

CITY OF MURRIETA

Department of Public Works



STANDARD DRAWINGS

Adopted by City Council
Ordinance 429-09
Effective January 14, 2010

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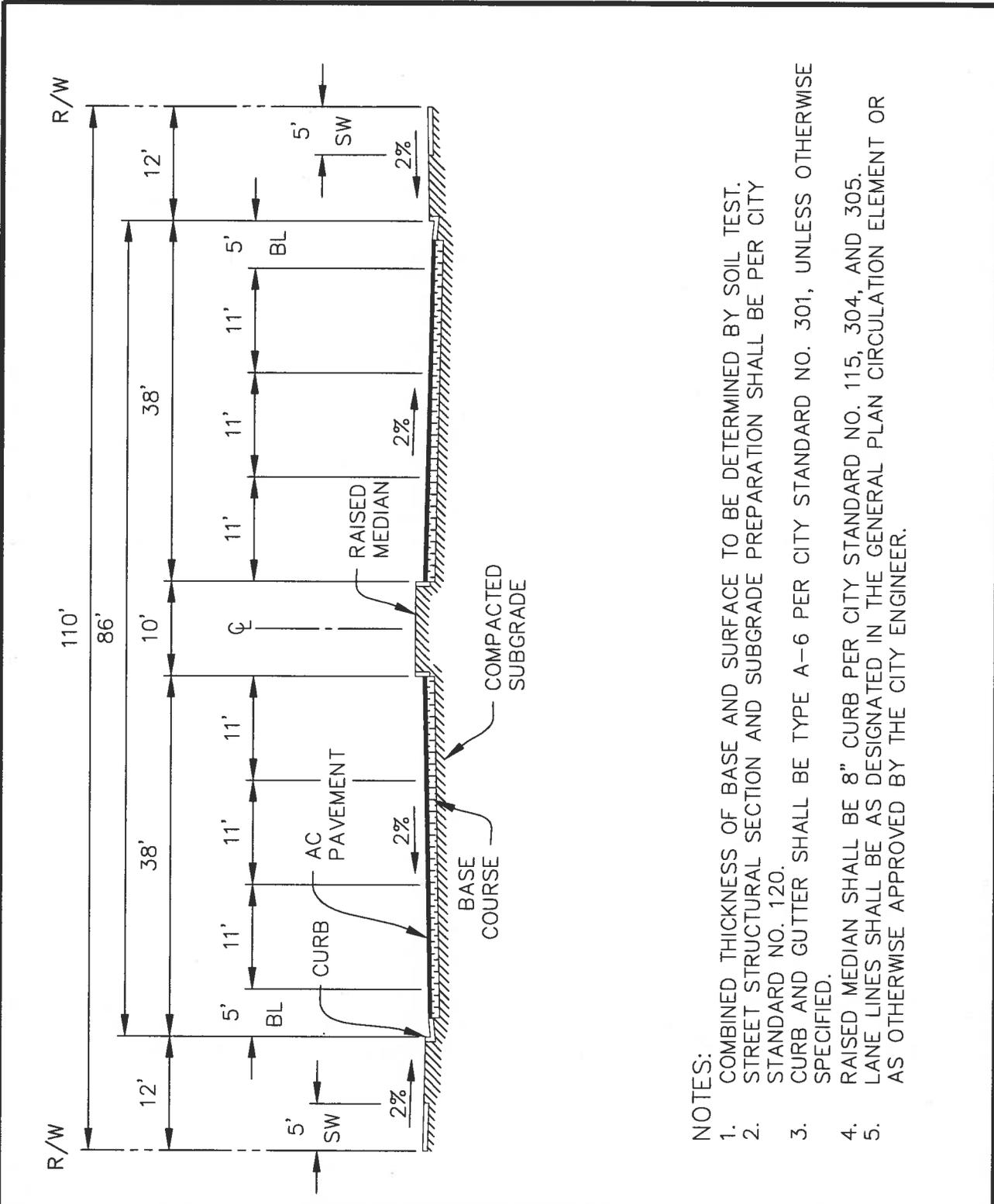
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SECTION 100

TYPICAL STREET SECTIONS





NOTES:

1. COMBINED THICKNESS OF BASE AND SURFACE TO BE DETERMINED BY SOIL TEST.
2. STREET STRUCTURAL SECTION AND SUBGRADE PREPARATION SHALL BE PER CITY STANDARD NO. 120.
3. CURB AND GUTTER SHALL BE TYPE A-6 PER CITY STANDARD NO. 301, UNLESS OTHERWISE SPECIFIED.
4. RAISED MEDIAN SHALL BE 8" CURB PER CITY STANDARD NO. 115, 304, AND 305.
5. LANE LINES SHALL BE AS DESIGNATED IN THE GENERAL PLAN CIRCULATION ELEMENT OR AS OTHERWISE APPROVED BY THE CITY ENGINEER.

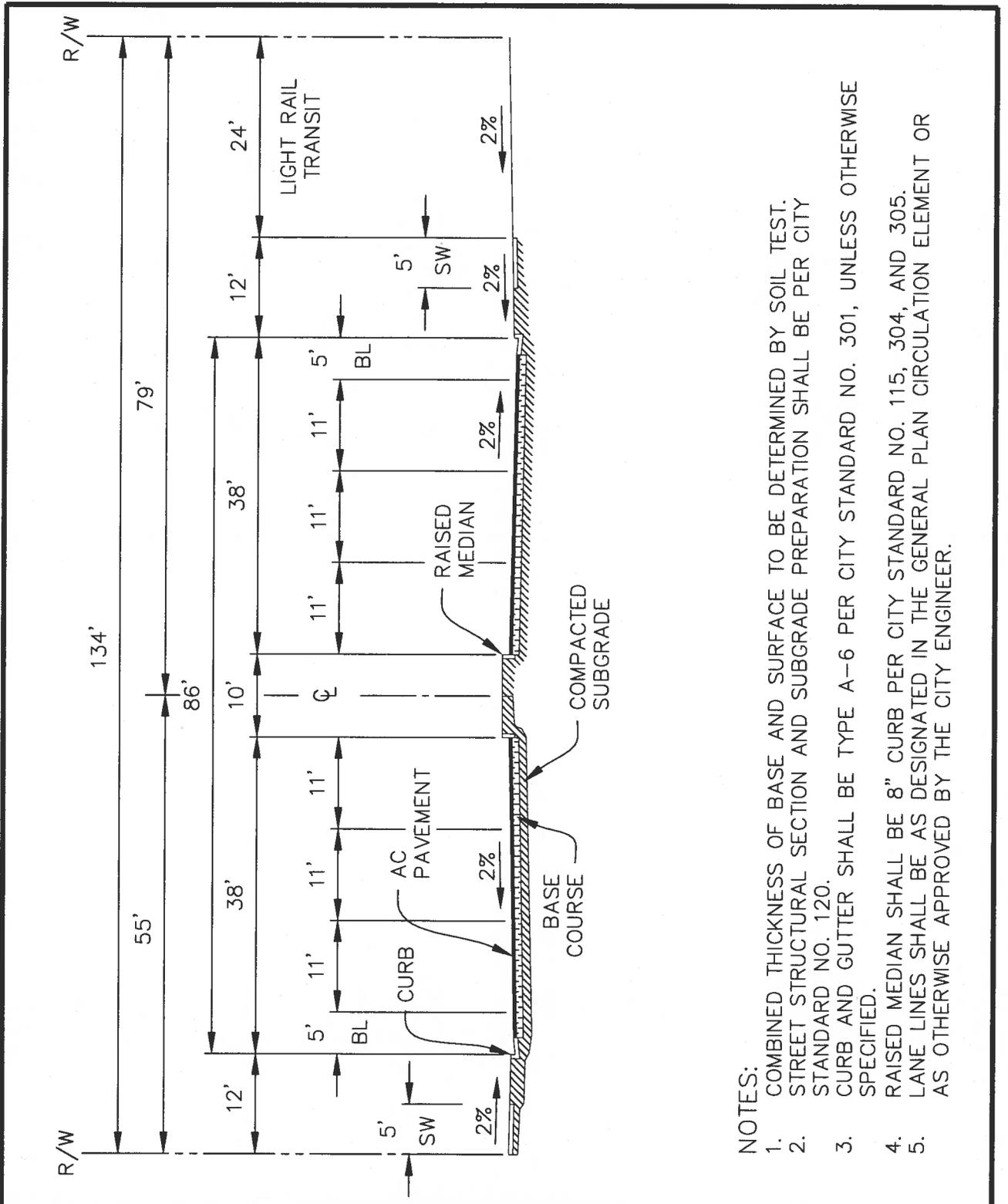
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DEPARTMENT OF PUBLIC WORKS**

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ARTERIAL HIGHWAY

STD. NO.

