CITY OF CHULA VISTA

DESIGN AND CONSTRUCTION STANDARD DRAWINGS 2017

DEPARTMENT OF ENGINEERING AND CAPITAL PROJECTS

SHEET INDEX

SHEET INDEX
(CONTINUED)

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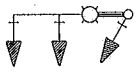
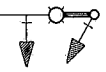
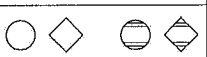
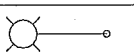
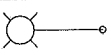
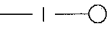
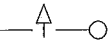
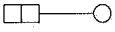
RWY-04	4	4-LANE MAJOR INTERSECTION STANDARDS	CVD ST15

SHEET INDEX
(CONTINUED)

DESCRIPTION	CITY STANDARD DRAWING	LEGEND	
		PROPOSED	EXISTING (GHOSTED)
CONTROLLER			
TRAFFIC SIGNAL WITH MASTARM, SAFETY LIGHT; SIGNAL INDICATION, BACK PLATE AND INTERNALLY ILLUMINATED STREET NAME SIGN.			
FLASHING BEACON, ONE WAY			
INDUCTIVE LOOP DETECTOR			
ELECTRICAL CONDUIT		E	ELEC (SIZE)
EMERGENCY VEHICLE PRE-EMPTION EQUIPMENT (E.V.P.E.)			
METER PEDESTAL		MP	
SERVICE POINT		SP	
STREET LIGHTS	TRF-08 TRF-08		
OVERHEAD CONDUCTOR		ELEC	ELEC (GIVE NO. WIRES)
PEDESTRIAN PUSH BUTTON ON SPECIAL PUSH BUTTON POST	TRF-08	◎PPB	◎ppb
POWER POLE		○PP	○PP# (GIVE POLE No.)
PULL BOX		PB□	PB□
INDUCTIVE LOOP DETECTOR PULL BOX AND STUB-OUT		PB □◦	□◦
TELEPHONE POLE		○TP	○TP# (GIVE NO. POLE)
TRAFFIC SIGNAL WITH THREE LENS INDICATION AND BLACK PLATE (UNLESS OTHERWISE INDICATED)			
TRAFFIC SIGNAL WITH THREE INDICATION (GREEN ARROW) AND BLACK PLATE (UNLESS OTHERWISE INDICATED)			
WALK-WAIT PEDESTRIAN SIGNAL			

REVISION	BY	APPROVED	DATE
ORIGINAL	ARR		7/95
10/15/02	CVM	C. SWANSON	7/95
11/21/17	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

SYMBOLS FOR TRAFFIC SIGNAL & LIGHTING INSTALLATIONS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

IV

DESCRIPTION	CITY STANDARD DRAWING	LEGEND (REMARKS IN PARENTHESES ARE EXPLANATORY ONLY.) NEW CONSTRUCTION SYMBOLS ARE SOLID. EXISTING CONSTRUCTION IS GHOSTED.
BOUNDARIES & CENTERLINES:		
CITY BOUNDARY LINE		COUNTY OF SAN DIEGO / CITY OF CHULA VISTA (NO.3 PEN) (IDENTIFY BOUNDARIES)
SUBDIVISION & RECORD OF SURVEY BOUNDARIES		(NO.2 PEN) (IDENTIFY SUBDIVISION OR R.O.S.)
PROPERTY LINES ALONG STREETS & ALLEYS		(NO.1 PEN)
LOT LINES BETWEEN LOTS, PARCEL & LOT SPLIT LINES		(NO.0 PEN)
EASEMENTS & SETBACK LINES		(NO.00 PEN) (INDICATE SIZE, TYPE & ℄ OF EASEMENTS)
CENTERLINES		℄
STREETS:		
GRADING		
OVERLAY USING A.C. SURFACING ONLY SHOWN SHADED		
GRADING USING A.B. & A.C. SURFACING SHOWN SHADED		
OVERLAY USING A.B. & A.C. SURFACING SHOWN SHADED		
OVERLAY USING P.C.C. SURFACING		
GRADING USING P.C.C. SURFACING		
OVERLAY USING A.B. & P.C.C. SURFACING		
CURB & GUTTER		(INDICATE WHETHER 6" OR 8" & TRANSITION LOCATIONS)
CURB OR BERM OR DIKE		AC BERM OR PCC CURB (INDICATE TYPE & SIZE)
MONOLITHIC CURB, GUTTER, & SIDEWALK		
SIDEWALK		

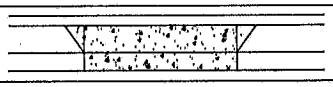
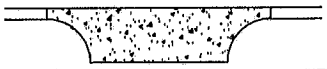
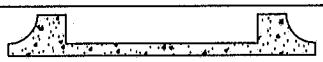
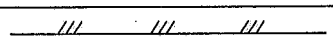
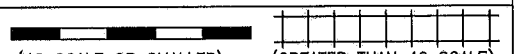
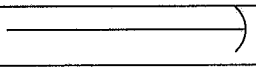
REVISION	BY	APPROVED	DATE
ORIGINAL	ARR		8/69
11/05/01	CVM	C. SWANSON	11/02
11/21/17	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

PROPERTY AND STREET SYMBOLS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

V

DESCRIPTION	CITY STANDARD DRAWING	LEGEND (REMARKS IN PARENTHESES ARE EXPLANATORY ONLY.) NEW CONSTRUCTION SYMBOLS ARE SOLID. EXISTING CONSTRUCTION IS GHOSTED.
STREETS CONTINUED:		
DRIVEWAY APPROACH	GSI-01	
ALLEY APPROACH	GSI-01 RADIUS	
CROSS GUTTER	GSI-02	
EDGE OF PAVEMENT		
RAILWAY TRACKS		 (40 SCALE OR SMALLER) (GREATER THAN 40 SCALE)
BARRICADE		 CONTINUOUS SINGLE
STREET SIGNS		
UTILITIES:		
GAS MAIN		G HP (SHOW DIAMETER & TYPE)
GAS SERVICE CONNECTION		(G) (SHOW SIZE IF OTHER THAN 3/4")
GAS VALVE		GV
POWER LINES, OVERHEAD		E 4 WIRES-220V (SHOW NO. OF WIRES, VOLTAGE, ETC.)
POWER LINES UNDERGROUND		E 1 1/2" COND. 120V, 6W (SHOW SIZE OF CONDUIT, VOLTAGE, ETC.)
POWER OR TELEPHONE MANHOLE		(E) ELEC. MH (T) TEL MH
POLE ANCHOR OR DEADMAN		
TELEPHONE LINES, OVERHEAD		T 4 WIRES (SHOW NO. OF WIRES, ETC.)
TELEPHONE LINES, UNDERGROUND		T 6 MTD (SHOW SIZE, NO., CONDUIT, ETC.)

REVISION	BY	APPROVED	DATE
ORIGINAL	ARR		8/69
10/15/02	CVM	C. SWANSON	11/02
11/21/17	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

STREET AND UTILITY SYMBOLS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

VI

DESCRIPTION	CITY STANDARD DRAWING	LEGEND (REMARKS IN PARENTHESES ARE EXPLANATORY ONLY.) NEW CONSTRUCTION SYMBOLS ARE SOLID. EXISTING CONSTRUCTION IS GHOSTED.
UTILITIES CONTINUED:		
SEWER MAIN		S 8" VCP (SHOW DIAMETER & TYPE)
SEWER LATERALS		(S) (SHOW DIAMETER IF OTHER THAN 4")
SEWER MANHOLE		MH NO. ____
SEWER PLUG		S 8" VCP PLUG
SEWER MAIN CLEANOUT		
CONCRETE CRADLE		S S CONC CRADLE
CONCRETE ENCASEMENT		S S CONC ENCASEMENT
WATER MAIN		W 8" A.C. W (SHOW KIND, AC, CI, ETC. & SIZE)
WATER SERVICE		(W) (SHOW DIAMETER IF OTHER THAN 3/4")
WATER (GATE) VALVE		WV W
WATER METER		WM
BLOW OFF		W BD (SHOW SIZE)
FIRE HYDRANT		W
DRAINAGE:		
STORM DRAIN OR CULVERT		36" RCP (SHOW SIZE & TYPE, RCP, CMP, SP, ETC.)
BOX CULVERT		3' x 6' RCB (SHOW SIZE)
DRAINAGE CHANNEL OR DITCH		
HEADWALL OR ENDWALL		(SHOW APPROXIMATE SHAPE)
CURB INLET		10' A-1 INLET (INDICATE TYPE & LENGTH & SHOW APPROX.SHAPE)
STORM DRAIN CLEANOUT		

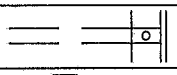
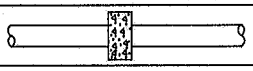
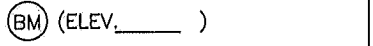
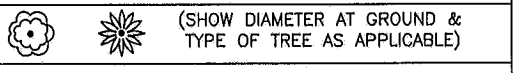
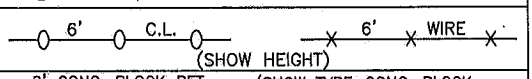
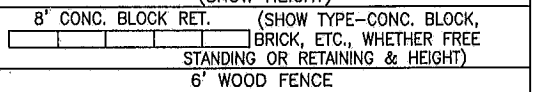
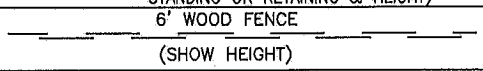
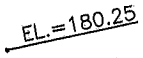
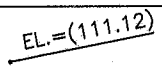
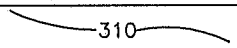
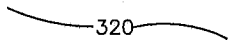
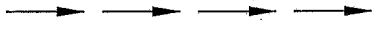
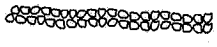
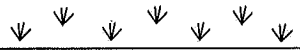
REVISION	BY	APPROVED	DATE
ORIGINAL	ARR		8/69
11/05/01	CVM	C. SWANSON	11/02
11/21/17	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

UTILITY AND DRAINAGE SYMBOLS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

VII

DESCRIPTION	CITY STANDARD DRAWING	LEGEND (REMARKS IN PARENTHESES ARE EXPLANATORY ONLY.) NEW CONSTRUCTION SYMBOLS ARE SOLID. EXISTING CONSTRUCTION IS GHOSTED.
DRAINAGE CONTINUED:		
CURB OUTLET		
PIPE COLLAR		
MONUMENTS:		
BENCH MARK		
SURVEY WELL MONUMENT		
MISCELLANEOUS:		
TREES		
FENCE (CHAIN LINK, WIRE)		
WALL		
WOOD FENCE		
GRADING & LANDSCAPING:		
ORIGINAL GROUND (PROFILE)		
FINISH ELEVATION		
EXISTING ELEVATION		
EXISTING CONTOUR		
FINISH GRADE CONTOUR		
DAYLIGHT LINE		
SWALES & DIRECTION OF FLOW		
RIP RAP		
SLOPE PLANTING		
FILL SLOPE		
CUT SLOPE		

REVISION	BY	APPROVED	DATE
ORIGINAL	ARR		8/69
11/05/01	CVM	C. SWANSON	11/02
11/21/17	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

SURVEY, GRADING & MISCELLANEOUS SYMBOLS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

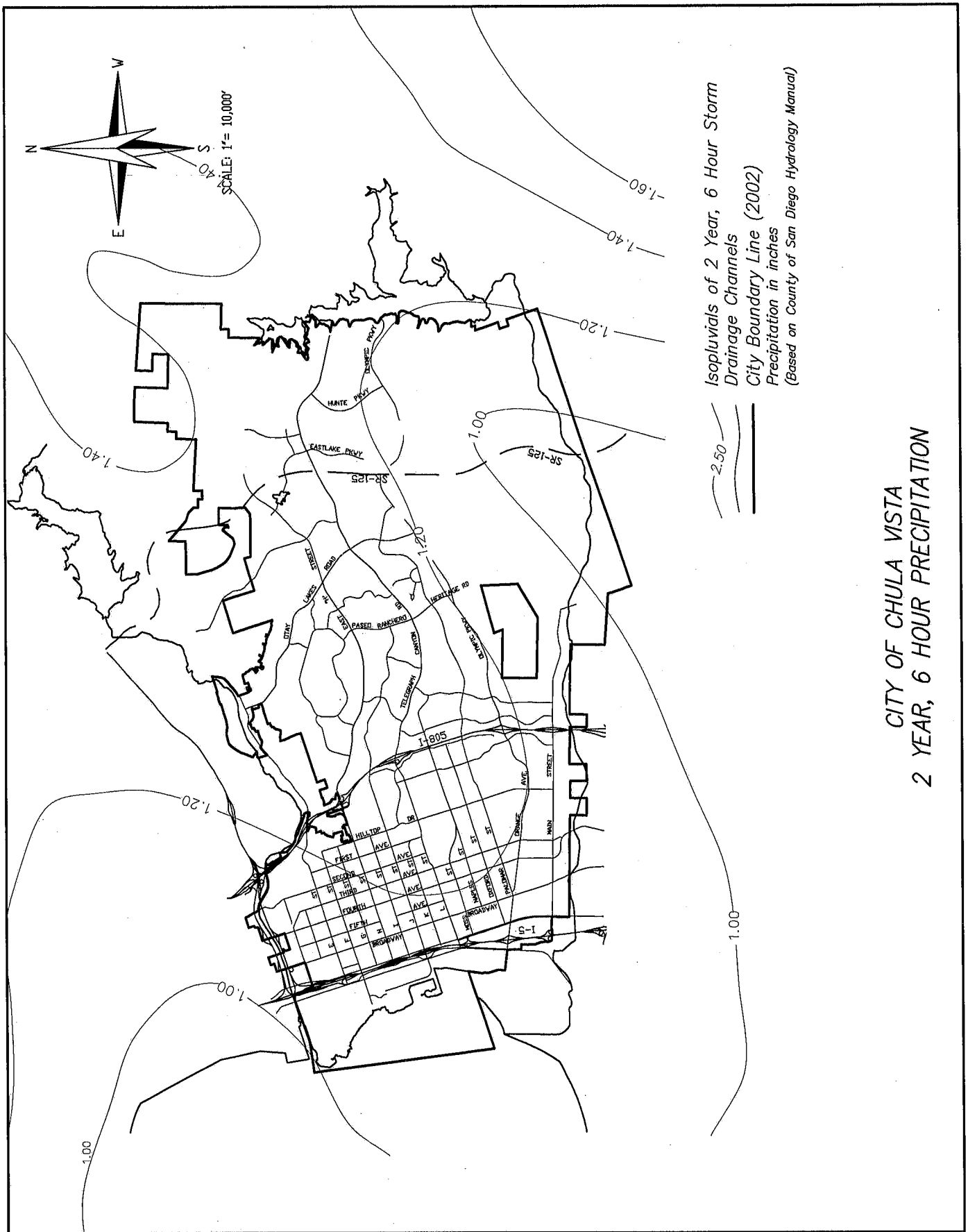
VIII

DRAINAGE
(DRN)

CITY OF CHULA VISTA

DESIGN AND CONSTRUCTION STANDARD DRAWINGS 2017

DEPARTMENT OF ENGINEERING AND CAPITAL PROJECTS



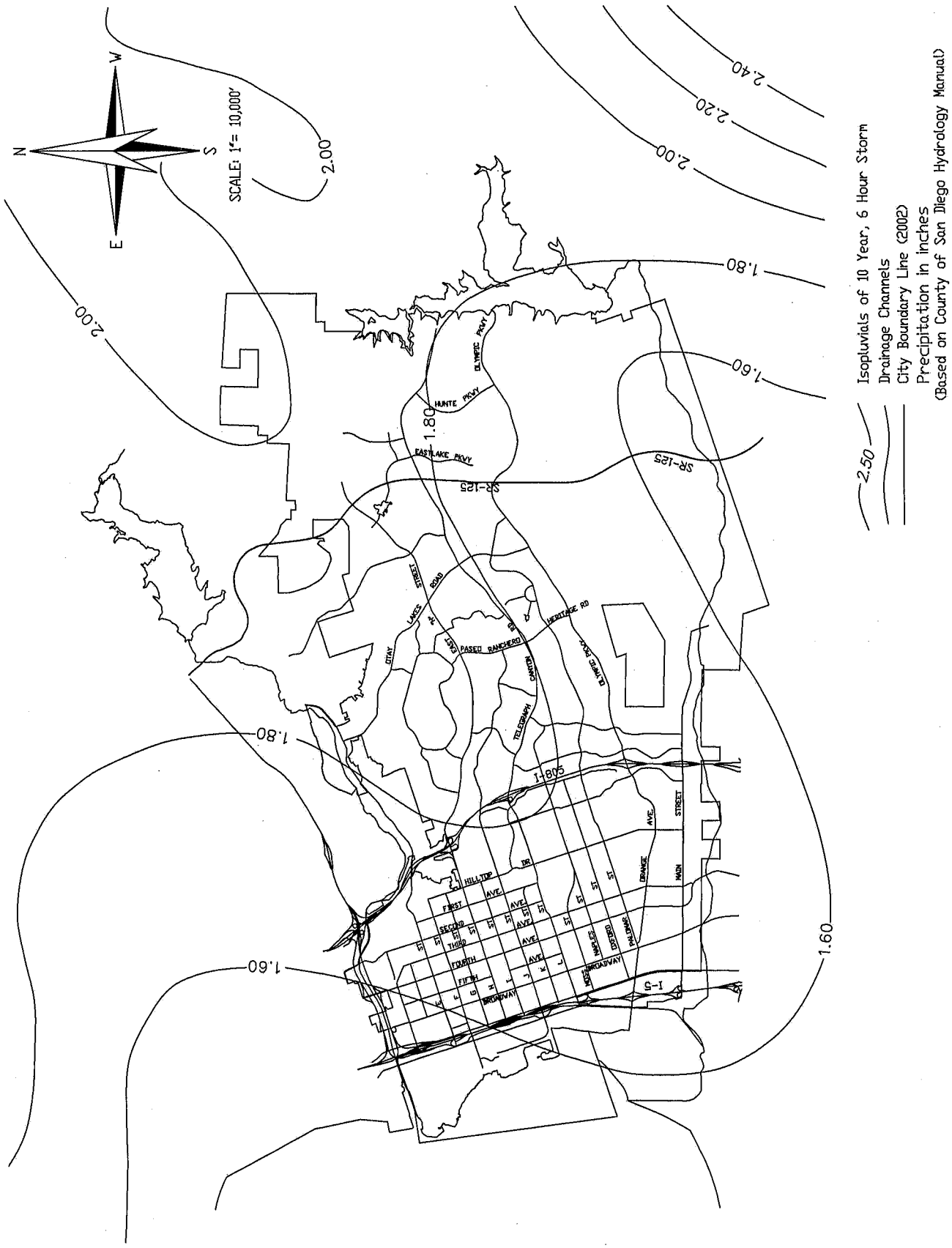
REVISION	BY	APPROVED	DATE
ORIGINAL	CVM		01/02
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

2-YEAR, 6-HOUR PRECIPITATION

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

DRN-01



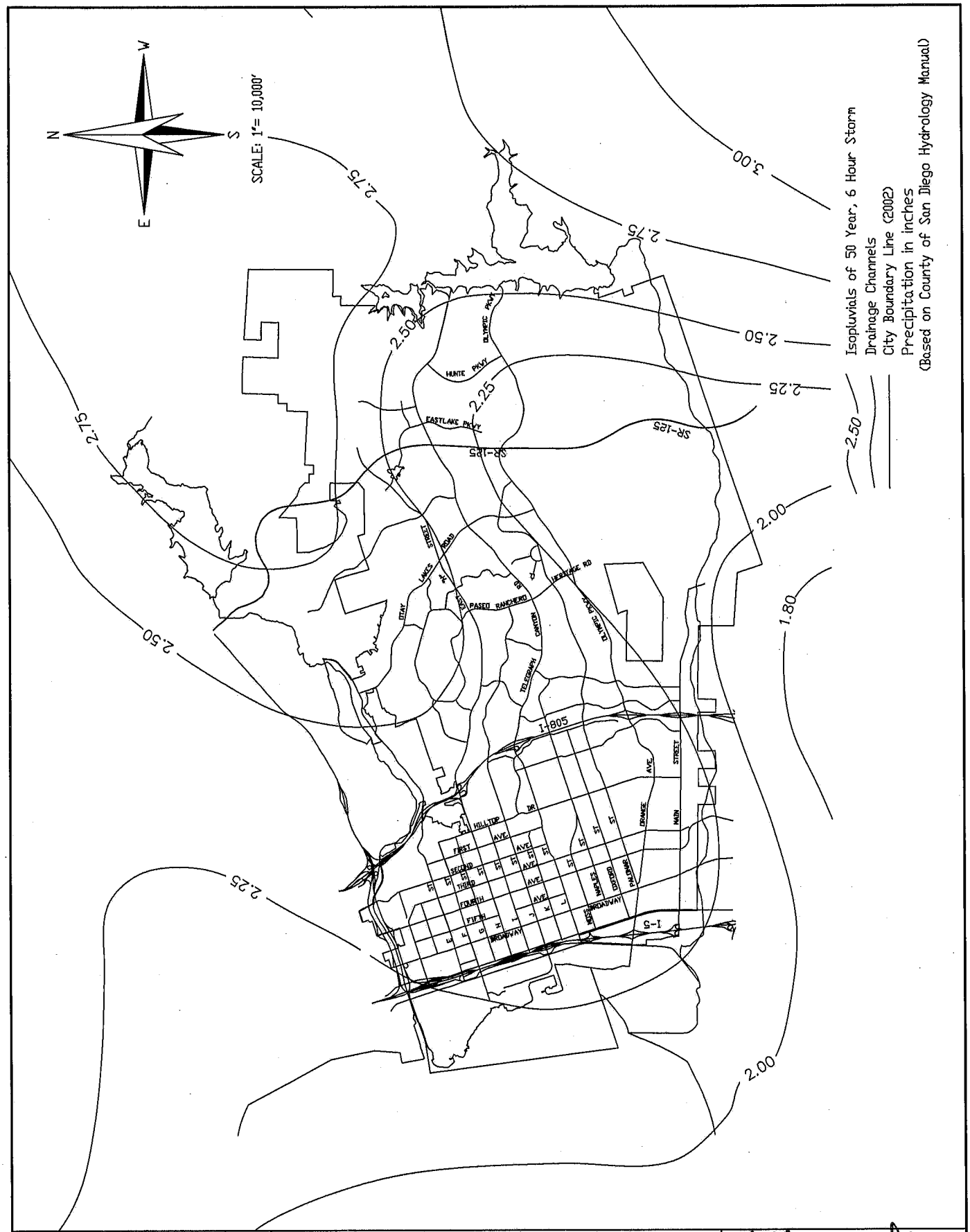
REVISION	BY	APPROVED	DATE
ORIGINAL	CVM		01/02
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

10-YEAR, 6-HOUR PRECIPITATION

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

DRN-02



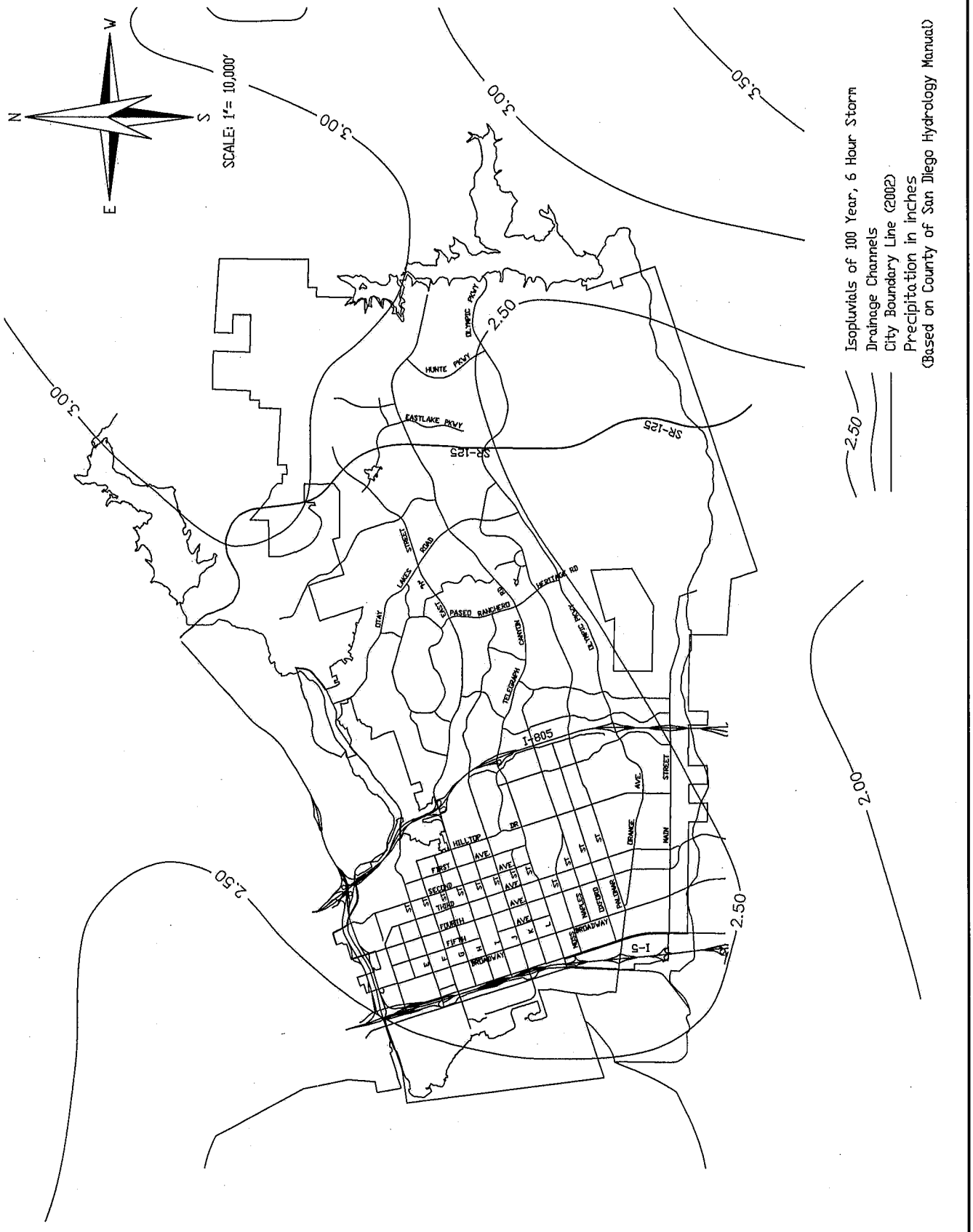
REVISION	BY	APPROVED	DATE
ORIGINAL			01/02
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

50-YEAR, 6-HOUR PRECIPITATION

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

DRN-03



REVISION	BY	APPROVED	DATE
ORIGINAL			01/02
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

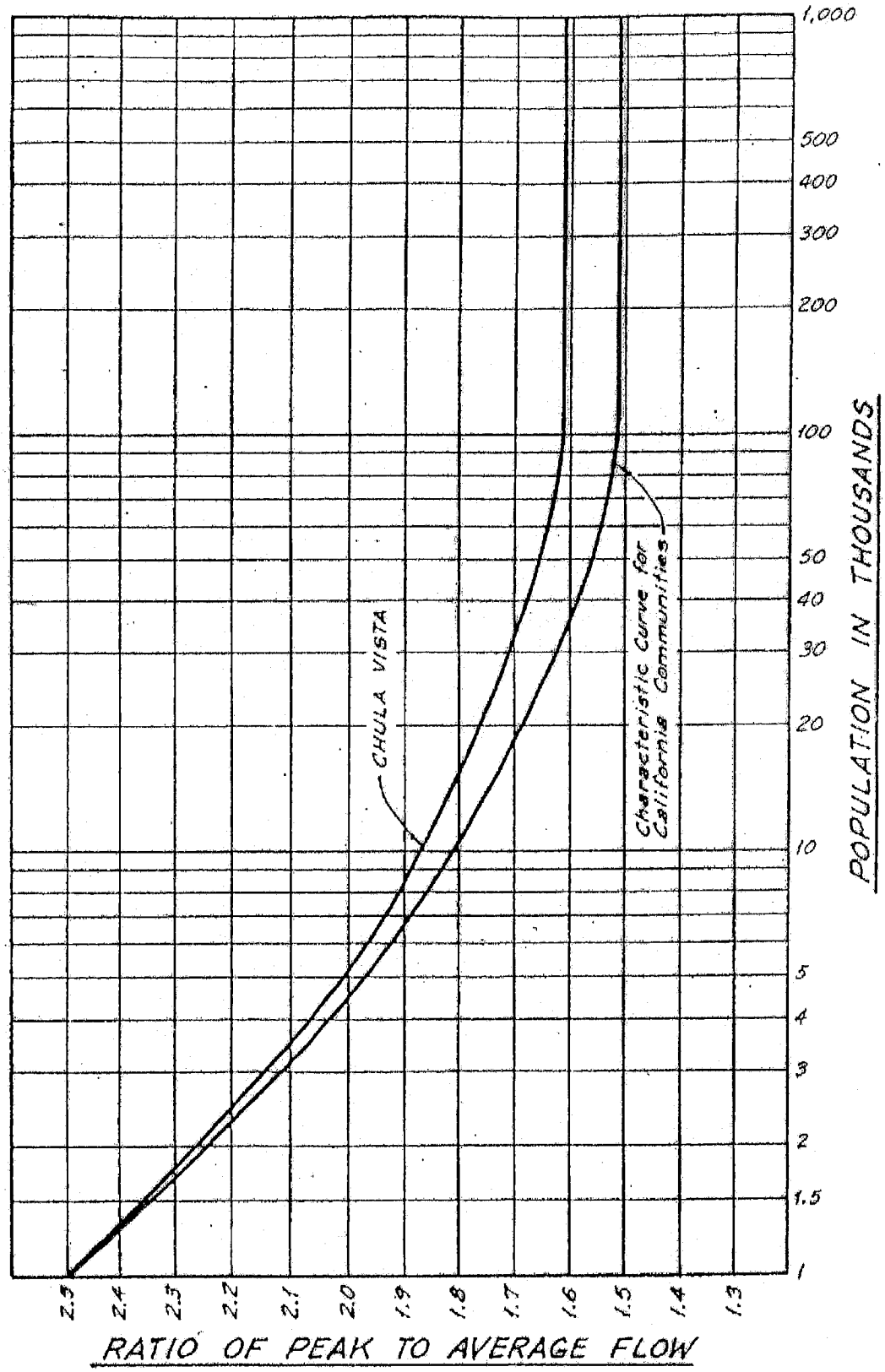
100-YEAR, 6-HOUR PRECIPITATION

William S. Valle

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

DRN-04

RATIO OF PEAK TO AVERAGE SEWAGE FLOW VS. MAGNITUDE OF TRIBUTARY POPULATION



REVISION	BY	APPROVED	DATE
ORIGINAL	JWH		10/72
		C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

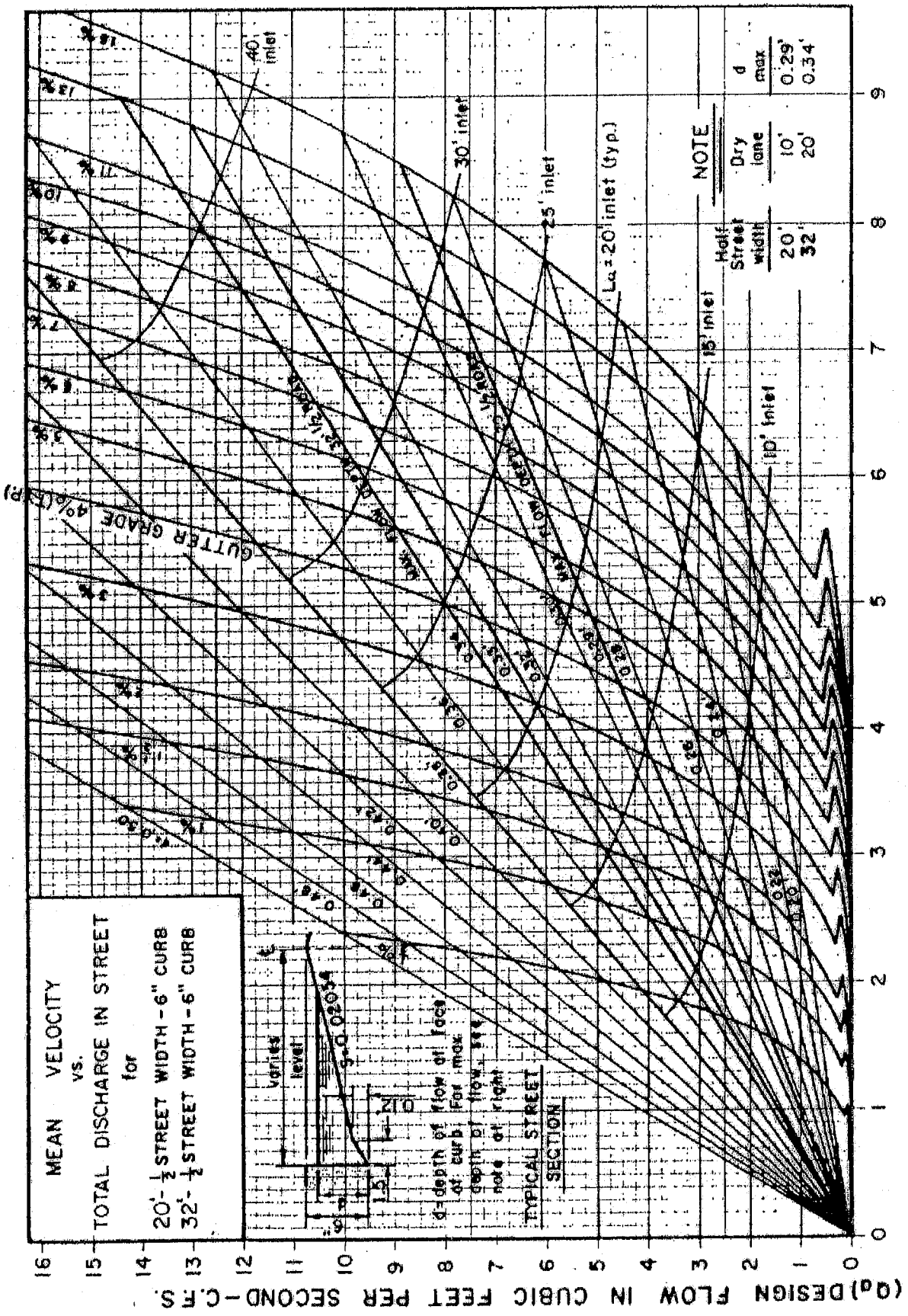
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

STREET DRAINAGE 36'–WIDE STREETS

William S. Valle

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

DRN–05



REVISION	BY	APPROVED	DATE
ORIGINAL	JWH		10/72
		C. SWANSON	11/02
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CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

STREET DRAINAGE – 40' & 64' WIDE STREETS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

DRN–06

TO DETERMINE LENGTH OF INLET TO INTERCEPT 100% OF GUTTER FLOW

ITEM	UNITS	DESCRIPTION	HOW DETERMINED
Q_a	c.f.s.	AMOUNT OF FLOW IN GUTTER ON ONE SIDE OF STREET.	HYDROLOGY STUDY OF AREA.
d	ft.	DEPTH OF FLOW AT FACE OF CURB.(NOT CONSIDERING INLET DEPRESSION)	SEE CVD-DR06 OR CVD-DR07 (INTERSECTION OF Q_a LINE AND GUTTER GRADE LINE WILL FALL BETWEEN d LINES. INTERPOLATE FOR VALUES.)
L_a	ft.	LENGTH OF INLET WHICH WILL INTERCEPT 100% OF Q_a AT GIVEN GUTTER GRADE.	CVD-DR06 AND CVD-DR07 (INTERSECTION OF Q_a LINE AND GUTTER GRADE LINE WILL FALL BETWEEN d LINES. INTERPOLATE FOR VALUES.)

TO DETERMINE LENGTH OF INLET TO INTERCEPT A PORTION OF GUTTER FLOW

(THIS METHOD TRIES DIFFERENT LENGTHS OF INLETS TO DETERMINE HOW MUCH FLOW WILL BE INTERCEPTED BY EACH LENGTH INLET AND HOW MUCH FLOW WILL CONTINUE PAST INLET. FIRST DETERMINE Q_a , d AND L_a AS ABOVE.)

ITEM	UNITS	DESCRIPTION	HOW DETERMINED
L	ft.	LENGTH OF PROPOSED INLET	SELECT TRIAL LENGTH
L/L_a		RATIO OF L TO L_a	DIVIDE L BY L_a
a	ft.	AMOUNT FLOW LINE OF GUTTER IS DEPRESSED AT INLET.	STD. DWG. OF INLET BEING CONSIDERED FOR USE.
a/d		RATIO OF a TO d	DIVIDE a BY d
Q	c.f.s.	FLOW INTERCEPTED BY INLET OF LENGTH L.	CVD-DR05 (INTERSECTION OF L/L_a LINE AND a/d LINE WILL FALL BETWEEN Q/Q_a LINE. INTERPOLATE FOR VALUES $Q = Q_a \times Q/Q_a$
Q_a-Q	c.f.s.	FLOW CONTINUING PAST INLET.	SUBTRACT Q FROM Q_a

NOTE:
DRN-07 OR DRN-08 MAY ALSO BE USED BEGINNING WITH A SELECTED Q TO DETERMINE L.

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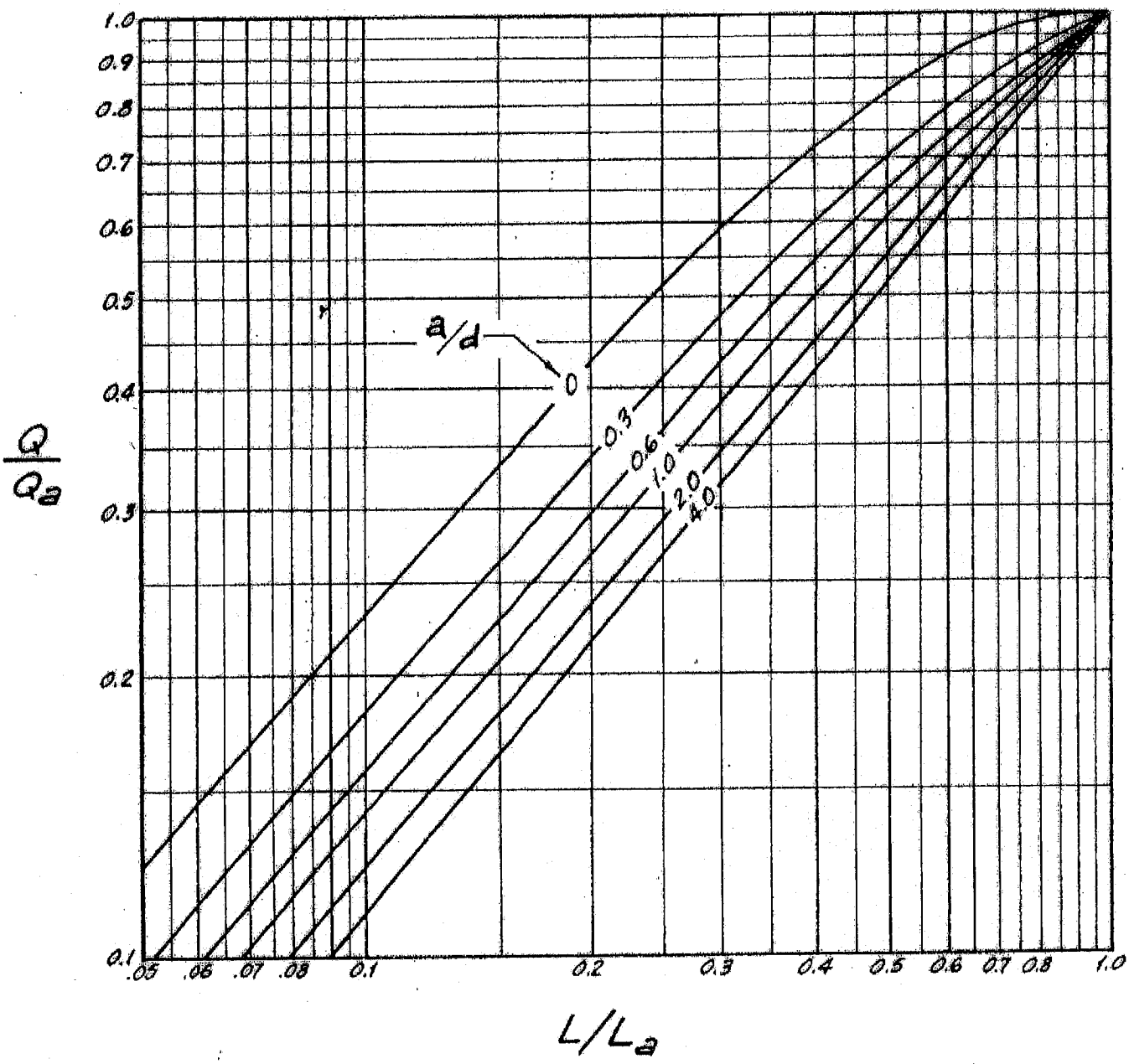
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

INLET DESIGN – LENGTH OF INLET

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

DRN-07



NOTE: SEE VIII FOR IDENTIFICATION OF SYMBOLS

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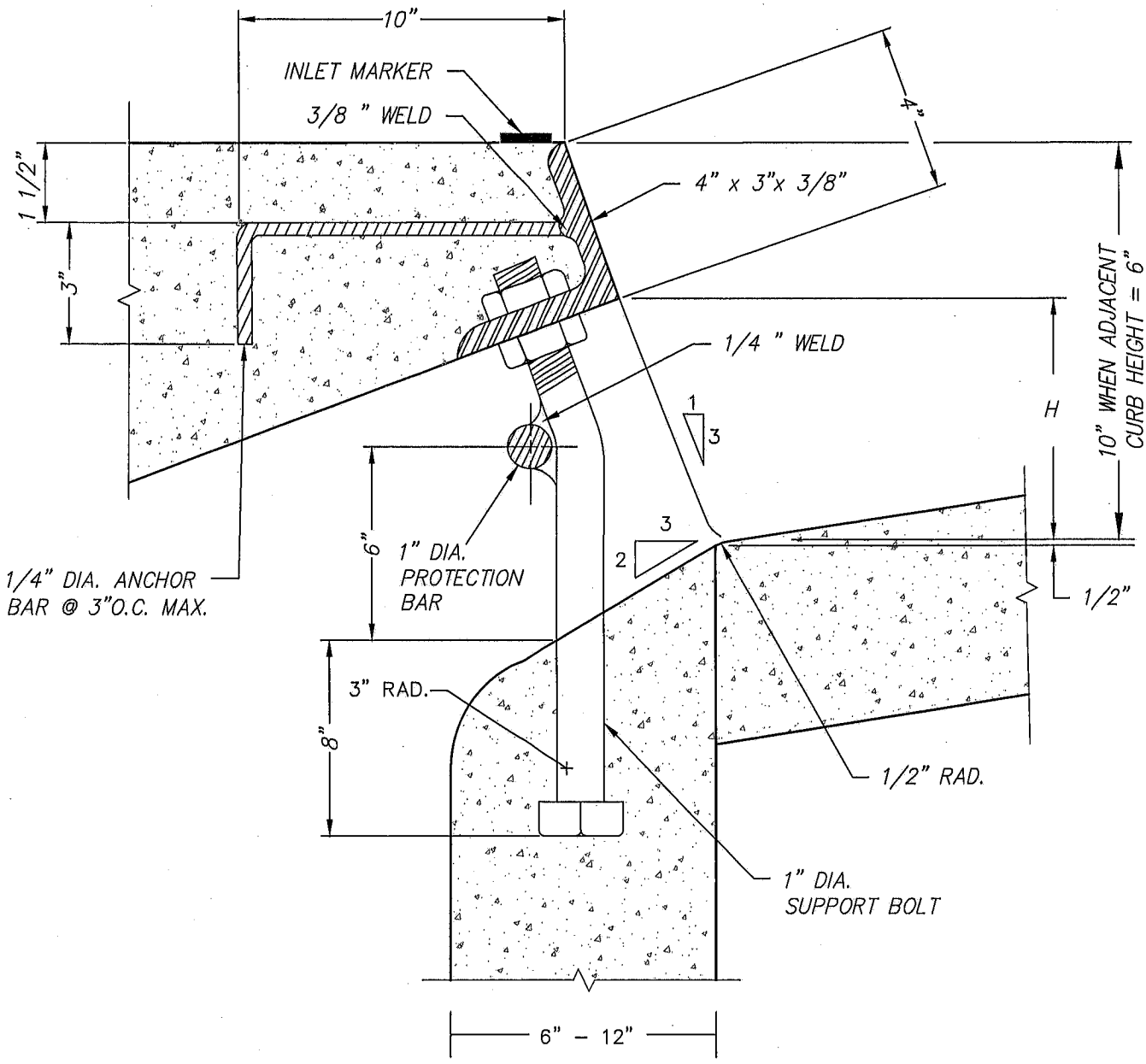
ORIGINAL	JWH		11/72
		C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

INLET DESIGN – PARTIAL INTERCEPTION OF GUTTER FLOW

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

DRN–08



NOTES:

1. *FACE ANGLE SHALL BE CAST INTO STRUCTURE CONTINUOUS FOR THE FULL LENGTH "L".*
2. *EXPOSED METAL PARTS SHALL BE HOT–DIPPED GALVANIZED AFTER FABRICATION.*
3. *WHEN CURB INLET OPENING HEIGHT (H) EXCEEDS 8", INSTALL 1" DIA. STEEL PROTECTION BAR. STEEL PROTECTION BAR SHALL BE EMBEDDED 8" INTO CURB INLET.*
4. *INSTALL ADDITIONAL BARS AT 3 ½" CLEAR SPACING ABOVE FIRST BAR WHEN OPENING EXCEEDS 16".*
5. *WHEN CURB INLET OPENING LENGTH EXCEEDS 8', INSTALL 1" DIA. STEEL SUPPORT BOLTS, SPACED AT NOT MORE THAN 5' OC.*

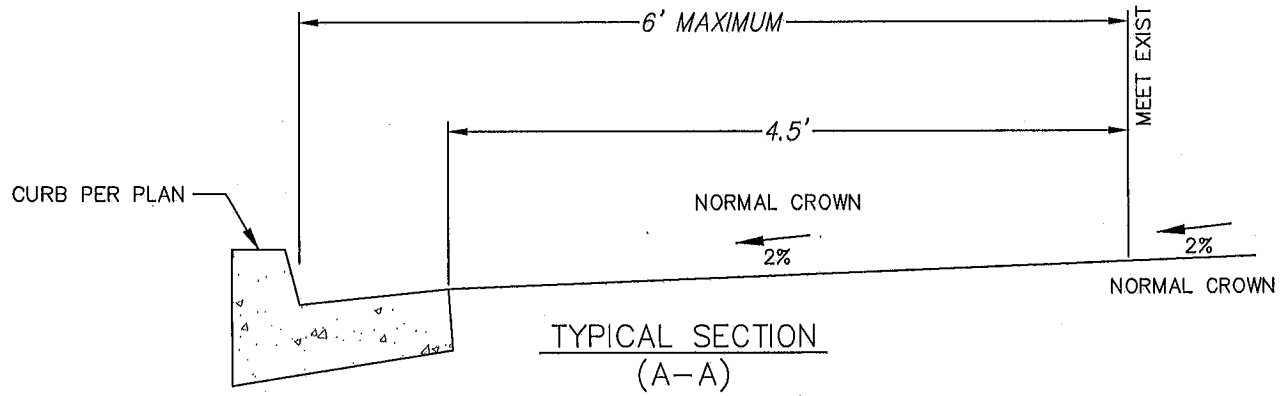
REVISION	BY	APPROVED	DATE
ORIGINAL	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

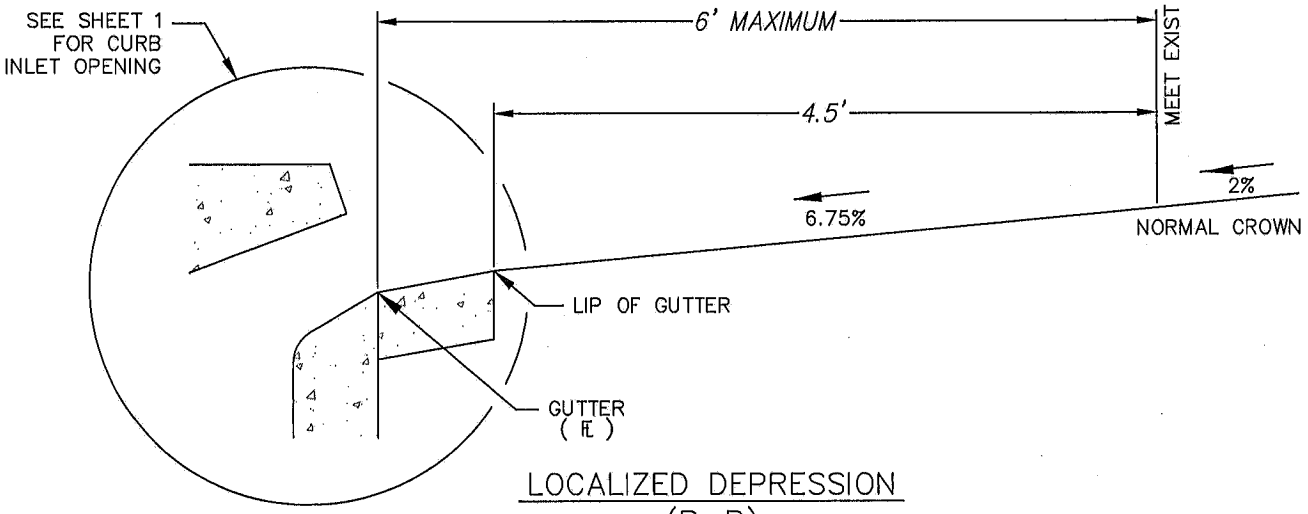
CURB INLET OPENING

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

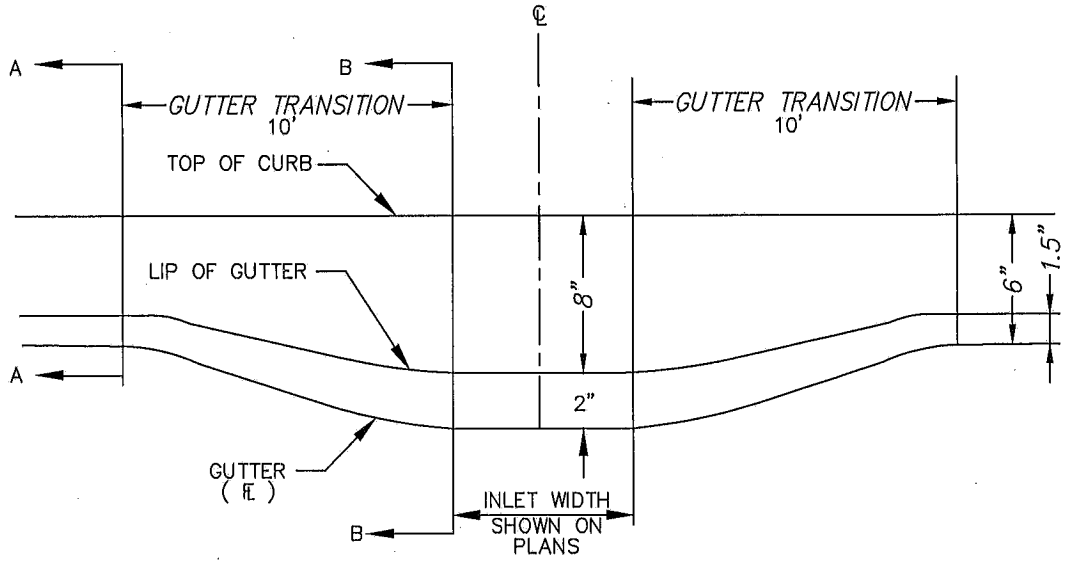
DRN–09



TYPICAL SECTION
(A–A)



LOCALIZED DEPRESSION
(B–B)



G CURB PROFILE – INLET TRANSITION

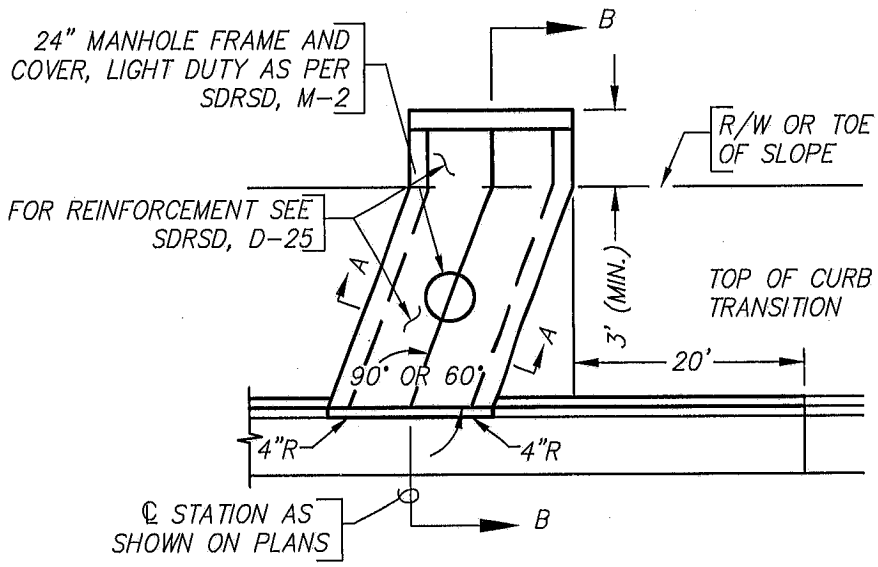
REVISION	BY	APPROVED	DATE
ORIGINAL	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

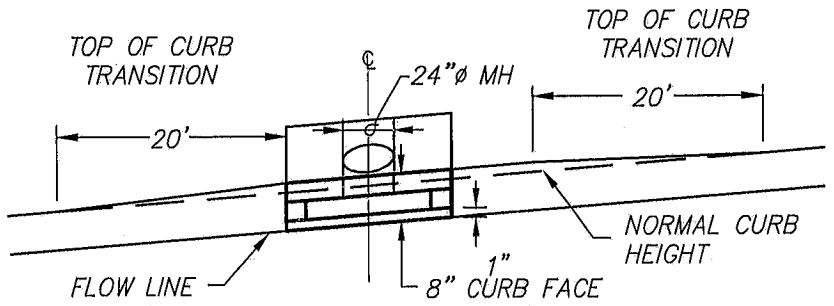
CURB INLET CURB HEIGHT AND PAVEMENT TRANSITION

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

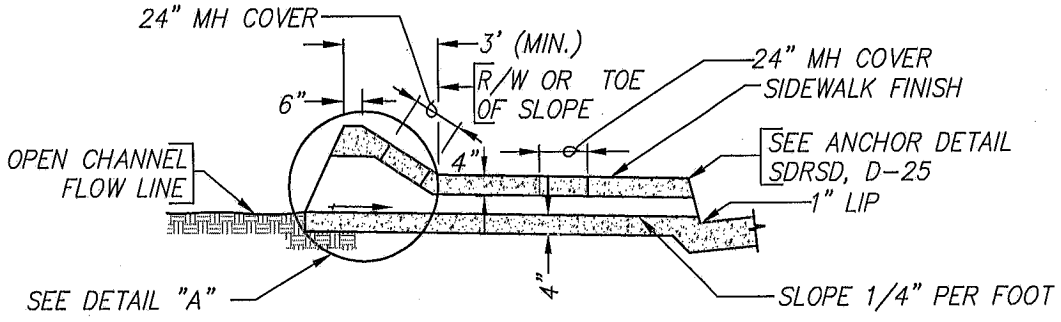
DRN–09



PLAN
NO SCALE



PROFILE
NO SCALE



SECTION "B-B"

CURB OUTLET DETAIL
NO SCALE

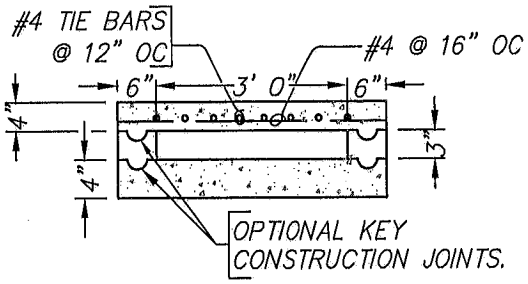
REVISION	BY	APPROVED	DATE
ORIGINAL			12/90
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

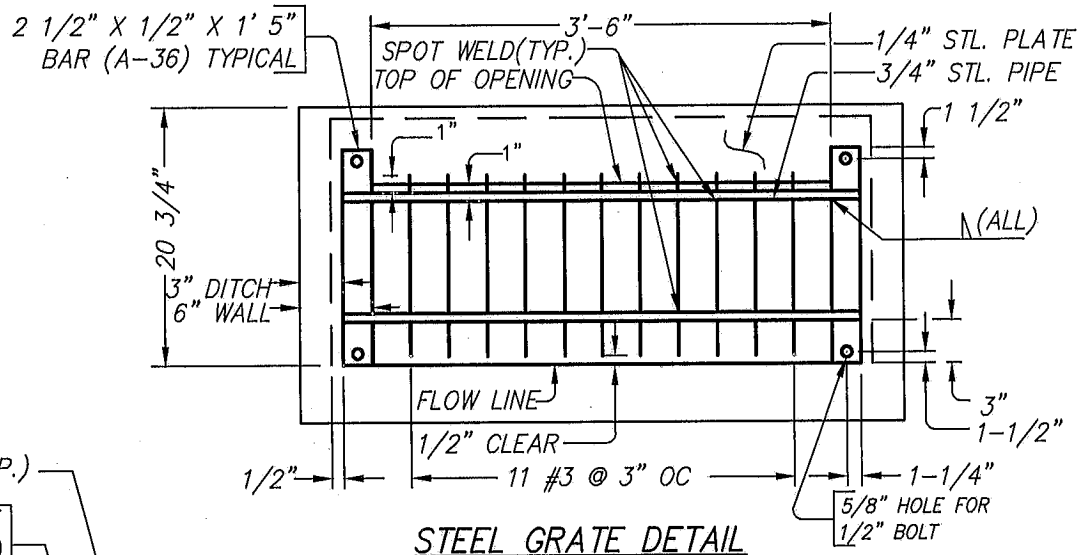
SIDEWALK UNDERDRAIN CURB OUTLET DETAIL

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

DRN-10

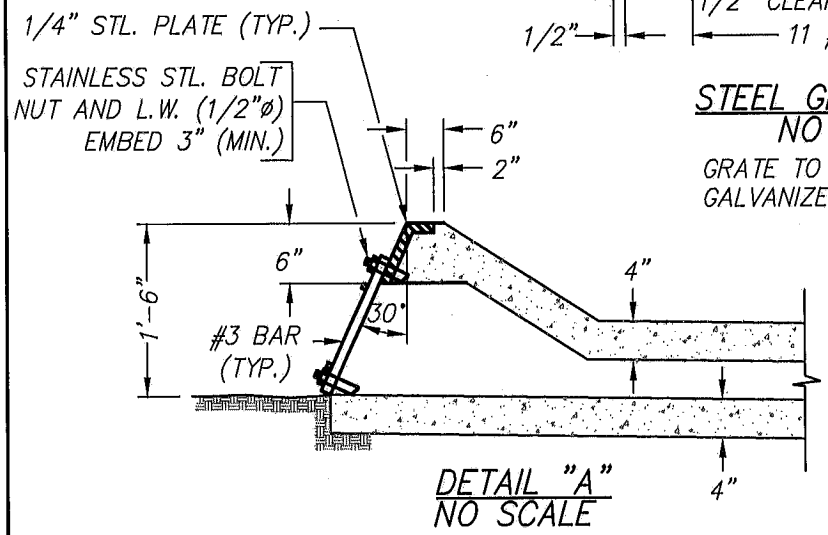


SECTION "A–A"
NO SCALE

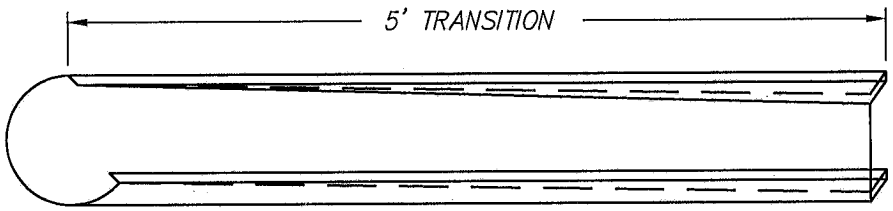


STEEL GRATE DETAIL
NO SCALE

GRATE TO BE HOT DIPPED
GALVANIZED AFTER FABRICATION



DETAIL "A"
NO SCALE



BROW DITCH TRANSITION DETAIL
NO SCALE

SHEET 2 OF 2

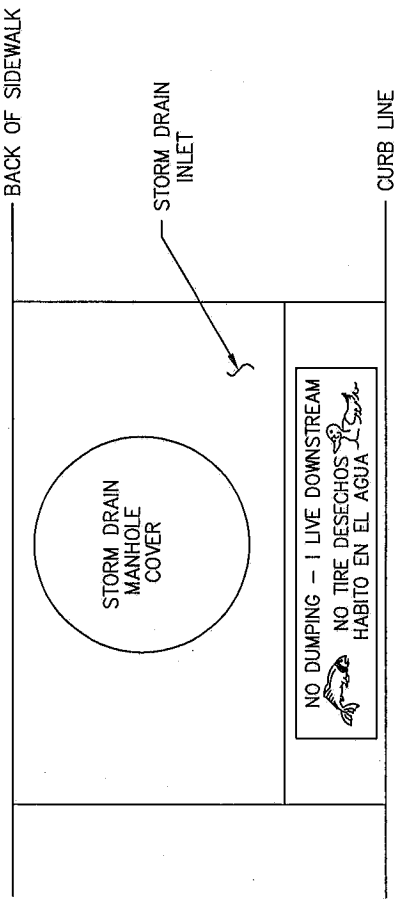
REVISION	BY	APPROVED	DATE
ORIGINAL			12/90
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

SIDEWALK UNDERDRAIN BROW DITCH TRANSITION DETAIL

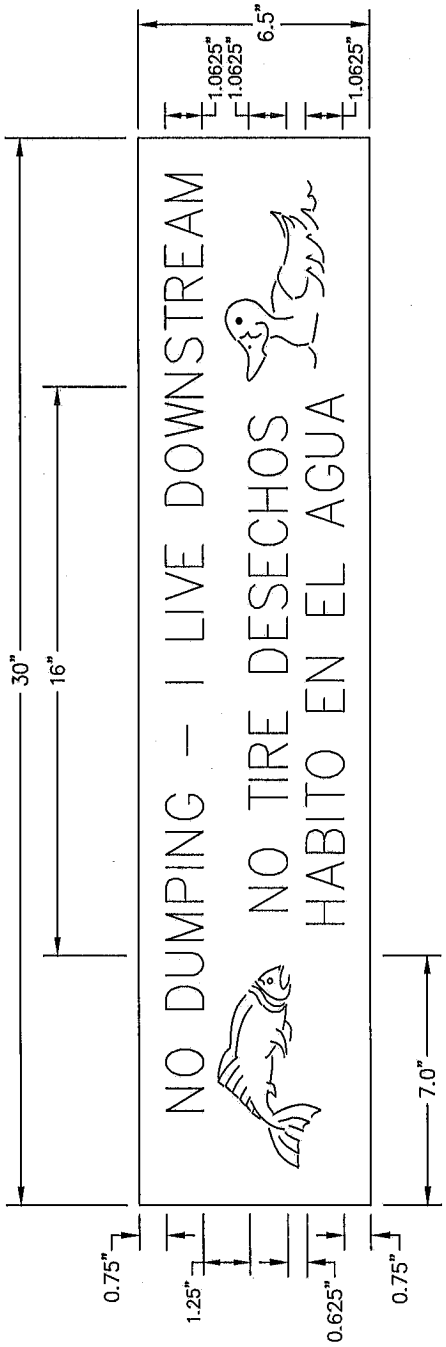
WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

DRN–10



PLAN VIEW

STENCIL LOCATION
NO SCALE



DETAIL: STENCIL

NO SCALE

NOTES:

1. DEPTH OF IMPRINT SHALL BE 0.25 INCH, MINIMUM.
2. STAMP SHALL BE RIGID AND FABRICATED FROM METAL, HARD RUBBER, OR APPROVED EQUAL.

