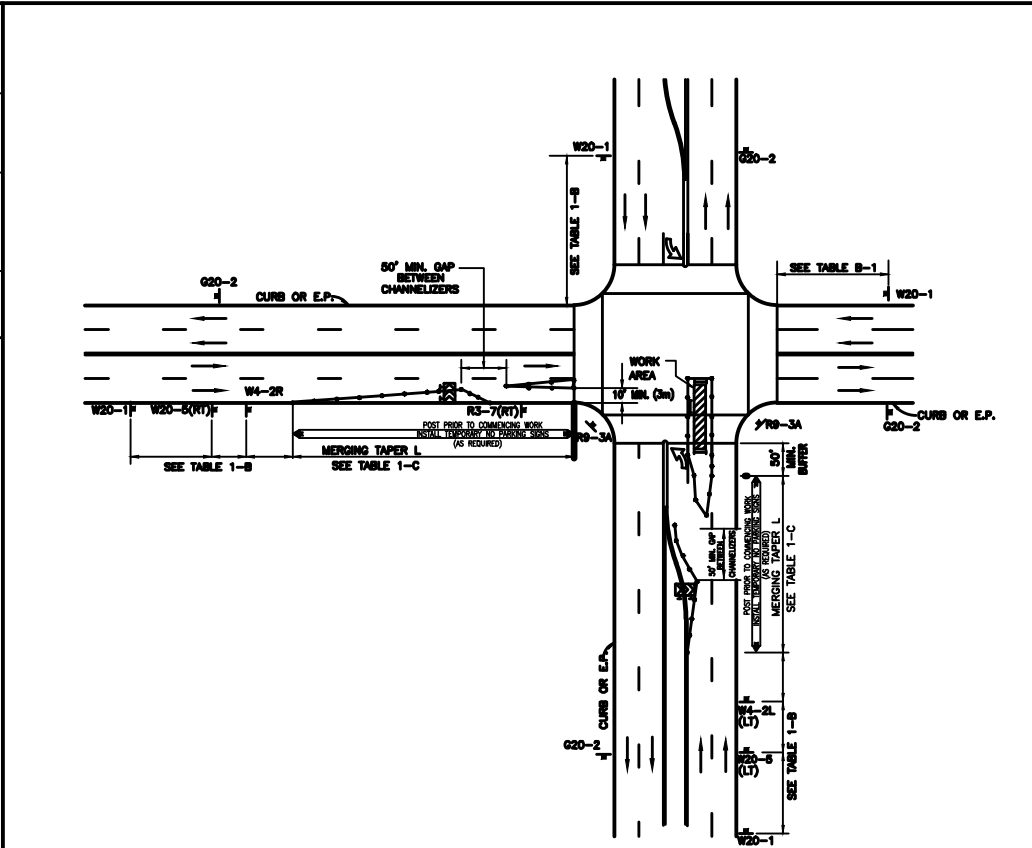
POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES
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TCP is required for all Traffic Control Plans.

Revision	By	Approved	Date
Revised	BUSS		2/11
<p align="center">SAN DIEGO REGIONAL STANDARD DRAWING</p> <p align="center">CENTER OF ROAD WORK AREA</p> <p align="center">WORK WITHIN INTERSECTION</p> <p align="center">RIGHT LANE / LEFT LANE CLOSURE</p>			
<p>DRAWING NUMBER TCP-42</p>			



R3-7(RT)

W4-2R
W4-2L

W20-1

C30(CA)

G20-2

W20-5
C20(CA)

LEGEND

● CONE
++ BARRICADE
FLAGGER
SIGN
FLASHING ARROW SIGN
WORK AREA
TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

AGENCY USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

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TCP is required for all Traffic Control Plans.

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Chairperson R.C.E. 19246

7/26/2012

7/26/2012

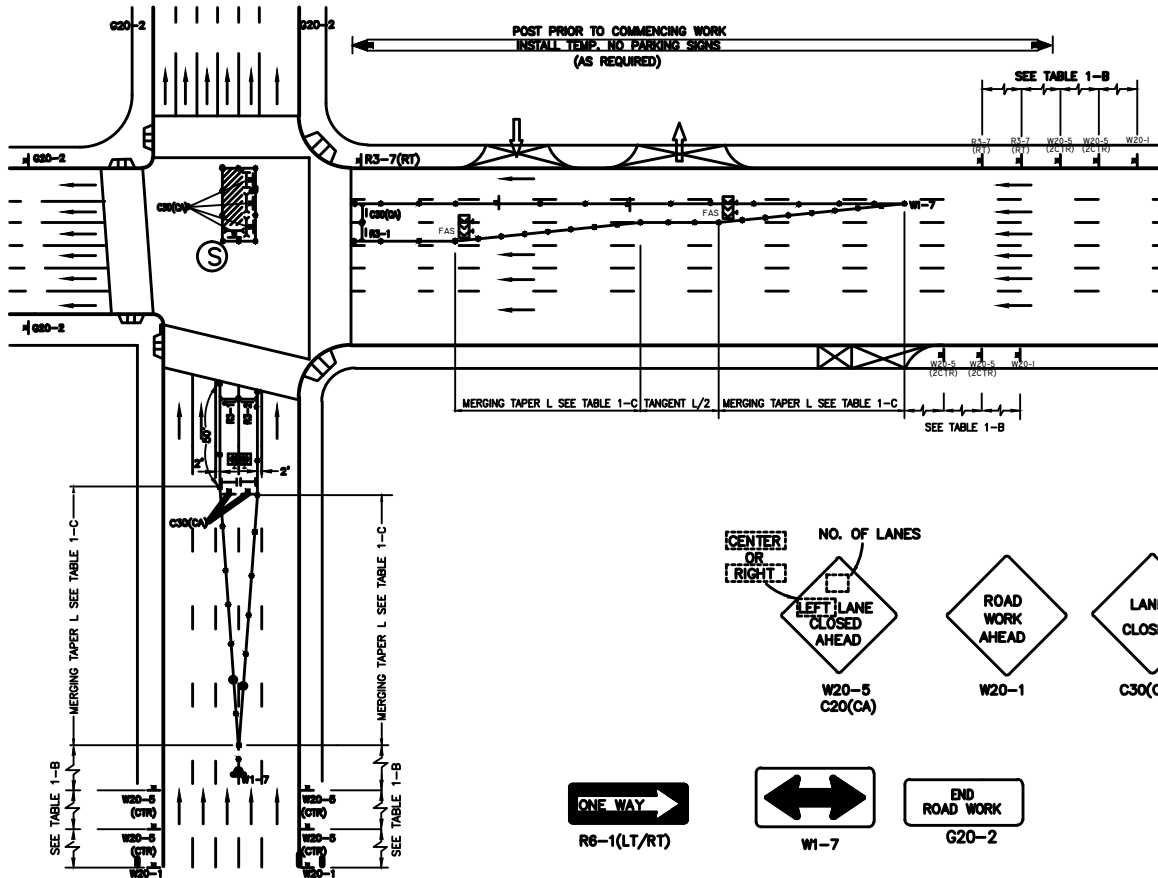
Chairperson R.C.E. 19246

DRAWING
NUMBER
TCP-43

SAN DIEGO REGIONAL STANDARD DRAWING

CENTER OF ROAD WORK AREA

RIGHT LANE / CENTER LANE CLOSURE ONE WAY



LEGEND

- CONE ⚡ BARRICADE ■ FLAGGER ┃ SIGN ⚡ FLASHING ARROW SIGN ▨ WORK AREA ➡ TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____
COMPANY _____
ADDRESS _____
PHONE _____