101



NOTES:

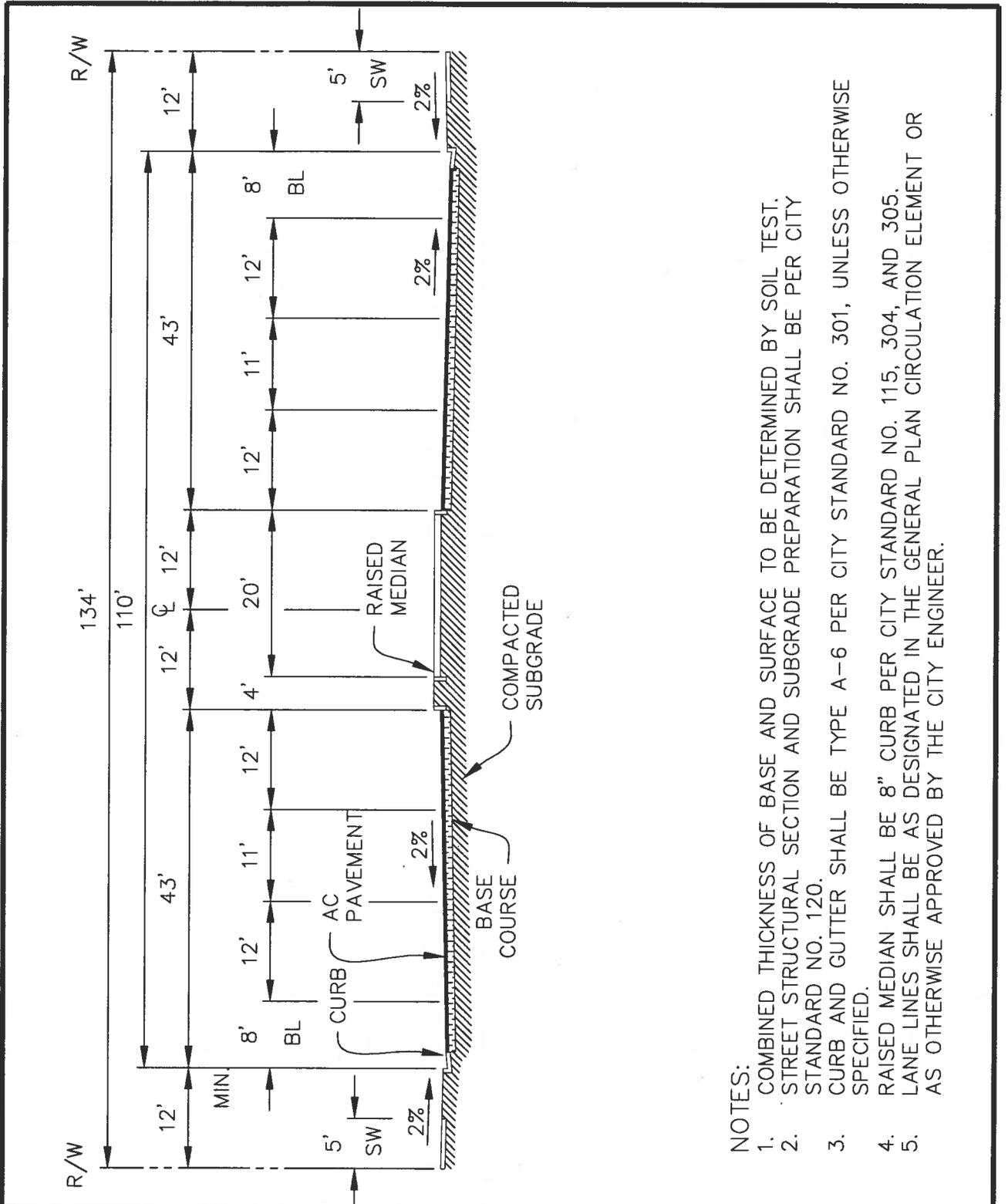
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2. STREET STRUCTURAL SECTION AND SUBGRADE PREPARATION SHALL BE PER CITY STANDARD NO. 120.
3. CURB AND GUTTER SHALL BE TYPE A-6 PER CITY STANDARD NO. 301, UNLESS OTHERWISE SPECIFIED.
4. RAISED MEDIAN SHALL BE 8" CURB PER CITY STANDARD NO. 115, 304, AND 305.
5. LANE LINES SHALL BE AS DESIGNATED IN THE GENERAL PLAN CIRCULATION ELEMENT OR AS OTHERWISE APPROVED BY THE CITY ENGINEER.

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**MULTI-MODAL TRANSPORTATION
CORRIDOR
(ARTERIAL + LIGHT RAIL TRANSIT)**

STD. NO.
101A



NOTES:

1. COMBINED THICKNESS OF BASE AND SURFACE TO BE DETERMINED BY SOIL TEST.
2. STREET STRUCTURAL SECTION AND SUBGRADE PREPARATION SHALL BE PER CITY STANDARD NO. 120.
3. CURB AND GUTTER SHALL BE TYPE A-6 PER CITY STANDARD NO. 301, UNLESS OTHERWISE SPECIFIED.
4. RAISED MEDIAN SHALL BE 8" CURB PER CITY STANDARD NO. 115, 304, AND 305.
5. LANE LINES SHALL BE AS DESIGNATED IN THE GENERAL PLAN CIRCULATION ELEMENT OR AS OTHERWISE APPROVED BY THE CITY ENGINEER.

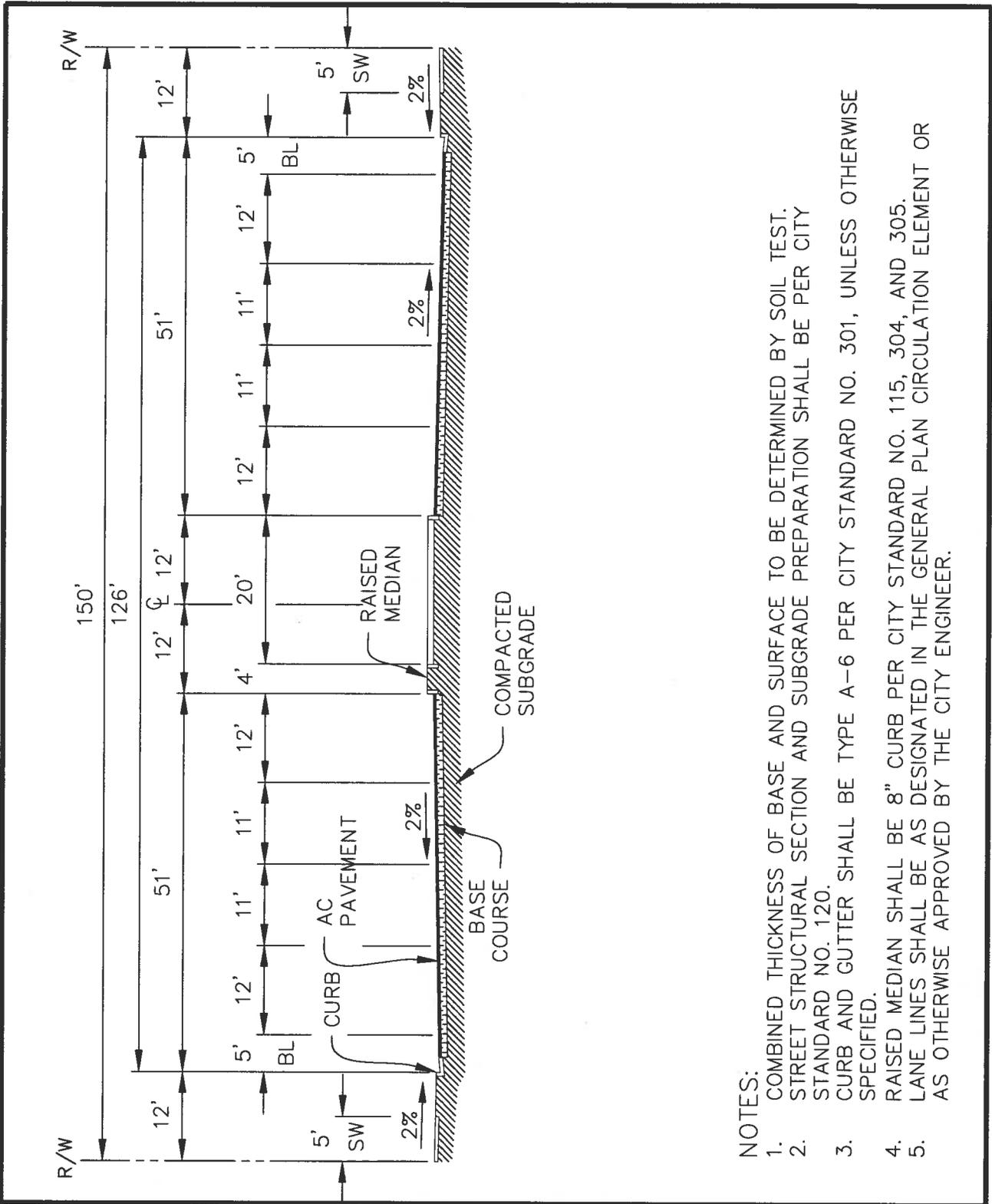
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URBAN ARTERIAL HIGHWAY

STD. NO.