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CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

STORM DRAIN STENCIL

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

DRN-11

NOTES:

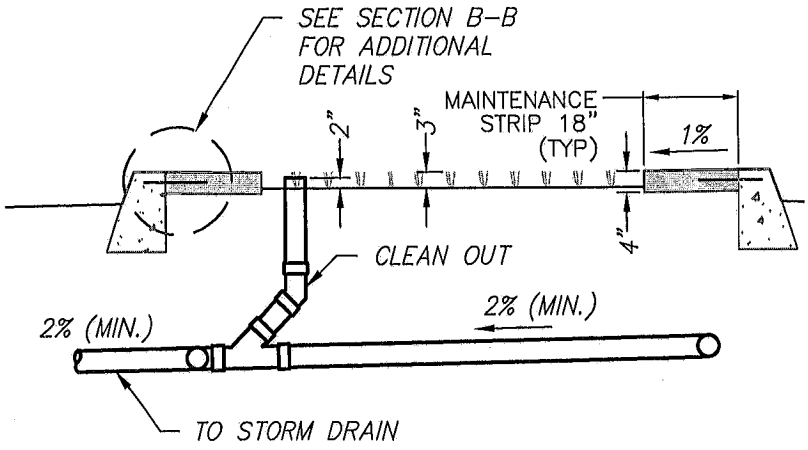
1: CITY ENGINEER MAY APPROVE ALTERNATE DESIGNS AND PRODUCTS

2: PIPE PRODUCTS, FABRICS, ETC. SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND/OR THE STANDARD SPECIFICATIONS.

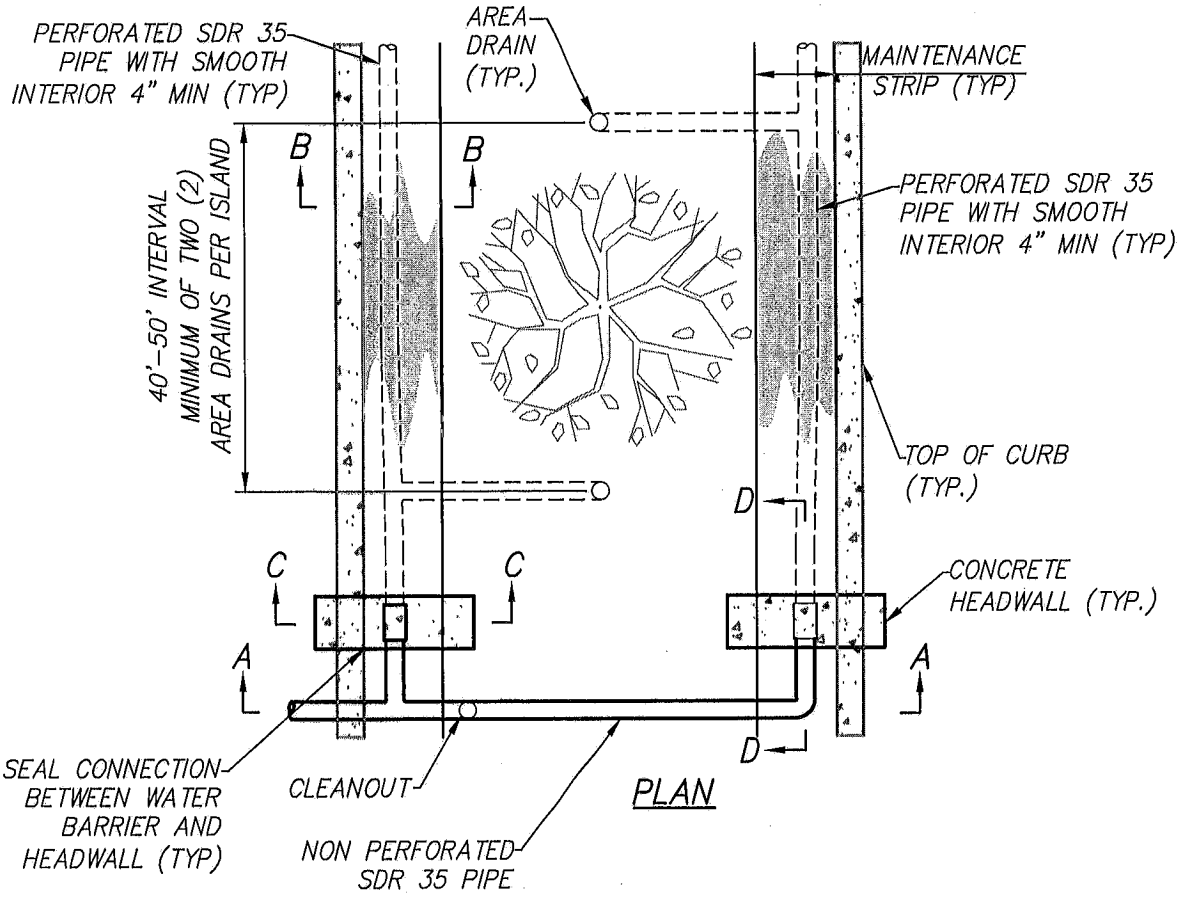
3: PLACE HEADWALL APPROX. 10 FEET FROM STORM DRAIN TIE IN.

4: COORDINATE AREA DRAIN LOCATIONS WITH PROPOSED TREE LOCATIONS.

5: SOLID PIPE FITTINGS USE SAN SEWER ANGLE & WYE CONNECTIONS.



SECTION A–A



PLAN

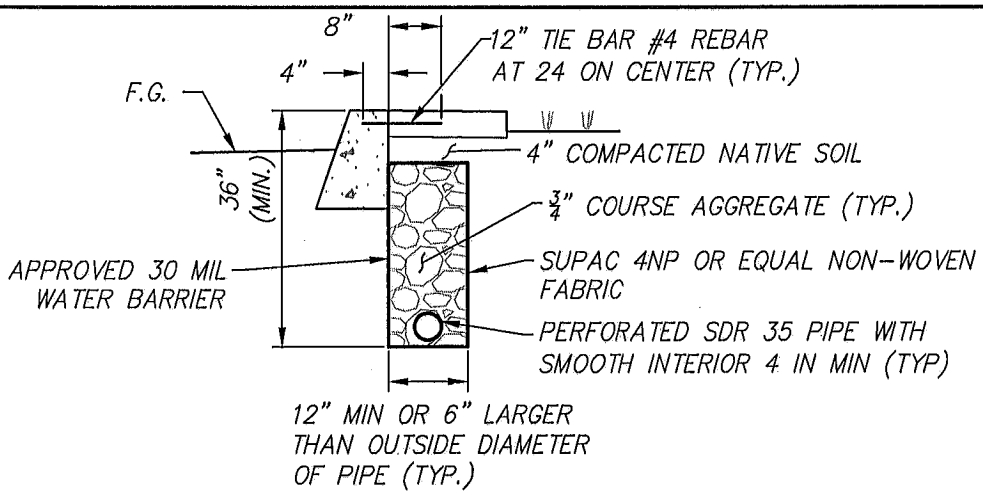
REVISION	BY	APPROVED	DATE
ORIGINAL			07/75
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

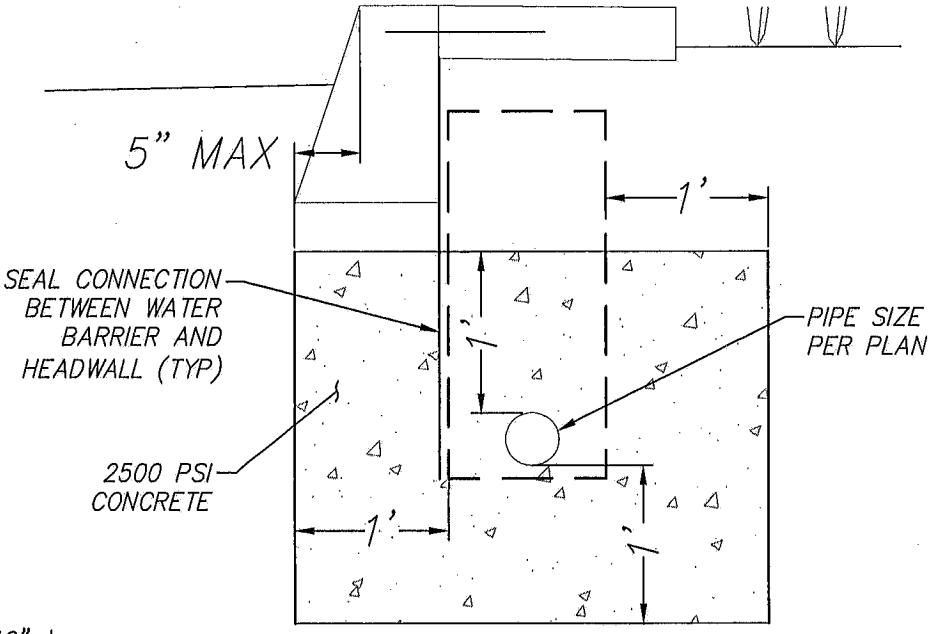
LANDSCAPE MEDIAN DRAIN

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

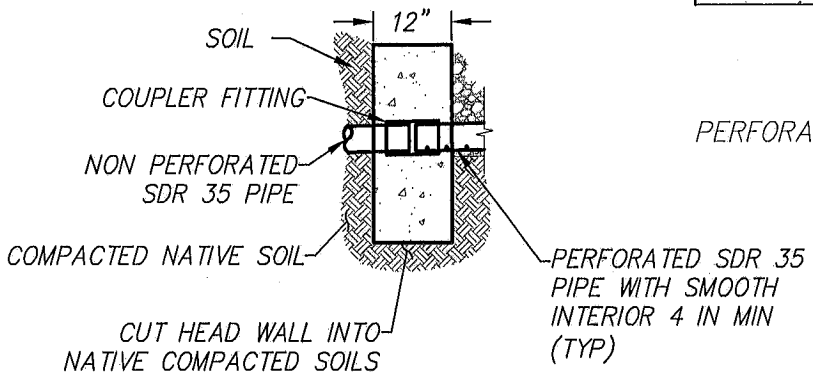
DRN–12



SECTION B–B
PERFORATED PIPE ALONG MEDIAN CURB



SECTION C–C:
PERFORATED PIPE CONNECTION AT HEADWALL



SECTION D–D
PERFORATED PIPE COUPLING AT HEADWALL

REVISION	BY	APPROVED	DATE
ORIGINAL			07/75
REVISION	CVM	C. SWANSON	11/02
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CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

LANDSCAPE MEDIAN DRAIN SECTIONS

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CITY ENGINEER

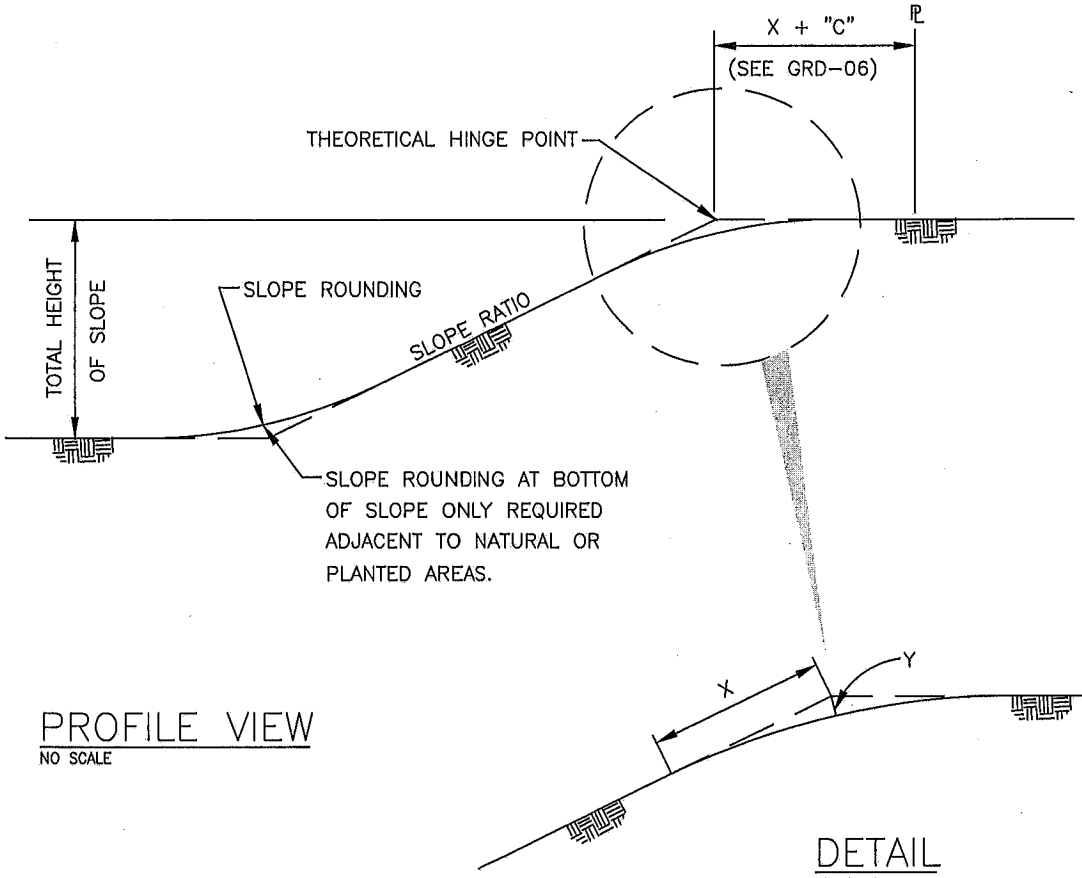
DRN–12

DRAINAGE
(DRN)

CITY OF CHULA VISTA

DESIGN AND CONSTRUCTION STANDARD DRAWINGS 2017

DEPARTMENT OF ENGINEERING AND CAPITAL PROJECTS



PROFILE VIEW
NO SCALE

DETAIL
NO SCALE

X = DISTANCE FROM THEORETICAL HINGE POINT TO POINT OF TANGENCY.

Y = DEPTH OF CUT AT THEORETICAL HINGE POINT.

VERTICAL SLOPE ROUNDING				
SLOPE RATIO	TOP OF SLOPE		BOTTOM OF SLOPE AND BENCHES	
	X	Y	X	Y
STEEPER THAN 2:1	16'	3'	8'	1.5'
2:1 TO 3:1	10'	2'	5'	1'
FLATTER THAN 3:1	6'	1'	3'	0.5'

NOTES:

1. SLOPE ROUNDING IS REQUIRED FOR ALL SLOPES, EXCEPT WHERE WALLS ARE INSTALLED PER DEPARTMENT OF PLANNING AND BUILDING REQUIREMENTS.
2. FOR SLOPE GRADING AND SLOPE BENCHES, SEE GRD-06.
3. FOR BROW AND TERRACE DITCHES, SEE REG. STD. DWG. D-75.

REVISION	BY	APPROVED	DATE
ORIGINAL			07/75
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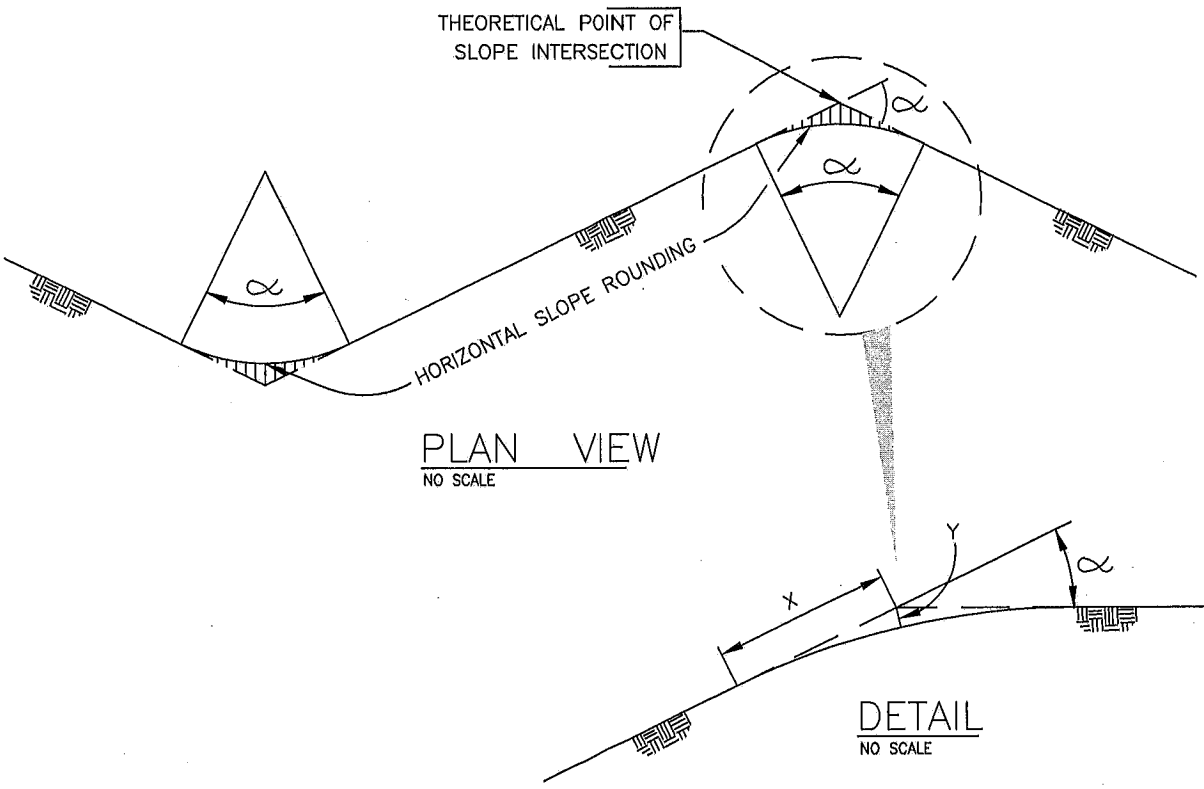
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

VERTICAL SLOPE ROUNDING

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

GRD-01



NOTES: SLOPE ROUNDING IS REQUIRED FOR ALL SLOPES.

X = DISTANCE FROM THEORETICAL POINT OF SLOPE INTERSECTION TO POINT OF TANGENCY.

Y = DEPTH OF CUT AT THEORETICAL POINT OF SLOPE INTERSECTION.

α = ANGLE OF SLOPE INTERSECTION.

HORIZONTAL SLOPE ROUNDING		
(α) ANGLE OF SLOPE INTERSECTION	X	Y
MORE THAN 60°	29'	8'
30° – 60°	21'	5'
LESS THAN 30°	14'	2'

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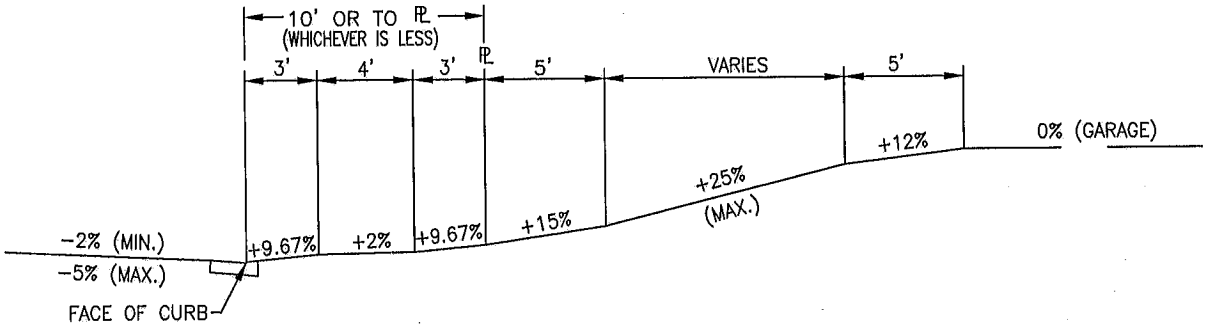
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

HORIZONTAL SLOPE ROUNDING

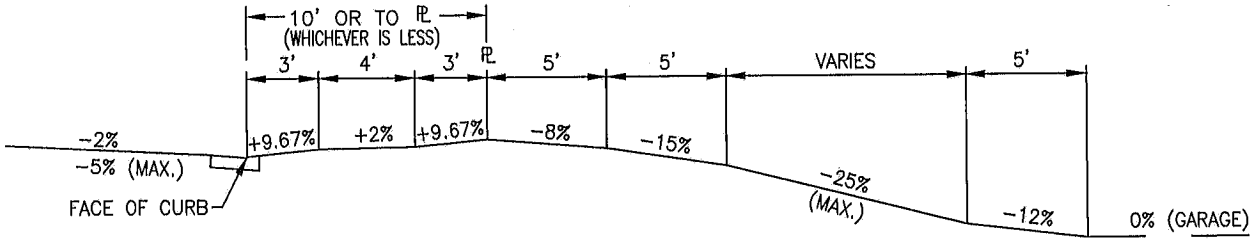
WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

GRD–02



UPHILL DRIVEWAY

NO SCALE



DOWNHILL DRIVEWAY

NO SCALE

NOTES:

1. PORTLAND CEMENT CONCRETE 564-C-3000 SHALL BE USED IF ANY PORTION OF DRIVEWAY GRADE EXCEEDS 12%.
2. VERTICAL CURVES (6' MIN. LENGTH) SHALL BE USED FOR CHANGE OF GRADE OF 6% OR GREATER.
3. SEE GSI-01 FOR CONSTRUCTION OF DRIVEWAY APPROACH.

REVISION	BY	APPROVED	DATE
ORIGINAL			10/74
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CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

DRIVEWAYS VERTICAL DESIGN

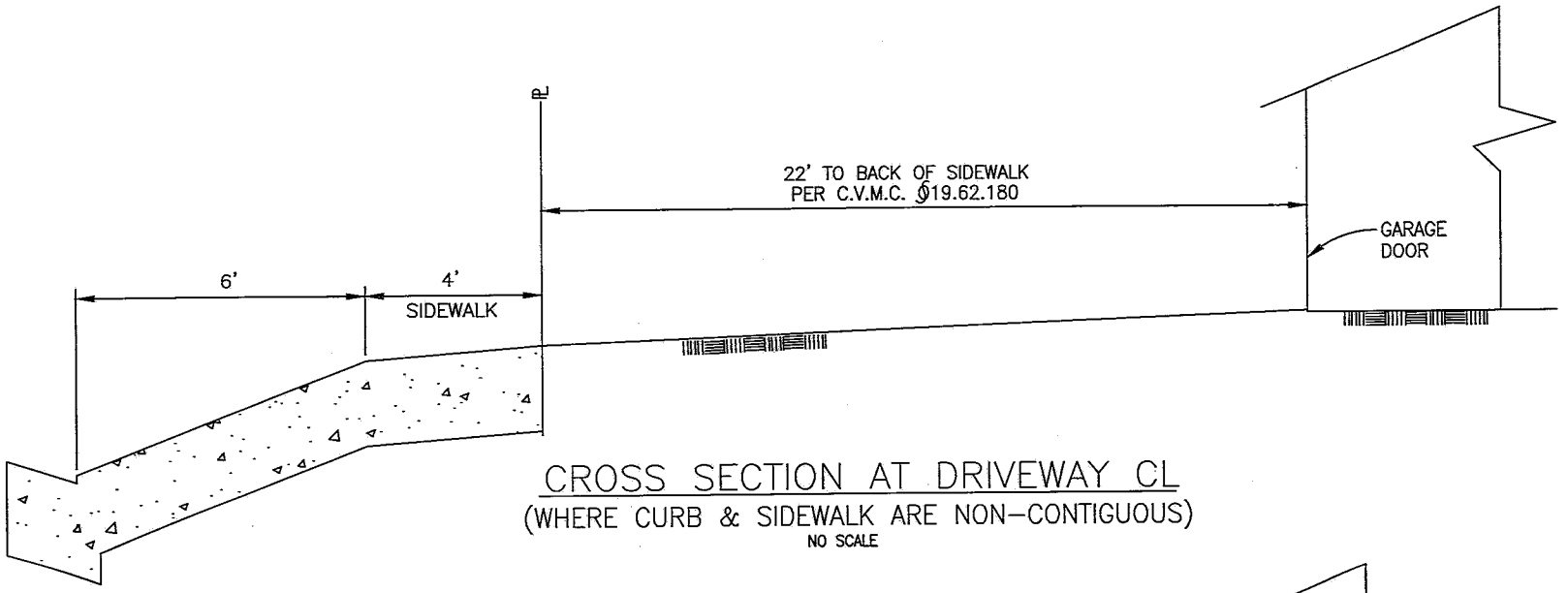
WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

GRD-03

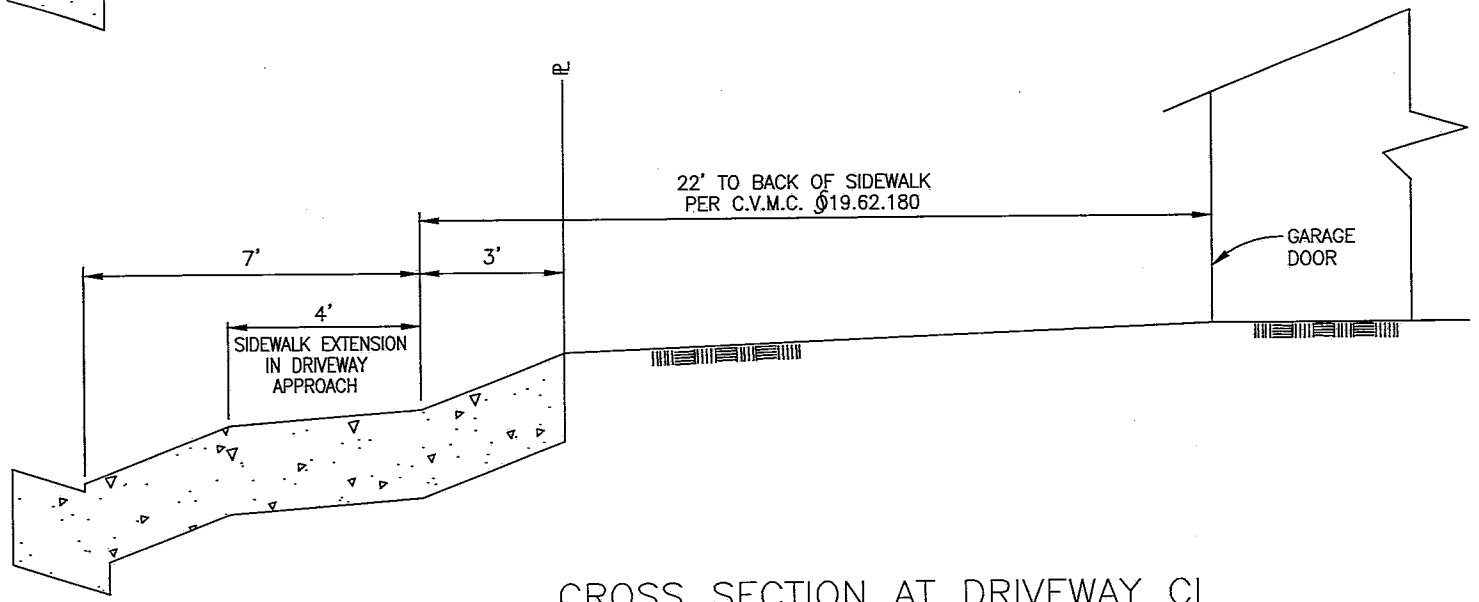
REVISION	BY	APPROVED	DATE
ORIGINAL			01/98
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

DRIVEWAYS MINIMUM GARAGE SETBACK



CROSS SECTION AT DRIVEWAY CL
(WHERE CURB & SIDEWALK ARE NON-CONTIGUOUS)
NO SCALE



CROSS SECTION AT DRIVEWAY CL
(WHERE CURB & SIDEWALK ARE CONTIGUOUS)
NO SCALE

NOTE
SEE GSI-01 FOR ADDITIONAL NOTES, DETAILS AND DIMENSIONS FOR DRIVEWAYS.

WILLIAM S. VALLE
CITY ENGINEER
11/21/2017

GRD-04

MASONRY RETAINING WALLS

The City of Chula Vista requires a permit for the construction of retaining walls, except those less than three feet in height and not supporting surcharge. This publication outlines the city's requirements for retaining walls with level backfill, with sloping backfill and with vehicular surcharge.

If construction does not involve grading, contact the Building Division of the Planning & Building Department for information on how to obtain a permit for a retaining wall (619-691-5272). If construction does involve grading, contact the Engineering Division of the Public Works Department (619-691-5024).

I. INSPECTIONS

You must call the City for inspections after several specific phases of construction. To schedule an inspection for a retaining wall permit having a permit number starting with a "B", call the Building Division at (619) 691-5009. For permit numbers starting with "PG", call the Engineering Division at (619) 585-5737. Please call for these inspections at the following times, and do not proceed to the next phase of construction until the City inspector has given you written approval to proceed:

A. Call for a footing inspection after you have made the excavation for the footing, tied the steel securely in its final position, and made the site ready for concrete placement. Do not place concrete until the City inspector has given you written approval to proceed.

B. Call for a masonry pre-grout inspection after you have laid the block and have set the reinforcing steel in place, but before you place the grout. Do not lay blocks higher than 6 feet without a pre-grout inspection.

1. *If cleanout holes are required, lay the block to the full height of the grout pour before you call for the pre-grout inspection. Place grout in a continuous pour in grout lifts not more than 4 feet in height.*

2. *If cleanout holes are not required, call for a masonry pre-grout inspection prior to each grout pour. Do not lay block higher than the grout pour. Note that cleanouts are required for all grout pours over 5 feet in height.*

C. Call for a backfill/drainage inspection after grouting is completed and rock or rubble wall drains are in place, but before earth backfill is placed.

D. Call for a final inspection after you have completed the construction and, if the City has required one, after a licensed professional has prepared a compaction report. (See Section VII).

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II. DESIGN TABLES

The design tables, found towards the end of this publication, address a variety of different loading conditions and footing configurations. If you have a loading condition that is not shown in this publication, you must have a licensed professional engineer or architect design the wall specifically for conditions existing on the site. Examples of loading conditions not covered in this publication include walls supporting building foundations and walls subjected to truck traffic surcharge greater than 250 psf, unless those loads are applied away from the wall a distance at least equal to the height of the wall.

Retaining wall height is measured from the top of the footing to the top of the wall. You must not build higher than the design height of the wall.

III. BLOCK

All block must be Type "N", grouted solid. (Design f'_m = 1,500 psi)

IV. CONCRETE MIX REQUIREMENTS

Note: Use of plastic cement is not permitted in retaining walls located in this Seismic Zone.

A. The concrete mix footings must have a compressive strength of at least f'_c = 2,500 psi in 28 days. You may use a mix containing the following proportions by volume.

1 part Portland cement
2 1/2 parts sand
3 1/2 parts 3/4-inch maximum-size gravel
7 gallons of water maximum per sack of cement

Note: Hand mixed concrete and grout are not permitted on projects subject to the "Standard Specifications for Public Works Construction" ("Green Book".)

B. The mortar mix must have a compressive strength of at least 1,800 psi. You may use a mix containing the following proportions by volume:

1 part Portland cement
3 1/2 parts sand
1/4 part hydrated lime or lime putty

C. Grout must have a compressive strength of at least 2,000 psi in 28 days. You may use a mix containing the following proportions by volume:

1 part Portland cement
3 parts sand
2 parts pea gravel (3/8-inch aggregate)

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Note: Hand mixed concrete and grout are not permitted on projects subject to the "Standard Specifications for Public Works Construction" ("Green Book".)

Add water until you achieve pouring consistency without segregating the grout components. Rod or vibrate immediately. Re-rod or re-vibrate the grout about 10 minutes after pouring to ensure proper consolidation. When the grouting of a second lift is to be continued at later time, stop the grout placement 2 inches from the top of the masonry units.

Note: All cells must be filled solid with grout.

V. MORTAR KEY

To obtain proper bonding between the footing and the first course of block, form a mortar key by embedding a flat 2 x 4 flush with, and at the top of, the freshly placed footing concrete (See Drawing CVCS 33). Remove the 2 x 4 after the concrete has started to harden (about 1 hour). You may omit a mortar key if you set the first course of block into the freshly placed concrete footing.

VI. WALL DRAINS

Provide wall drains (4-inch-diameter) at 6-foot intervals along the length of the wall and located just above the level of the soil or paving on the front face of the wall (See Drawing CVCS 33). Alternatively, form the drains by placing a block on its side at 6-foot intervals, by leaving out the mortar in the vertical spaces between all the blocks in the first course above the soil, by paving (head joint) on the front face of the wall, or by some other equivalent method acceptable to the City. Backfill behind wall drains or open head joints must be 12 inches wide filled with gravel and must extend from the top of the footing to above the top of the drain or open joint.

VII. SOIL

Wall design, footing sizes and reinforcing steel are all based on an active earth pressure with an equivalent fluid pressure of 36 psf and a weight of 120 pounds per cubic foot (pcf). Extend all footings at least 12 inches into undisturbed natural soil or into fill that has been compacted to at least 90 percent density. Dampen soil prior to placing concrete in footings. Where the ground slopes away from the base of the wall, you must have a horizontal distance of at least 7 feet from the toe of the footing to "daylight" (See Drawing CVCS 33). The City may require a soils report, prepared by a licensed civil engineer specialized in soil mechanics or a licensed geotechnical engineer, depending on soil conditions at the site.

Footing sizes in the attached tables are based on a 1,000 psf maximum soil bearing value. If you wish to take advantage of a higher bearing value, you must have a licensed architect (a licensed architect may not design Public Works walls that are

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in the right-of-way) or civil/structural engineer design the wall(s) specifically for the existing site conditions. Again, the City may require a soils report, prepared by a licensed civil engineer specialized in soil mechanics or a licensed geotechnical engineer, depending on soil conditions at the site.

VIII. REINFORCING STEEL

Use reinforcing steel bars which conform to ASTM specification A615-85, Grade 40 or 60. When you can't use one continuous bar, you must lap or splice bars a distance of at least 40-bar diameters (i.e. 15" for #3 bars, 20" for #4 bars, 25" for #5 bars, 30" for #6 bars). The required minimum lap splice for bars of different size to be based on the diameter of the larger size bar. Bends in the reinforcing steel must conform to the Manual of Standard Practice, American Concrete Institute. Backing for hooks must be at least a distance equal to four bar diameters. All required bar embedment dimensions are clear distances to outside of bar. Spacing for parallel bars is center to center of bars.

Place two or more bars longitudinally in the footing (See Tables for number of bars needed). For 6-inch or 8-inch blocks, place one #3 bar longitudinally in the center of the wall in a bond beam block every 16 inches of wall height as the blocks are laid up. For 12-inch blocks, place one #4 bar longitudinally in the center of the wall in a bond beam block every 16 inches of wall height as the blocks are laid up.

IX. JOINTS

Vertical control joints are needed at intervals of not more than 32 feet. Joints must resist shear and other lateral forces and still permit longitudinal movement. Vertical expansion joints are needed at intervals of not more than 96 feet (See Drawing CVCS 34).

X. STEP FOOTINGS

Base the footing dimensions and the amount of reinforcing steel on the maximum height of the wall on either side of a step in the footing elevation. The construction of the step must follow the details on Drawing CVCS 34.

XI. BACKFILL

Do not place backfill material against a masonry retaining wall until the grout has either reached design strength or has cured for a minimum of 28 days. Compaction of backfill material by either jetting or ponding with water is not permitted. Each layer of backfill must be moistened and thoroughly tamped, rolled or otherwise compacted until the relative compaction is not less than 90%. If the wall is within the City right-of-way, subject to vehicular surcharge or

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subject to the "Standard Specifications for Public Works Construction" (Green Book"), the City will require a compaction test and certificate, from a soil engineer, showing that the entire fill has been compacted to at least 90%.

XII. FENCING

If a pedestrian walkway is adjacent to the top of a retaining wall that is more than 30-inches in height, you must install safety fencing at the top of the wall. If a wall is greater than 30-inches in height and is adjacent to a street, driveway or parking area, you must install a vehicular guardrail at the top of the wall.

XIII. USE OF TABLES

First, determine the height of wall you need to construct. Then determine the slope of retained earth or if the wall supports vehicular surcharge. Based on what distance you choose from the footing toe to the face of wall, use the table with the necessary wall height and slope of retained earth or surcharge. From the appropriate table, copy the wall design information, including block width, reinforcing steel size and spacing, and footing and key dimensions, on to a copy of the City's typical wall section form (Drawings CVCS 31 or CVCS 32). Use a separate form for each different design of wall. (One wall design may be used for all walls of a certain height and lower. However, there may be savings in material costs if a different, more economical, design is used for walls of lower height). Indicate on each form the locations on the property that the particular wall design will be used. See EXAMPLE at end of the attached forms.

XIV. PLAN SUBMITTAL

Prepare a land development plan (for Engineering Division permits) or plot plan (for Building Division permits) showing the location, type and height of each wall. Show all adjacent structures, driveways, parking areas and pedestrian walkways. Attach a completed form for each proposed wall design, as well as a copy of this procedure with the (following) discalimer signed and dated.

XV. DISCLAIMER

These design standards indicate a minimum acceptable design for retaining walls meeting very specific field conditions and construction procedures. City approval of retaining walls and any related improvements shall not constitute a representation of the adequacy of the design or engineering of such retaining walls or improvements, nor shall it constitute an implied representation as to its suitability or fitness for any particular purpose. The City assumes no liability or any responsibility for damage or failure. The owner should consult with an appropriate Registered Civil Engineer or licensed architect.

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HOW TO USE THE DESIGN TABLES

- *Based on the site conditions and retaining wall location, determine if the wall will have a variable heel size (no limitation on the size of the heel), a 6–in or 2–in heel size, then*
- *Determine if the wall is retaining a level or sloping backfill, or level backfill with vehicular surcharge, then*
- *Based on the conditions noted above, select the appropriate design table (for ex. Variable heel (Minimum toe), 1.5 to 1 slope), then*
- *Move across the table and find the applicable retaining wall height (for ex. 6'–8"). Retaining wall height is measured from the top of the footing to to the top of the wall. The design data found under that column (for ex. column titled CVV15–68) is what applies to the wall. Then,*
- *From the design data under the applicable column, determine if the wall is TYPE I or II, in case of the example TYPE II, then*
- *Transfer the design data to the appropriate drawing, CVCS 31 for TYPE I wall and CVCS 32 for TYPE II wall, as shown on the attached example, then*
- *Indicate on the plot plan the location and extent of where each wall type (for ex. CVV15–68) is to be built.*
- *Repeat the above steps for each wall with different height and/or conditions (for ex. heel size, backfill slope or vehicular surcharge).*

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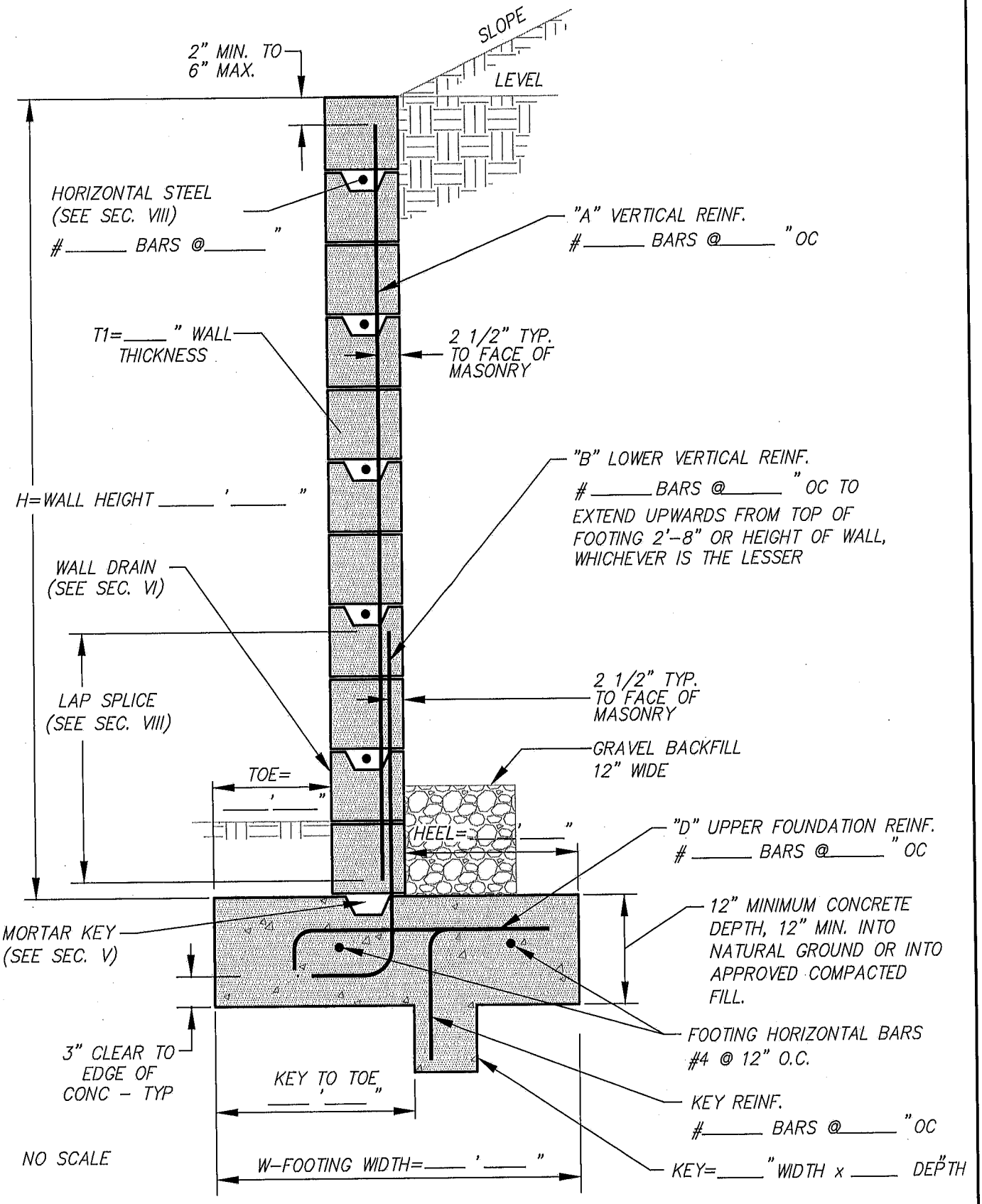

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RETAINING WALL TYPE I

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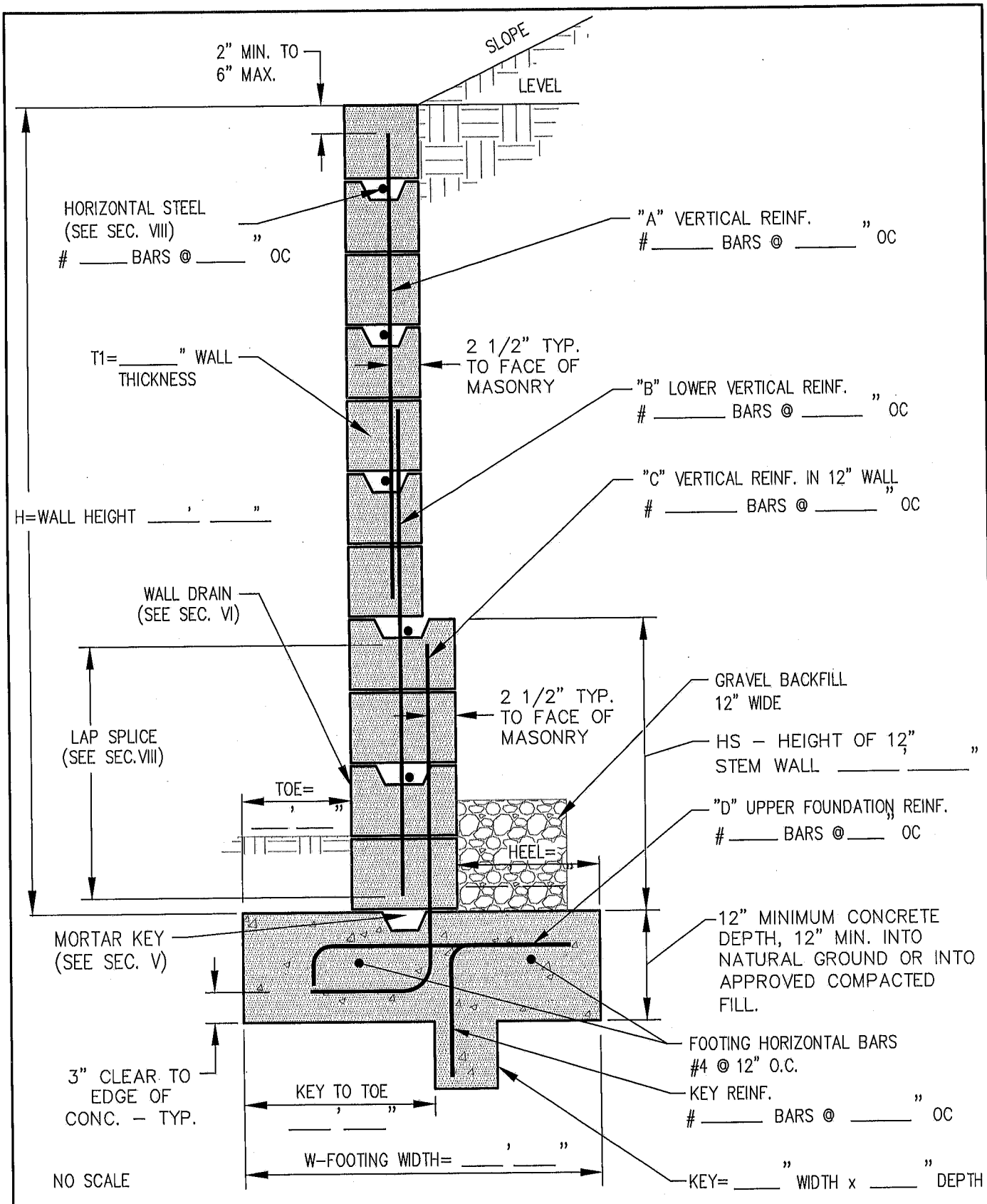

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RETAINING WALL TYPE II

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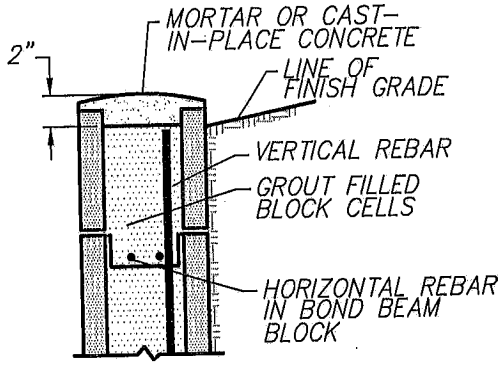
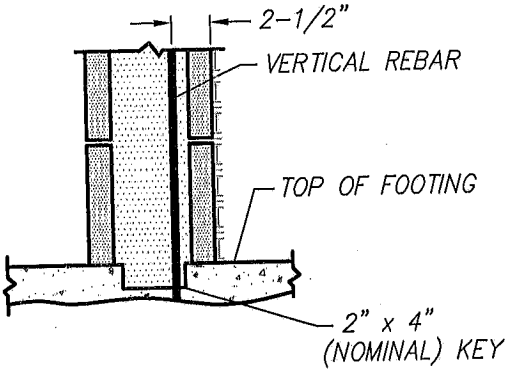
RETAINING WALL

CAP, KEY & DRAINAGE DETAILS



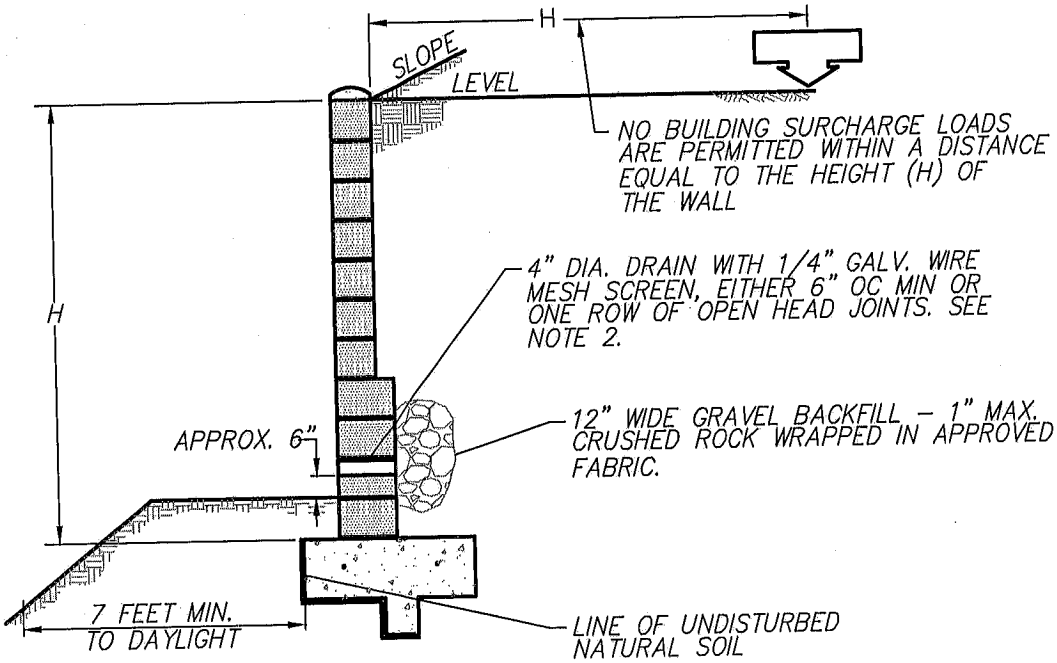
CAP DETAIL

SEE NOTE 1



KEY DETAIL

SEE NOTE 1



TYPICAL SECTION

NOTES:

1. ALL MASONRY WALLS MUST BE BUILT WITH CAP, KEY AND DRAINAGE DETAILS AS SHOWN ABOVE.
2. A 4-INCH DIAMETER DRAIN MAY BE FORMED BY PLACING A BLOCK ON ITS SIDE.

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RETAINING WALL, CAP, KEY, & DRAINAGE DETAILS

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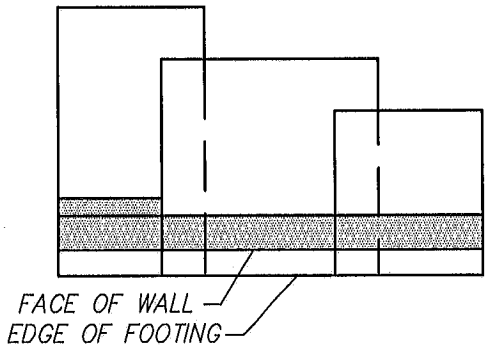
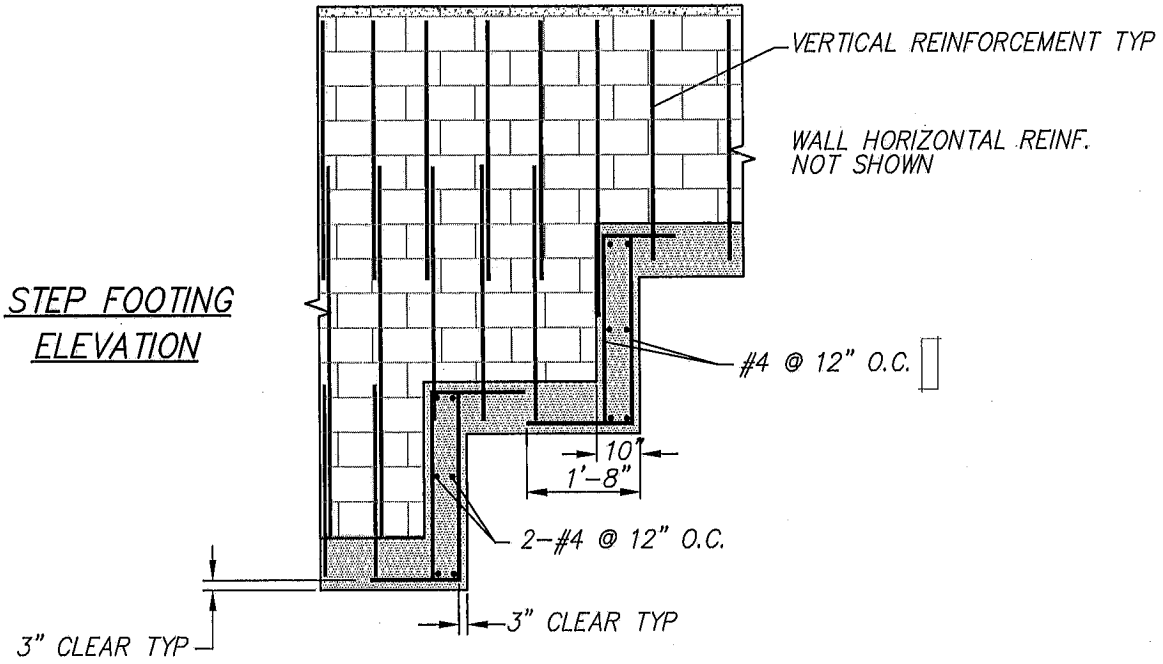
RETAINING WALL

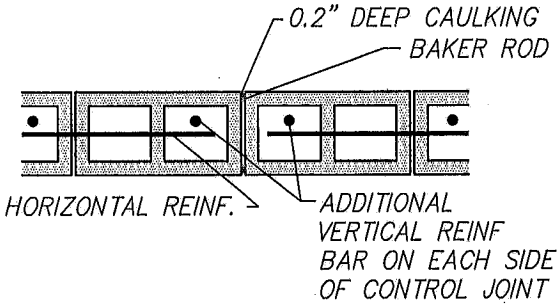
STEP FOOTING & JOINT DETAILS

STEP FOOTING PLAN VIEW



STEP FOOTING ELEVATION

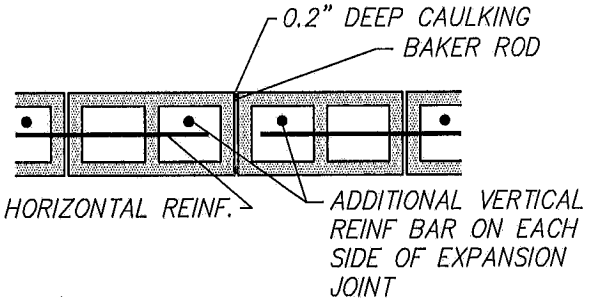




CONTROL JOINTS MUST EXTEND VERTICALLY EVERY 32 FT OC ALONG THE WALL. SOLID GROUT MAY CONTINUE THROUGH THE JOINT. RACK THE MORTAR BACK AT LEAST 1".

CONTROL JOINT

NO SCALE



EXPANSION JOINTS MUST EXTEND VERTICALLY EVERY 96 FT OC ALONG THE WALL. JOINT MUST NOT CONTAIN ANY INCOMPRESSIBLE MATERIAL (EX. GROUT OR MORTAR).