APPLICANT USE	AGENCY USE
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POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

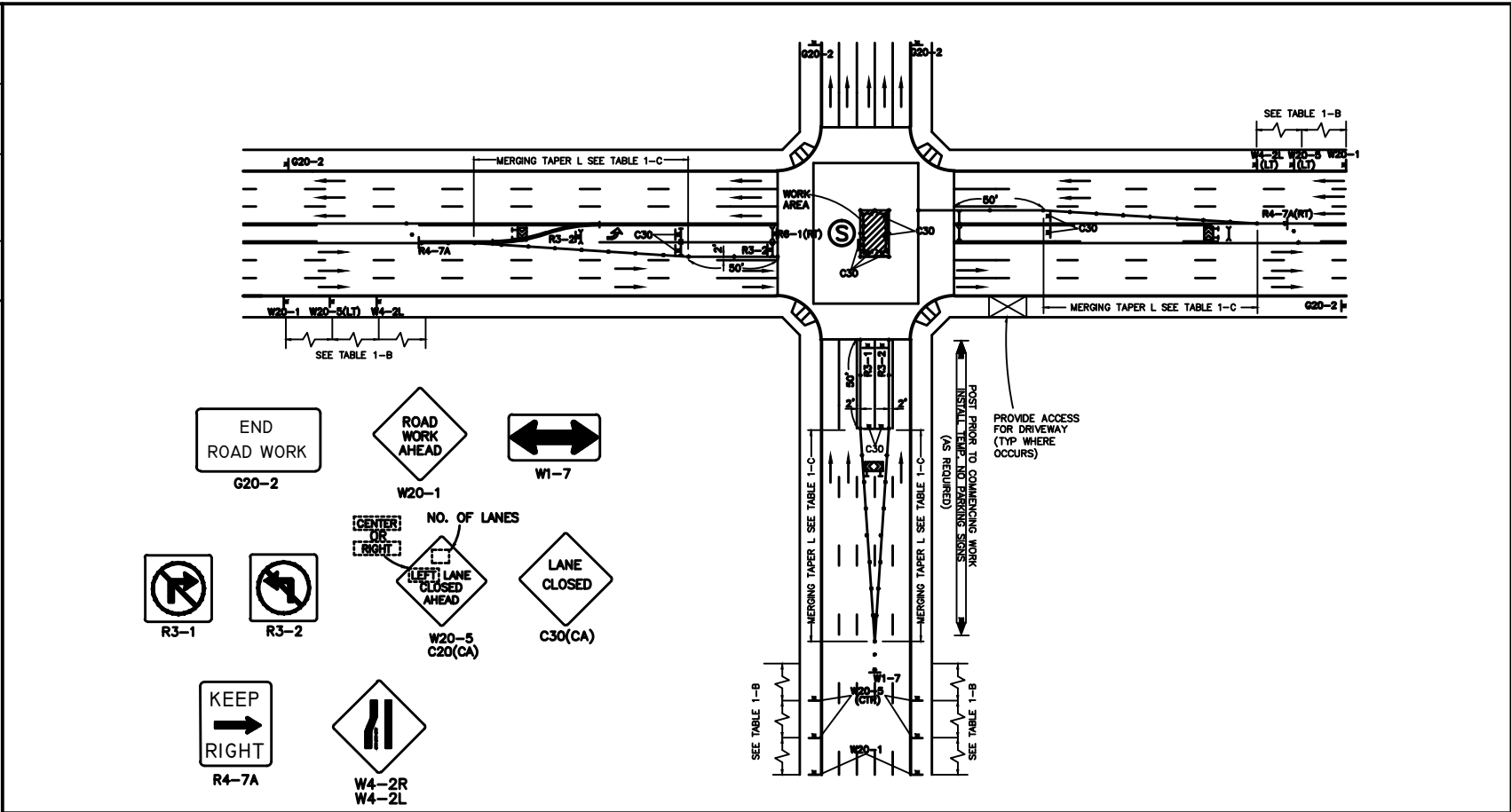
GENERAL NOTES

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TCP is required for all Traffic Control Plans.

Revision	By	Approved	Date
Revised	BUSS		2/11
<div style="text-align: center;"> SAN DIEGO REGIONAL STANDARD DRAWING CENTER OF ROAD WORK AREA LEFT LANE CLOSURES </div>			
<div style="display: flex; justify-content: space-between;"> <div> DRAWING NUMBER TCP-44 </div> <div> Chairperson R.C.E. 19246 <i>[Signature]</i> 7/26/2012 </div> </div>			



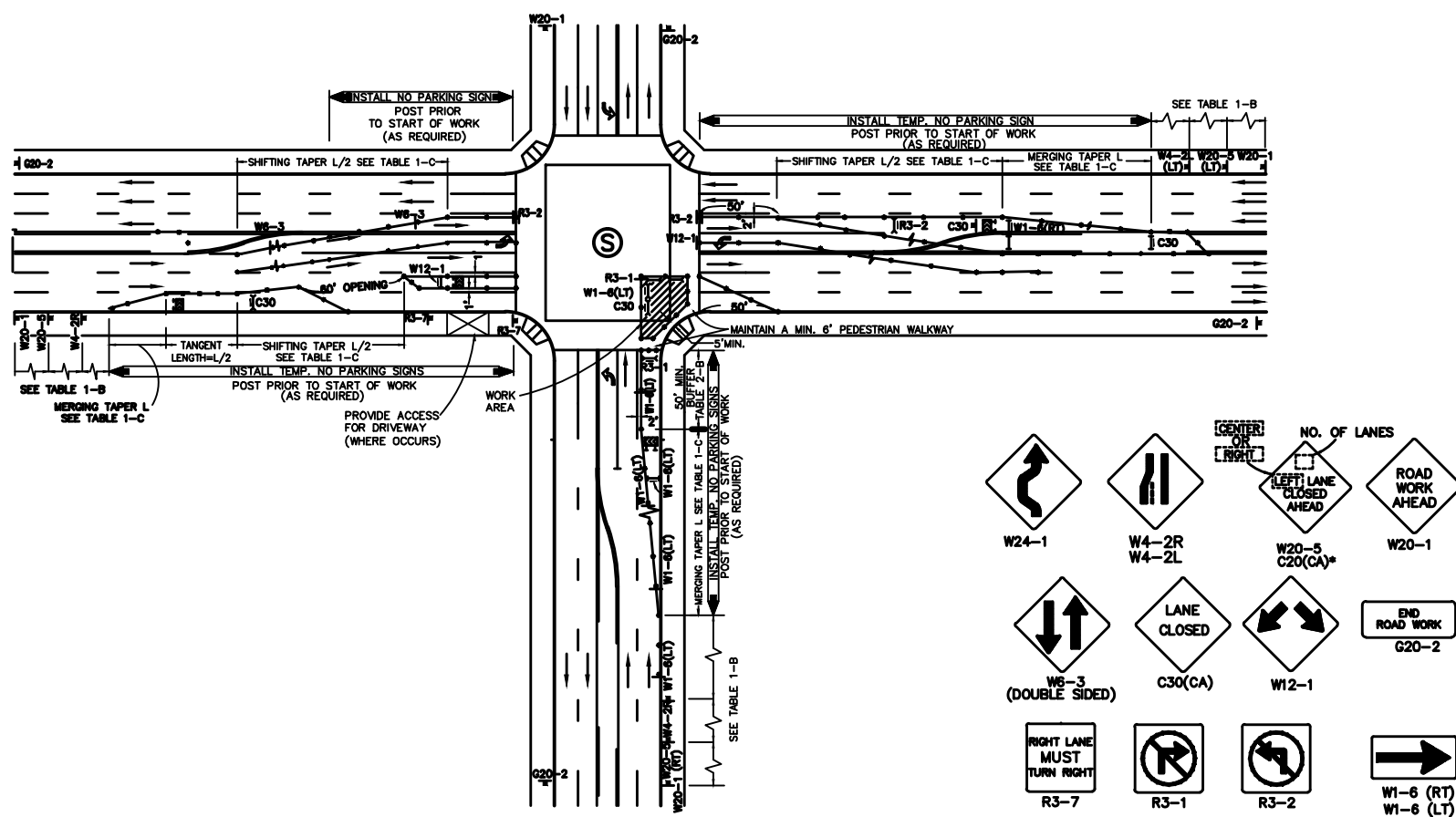
LEGEND				
● CONE	++ BARRICADE	FLAGGER	SIGN	FLASHING ARROW SIGN
			WORK AREA	TRAFFIC DIRECTION
<div style="text-align: center;"> AGENCY ENGINEER'S COMMENTS </div>				
<div style="text-align: center;"> GENERAL NOTES </div>				
<p>For hours of darkness, change comes to vertical barricades with steady burn lights. This plan MAY NOT apply to signalized or multi-way stop intersections. Consult the local jurisdiction when preparing Traffic Control Plans near these intersections. This plan MAY NOT apply when the work areas affect bike lanes, sidewalks, pedestrian access and curved or narrow roadways. Consult the approving agency when preparing the Traffic Control Plans or these areas.</p>				
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<p>TCP is required for all Traffic Control Plans.</p>				