102



NOTES:

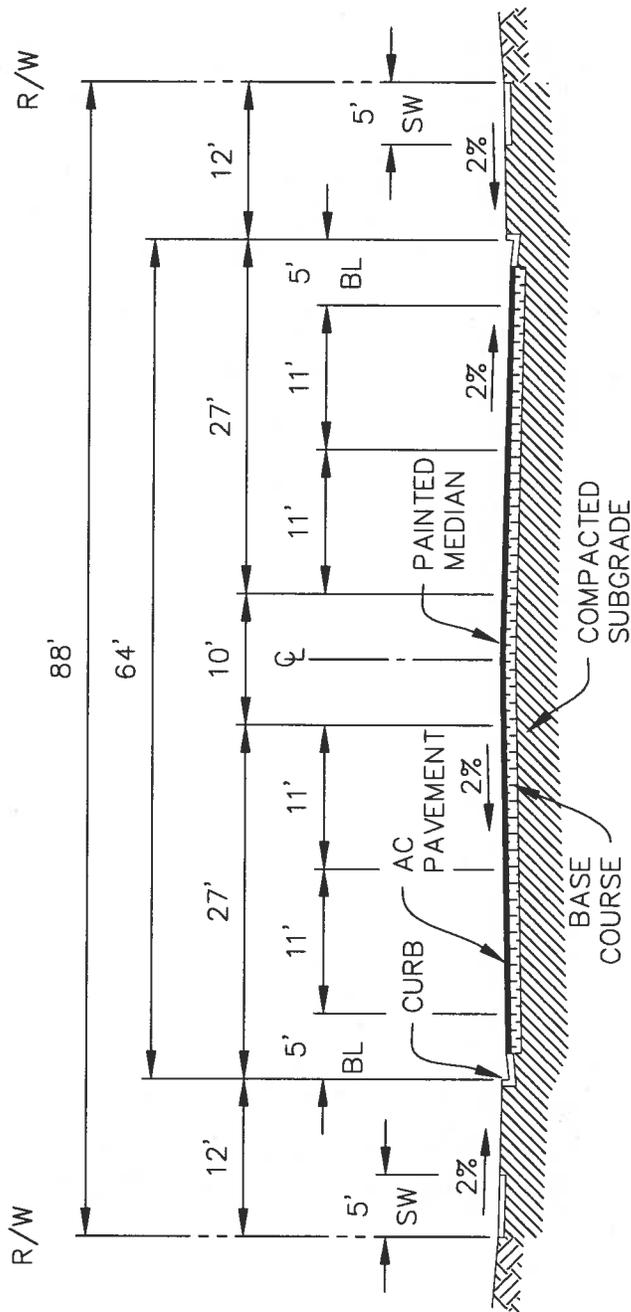
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2. STREET STRUCTURAL SECTION AND SUBGRADE PREPARATION SHALL BE PER CITY STANDARD NO. 120.
3. CURB AND GUTTER SHALL BE TYPE A-6 PER CITY STANDARD NO. 301, UNLESS OTHERWISE SPECIFIED.
4. RAISED MEDIAN SHALL BE 8" CURB PER CITY STANDARD NO. 115, 304, AND 305.
5. LANE LINES SHALL BE AS DESIGNATED IN THE GENERAL PLAN CIRCULATION ELEMENT OR AS OTHERWISE APPROVED BY THE CITY ENGINEER.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

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AUGMENTED URBAN ARTERIAL

STD. NO.
102A



NOTES:

1. COMBINED THICKNESS OF BASE AND SURFACE TO BE DETERMINED BY SOIL TEST.
2. STREET STRUCTURAL SECTION AND SUBGRADE PREPARATION SHALL BE PER CITY STANDARD NO. 120.
3. CURB AND GUTTER SHALL BE TYPE A-6 PER CITY STANDARD NO. 301, UNLESS OTHERWISE SPECIFIED.
4. LANE LINES SHALL BE AS DESIGNATED IN THE GENERAL PLAN CIRCULATION ELEMENT OR AS OTHERWISE APPROVED BY THE CITY ENGINEER.

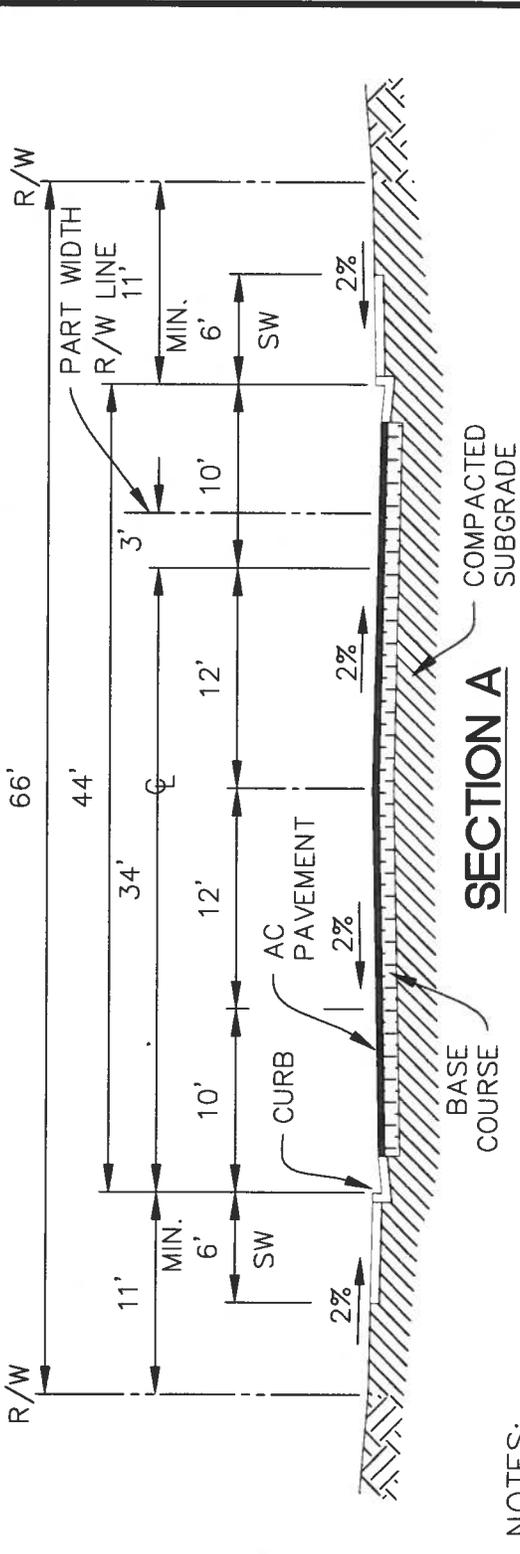
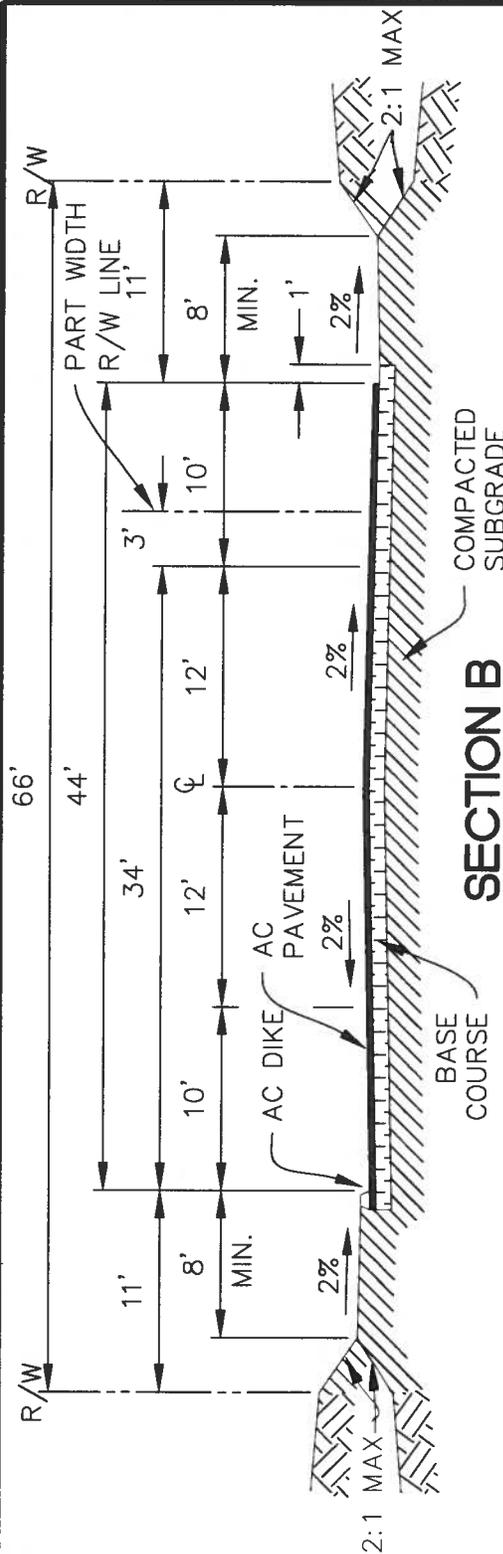
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SECONDARY HIGHWAY

STD. NO.