EXPANSION JOINT

NO SCALE

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RETAINING WALL STEP FOOTING & JOINT DETAILS

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Variable heel (Minimum Toe), Level Backfill

CV Wall	CVVL-14	CVVL-20	CVVL-28	CVVL-34	CVVL-40	CVVL-48	CVVL-54	CVVL-60	CVVL-68	CVVL-74	CVVL-80
TYPE	*I*	*I*	*I*	*I*	*I*	*I*	*I*	*I*	*II*	*II*	*II*
Height -h	1'-4"	2'-0"	2'-8"	3'-4"	4'-0"	4'-8"	5'-4"	6'-0"	6'-8"	7'-4"	8'-0"
Slope	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level
Block-t1	6"	6"	6"	6"	8"	8"	8"	8"	8"	8"	8"
Stem Block									12"	12"	12"
Heel	0'-4"	0'-6"	0'-7"	0'-9"	0'-10"	1'-1"	1'-3"	1'-2"	1'-7"	1'-10"	2'-1"
Toe	0'-3"	0'-5"	0'-6"	0'-8"	0'-9"	1'-0"	1'-2"	1'-5"	1'-6"	1'-9"	2'-0"
Vert Bar-A				#3@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"
40 dia Lap				15"	20"	20"	20"	20"	20"	20"	20"
Horiz Bars	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#4@16"	#4@16"	#4@16"	#4@16"
Lower Bar-B	#3@24"	#3@24"	#3@24"	#3@24"	#4@24"	#4@24"	#4@16"	#5@8"	#4@24"	#4@24"	#4@16"
Min. Height of 12" Stem Wall									2'-8"	2'-8"	3'-4"
Stem Bar-C									#5@24"	#5@16"	#5@8"
Stem Horiz Bars								#4@16"	#4@16"	#4@16"	#4@16"
Top Bar-D								#4@16"	#4@16"	#4@16"	#4@12"
Footing Width-W	1'-1"	1'-5"	1'-7"	1'-11"	2'-3"	2'-9"	3'-1"	3'-7"	4'-1"	4'-7"	5'-1"
Footing Horiz Bars	2-#4	2-#4	3-#4	3-#4	3-#4	4-#4	4-#4	5-#4	5-#4	6-#4	6-#4
Key to Toe				0'-8"	1'-0"	1'-3"	1'-5"	1'-8"	1'-6"	1'-9"	2'-0"
Key (w by d)	None	None	None	6" by 4"	6" by 6"	8" by 8"	12" by 10"	12" by 12"	12" by 13"	12" by 15"	12" by 18"
Key Reinf											#4@16"

Variable heel (Minimum Toe), 2 to 1 Slope

CV Wall	CVV20-14	CVV20-20	CVV20-28	CVV20-34	CVV20-40	CVV20-48	CVV20-54	CVV20-60	CVV20-68	CVV20-74	CVV20-80
TYPE	*I*	*I*	*I*	*I*	*I*	*I*	*I*	*II*	*II*	*II*	*II*
Height -h	1'-4"	2'-0"	2'-8"	3'-4"	4'-0"	4'-8"	5'-4"	6'-0"	6'-8"	7'-4"	8'-0"
Slope	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1
Block-t1	6"	6"	6"	8"	8"	8"	8"	8"	8"	8"	8"
Stem Block								12"	12"	12"	12"
Heel	0'-8"	0'-6"	0'-8"	1'-2"	1'-4"	1'-1"	1'-10"	2'-9"	2'-6"	2'-6"	2'-6"
Toe	0'-2"	0'-6"	0'-8"	0'-8"	1'-0"	1'-6"	1'-6"	1'-6"	2'-0"	2'-6"	3'-0"
Vert Bar-A				#4@24"	#4@24"	#4@24"	#5@16"	#4@24"	#4@24"	#4@24"	#4@24"
40 dia Lap				20"	20"	20"	25"	20"	20"	20"	20"
Horiz Bars	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"
Lower Bar-B	#3@24"	#3@24"	#3@24"	#4@24"	#4@24"	#4@16"	#5@8"	#4@24"	#4@24"	#4@24"	#4@16"
Min. Height of 12" Stem Wall								2'-8"	3'-4"	3'-4"	4'-0"
Stem Bar-C								#4@16"	#6@16"	#6@8"	#8@8"
Stem Horiz Bars								#4@16"	#4@16"	#4@16"	#4@16"
Top Bar-D								#4@16"	#4@12"	#5@16"	#5@12"
Footing Width-W	1'-4"	1'-6"	1'-10"	2'-6"	3'-0"	3'-3"	4'-0"	5'-3"	5'-6"	6'-0"	6'-6"
Footing Horiz Bars	3-#4	3-#4	3-#4	4-#4	4-#4	4-#4	5-#4	6-#4	7-#4	7-#4	8-#4
Key to Toe		0'-7"	1'-0"	1'-1"	1'-1"	1'-6"	2'-4"	3'-0"	2'-9"	2'-4"	2'-0"
Key (w by d)	None	6" by 4"	8" by 8"	12" by 11"	12" by 14"	12" by 18"	12" by 22"	12" by 25"	12" by 29"	12" by 33"	12" by 37"
Key Reinf						#4@16"	#4@16"	#4@16"	#4@16"	#4@16"	#4@16"

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TABLE FOR VARIABLE HEEL, LEVEL BACKFILL, & 2 TO 1 SLOPE

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Variable heel (Minimum Toe), 1.5 TO 1 Slope

CV Wall	CVV15-14	CVV15-20	CVV15-28	CVV15-34	CVV15-40	CVV15-48	CVV15-54	CVV15-60	CVV15-68	CVV15-74
TYPE	*I*	*I*	*I*	*I*	*I*	*I*	*II*	*II*	*II*	*II*
Height -h	1'-4"	2'-0"	2'-8"	3'-4"	4'-0"	4'-8"	5'-4"	6'-0"	6'-8"	7'-4"
Slope	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1
Block-t1	6"	6"	6"	8"	8"	8"	8"	8"	8"	8"
Stem Block							12"	12"	12"	12"
Heel	0'-8"	0'-9"	0'-11"	1'-0"	1'-3"	2'-1"	1'-9"	2'-0"	2'-4"	1'-7"
Toe	0'-4"	0'-8"	0'-10"	0'-11"	1'-2"	1'-2"	1'-8"	1'-11"	2'-3"	2'-7"
Vert Bar-A				#4@24"	#4@24"	#4@16"	#4@24"	#4@24"	#4@16"	#4@24"
40 dia Lap				20"	20"	20"	20"	20"	20"	20"
Horiz Bars	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"
Lower Bar-B	#3@24"	#3@24"	#3@24"	#4@24"	#4@24"	#5@16"	#4@24"	#4@24"	#4@16"	#4@24"
Min. Height of 12" Stem Wall							2'-0"	2'-8"	2'-8"	4'-0"
Stem Bar-C							#4@16"	#5@16"	#5@8"	#8@8"
Stem Horiz Bars							#4@16"	#4@16"	#4@16"	#4@16"
Top Bar-D							#4@16"	#5@16"	#5@16"	#6@16"
Footing Width-W	1'-6"	1'-11"	2'-3"	2'-7"	3'-1"	3'-11"	4'-5"	4'-11"	5'-7"	6'-3"
Footing Horiz Bars	3-#4	3-#4	3-#4	4-#4	4-#4	5-#4	5-#4	6-#4	7-#4	7-#4
Key to Toe		0'-8"	0'-10"	0'-11"	1'-2"	1'-2"	1'-8"	1'-11"	2'-3"	2'-7"
Key (w by d)	None	6" by 6"	12" by 8"	12" by 11"	12" by 15"	12" by 17"	12" by 21"	12" by 25"	12" by 29"	12" by 32"
Key Reinf							#4@16"	#4@16"	#4@16"	#4@16"

Variable heel (Minimum Toe), Level, 250 PSF Vehicular Surcharge

CV Wall	CVV250-14	CVV250-20	CVV250-28	CVV250-34	CVV250-40	CVV250-48	CVV250-54	CVV250-60	CVV250-68	CVV250-74
TYPE	*I*	*I*	*I*	*I*	*I*	*I*	*II*	*II*	*II*	*II*
Height -h	1'-4"	2'-0"	2'-8"	3'-4"	4'-0"	4'-8"	5'-4"	6'-0"	6'-8"	7'-4"
Slope/Surcharge	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250
Block-t1	6"	6"	6"	8"	8"	8"	8"	8"	8"	8"
Stem Block							12"	12"	12"	12"
Heel	0'-9"	1'-0"	1'-0"	1'-0"	1'-9"	1'-6"	1'-9"	1'-6"	2'-3"	2'-0"
Toe	0'-3"	0'-6"	0'-9"	1'-0"	1'-0"	1'-6"	1'-6"	2'-0"	2'-0"	2'-6"
Vert Bar-A				#4@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"
40 dia Lap				20"	20"	20"	20"	20"	20"	25"
Horiz Bars	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"
Lower Bar-B	#3@24"	#3@24"	#4@16"	#4@24"	#5@16"	#5@8"	#4@24"	#4@16"	#4@24"	#5@16"
Min. Height of 12" Stem Wall							2'-0"	2'-8"	3'-4"	4'-0"
Stem Bar-C							#4@16"	#5@16"	#6@8"	#8@8"
Stem Horiz Bars							#4@16"	#4@16"	#4@16"	#4@16"
Top Bar-D						#4@16"	#4@12"	#4@12"	#4@12"	#4@12"
Footing Width-W	1'-6"	2'-0"	2'-3"	2'-8"	3'-5"	3'-8"	4'-3"	4'-6"	5'-3"	5'-6"
Footing Horiz Bars	3-#4	3-#4	3-#4	4-#4	4-#4	5-#4	5-#4	6-#4	7-#4	7-#4
Key to Toe	0'-6"	0'-10"	1'-0"	1'-3"	1'-2"	1'-6"	1'-11"	2'-3"	2'-3"	2'-9"
Key (w by d)	6" by 3"	8" by 5"	8" by 8"	12" by 11"	12" by 11"	12" by 15"	12" by 17"	12" by 21"	12" by 21"	12" by 25"
Key Reinf							#4@16"	#4@16"	#4@16"	#4@16"

REVISION	BY	APPROVED	DATE
ORIGINAL	CVM	C. SWANSON	12/01
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

TABLE FOR VAR. HEEL, 1.5—1 SLOPE, 250 PSF, & SURCHARGE

WILLIAM S. VALLE
CITY ENGINEER
11/21/2017

GRD—05

SHEET 12 OF 16

6-Inch heel, Level Backfill

CV Wall	CV6L-14	CV6L-20	CV6L-28	CV6L-34	CV6L-40	CV6L-48	CV6L-54	CV6L-60	CV6L-68	CV6L-74	CV6L-80
TYPE	*I*	*I*	*I*	*I*	*I*	*I*	*I*	*I*	*II*	*II*	*II*
Height -h	1'-4"	2'-0"	2'-8"	3'-4"	4'-0"	4'-8"	5'-4"	6'-0"	6'-8"	7'-4"	8'-0"
Slope	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level
Block-t1	6"	6"	6"	6"	8"	8"	8"	8"	8"	8"	8"
Stem Block									12"	12"	12"
Heel	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"
Toe	0'-3"	0'-5"	0'-7"	1'-0"	0'-11"	1'-5"	1'-8"	2'-1"	2'-1"	2'-6"	2'-11"
Vert Bar-A				#3@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"
40 dia Lap				15"	20"	20"	20"	20"	20"	20"	20"
Horiz Bars	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"
Lower Bar-B	#3@24"	#3@24"	#3@24"	#3@24"	#4@24"	#4@24"	#4@16"	#5@8"	#4@24"	#4@24"	#4@16"
Min. Height of 12" Stem Wall									2'-8"	2'-8"	2'-8"
Stem Bar-C									#4@16"	#5@16"	#5@8"
Stem Horiz Bars									#4@16"	#4@16"	#4@16"
Top Bar-D											
Footing Width-W	1'-3"	1'-5"	1'-7"	2'-0"	2'-1"	2'-7"	2'-10"	3'-3"	3'-7"	4'-0"	4'-5"
Footing Horiz Bars	2-#4	2-#4	3-#4	3-#4	3-#4	4-#4	4-#4	4-#4	5-#4	5-#4	5-#4
Key to Toe			0'-9"	1'-0"	1'-2"	1'-3"	1'-6"	1'-9"	2'-1"	2'-6"	2'-9"
Key (w by d)	None	None	6" by 1"	6" by 4"	8" by 7"	12" by 12"	12" by 13"	12" by 16"	12" by 18"	12" by 21"	12" by 24"
Key Reinf								#4@16"	#4@16"	#4@16"	#4@16"

6-Inch heel, 2 to 1 Slope

CV Wall	CV620-14	CV620-20	CV620-28	CV620-34	CV620-40	CV620-48	CV620-54	CV620-60	CV620-68	CV620-74
TYPE	*I*	*I*	*I*	*I*	*I*	*I*	*I*	*II*	*II*	*II*
Height -h	1'-4"	2'-0"	2'-8"	3'-4"	4'-0"	4'-8"	5'-4"	6'-0"	6'-8"	7'-4"
Slope	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1
Block-t1	6"	6"	6"	6"	8"	8"	8"	8"	8"	8"
Stem Block								12"	12"	12"
Heel	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"
Toe	0'-4"	0'-6"	0'-9"	1'-2"	1'-4"	1'-10"	2'-2"	2'-3"	2'-10"	3'-3"
Vert Bar-A				#4@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"
40 dia Lap				20"	20"	20"	20"	20"	20"	20"
Horiz Bars	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"
Lower Bar-B	#3@24"	#3@24"	#3@24"	#4@24"	#4@24"	#4@16"	#5@8"	#4@24"	#4@24"	#4@24"
Min. Height of 12" Stem Wall								2'-8"	2'-8"	3'-4"
Stem Bar-C								#5@24"	#5@8"	#6@8"
Stem Horiz Bars								#4@16"	#4@16"	#4@16"
Top Bar-D										
Footing Width-W		1'-6"	1'-9"	2'-2"	2'-6"	3'-0"	3'-4"	3'-9"	4'-4"	4'-9"
Footing Horiz Bars	2-#4	3-#4	3-#4	3-#4	4-#4	4-#4	4-#4	5-#4	5-#4	6-#4
Key to Toe		0'-6"	0'-9"	0'-11"	1'-3"	1'-7"	2'-0"	2'-3"	2'-8"	3'-4"
Key (w by d)	None	6" by 4"	8" by 8"	12" by 11"	12" by 14"	12" by 18"	12" by 22"	12" by 25"	12" by 28"	12" by 32"
Key Reinf							#4@16"	#4@16"	#4@16"	#4@16"

SHEET 13 OF 16

REVISION	BY	APPROVED	DATE
ORIGINAL	CVM	C. SWANSON	12/01
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

TABLE FOR 6-IN HEEL, LEVEL BACKFILL, & 2 TO 1 SLOPE

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

GRD-05

6-Inch heel, 1.5 to 1 Slope

CV Wall	CV615-14	CV615-20	CV615-28	CV615-34	CV615-40	CV615-48	CV615-54	CV615-60	CV615-68	CV615-74
TYPE	*I*	*I*	*I*	*I*	*I*	*I*	*II*	*II*	*II*	*II*
Height -h	1'-4"	2'-0"	2'-8"	3'-4"	4'-0"	4'-8"	5'-4"	6'-0"	6'-8"	7'-4"
Slope	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1
Block-t1	6"	6"	6"	8"	8"	8"	8"	8"	8"	8"
Stem Block							12"	12"	12"	12"
Heel	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"
Toe	0'-6"	1'-0"	1'-8"	1'-4"	1'-8"	2'-1"	2'-4"	2'-9"	3'-3"	3'-9"
Vert Bar-A				#4@24"	#4@24"	#4@16"	#4@24"	#4@24"	#4@24"	#4@24"
40 dia Lap				20"	20"	20"	20"	20"	20"	20"
Horiz Bars	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"
Lower Bar-B	#3@24"	#3@24"	#3@24"	#4@24"	#4@24"	#5@16"	#4@24"	#4@24"	#4@24"	#4@24"
Min. Height of 12" Stem Wall							2'-0"	2'-8"	2'-8"	4'-0"
Stem Bar-C							#4@16"	#5@16"	#5@8"	#8@8"
Stem Horiz Bars							#4@16"	#4@16"	#4@16"	#4@16"
Top Bar-D										
Footing Width-W	1'-6"	2'-0"	2'-8"	2'-6"	2'-10"	3'-3"	3'-10"	4'-3"	4'-9"	5'-3"
Footing Horiz Bars	3-#4	3-#4	4-#4	4-#4	4-#4	4-#4	5-#4	5-#4	6-#4	6-#4
Key to Toe		0'-6"	1'-0"	1'-0"	1'-6"	1'-11"	2'-4"	2'-9"	3'-3"	3'-9"
Key (w by d)	None	6" by 4"	8" by 10"	12" by 12"	12" by 17"	12" by 21"	12" by 25"	12" by 30"	12" by 34"	12" by 38"
Key Reinf						#4@16"	#4@16"	#4@16"	#4@16"	#4@16"

6-Inch heel, Level Backfill, 250 PSF Vehicular Surcharge

CV Wall	CV6S-14	CV6S-20	CV6S-28	CV6S-34	CV6S-40	CV6S-48	CV6S-54	CV6S-60	CV6S-68	CV6S-74
TYPE	*I*	*I*	*I*	*I*	*I*	*I*	*II*	*II*	*II*	*II*
Height -h	1'-4"	2'-0"	2'-8"	3'-4"	4'-0"	4'-8"	5'-4"	6'-0"	6'-8"	7'-4"
Slope/Surcharge	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250
Block-t1	6"	6"	6"	8"	8"	8"	8"	8"	8"	8"
Stem Block							12"	12"	12"	12"
Heel	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"
Toe	0'-8"	1'-0"	1'-5"	1'-6"	1'-10"	2'-4"	2'-3"	2'-9"	3'-2"	3'-9"
Vert Bar-A				#4@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"
40 dia Lap				20"	20"	20"	20"	25"	20"	25"
Horiz Bars	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"
Lower Bar-B	#3@24"	#3@24"	#4@16"	#4@24"	#5@16"	#5@8"	#4@24"	#5@24"	#4@24"	#5@16"
Min. Height of 12" Stem Wall							2'-0"	2'-8"	3'-4"	4'-0"
Stem Bar-C							#4@16"	#5@16"	#6@8"	#8@8"
Stem Horiz Bars							#4@16"	#4@16"	#4@16"	#4@16"
Top Bar-D										
Footing Width-W	1'-8"	2'-0"	2'-5"	2'-8"	3'-0"	3'-6"	3'-9"	4'-3"	4'-8"	5'-3"
Footing Horiz Bars	2-#4	3-#4	3-#4	3-#4	4-#4	4-#4	4-#4	5-#4	5-#4	6-#4
Key to Toe	0'-9"	2'-0"	2'-5"	2'-8"	3'-0"	3'-6"	3'-9"	4'-3"	4'-8"	5'-3"
Key (w by d)	6" by 4"	8" by 7"	8" by 10"	12" by 13"	12" by 16"	12" by 19"	12" by 22"	12" by 25"	12" by 28"	12" by 31"
Key Reinf						#4@16"	#4@16"	#4@16"	#4@16"	#4@16"

REVISION	BY	APPROVED	DATE
ORIGINAL	CVM	C. SWANSON	12/01
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

TABLE FOR 6-IN HEEL, 1.5 TO 1 SLOPE, 250 PSF, & SURCHARGE

GRD-05

WILLIAM S. VALLE
CITY ENGINEER
11/21/2017

2-Inch heel, Level Backfill

CV Wall	CV2L-14	CV2L-20	CV2L-28	CV2L-34	CV2L-40	CV2L-48	CV2L-54	CV2L-60	CV2L-68	CV2L-74	CV2L-80
TYPE	*I*	*I*	*I*	*I*	*I*	*I*	*I*	*I*	*II*	*II*	*II*
Height -h	1'-4"	2'-0"	2'-8"	3'-4"	4'-0"	4'-8"	5'-4"	6'-0"	6'-8"	7'-4"	8'-0"
Slope	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level
Block-t1	6"	6"	6"	6"	8"	8"	8"	8"	8"	8"	8"
Stem Block								12"	12"	12"	12"
Heel	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"
Toe	0'-4"	0'-8"	1'-1"	1'-3"	1'-5"	1'-8"	2'-2"	2'-4"	2'-4"	2'-8"	3'-4"
Vert Bar-A				#3@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"
40 dia Lap				15"	20"	20"	20"	20"	20"	20"	20"
Horiz Bars	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"
Lower Bar-B	#3@24"	#3@24"	#3@24"	#3@16"	#4@24"	#4@24"	#4@16"	#5@8"	#4@24"	#4@24"	#4@16"
Min. Height of 12" Stem Wall									2'-8"	2'-8"	2'-8"
Stem Bar-C									#5@24"	#5@16"	#6@8"
Stem Horiz Bars									#4@16"	#4@16"	#4@16"
Top Bar-D											
Footing Width-W	1'-0"	1'-4"	1'-9"	2'-0"	2'-3"	2'-6"	3'-0"	3'-4"	3'-6"	3'-11"	4'-6"
Footing Horiz Bars	2-#4	2-#4	3-#4	3-#4	4-#4	4-#4	4-#4	4-#4	5-#4	5-#4	6-#4
Key to Toe			1'-0"	1'-1"	1'-2"	1'-0"	1'-5"	1'-9"	2'-2"	2'-6"	2'-6"
Key (w by d)	None	None	6" by 2"	6" by 6"	8" by 8"	12" by 11"	12" by 14"	12" by 17"	12" by 19"	12" by 22"	12" by 26"
Key Reinf									#4@16"	#4@16"	#4@16"

2-Inch heel, 2 to 1 Slope

CV Wall	CV220-14	CV220-20	CV220-28	CV220-34	CV220-40	CV220-48	CV220-54	CV220-60	CV220-68	CV220-74
TYPE	*I*	*I*	*I*	*I*	*I*	*I*	*I*	*II*	*II*	*II*
Height -h	1'-4"	2'-0"	2'-8"	3'-4"	4'-0"	4'-8"	5'-4"	6'-0"	6'-8"	7'-4"
Slope	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1	2.0:1
Block-t1	6"	6"	6"	8"	8"	8"	8"	8"	8"	8"
Stem Block								12"	12"	12"
Heel	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"
Toe	0'-7"	0'-8"	1'-1"	1'-4"	1'-8"	2'-0"	2'-5"	2'-5"	2'-11"	3'-4"
Vert Bar-A				#4@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"
40 dia Lap				20"	20"	20"	20"	20"	20"	20"
Horiz Bars	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"
Lower Bar-B	#3@24"	#3@24"	#3@24"	#4@24"	#4@24"	#4@16"	#5@8"	#4@24"	#4@24"	#4@24"
Min. Height of 12" Stem Wall								2'-8"	2'-8"	3'-4"
Stem Bar-C								#5@24"	#6@16"	#6@8"
Stem Horiz Bars								#4@16"	#4@16"	#4@16"
Top Bar-D										
Footing Width-W	1'-3"	1'-4"	1'-9"	2'-0"	2'-6"	2'-10"	3'-3"	3'-7"	4'-1"	4'-6"
Footing Horiz Bars	2-#4	2-#4	3-#4	3-#4	3-#4	4-#4	4-#4	5-#4	5-#4	6-#4
Key to Toe		0'-7"	1'-0"	0'-11"	1'-3"	1'-7"	2'-0"	2'-5"	2'-11"	3'-4"
Key (w by d)	None	6" by 6"	8" by 8"	12" by 12"	12" by 14"	12" by 18"	12" by 22"	12" by 25"	12" by 28"	12" by 32"
Key Reinf							#4@16"	#4@16"	#4@16"	#4@16"

REVISION	BY	APPROVED	DATE
ORIGINAL	CVM	C. SWANSON	12/01
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

TABLE FOR 2-IN HEEL, LEVEL BACKFILL, & 2 TO 1 SLOPE

GRD-05

WILLIAM S. VALLE
CITY ENGINEER
11/21/2017

2-Inch heel, 1.5 to 1 Slope

CV Wall	CV215-14	CV215-20	CV215-28	CV215-34	CV215-40	CV215-48	CV215-54	CV215-60	CV215-68	CV215-74
TYPE	I	I	I	I	I	I	II	II	II	II
Height -h	1'-4"	2'-0"	2'-8"	3'-4"	4'-0"	4'-8"	5'-4"	6'-0"	6'-8"	7'-4"
Slope	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1	1.5:1
Block-t1	6"	6"	6"	8"	8"	8"	8"	8"	8"	8"
Stem Block							12"	12"	12"	12"
Heel	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"
Toe	1'-2"	1'-4"	1'-6"	1'-9"	2'-4"	2'-9"	3'-0"	3'-3"	3'-10"	5'-0"
Vert Bar-A				#4@24"	#4@24"	#4@16"	#4@24"	#4@16"	#4@16"	#4@16"
40 dia Lap				20"	20"	20"	20"	20"	20"	20"
Horiz Bars	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"
Lower Bar-B	#3@24"	#3@24"	#3@24"	#4@24"	#4@24"	#5@8"	#4@24"	#4@16"	#4@16"	#4@16"
Min. Height of 12" Stem Wall							2'-8"	2'-8"	2'-8"	4'-0"
Stem Bar-C							#4@16"	#5@16"	#5@8"	#8@8"
Stem Horiz Bars							#4@16"	#4@16"	#4@16"	#4@16"
Top Bar-D										
Footing Width-W	1'-10"	2'-0"	2'-2"	2'-7"	3'-2"	3'-7"	4'-0"	4'-5"	5'-0"	6'-2"
Footing Horiz Bars	3-#4	3-#4	3-#4	4-#4	4-#4	4-#4	5-#4	5-#4	6-#4	7-#4
Key to Toe		1'-4"	1'-2"	1'-7"	2'-2"	2'-7"	3'-2"	3'-5"	3'-10"	5'-0"
Key (w by d)	None	4" by 6"	12" by 9"	12" by 13"	12" by 17"	12" by 22"	12" by 26"	12" by 30"	12" by 34"	12" by 38"
Key Reinf						#4@16"	#4@16"	#4@16"	#4@16"	#4@16"

2-Inch heel, Level Backfill, 250 PSF Vehicular Surcharge

CV Wall	CV2S-14	CV2S-20	CV2S-28	CV2S-34	CV2S-40	CV2S-48	CV2S-54	CV2S-60	CV2S-68	CV2S-74
TYPE	I	I	I	I	I	I	II	II	II	II
Height -h	1'-4"	2'-0"	2'-8"	3'-4"	4'-0"	4'-8"	5'-4"	6'-0"	6'-8"	7'-4"
Slope/Surcharge	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250	Level / 250
Block-t1	6"	6"	8"	8"	8"	8"	8"	8"	8"	8"
Stem Block							12"	12"	12"	12"
Heel	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"	0'-2"
Toe	1'-4"	1'-9"	2'-2"	2'-3"	2'-10"	3'-2"	2'-8"	3'-1"	3'-8"	4'-0"
Vert Bar-A				#4@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"	#4@24"
40 dia Lap				20"	20"	20"	20"	25"	20"	25"
Horiz Bars	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"	#3@16"
Lower Bar-B	#3@24"	#3@24"	#4@24"	#4@24"	#5@16"	#6@8"	#4@24"	#5@16"	#4@24"	#5@16"
Min. Height of 12" Stem Wall							2'-0"	2'-8"	3'-4"	4'-0"
Stem Bar-C							#4@16"	#6@16"	#6@8"	#8@8"
Stem Horiz Bars							#4@16"	#4@16"	#4@16"	#4@16"
Top Bar-D										
Footing Width-W	2'-0"	2'-5"	2'-10"	3'-1"	3'-8"	4'-0"	3'-10"	4'-4"	4'-10"	5'-2"
Footing Horiz Bars	3-#4	3-#4	4-#4	4-#4	4-#4	5-#4	5-#4	5-#4	6-#4	6-#4
Key to Toe	1'-0"	1'-4"	1'-3"	1'-6"	1'-11"	2'-3"	2'-8"	3'-0"	3'-8"	4'-0"
Key (w by d)	6" by 4"	8" by 8"	12" by 11"	12" by 14"	12" by 17"	12" by 20"	12" by 23"	12" by 26"	12" by 30"	12" by 34"
Key Reinf						#4@16"	#4@16"	#4@16"	#4@16"	#4@16"

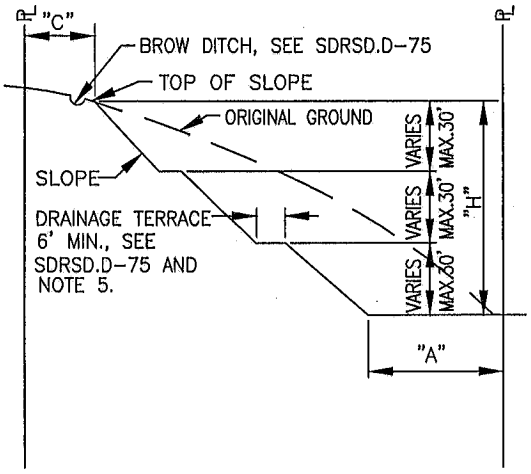
REVISION	BY	APPROVED	DATE
ORIGINAL	CVM	C. SWANSON	12/01
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

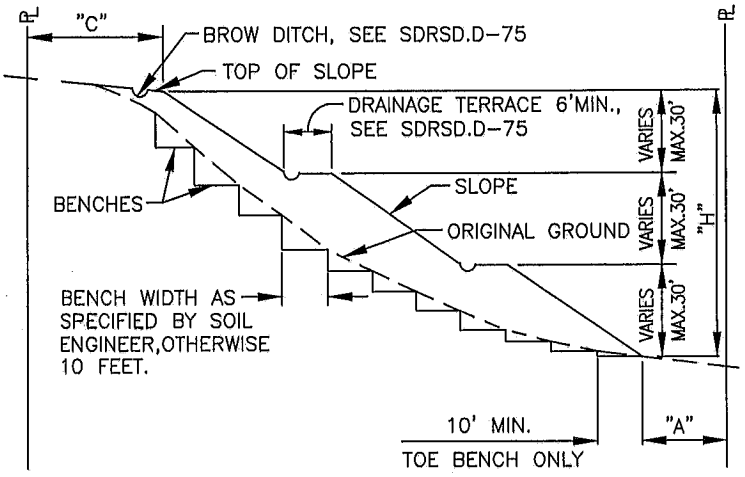
TABLE FOR 2-IN HEEL, 1.5 TO 1 SLOPE, 250 PSF & SURCHARGE

GRD-05

WILLIAM S. VALLE
CITY ENGINEER
11/21/2017



PROFILE-TYPICAL CUT SLOPE

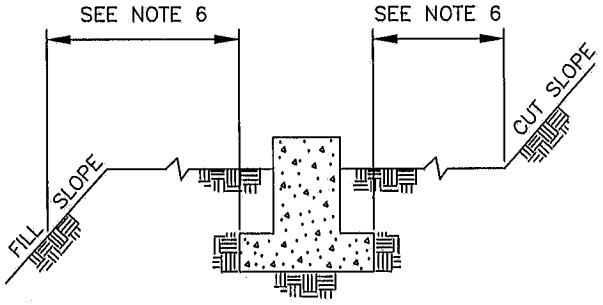


PROFILE-TYPICAL FILL SLOPE

H = VERTICAL HEIGHT OF SLOPE.

A = DISTANCE TOE OF SLOPE TO OUTER BOUNDARIES OF THE PERMIT AREA, INCLUDING SLOPE RIGHT AREAS AND EASEMENTS.

C = DISTANCE TOP OF SLOPE TO OUTER BOUNDARIES OF THE PERMIT AREA, INCLUDING SLOPE RIGHT AREAS AND EASEMENTS. WHERE BROW DITCH IS TO BE CONSTRUCTED "C" DISTANCE MUST BE A MINIMUM OF 3 FEET.



BUILDING FOUNDATION CLEARANCE CUT/FILL SLOPE

HEIGHT OF CUT/FILL	REQUIRED SETBACKS FROM CUT/FILL SLOPES	
H	A	C
0 – 5'	1 – 6'	1'
5' – 30'	H/2	H/5
OVER 30'	15'	6'

NOTES:

1. GRADING SHALL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF THE GRADING ORDINANCE AND GRADING PERMIT.
2. SLOPE RATIOS SHALL NOT BE STEEPER THAN 2:1 CUTS AND FILLS.
3. LANDSCAPING AND IRRIGATION SHALL BE DONE IN ACCORDANCE WITH CITY LANDSCAPE MANUAL.
4. FENCING SHALL BE INSTALLED AS DIRECTED BY CITY ENGINEER.
5. SLOPE TERRACES ARE OPTIONAL UNLESS DIRECTED BY SOILS ENGINEER.
6. SEE SOILS REPORT, ZONING & BUILDING CODE REQUIREMENTS FOR LOCATION OF FOOTINGS.

REVISION	BY	APPROVED	DATE
ORIGINAL			1/95
REVISION	CVM	C. SWANSON	4/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

GRADED SLOPES

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

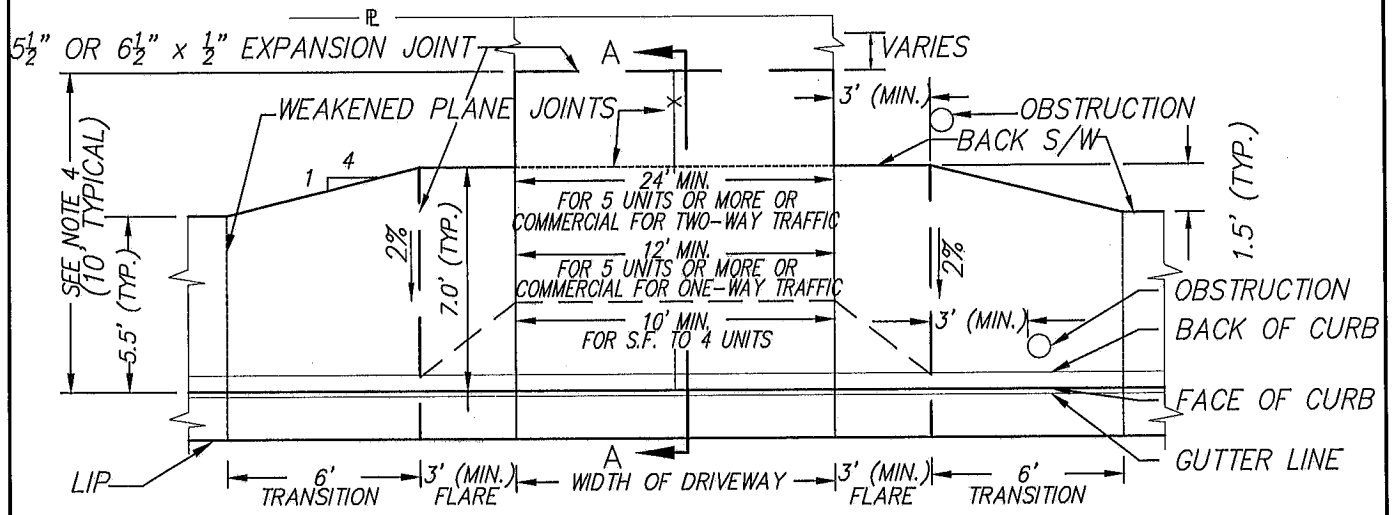
GRD-06

GENERAL SURFACE IMPROVEMENTS
(GSI)

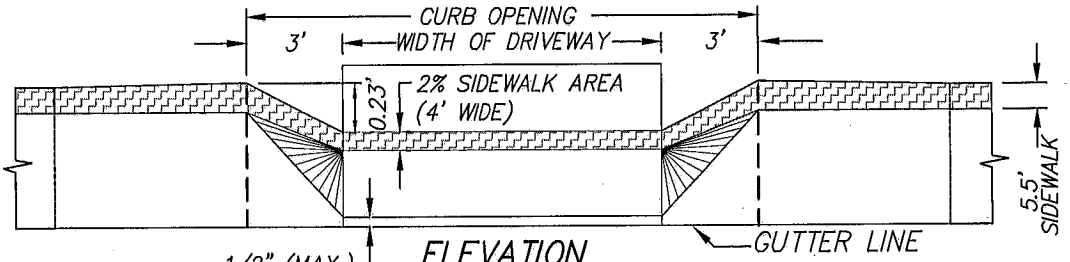
CITY OF CHULA VISTA

DESIGN AND CONSTRUCTION STANDARD DRAWINGS 2017

DEPARTMENT OF ENGINEERING AND CAPITAL PROJECTS



PLAN
NO SCALE



ELEVATION
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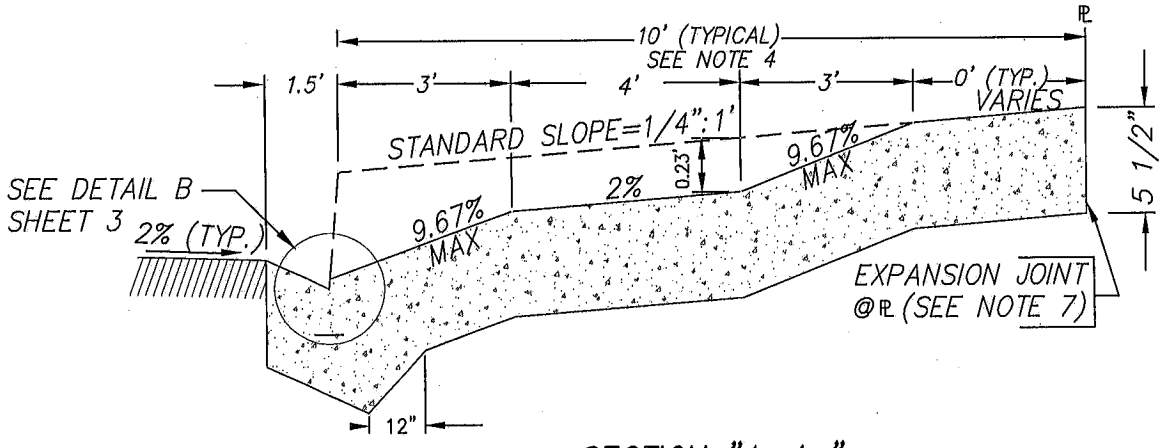


SECTION "A–A"
NO SCALE

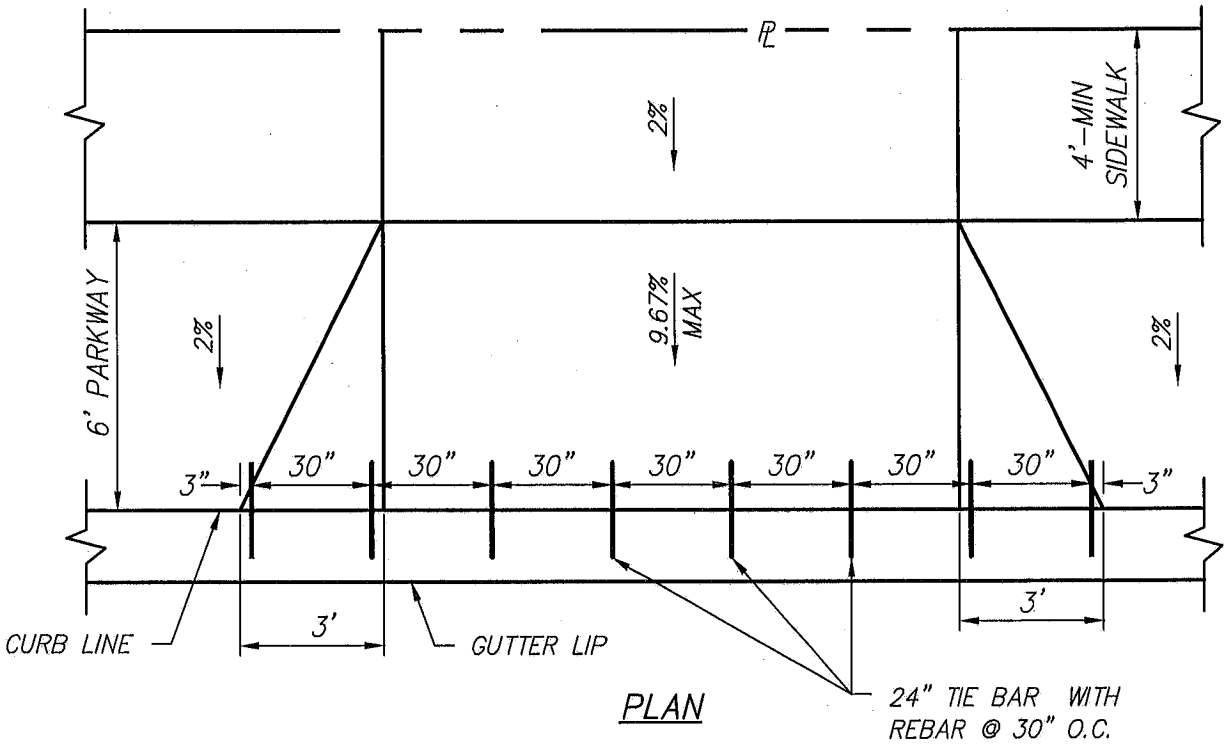
REVISION	BY	APPROVED	DATE
ORIGINAL			7/75
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

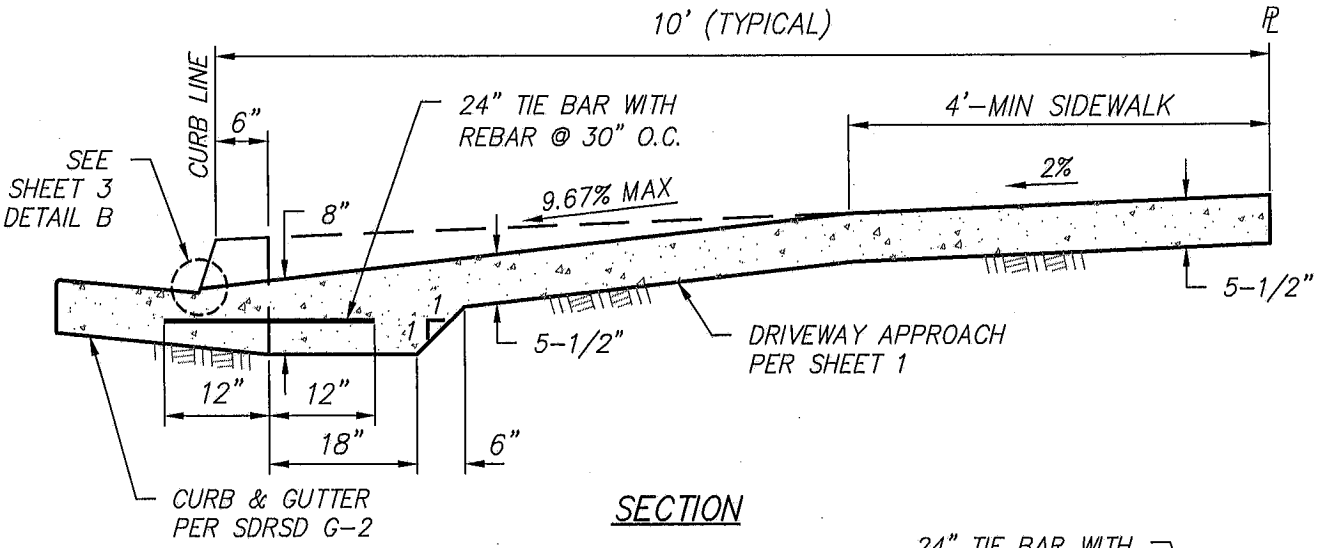
DRIVEWAY WITH MONOLITHIC CURB, GUTTER, AND SIDEWALK

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

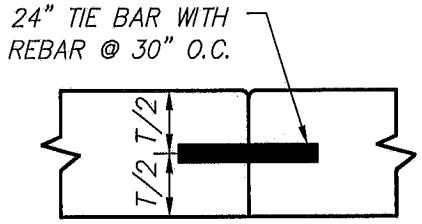
GSI–01



PLAN



SECTION



CONCRETE JOINT DETAIL

NOTE:

TIE BARS SHALL BE CAST IN CONCRETE AND HELD IN POSITION BY MEANS APPROVED BY THE INSPECTOR OR TIE BARS MAY BE INSTALLED BY DRILLING AND BONDING WITH AN APPROVED EPOXY ADHESIVE. (EPOXY ADHESIVE SHALL HAVE A MINIMUM BOND STRENGTH IN 1 DAY EQUAL TO 2000 PSI. DRILL BIT SHALL EQUAL BAR DIAMETER PLUS 1/8".)

FOR ADDITIONAL NOTES AND SPECIFICATIONS, SEE SHEET 3.

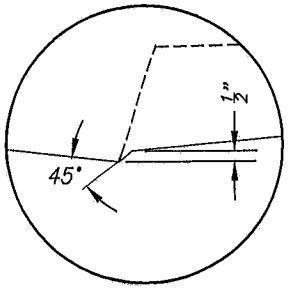
REVISION	BY	APPROVED	DATE
ORIGINAL			3/99
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

DRIVEWAY WITH NON-CONTIGUOUS SIDEWALK

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

GSI-01



DETAIL B:
NO SCALE

GENERAL NOTES:

1. THIS STANDARD SHALL GOVERN THE CONSTRUCTION OF ALL DRIVEWAYS.

2. CURB OPENINGS PER LOT:
   SINGLE FAMILY RESIDENTIAL – 16' MIN,. 25' MAX. A MAXIMUM OF 40% FRONTAGE FOR CURB
   OPENINGS, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
   MULTI–RESIDENTIAL & COMMERCIAL – 16' MIN., 35' MAX. A MAXIMUM OF 60% FRONTAGE FOR
   CURB OPENINGS, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

3. BOTH RESIDENTIAL & COMMERCIAL CURB OPENING SHALL BE A MINIMUM OF 8' FROM ANY P.C.R., AND 3' FROM ANY OBSTRUCTION, I.E. POLES, HYDRANTS, ETC., UNLESS OTHERWISE APPROVED.

4. THE MINIMUM DISTANCE SHALL BE 10' OR TO PROPERTY LINE WHICH EVER IS LESS.

5. FOR CONCRETE JOIN DETAILS SEE STANDARDS SSM.

6. ALL CONCRETE SHALL BE 517–C–2500 EXCEPT FOR COMMERCIAL DRIVEWAYS.

7. IF PROPERTY LINE IS LESS THAN 10' FROM FACE OF CURB, PLACE EXPANSION JOINT AT PROPERTY LINE.

8. FOR COMMERCIAL DRIVEWAYS, CONCRETE SHALL BE 560–C–3250 IN CURB OPENING AREA. WHERE THE R–VALUE IS LESS THAN 40, THE THICKNESS SHALL BE INCREASED TO 6½" FOR COMMERCIAL DRIVEWAYS ONLY.

*9. ADDITIONAL WEAKENED PLANE JOINTS ARE REQUIRED WHEN THE WIDTH OF DRIVEWAY EXCEEDS 18'. THE NUMBER OF ADDITIONAL WEAKENED PLANE JOINTS ARE DETERMINED AS FOLLOWS: DIVIDE THE WIDTH OF THE DRIVEWAY BY 1.5 TIMES THE DEPTH (NORMALLY 10'). E.G. 25/1.5 X 10 = 1.67. LESS THAN 2, THEREFORE USE 1 JOINT.

10. NOT TO BE USED WHEN CURB EXCEEDS 6'

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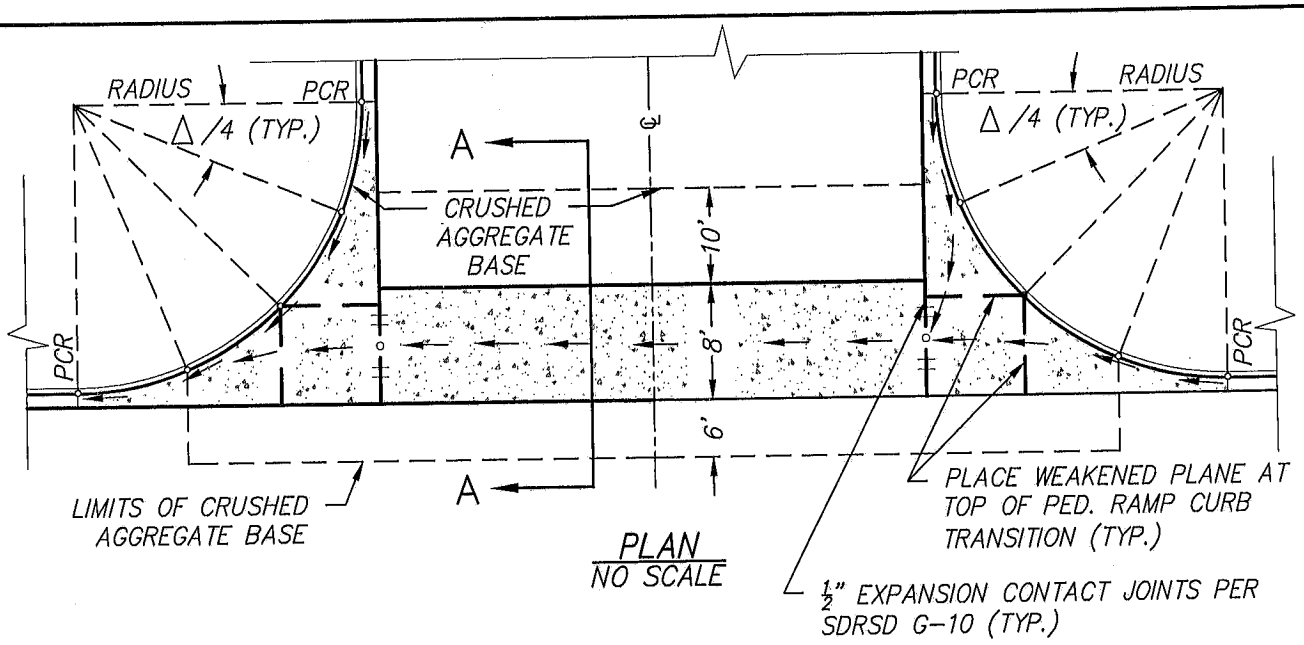
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

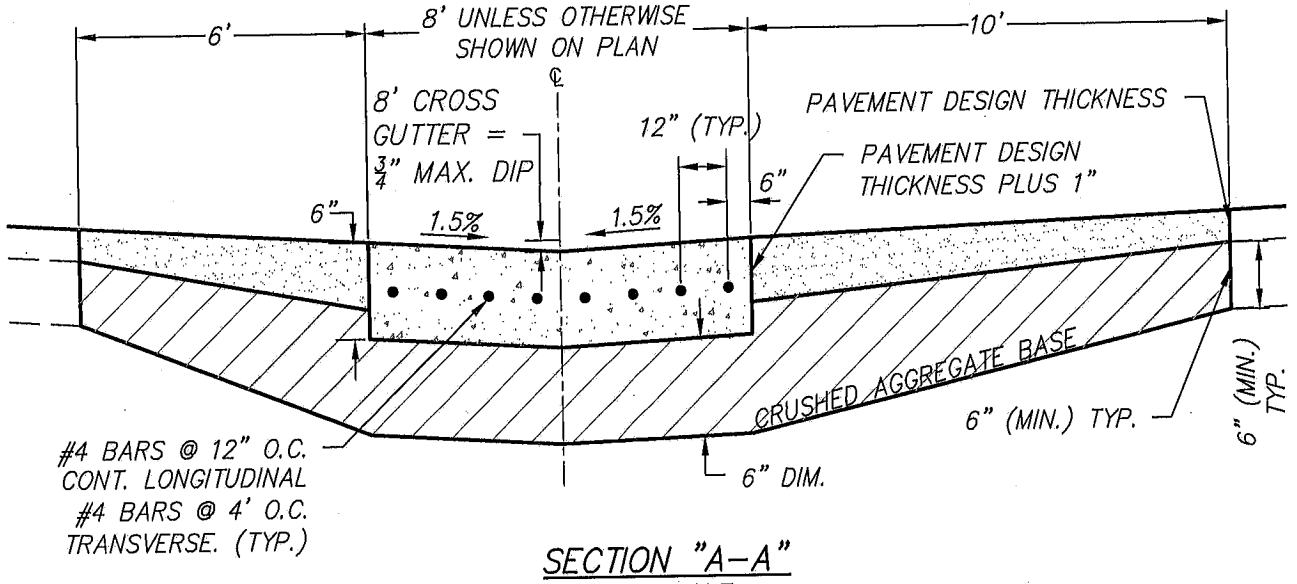
DRIVEWAY NOTES

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

GSI–01



PLAN
NO SCALE



SECTION "A-A"
NO SCALE

NOTES:

1. ALL CONCRETE TO BE 560-C-3250.
2. — — — — = HORIZONTAL LIMITS OF CRUSHED AGGREGATE BASE. TO BE A MINIMUM OF 6" THICK UNDER CROSS GUTTER AND RETURN SEGMENTS (SPANDRELS), COMPACTED TO 95%.
3. RETURN SEGMENTS TO HAVE 6" X 6", 10 GAGE WIRE MESH (#4 REBAR @ 12" O.C. BOTH WAYS MAY BE SUBSTITUTED).
4. ——— ——— = WEAKENED PLANE JOINTS. OTHER EXPANSION JOINTS AND WEAKENED PLANE JOINTS FOR SIDEWALKS, CURB AND GUTTER PER
5. ←——← =TYPICAL FLOWLINES.
6. O = ELEVATIONS TO BE SHOWN ON PLANS.
7. RETURN SEGMENTS TO BE 6" THICK.
8. PLACE WEAKEN PLANE JOINT PER AT TOP OF PEDESTRIAN RAMP CURB TRANSITION.

REVISION	BY	APPROVED	DATE
ORIGINAL			7/75
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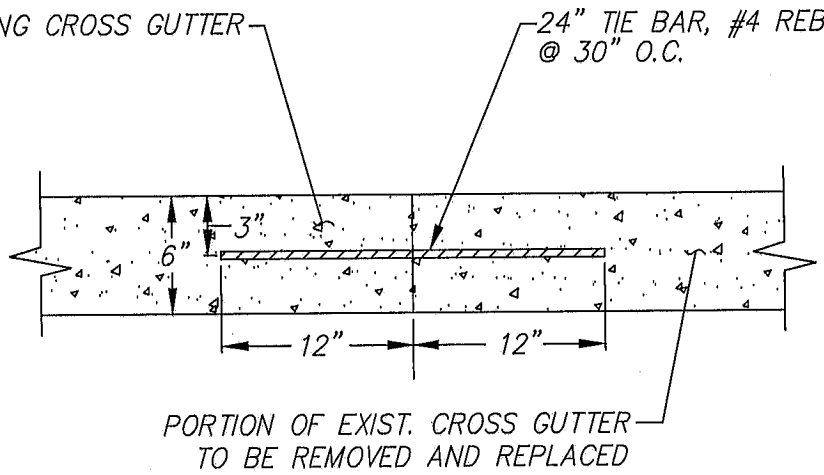
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

CROSS GUTTER

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

GSI-02



NOTE: TIE BARS SHALL BE INSTALLED BY DRILLING AND BONDING WITH AN APPROVED EPOXY ADHESIVE. (EPOXY ADHESIVE SHALL HAVE A MINIMUM BOND STRENGTH IN ONE (1) DAY EQUAL TO 2000 PSI. DRILL BIT SHALL EQUAL BAR DIAMETER PLUS 1/8".) DRILL AND SET TIE BARS IN EXISTING CONCRETE WHEN CONNECTING TO NEW CONCRETE.

REVISION	BY	APPROVED	DATE
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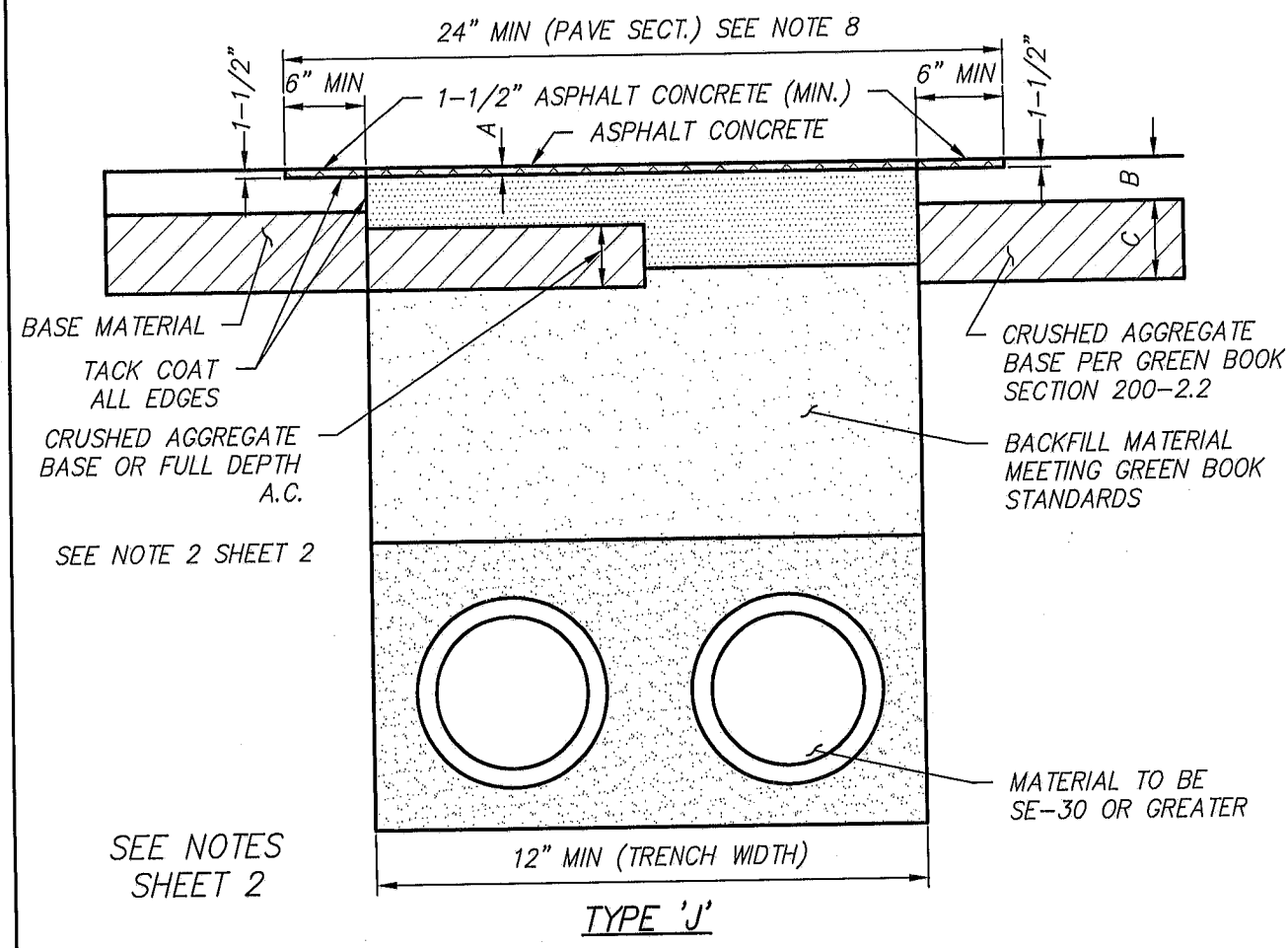
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

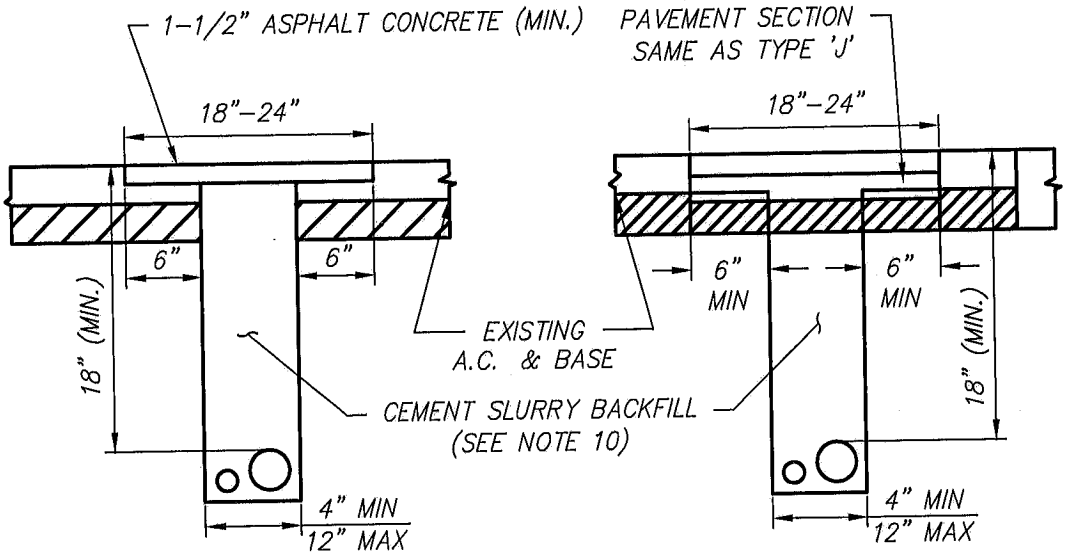
CROSS GUTTER DOWEL CONNECTIONS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

GSI-02



TYPE 'J'



TYPE '1'-(1)"

TYPE '1'-(2)"

REVISION	BY	APPROVED	DATE
ORIGINAL			2/90
REVISION	CVM	A. AGHA	1/04
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

TRENCH BACKFILL TYPE I AND J

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

GSI-03

NOTES:

1. EXISTING ASPHALT SHALL BE CUT 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.

2. THE REMOVED PAVEMENT SECTION SHALL BE REPLACED WITH BASE MATERIAL AND ASPHALT CONCRETE. THE MINIMUM THICKNESS OF THE REPLACEMENT ASPHALT CONCRETE (A) SHALL BE: A=(B+1")
   REPLACEMENT BASE SHALL BE CRUSHED AGGREGATE BASE 4" MIN. THICK.
   IF AGGREGATE BASE IS TO BE REPLACED WITH ASPHALT CONCRETE, THEN THE MINIMUM THICKNESS OF THE ASPHALT CONCRETE SHALL BE:
   ON COMPACTED FILL – A=(B+1") + (C/2)
   ON SLURRY BACKFILL – A=(B+1") + (2C/3)
   (SEE SLURRY REQUIREMENTS BELOW)
   IF CEMENT TREATED BASE – A=(B+1") + (2C/3)

3. A TACK COAT OF EMULSIFIED ASPHALT (SS–1H OR RS–1) SHALL BE APPLIED TO ALL SURFACES WHICH WILL BE IN CONTACT WITH THE REPLACEMENT ASPHALT CONCRETE.

4. THE FINISH COURSE FOR RESURFACING SHALL BE LAID DOWN USING A SPREADER BOX. ALL RESURFACING SHALL BE SEAL COATED WITH AN EMULSIFIED ASPHALT AND COVERED WITH SAND. *CHIP SEALING SHALL BE APPLIED AS REQUIRED BY THE CITY.

5. ASPHALT CONCRETE RESURFACING TO BE TYPE III, C–3 AR4000 FOR TOP COURSE (4" MAX. THICKNESS), ($\frac{1}{2}$" AGGREGATE). IF GREATER THAN 4", USE 2 OR MORE LIFTS. TOP LIFT WITH $\frac{1}{2}$" AGGREGATE; LOWER LIFTS WITH $\frac{3}{4}$" AGGREGATE.

6. SLOUGHING OF TRENCH UNDER PAVEMENT SHALL BE CAUSE FOR REQUIRING ADDITIONAL PAVEMENT AND BASE. LIMITS OF WORK TO BE DETERMINED BY THE CITY ENGINEER.

7. EXISTING STRIPING AND/OR TRAFFIC SIGNAL LOOPS TO BE REPLACED WITHIN 5 WORKING DAYS.

8. IN AN EFFORT TO MAINTAIN A STREET'S EXPECTED LIFESPAN, RETURN THE STREET TO THE SAME OR SIMILAR CONDITION AS BEFORE TH TRENCHING TOOK PLACE, AND TO MEET CITY OF CHULA VISTA AND GREENBOOK STANDARDS PERTAINING TO ROAD SMOOTHNESS:

   * IF THE TRENCH IS LOCATED WITHIN A BIKE LANE, THEN THE ENTIRE BIKE LANE WIDTH SHALL BE COLD PLANED 1–1/2" MINIMUM AND OVERLAYED 1–1/2" MINIMUM.

   * IF THE TRENCH IS WITHIN 24" OF A CONCRETE STRUCTURE (I.E. LIP OF GUTTER, VAULT, ETC.) THEN THE AREA BETWEEN THE TRENCH AND THE CONCRETE STRUCTURE SHALL BE COLD PLANED 1–1/2" MINIMUM AND OVERLAYED 1–1/2" MINIMUM.

   * IF THE TRENCH IS LOCATED LONGITUDINALLY WITHIN THE TRAVEL LANE OF A PRIME, MAJOR, OR 4–LANE COLLECTOR STREET, THEN THE ENTIRE LANE SHALL BE COLD–PLANE 1–1/2" MINIMUM AND OVERLAYED 1–1/2" MINIMUM. HOWEVER, THE CITY ENGINEER MAY, ON A CASE–BY–CASE BASIS AND AT HID/HER SOLE DISCRETION, MODIFY THE REQUIREMENT CO COLD PLANE AND OVERLAY THE ENTIRE LANE BASED UPON THE FOLLOWING CRITERIA: (1) EXISTING CONDITION OF THE PAVEMENT; (2) FUTURE REHABILITATION STRATEGIES AND SCHEDULE; (3) DEPTH OF TRENCH; OTHER TRENCH WORK IN THE AREA; (5) EXISTENCE OF A COMPARABLE TRENCH PAVING TECHNOLOGY OR TECHNIQUES WHICH WOULD ACHIEVE THE DESIRED ROAD SMOOTHNESS AND LONGEVITY; AND (6) OTHER SITE–SPECIFIC CONDITIONS AND FACTORS DEEMED BY THE CITY ENGINEER TO ALLEVIATE THE NEED TO COLD–PLANE AND OVERLAY THE ENTIRE LANE.

   * THOSE ENTITIES WISHING THE CITY ENGINEER TO CONSIDER MODIFYING THE REQUIREMENT TO COLD–PLANE AND OVERLAY THE ENTIRE LANE SHALL, PRIOR TO PERMIT ISSUANCE , SUBMIT A WRITTEN REQUEST FOR SUCH MODIFICATION. SAID WRITTEN REQUEST SHALL INCLUDE A DETAILED DESCRIPTION OF THE PROJECT, THE PROJECT AREA AND THE REASONS WHY THE FULL–LANE REQUIREMENT SHOULD BE WAIVED.

9. *IF THE STREET HAS EXISTING PAVEMENT FABRIC, THEN FABRIC OF A SIMILAR QUALITY MUST BE USED IN THE TRENCH REPAIR.

TYPE "I" ONLY (NARROW TRENCH)

10. CEMENT SLURRY BACKFILL:
    A. CEMENT SLURRY BACKFILL SHALL HAVE A MINIMUM SLUMP OF 5–INCHES.
    B. CEMENT SLURRY BACKFILL SHALL BE THOROUGHLY CONSOLIDATED TO ENCASE CONDUITS. TAMPERS OR VIBRATORS SHALL BE USED.
    C. LEAN CONCRETE (TRENCH SLURRY BACKFILL) AS SPECIFIED IN SECTION 201–1.1.2 OF THE GREEN BOOK CONCRETE CLASS 100–E–100.
    D. ALLOW CEMENT SLURRY BACKFILL 24 HOURS MINIMUM TO CURE BEFORE RESURFACING.

11. TYPE I–1 REQUIRES THE PLACEMENT OF THE PETROTAC TYPE PAVEMENT FABRIC AFTER THE PLACEMENT OF THE TACK COAT. TACK COAT MUST BE APPLIED OVER PETROTAC.

12. IN STREET WITH FABRIC REINFORCING MATERIAL INSTALLED, SLURRY BACKFILL SHALL BE BROUGHT UP TO THE EXISTING FABRIC MATERIAL.

*ITEMS, IF THEY APPLY, TO BE KNOWN AT TIME OF PERMIT.