SIDE OF ROAD WORK AREA
RIGHT LANE CLOSURES

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

SAN DIEGO REGIONAL STANDARD DRAWING

Revision	By	Approval	Date
Revised	Bliss		2/11



LEGEND

● CONE ⚡ BARRICADE ■ FLAGGER ■ SIGN ⚡ FLASHING ARROW SIGN ▨ WORK AREA → TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____
COMPANY _____
ADDRESS _____
PHONE _____

APPLICANT USE	AGENCY USE
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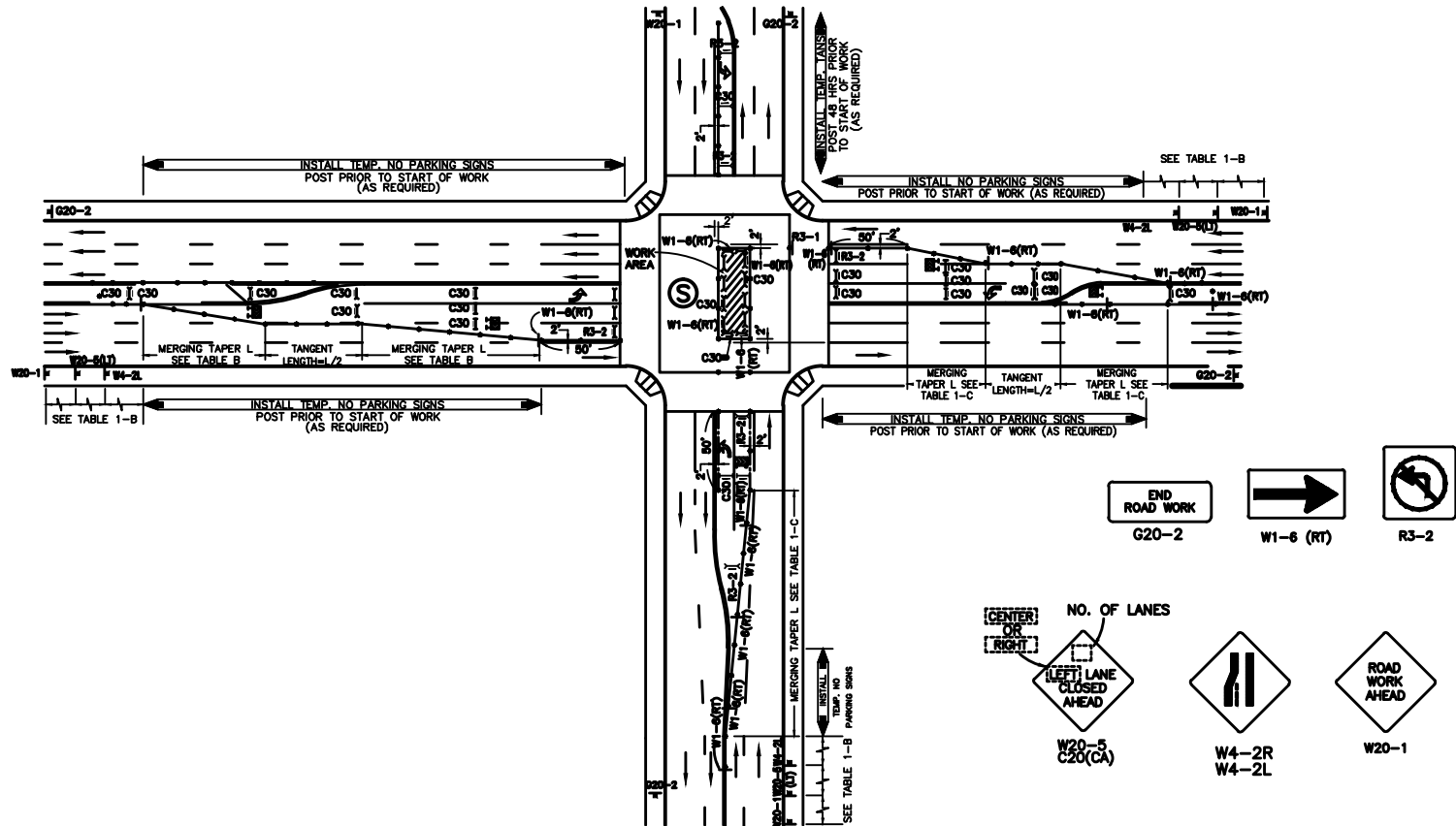
POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

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TCP is required for all Traffic Control Plans.



LEGEND

- CONE
- ⊕ BARRICADE
- FLAGGER
- SIGN
- ⚡ FLASHING ARROW SIGN
- ▨ WORK AREA
- TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

APPLICANT USE AGENCY USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

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TCP is required for all Traffic Control Plans.