104



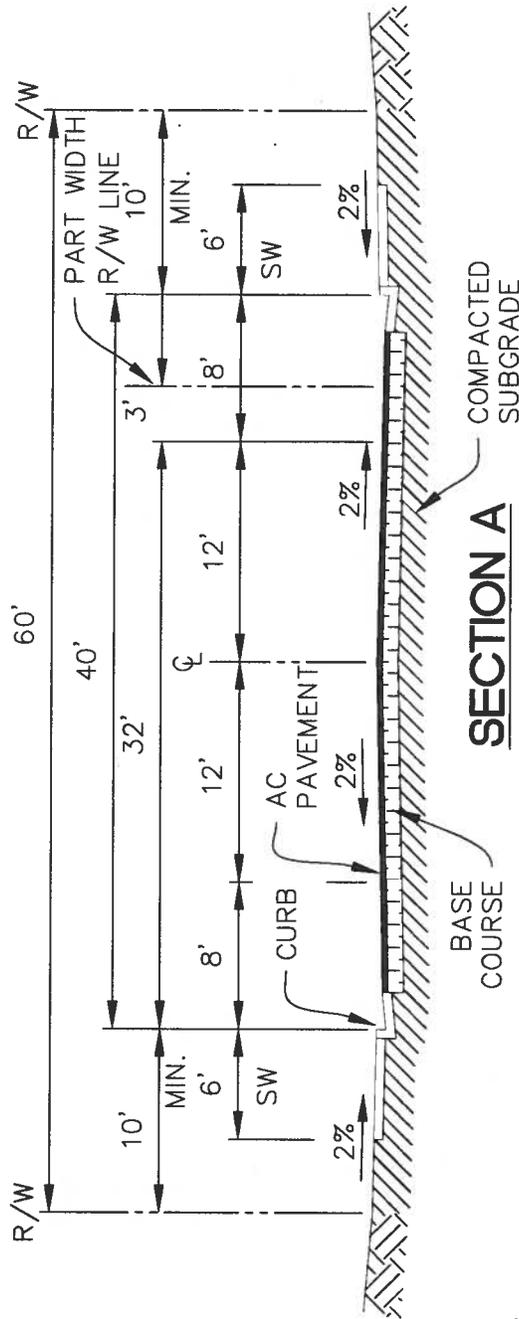
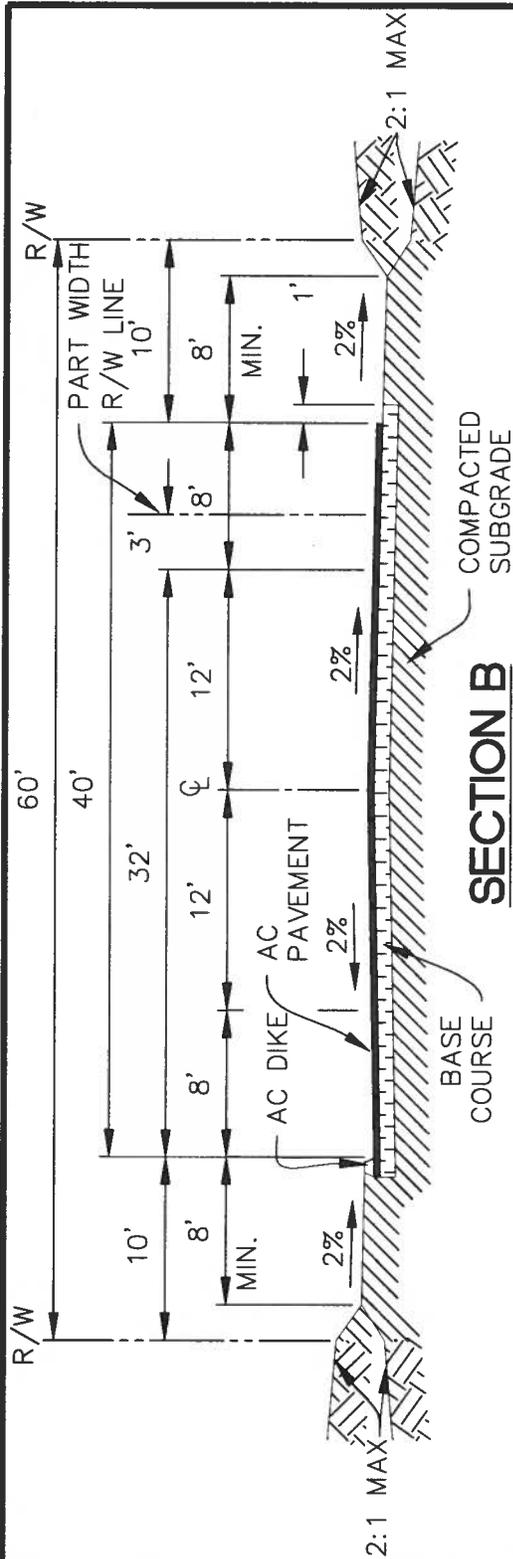
- NOTES:
1. COMBINED THICKNESS OF BASE AND SURFACE TO BE DETERMINED BY SOIL TEST.
 2. STREET STRUCTURAL SECTION AND SUBGRADE PREPARATION SHALL BE PER CITY STANDARD NO. 120.
 3. CURB AND GUTTER SHALL BE TYPE A-6 PER CITY STANDARD NO. 301, UNLESS OTHERWISE SPECIFIED.
 4. AC DIKE SHALL BE PER CITY STANDARD NO. 315.
 5. (*) PART WIDTH STREET SECTION SHALL BE 34' IMPROVEMENTS ON 48' R/W.

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DEPARTMENT OF PUBLIC WORKS

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10/98	
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COLLECTOR STREET

STD. NO.
105



NOTES:

1. COMBINED THICKNESS OF BASE AND SURFACE TO BE DETERMINED BY SOIL TEST.
2. STREET STRUCTURAL SECTION AND SUBGRADE PREPARATION SHALL BE PER CITY STANDARD NO. 120.
3. CURB AND GUTTER SHALL BE TYPE A-6 PER CITY STANDARD NO. 301, UNLESS OTHERWISE SPECIFIED.
4. AC DIKE SHALL BE PER CITY STANDARD NO. 315.
5. (*) PART WIDTH STREET SECTION SHALL BE 32' IMPROVEMENTS ON 45' R/W.

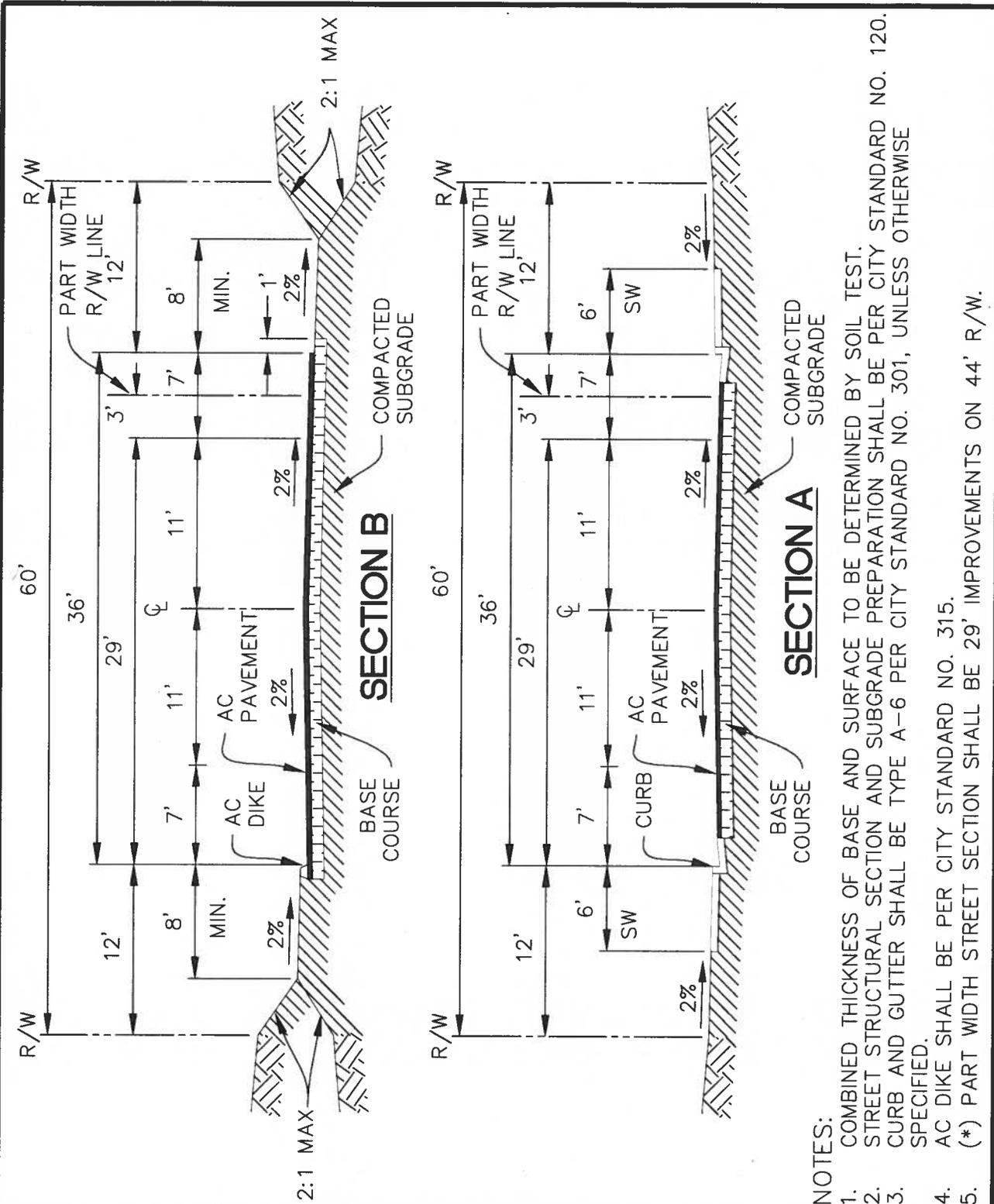
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LOCAL STREET

STD. NO.