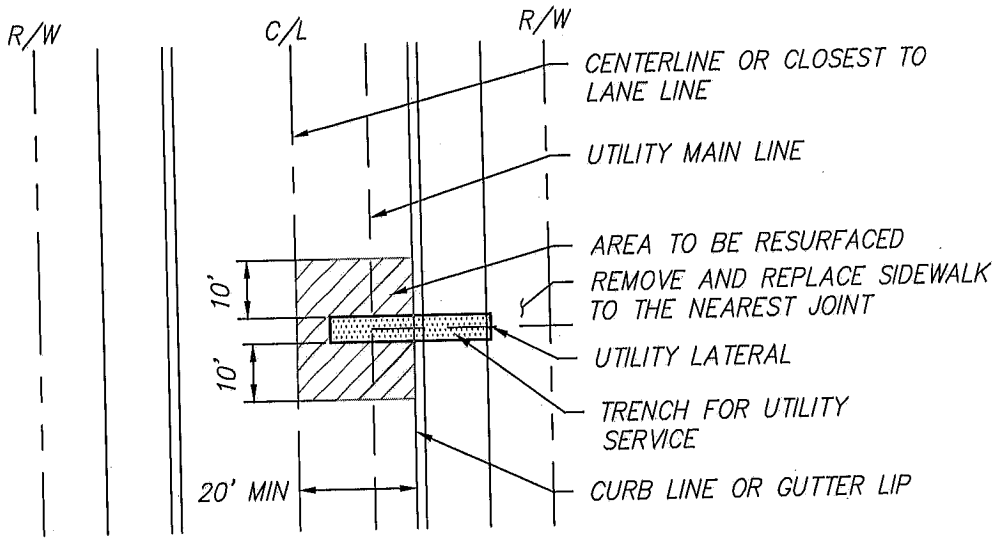
REVISION	BY	APPROVED	DATE
ORIGINAL			2/90
REVISION	CVM	A. AGHA	1/04
REVISION	DPH	W. VALLE	11/17

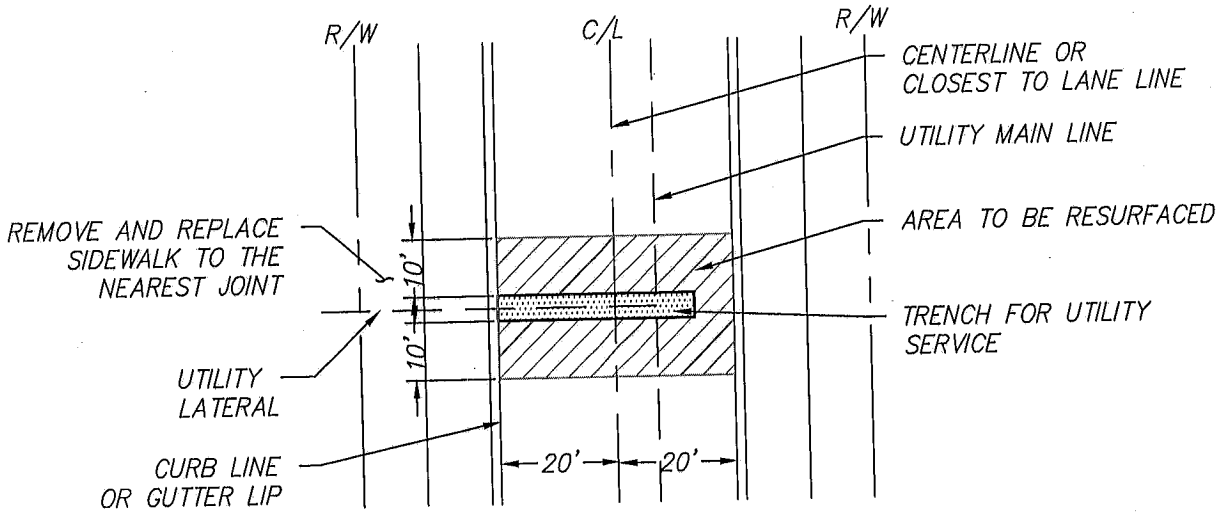
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

TRENCH BACKFILL NOTES

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

GSI–03





TRENCH REPAIR REQUIREMENTS FOR STREET UNDER MORATORIUM

THE FOLLOWING TRENCH REPAIR REQUIREMENTS ARE IN ADDITION TO THOSE LISTED IN CHULA VISTA CONSTRUCTION STANDARDS CVCS 3 & 4:

1. LATERAL TRENCHES (DETAILS ABOVE) – EXTEND T-CUT GRIND AND OVERLAY LIMITS TO 10 FEET BEYOND EACH SIDE OF THE TRENCH AND OVER THE ENTIRE LANE THAT IS IMPACTED (REGARDLESS OF STREET CLASSIFICATION).
2. LONGITUDINAL TRENCHES (PARALLEL TO THE CURB) – GRIND 1-1/2 INCHES MINIMUM AND PLACE 1-1/2 INCHES MINIMUM OVERLAY OVER THE ENTIRE LANE THAT IS IMPACTED (REGARDLESS OF THE CLASSIFICATION OF THE STREET).
3. REPLACE EXISTING PAVEMENT IN KIND TO MATCH EXISTING OR BETTER OR AS DIRECTED BY THE CITY ENGINEER.
4. DECORATIVE SURFACE PAVEMENT SHALL BE PROTECTED IN PLACE OR REPLACED WITH THE SAME MATERIAL WHEN DAMAGED OR AS DIRECTED BY THE CITY ENGINEER.

PER THE UTILITY TRENCH MORATORIUM POLICY NO.585-096:
3-YEAR MORATORIUM FOR STREETS RECEIVING A SLURRY OR CHIP SEAL.
5-YEAR MORATORIUM FOR NEWLY CONSTRUCTED, RECONSTRUCTED, AND OR OVERLAID STREETS.

REVISION	BY	APPROVED	DATE
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CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
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MORATORIUM ROADWAY TRENCH RESURFACING

William S. Valle

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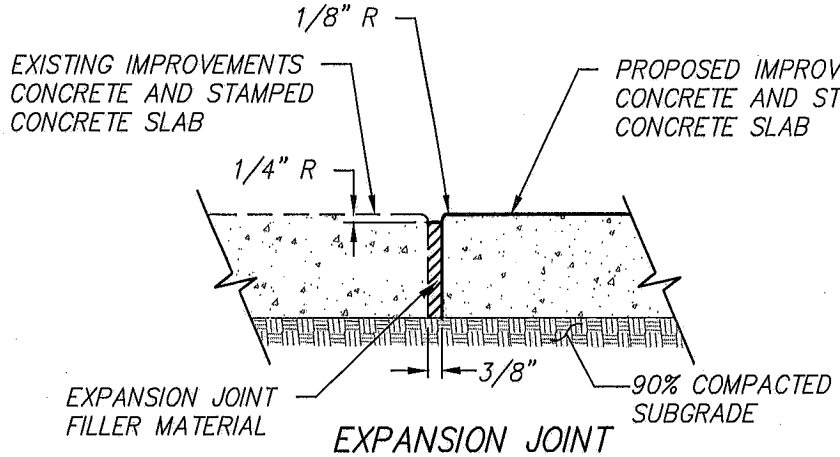
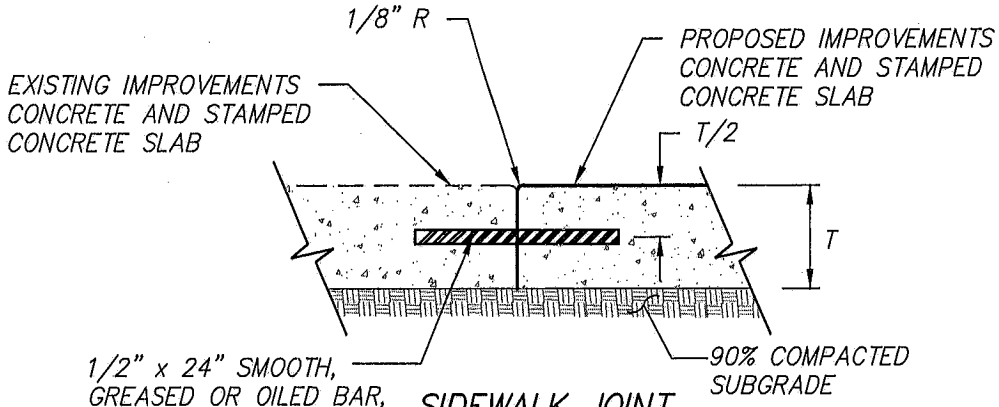
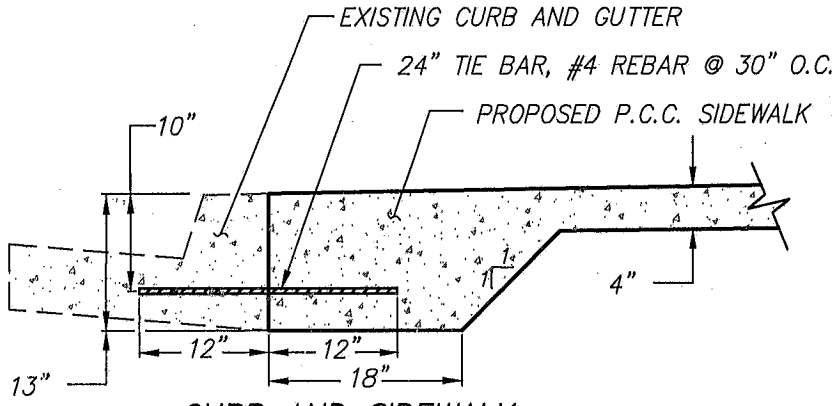


EXPANSION JOINT
NOT TO SCALE



SIDEWALK JOINT
NOT TO SCALE



CURB AND SIDEWALK
CONCRETE JOINT DETAIL
NOT TO SCALE

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CITY OF CHULA VISTA
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CURB & SIDEWALK JOINT DETAILS

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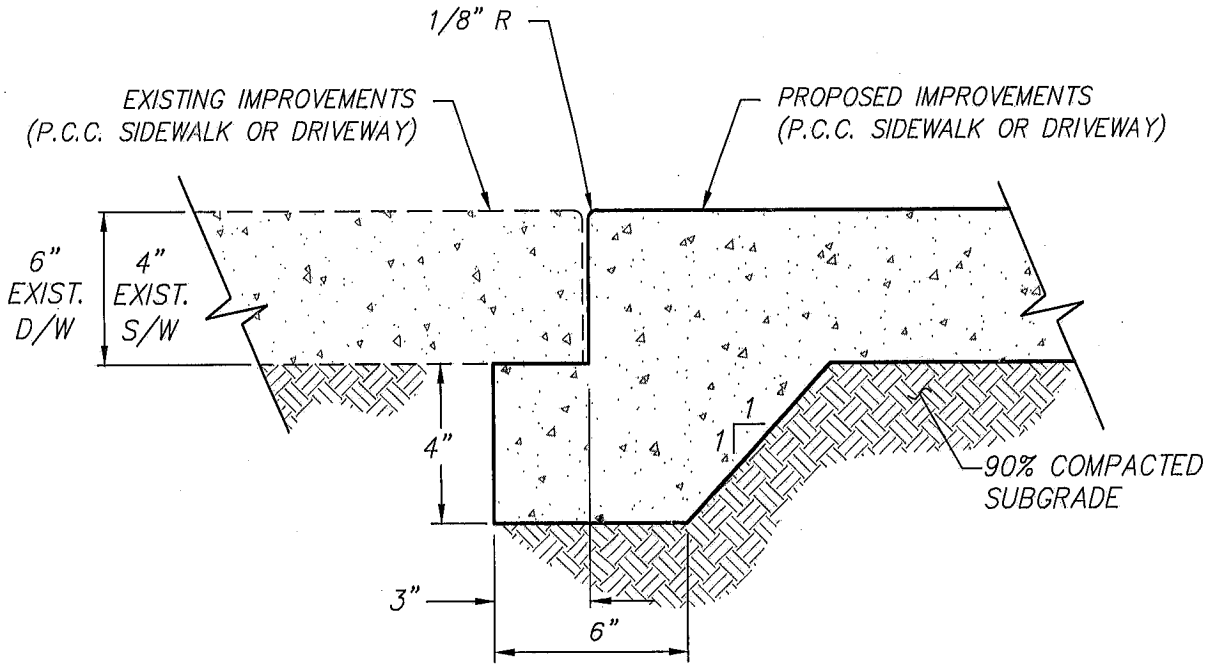

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CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
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SIDEWALK THICK EDGE AT DRIVEWAY

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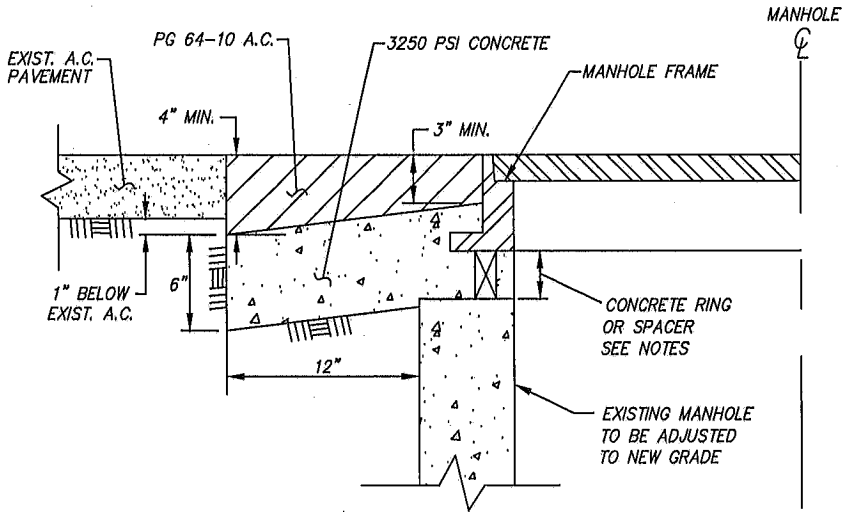
GSI-05



NOTES:

1. UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR SHALL ADJUST ALL MANHOLE COVERS.

2. ALL COVERS SHALL BE SET 1/8" TO 1/4" HIGHER THAN THE FINISH GRADE. THE SETTING SHALL BE DONE ONLY AFTER THE ENGINEER HAS APPROVED THE PREPARED GRADE OF THE BASE MATERIAL. ALL BACKFILL SHALL BE WITH CRUSHED AGGREGATE BASE (PER SECTION 200-2.2) COMPACTED TO 95% RELATIVE DENSITY PER SECTION 211 OF THE STANDARD SPECIFICATIONS FOR FOR PUBLIC WORKS CONSTRUCTION. THE STREET SECTION SHALL BE REPLACED PER SECTION 306-1.1.5 EXCEPT A MINIMUM OF FOUR (4) INCHES OF ASPHALT CONCRETE WILL BE REQUIRED.

3. AT THE DISCRETION OF THE ENGINEER, MANHOLE COVERS MAY BE SET TO FINAL GRADE AFTER PAVEMENT HAS BEEN COMPLETED. THE SUBGRADE BASE AND PAVEMENT SHALL BE NEATLY REMOVED A DISTANCE OF TWELVE (12) INCHES FROM THE EDGE OF COVER. ALL SPOILS SHALL BE REMOVED FROM THE SITE. COVERS SHALL BE SET 1/8 OF AN INCH TO 1/4 OF AN INCH HIGHER THAN THE FINISH GRADE. ALL BACKFILL SHALL BE WITH CLASS AGGREGATE BASE.

4. ASPHALT CONCRETE SHALL BE PLACED AND COMPACTED IN TWO LAYERS: A BASE COURSE AND A SURFACE COURSE. SURFACE COURSE SHALL BE ONE (1) INCH THICK.

5. FOR ADJUSTMENT OVER 3-INCHES, USE A PRE-CAST GRADE RING.

6. FOR ADJUSTMENT 3-INCHES OR LESS, USE 3 (MIN) EVENLY SPACED CONCRETE BLOCKS OR SPACERS FOR CONCRETE TO FLOW UNDER MANHOLE FRAME. INSIDE OF MANHOLE SHALL BE FORMED TO RETAIN CONCRETE.

REVISION	BY	APPROVED	DATE
ORIGINAL	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

MANHOLE ADJUSTMENT

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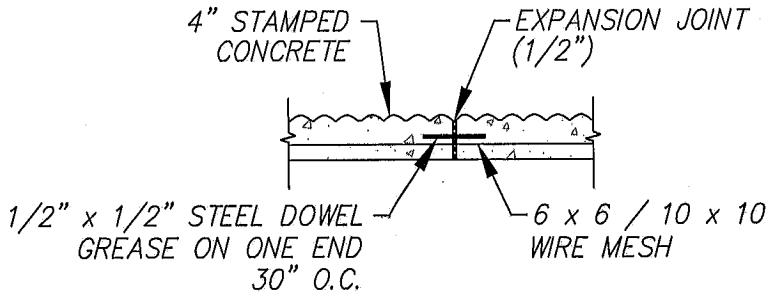
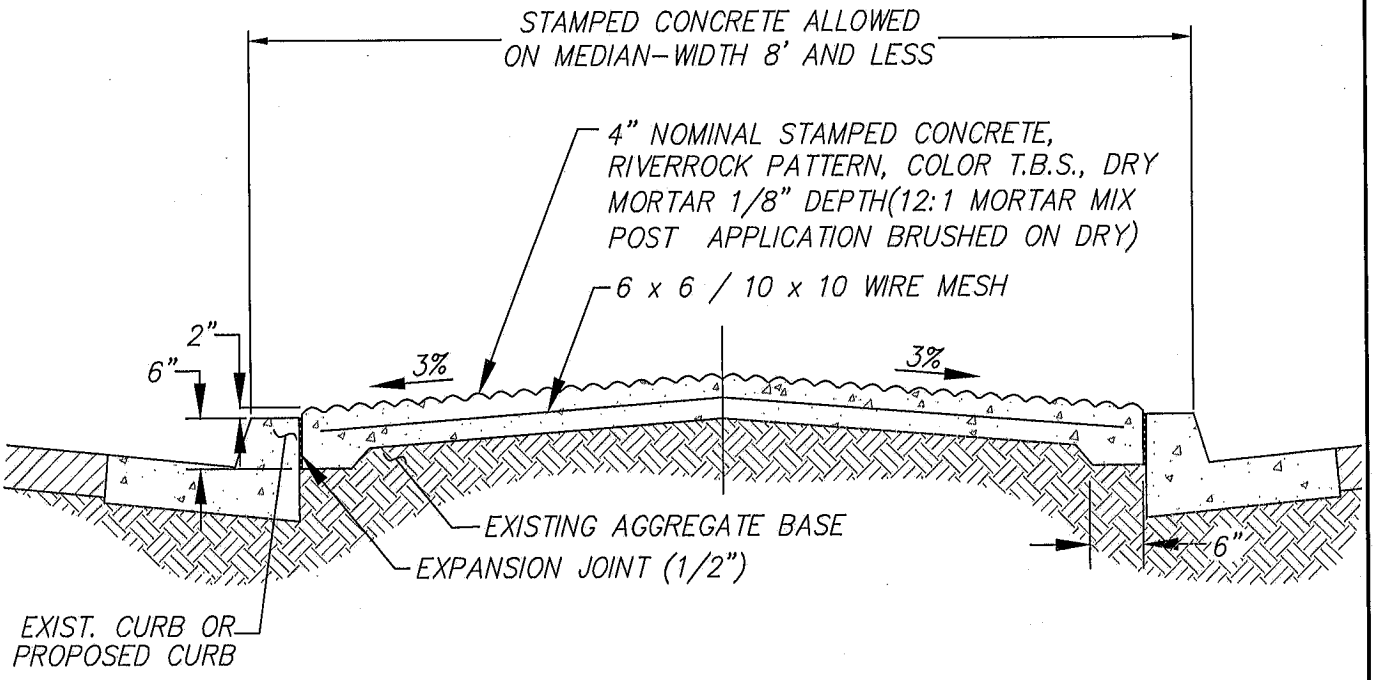
GSI-06



STEEL DOWEL WITH EXPANSION JOINT



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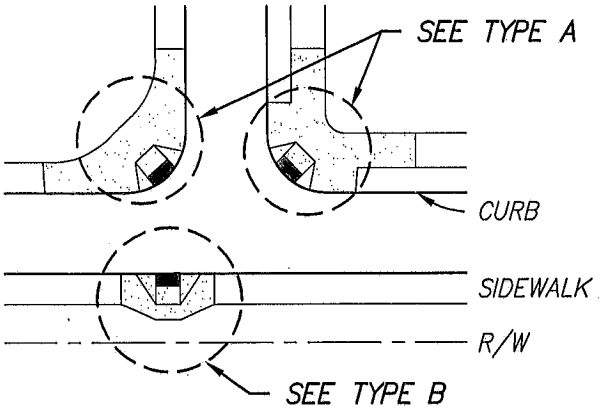
ORIGINAL	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

STAMPED CONCRETE

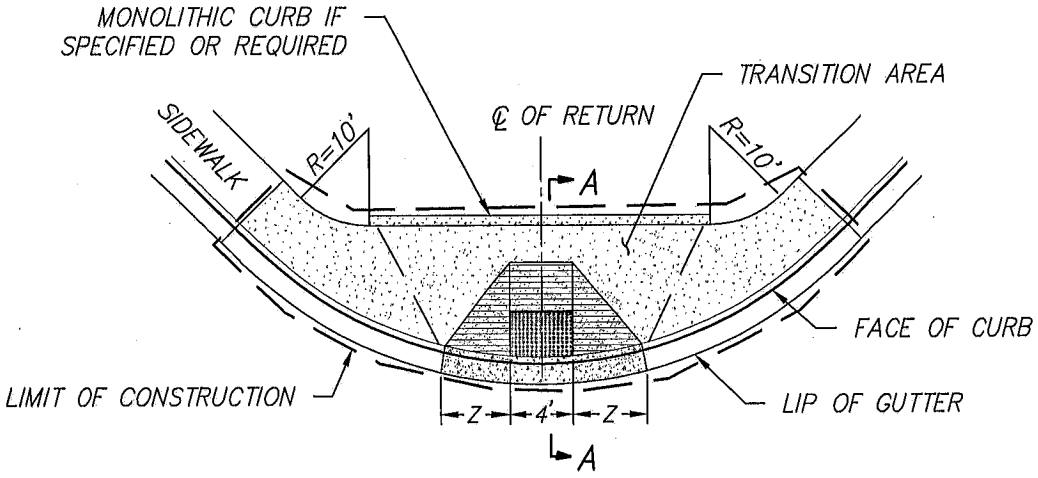
WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

GSI–7

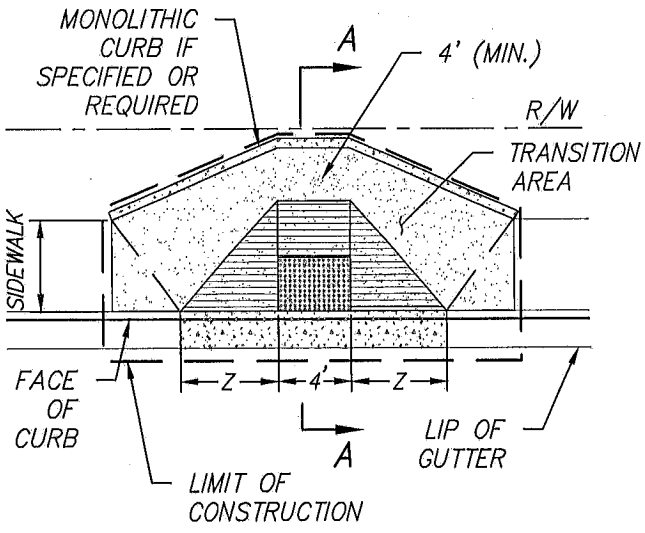


NOTES:

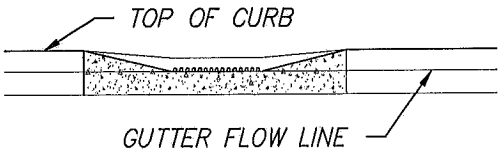
1. SEE DRAWING STANDARDS SSM FOR GENERAL NOTES.
2. FOR TRUNCATED DOMES DETAILS, PLEASE SEE SHEET 5
3. LANDING CROSS SLOPE AND LONGITUDINAL SLOPE SHALL BE 2% MAX.
4. Z SIDE SLOPE SHALL BE 10:1 MAX.



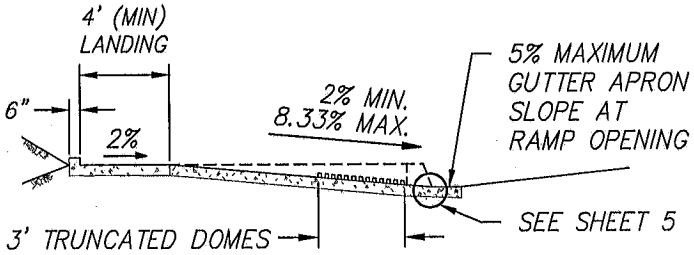
PLAN – TYPE A



PLAN–TYPE B



ELEVATION



SECTION A–A

REVISION	BY	APPROVED	DATE
ORIGINAL			3/94
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

CURB RAMP TYPES A & B – NEW CONSTRUCTION

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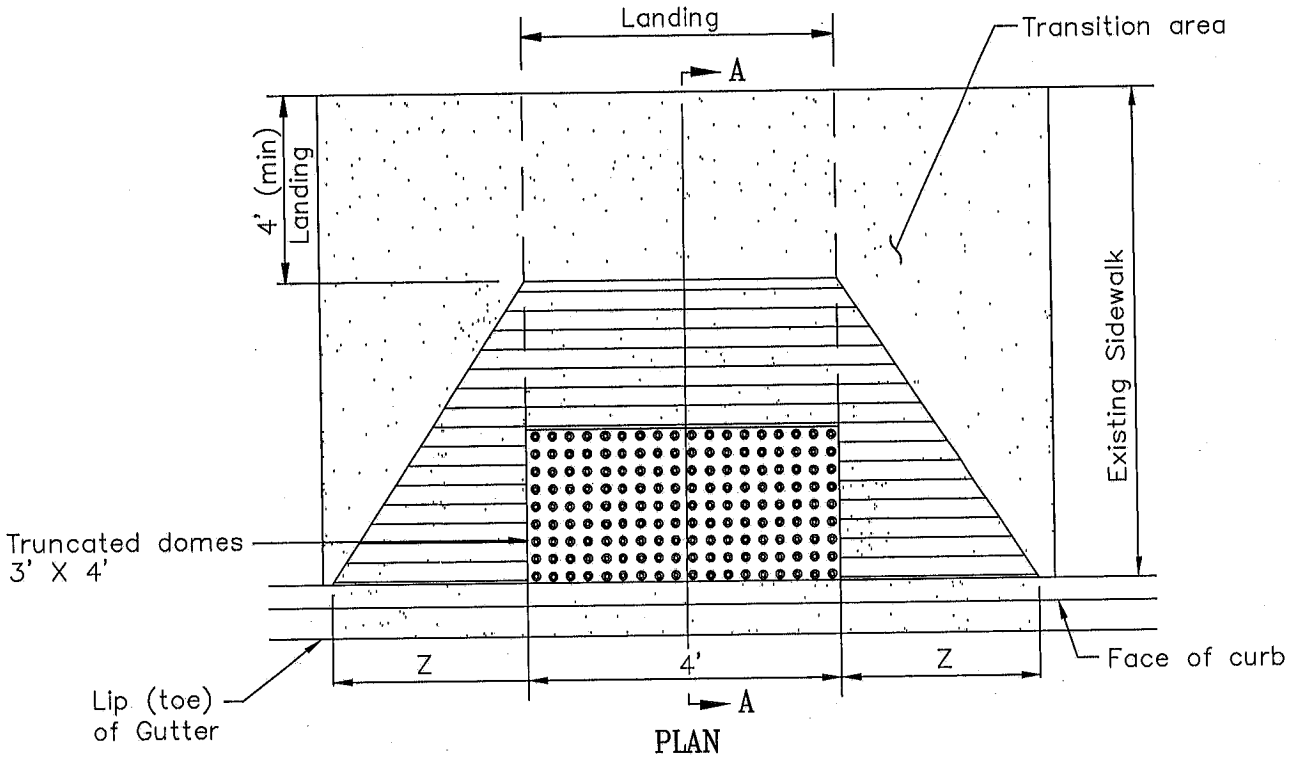
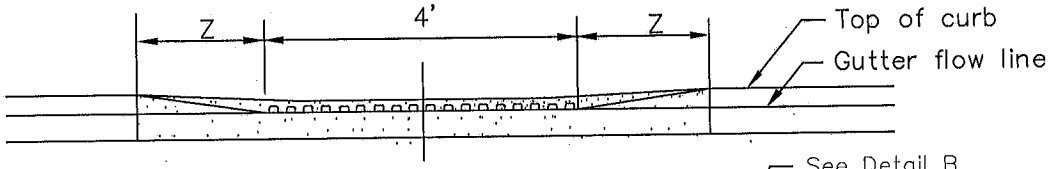
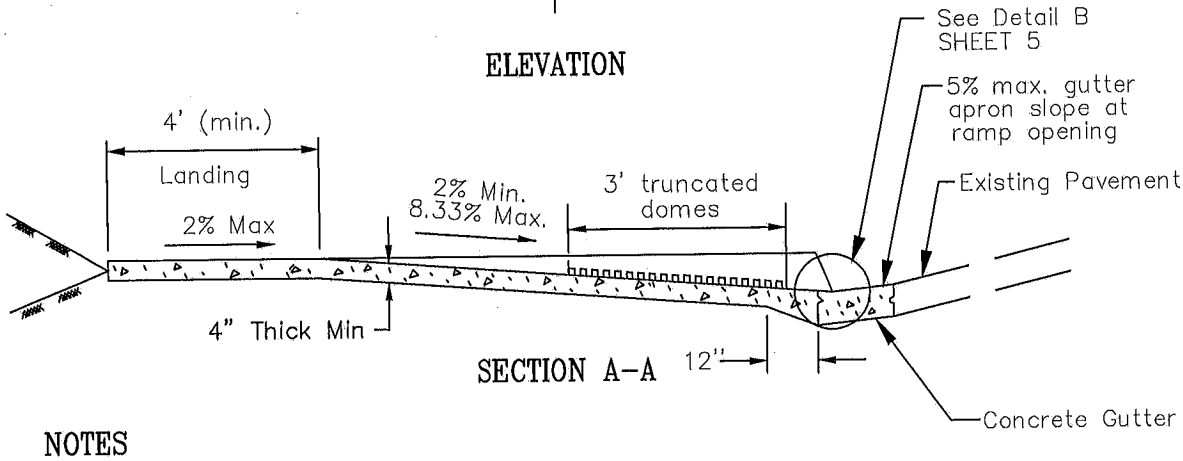


PLAN



ELEVATION



SECTION A–A

NOTES

1. See Standard Drawing CVCS–29 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 and longitudinal slope shall be 2% max.
5. For truncated domes details, please see sheet 5.
6. Z side slope shall be 10:1 max.

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CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

CURB RAMP TYPE A1 B1 – EXISTING SIDEWALK

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CITY ENGINEER

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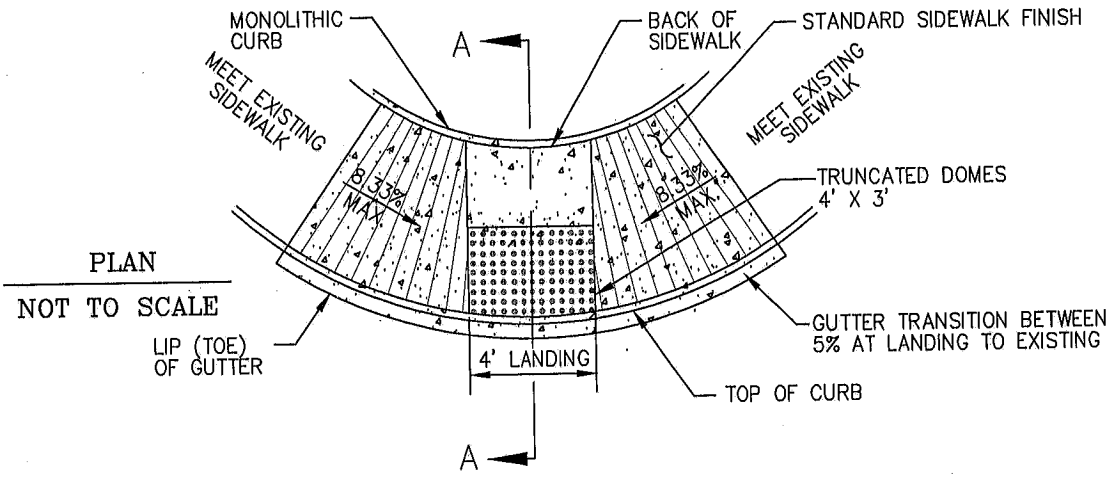
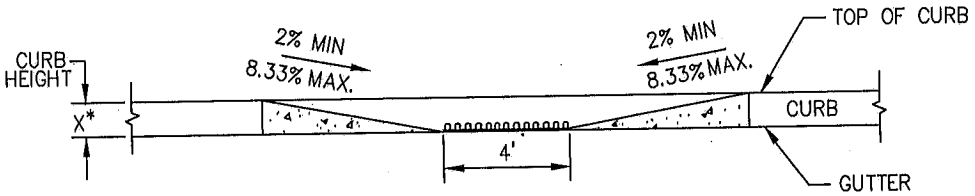


PLAN

NOT TO SCALE



ELEVATION

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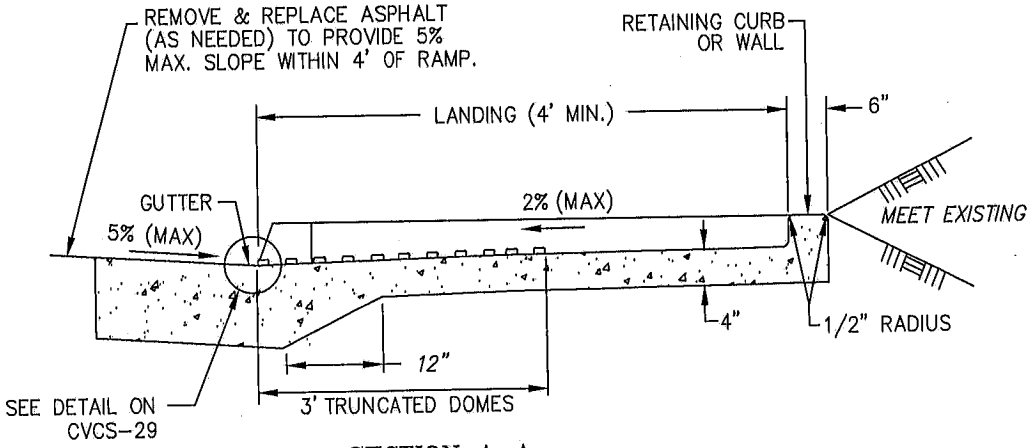

SECTION A-A

NOT TO SCALE

NOTES

1. Type C ramps are only to be used to mitigate conditions where inadequate right-of-way exists. Type C shall only be used with the approval of the City Engineer.
2. See CVCS-29 for General Notes.
3. Landing cross slope and longitudinal slope shall be 2% maximum.
4. For truncated domes, please see sheet 5
5. Sidewalk transition slope to landing shall be 8.33% maximum in all directions.

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CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

CURB RAMP TYPE C

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CITY ENGINEER

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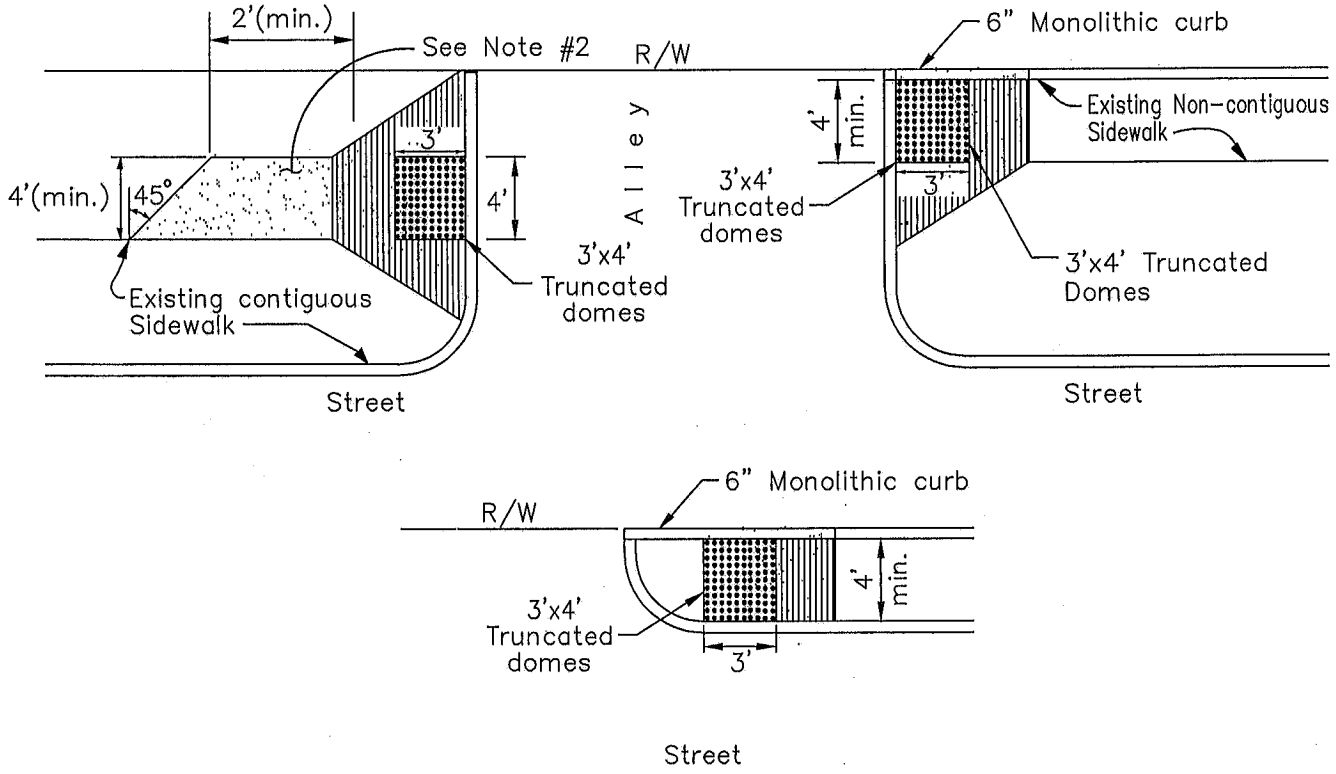
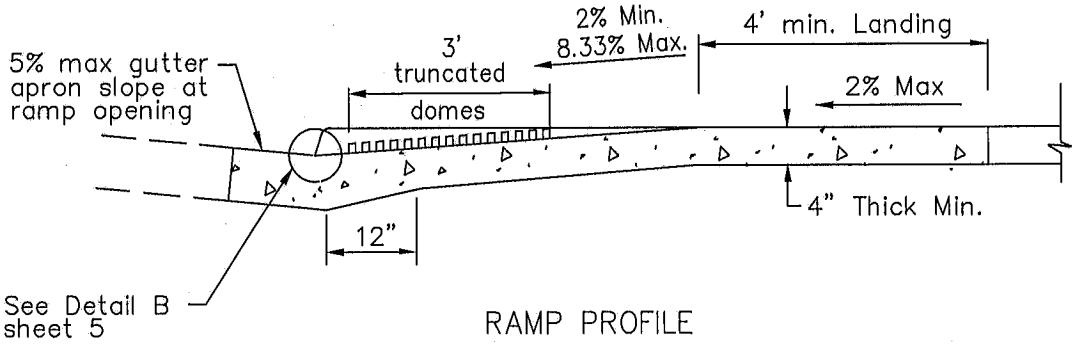


TYPICAL PLAN



RAMP PROFILE

NOTES

1. See sheet 5 for additional details and general notes.
2. Landing cross slope and longitudinal slope shall be 2% max.
3. For truncated domes details, see sheet 6

REVISION	BY	APPROVED	DATE
ORIGINAL			3/94
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CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

CURB RAMP TYPE D

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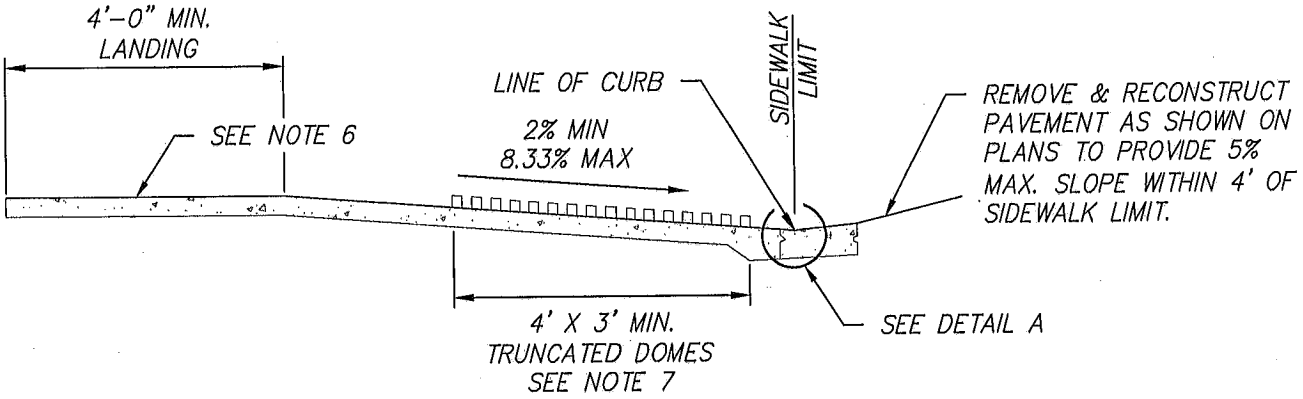

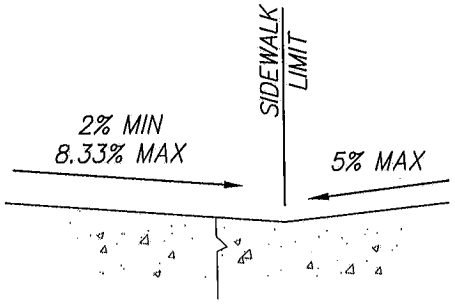

DETAIL A
NOT TO SCALE

NOTES

1. FOR CONSTRUCTION OF CURB RAMPS ON EXISTING SIDEWALKS, REMOVAL OF ADDITIONAL SIDEWALK MAYBE REQUIRED TO COMPLY WITH ADA REQUIREMENTS TO MEET THE EXISTING GRADE.
2. AREAS SHOWN THUS:  SHALL HAVE A MEDIUM TO HEAVY BROOM TEXTURE FINISH, PERPENDICULAR TO THE AXIS OF THE RAMP.
3. AREAS SHOWN THUS:  ARE THE MINIMUM REQUIRED FOR A COMPLETE RAMP INSTALLATION AND SHALL BE CONCRETE CLASS 520-C-2500.
4. IF OBSTRUCTIONS SUCH AS INLETS, UTILITY POLES, FIRE HYDRANTS, ETC., ARE ENCOUNTERED, THE RAMP LOCATIONS MAY BE ADJUSTED UPON THE APPROVAL OF THE RESIDENT ENGINEER OR AGENCY INSPECTOR. NO UTILITY BOX COVERS, GRATES, ETC. SHALL BE ALLOWED WITHIN THE RAMP AREA AND LANDING. 5. ADJOINING SLOPE BEYOND RAMP SHALL NOT EXCEED 20:1 (5%) WITHIN 4' OF SIDEWALK LIMIT WITH MAXIMUM OF 2% CROSS-SLOPE.
5. LANDING CROSS SLOPE AND LONGITUDINAL SLOPE SHALL BE 2% MAX EXCEPT AT MID-BLOCK CURB RAMPS.
6. ALL PROJECTS (NEW CONSTRUCTION & ALTERATION), THE LOWER END OF 48-INCH WIDTH OF THE RAMP SHALL BE FLUSH AND FREE OF ABRUPT CHANGES BETWEEN THE BOTTOM OF THE RAMP AND THE STREET PAVEMENT SURFACE.
7. THERE SHALL BE A MINIMUM OF 6-INCHES AND A MAXIMUM OF 8-INCHES SEPARATION BETWEEN THE FACE OF THE CURB AND ANY GIVEN POINT OF THE NEAREST EDGE OF THE TRUNCATED DOMES.
8. THE RAMP LONGITUDINAL SLOPE SHALL BE 2% MINIMUM AND 8.33% MAXIMUM. RAMP CROSS-SLOPE SHALL BE 2% MAXIMUM.
9. EXCEPTIONS MAY BE ALLOWED IN EXISTING CONSTRUCTION AND ALTERATIONS UPON CITY ENGINEER APPROVAL THAT FULL COMPLIANCE IS TECHNICALLY INFEASIBLE.
10. IF PEDESTRIAN PATH IS WIDER THAN 4', THE TRUNCATED DOMES WILL EXTEND THE ENTIRE WIDTH OF THE PATH.
11. DETECTABLE WARNINGS SHALL BE LOCATED SO THE EDGE NEAREST THE CURB IS 6" MIN AND 8" MAX FROM THE LINE AT THE FACE OF THE CURB MARKING THE TRANSITION BETWEEN THE CURB AND THE GUTTER, STREET OR HIGHWAY.

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CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

CURB RAMP NOTES

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CITY ENGINEER

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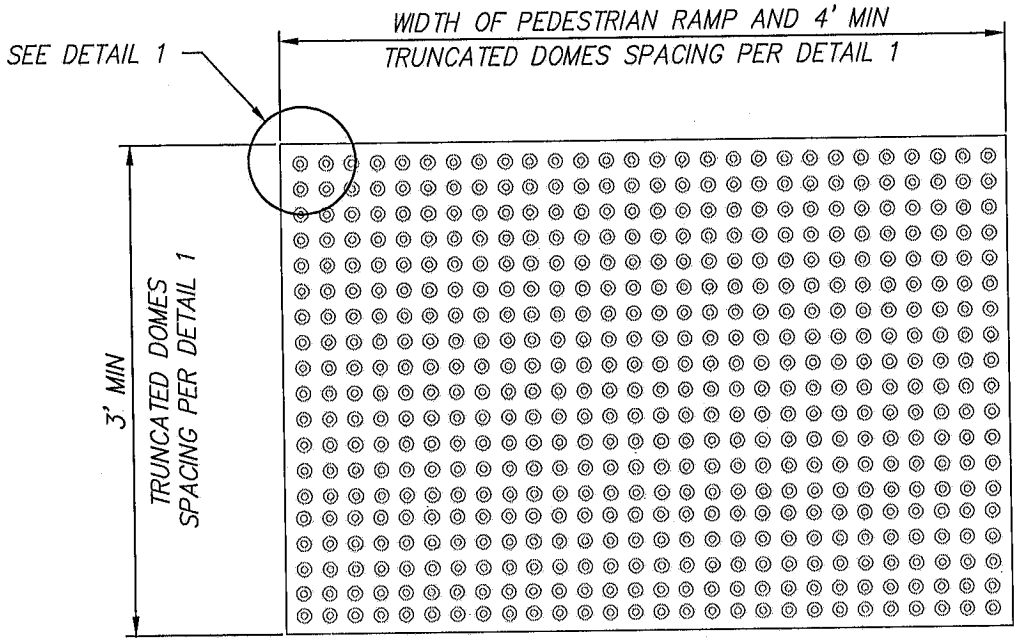
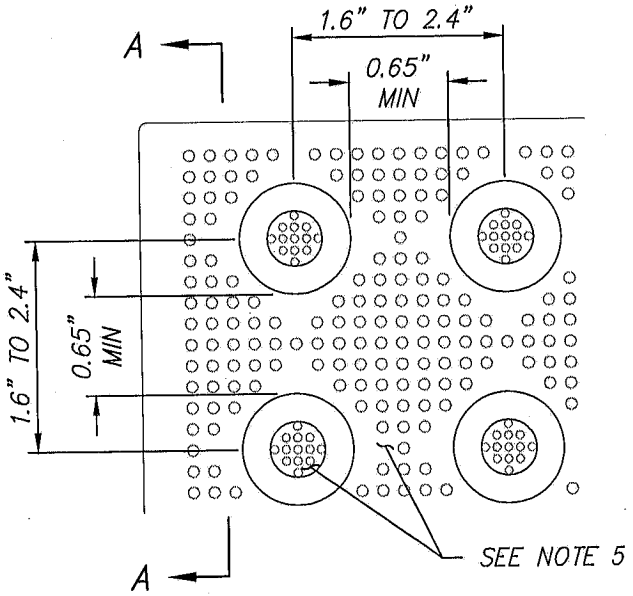
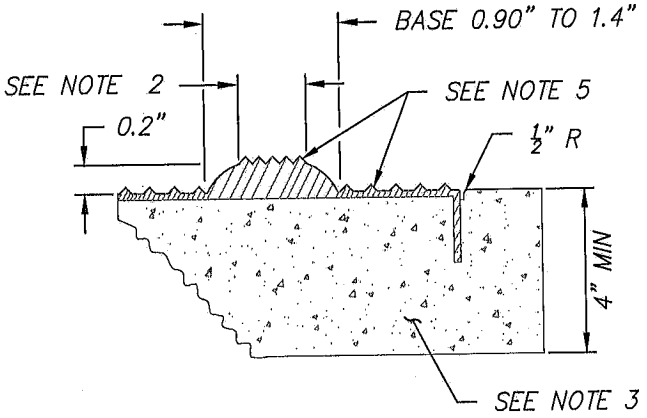


PLAN – TILE
NOT TO SCALE



DETAIL 1
NOT TO SCALE



SECTION A–A
NOT TO SCALE

NOTES

1. DETECTABLE WARNING SURFACE COLOR SHALL BE YELLOW CONFORMING TO FEDERAL STANDARDS 595B TABLE IV, COLOR NO. 33538. COLOR SHALL BE HOMOGENEOUS THROUGHOUT THE TILE.
2. TRUNCATED DOME TOP DIAMETER OF 50% OF THE BASE DIAMETER MINIMUM TO 65% OF THE BASE DIAMETER MAXIMUM.
3. DURING AND AFTER THE TILE INSTALLATION AND THE CONCRETE CURING STAGE, IT IS IMPERATIVE THAT THERE IS NO WALKING, LEANING OR EXTERNAL FORCES PLACED ON THE TILE TO ROCK THE TILE, CAUSING A VOID BETWEEN THE UNDERSIDE OF TILE AND CONCRETE.
4. THE TRUNCATED DOME SHALL BE ARMOUR TILE OR AN APPROVED EQUIVALENT.
5. PATTERN, SIZE, ORIENTATION AND EMBEDMENT PER MANUFACTURER'S SPECIFICATIONS

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CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

TRUNCATED DOMES

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CITY ENGINEER

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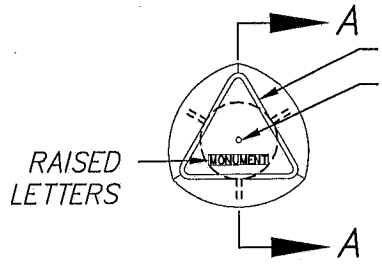
MISCELLANEOUS
(MSC)

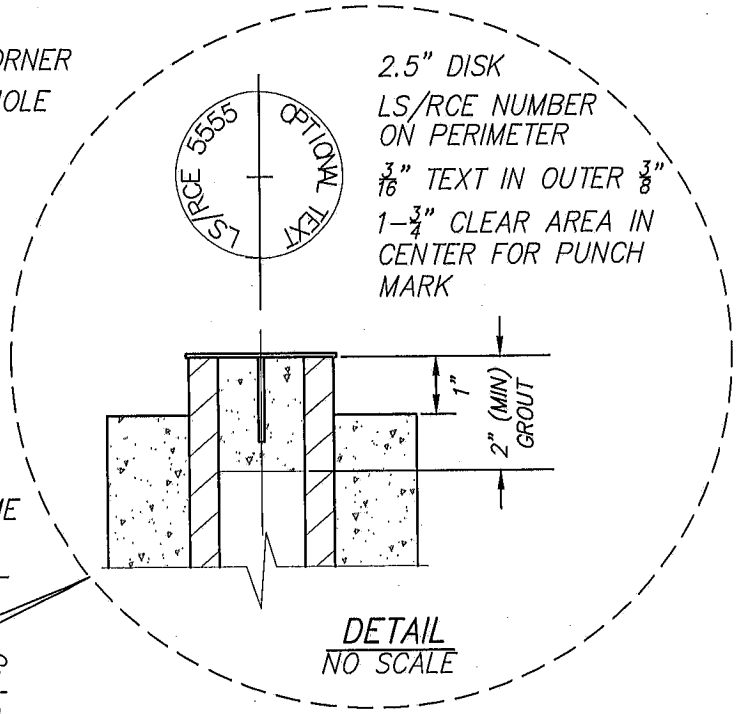
CITY OF CHULA VISTA

DESIGN AND CONSTRUCTION STANDARD DRAWINGS 2017

DEPARTMENT OF ENGINEERING AND CAPITAL PROJECTS



PLAN
NO SCALE



DETAIL
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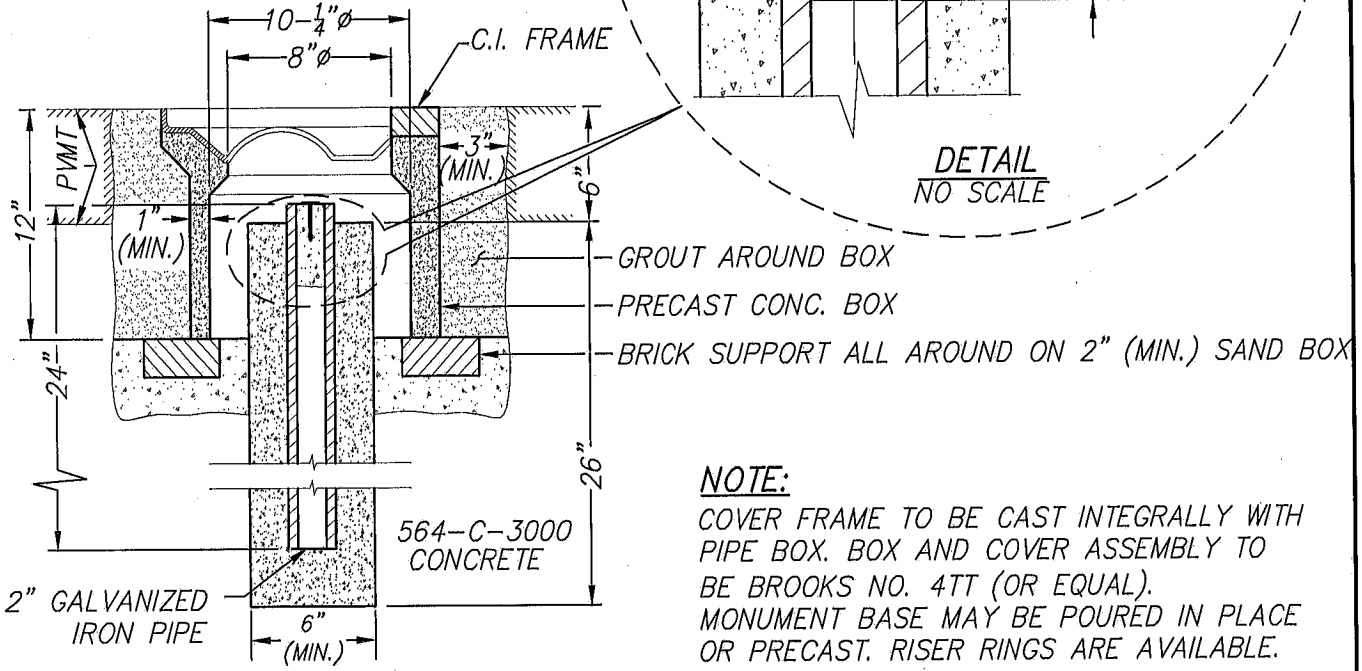
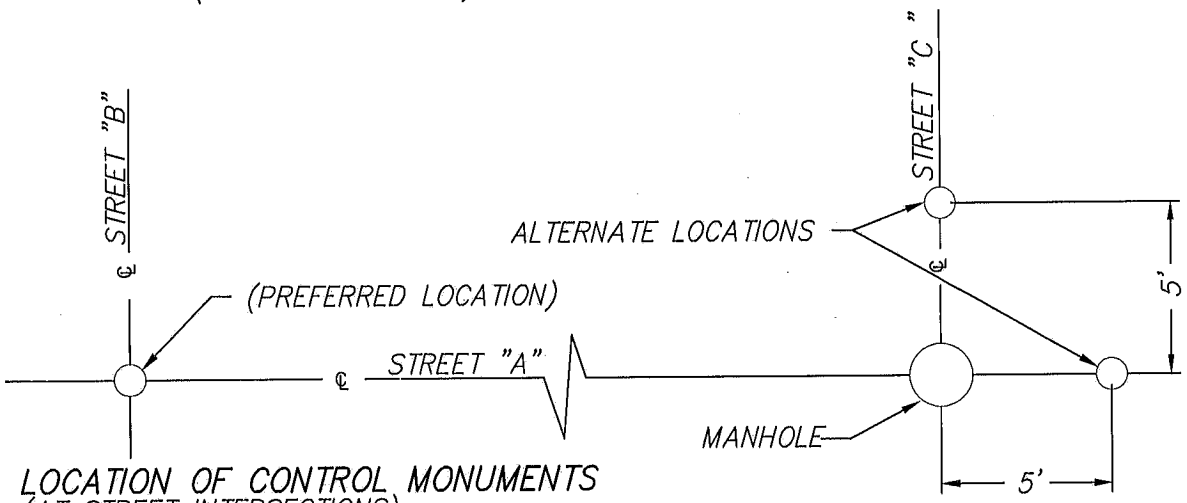


SECTION VIEW "A-A"
NO SCALE: (COVER NOT SHOWN)

NOTE:
COVER FRAME TO BE CAST INTEGRALLY WITH PIPE BOX. BOX AND COVER ASSEMBLY TO BE BROOKS NO. 4TT (OR EQUAL). MONUMENT BASE MAY BE POURED IN PLACE OR PRECAST. RISER RINGS ARE AVAILABLE.



LOCATION OF CONTROL MONUMENTS
(AT STREET INTERSECTIONS)

REVISION	BY	APPROVED	DATE
ORIGINAL			7/75
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

SURVEY MONUMENT (LOCATED IN STREET)

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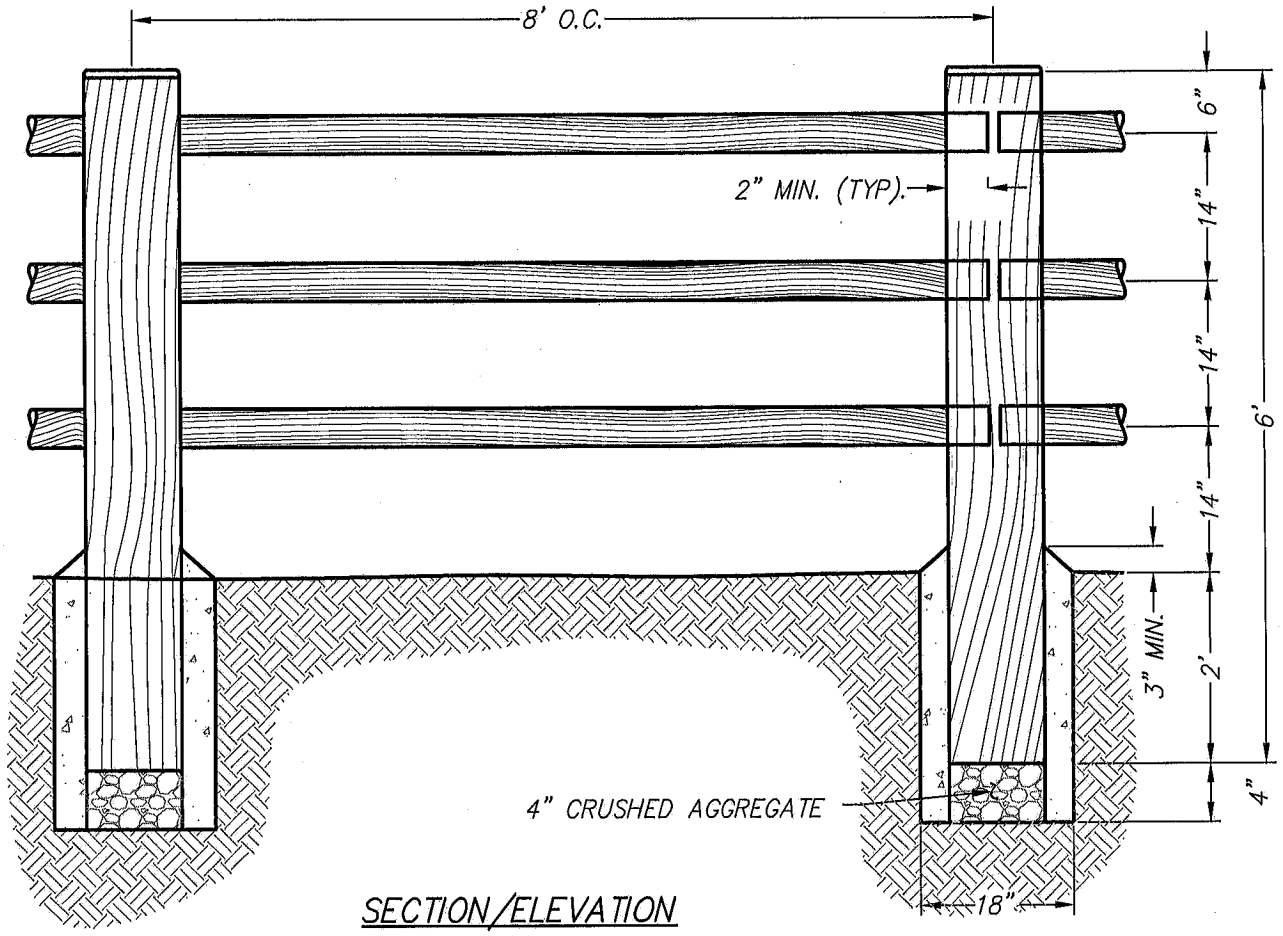
CITY ENGINEER

MSC-01



SECTION/ELEVATION

NO SCALE

NOTES:

1. POST SHALL BE 6" MIN. DIA. LODGE POLE.
2. RAILS SHALL BE 3-1/2" MIN. DIA. LODGE POLE.
3. ALL RAILS TO BE SECURED TO POST WITH 20d HOT DIPPED GALV. NAILS. 4. ALL LUMBER TO BE CCA PRESSSURE TREATED.
5. SUBGRADE AT FOOTINGS TO BE 90%(MINIMUN) COMPACTION.
6. CONCRETE FOOTINGS SHALL BE 470-C-2000 "CLASS B" CONCRETE.