SAN DIEGO REGIONAL STANDARD DRAWING

CENTER OF ROAD WORK AREA

LEFT LANE CLOSURES

Revision By Approved Date

Revised BUSS 2/11

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

7/26/2012

Chairperson R.C.E. 19246

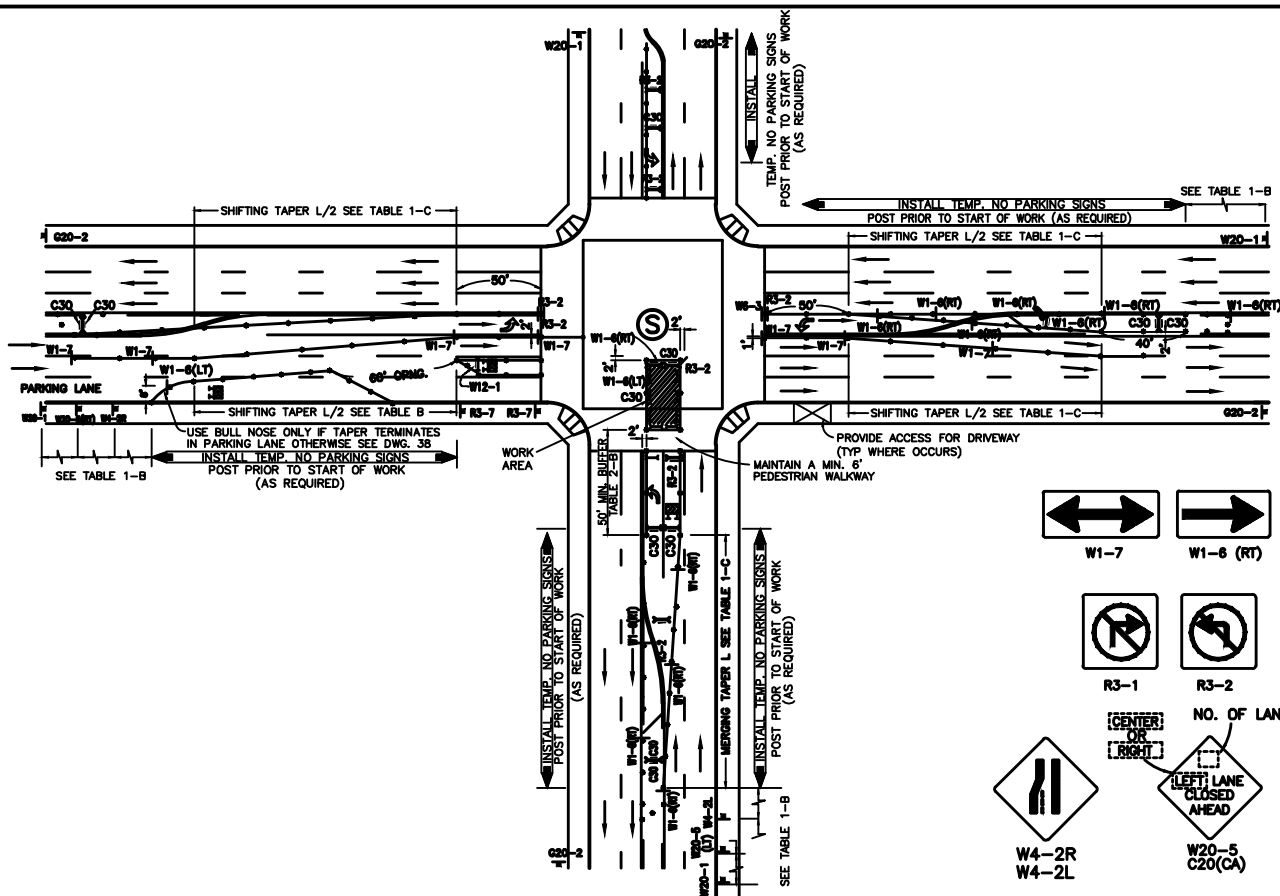
DRAWING NUMBER TCP-46















CENTER OF ROAD WORK AREA INTERSECTION TRAFFIC CONTROL

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

7/26/2012

SAN DIEGO REGIONAL STANDARD DRAWING



				
W1-7	W1-8 (RT)	W1-6 (LT)	G20-2	
				
R3-1	R3-2	R3-7	W24-1	W6-3 (DOUBLE SIDED)
	<p>NO. OF LANES</p> 			
W4-2R W4-2L	W20-5 C20(CA)		W20-1	C30(CA)
				
				W12-1

● CONE BARRICADE FLAGGER SIGN FLASHING ARROW SIGN WORK AREA TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME

COMPANY

ADDRESS

PHONE

APPLICANT USE	AGENCY USE
<p>1. Agency Name: _____</p> <p>2. Agency Address: _____</p> <p>3. Agency City: _____</p> <p>4. Agency State: _____</p> <p>5. Agency Zip: _____</p> <p>6. Agency Phone: _____</p> <p>7. Agency Fax: _____</p> <p>8. Agency Email: _____</p> <p>9. Agency Website: _____</p> <p>10. Agency Contact: _____</p> <p>11. Agency Title: _____</p> <p>12. Agency Department: _____</p> <p>13. Agency Division: _____</p> <p>14. Agency Branch: _____</p> <p>15. Agency Office: _____</p> <p>16. Agency Building: _____</p> <p>17. Agency Floor: _____</p> <p>18. Agency Room: _____</p> <p>19. Agency Suite: _____</p> <p>20. Agency Unit: _____</p> <p>21. Agency Box: _____</p> <p>22. Agency PO Box: _____</p> <p>23. Agency Mailing Address: _____</p> <p>24. Agency Billing Address: _____</p> <p>25. Agency Delivery Address: _____</p> <p>26. Agency Return Address: _____</p> <p>27. Agency Attention: _____</p> <p>28. Agency Department: _____</p> <p>29. Agency Division: _____</p> <p>30. Agency Branch: _____</p> <p>31. 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POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

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Nothing contained on this drawing shall prevent local jurisdictions from modifying changing or adopting new specifications deemed necessary. Criteria for position, location and use of Traffic Control Devices is solely for the purpose of guidance to assist in the set up of the Traffic Control Plans.

TCP is required for all Traffic Control Plans.