106



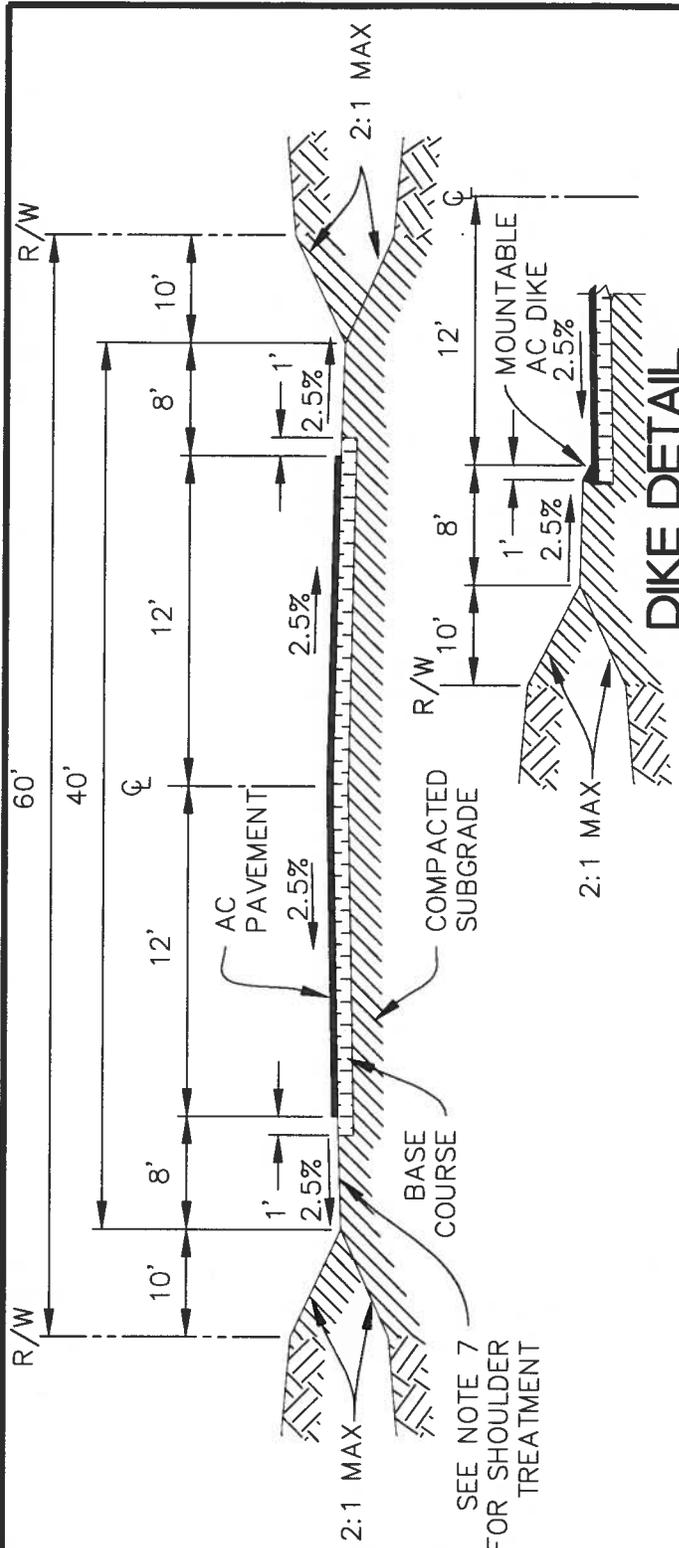
- NOTES:
1. COMBINED THICKNESS OF BASE AND SURFACE TO BE DETERMINED BY SOIL TEST.
 2. STREET STRUCTURAL SECTION AND SUBGRADE PREPARATION SHALL BE PER CITY STANDARD NO. 120.
 3. CURB AND GUTTER SHALL BE TYPE A-6 PER CITY STANDARD NO. 301, UNLESS OTHERWISE SPECIFIED.
 4. AC DIKE SHALL BE PER CITY STANDARD NO. 315.
 5. (*) PART WIDTH STREET SECTION SHALL BE 29' IMPROVEMENTS ON 44' R/W.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

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SHORT LOCAL STREET

STD. NO.
107



- NOTES:
1. COMBINED THICKNESS OF BASE AND SURFACE TO BE DETERMINED BY SOIL TEST.
 2. STREET STRUCTURAL SECTION AND SUBGRADE PREPARATION SHALL BE PER CITY STANDARD NO. 120.
 3. MOUNTABLE AC DIKES ARE REQUIRED TO CONTROL DRAINAGE, PREVENT EROSION, AND IF THE ROAD GRADIENT IS 6% OR GREATER. MOUNTABLE AC DIKES AND WIDER PAVEMENT MAY ALSO BE REQUIRED FOR SAFETY, DRAINAGE, AND/OR CONTINUITY AS DETERMINED BY THE CITY ENGINEER. AC DIKE SHALL BE PER CITY STANDARD NO. 315.
 4. THE RURAL ROAD STANDARD SHALL BE APPLICABLE IN DEVELOPMENTS WITHIN THE RR (RURAL RESIDENTIAL) ZONE AND THE ER-1 (ESTATE RESIDENTIAL 1) ZONE WITH LOT SIZES GREATER THAN OR EQUAL TO 20,000 SQUARE FEET.
 5. THE MINIMUM RADIUS, MAXIMUM PERCENTAGE, INTERSECTION INTERVALS, AND ALL OTHER DESIGN STANDARDS EXCEPT PAVEMENT WIDTH SHALL BE THE SAME AS THOSE FOR A LOCAL STREET, STANDARD NO. 106.
 6. TYPE 'C' CURBS (CITY OF MURRIETA STANDARD NO. 303) SHALL BE ALLOWED ON LOCAL STREETS IN THE RURAL DESIGNATION OR AS APPROVED BY THE CITY ENGINEER.
 7. SHOULDERS FOR THE RESIDENTIAL RURAL ROAD STANDARD SHALL BE INSTALLED IN CONFORMANCE WITH SOUTHERN CALIFORNIA AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) RULE 1186 ADOPTED FEBRUARY 14, 1997 AND ANY SUBSEQUENT AMENDMENTS TO THAT RULE ADOPTED BY SCAQMD.

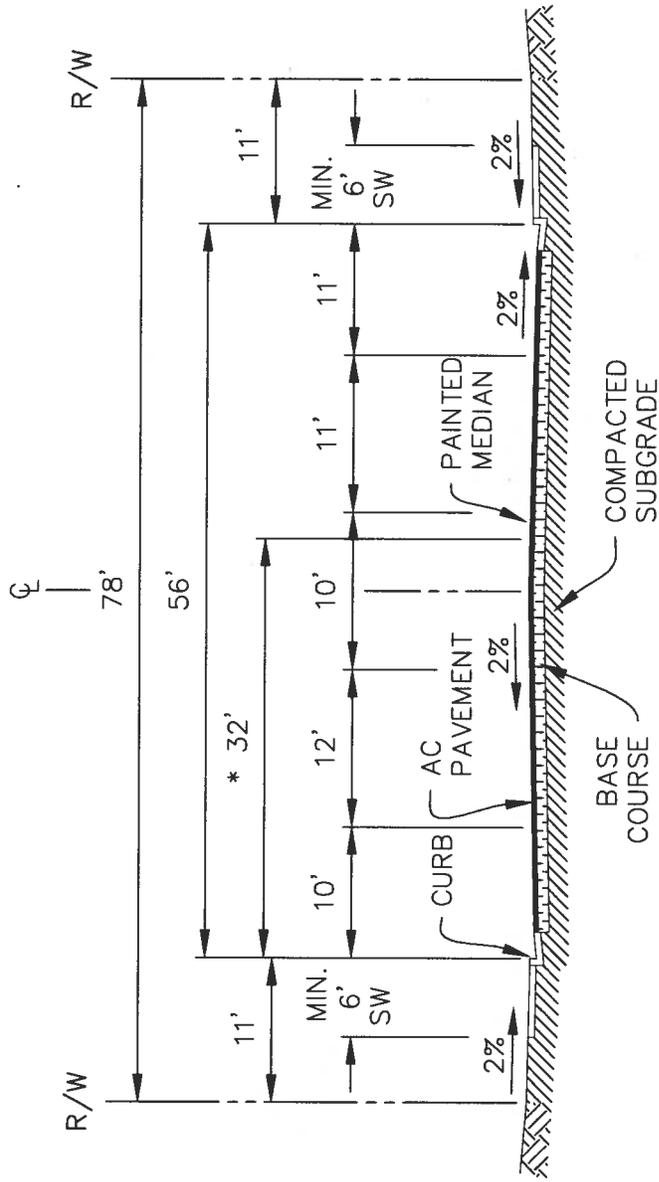
CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
APPROVED 1/14/10	

RESIDENTIAL RURAL ROAD
 (SEE NOTE 4)

STD. NO.

109



NOTES:

1. COMBINED THICKNESS OF BASE AND SURFACE TO BE DETERMINED BY SOIL TEST.
2. STREET STRUCTURAL SECTION AND SUBGRADE PREPARATION SHALL BE PER CITY STANDARD NO. 120.
3. CURB AND GUTTER SHALL BE TYPE A-6 PER CITY STANDARD NO. 301, UNLESS OTHERWISE SPECIFIED.
4. (*) PART WIDTH STREET SECTION FOR AN INTERIOR COMMERCIAL OR INDUSTRIAL STREET.