REVISION	BY	APPROVED	DATE
ORIGINAL			12/75
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

POST & RAIL FENCE

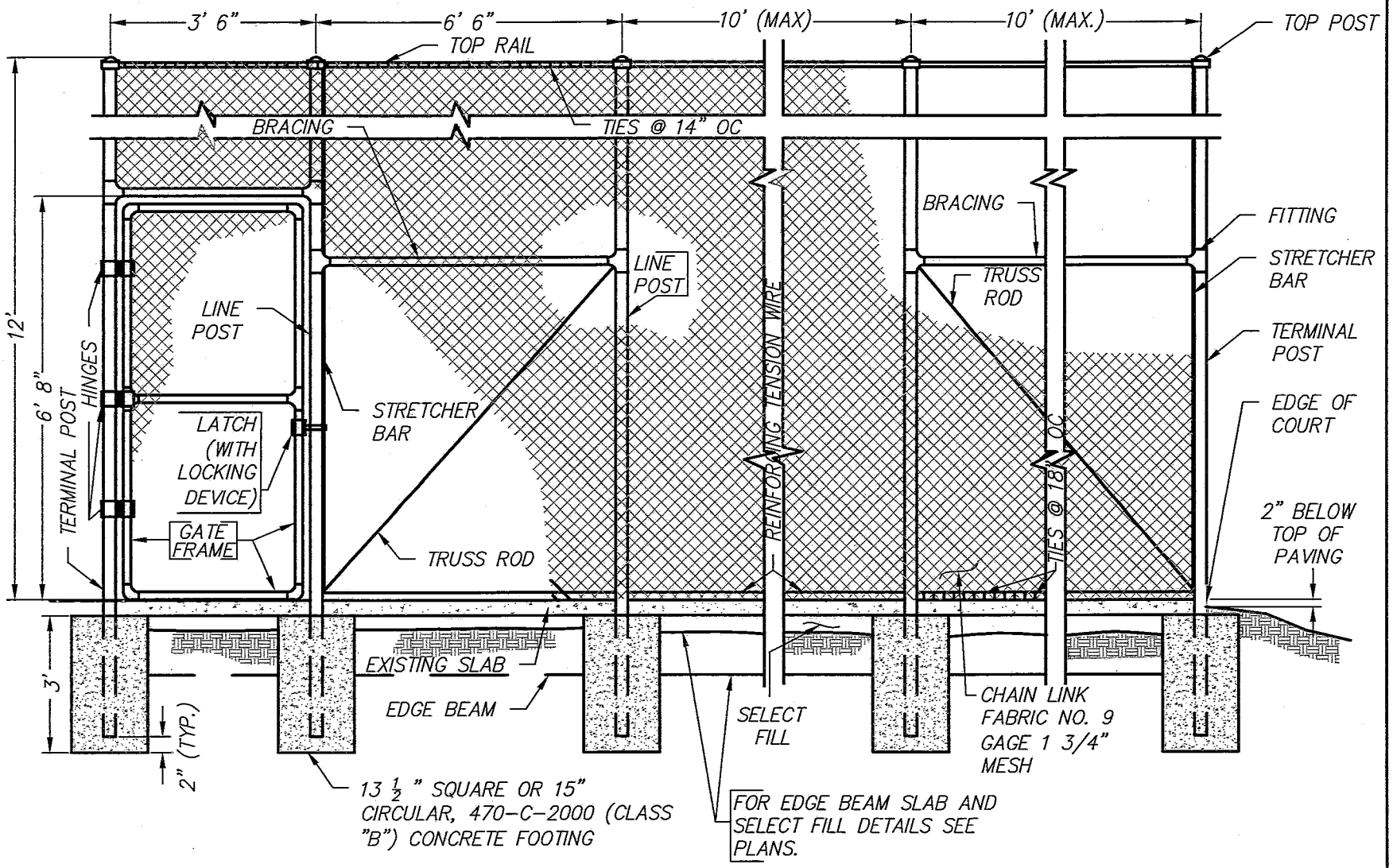
WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

MSC-02

REVISION	BY	APPROVED	DATE
ORIGINAL			11/67
REVISION	DPH	C. SWANSON	11/02
		W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

CHAIN LINK TENNIS COURT FENCE



ELEVATION

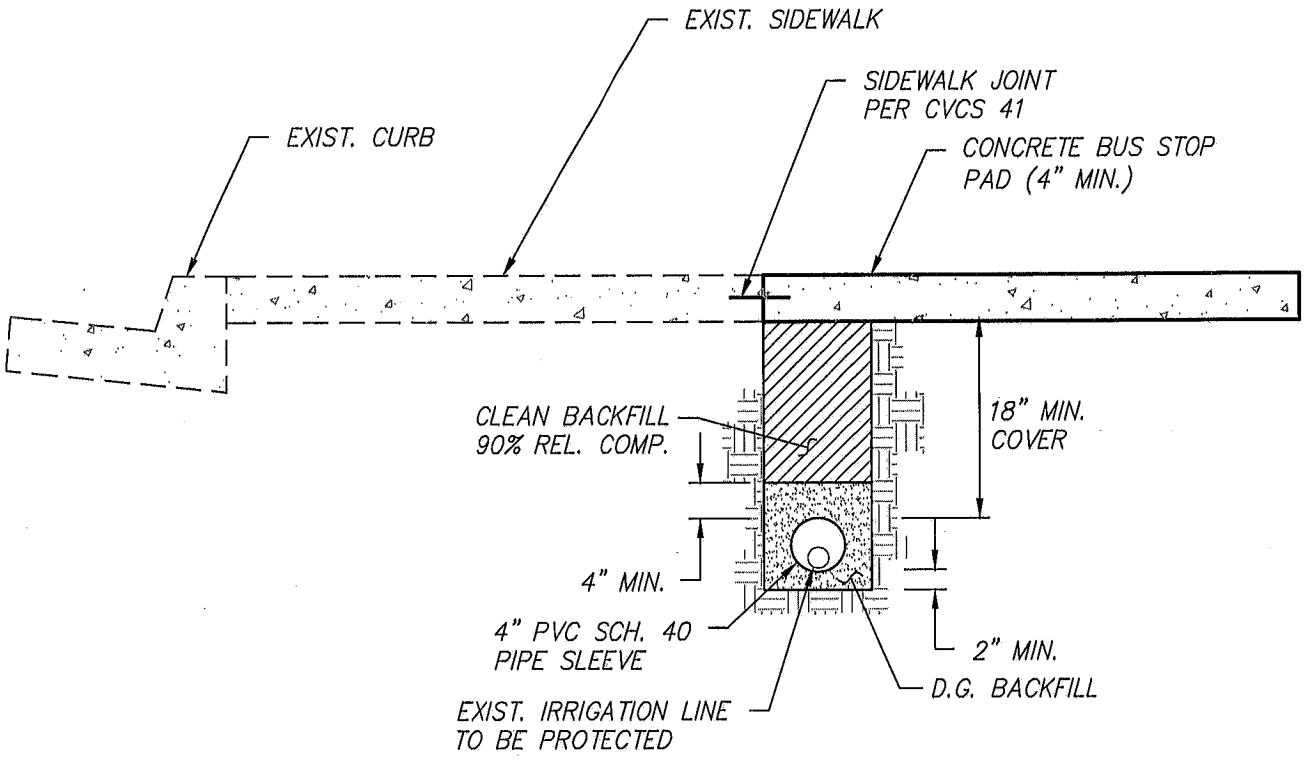
NO SCALE

GENERAL NOTES:

1. MATERIAL AND CONSTRUCTION SHALL CONFORM WITH THE PROVISIONS OF SECTION 206-6.
2. CHAIN LINK FABRIC SHALL BE ERECTED ON THE INTERIOR SIDE OF COURTS.
3. GREEN MESH WIND SCREEN FABRIC FOR ENTIRE COURT TO BE PROVIDED. OF THE STD. SPECIFICATIONS, FOR PUBLIC WORKS CONSTRUCTION.

WILLIAM S. VALLE
CITY ENGINEER
11/21/2017

MSC-03



NO SCALE
(TYPICAL)

CONSTRUCTION NOTES:

1. ALL SLEEVES TO RUN A MIN. OF 12" BEYOND HARDSCAPE EDGES.
2. LOCATIONS OF ALL SLEEVES TO BE DETERMINED IN THE FIELD BY CITY INSPECTOR.
3. LOCATE ENDS (ALL) OF 4" SLEEVES WITH 3-INCH BY 3-INCH "X" SCRIBED ON SURFACE DIRECTLY ABOVE.
4. EPOXY DOWELS TO BE LOCATED 2-INCHES BELOW FINISHED SURFACE.
5. ALL SLEEVED AND RELOCATED IRRIGATION LINES / SPRAY HEADS SHALL BE IN ACCORDANCE WITH THE DIRECTION OF THE CITY INSPECTOR.

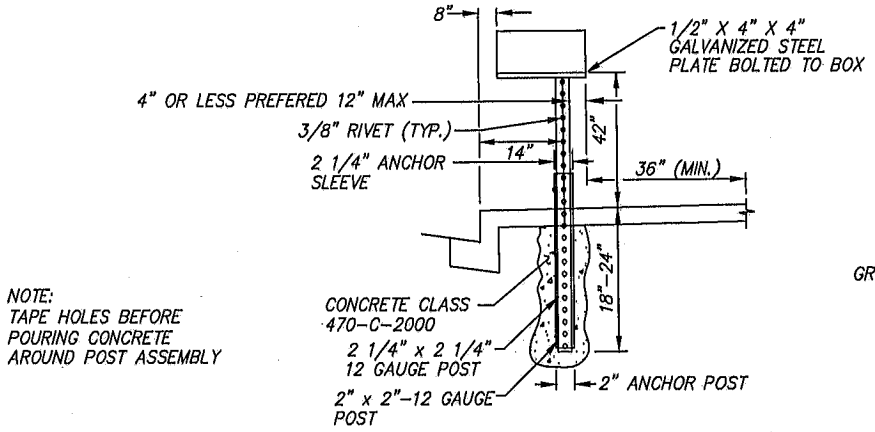
REVISION	BY	APPROVED	DATE
ORIGINAL	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

BUS STOP & IRRIGATION PIPE SLEEVE

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

MSC-04

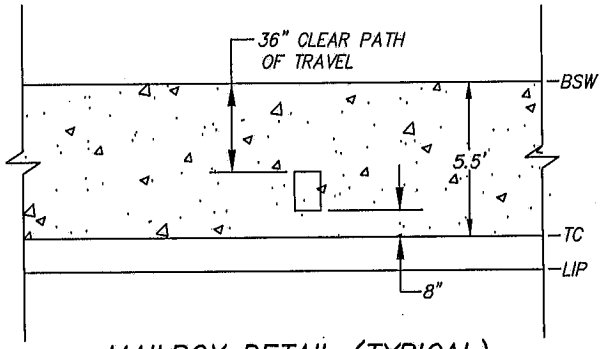


NOTE:
TAPE HOLES BEFORE POURING CONCRETE AROUND POST ASSEMBLY

GRIP RANGE: .200-.356
FINISH: ELECTRO-GALVANIZE ASTM-B-633 TYPE III SCI

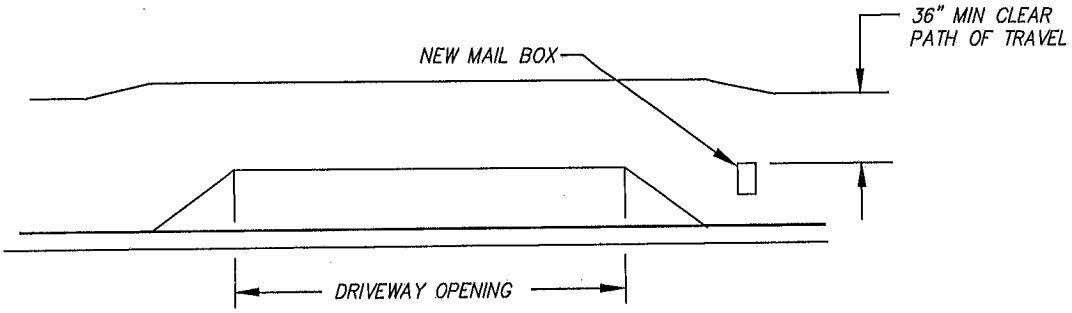
MAILBOX DETAIL (TELESPAR)

NO SCALE



MAILBOX DETAIL (TYPICAL)

NO SCALE



MAILBOX LOCATION WITH DRIVEWAY (TYPICAL)

NO SCALE

REVISION	BY	APPROVED	DATE
ORIGINAL	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

MAILBOX INSTALLATION

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

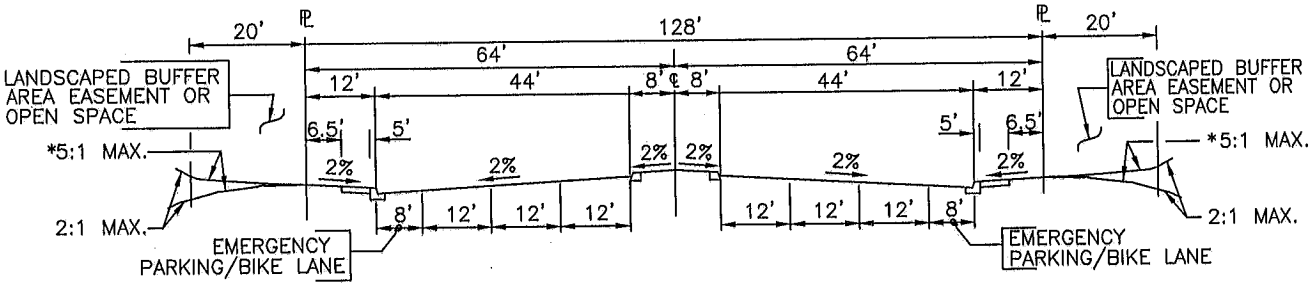
MSC-05

ROADWAY
(RWY)

CITY OF CHULA VISTA

DESIGN AND CONSTRUCTION STANDARD DRAWINGS 2017

DEPARTMENT OF ENGINEERING AND CAPITAL PROJECTS



6–LANE PRIME W/ CONTIGUOUS SIDEWALK

NO SCALE

* LANDSCAPED SLOPES GREATER THAN 5:1 MAY BE ACCEPTABLE AS DETERMINED BY THE DIRECTOR OF PLANNING.

NOTES:

1. REFER TO CITY OF CHULA VISTA "STREET DESIGN STANDARDS POLICY" ADOPTED BY COUNCIL RESOLUTION #15349 ON OCTOBER 17, 1989.
2. STANDARDS MAY VARY IN DEVELOPED AREAS WEST OF I–805. REFER TO "STREET DESIGN STANDARDS POLICY".

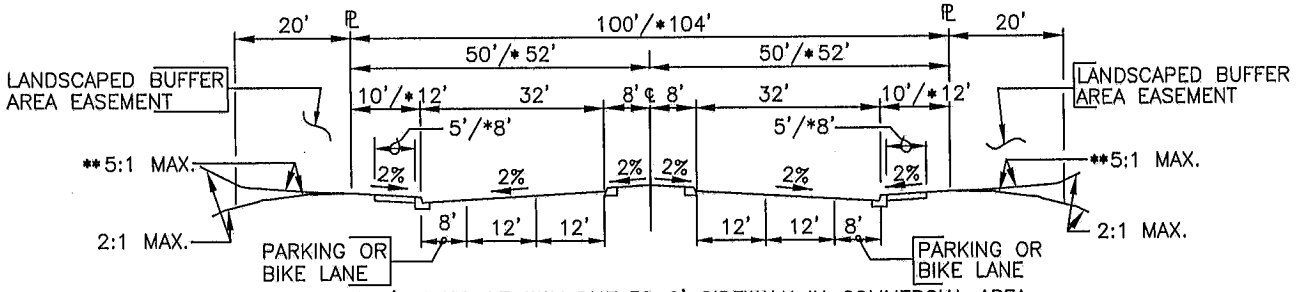
REVISION	BY	APPROVED	DATE
ORIGINAL			2/90
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

6–LANE PRIME STREET SECTION WITH CONTIGUOUS SIDEWALK

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

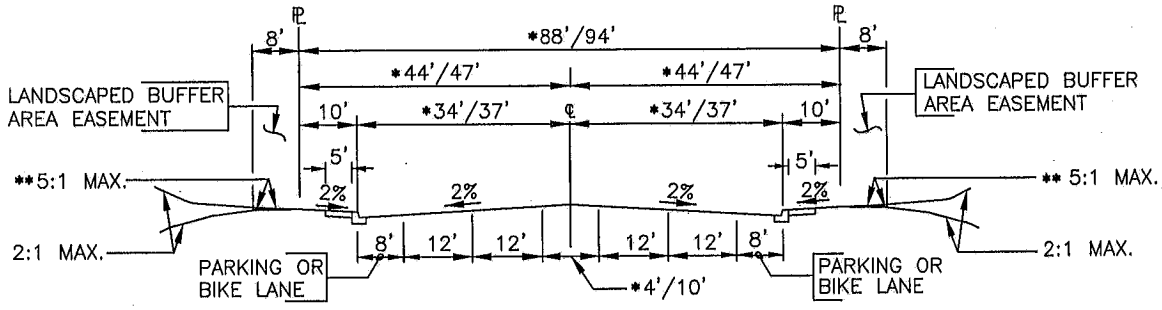
RWY–01



*104' RIGHT-OF-WAY DUE TO 8' SIDEWALK IN COMMERCIAL AREA.

4-LANE MAJOR W/ CONTIGUOUS SIDEWALK

NO SCALE



* THE MEDIAN WIDTH MAY BE REDUCED TO 4' WITH THE APPROVAL OF THE CITY ENGINEER.

CLASS I COLLECTOR WITH CONTIGUOUS SIDEWALK

NO SCALE

** LANDSCAPED SLOPES GREATER THAN 5:1 MAY BE ACCEPTABLE AS DETERMINED BY THE DIRECTOR OF PLANNING.

NOTES:

1. REFER TO CITY OF CHULA VISTA "STREET DESIGN STANDARDS POLICY" ADOPTED BY COUNCIL RESOLUTION #15349 ON OCTOBER 17, 1989.
2. STANDARDS MAY VARY IN DEVELOPED AREAS WEST OF I-805. REFER TO "STREET DESIGN STANDARDS POLICY".

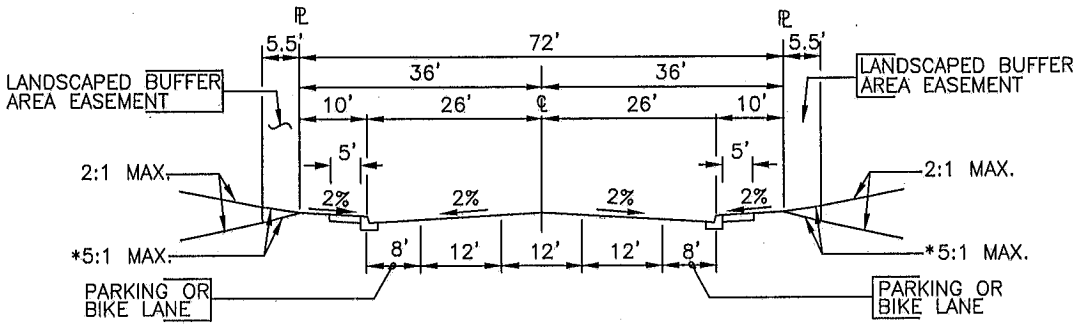
REVISION	BY	APPROVED	DATE
ORIGINAL			2/90
REVISION	CM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

4-LANE MAJOR AND COLLECTOR STREET WITH CONTIGUOUS SIDEWALK

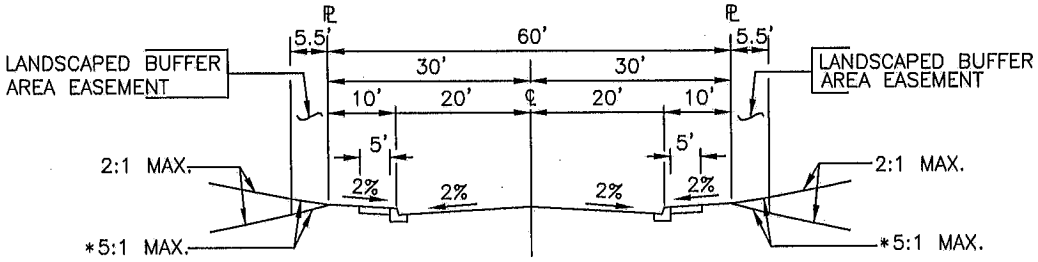
WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

RWY-01



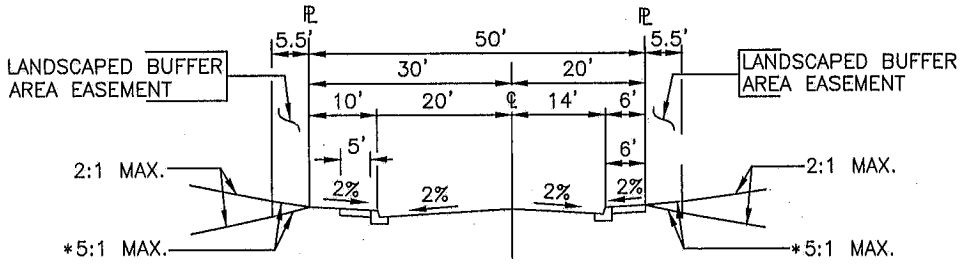
CLASS II COLLECTOR W/ CONTIGUOUS SIDEWALK

NO SCALE



CLASS III COLLECTOR W/ CONTIGUOUS SIDEWALK

NO SCALE



SINGLE LOADED RESIDENTIAL W/ CONTIGUOUS SIDEWALK

NO SCALE

* LANDSCAPED SLOPES GREATER THAN 5:1 MAY BE ACCEPTABLE AS DETERMINED BY THE DIRECTOR OF PLANNING.

NOTES:

1. REFER TO CITY OF CHULA VISTA "STREET DESIGN STANDARDS POLICY" ADOPTED BY COUNCIL RESOLUTION #15349 ON OCTOBER 17, 1989.
2. STANDARDS MAY VARY IN DEVELOPED AREAS WEST OF I-805. REFER TO "STREET DESIGN STANDARDS POLICY".

REVISION	BY	APPROVED	DATE
ORIGINAL			2/90
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

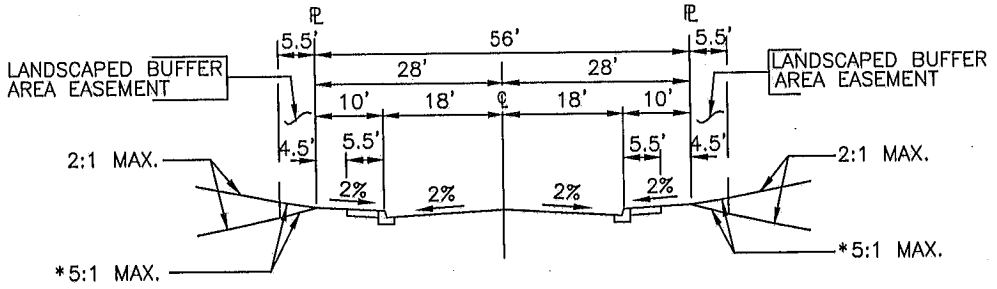
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

2-LANE COLLECTOR & RESIDENTIAL STREET WITH CONTIGUOUS SIDEWALK

William S. Valle

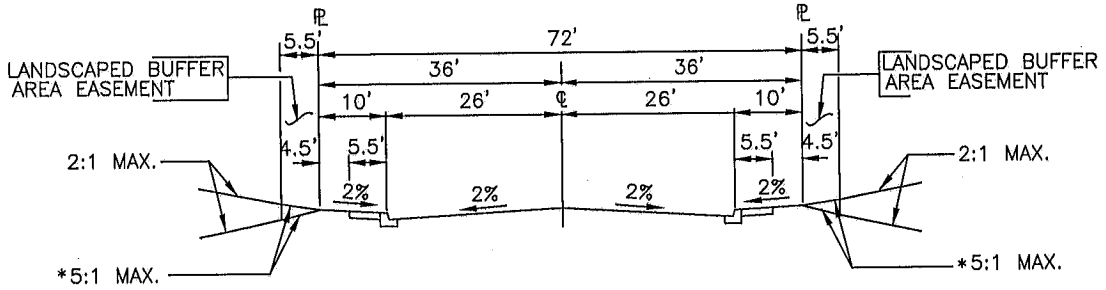
WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

RWY-01



RESIDENTIAL STREET W/ CONTIGUOUS SIDEWALK

NO SCALE



INDUSTRIAL STREET W/ CONTIGUOUS SIDEWALK

NO SCALE

* LANDSCAPED SLOPES GREATER THAN 5:1 MAY BE ACCEPTABLE AS DETERMINED BY THE DIRECTOR OF PLANNING.

NOTES:

1. REFER TO CITY OF CHULA VISTA "STREET DESIGN STANDARDS POLICY" ADOPTED BY COUNCIL RESOLUTION #15349 ON OCTOBER 17, 1989.
2. STANDARDS MAY VARY IN DEVELOPED AREAS WEST OF I-805. REFER TO "STREET DESIGN STANDARDS POLICY ".

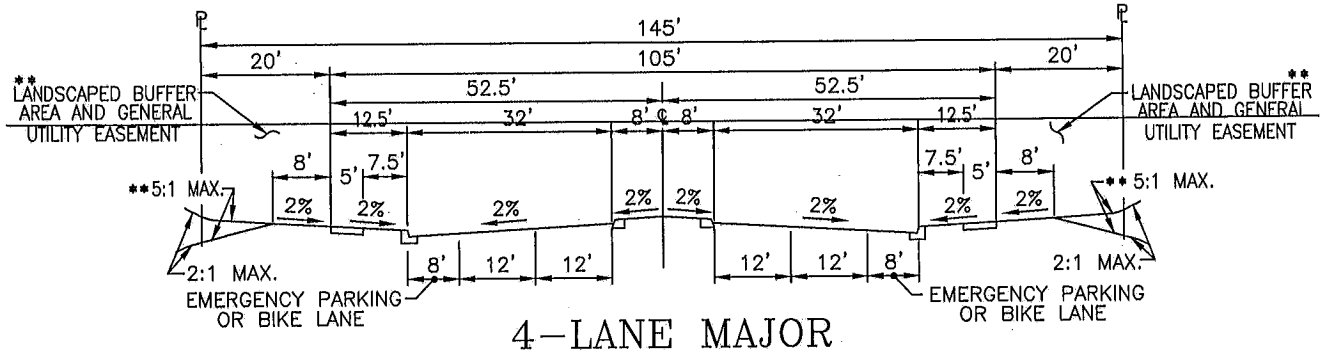
REVISION	BY	APPROVED	DATE
ORIGINAL			2/90
REVISION	CM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

2-LANE RESIDENTIAL & INDUSTRIAL STREET WITH CONTIGUOUS SIDEWALK

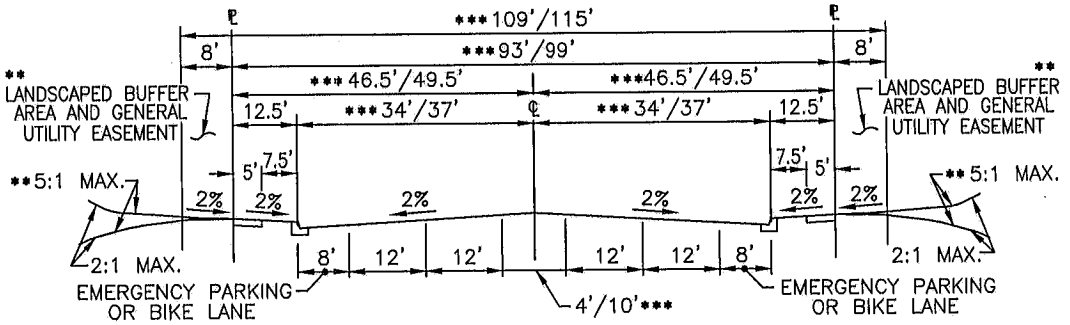
WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

RWY-01



4–LANE MAJOR

WITH NON–CONTIGUOUS SIDEWALKS
(8'SIDEWALKS IN COMMERCIAL AREA)
NO SCALE



*** THE MEDIAN WIDTH MAY BE REDUCED TO 4' WITH THE APPROVAL OF THE CITY ENGINEER.

CLASS I COLLECTOR

WITH NON–CONTIGUOUS SIDEWALKS
NO SCALE

* LANDSCAPED SLOPES GREATER THAN 5:1 MAY BE ACCEPTABLE AS DETERMINED BY THE DIRECTOR OF PLANNING.

** THE FIRST 5 FEET OF GENERAL UTILITY EASEMENT ADJACENT TO THE WALK SHALL BE SLOPED AT 2% GRADE.

NOTES:

1. REFER TO CITY OF CHULA VISTA "STREET DESIGN STANDARDS POLICY" ADOPTED BY COUNCIL RESOLUTION #15349 ON OCTOBER 17, 1989.
2. STANDARDS MAY VARY IN DEVELOPED AREAS WEST OF I–805. REFER TO "STREET DESIGN STANDARDS POLICY".
3. STANDARD CROSS–SECTIONS HAVE BEEN REVISED FOR NON–CONTIGUOUS SIDEWALKS.
4. TREES WITHIN 7.5' OR LESS OF HARDSCAPE SHALL HAVE ROOT BARRIERS AND DEEP WATER IRRIGATION.

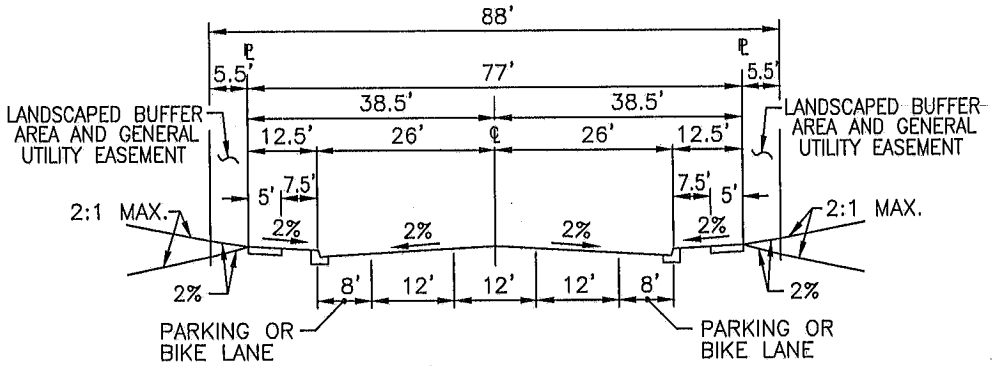
REVISION	BY	APPROVED	DATE
ORIGINAL	CVM		1/00
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

MAJOR & COLLECTOR STREETS WITH NON–CONTIGUOUS SIDEWALK

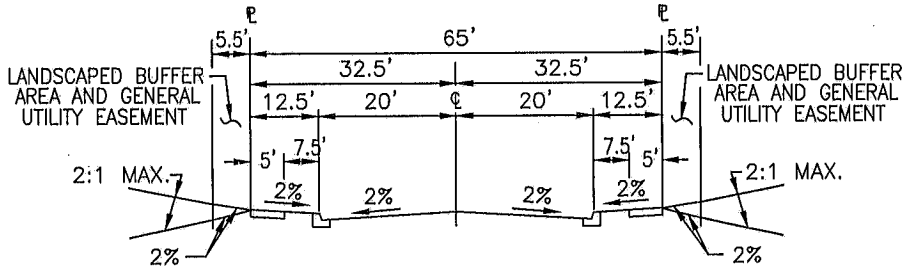
William S. Valle
WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

RWY–02



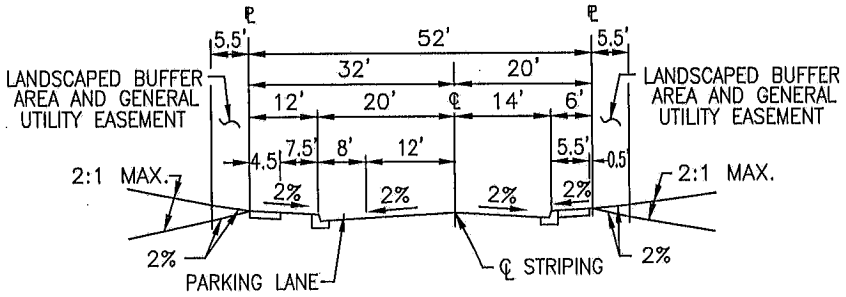
CLASS II COLLECTOR W/ NON-CONTIGUOUS SIDEWALK

NO SCALE



CLASS III COLLECTOR W/ NON-CONTIGUOUS SIDEWALK

NO SCALE



SINGLE LOADED RESIDENTIAL W/ NON-CONTIGUOUS SIDEWALK

NO SCALE

NOTES:

1. REFER TO CITY OF CHULA VISTA "STREET DESIGN STANDARDS POLICY" ADOPTED BY COUNCIL RESOLUTION #15349 ON OCTOBER 17, 1989.
2. STANDARDS MAY VARY IN DEVELOPED AREAS WEST OF I-805. REFER TO "STREET DESIGN STANDARDS POLICY".
3. THIS STANDARD DRAWING IS A MODIFICATION OF RWY-01 TO USE NON-CONTIGUOUS SIDEWALKS.
4. TREES WITHIN 7.5' OR LESS OF HARDSCAPE SHALL HAVE ROOT BARRIERS AND DEEP WATER IRRIGATION.

REVISION	BY	APPROVED	DATE
ORIGINAL	CVM		1/00
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

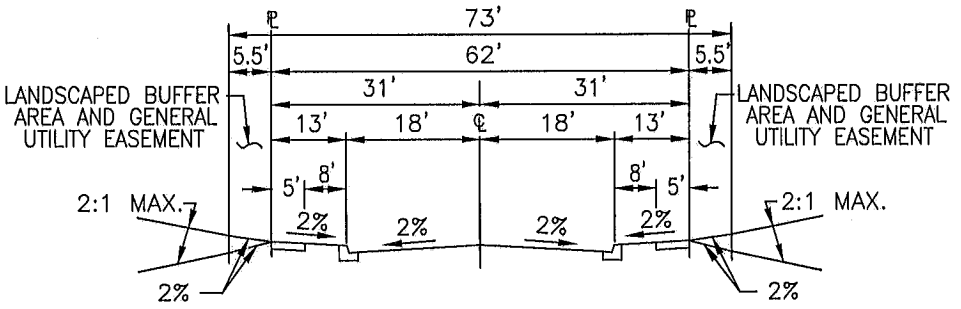
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

COLLECTOR & RESIDENTIAL STREETS WITH NON-CONTIGUOUS SIDEWALK

William S. Valle

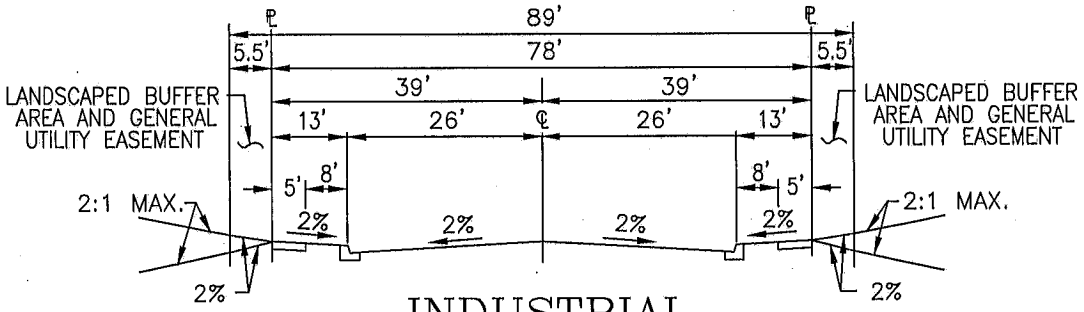
WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

RWY-02



RESIDENTIAL

WITH NON-CONTIGUOUS SIDEWALKS
NO SCALE



INDUSTRIAL

WITH NON-CONTIGUOUS SIDEWALKS
NO SCALE

NOTES:

1. REFER TO CITY OF CHULA VISTA "STREET DESIGN STANDARDS POLICY" ADOPTED BY COUNCIL RESOLUTION #15349 ON OCTOBER 17, 1989.
2. STANDARDS MAY VARY IN DEVELOPED AREAS WEST OF I-805. REFER TO "STREET DESIGN STANDARDS POLICY".
3. STANDARD CROSS-SECTIONS HAVE BEEN REVISED FOR NON-CONTIGUOUS SIDEWALKS.
4. TREES WITHIN 7.5' OR LESS OF HARDSCAPE SHALL HAVE ROOT BARRIERS AND DEEP WATER IRRIGATION.

REVISION	BY	APPROVED	DATE
ORIGINAL	CVM		1/00
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

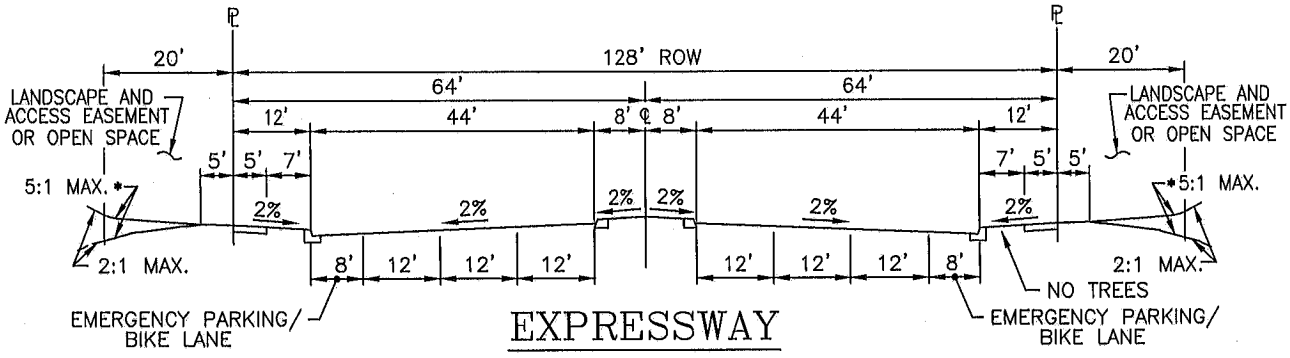
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

RESIDENTIAL & INDUSTRIAL STREETS WITH NON-CONTIGUOUS SIDEWALK

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

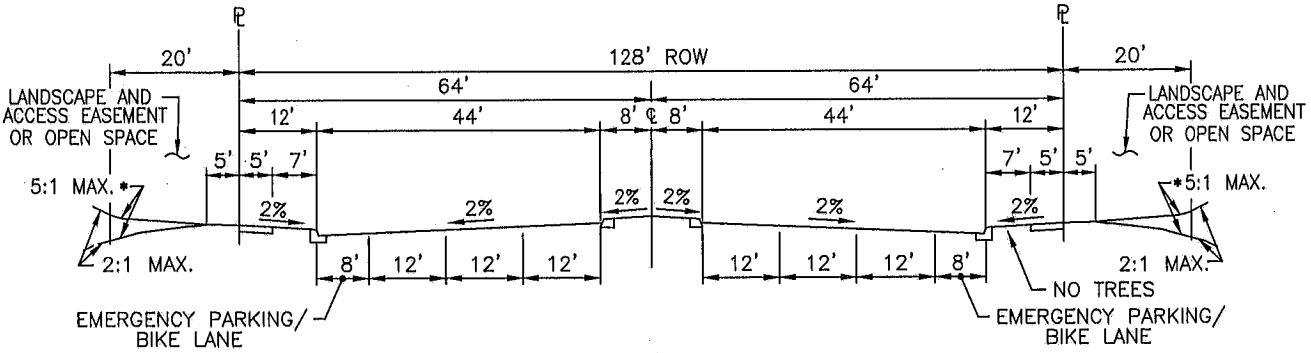
RWY-02

OTAY RANCH
EXPRESSWAY, PRIME AND MAJOR STREET SECTIONS



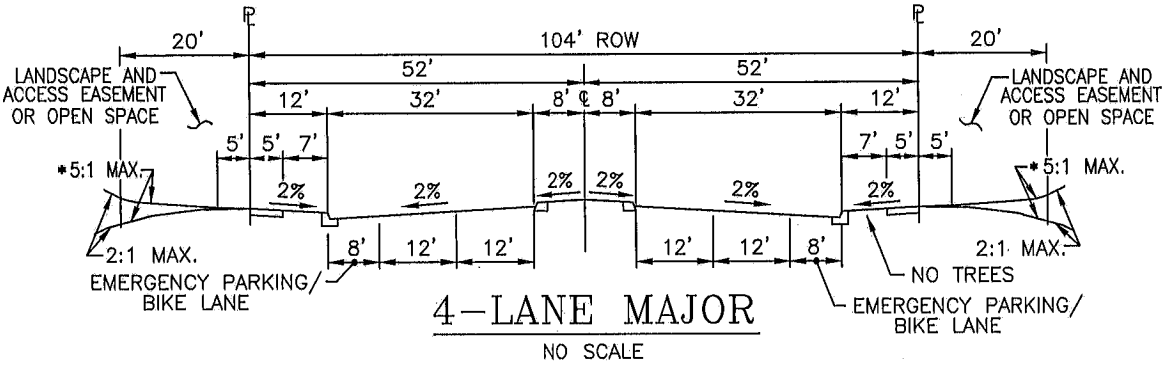
EXPRESSWAY

NO SCALE



6–LANE PRIME/6–LANE MAJOR

NO SCALE



4–LANE MAJOR

NO SCALE

✱ LANDSCAPED SLOPES GREATER THAN 5:1 MAY BE ACCEPTABLE AS DETERMINED BY THE DIRECTOR OF PLANNING AND BUILDING.

NOTES:

1. THESE STANDARDS ARE FOR USE ONLY WITHIN OTAY RANCH GDP ONLY.
2. TREES WITHIN 7.5' OR LESS OF HARDSCAPE SHALL HAVE ROOT BARRIERS AND DEEP WATER IRRIGATION.
3. DIFFERENT PARKWAYS MAY BE ACCEPTABLE AS DETERMINED AT SPA AND TENTATIVE MAP APPROVAL.

REVISION	BY	APPROVED	DATE
ORIGINAL	CVM		3/01
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

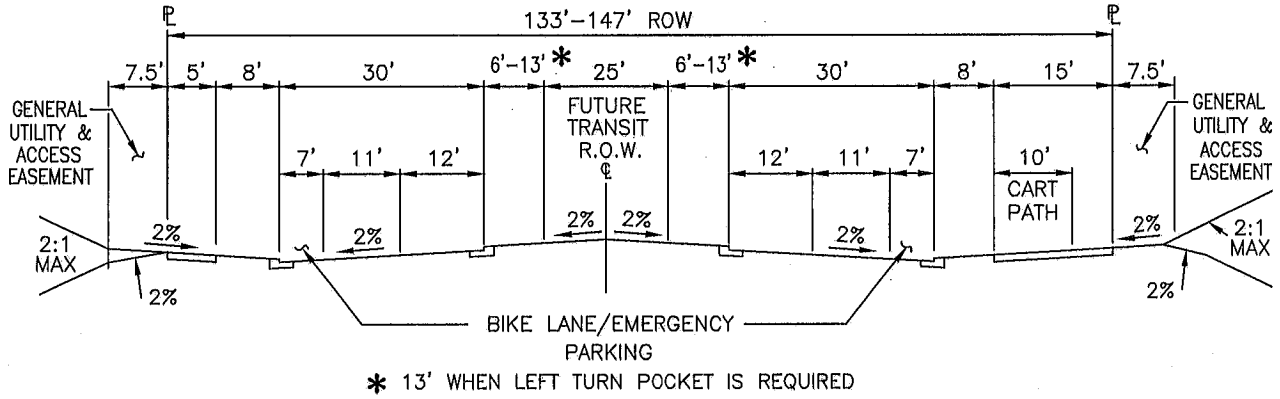
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

OTAY RANCH – EXPRESSWAY, PRIME & MAJOR STREET SECTIONS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

RWY–03

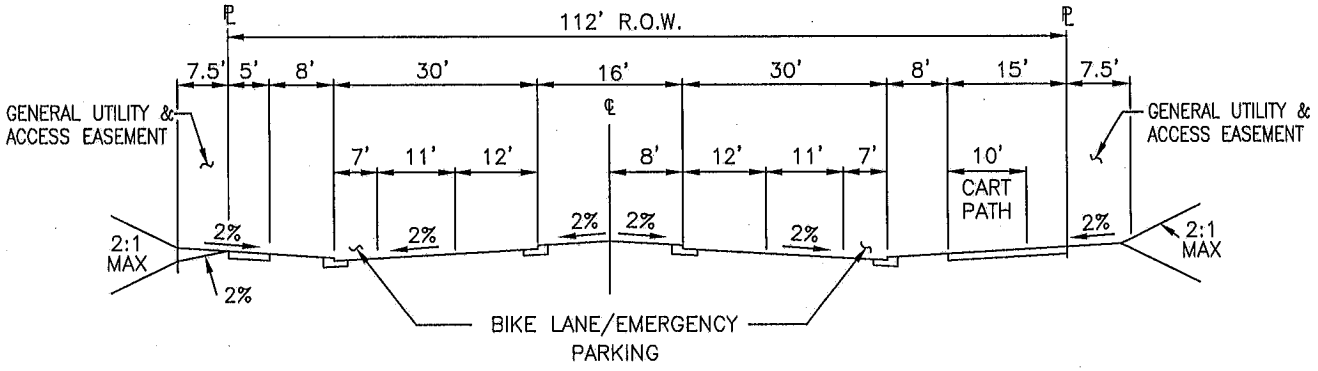
OTAY RANCH
VILLAGE ENTRY STREET SECTIONS



* 13' WHEN LEFT TURN POCKET IS REQUIRED

TRANSIT VILLAGE ENTRY STREET

NO SCALE



VILLAGE ENTRY STREET

NO SCALE

NOTES:

1. THESE STANDARDS ARE FOR USE ONLY WITHIN OTAY RANCH GDP ONLY.
2. TREES WITHIN 7.5' OR LESS OF HARDSCAPE SHALL HAVE ROOT BARRIERS AND DEEP WATER IRRIGATION SYSTEMS.
3. DIFFERENT PARKWAYS MAY BE ACCEPTABLE AS DETERMINED AT SPA AND TENTATIVE MAP APPROVAL.
4. PARKING WITHIN VILLAGE CORE AREAS MAY BE ACCEPTABLE AS DETERMINED BY THE CITY ENGINEER. A SUPPLEMENTAL STRIPING PLAN MAY BE WARRANTED TO IDENTIFY PARKING RESTRICTIONS.

REVISION	BY	APPROVED	DATE
ORIGINAL	CVM		3/01
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

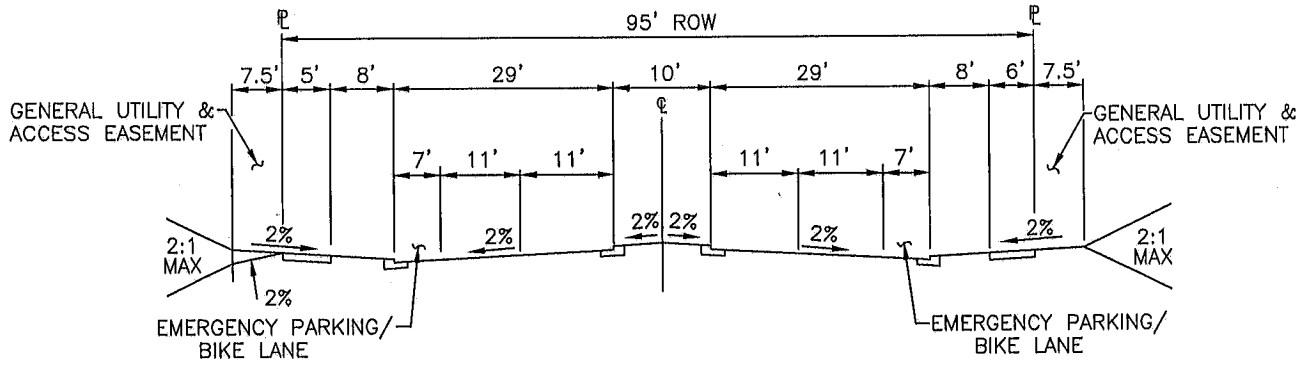
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

OTAY RANCH – VILLAGE ENTRY STREET SECTIONS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

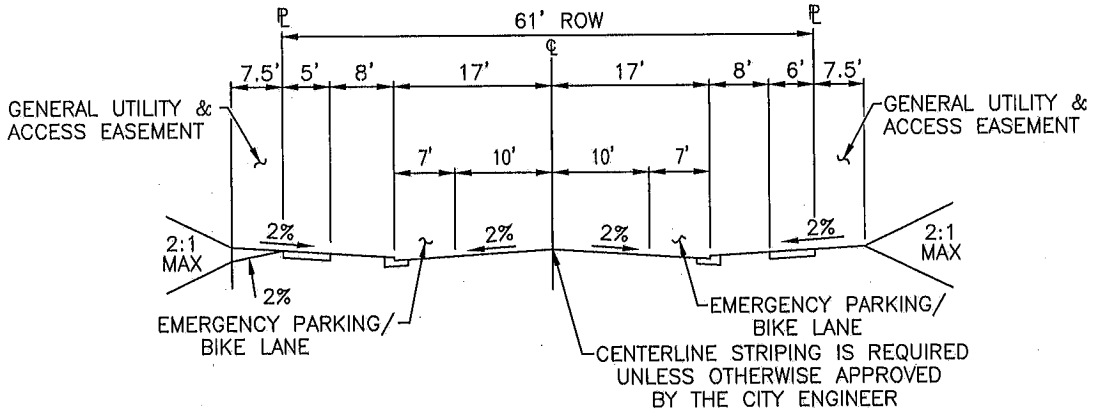
RWY–03

OTAY RANCH
SECONDARY VILLAGE ENTRY STREET SECTIONS



SECONDARY VILLAGE ENTRY W/ MEDIAN

NO SCALE



SECONDARY VILLAGE ENTRY

NO SCALE

NOTES:

1. THESE STANDARDS ARE FOR USE ONLY WITHIN OTAY RANCH GDP ONLY.
2. TREES WITHIN 7.5' OR LESS OF HARDSCAPE SHALL HAVE ROOT BARRIERS AND DEEP WATER IRRIGATION.
3. DIFFERENT PARKWAYS MAY BE ACCEPTABLE AS DETERMINED AT SPA AND TENTATIVE MAP APPROVAL.
4. EMERGENCY PARKING / BIKE LANE AND CENTERLINE STRIPING MAY BE REQUIRED AT THE IMPROVEMENT PLANS REVIEW PROCESS. STRIPING REQUIREMENTS SHALL BE AT THE DISCRETION OF THE CITY ENGINEER.

REVISION	BY	APPROVED	DATE
ORIGINAL	CVM		3/01
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

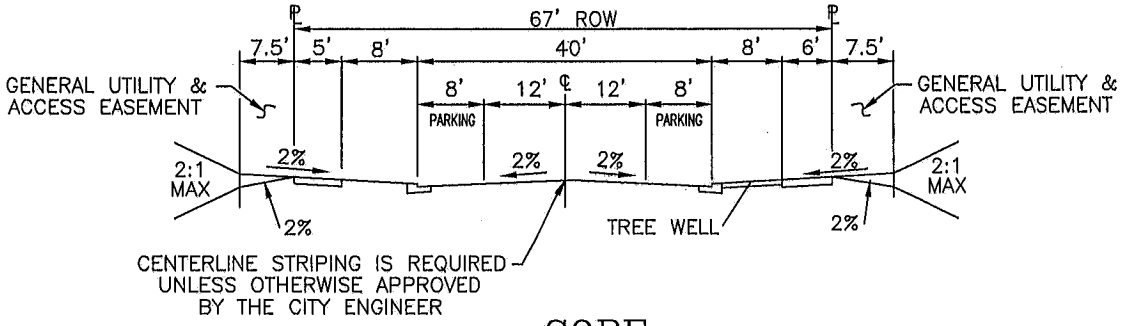
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

OTAY RANCH – SECONDARY VILLAGE ENTRY STREET SECTIONS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

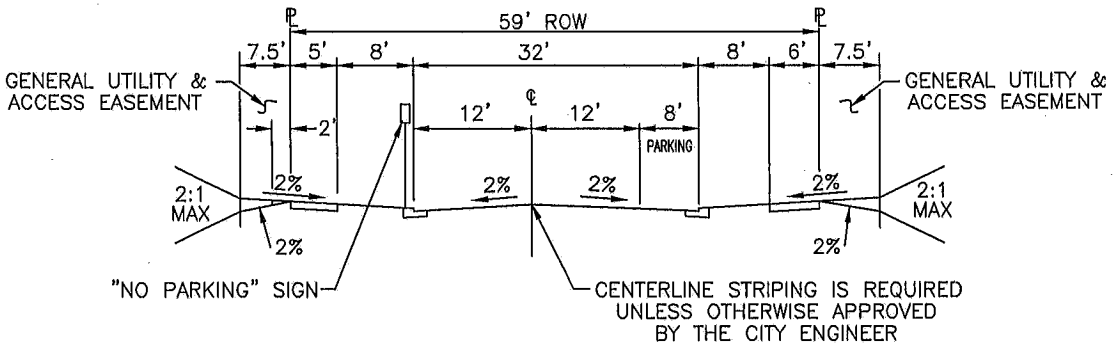
RWY-03

OTAY RANCH – PROMENADE STREET SECTIONS



CORE

NO SCALE



RESIDENTIAL STREET

NO SCALE

NOTES:

1. THESE STANDARDS ARE FOR USE ONLY WITHIN OTAY RANCH GDP ONLY.
2. TREES WITHIN 7.5' OR LESS OF HARDSCAPE SHALL HAVE ROOT BARRIERS AND DEEP WATER IRRIGATION.
3. TRANSITION FROM RESIDENTIAL PROMENADE TO CORE PROMENADE BEFORE REACHING LAND–USES WITH TRAFFIC GENERATION HIGHER THAN SINGLE FAMILY.
4. DIFFERENT PARKWAYS MAY BE ACCEPTABLE AS DETERMINED AT SPA AND TENTATIVE MAP APPROVAL.
5. EMERGENCY PARKING / BIKE LANE AND CENTERLINE STRIPING MAY BE REQUIRED AT THE IMPROVEMENT PLANS REVIEW PROCESS. STRIPING REQUIREMENTS SHALL BE AT THE DISCRETION OF THE CITY ENGINEER.

REVISION	BY	APPROVED	DATE
ORIGINAL	CVM		4/02
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

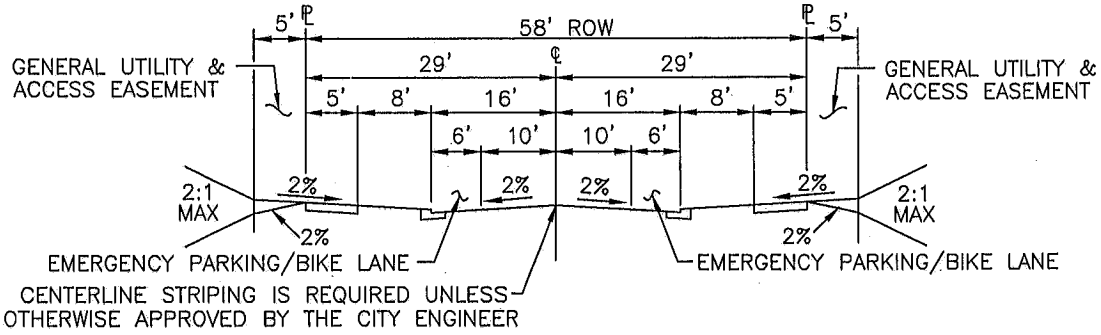
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

OTAY RANCH – PROMENADE STREET SECTIONS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

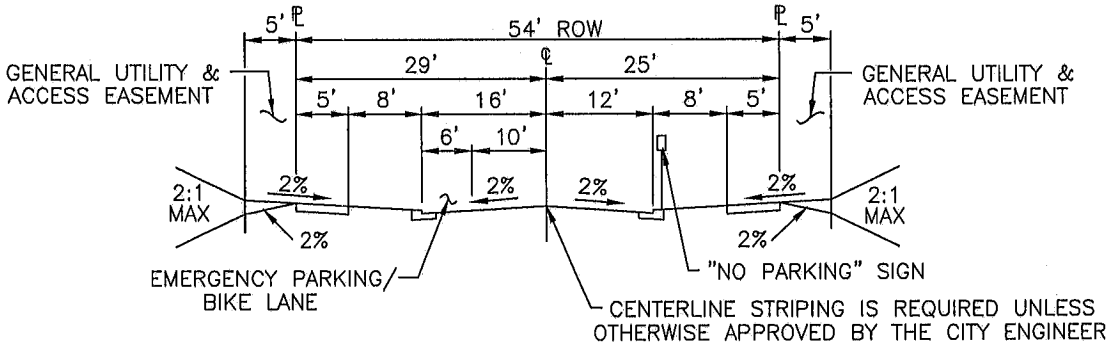
RWY–03

OTAY RANCH – STREET SECTIONS



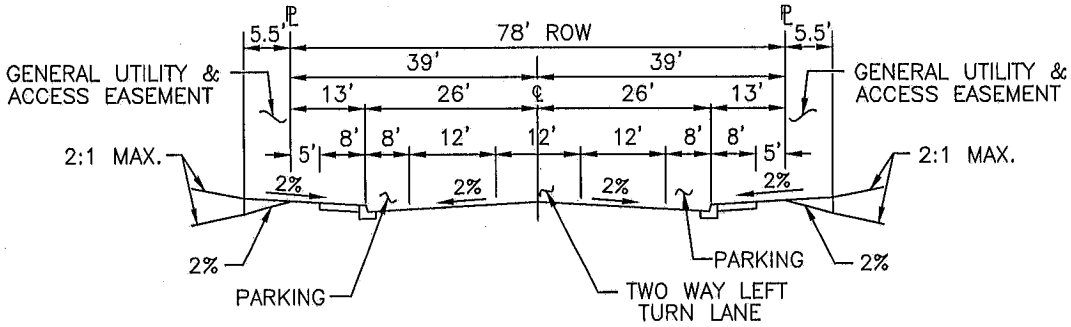
PARKWAY RESIDENTIAL

NO SCALE



SINGLE LOADED PARKWAY RESIDENTIAL

NO SCALE



INDUSTRIAL

NO SCALE

NOTES:

1. THESE STANDARDS ARE FOR USE ONLY WITHIN OTAY RANCH GDP.
2. TREES WITHIN 7.5' OR LESS OF HARDSCAPE SHALL HAVE ROOT BARRIERS AND DEEP WATER IRRIGATION.
3. DIFFERENT PARKWAYS MAY BE ACCEPTABLE AS DETERMINED AT SPA AND TENTATIVE MAP APPROVAL.
4. EMERGENCY PARKING / BIKE LANE AND CENTERLINE STRIPING MAY BE REQUIRED AT THE IMPROVEMENT PLANS REVIEW PROCESS. STRIPING REQUIREMENTS SHALL BE AT THE DISCRETION OF THE CITY ENGINEER.

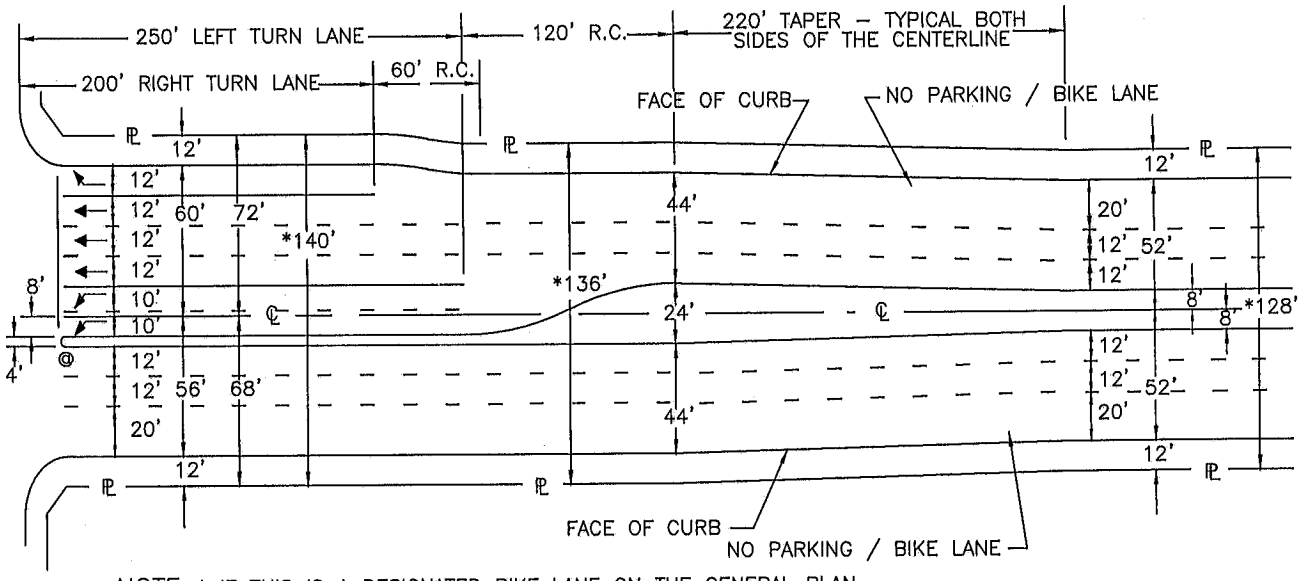
REVISION	BY	APPROVED	DATE
ORIGINAL	CVM		4/02
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

OTAY RANCH – PKWY, RESIDENTIAL, & INDUSTRIAL ST SECTIONS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

RWY-03



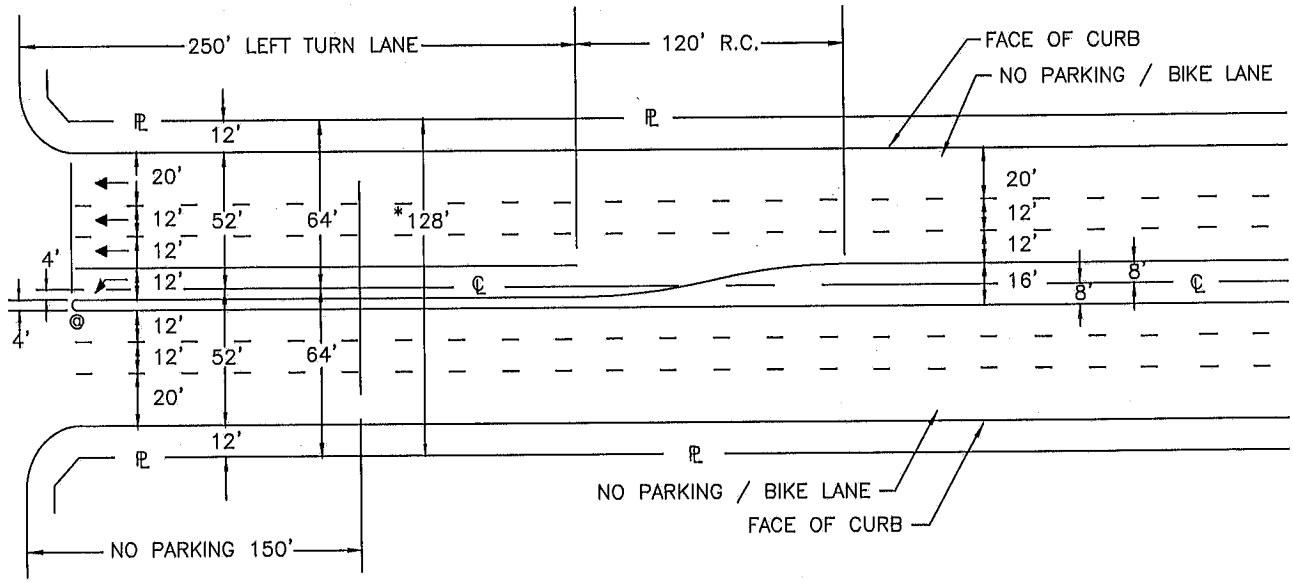
NOTE: * IF THIS IS A DESIGNATED BIKE LANE ON THE GENERAL PLAN, AN ADDITIONAL 10' RIGHT–OF–WAY WILL BE REQUIRED.