Revision	By	Approval	Date
Revised	BUSS		2/11

Revision	By	Approved	Date
Revised	BUSS		2/11

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA

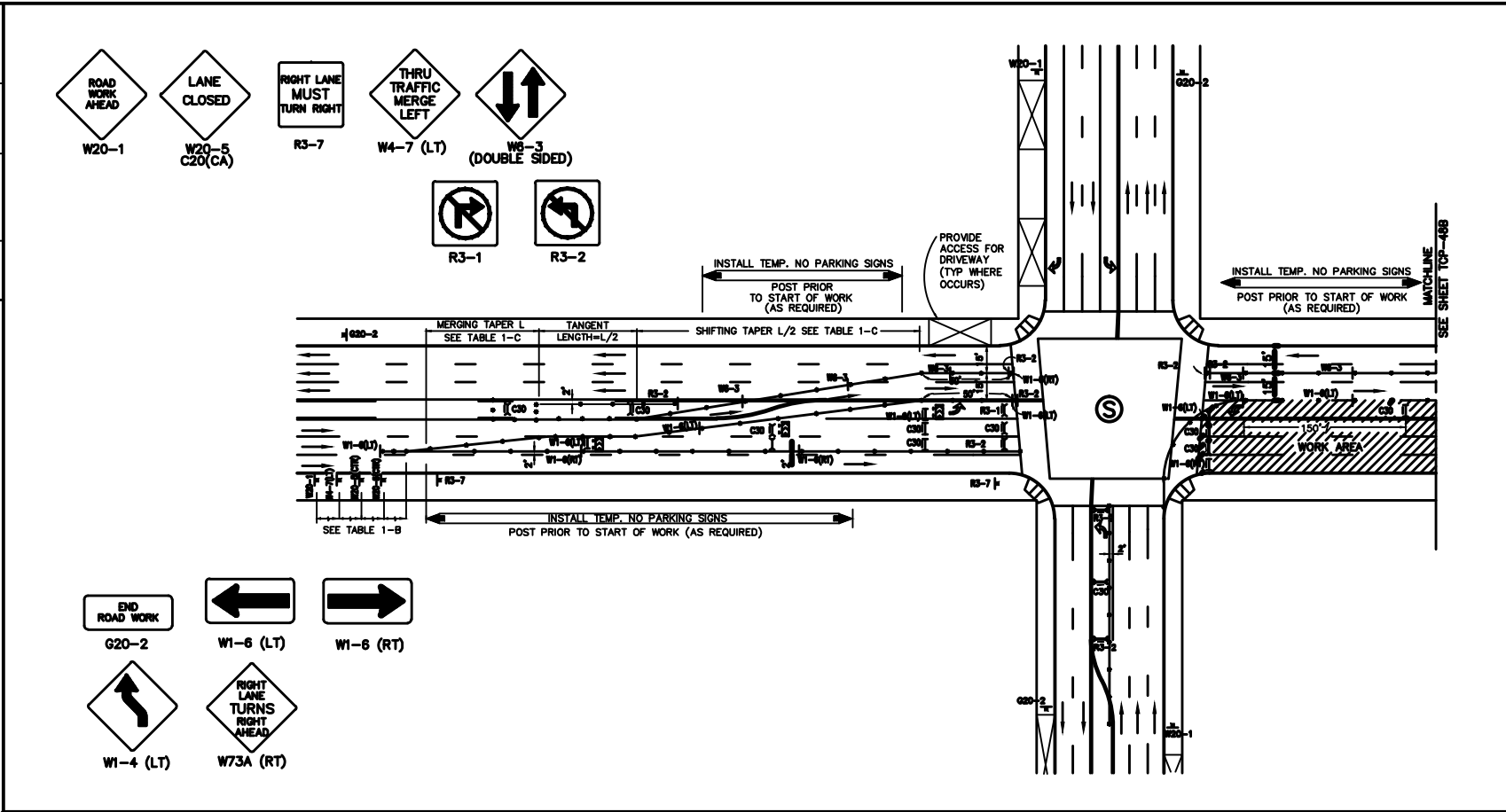
HALF STREET CLOSURE

DRAWING NUMBER TCP-48A

Chairperson R.C.E. 19246

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

7/26/2012



LEGEND

● CONE
 + BARRICADE
 ■ FLAGGER
 ┘ SIGN
 ▣ FLASHING ARROW SIGN
 ▨ WORK AREA
 ⇄ TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

AGENCY USE	POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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SIDE OF ROAD WORK AREA
HALF STREET CLOSURE

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

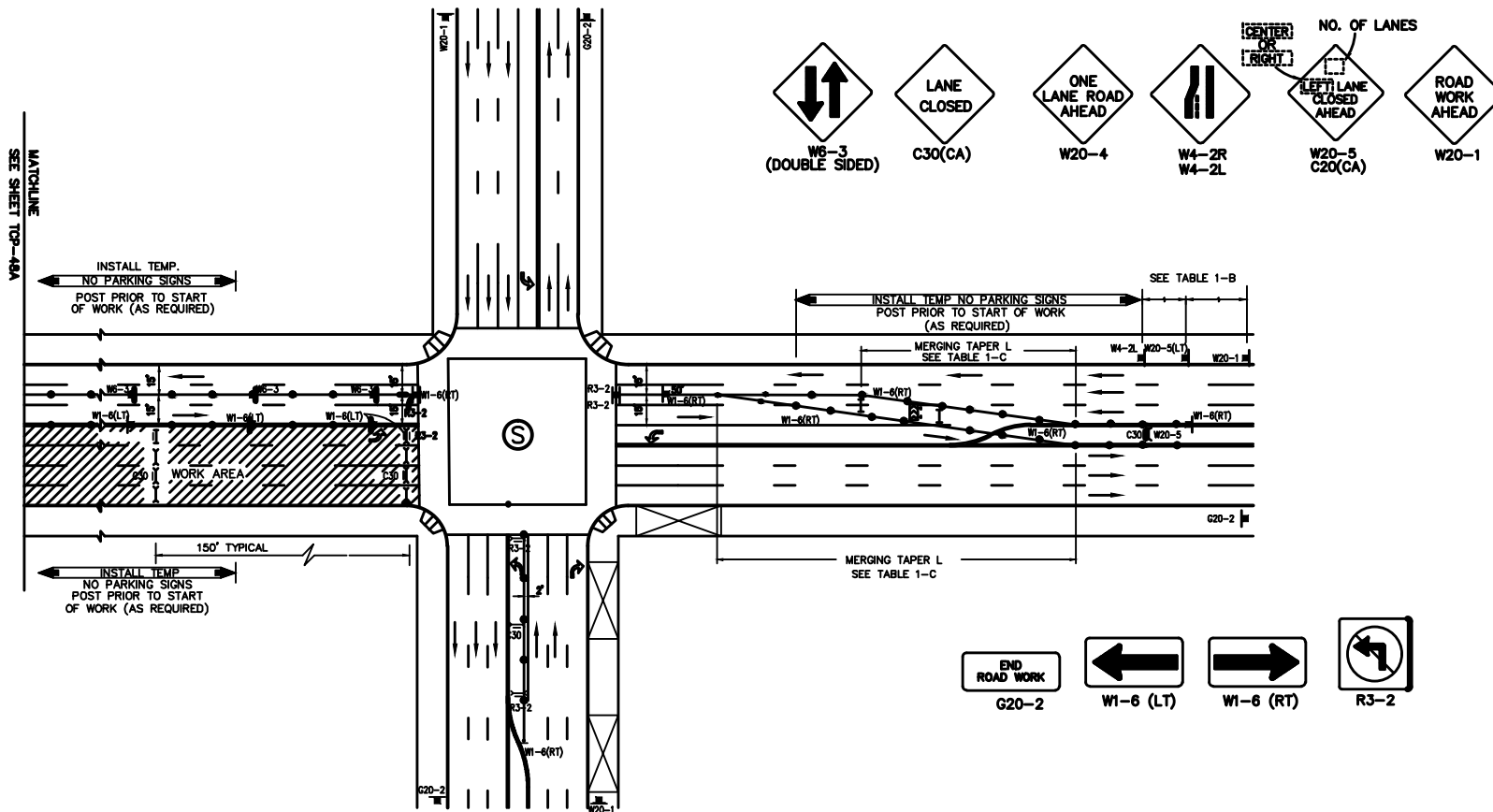
SAN DIEGO REGIONAL STANDARD DRAWING

Revision	By	Approval	Date
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Revised	BUSS
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	2/11
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SUBMITTED BY:
NAME _____
COMPANY _____
ADDRESS _____
PHONE _____



LEGEND



AGENCY ENGINEER'S COMMENTS

GENERAL NOTES

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APPLICANT USE	AGENCY USE
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Revision	By	Approved	Date
Revised	BUSS		2/11