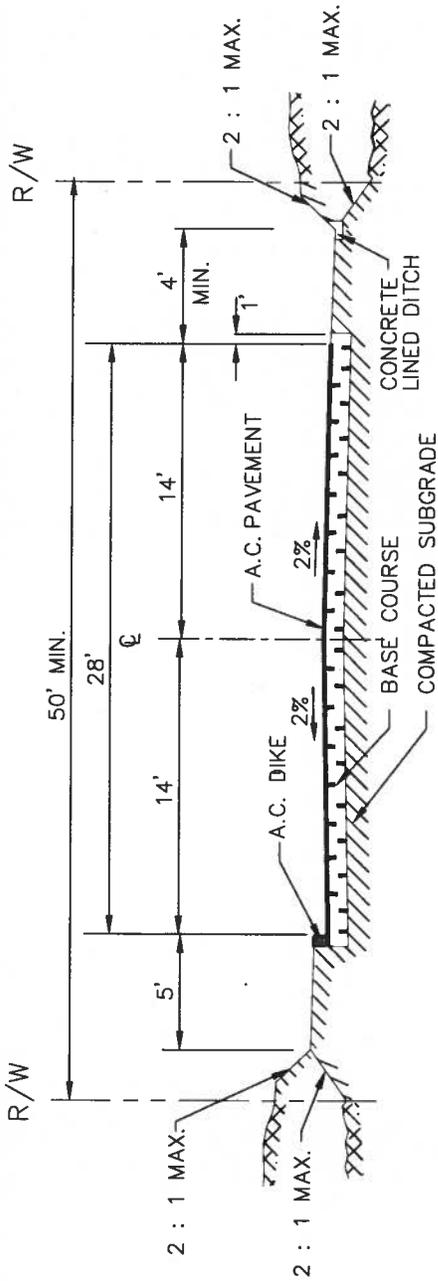
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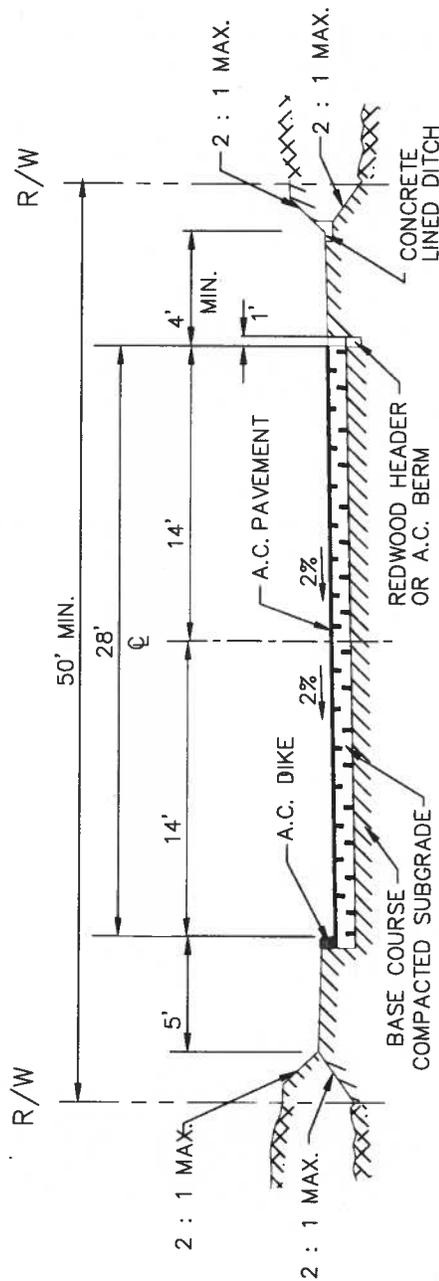
**INDUSTRIAL/COMMERCIAL
COLLECTOR STREET**

STD. NO.

111



SECTION "B"



* SECTION "A"

NOTES:

1. GRADES SHALL NOT EXCEED 10%. GRADES UP TO 15% MAY BE APPROVED FOR DISTANCES NOT TO EXCEED 100 FEET.
2. COMBINED THICKNESS OF BASE AND SURFACE TO BE DETERMINED BY SOIL TEST.
3. STREET STRUCTURAL SECTION AND SUBGRADE PREPARATION SHALL BE PER CITY STANDARD NO. 120.
4. AC DIKE SHALL BE PER CITY STANDARD NO. 315.
5. (*) FOR DRAINAGE CONTROL AS APPROVED BY THE CITY ENGINEER..

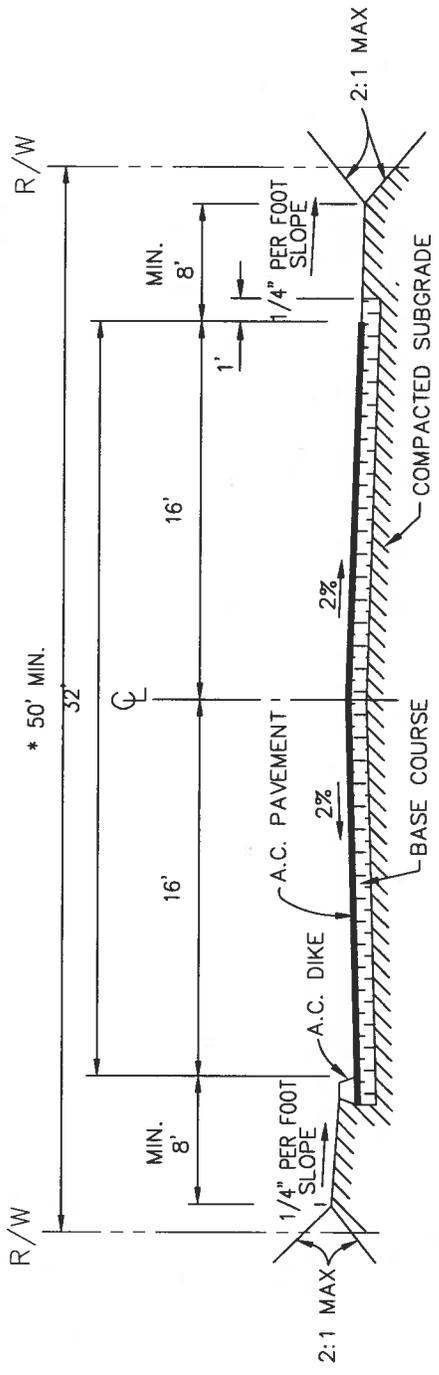
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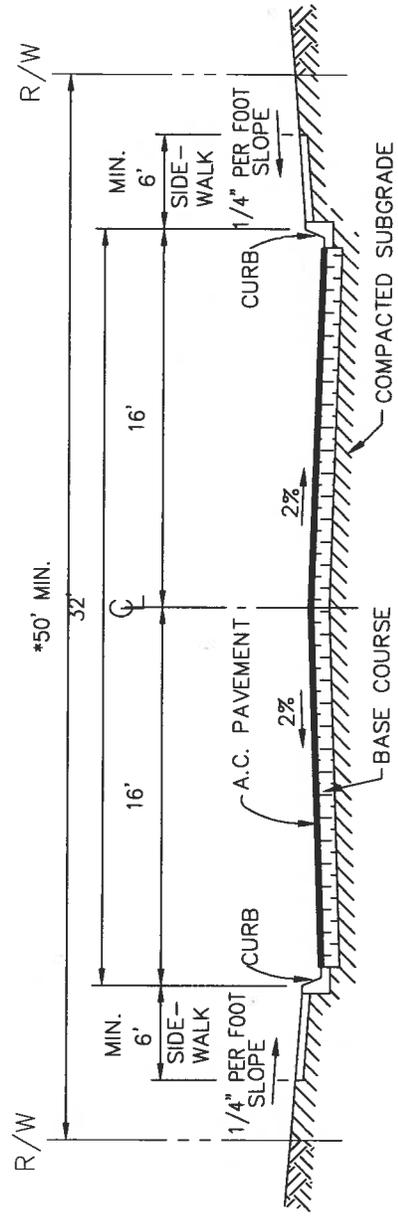
LOCAL MOUNTAIN
RESIDENTIAL STREET

STD. NO.

112



SECTION "B"



SECTION "A"