@ MEDIAN NOSE AT PCR STATION

PRIME

NO SCALE

(WITH RIGHT TURN LANE AND DUAL LEFT TURN LANES)



NOTE: * IF THIS IS A DESIGNATED BIKE LANE ON THE GENERAL PLAN, AN ADDITIONAL 10' RIGHT–OF–WAY WILL BE REQUIRED.

@ MEDIAN NOSE AT PCR STATION

PRIME

NO SCALE

(WITH SINGLE LEFT TURN LANE)

SHEET 1 OF 6

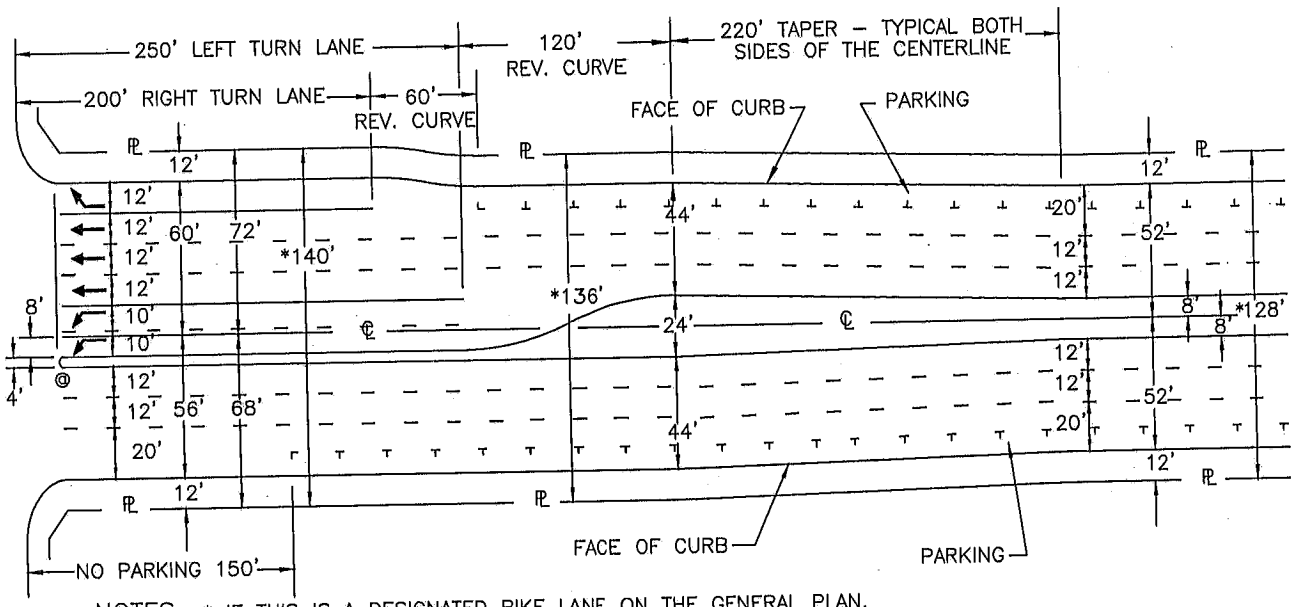
REVISION	BY	APPROVED	DATE
ORIGINAL			2/90
REVISION	CM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

6–LANE PRIME INTERSECTION STANDARDS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

RWY–04

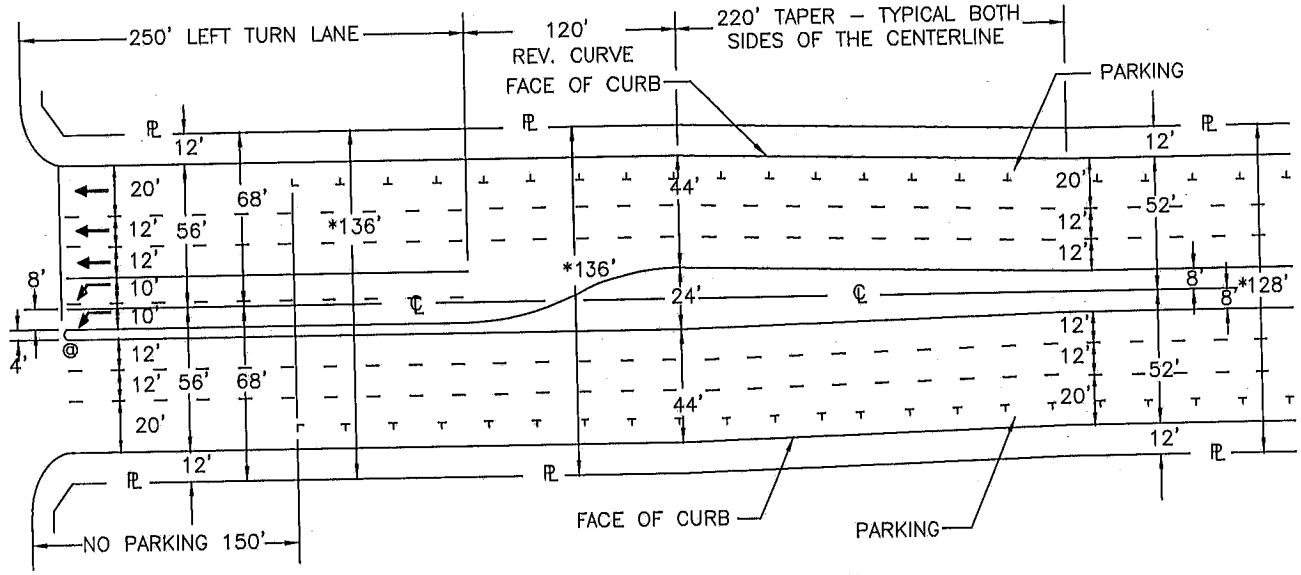


NOTES: * IF THIS IS A DESIGNATED BIKE LANE ON THE GENERAL PLAN, AN ADDITIONAL 10' RIGHT-OF-WAY WILL BE REQUIRED.
@ MEDIAN NOSE AT PCR STATION.

6-LANE MAJOR

NO SCALE

(WITH RIGHT TURN LANE AND DUAL LEFT TURN LANES)



NOTES: * IF THIS IS A DESIGNATED BIKE LANE ON THE GENERAL PLAN, AN ADDITIONAL 10' RIGHT-OF-WAY WILL BE REQUIRED.
@ MEDIAN NOSE AT PCR STATION.

6-LANE MAJOR

NO SCALE

(WITH DUAL LEFT TURN LANES)

REVISION	BY	APPROVED	DATE
ORIGINAL			2/90
REVISION	CM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

6-LANE MAJOR INTERSECTION STANDARDS

William S. Valle 11/21/2017
WILLIAM S. VALLE
CITY ENGINEER

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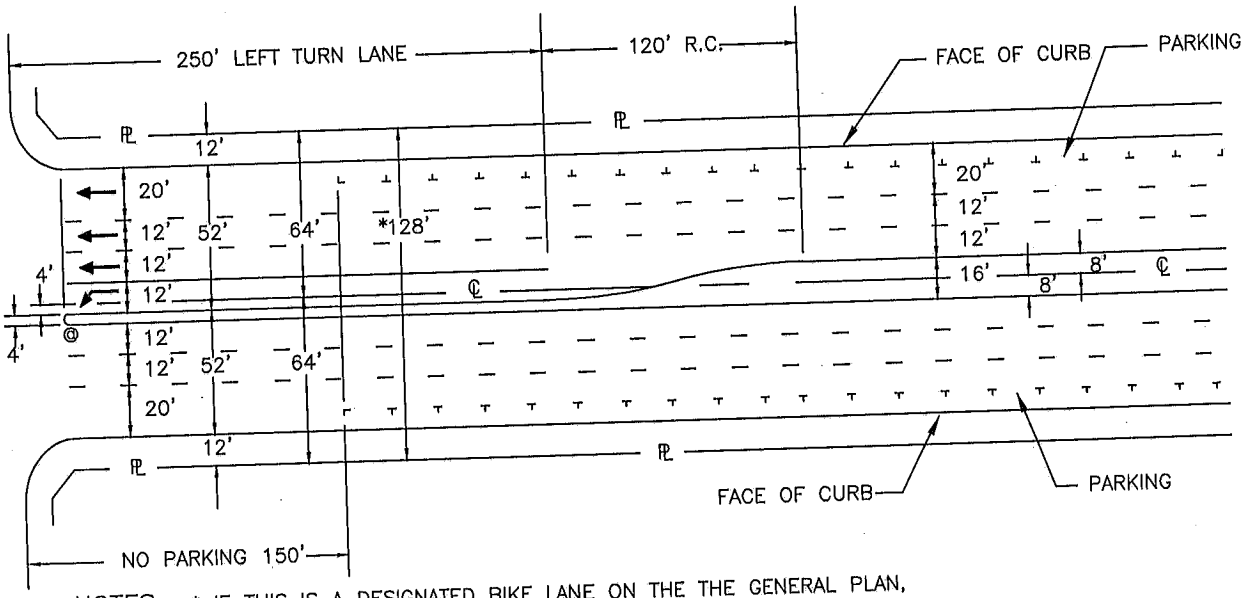


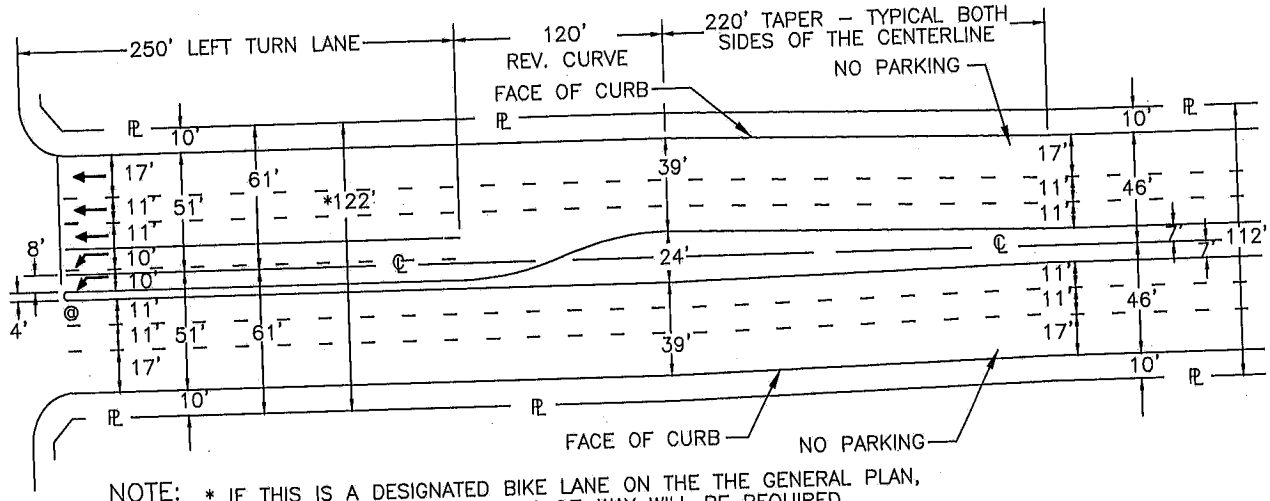
NOTES: * IF THIS IS A DESIGNATED BIKE LANE ON THE THE GENERAL PLAN, AN ADDITIONAL 10' OF RIGHT-OF-WAY WILL BE REQUIRED.

@ MEDIAN NOSE AT PCR STATION.

6 – LANE MAJOR

NO SCALE

(WITH SINGLE LEFT TURN LANE)



NOTE: * IF THIS IS A DESIGNATED BIKE LANE ON THE THE GENERAL PLAN, AN ADDITIONAL 10' OF RIGHT-OF-WAY WILL BE REQUIRED.

@ MEDIAN NOSE AT PCR STATION.

6 – LANE MAJOR

NO SCALE

ONLY IN DEVELOPED AREAS WEST OF I-805

(WITH DUAL LEFT TURN LANES)

REVISION	BY	APPROVED	DATE
ORIGINAL			2/90
REVISION	CM	C. SWANSON	11/02
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CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

6-LANE MAJOR INTERSECTION STANDARDS 2

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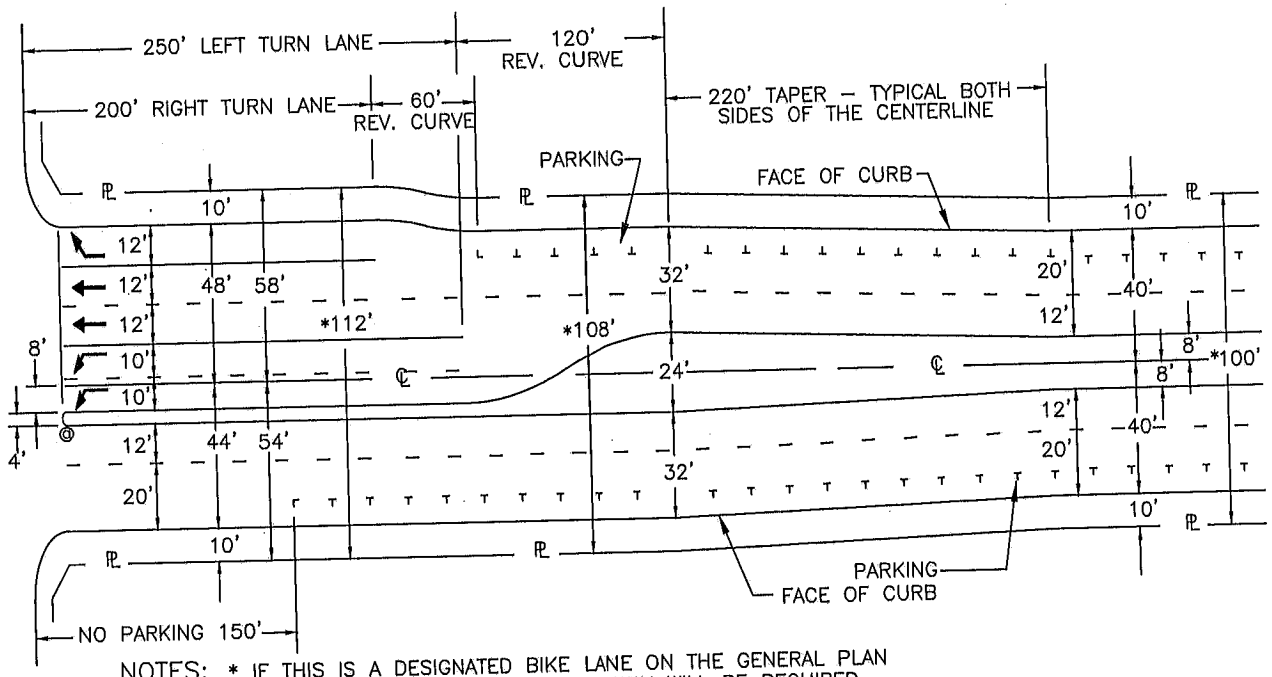
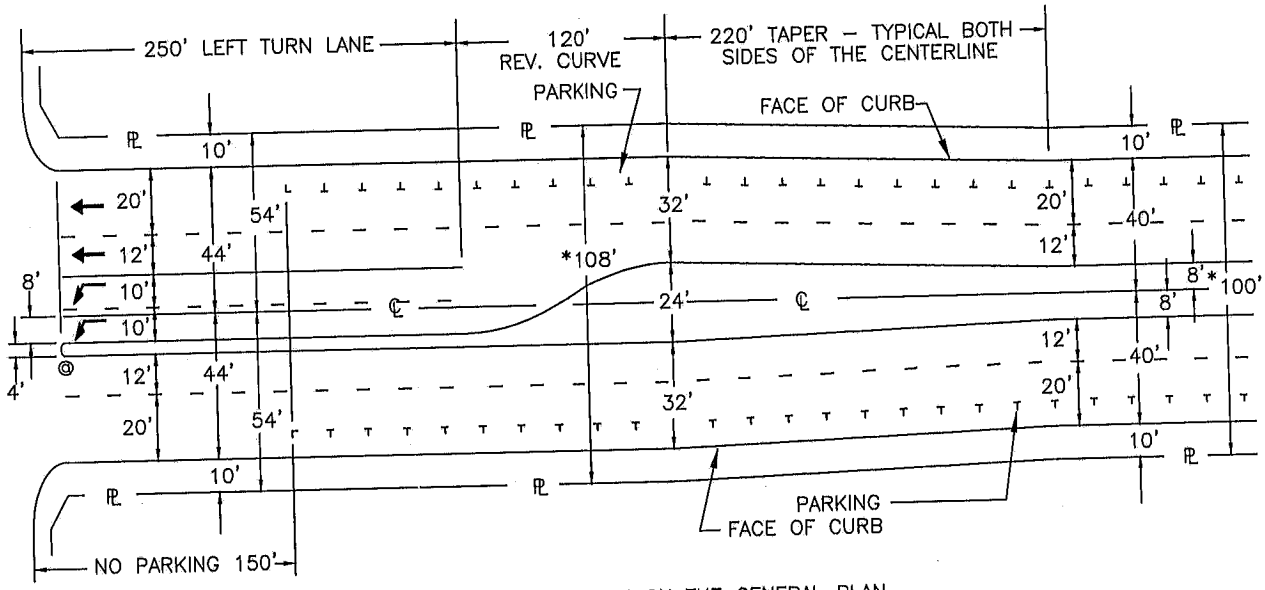


NOTES: * IF THIS IS A DESIGNATED BIKE LANE ON THE GENERAL PLAN AN ADDITIONAL 10' OF RIGHT-OF-WAY WILL BE REQUIRED.
@ MEDIAN NOSE AT PCR STATION.

4-LANE MAJOR

NO SCALE

(WITH RIGHT TURN LANE AND DUAL LEFT TURN LANES)



NOTES: * IF THIS IS A DESIGNATED BIKE LANE ON THE GENERAL PLAN AN ADDITIONAL 10' OF RIGHT-OF-WAY WILL BE REQUIRED.
@ MEDIAN NOSE AT PCR STATION.

4-LANE MAJOR

NO SCALE

(WITH DUAL LEFT TURN LANES)

REVISION	BY	APPROVED	DATE
ORIGINAL			2/90
REVISION	CM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

4-LANE MAJOR INTERSECTION STANDARDS

William S. Valle

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CITY ENGINEER

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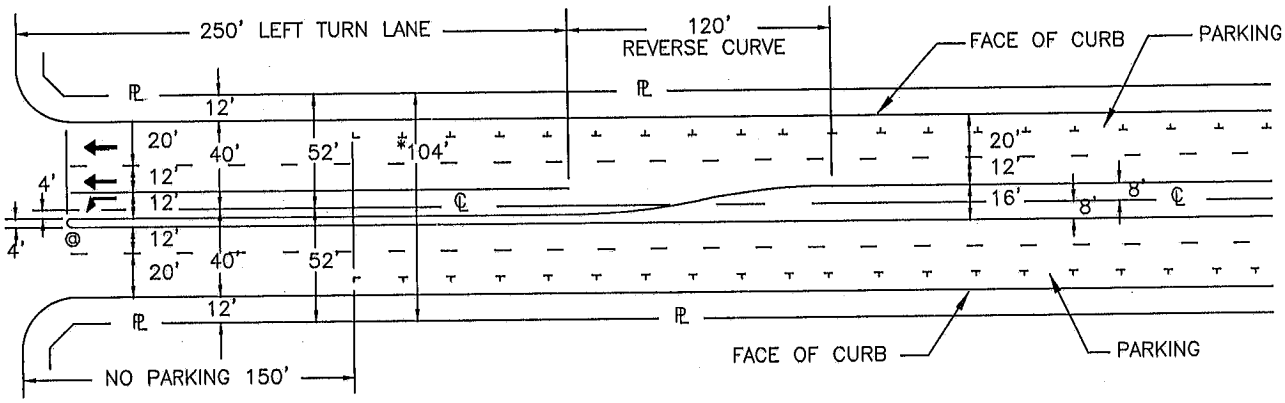
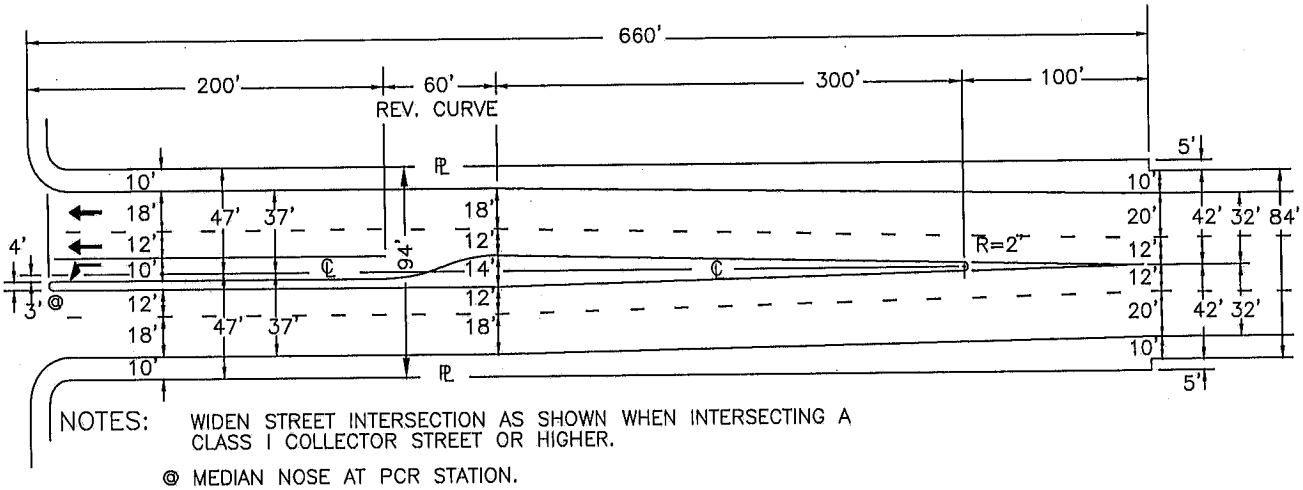


NOTES: * IF THIS IS A DESIGNATED BIKE LANE ON THE GENERAL PLAN AN ADDITIONAL 10' OF RIGHT-OF-WAY WILL BE REQUIRED.
@ MEDIAN NOSE AT PCR STATION.

4-LANE MAJOR

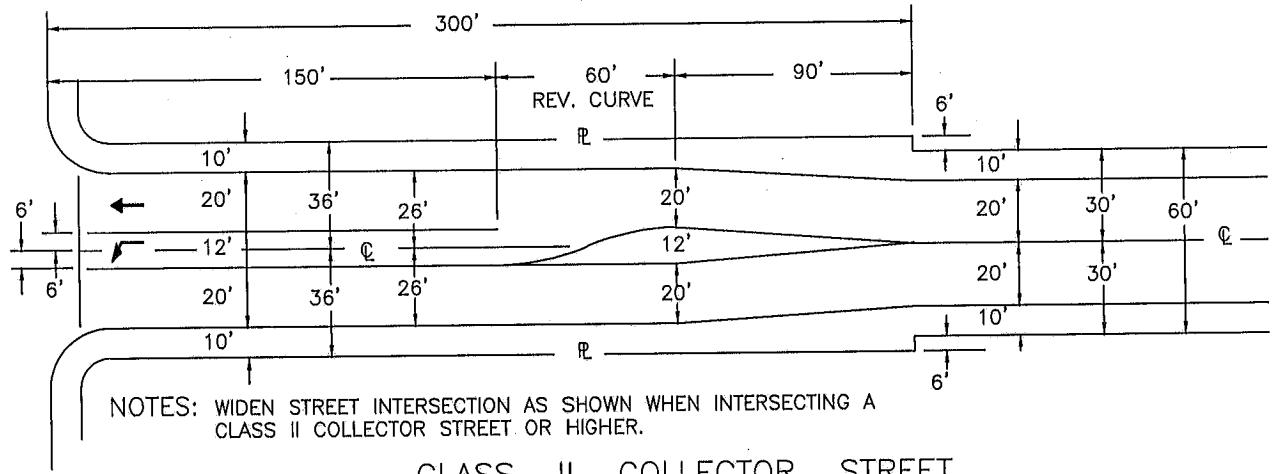
NO SCALE (WITH SINGLE LEFT TURN LANE)



NOTES: WIDEN STREET INTERSECTION AS SHOWN WHEN INTERSECTING A CLASS I COLLECTOR STREET OR HIGHER.
@ MEDIAN NOSE AT PCR STATION.

CLASS I COLLECTOR STREET

NO SCALE (ONLY IN DEVELOPED AREAS WEST OF I-805)



NOTES: WIDEN STREET INTERSECTION AS SHOWN WHEN INTERSECTING A CLASS II COLLECTOR STREET OR HIGHER.

CLASS II COLLECTOR STREET

NO SCALE (ONLY IN DEVELOPED AREAS WEST OF I-805)

SHEET 5 OF 6

REVISION	BY	APPROVED	DATE
ORIGINAL			2/90
REVISION	CM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

4-LANE MAJOR & COLLECTOR INTERSECTION STANDARDS

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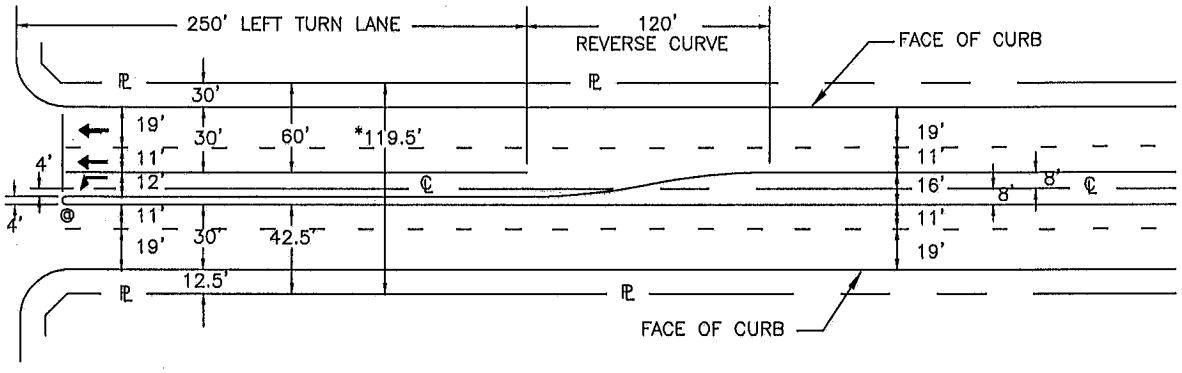
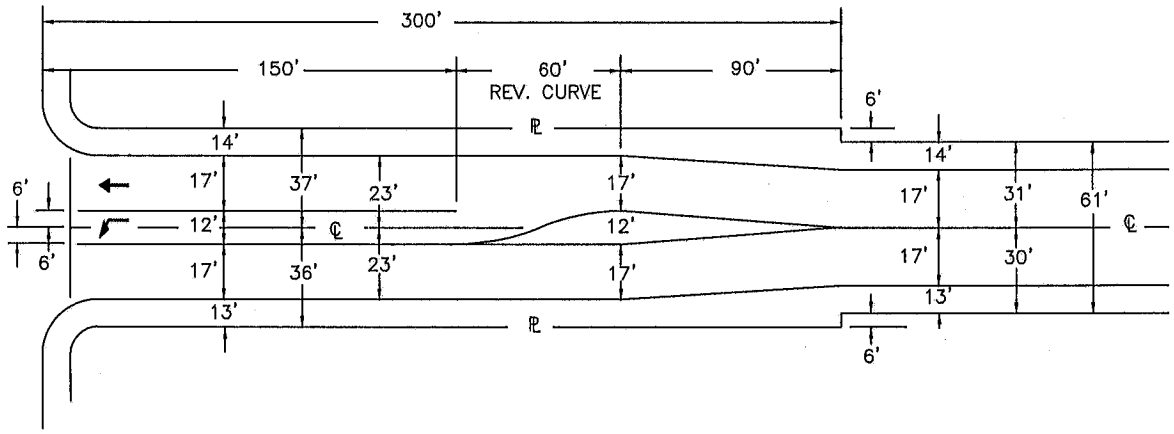


VILLAGE ENTRY STREET

NO SCALE (WITH SINGLE LEFT TURN LANE)



SECONDARY VILLAGE ENTRY

NO SCALE

REVISION	BY	APPROVED	DATE
ORIGINAL	CVM		2/00
REVISION	CM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

OTAY RANCH – VILLAGE
INTERSECTION STANDARDS

William S. Valle

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CITY ENGINEER

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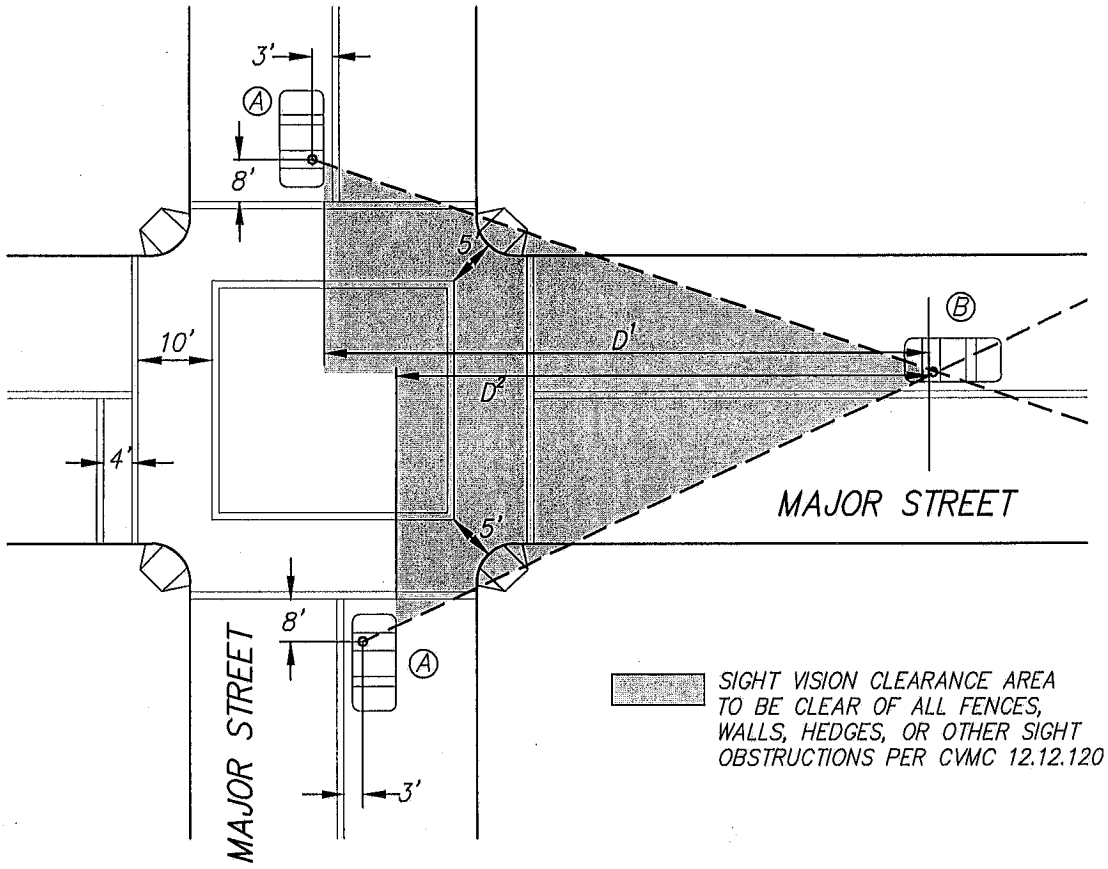


REQUIRED SIGHT DISTANCE*

DESIGN OR 85TH PERCENTILE SPEED (IN M.P.H.)	CORNER SIGHT DISTANCE (D^1 & D^2) FROM LOCATION (A)	STOPPING SIGHT DISTANCE (D^1 & D^2) FROM LOCATION (B)
25	280	155
30	335	200
35	390	250
40	445	305
45	500	360
50	555	425
55	610	495
60	665	570
65	720	645
70	775	730

* SIGHT DISTANCE FOR LEVEL GRADE (3% OR LESS)

(SEE SHEET 2 FOR ADDITIONAL NOTES)

REVISION	BY	APPROVED	DATE
ORIGINAL	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

SIGHT DISTANCE REQUIREMENTS

William S. Valle

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

RWY-05

CORNER SIGHT DISTANCE IS DEFINED AS THE SIGHT DISTANCE NEEDED TO ALLOW 7 1/2 SECONDS OF REACTION TIME FOR THE DRIVER OF A VEHICLE STOPPED AT POINT "A" TO PROCEED THRU THE INTERSECTION WHILE THE APPROACHING VEHICLE (POINT "B") TRAVELS AT THE ASSUMED DESIGN SPEED, OR THE 85 PERCENTILE SPEED (WHICHEVER IS HIGHER), OF THE MAJOR ROADWAY.

CORNER SIGHT DISTANCE SHALL (1) BE MEASURED ALONG THE PATH OF THE APPROACHING VEHICLE TO A PROJECTED POINT OF COLLISION BETWEEN VEHICLES, ASSUMING THAT BOTH VEHICLES PROCEED STRAIGHT AHEAD AND (2) SHALL COMPLY WITH THE TABLE PROVIDED ON THE PREVIOUS PAGE, BASED ON THE MINIMUM DESIGN SPEED OF THE ROADWAY, OR THE 85th PERCENTILE SPEED, WHICHEVER IS HIGHER. THIS SIGHT DISTANCE IS MEASURED FROM A 3.5 FOOT EYE HEIGHT ON THE MINOR ROAD TO A 4.25 FOOT OBJECT HEIGHT ON THE MAJOR ROAD.

STOPPING SIGHT DISTANCE IS DEFINED AS THE DISTANCE REQUIRED BY THE DRIVER AT POINT "B", TRAVELING AT A GIVEN SPEED, TO BRING THEIR VEHICLE TO A STOP AFTER AN OBJECT ON THE ROAD BECOMES VISIBLE. STOPPING SIGHT DISTANCE IS MEASURED FROM A 3.5 FOOT EYE HEIGHT ON THE MAJOR ROAD TO AN OBJECT 0.5 FEET HIGH ON THE MINOR ROAD.

ADDITIONAL SIGHT DISTANCE NOTES:

1) THE SIGHT DISTANCE REQUIREMENTS SHALL BE INCREASED BY 20% ON SUSTAINED DOWNGRADES STEEPER THAN 3% AND LONGER THAN 1 MILE.

2) IN CASES OF RIGHT-OF-WAY CONFLICTS, WHERE EXTENSIVE EXCAVATION IS REQUIRED OR FOR THE PRESERVATION OF WETLANDS, HISTORIC OR ARCHAEOLOGICAL SITES, A LESSER VALUE FOR CORNER SIGHT DISTANCE MAYBE USED. BUT THE MINIMUM VALUE SHALL BE THE STOPPING SIGHT DISTANCE GIVEN IN THE PREVIOUS PAGE, MEASURED FROM A 3.5 FOOT EYE HEIGHT ON THE MINOR ROAD TO A 4.5 FOOT EYE HEIGHT ON THE MAJOR ROAD. USE OF THIS MINIMUM SIGHT DISTANCE MUST BE SPECIFICALLY APPROVED BY THE CITY ENGINEER OR THEIR DESIGNEE.

3) AT SIGNALIZED INTERSECTIONS, THE STOPPING SIGHT DISTANCE REQUIREMENTS SHALL BE USED.

STRIPING NOTES:

CROSSWALK LIMITS: UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER, THE FRONT OF THE CROSSWALK SHALL BE ESTABLISHED BETWEEN POINTS 5 FEET OUT FROM THE FACE OF CURB ON RADIAL LINES ESTABLISHED ALONG THE PROJECTED CENTERLINES OF THE CURB RETURNS. THE BACK OF THE CROSSWALK SHALL BE ESTABLISHED 11 FEET BACK FROM THE FRONT LINE OF THE CROSSWALK MEASURED ALONG A LINE PERPENDICULAR TO THE FRONT LINE.

STOPPING LIMIT LINE: AT SIGNALIZED INTERSECTIONS, WHERE SCHOOL CROSSING ARE ESTABLISHED, AND/OR WHERE STRIPING PLANS INDICATE, A STOPPING LIMIT LINE SHALL BE ESTABLISHED 4 FEET BACK FROM THE CROSSWALK.

THE CRITICAL LINE OF SIGHT SHALL BE ESTABLISHED BETWEEN POINT "A" ON THE MINOR STREET AND POINT "B" ON THE MAJOR STREET. POINT "A" SHALL BE THAT POINT MEASURED 8 FEET BACK FROM EITHER THE BACK OF THE STOPPING LIMIT LINE, IF ONE EXISTS, OR THE BACK LINE OF THE CROSSWALK AND 3 FEET FROM THE LANE LINE STRIPE OR THE PAINTED CENTER LINE OF THE MINOR STREET. POINT "B" SHALL BE THAT POINT, BEING THE END POINT OF EITHER LINE D1 OR D2, MEASURED THE DISTANCE GIVEN IN THE REQUIRED SIGHT DISTANCE TABLE AND 3 FEET FROM THE LANE LINE STRIPE OR THE PAINTED CENTER LINE OF THE MAJOR STREET. THE CRITICAL LINE OF SIGHT IS THAT LINE WHICH OFFERS THE MOST RESTRICTIVE POINT OF VISION.

SIGHT VISION CLEARANCE AREA NOTES:
PER CHULA VISTA MUNICIPAL CODE SECTION 12.12.120, ALL FENCES WALLS, HEDGES, OR OTHER OBSTRUCTIONS TO VISION THAT ARE LOCATED WITHIN SIGHT VISION TRIANGLE SHALL BE LIMITED TO A MAXIMUM HEIGHT OF 3 FEET, MEASURED FROM EVERY POINT ALONG THE OUTER EDGE OF THE PAVED SURFACE OF THE ROADWAY.

REVISION	BY	APPROVED	DATE
ORIGINAL	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

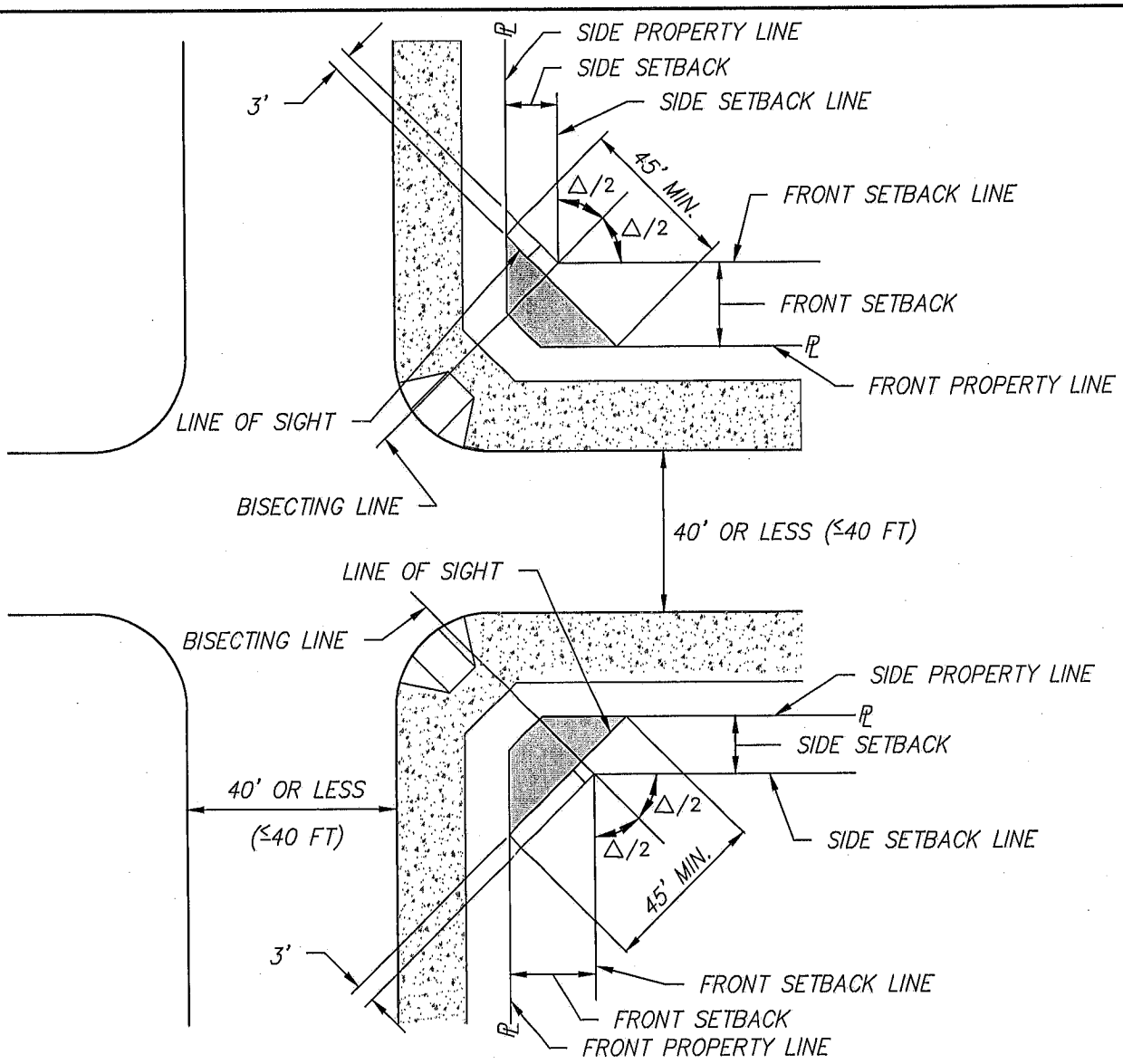
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

SIGHT DISTANCE REQUIREMENTS
ADDITIONAL NOTES

William S. Valle

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

RWY-05



NOTES:

1) FRONT AND SIDE SETBACKS ARE ESTABLISHED BY THE PLANNING AND BUILDING DEPARTMENT, AND SHALL SERVE AS THE BASIS FOR DETERMINING SIGHT–LINE CALCULATIONS.

2) THE LINE OF SIGHT IS ESTABLISHED AT A CORNER PROPERTY AS FOLLOWS: FROM A POINT ALONG A LINE THAT BISECTS AN INTERIOR ANGLE, SAID ANGLE IS BEING FORMED BY INTERSECTING THE FRONT AND SIDE SETBACK LINES, THE LINE OF SIGHT IS ESTABLISHED PERPENDICULAR TO SAID BISECTING LINE AND 3 FEET FROM THE ABOVE REFERENCED POINT. THE LINE OF SIGHT SHALL EXTEND TO INTERSECT THE FRONT AND SIDE PROPERTY LINES. HOWEVER, THE LENGTH OF THIS LINE SHALL BE A MINIMUM OF 45 FEET, MEASURED FROM A POINT OF INTERSECTION WITH THE SIDE PROPERTY LINE TO A POINT OF INTERSECTION WITH THE FRONT PROPERTY LINE. THE SIGHT DISTANCE REQUIREMENTS SHALL FURTHER COMPLY WITH THE PROVISIONS OF SECTION 12.12.120 OF THE MUNICIPAL CODE.

3) PER CHULA VISTA MUNICIPAL CODE SECTION 12.12.120, ALL FENCES, WALLS, HEDGES OR OTHER OBSTRUCTIONS TO VISION, THAT ARE LOCATED WITHIN THE SIGHT VISION TRIANGLE, SHALL BE LIMITED TO A MAXIMUM HEIGHT OF 3.0 FEET, MEASURED FROM EVERY POINT ALONG THE OUTER EDGE OF THE PAVED SURFACE OF THE ROADWAY.

REVISION	BY	APPROVED	DATE
ORIGINAL	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

SIGHT DISTANCE REQUIREMENTS FOR STREETS 40' OR LESS

William S. Valle

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

RWY–05

TURN LANE REQUIREMENTS

MAINLINE STREET	INTERSECTING STREET	LEFT TURN LANE REQUIREMENTS	RIGHT TURN LANE REQUIREMENTS
CLASS II COLLECTOR	CLASS II COLLECTOR	SINGLE	NO
CLASS II COLLECTOR	CLASS I COLLECTOR	SINGLE	NO
CLASS II COLLECTOR	MAJOR	SINGLE	NO
CLASS II COLLECTOR	PRIME	SINGLE	NO
CLASS I COLLECTOR	CLASS II COLLECTOR	SINGLE	NO
CLASS I COLLECTOR	CLASS I COLLECTOR	SINGLE	NO
CLASS I COLLECTOR	MAJOR	SINGLE	NO
CLASS I COLLECTOR	PRIME	SINGLE	NO
MAJOR	CLASS II COLLECTOR	SINGLE	NO
MAJOR	CLASS I COLLECTOR	SINGLE	NO
MAJOR	MAJOR	DOUBLE	YES
MAJOR	PRIME	DOUBLE	YES
PRIME	CLASS II COLLECTOR	SINGLE	NO
PRIME	CLASS I COLLECTOR	SINGLE	NO
PRIME	MAJOR	DOUBLE	YES
PRIME	PRIME	DOUBLE	YES

ADDITIONAL REQUIREMENTS FOR RIGHT TURN LANE

PEAK HOUR RIGHT TURN VOLUMES	RIGHT TURN GEOMETRICS	TURN POCKET LENGTHS
0–299	 12' 12' 20'	NOT APPLICABLE
300–399	 12' 12' 12' 4' 12'	285'=((399/35)X25')
400–475	 12' 12' 16' 12'	200'
476–600	 12' 12' 12' 4' 12' 12'	200'**
GREATER THAN 600	 12' 12' 12' 4' 12' 12'	((RT. TURN VOLS./2)/35)X25**

KEY: = TRAVEL LANE  = BIKE LANE

** ADDITIONAL 12' OF RIGHT OF WAY REQUIRED OVER ESTABLISHED CITY OF CHULA VISTA PRIME ARTERIAL STANDARDS AND A 120' REVERSE CURVE IS NEEDED FOR THE RIGHT TURN POCKET.

REVISION	BY	APPROVED	DATE
ORIGINAL			2/90
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

TURN LANE REQUIREMENTS

William S. Valle

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

RWY–06

TURN LANE REQUIREMENTS

MAINLINE STREET	INTERSECTING STREET	LEFT TURN LANE REQUIREMENTS	RIGHT TURN LANE REQUIREMENTS
SECONDARY VILLAGE ENTRY/ CLASS II COLLECTOR	CLASS II COLLECTOR/ SECONDARY VILLAGE ENTRY	SINGLE	NO
SECONDARY VILLAGE ENTRY/ CLASS II COLLECTOR	CLASS I COLLECTOR/ VILLAGE ENTRY	SINGLE	NO
SECONDARY VILLAGE ENTRY/ CLASS II COLLECTOR	MAJOR	SINGLE	NO
SECONDARY VILLAGE ENTRY/ CLASS II COLLECTOR	PRIME	SINGLE	NO
VILLAGE ENTRY/ CLASS I COLLECTOR	CLASS II COLLECTOR/ SECONDARY VILLAGE ENTRY	SINGLE	
VILLAGE ENTRY/ CLASS I COLLECTOR	CLASS I COLLECTOR/ SECONDARY VILLAGE ENTRY	SINGLE	NO
VILLAGE ENTRY/ CLASS I COLLECTOR	MAJOR	SINGLE	NO
VILLAGE ENTRY/ CLASS I COLLECTOR	PRIME	SINGLE	NO NO
MAJOR	CLASS II COLLECTOR/ SECONDARY VILLAGE ENTRY	SINGLE	NO
MAJOR	CLASS I COLLECTOR/ VILLAGE ENTRY	SINGLE	NO
MAJOR	MAJOR	DOUBLE	YES
MAJOR	PRIME	DOUBLE	YES
PRIME	CLASS II COLLECTOR/ SECONDARY VILLAGE ENTRY	SINGLE	NO
PRIME	CLASS I COLLECTOR/ VILLAGE ENTRY	SINGLE	NO
PRIME	MAJOR	DOUBLE	YES
PRIME	PRIME	DOUBLE	YES

SEE RWY-06 FOR ADDITIONAL REQUIREMENTS FOR RIGHT TURN LANE.

REVISION	BY	APPROVED	DATE
ORIGINAL	CVM		2/00
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

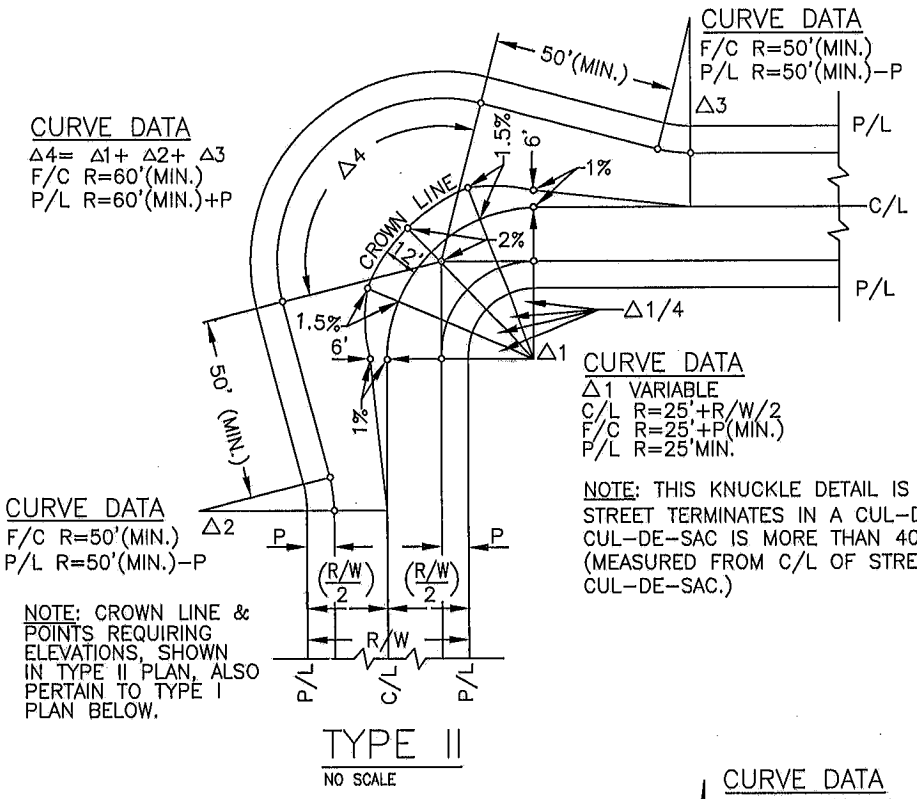
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

OTAY RANCH - TURN LANE REQUIREMENTS

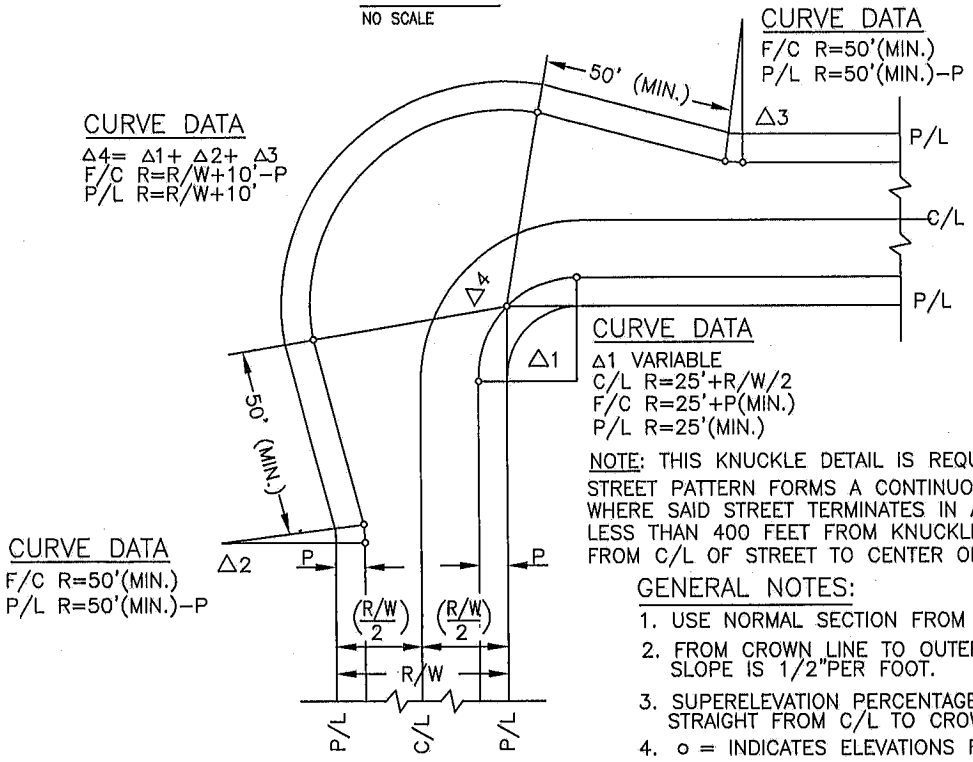
William S. Valle

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

RWY-06



TYPE II
NO SCALE



TYPE I
NO SCALE

LEGEND:
P=F/C TO P/L DISTANCE
C/L=CENTERLINE
F/C=FACE OF CURB
P/L=PROPERTY LINE
R/W=RIGHT OF WAY

GENERAL NOTES:

1. USE NORMAL SECTION FROM INNER CURB TO C/L.
2. FROM CROWN LINE TO OUTER CURB, THE MAXIMUM SLOPE IS 1/2"PER FOOT.
3. SUPERELEVATION PERCENTAGES SHOWN ARE STRAIGHT FROM C/L TO CROWN.
4. o = INDICATES ELEVATIONS REQUIRED.
5. WHEN STREETS HAVE TILT-TYPE SECTION, THE CROWN WILL NOT NECESSARILY TERMINATE ON C/L AT ANGLE POINT OF CURB.
6. A SPECIFIC DEPARTURE FROM THIS PLAN MAY BE OBTAINED BY SPECIAL PERMISSION.
7. OFFSET CROWN DESIGN IS TYPICAL FOR BOTH TYPES OF KNUCKLES SHOWN.

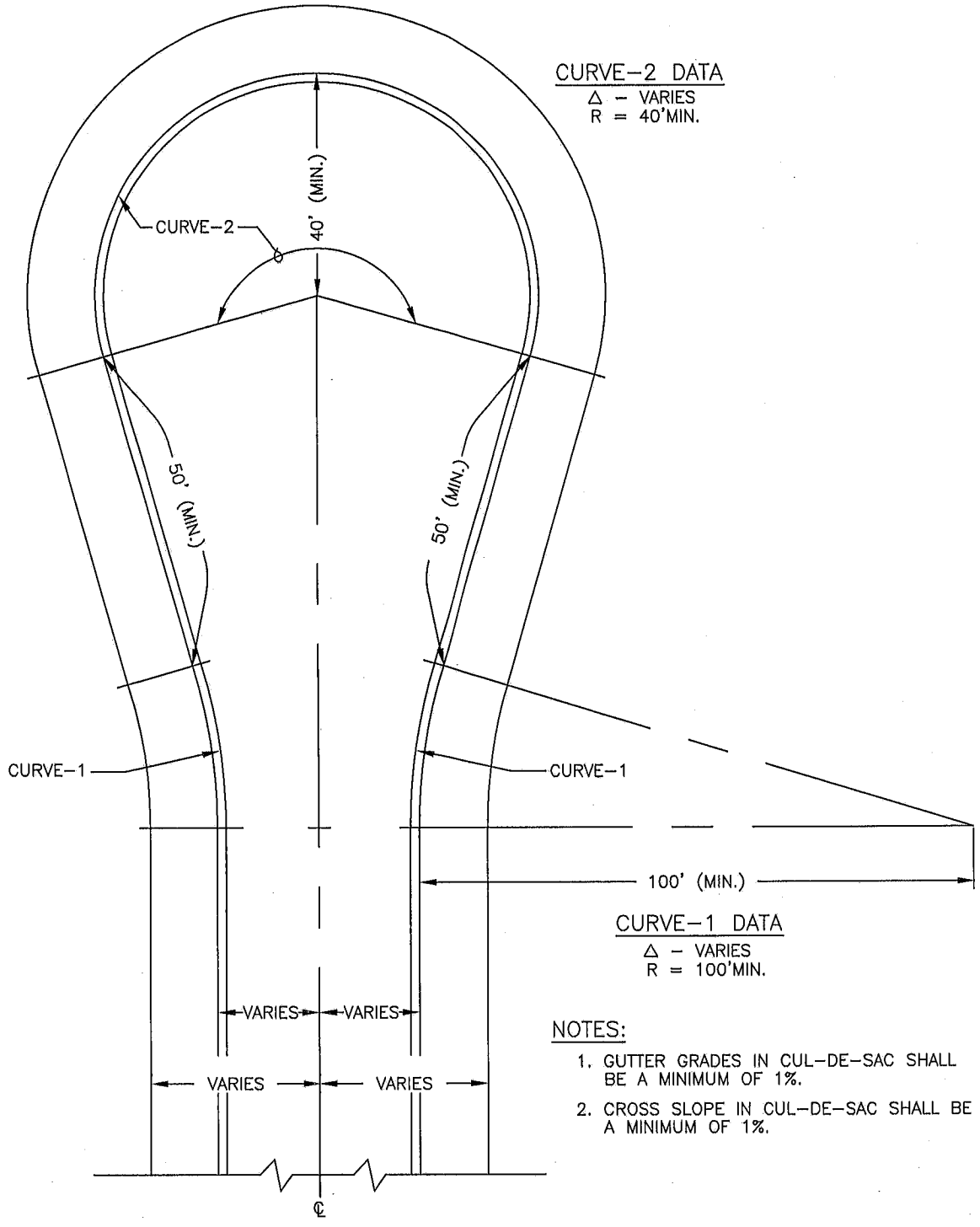
REVISION	BY	APPROVED	DATE
ORIGINAL			10/67
REVISION	CM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

KNUCKLES TYPE I AND TYPE II

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

RWY-07



PLAN
NO SCALE

NOTES:

1. GUTTER GRADES IN CUL–DE–SAC SHALL BE A MINIMUM OF 1%.
2. CROSS SLOPE IN CUL–DE–SAC SHALL BE A MINIMUM OF 1%.

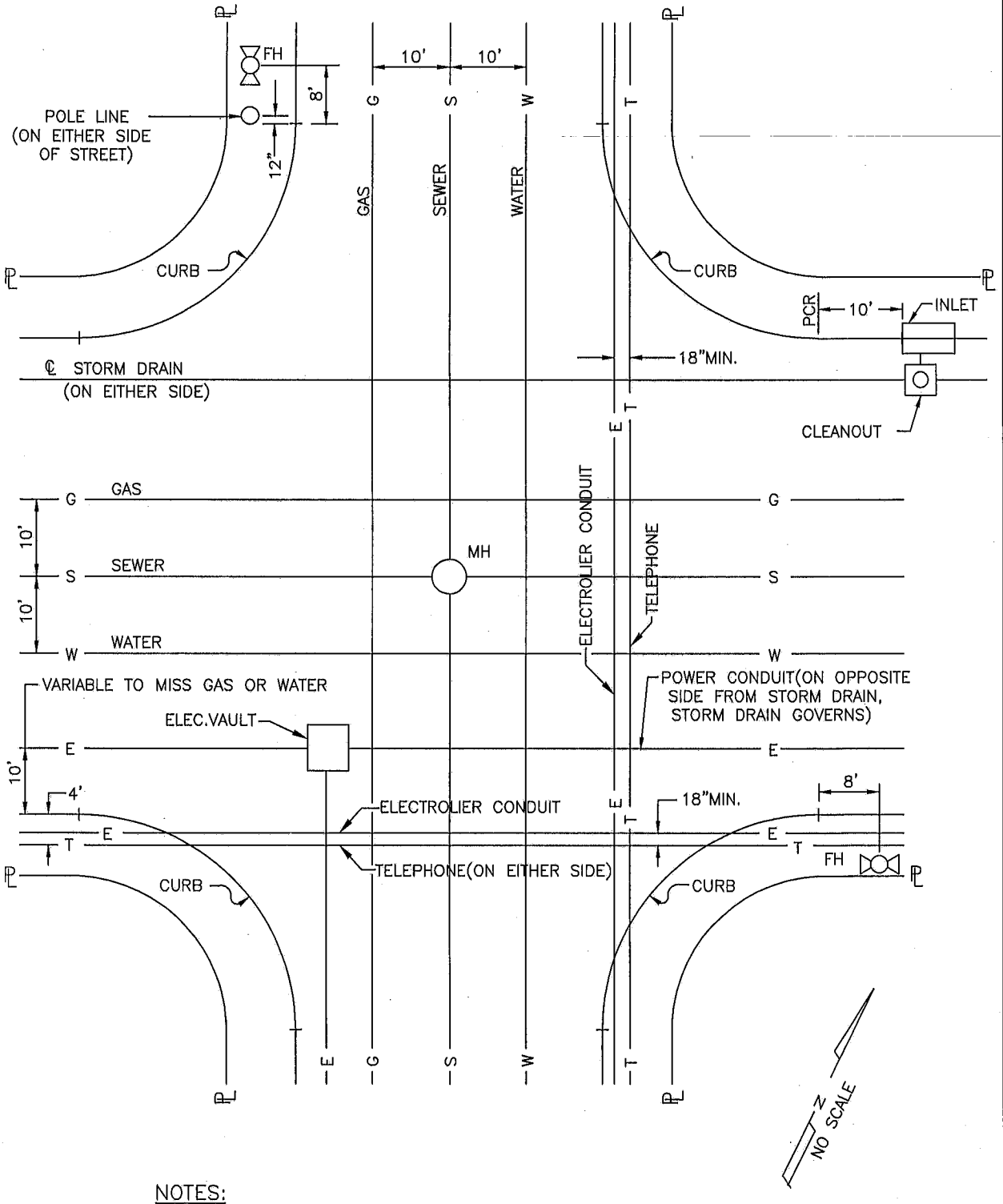
REVISION	BY	APPROVED	DATE
ORIGINAL			10/67
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

CUL–DE–SAC

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

RWY–08



NOTES:

THIS STANDARD IS A GUIDE ONLY. DIMENSIONS SHOWN ARE DESIREABLE BUT DO NOT GOVERN. IF SUCH LOCATIONS ARE IMPRACTICAL, PERMISSION FOR VARIANCE MAY BE APPROVED BY THE CITY ENGINEER.