SAN DIEGO REGIONAL STANDARD DRAWING

CENTER OF ROAD WORK AREA

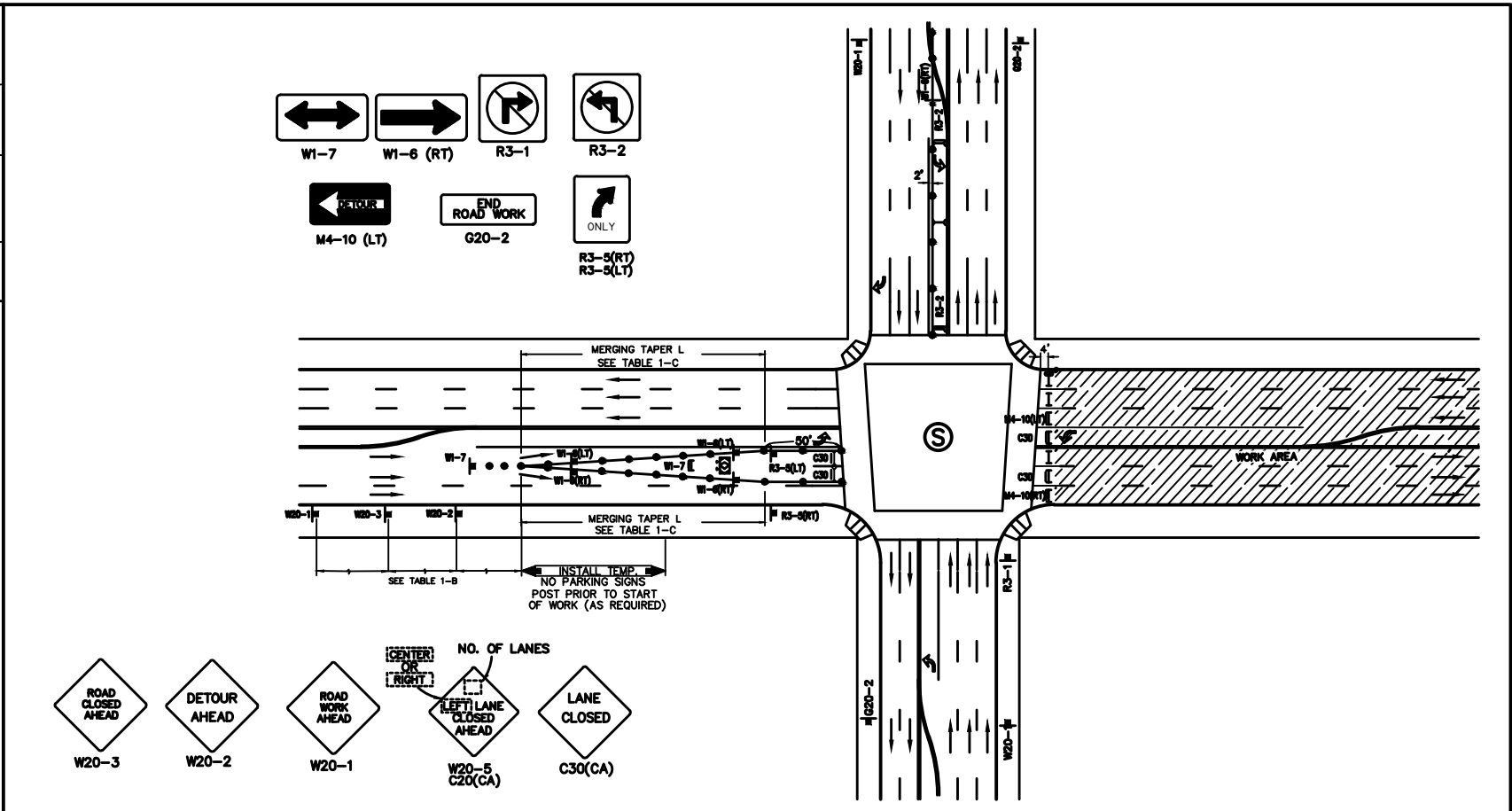
2-WAY FULL STREET CLOSURE

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Chairperson R.C.E. 19246

7/26/2012

DRAWING NUMBER TCP-49



LEGEND

● CONE ++ BARRICADE ■ FLAGGER — SIGN ▨ FLASHING ARROW SIGN ▨ WORK AREA → TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

GENERAL NOTES

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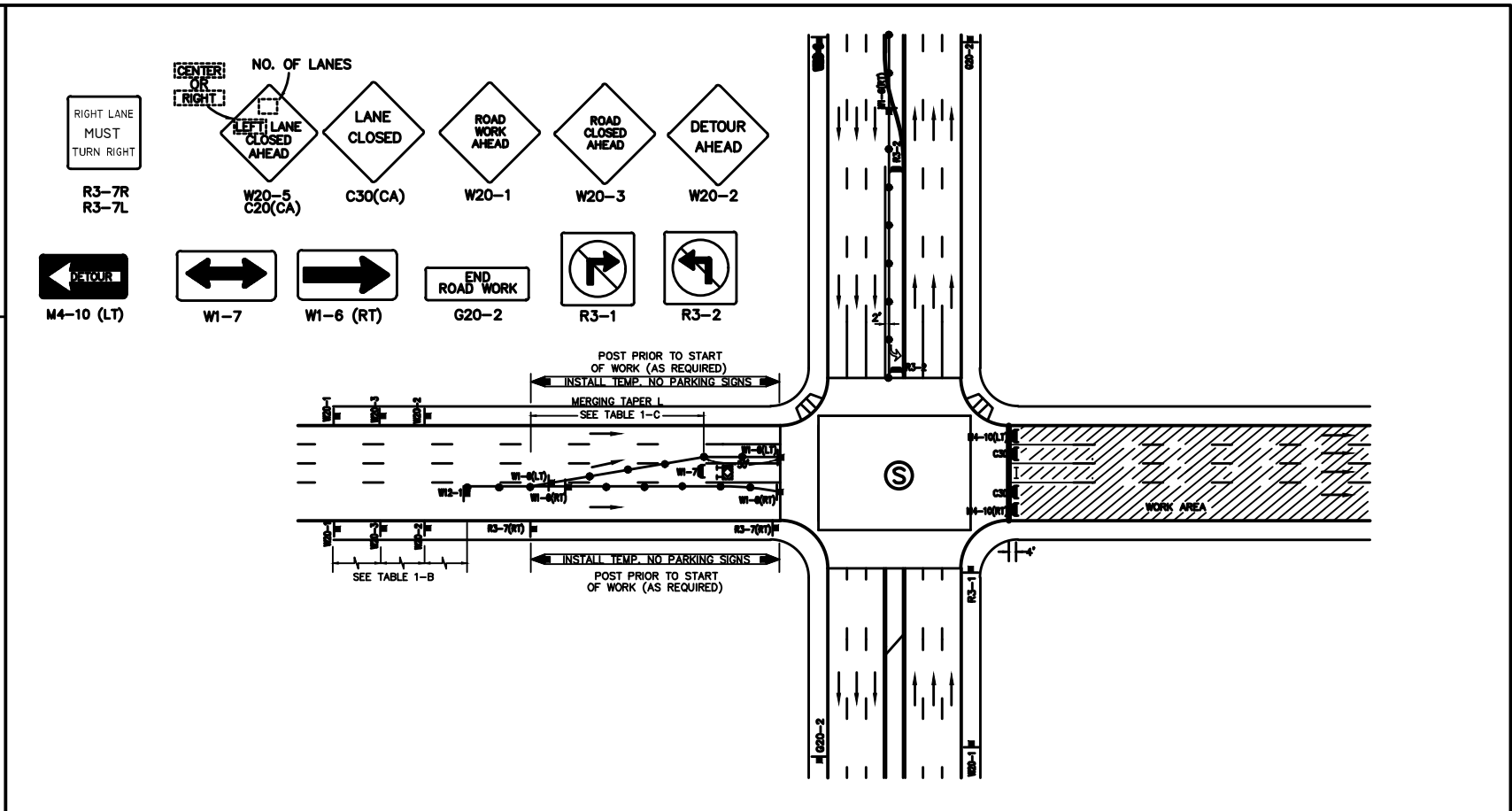
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE
7/26/2012