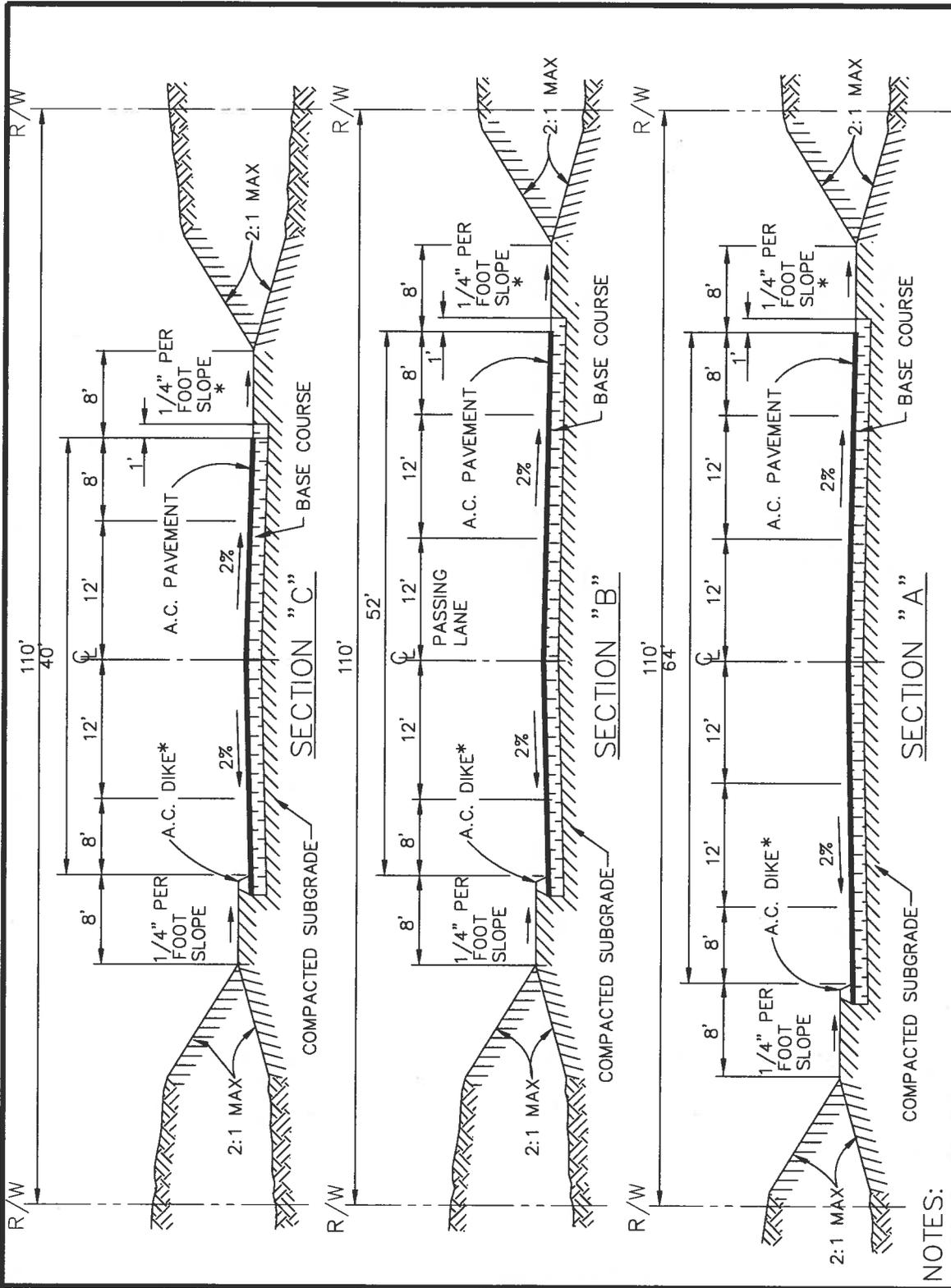
- NOTES:
1. COMBINED THICKNESS OF BASE AND SURFACE TO BE DETERMINED BY SOIL TEST.
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 3. CURB AND GUTTER SHALL BE TYPE A-6 PER CITY STANDARD NO. 301, UNLESS OTHERWISE SPECIFIED.
 4. AC DIKE SHALL BE PER CITY STANDARD NO. 315.
 5. (*) 60' MIN. R/W IS REQUIRED FOR ACCESS ROADS.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
APPROVED 1/14/10	

ACCESS ROAD,
RESTRICTED LOCAL STREET,
OR MINOR INTERIOR STREET

STD. NO.
113



NOTES:

1. COMBINED THICKNESS OF BASE AND SURFACE TO BE DETERMINED BY SOIL TEST.
2. STREET STRUCTURAL SECTION AND SUBGRADE PREPARATION SHALL BE PER CITY STANDARD NO. 120.
3. AC DIKE SHALL BE PER CITY STANDARD NO. 315.
4. * CONCRETE CURB, GUTTER AND SIDEWALK MAY BE REQUIRED AS DETERMINED BY THE CITY ENGINEER.

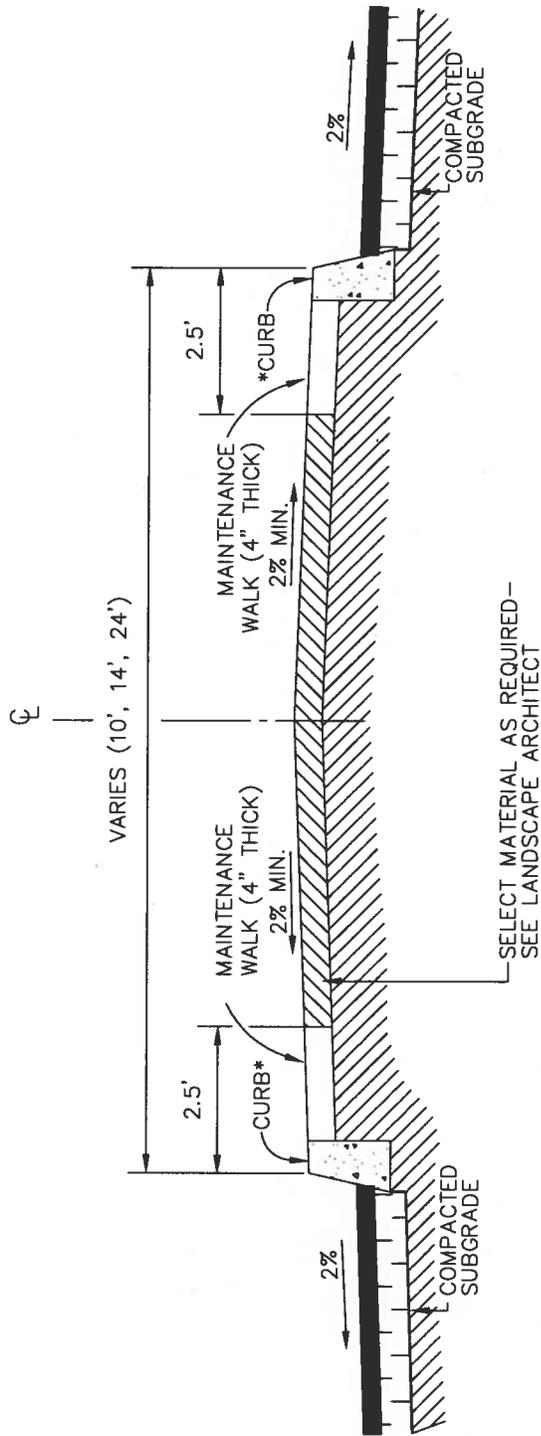
CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
APPROVED 1/14/10	

**ARTERIAL (MOUNTAIN)
HIGHWAY**

STD. NO.

114



NOTES:

1. ALL LANDSCAPING AND IRRIGATION PLANS MUST BE APPROVED BY THE ENGINEERING DEPARTMENT OR COMMUNITY SERVICES DEPARTMENT.
2. CONTINUED MAINTENANCE MUST BE GUARANTEED THROUGH A MAINTENANCE DISTRICT OR OTHER CITY APPROVED MECHANISM.
3. IRRIGATION MUST BE PROVIDED WITH A DRIP SYSTEM AS APPROVED BY THE CITY ENGINEER OR CSD.
4. USE 8" TYPE "D" CURB. TYPE "D-1" CURB IS OPTIONAL UPON APPROVAL OF THE CITY ENGINEER.
5. INSTALL A-8 CURB AND GUTTER (STANDARD 302) IN PLACE OF TYPE "D" OR "D-1" CURB WHEN FLOW LINE IS AGAINST MEDIAN DUE TO SUPERELEVATION.
6. ADD #4 REBAR X 10" DOWELS AT 24" O.C. TO TIE CURB TO MAINTENANCE WALK.
7. THREE 4" PVC SLEEVES, SCH 40, SHALL BE PLACED UNDER THE PAVEMENT FOR LANDSCAPING WATER AND ELECTRIC PRIOR TO PAVING UNLESS OTHERWISE APPROVED BY CITY ENGINEER. SLEEVES SHALL BE PLACED AT A DEPTH OF 24" MIN, 30" MAX. SLURRY SLEEVES WITH 1 SACK SLURRY.
8. FOR MEDIAN NOSE MARKERS, SEE STANDARD 610.
9. MAINTENANCE WALK SHALL BE INTERLOCKING CONCRETE BRICK (ICB) PAVERS. PAVERS SHALL BE HOLLAND STONE, 60mm FOR NON-VEHICULAR, 80mm FOR VEHICULAR, COLOR CREAM BROWN AS MANUFACTURED BY ACKER-STONE OR APPROVED EQUAL. PATTERN SHALL BE 90° HERRINGBONE UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

**CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS**

REVISIONS	
5/92	
APPROVED 1/14/10	

**LANDSCAPE MEDIAN
TYPICAL SECTION**

STD. NO.