REVISION	BY	APPROVED	DATE
ORIGINAL			7/75
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

LOCATION OF UNDERGROUND UTILITIES IN STREET

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

RWY-09

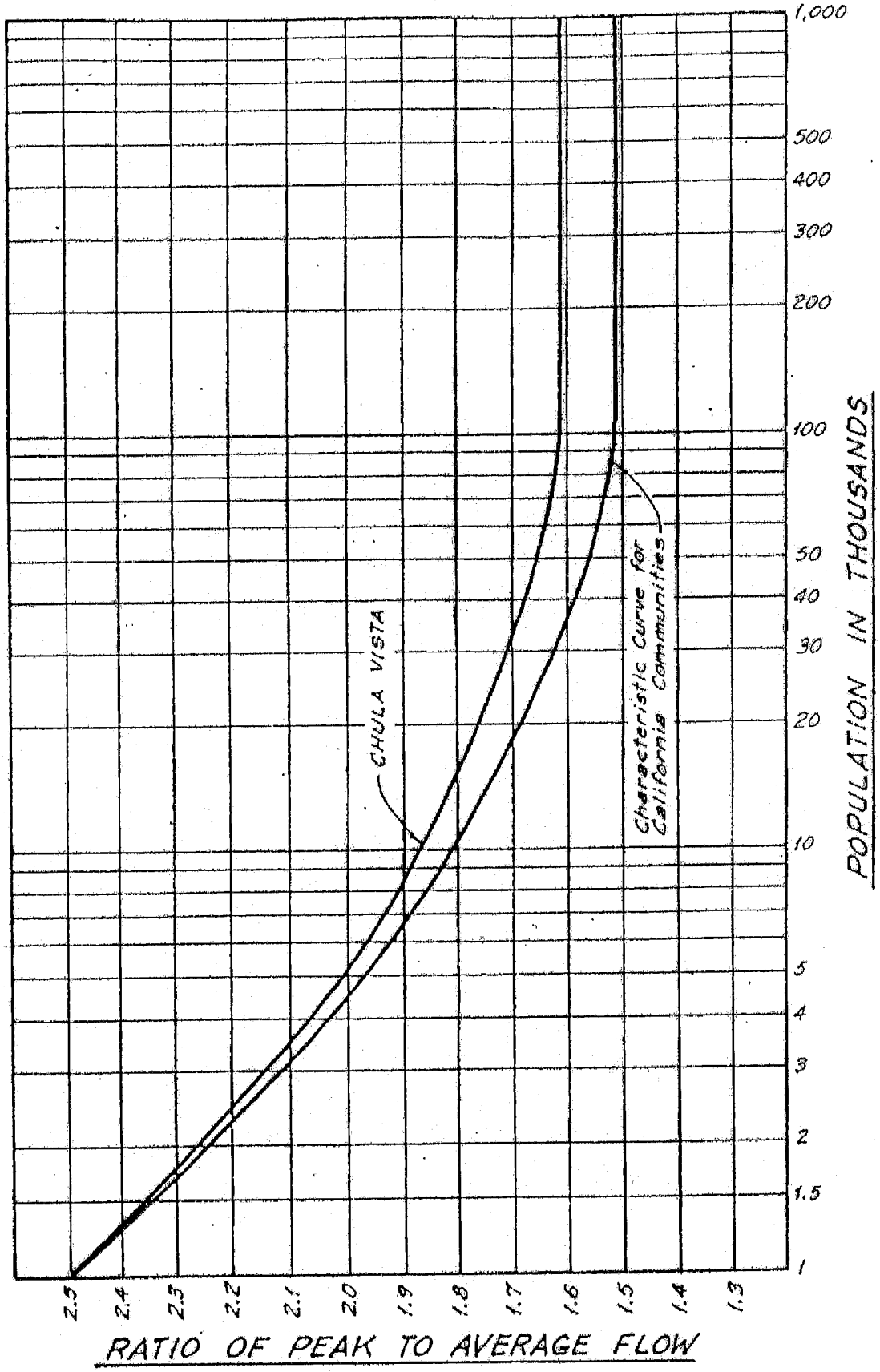
SEWER
(SWR)

CITY OF CHULA VISTA

DESIGN AND CONSTRUCTION STANDARD DRAWINGS 2017

DEPARTMENT OF ENGINEERING AND CAPITAL PROJECTS

RATIO OF PEAK TO AVERAGE SEWAGE FLOW VS. MAGNITUDE OF TRIBUTARY POPULATION



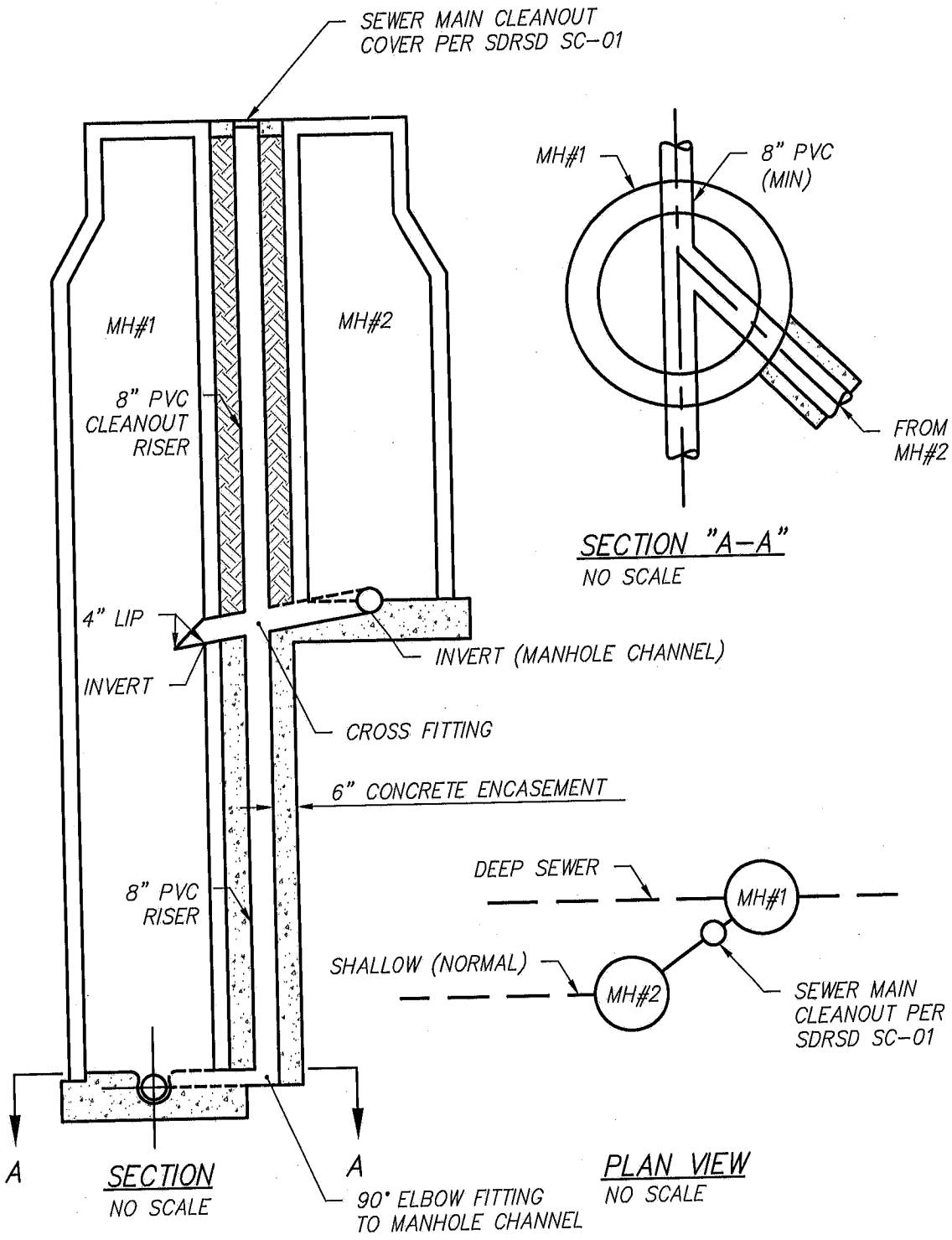
REVISION	BY	APPROVED	DATE
ORIGINAL	JWH		10/72
		C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

PEAK TO AVERAGE SEWER FLOW

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

SWR-01



NOTE: OTHER OPTIONS AVAILABLE ON A CASE-BY-CASE BASIS.

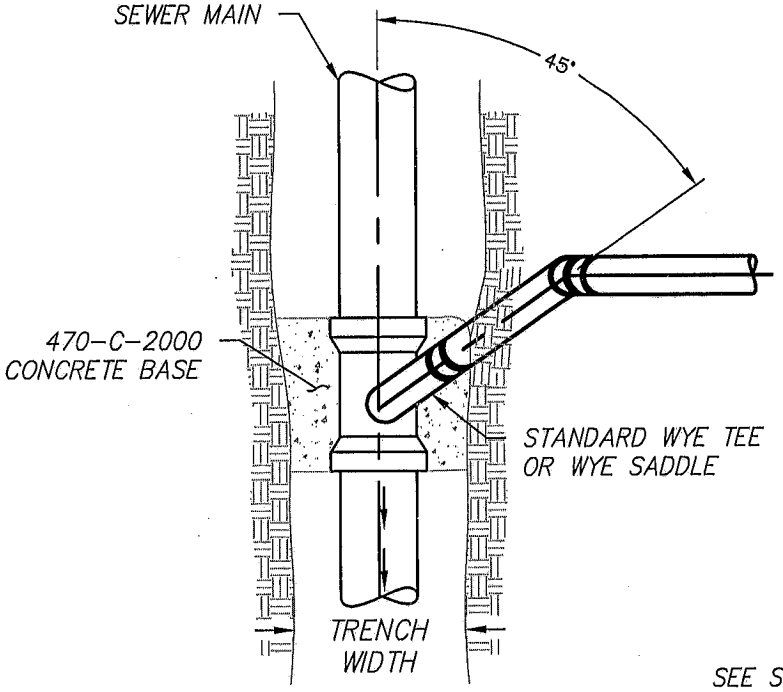
REVISION	BY	APPROVED	DATE
ORIGINAL			2/90
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

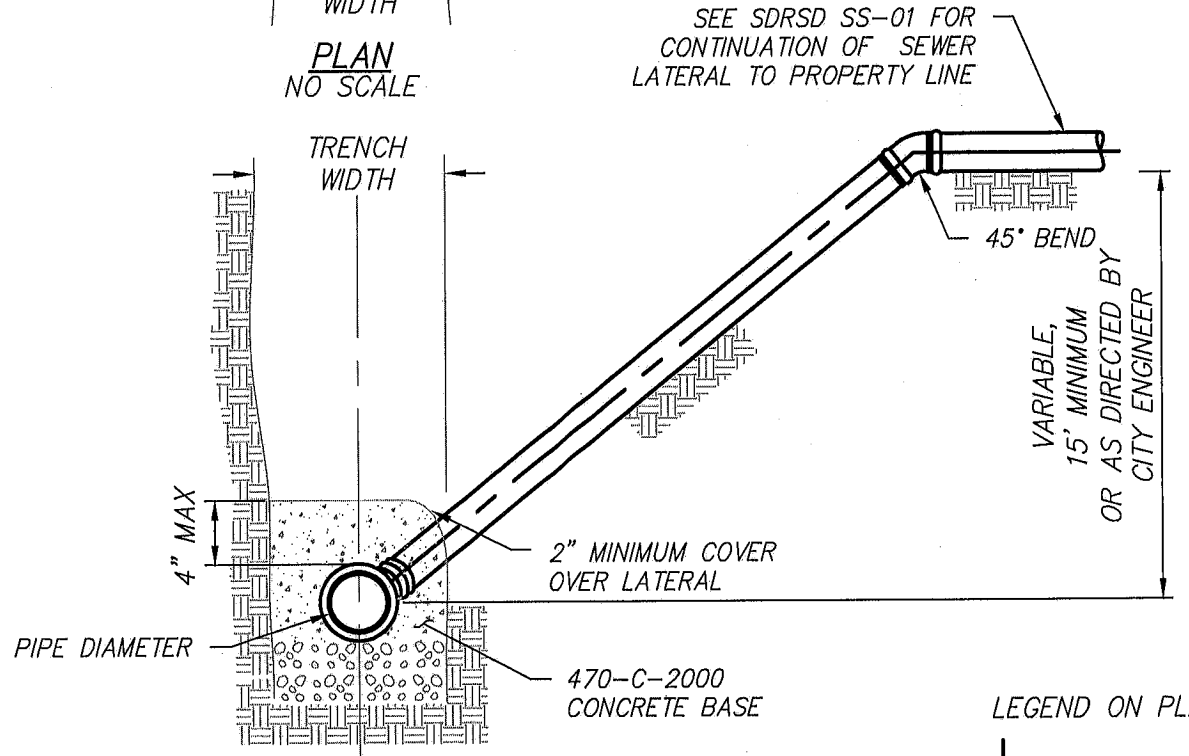
DEEP SEWER CONNECTION

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

SWR-02

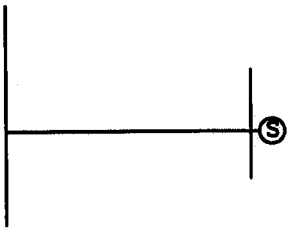


PLAN
NO SCALE



ELEVATION
NO SCALE

LEGEND ON PLANS



NOTES:
1. ALL JOINTS ON SEWER LATERAL PIPE SHALL BE COMPRESSION TYPE OR APPROVED SOLVENT WELD CONNECTION.
2. DEEP CUT HOUSE CONNECTION FOR SEWER LATERAL MAY BE USED ONLY UPON APPROVAL BY THE CITY ENGINEER.

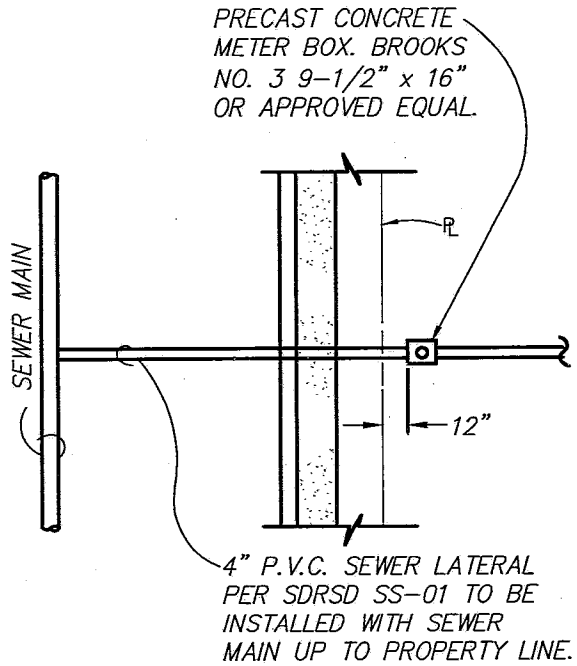
REVISION	BY	APPROVED	DATE
ORIGINAL			3/94
		C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

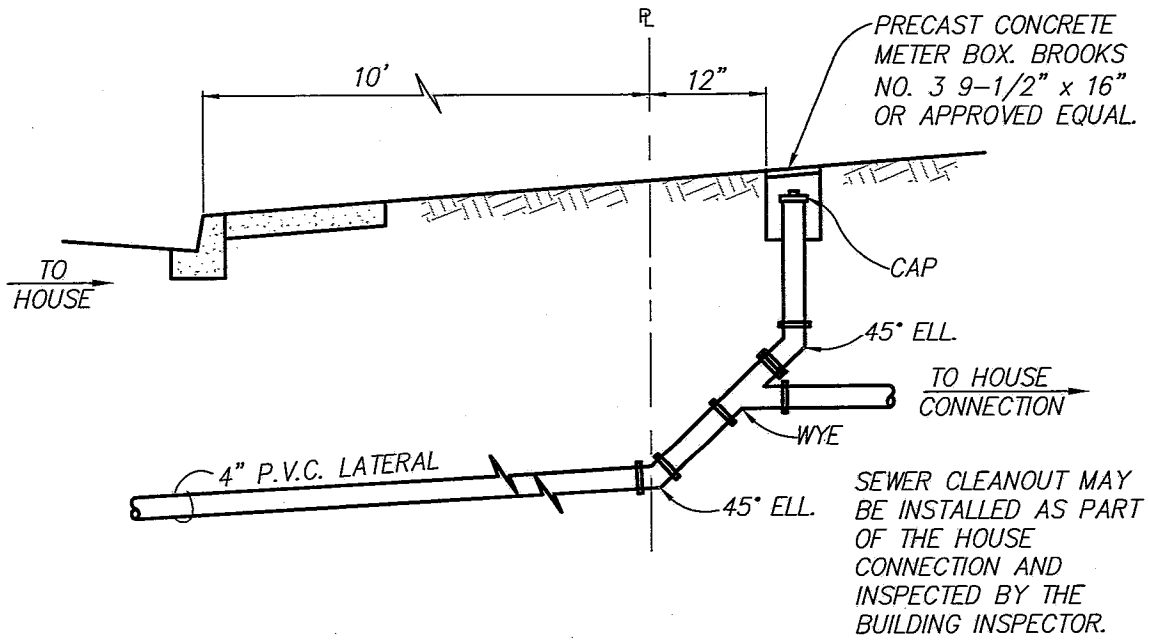
DEEP CUT HOUSE CONNECTION
SEWER LATERAL

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

SWR-03



PLAN VIEW
NO SCALE



PROFILE
NO SCALE

DETAIL ~ SEWER LATERAL IN LANDSCAPED AREAS

NOTES:
1. FOR DETAILS NOT SHOWN SEE SDRSD NO. SS-01 AND SS-02
2. BACKFLOW PREVENTION DEVICES AND BUILDING CLEANOUT SHALL BE LOCATED WITHIN THE BUILDING DRAIN PER UPC REQUIREMENTS.
3. STAMP "S" ON FACE OF CURB.
4. ALL LATERALS ARE PRIVATE PER COUNCIL POLICY 570-01

REVISION	BY	APPROVED	DATE
ORIGINAL			10/96
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

SEWER LATERAL IN LANDSCAPED AREAS

SWR-04

WILLIAM S. VALLE
CITY ENGINEER
11/21/2017

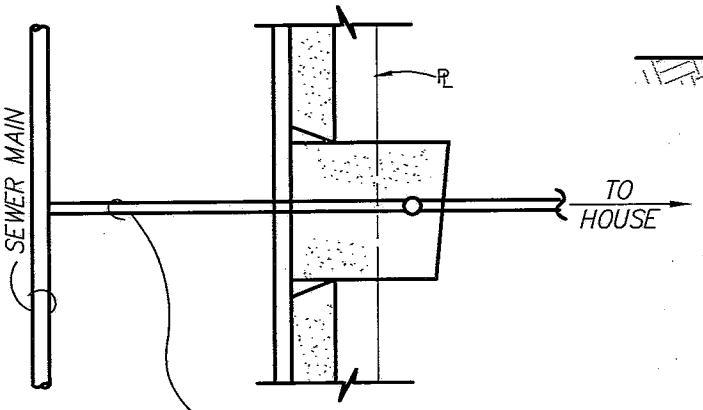
REVISION	BY	APPROVED	DATE
ORIGINAL			10/96
REVISION	CM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

SEWER LATERAL IN PCC DRIVEWAY

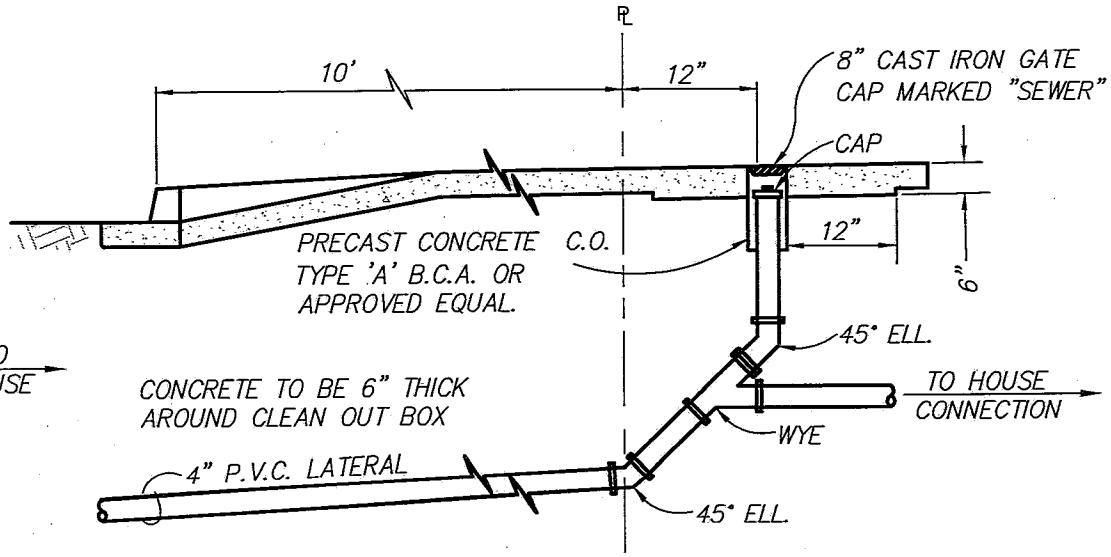
SWR-05

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER



4" P.V.C. SEWER LATERAL PER SDRSD SS-01 TO BE INSTALLED WITH SEWER MAIN UP TO PROPERTY LINE.

PLAN VIEW
NO SCALE



PROFILE
NO SCALE

SEWER CLEANOUT MAY BE INSTALLED AS PART OF THE HOUSE CONNECTION AND INSPECTED BY THE BUILDING INSPECTOR.

FOR DETAILS NOT SHOWN SEE SDRSD SS-01 AND SS-02

DETAIL ~ SEWER LATERAL IN P.C.C. DRIVEWAY

NOTE: BACKFLOW PREVENTION DEVICES AND BUILDING CLEANOUT SHALL BE LOCATED WITHIN THE BUILDING DRAIN PER UPC REQUIREMENTS. STAMP "S" ON FACE OF CURB.

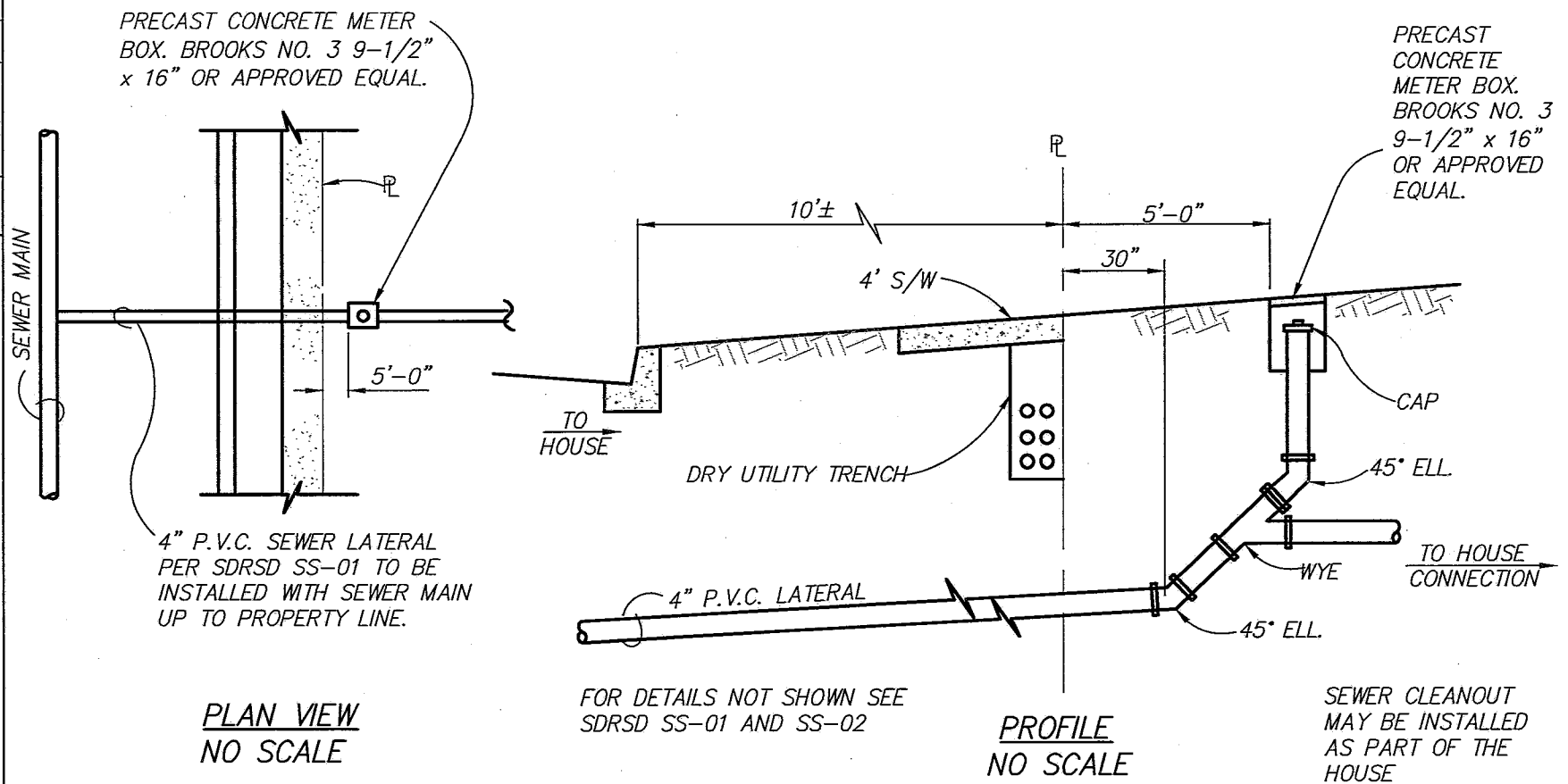
REVISION	BY	APPROVED	DATE
ORIGINAL			7/90
REVISION	CM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

SEWER LATERAL IN LANDSCAPE SW
& DRY UTILITIES IN R.O.W.

WILLIAM S. VALLE
CITY ENGINEER
11/21/2017

SWR-06



DETAIL ~ SEWER LATERAL IN LANDSCAPED AREAS

(SIDEWALK AND DRY UTILITY TRENCH AT PROPERTY LINE)

NOTE: BACKFLOW PREVENTION DEVICES AND BUILDING CLEANOUT SHALL BE LOCATED WITHIN THE BUILDING DRAIN PER UPC REQUIREMENTS OR PER CITY PLANNING AND BUILDING REQUIREMENTS STAMP "S" ON FACE OF CURB.

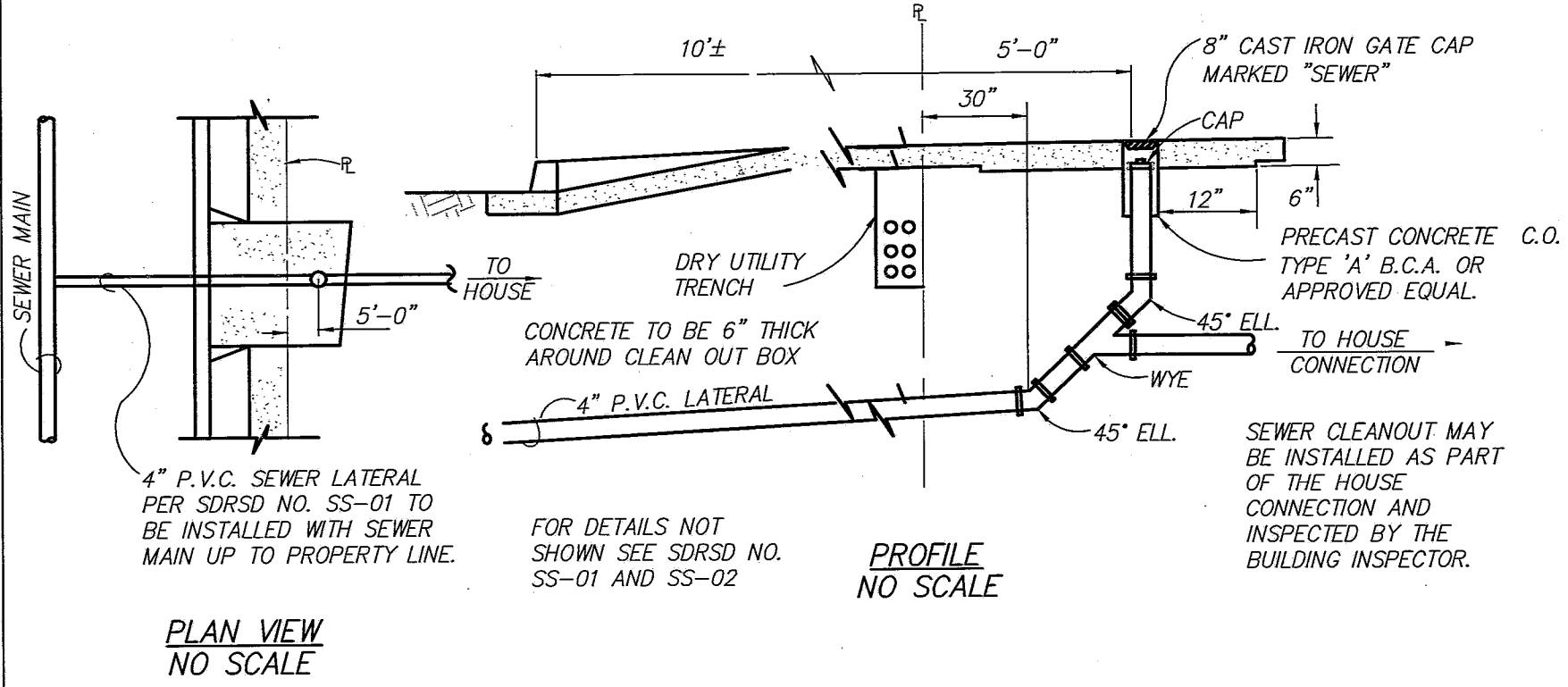
REVISION	BY	APPROVED	DATE
ORIGINAL			7/99
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

SEWER LATERAL IN PCC DWY – SW
& DRY UTILITIES IN R.O.W.

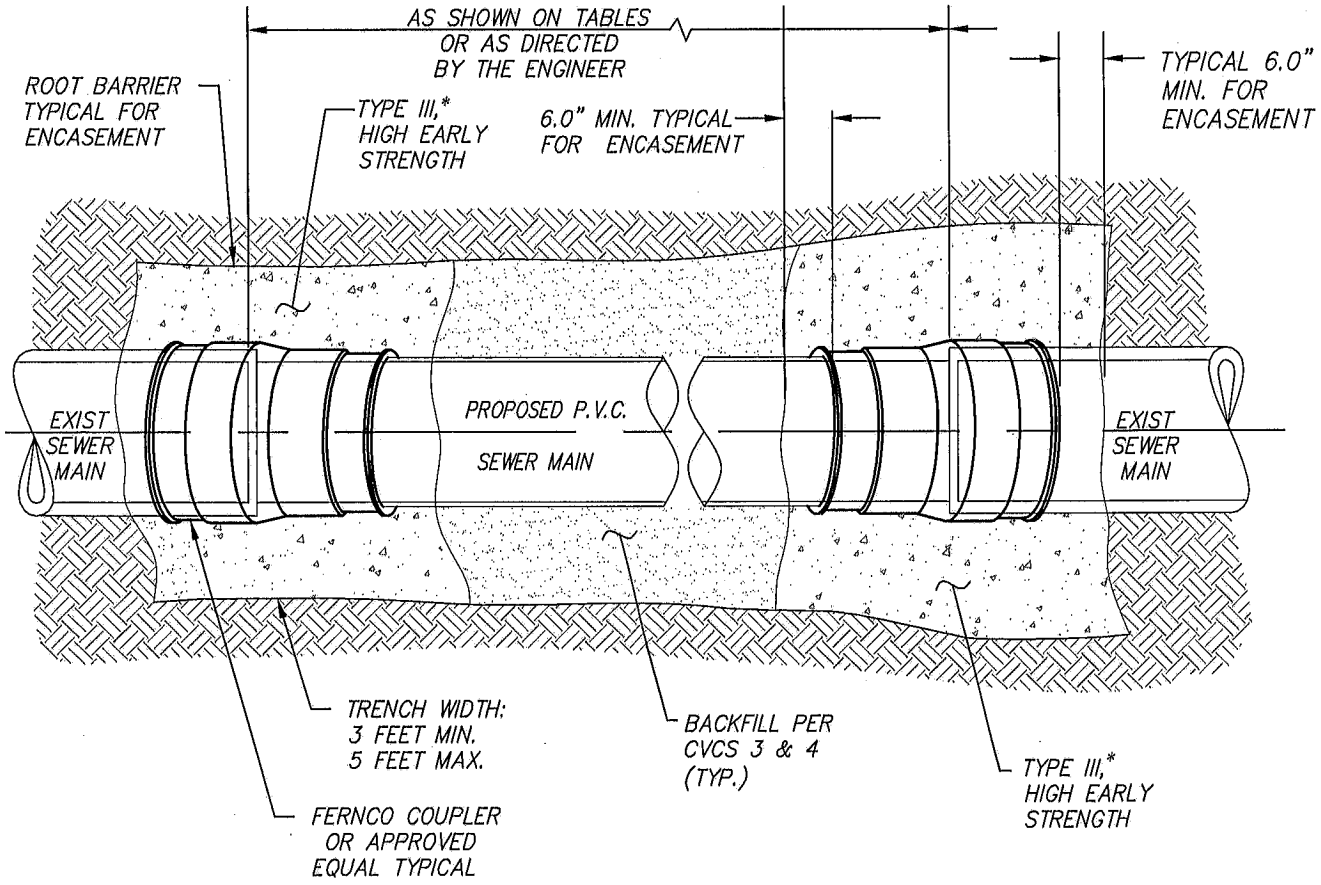
WILLIAM S. VALLE
CITY ENGINEER
11/21/2017

SWR-07



DETAIL ~ PRIVATE SEWER LATERAL IN P.C.C. DRIVEWAY
(SIDEWALK AND DRY UTILITY TRENCH AT PROPERTY LINE)

NOTE: BACKFLOW PREVENTION DEVICES AND BUILDING CLEANOUT SHALL BE LOCATED WITHIN THE BUILDING DRAIN PER UPC REQUIREMENTS OR PER CITY PLANNING AND BUILDING REQUIREMENTS STAMP "S" ON FACE OF CURB.



* ENCASEMENT:
REACH MIN. STRENGTH OF
2000 PSI WITHIN 24 HOURS.

REVISION	BY	APPROVED	DATE
ORIGINAL	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

SEWER MAIN REPAIR DETAILS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

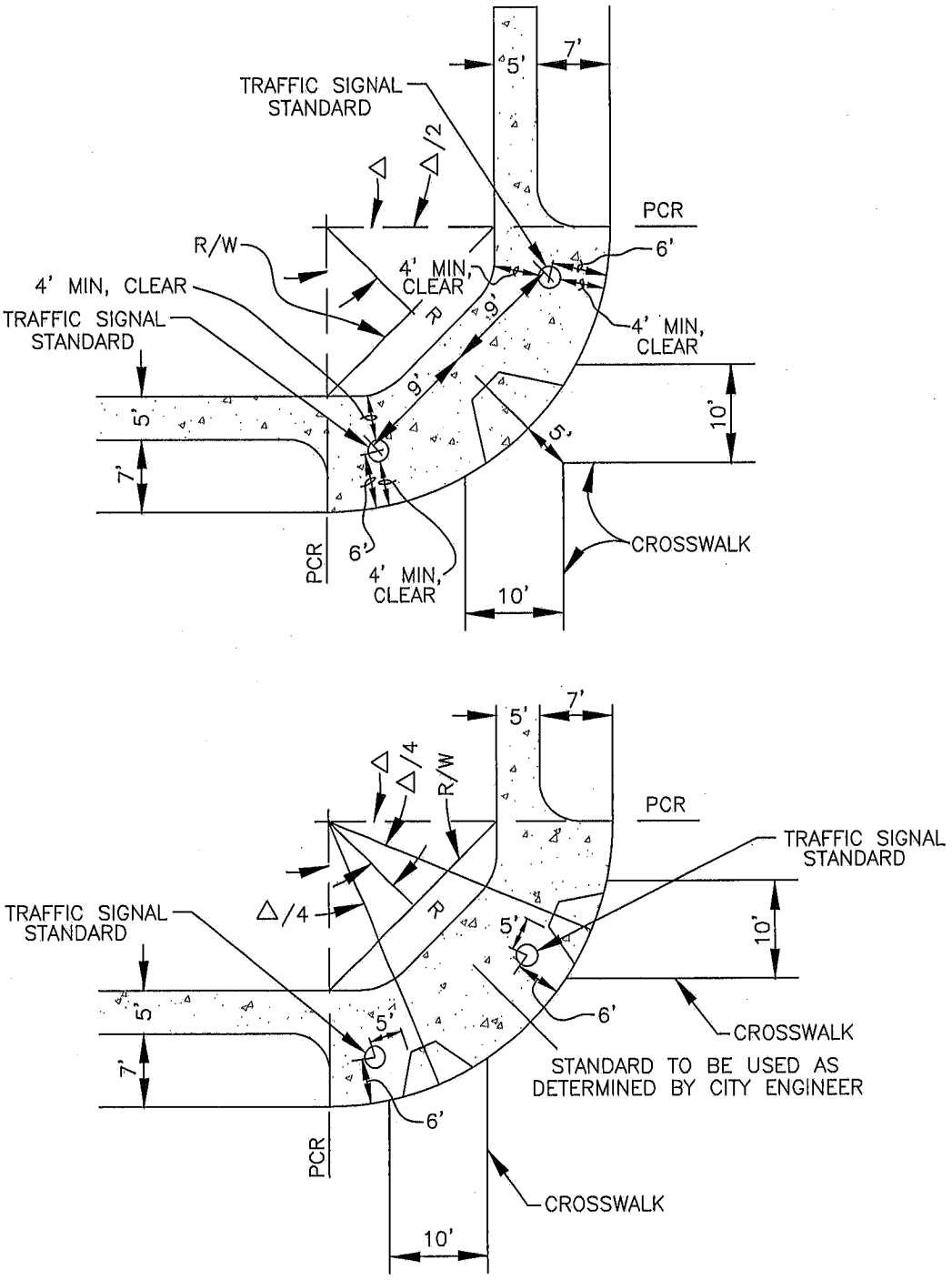
SWR-08

TRAFFIC
(TRF)

CITY OF CHULA VISTA

DESIGN AND CONSTRUCTION STANDARD DRAWINGS 2017

DEPARTMENT OF ENGINEERING AND CAPITAL PROJECTS



NOTES:

FINAL DETERMINATION OF TRAFFIC SIGNAL STANDARD LOCATION SHALL BE MADE BY THE CITY'S TRAFFIC ENGINEERING SECTION PRIOR TO INSTALLATION.

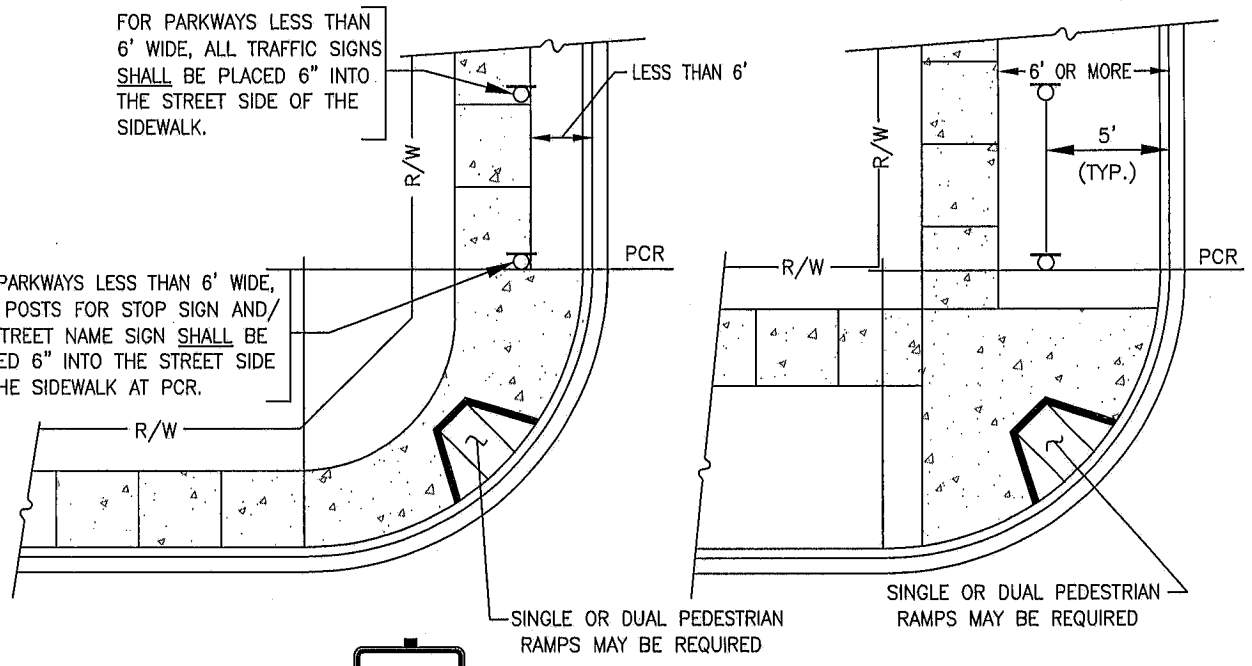
REVISION	BY	APPROVED	DATE
ORIGINAL			2/90
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

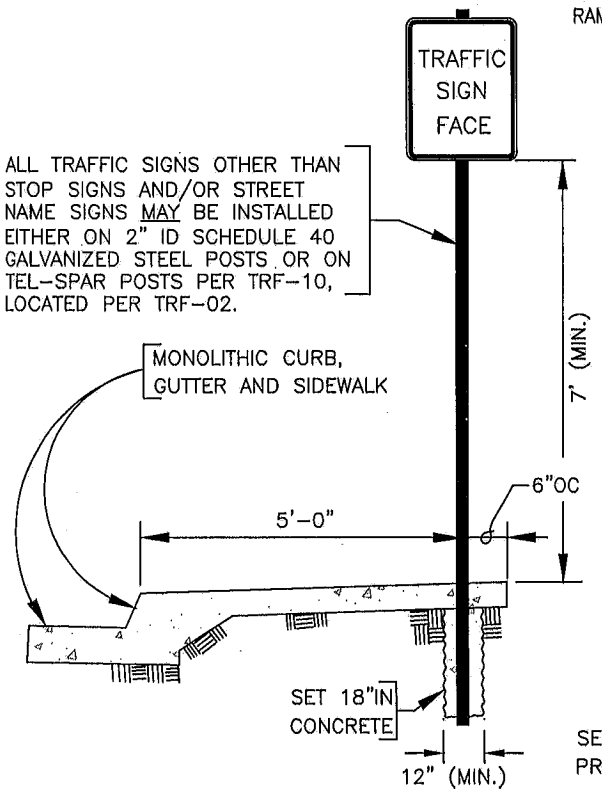
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

TRAFFIC SIGNAL STANDARD LOCATIONS

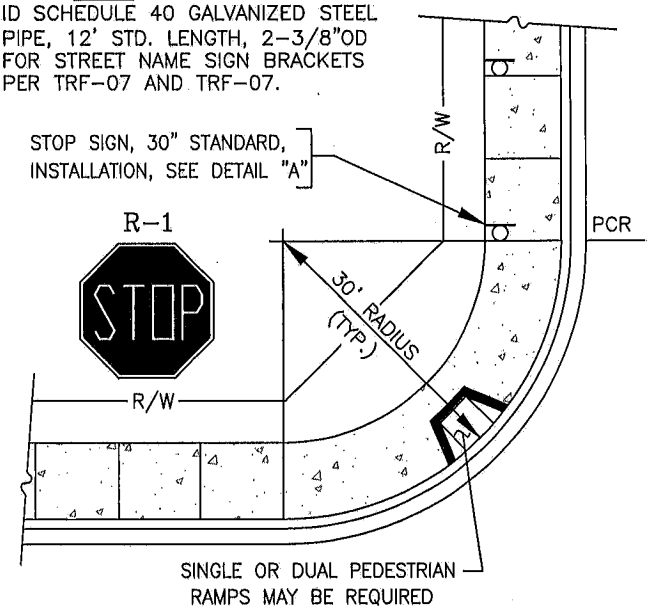
WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF-01





DETAIL "A"
NO SCALE



SEVERAL ORDINANCES IN THE CITY OF CHULA VISTA CITY CODE PROHIBIT THE OBSTRUCTION OF REGULATORY SIGNS IN THE CITY:

12.12.040 OBSTRUCTING PUBLIC WAYS WITH VEGETATION PROHIBITED.

12.12.120 VISION CLEARANCE-INTERSECTION REQUIREMENTS.

12.32.040 APPROVAL AND PERMIT REQUIRED.

12.32.150 TRIMMING REGULATIONS-OWNER RESPONSIBILITY-CITY TO PERFORM WORK WHEN.

12.32.190 MAINTENANCE OF PUBLIC RIGHT-OF-WAY BY PROPERTY OWNER.

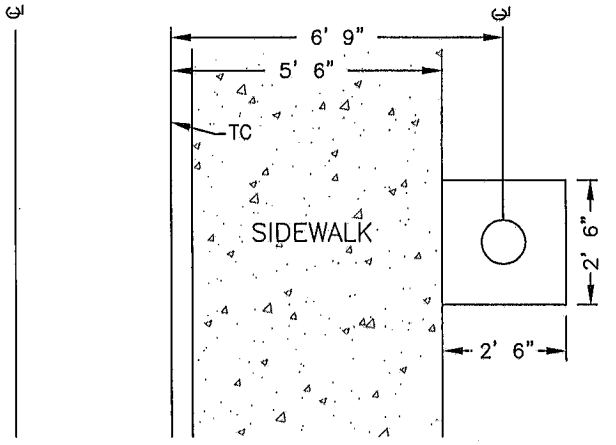
REVISION	BY	APPROVED	DATE
ORIGINAL			2/90
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

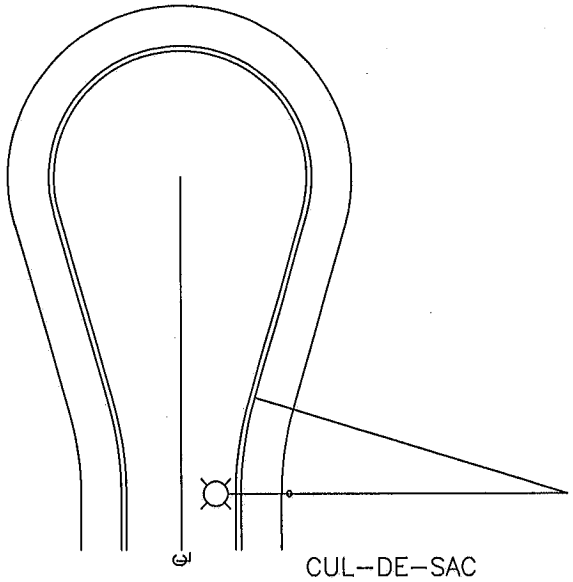
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

TYPICAL SIGN POST PLACEMENT

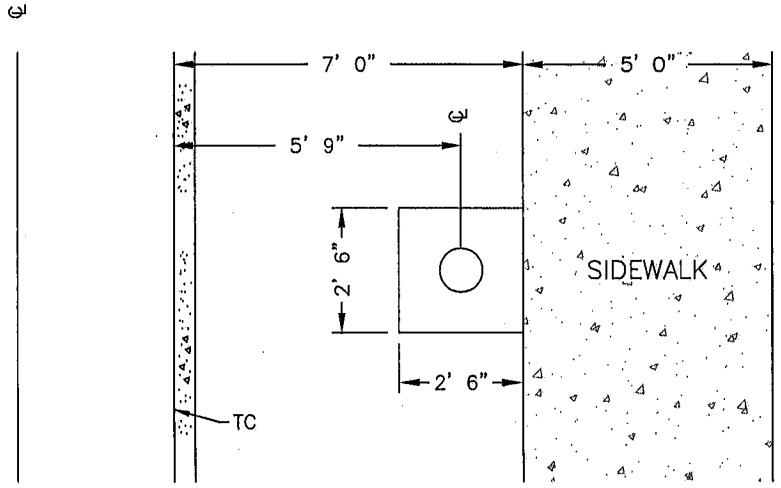
WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

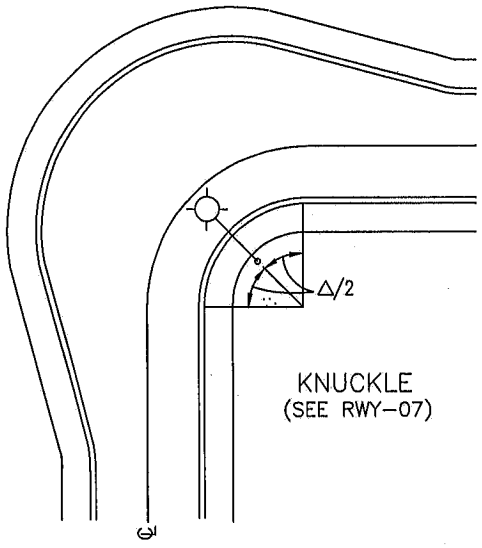
TRF-02



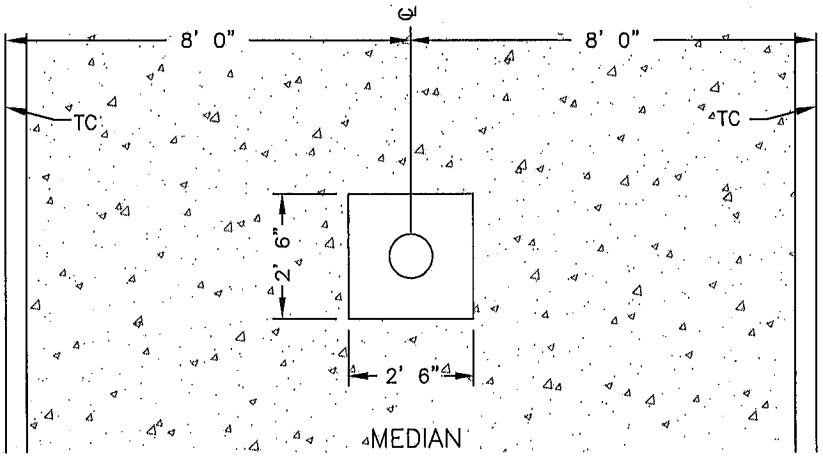


CUL–DE–SAC
(SEE RWY–08)





KNUCKLE
(SEE RWY–07)



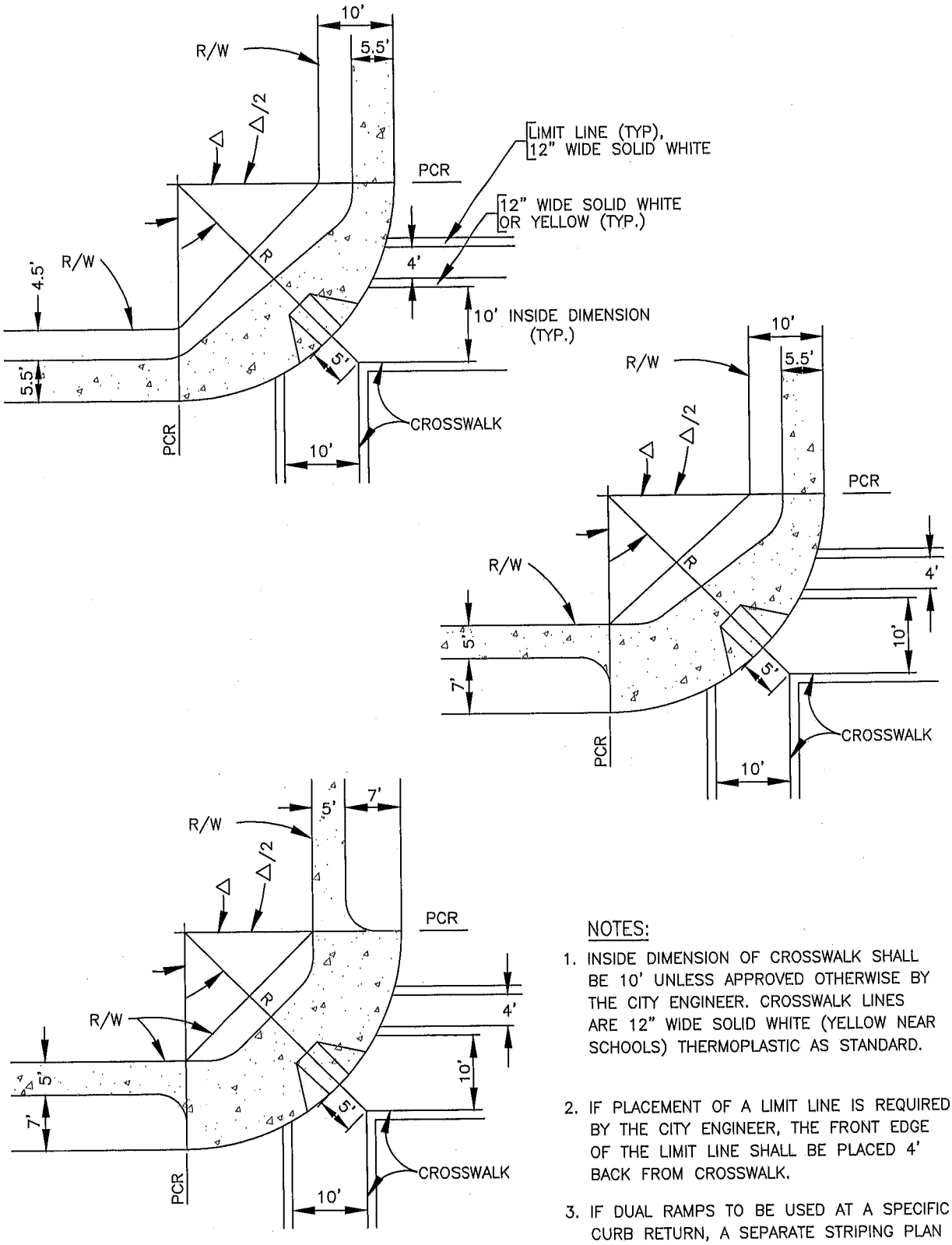
REVISION	BY	APPROVED	DATE
ORIGINAL			2/90
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

STREET LIGHT LOCATIONS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF–03



NOTES:

1. INSIDE DIMENSION OF CROSSWALK SHALL BE 10' UNLESS APPROVED OTHERWISE BY THE CITY ENGINEER. CROSSWALK LINES ARE 12" WIDE SOLID WHITE (YELLOW NEAR SCHOOLS) THERMOPLASTIC AS STANDARD.

2. IF PLACEMENT OF A LIMIT LINE IS REQUIRED BY THE CITY ENGINEER, THE FRONT EDGE OF THE LIMIT LINE SHALL BE PLACED 4' BACK FROM CROSSWALK.

3. IF DUAL RAMPS TO BE USED AT A SPECIFIC CURB RETURN, A SEPARATE STRIPING PLAN SHALL BE SUBMITTED FOR APPROVAL BY THE CITY ENGINEER.

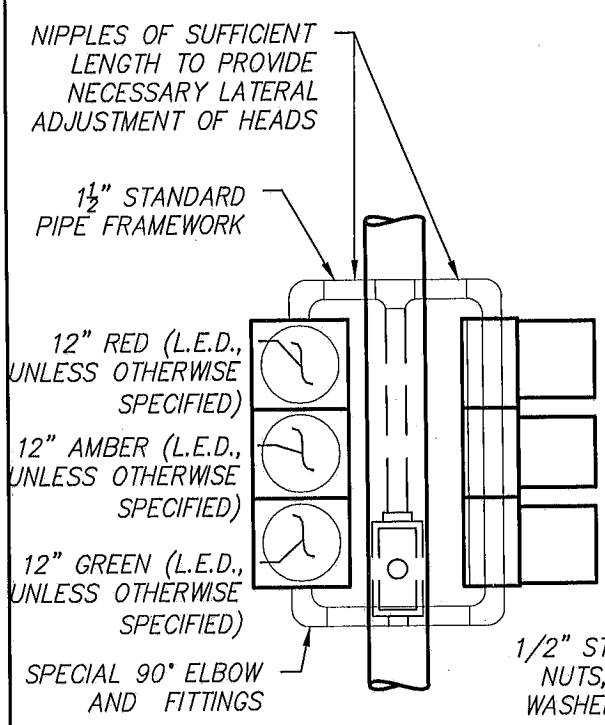
REVISION	BY	APPROVED	DATE
ORIGINAL			2/90
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

TYPICAL SIDEWALK AND CROSSWALK LOCATIONS

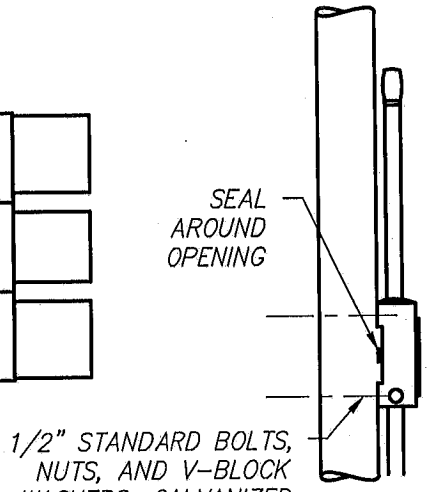
WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF-04



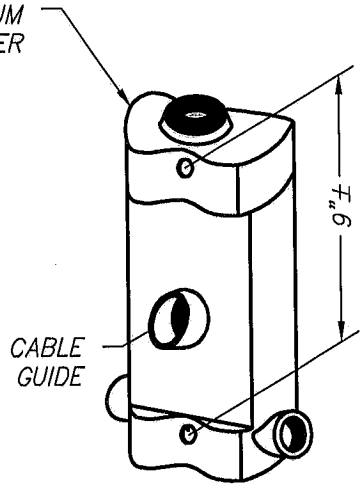
ELEVATION–TYPICAL
NO SCALE

FRONT VIEW



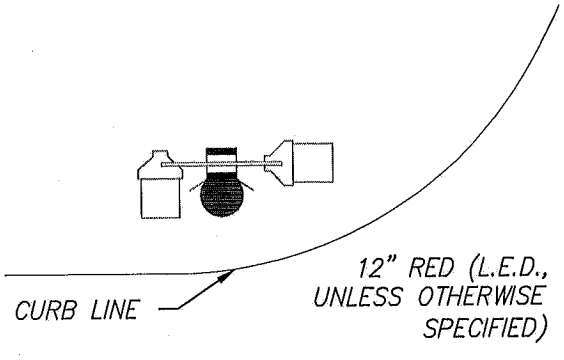
BRACKET MOUNTING
NO SCALE

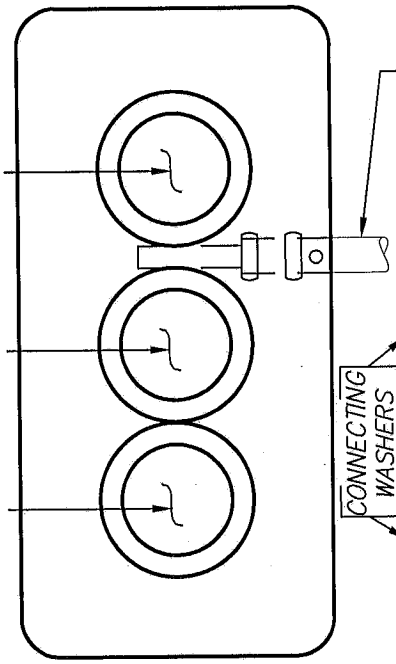
SIDE VIEW

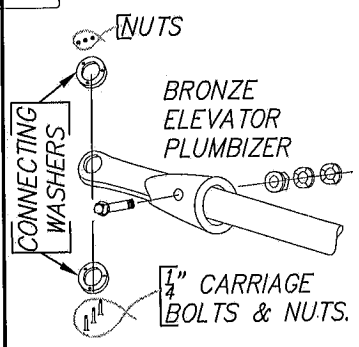


TERMINAL BOX
NO SCALE

NOTES:
BRACKET MOUNTINGS SHALL BE ON SIDE OF POLE AWAY FROM TRAFFIC







NOTES:
PLUMB AND SECURE SIGNAL HEAD, THEN DRILL 7/16" HOLE THRU MAST ARM IN LINE WITH HOLE IN SLIPFITTER. PLACE 3/8" GALVANIZED BOLT WITH WASHER UNDER HEAD THRU HOLE & SECURE WITH WASHER AND TWO NUTS.