Chairperson R.C.E. 19246

DRAWING NUMBER TCP-50

SAN DIEGO REGIONAL STANDARD DRAWING

CENTER OF ROAD WORK
ONE WAY - FULL STREET CLOSURE



LEGEND

- CONE
- ⊕ BARRICADE
- ⚑ FLAGGER
- ⚑ SIGN
- ⚑ FLASHING ARROW SIGN
- ▨ WORK AREA
- ➡ TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:
NAME _____
COMPANY _____
ADDRESS _____
PHONE _____

APPLICANT USE AGENCY USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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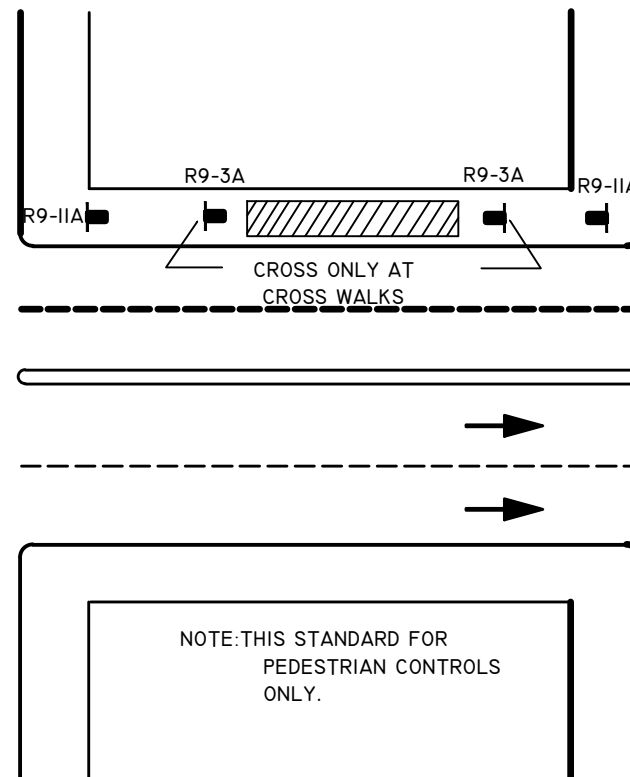
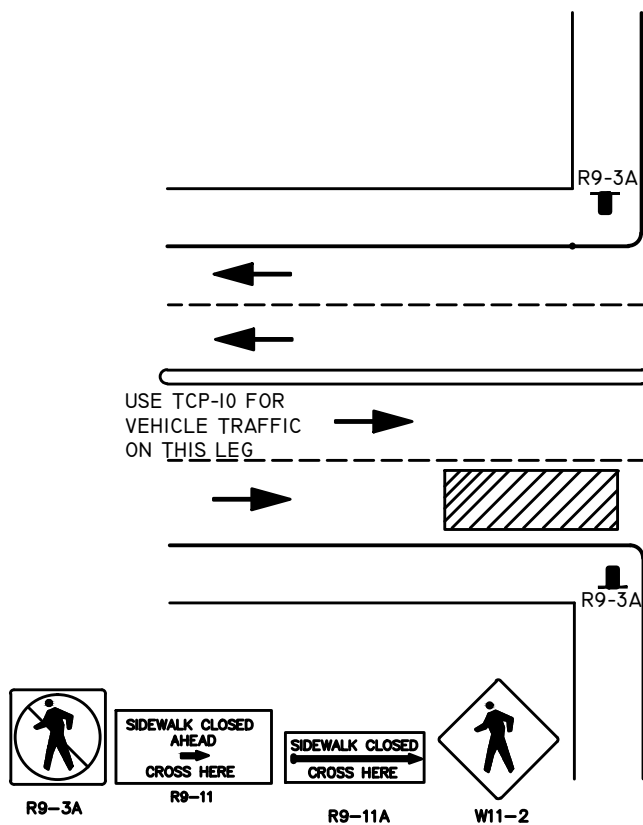
Revision	By	Approval	Date
Revised	BUSS		2/11

Revision	By	Approved	Date
Revised	BUSS		2/11

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA

TYPICAL PEDESTRIAN CONTROL SIGNS



LEGEND

- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

AGENCY USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Chairperson R.C.E. 19246

7/26/2012

DRAWING NUMBER TCP-51

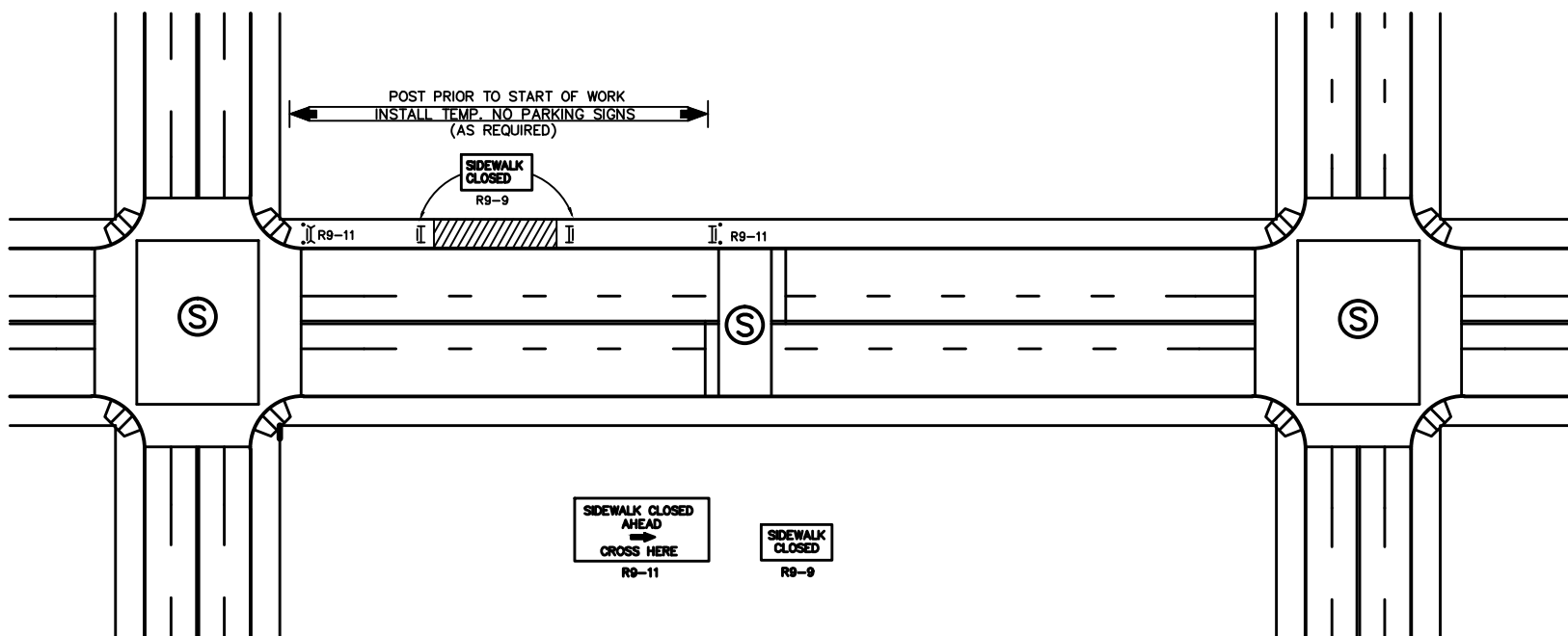
7/26/2012

Chairperson R.C.E. 19246

DRAWING
NUMBER
TCP-52

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA TYPICAL PEDESTRIAN CONTROL SIGNS