ELEVATOR PLUMBIZER ASSEMBLY
NO SCALE

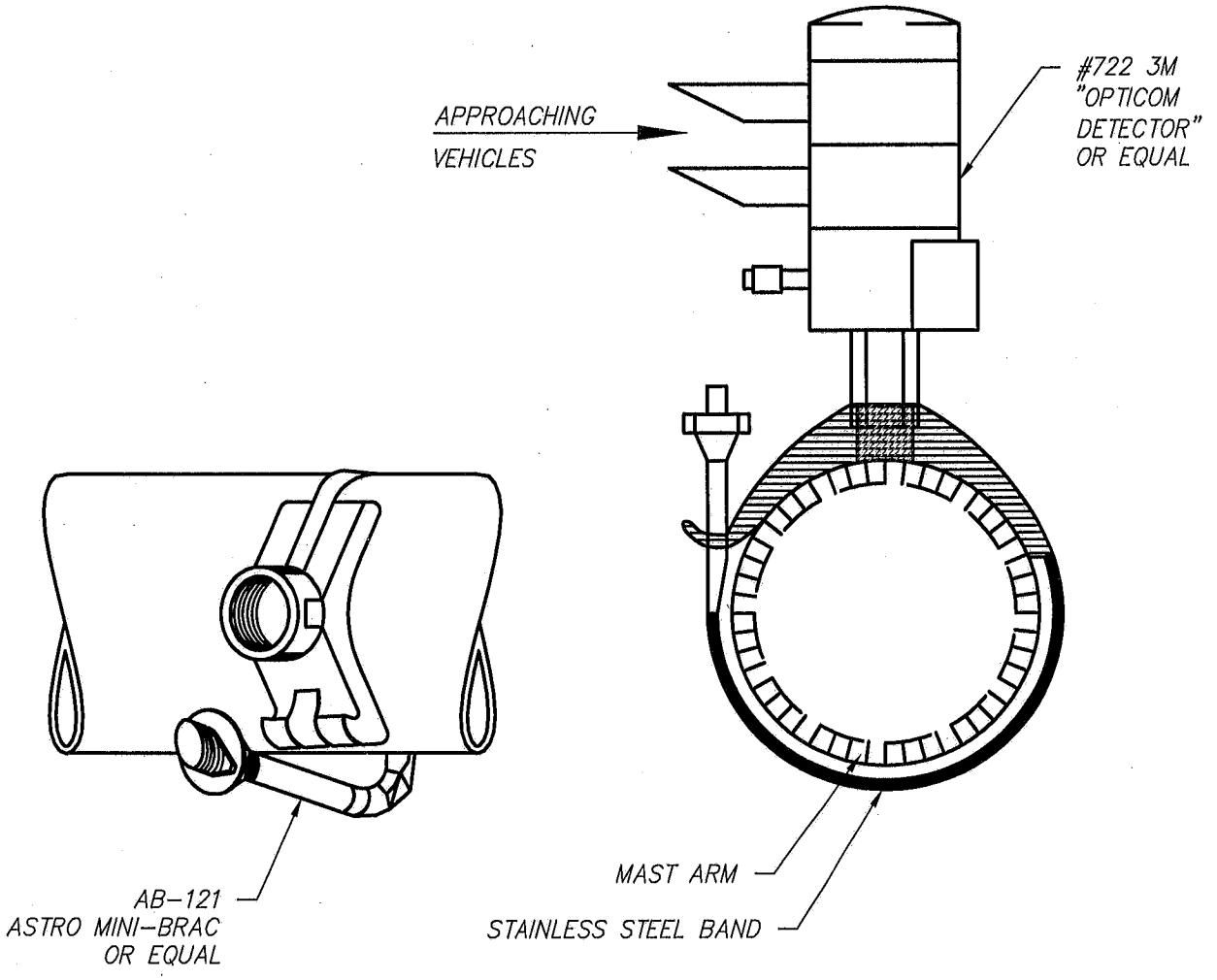
REVISION	BY	APPROVED	DATE
ORIGINAL			12/67
REVISION	CM	CVM	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

SIGNAL HEAD MOUNTING BRACKET AND MAST ARM INSTALLATION

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF–05



EMERGENCY VEHICLE PRE-EMPTION (EVPE) DETECTOR

NO SCALE — MOUNTING DETAILS

REVISION	BY	APPROVED	DATE
ORIGINAL			3/83
REVISION	CM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

EVPE DETECTOR

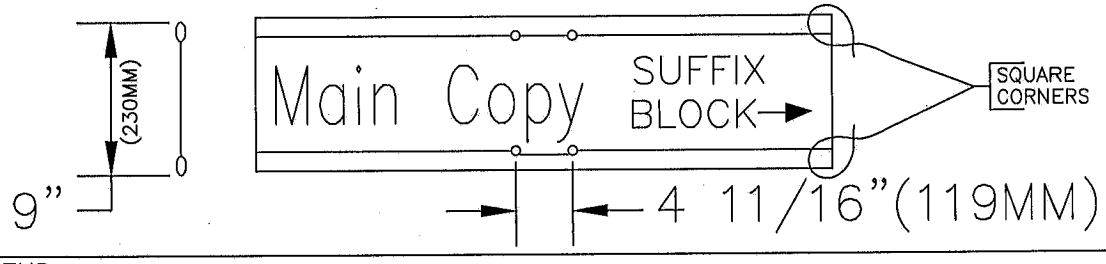
WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF-06

STOCK NO.	SIZE	MATERIAL & FINISH CODE		BORDER
V14F-909EX-2C1P V14F-909EX-2C2P	9" HEIGHT BY VARIABLE LENGTH 24" MINIMUM	ALUMINUM EXTRUSION PER CALTRANS 6061T6 OR 5052-H38 ALLOY MATERIAL .250" BULB WITH .091" WEB ONLY		3/8" (9.53MM)
LETTER COLOR	BK/GR COLOR	HOLES	HOLE ℄	RADIUS
REFLECTIVE WHITE *REFLECTIVE BLUE	REFLECTIVE BLUE *REFLECTIVE WHITE	TWO HOLES TOP & TWO HOLES BOTTOM	4-11/16" ON CENTERS	SQUARE CORNERS

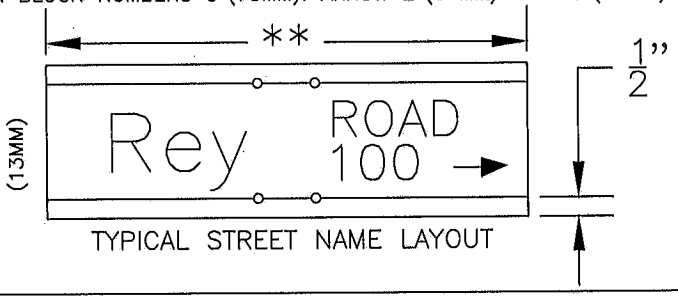
* FOR PRIVATE STREETS.

A PLATE: WIDTH 9"(230MM) BY VARIABLE LENGTH, 24"(610MM) MINIMUM WITH 48"(1220MM) MAXIMUM. ALUMINUM ALLOY PER CALTRANS, EXTRUSION TYPE WITH 0.250"(6.35MM) BULB AND 0.091"(2.31MM) WEB. SQUARE CORNERS. TWO HOLES TOP, TWO BOTTOM ON 4 11/16"(119MM) CENTERS.



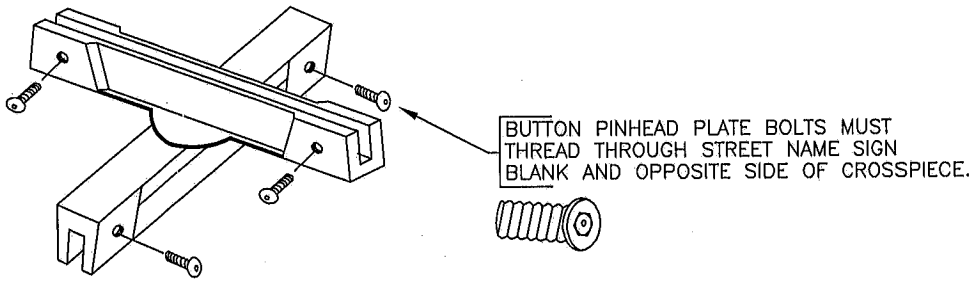
B LEGEND: TRAFFIC STYLE REFLECTIVE LETTERS, BLUE OR WHITE:
MAIN COPY 6"(150MM) U.C., 4-1/2"(114MM) L.C.: FIFTEEN(15) LETTERS MAXIMUM,
EVERY TWO LOWER CASE "i" COUNTS AS ONE LETTER.
SUFFIX 3"(75MM) U.C.: BLOCK NUMBERS 3"(75MM): ARROW 2"(50MM) X 3.55"(90MM).

**
24"(610MM),
30"(760MM),
36"(915MM),
42"(1070MM),
48"(1220MM)



TYPICAL STREET NAME LAYOUT

C CROSSPIECE: V14F-909EX-90°



STREET NAME SIGN SYSTEM

REVISION	BY	APPROVED	DATE
ORIGINAL			7/90
REVISION	CM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

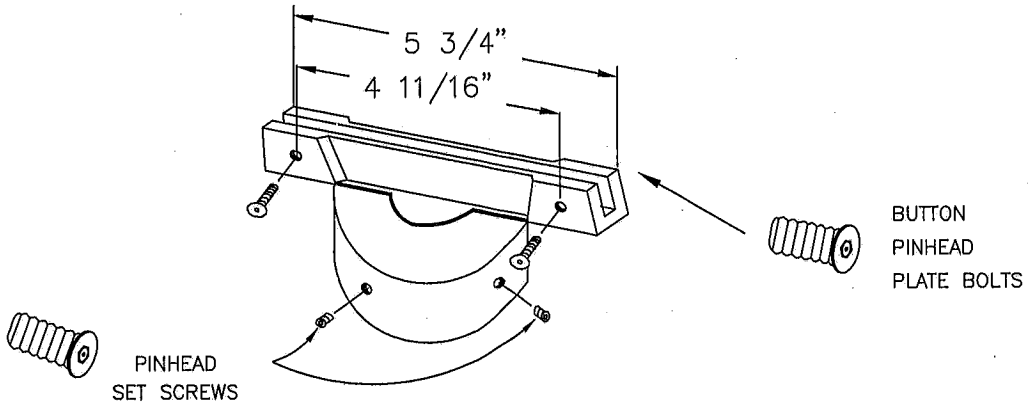
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

STREET NAME SIGNS

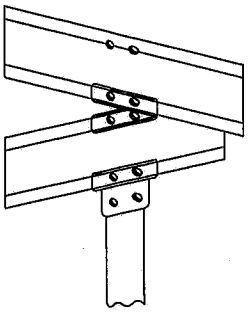
WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF-07

D CAP: V14F-909EX-2C TO FIT 2" I.D. GALVANIZED STEEL PIPE



E MOUNTING: V14F-90EX-2C2P ILLUSTRATED



F SPECIFICATION: V14F-909EX-2C1P ONE NAME ASSEMBLY OR
V14F-909EX-2C2P TWO NAME ASSEMBLY

9" WIDTH x VARIABLE, 24" LENGTH MINIMUM, 48" MAXIMUM LENGTH. EXTRUSION TYPE ALUMINUM BLADE WITH .250" BULB AND .091" WEB. REFLECTIVE BLUE BACKGROUND, DOUBLE FACED. SQUARE CORNER. TWO HOLES TOP, TWO HOLES BOTTON ON 4 11/16" CENTERS.

TRAFFIC STYLE LETTERS REFLECTIVE WHITE 6" U.C. AND 4 1/2" L.C. MAIN COPY. SUFFIX 3" U.C. ON TOP LINE, 3" BLOCK NUMBERS SECOND LINE WITH 2" x 3.55" ARROW TO THE RIGHT.

90° CROSS PIECE COMPLETE WITH BUTTON PIN HEAD PLATE BOLTS. BOLTS MUST THREAD THROUGH STREET NAME SIGN BLANK AND OPPOSITE SIDE OF CROSSPIECE. CAP TO FIT 2" I.D. PIPE, WITH PIN HEAD SET SCREWS AND BUTTON PIN HEAD PLATE BOLTS, PURSUANT TO CITY OF CHULA VISTA SPECIFICATIONS.

STREET NAME SIGN SYSTEM

NOTE: FORMERLY CVDS 35
NOTE: FORMERLY CVDS 33

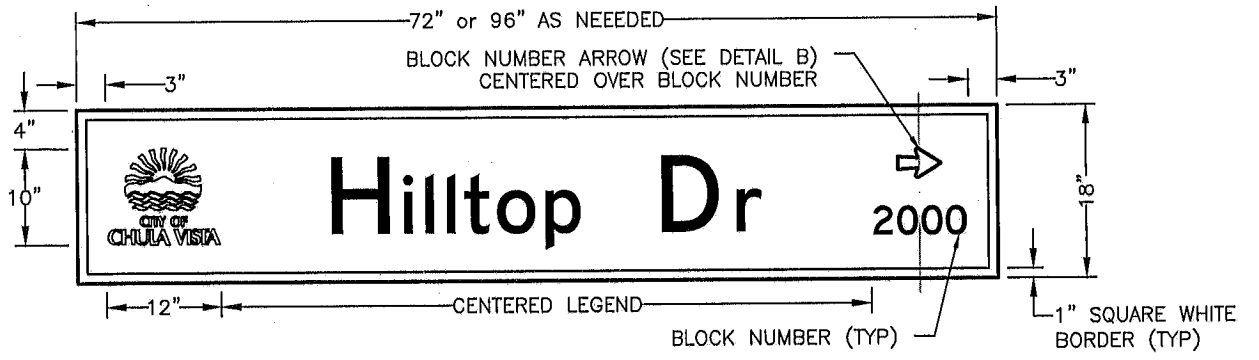
REVISION	BY	APPROVED	DATE
ORIGINAL			7/72
REVISION	CM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

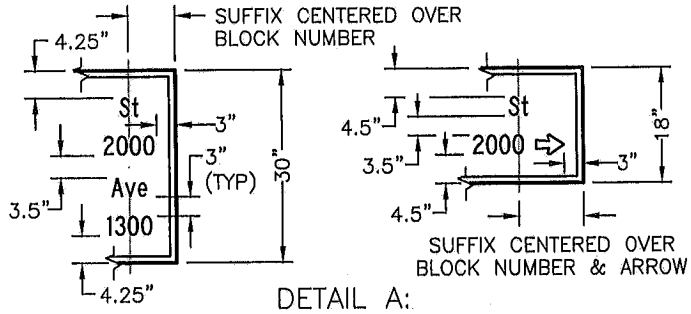
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

STREET NAME SIGNS DETAILS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF-07



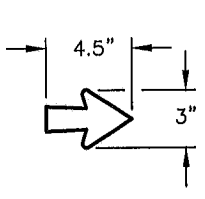


DETAIL A:
SUFFIX PLACEMENT RESTRICTIVE CONDITIONS

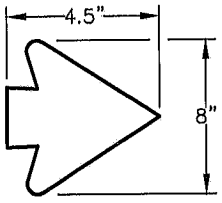
NOTES:

1. DG3 REFLECTIVE SHEETING PER ASTM D 4956 TYPE XI STANDARDS
2. GREEN BACKGROUND WITH WHITE FHWA HIGHWAY GOTHIC FONT. STREET NAME 8" UPPERCASE AND 6" LOWERCASE. BLOCK NUMBER 3".
3. 0.05 ALUMINUM SUBSTRATE
4. RELATIVE DIMENSIONS FOR BLOCK AND STREET NAME ARROWS (DETAILS B AND C) PER STANDARD HIGHWAY SIGN AND MARKINGS DETAIL S-2

GUIDANCE FOR FONT SERIES, SIGN SIZE AND PLACEMENT: DEFAULT TO AN 18" X 72" SIGN BLANK AND SERIES E FONT. PLACE ABBREVIATED SUFFIX IN-LINE WITH STREET NAME. FOR ALPHA STREET NAMES ONLY, SPELL OUT "STREET". TO ACHIEVE LEGEND FIT USE THE FOLLOWING IN ORDER OF PRIORITY: 1.) SERIES D 2.) ABBREVIATIONS (SEE DETAIL CVD-TRXX SHEET 3) 3.) SERIES C FONT. 4.) 96" X 18" SIGN BLANK WITH SERIES E FONT FOLLOWED BY D, C AND B SERIES. 5.) STACK STREET SUFFIX OVER THE BLOCK NUMBER AND ARROW USING 3" FONT (SEE DETAIL A). USE SERIES E FONT FOLLOWED BY D, C AND B SERIES. ONLY ONE SERIES FONT SHALL BE USED PER SIGN.



DETAIL B:
BLOCK NUMBER
ARROW



DETAIL C:
STREET NAME
DIRECTIONAL
ARROW

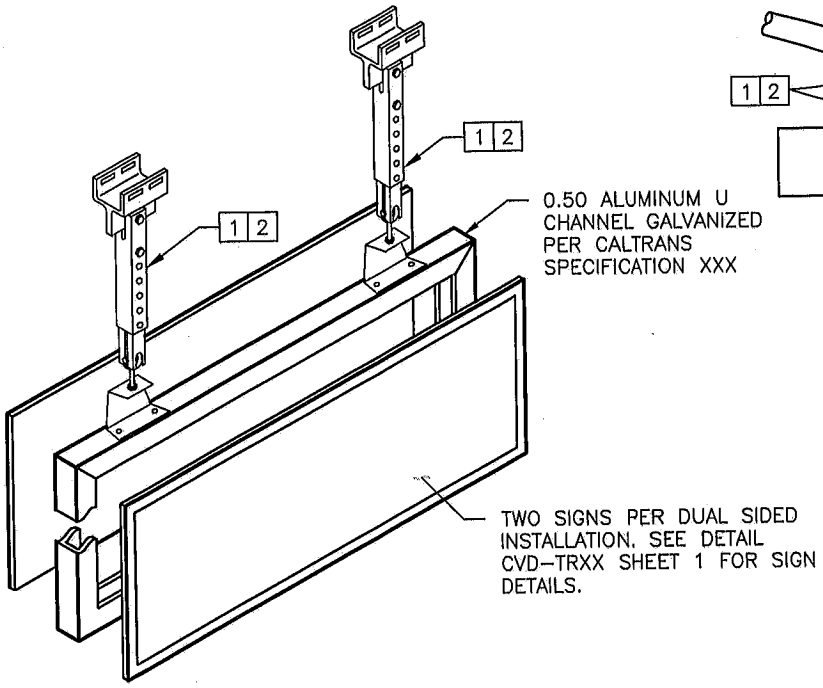
REVISION	BY	APPROVED	DATE
ORIGINAL	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

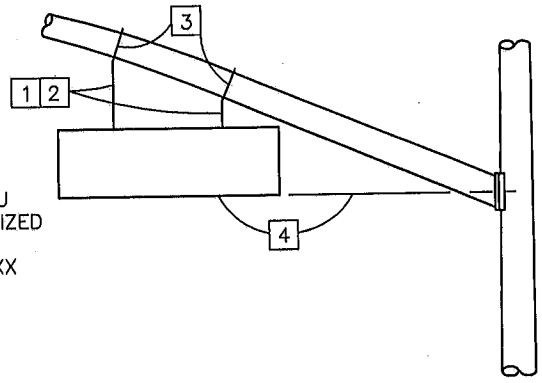
OVERHEAD STREET NAME SIGNS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF-07



DETAIL D:
SIGN FRAME AND ATTACHMENT

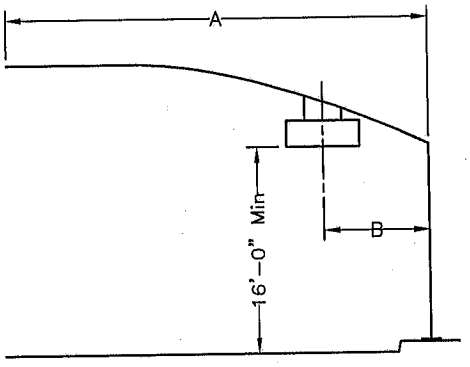


DETAIL E:
SIGN MOUNTING

NOTES:

1. BRACKET, ¼" X 1½" MINIMUM, LENGTH VARIABLE
2. BRACKET, 2-PIECE ADJUSTABLE. ¼" X 1½" MINIMUM. TWO ½" ø HEXAGON HEAD BOLTS WITH NUTS AND LOCKWASHERS
3. ¾" X 0.02" MINIMUM ROUNDED EDGE STAINLESS STEEL STRAP WITH 2" LONG BEND UNDER BUCKLE. IF ATTACHING TO A MULTISIDED SECTION BEND UNDER SECTION SHALL BE LONG ENOUGH TO CONTACT AT LEAST 3 CORNERS.
4. ADJUST FIXTURE LEVEL NO LOWER THAN CENTER OF SIGNAL MAST ARM CONNECTION.

NOTES THIS PAGE ARE FOR REFERENCE ONLY. USE CALTRANS STANDARD DRAWING ES-7P FOR THE LATEST STANDARD DETAILS FOR SIGN HARDWARE, PLACEMENT AND NOTES.



DETAIL F:
SIGN PLACEMENT

SIGN PLACEMENT

A	B	
PROJECTED LENGTH	72" SIGN	96" SIGN
20'-0"	7'-10"	8'-10"
25'-0"	9'-2"	10'-2"
30'-0"	9'-6"	10'-6"
35'-0"	10'-6"	11'-6"
40'-0"	12'-6"	13'-6"
45'-0"		
50'-0"		
55'-0"		
60'-0"		
65'-0"		

REVISION	BY	APPROVED	DATE
ORIGINAL	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

OVERHEAD STREET NAME SIGN DETAILS

William S. Valle

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF-07

NAME TO BE ABBREVIATED	ABBREVIATION
Avenida	Avd
Avenue	Ave
Boulevard	Blvd
Calle	Cl
Callejon	Clj
Caminito	Cmto
Camino	Cam
Center	Ctr
Circle	Cir
Corte	Cte
Court	Ct
Creek	Ck
Drive	Dr
East	E
Elementary	Elem
Entrance	Ent
Estate	Est
Freeway	Fwy
Gardens	Gdns
Heights	Hts
Highlands	Hghlds
Highway	Hwy
Lake	Lk
Lane	Ln
Loop	Lp
Meadow	Mdw
Mount	Mt
Mountain	Mnt
North	N
Park	Pk

NAME TO BE ABBREVIATED	ABBREVIATION
Parkway	Pkwy
Paseo	Pas
Place	Pl
Plaza	Plz
Rambla	Rmbla
Ranch	Rch
Rancho	Rcho
Ridge	Rdg
River	Riv
Road	Rd
Saint	St
Santa	Snta
School	Sch
South	S
Spring	Spg
Springs	Spgs
Station	Sta
Street	St
Summit	Smt
Terrace	Ter
Trail	Tr
Truck Trail	TT
Valley	Vly
View	Vw
Village	Vlg
Vista	Vis
Way	Wy
West	W
Driveway	Dwy

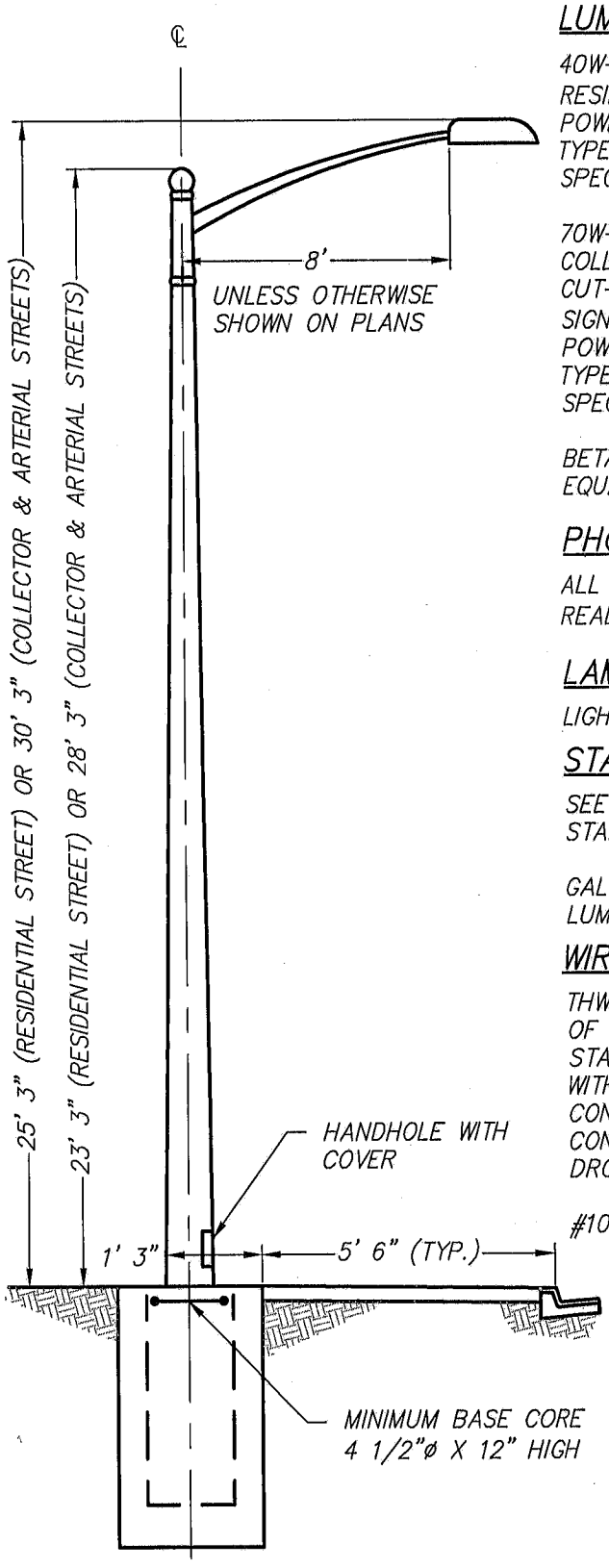
REVISION	BY	APPROVED	DATE
ORIGINAL	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

OVERHEAD STREET NAME SIGN ABBREVIATIONS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF-07



LUMINAIRE:

40W–60W L.E.D. LUMINAIRE WITH CUT–OFF OPTICS ON RESIDENTIAL STREET. USE MULTI–VOLT (120V/240V) POWER SUPPLY, TWIST–LOCK P.E.C. RECEPTACLE AND I.E.S. TYPE II LIGHT DISTRIBUTION PATTERN UNLESS OTHERWISE SPECIFIED.

70W–90W L.E.D. LUMINAIRE WITH CUT–OFF OPTICS ON COLLECTOR STREET. 100W–150W L.E.D. LUMINAIRE WITH CUT–OFF OPTICS ON ARTERIAL STREET AND ON TRAFFIC SIGNAL SAFETY LIGHTING. USE MULTI– VOLT (120V/240V) POWER SUPPLY, TWIST LOCK P.E.C. RECEPTACLE AND I.E.S. TYPE III LIGHT DISTRIBUTION PATTERN UNLESS OTHERWISE SPECIFIED.

BETALED, GE, LED ROADWAY, LEOTEK, OR APPROVED EQUAL.

PHOTO ELECTRIC CONTROL:

ALL LUMINAIRES/FIXTURES SHALL BE "ADAPTIVE CONTROL READY" PER CITY OF CHULA VISTA SPECIFICATIONS.

LAMP:

LIGHT EMITTTING DIODE (L.E.D.)

STANDARD:

SEE SECTION 307 OF THE CITY OF CHULA VISTA STANDARD SPECIAL PROVISIONS. TWO–INCH STANDARD

GALVANIZED STEEL OR ALUMINUM PIPE BRACKET FOR LUMINAIRE. HANDLE TO FACE STREET.

WIRING:

THW STRANDED COPPER TO SERVICE POINT. NEUTRAL LEG OF LIGHTING CONDUCTORS GROUNDED IN BASE OF STANDARD. HOT LEG OF LIGHTING CONDUCTORS FUSED WITH 10–AMPERE MIDGET FERRULE TYPE FUSE IN PLUG CONNECTOR, IN BASE OF STANDARD. SIZE ALL CONDUCTORS FOR MAXIMUM THREE PERCENT VOLTAGE DROP IN ALL STREET LIGHT CIRCUITS.

#10 THW STRANDED COPPER IN STANDARD.

GENERAL NOTES:

1. LUMINAIRE & PHOTO CELL SHALL BE APPROVED BY CITY ENGINEER PRIOR TO INSTALLATION.

2. STREET LIGHT PLANS SHALL SHOW WIRING FROM SERVICE POINT TO STREET LIGHTS, AND SHALL BE APPROVED BY CITY ENGINEER PRIOR TO INSTALLATION.

FOUNDATION & GROUNDING:

SEE TRF–08
REFER TO MANUFACTURER'S DETAIL FOR ANCHOR BOLT SPACING.

REVISION	BY	APPROVED	DATE
ORIGINAL			7/80
REVISION	CVM	C. SWANSON	11/02
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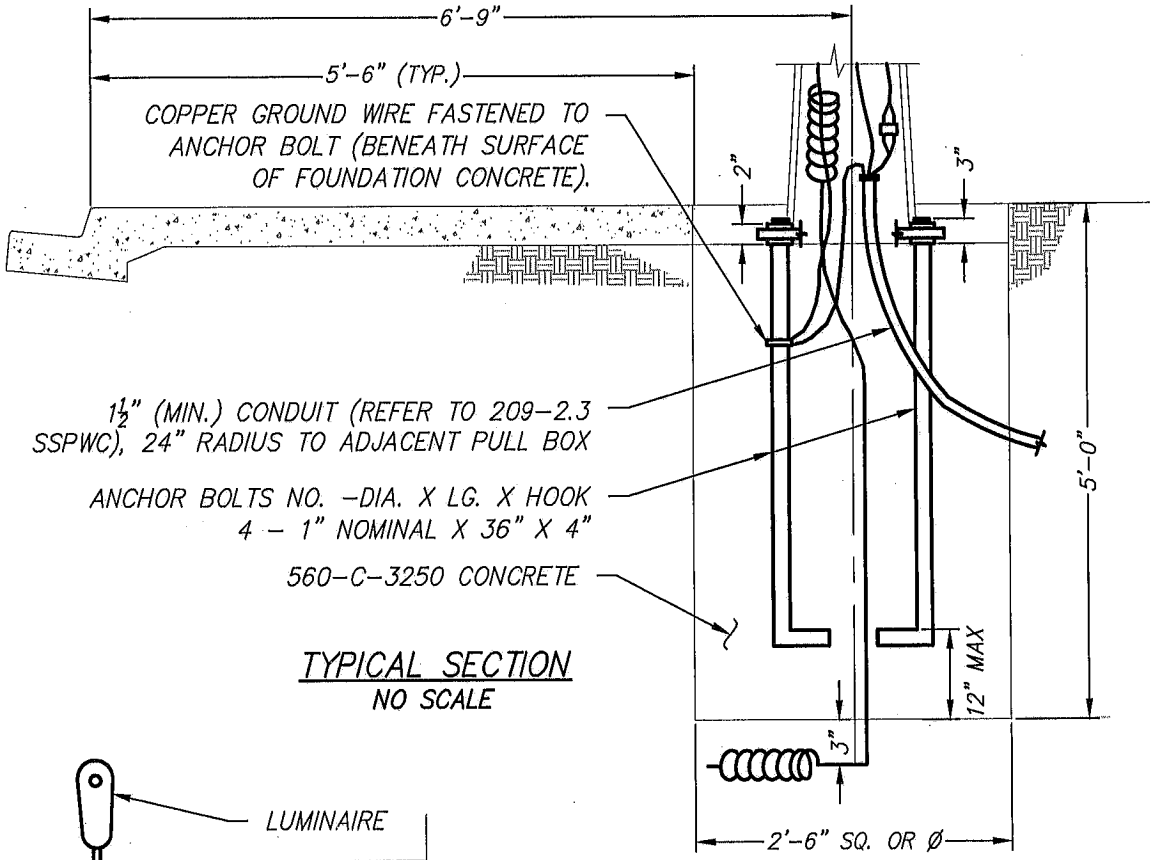
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

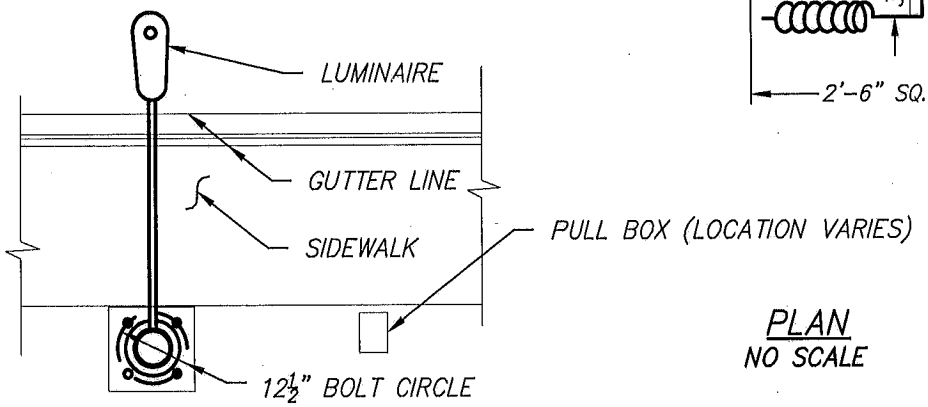
STREET LIGHTING STANDARD

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF–08



TYPICAL SECTION
NO SCALE



PLAN
NO SCALE

NOTES:

1. CONDUIT SHOULD BE RIGID STEEL OR PVC SCHEDULE 80, PLACED 30" TO 60"DEEP IN THE STREET OR 18" TO 36" DEEP BEHIND CURB LINE. REFER TO CHULA VISTA CONSTRUCTION STANDARD DWG. TRF-08 - STREET LIGHTING STANDARD.

2. WIRING - MINIMUM #8 THW STRANDED COPPER, 5/64" INSULATION TO SERVICE POINT. TWO CONDUCTORS: [1-RED OR BLACK, 1-WHITE (NEUTRAL), 120 VOLT] [2-RED OR BLACK, 1-GREEN #6, 240 VOLT], #10 THW STRANDED COPPER IN THE STANDARD.

3. EACH ANCHOR BOLT SHALL BE PROVIDED WITH 2 NUTS AND 2 WASHERS, GALVANIZED. THE TOP 8" OF ALL ANCHOR BOLTS AND ALL NUTS SHALL BE GALVANIZED. COMPLETED INSTALLATION WHEREIN ENDS OF ANCHOR BOLTS ARE EXPOSED SHALL HAVE BOLT ENDS CUT AND GROUND DOWN TO MAXIMUM EXPOSED LENGTH OF 1/4" ABOVE ANCHOR NUTS. BEVEL SHARP EDGES OF BOLTS.

4. SQUARE FOUNDATIONS SHALL BE INSTALLED IN NON-GRANULAR CLAY SOILS. CIRCULAR FOUNDATIONS MAY BE INSTALLED IN COURSE GRANULAR SOIL.

5. PULL BOXES SHALL BE PER CITY OF CHULA VISTA CONSTRUCTION STANDARD DWG. TRF-09.

6. STREET LIGHTING STD. (ELECTRICAL DETAILS) SHALL BE PER TRF-08.

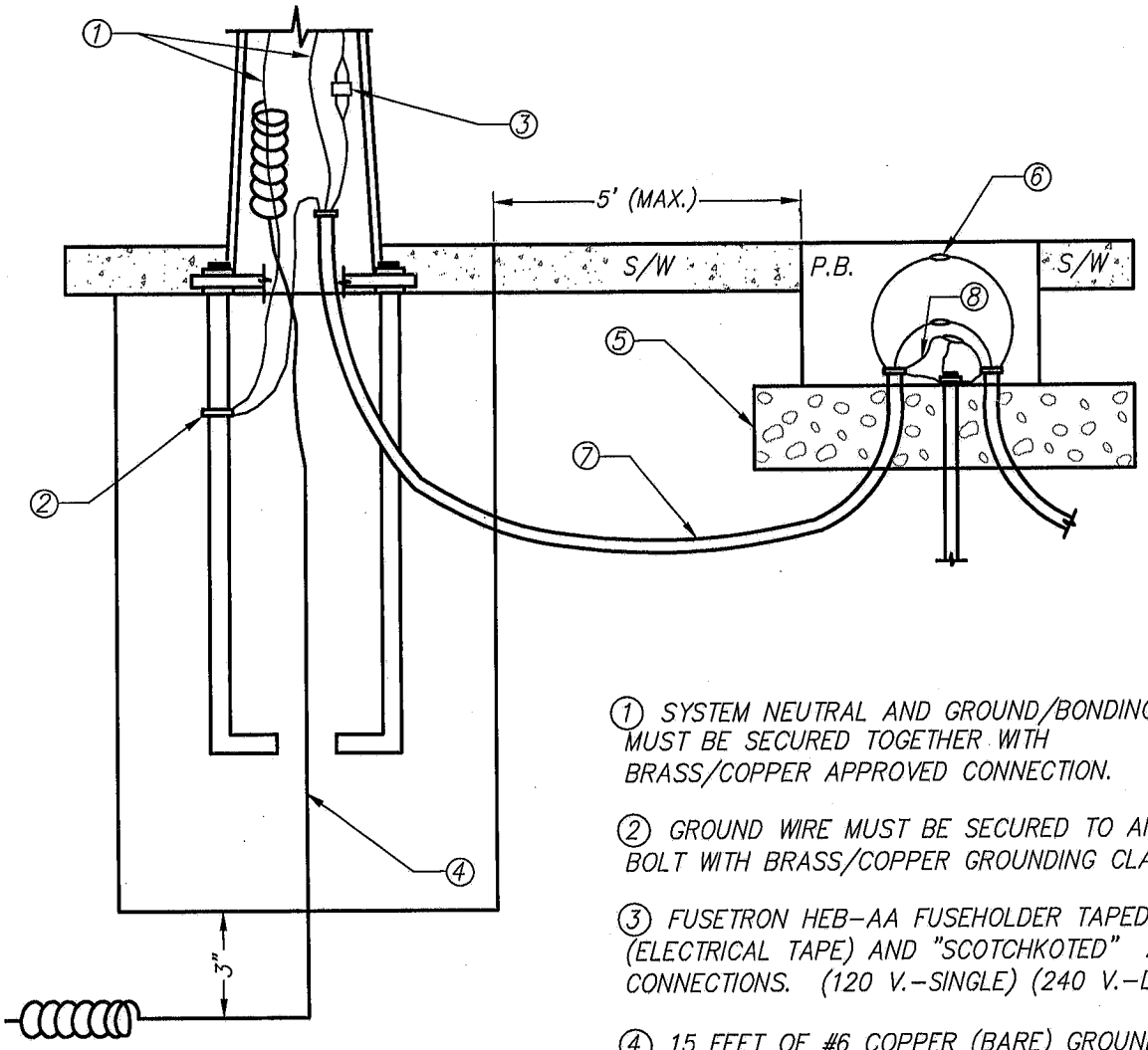
REVISION	BY	APPROVED	DATE
ORIGINAL			3/83
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

STREET LIGHT STANDARD
FOUNDATION DETAIL

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF-08



1. SYSTEM NEUTRAL AND GROUND/BONDING WIRE MUST BE SECURED TOGETHER WITH BRASS/COPPER APPROVED CONNECTION.

2. GROUND WIRE MUST BE SECURED TO ANCHOR BOLT WITH BRASS/COPPER GROUNDING CLAMP.

3. FUSETRON HEB-AA FUSEHOLDER TAPED (ELECTRICAL TAPE) AND "SCOTCHKOTED" AT CONNECTIONS. (120 V.-SINGLE) (240 V.-DUAL).

4. 15 FEET OF #6 COPPER (BARE) GROUND WIRE TO BE INSTALLED 3" BELOW THE FOUNDATION AND EXTENDED THROUGH THE @ NOTE 1.

5. GRAVEL BASE FOR PULL BOXES TO BE 6" DEEP AND 3" BEYOND THE EDGE OF THE PULL BOX. (SEE TRF-09).

6. ALL CONNECTIONS ARE TO BE TAPED (ELECTRICAL TAPE) AND "SCOTCHKOTED".

7. IF RIGID CONDUIT IS USED, IT SHALL BE BONDED TO THE NEUTRAL AND THE GROUND WIRE.

8. IF 240 V. SYSTEM, GROUND WIRE IS REQUIRED.

MINIMUM WIRE SPECIFICATIONS:

SERVICE RUN: #8 COPPER THW
STRANDED POLE: #10 COPPER THW
STRANDED GROUND AND BONDING: #6 COPPER (BARE)

STREET LIGHTING ELECTRICAL DETAILS:

SEE CHULA VISTA CONSTRUCTION STANDARDS NO. TRF-08, TRF-08, TRF-09, AND TRF-09FOR CONSTRUCTION DETAILS.

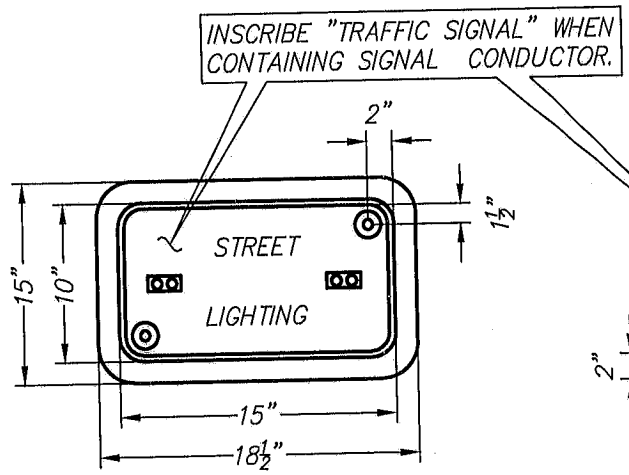
REVISION	BY	APPROVED	DATE
ORIGINAL			12/85
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

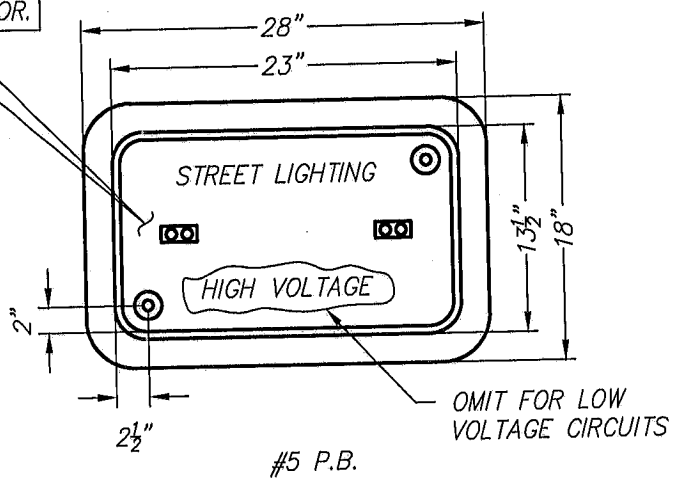
STREET LIGHTING STANDARD ELECTRICAL DETAILS

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF-08



#3 1/2 P.B.



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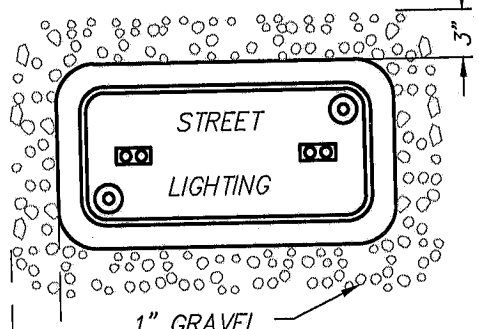

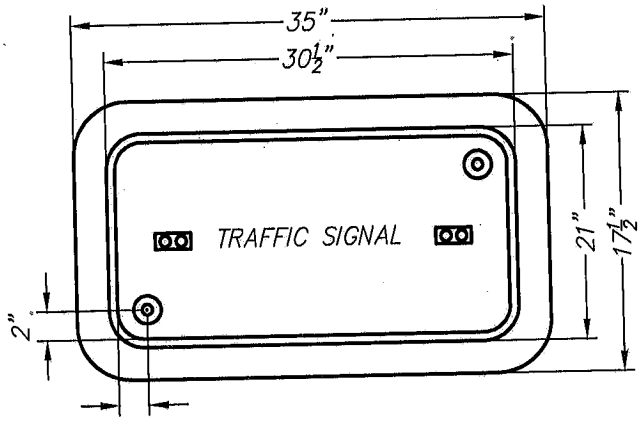

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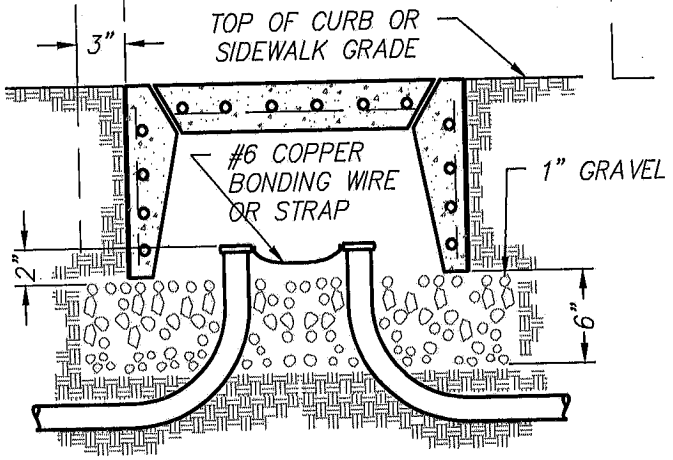


PULL BOX REQUIREMENTS:

CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS SECTION 86-2.06.

CHULA VISTA REQUIRED PULL BOX LOCATIONS:

1. ADJACENT TO SERVICE POINTS, TRANSFORMERS.
2. ADJACENT TO EVERY STREET LIGHTING STANDARD.
3. BOTH SIDES OF STREET CROSSINGS.
4. WHEN THE SERVICE POINT IS WITHIN 20' FEET OF THE STREET LIGHTING STANDARD, ONE PULL BOX IS SUFFICIENT.
5. TRAFFIC SIGNAL AND TELEPHONE INTERCONNECT: PULL BOXES SHALL BE #5 MINIMUM.

NOTES:

STEEL REINFORCING SHALL BE AS REGULARLY USED IN THE STANDARD PRODUCTS OF THE RESPECTIVE MANUFACTURER. PULL BOXES NOT TO BE CONSTRUCTED IN DRIVEWAY APPROACHES.

ALL BOXES IN VEHICLE TRAVEL WAY SHALL HAVE A TRAFFIC LOAD BEARING COVER.

REVISION	BY	APPROVED	DATE
ORIGINAL			12/67
REVISION	CM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

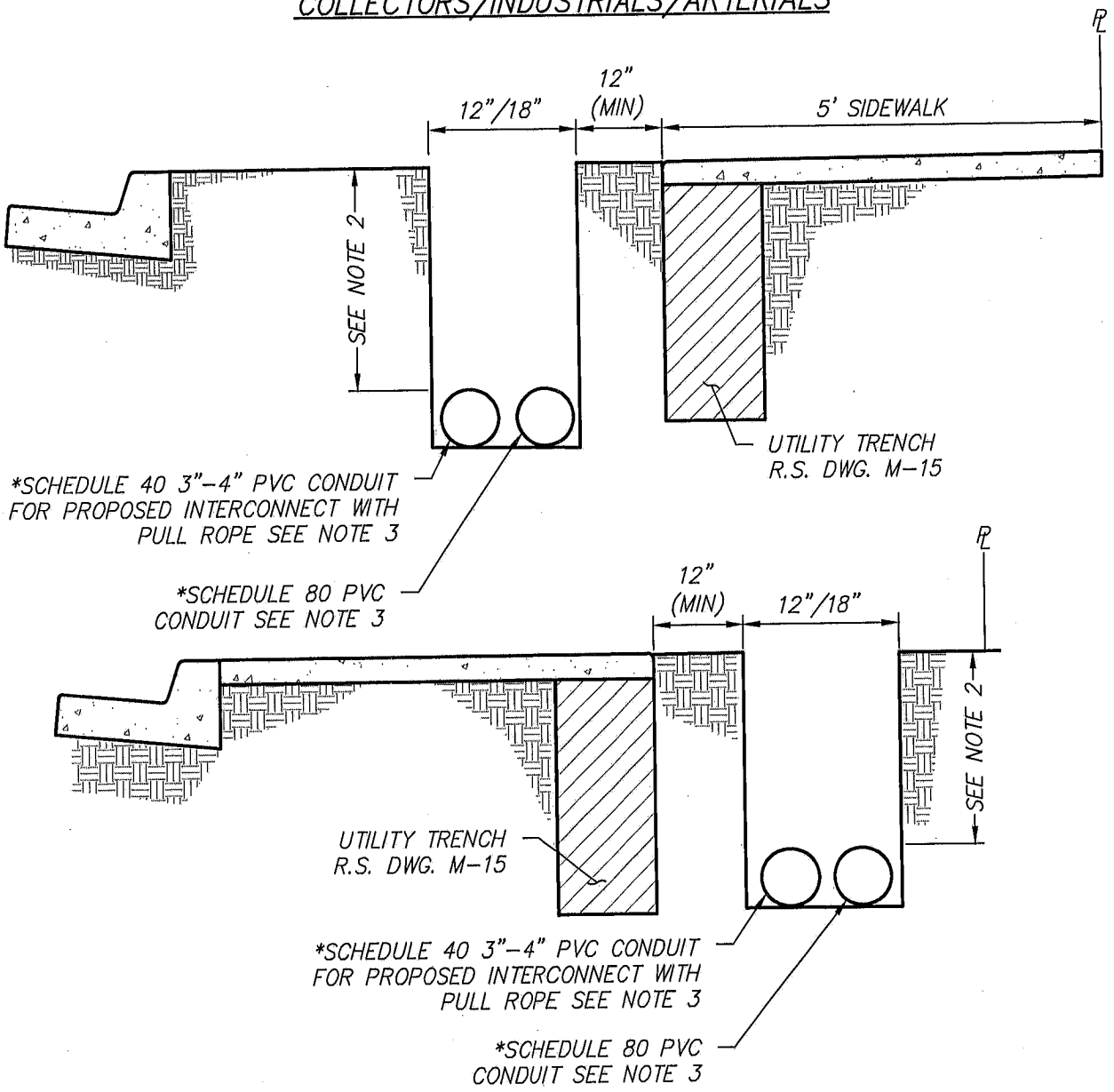
PULL BOXES

William S. Valle

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF-09

COLLECTORS/INDUSTRIALS/ARTERIALS



STREET LIGHT/TRAFFIC SIGNAL CONDUIT TRENCH – 18" DEEP MIN.

NOT TO SCALE

1. BACKFILL TO BE COMPACTED 90%.
2. CONDUIT SHALL BE PLACED A MINIMUM OF 30" BELOW GRADE IN STREET, AND A MINIMUM OF 18" BELOW GRADE BEHIND CURB.
3. PULL ROPE SHALL BE INSTALLED FOR FUTURE STREET LIGHT/TRAFFIC SIGNALS/INTERCONNECT.
4. CONDUCTOR TYPE & QUANTITY AS APPROVED BY CITY ENGINEER.
5. SEE TRF-09FOR PULL BOX DETAILS.
6. * FOR COLLECTOR/INDUSTRIAL/ARTERIAL ROADWAYS USE AN 18" WIDE TRENCH.

REVISION	BY	APPROVED	DATE
ORIGINAL			8/78
REVISION	CM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

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ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

STREET LIGHT & TRAFFIC SIGNAL CONDUIT TRENCH

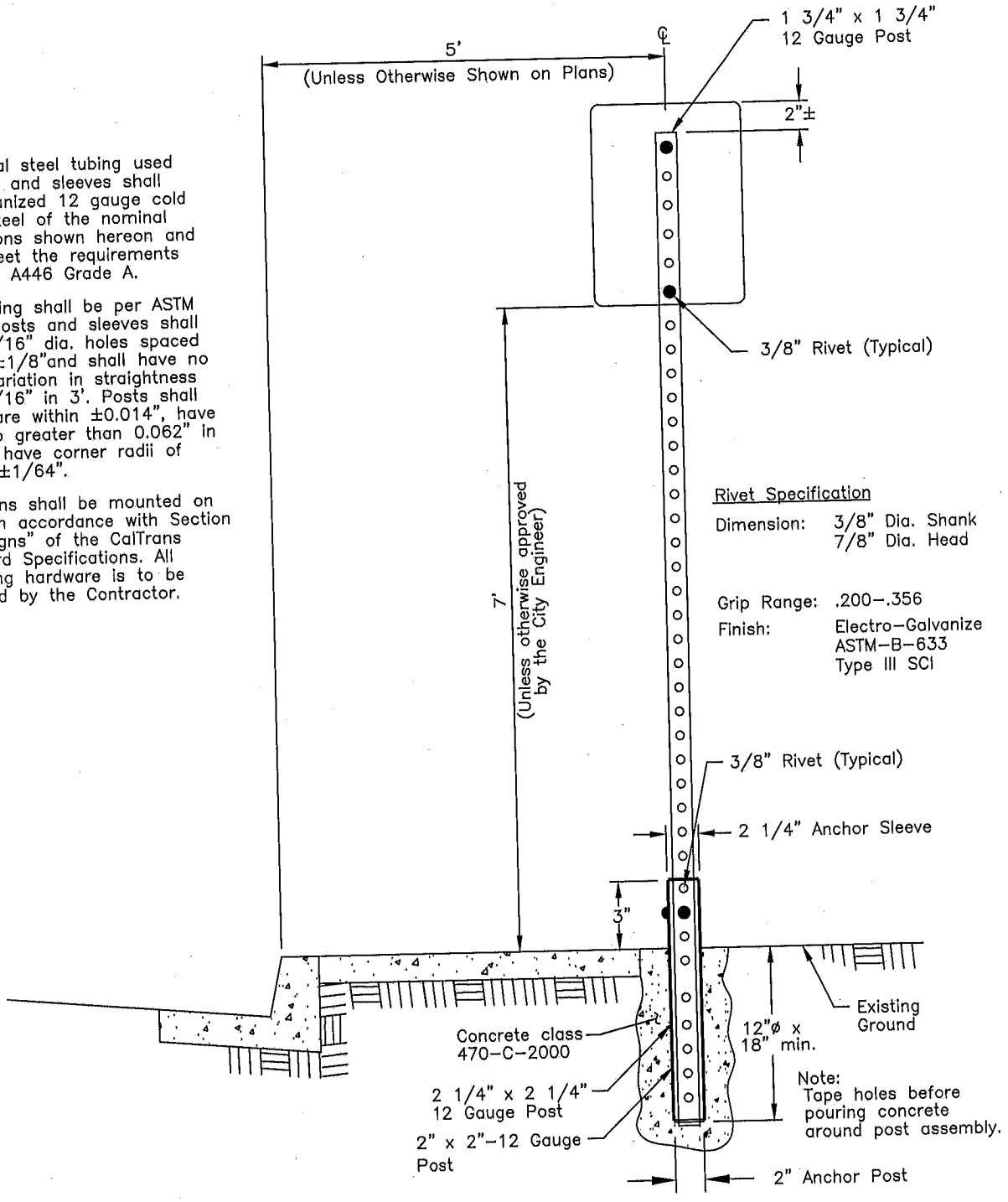
William S. Valle

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF-09

NOTES:

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



REVISION	BY	APPROVED	DATE
ORIGINAL			2/95
REVISION	CVM	C. SWANSON	11/02
REVISION	DPH	W. VALLE	11/17

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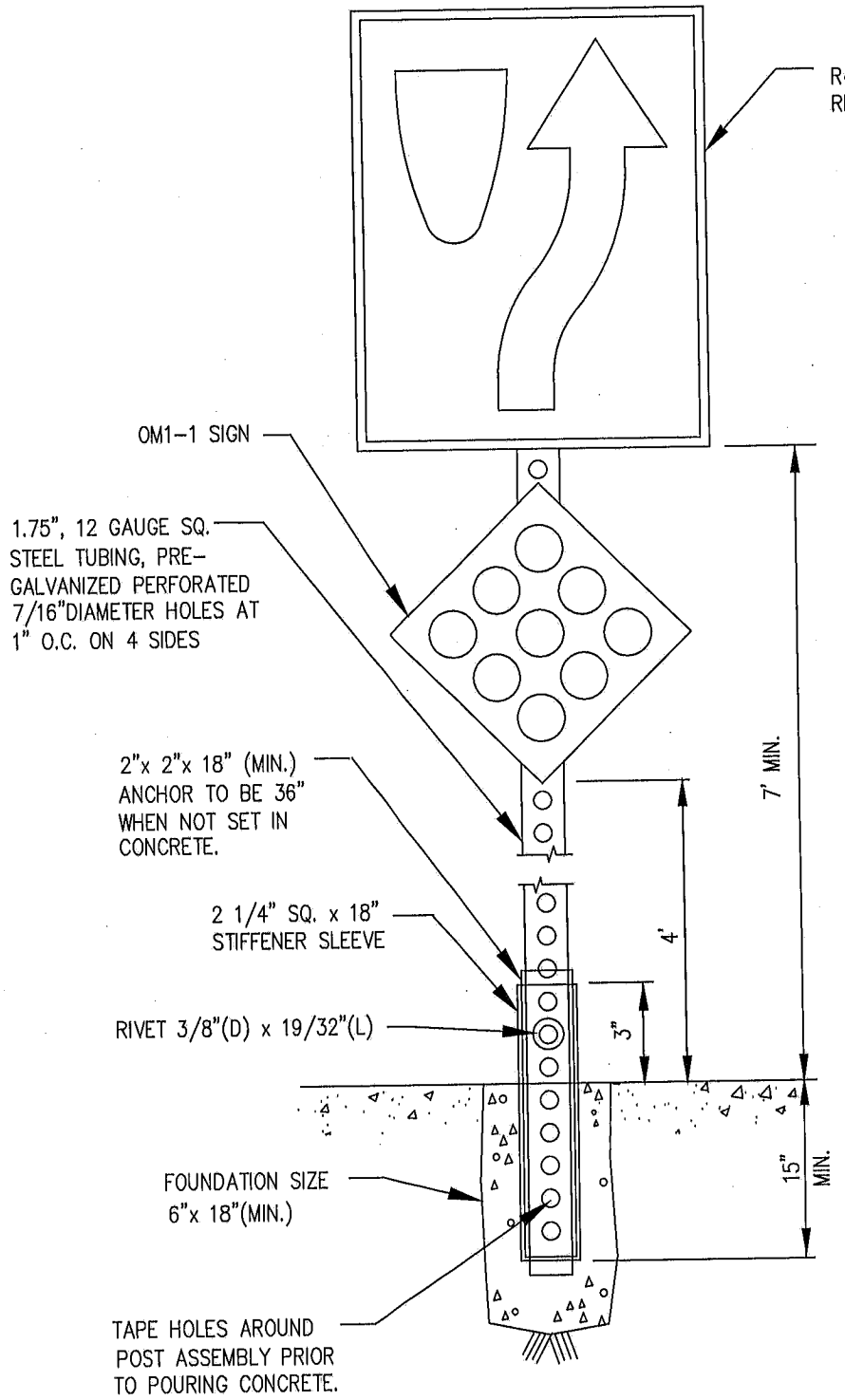
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

BREAK–AWAY SIGN POST

William S. Valle

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF–10



NO SCALE

REVISION	BY	APPROVED	DATE
ORIGINAL	DPH	W. VALLE	11/17

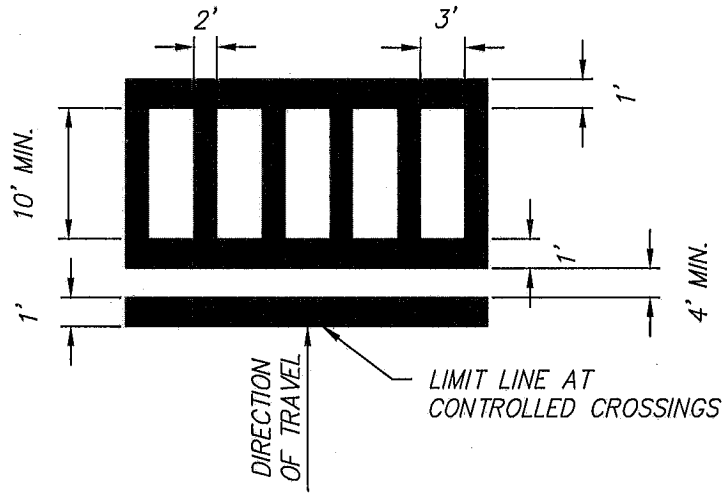
CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

BREAKAWAY POST ON MEDIAN

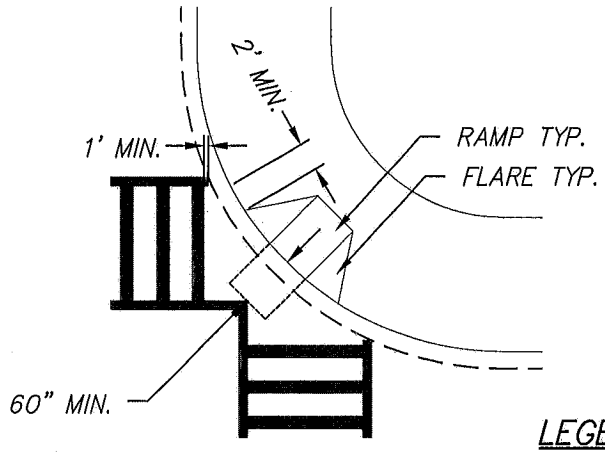
WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF-10

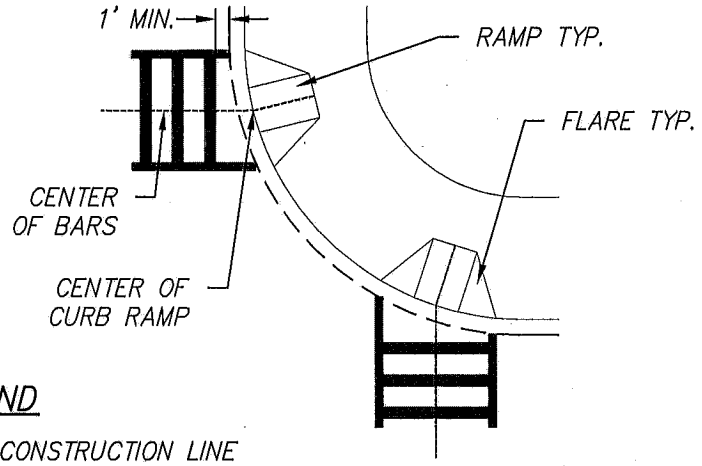
TYPICAL LADDER CROSSWALK MARKINGS



SINGLE RAMP CORNER



DUAL RAMP CORNER



LEGEND

- CONSTRUCTION LINE
- CURB & GUTTER
- CROSSWALK BAR (2' WIDE)

GENERAL NOTES:

1. MARKED CROSSWALKS SHALL BE WHITE OR YELLOW THERMOPLASTIC (AS REQUIRED) AND SHALL HAVE LADDER MARKINGS UNLESS APPROVED OTHERWISE.
2. MARKED CROSSWALK LOCATIONS CONSISTING OF BRICK PAVERS OR OTHER DECORATIVE PAVING SHALL BE PROVIDED WITH A LIMIT LINE ONLY.
3. SIGNALIZED INTERSECTIONS SHALL BE PROVIDED WITH A MARKED CROSSWALK ACROSS EACH LEG WHERE PEDESTRIANS ARE PERMITTED TO CROSS.
4. LONGITUDINAL LINES IN A LADDER CROSSWALK SHALL BE ANGLED PARALLEL TO THE DIRECTION OF VEHICULAR TRAVEL.
5. LIMIT LINES SHALL BE INSTALLED A MINIMUM OF 4 FEET IN ADVANCE OF MARKED CROSSWALKS FOR THE APPROACH LANES AT ALL CONTROLLED CROSSINGS.
6. MARKED CROSSWALKS SHOULD BE A MINIMUM OF 10 FEET IN WIDTH, PLACEMENT OF LADDER CROSSWALKS SHALL COMPLY WITH ACCESSIBILITY REGULATIONS PER THE MOST RECENT VERSION OF AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS.
7. THE CROSSWALK BETWEEN A DUAL RAMP CORNER AND A SINGLE RAMP CORNER SHALL BE AT LEAST 10 FEET WIDE AND SATISFY THE MINIMM OF 2 FEET BEYOND THE FLARE REQUIREMENT FOR THE SINGLE RAMP.
8. LADDER CROSSWALK BARS SHALL BE UNIFORM WITHIN THE SAME CROSSING. NO PARTIAL BARS SHALL BE INSTALLED.
9. A CROSSWALK BAR SHALL BE CENTERED IN THE CENTER OF THE CROSSING.
10. CROSSWALK MARKINGS SHALL BE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (CA-MUTCO) RETROREFLECTIVITY COMPLIANT AND SKID RESISTANT.

REVISION	BY	APPROVED	DATE
ORIGINAL	DPH	W. VALLE	11/17

CITY OF CHULA VISTA
ENGINEERING & CAPITAL PROJECTS
STANDARD DRAWING

LADDER CROSSWALK MARKINGS
LAYOUTS AND NOTES

William S. Valle

WILLIAM S. VALLE 11/21/2017
CITY ENGINEER

TRF-11