LEGEND

- CONE

++ BARRICADE

FLAGGER

SIGN

 FLASHING ARROW SIGN

 WORK AREA

→
← TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____

COMPANY

ADDRESS _____

PHONE _____

APPLICANT USE	AGENCY USE
<p>1. Agency Name: _____</p> <p>2. Agency Address: _____</p> <p>3. Agency Phone: _____</p> <p>4. Agency Fax: _____</p> <p>5. Agency Email: _____</p> <p>6. Agency Website: _____</p> <p>7. Agency Contact Person: _____</p> <p>8. Agency Title: _____</p> <p>9. Agency Address: _____</p> <p>10. Agency Phone: _____</p> <p>11. Agency Fax: _____</p> <p>12. Agency Email: _____</p> <p>13. Agency Website: _____</p> <p>14. Agency Contact Person: _____</p> <p>15. Agency Title: _____</p>	<p>1. Agency Name: _____</p> <p>2. Agency Address: _____</p> <p>3. Agency Phone: _____</p> <p>4. Agency Fax: _____</p> <p>5. Agency Email: _____</p> <p>6. Agency Website: _____</p> <p>7. Agency Contact Person: _____</p> <p>8. Agency Title: _____</p> <p>9. Agency Address: _____</p> <p>10. Agency Phone: _____</p> <p>11. Agency Fax: _____</p> <p>12. Agency Email: _____</p> <p>13. Agency Website: _____</p> <p>14. Agency Contact Person: _____</p> <p>15. Agency Title: _____</p>

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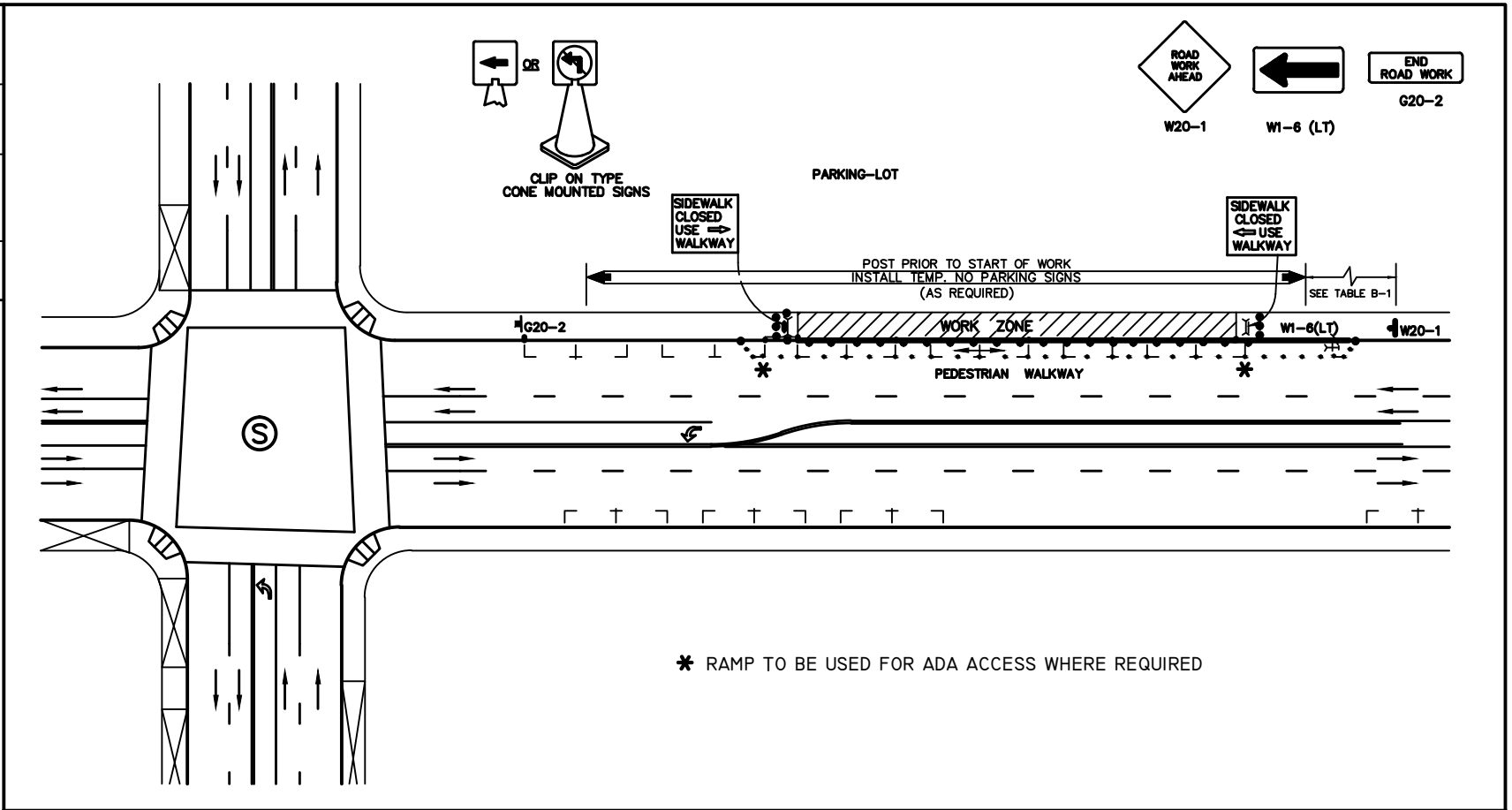
TCP is required for all Traffic Control Plans.

Revision	By	Approval	Date
Revised	BUSS		2/11

Revision	By	Approved	Date
Revised	BUSS		2/11

SAN DIEGO REGIONAL STANDARD DRAWING

**SIDE OF ROAD WORK AREA
TYPICAL PEDESTRIAN CONTROL SIGNS**



LEGEND

- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

AGENCY ENGINEER'S COMMENTS

SUBMITTED BY:

NAME _____
 COMPANY _____
 ADDRESS _____
 PHONE _____

AGENCY USE

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

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RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
 7/26/2012
 Chairperson R.C.E. 19246

DRAWING NUMBER TCP-53

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the 1990s, the number of people in the world who are under 15 years of age has increased from 1.1 billion to 1.5 billion, and the number of people aged 65 and over has increased from 0.2 billion to 0.5 billion (United Nations 1999).

There is a growing awareness of the need to address the needs of the young and the old in the context of the ageing of the population. The United Nations (1999) has identified the need to address the needs of the young and the old as a key challenge for the 21st century. The World Bank (1999) has identified the need to address the needs of the young and the old as a key challenge for the 21st century.

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