115

REVISIONS	
5/92	
10/98	
APPROVED 1/14/10	

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

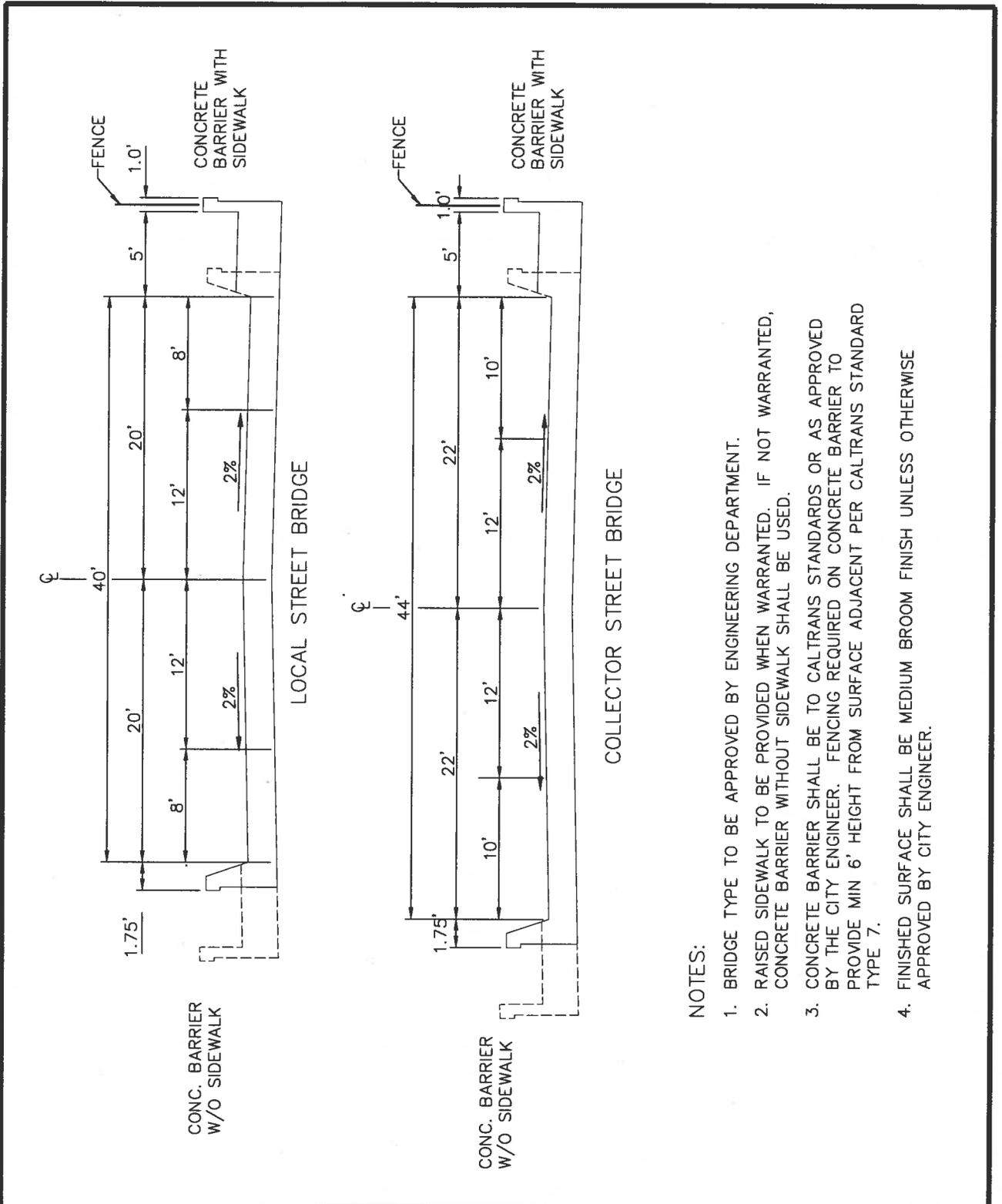
**ROADWAY DESIGN
REQUIREMENTS**

STD. NO.
116

ROAD TYPE

	ROAD TYPE									
	CUL-DE-SAC LENGTH RESTRICTED	SHORT LOCAL CUL DE SAC	LOCAL ROAD	COLLECTOR (RESIDENTIAL /INDUSTRIAL)	SECONDARY	MAJOR	MOUNTAIN ARTERIAL	ARTERIAL	URBAN ARTERIALS	EXPRESSWAY
R/W	50	60	60	66/78	88	100	110	110	120 134	142
SURFACED WIDTH CURB TO CURB	32	36	40	44/56	64	76	REFER TO STANDARD 114	86	98 110	86
PREFERRED RADI (HORIZONTAL)	300 300	300 300	300 300	850 550	1600 1000	2000 1600	- 850	2000 1600	2000 1600	2400 2000
MAX. GRADE %	4 9 15	4 9 15	4 9 15	4 8 12	3 6 9	3 6 9	- 7 9	3 6 9	3 6 -	3 6 -
DESIGN SPEED	30 30	30 30	30 30	45 35	55 45	60 55	- 45	60 55	60 55	65 60
INTERSECTION INTERVALS	NA	200	200	200	** 330	** 660	** 330	** 1320	* 1320	* 2640

- NOTES:
1. ROADWAY DESIGN LESS THAN SHOWN REQUIRES ENGINEERING DEPARTMENT APPROVAL.
 2. MINIMUM STREET GRADE 1.0% UNLESS APPROVED BY CITY ENGINEER.
 3. PART-WIDTH STREET SECTIONS SHALL BE IMPROVED AND R/W CONVEYED AS SHOWN ON TYPICAL STREET SECTIONS.
- * DIRECT ACCESS PROHIBITED.
** RESIDENTIAL ACCESS PROHIBITED. COMMERCIAL/INDUSTRIAL DRIVEWAY ACCESS AS DETERMINED BY THE CITY ENGINEER.



NOTES:

1. BRIDGE TYPE TO BE APPROVED BY ENGINEERING DEPARTMENT.
2. RAISED SIDEWALK TO BE PROVIDED WHEN WARRANTED. IF NOT WARRANTED, CONCRETE BARRIER WITHOUT SIDEWALK SHALL BE USED.
3. CONCRETE BARRIER SHALL BE TO CALTRANS STANDARDS OR AS APPROVED BY THE CITY ENGINEER. FENCING REQUIRED ON CONCRETE BARRIER TO PROVIDE MIN 6' HEIGHT FROM SURFACE ADJACENT PER CALTRANS STANDARD TYPE 7.
4. FINISHED SURFACE SHALL BE MEDIUM BROOM FINISH UNLESS OTHERWISE APPROVED BY CITY ENGINEER.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
APPROVED 1/14/10	

LOCAL AND COLLECTOR
STREET BRIDGE

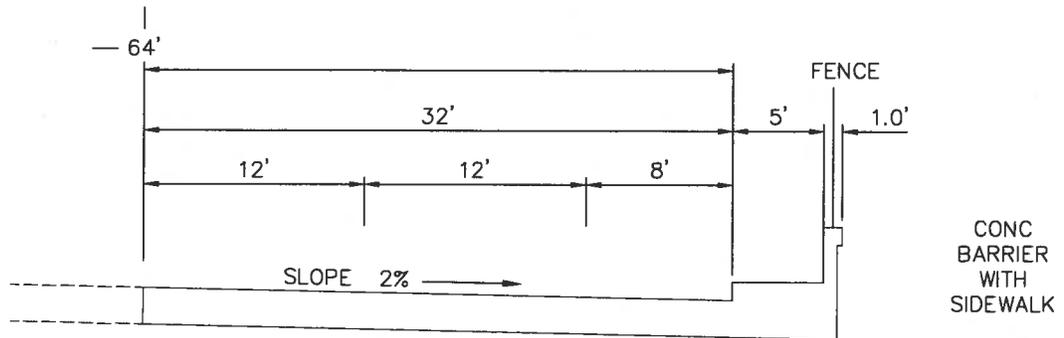
STD. NO.

117

SYMMETRICAL

ABOUT

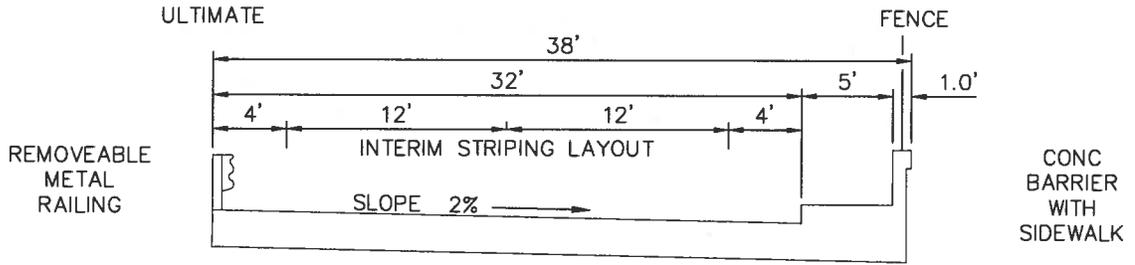
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ULTIMATE SECTION

⊕

ULTIMATE



2 LANES

(INITIAL PHASE)

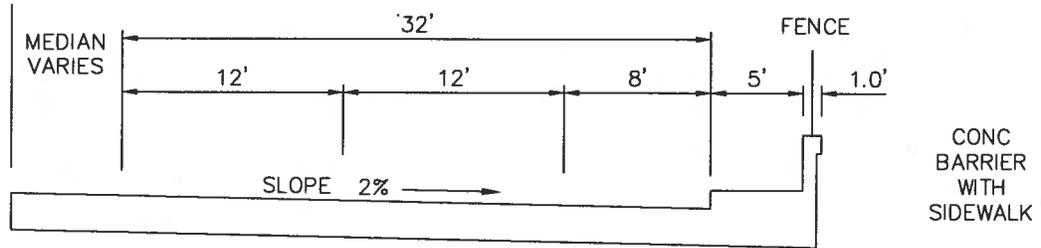
NOTES:

1. ULTIMATE TYPICAL BRIDGE SECTIONS TO BE CONSISTENT WITH THE APPROACH ROAD SECTION AS APPROVED BY THE ENGINEERING DEPARTMENT.
2. BRIDGE TYPE TO BE APPROVED BY ENGINEERING DEPT.
3. RAISED SIDEWALK TO BE PROVIDED WHEN WARRANTED. IF NOT WARRANTED, NON-SIDEWALK CONCRETE BARRIER SHALL BE USED.
4. CONCRETE BARRIER SHALL BE TO CALTRANS STANDARDS OR AS APPROVED BY THE CITY ENGINEER. FENCING REQUIRED ON CONCRETE BARRIER TO PROVIDE MIN. 6' HEIGHT FROM SURFACE ADJACENT PER CALTRANS STANDARD TYPE 7.
5. FINISHED SURFACE SHALL BE MEDIUM BROOM FINISH UNLESS OTHERWISE APPROVED BY CITY ENGINEER.

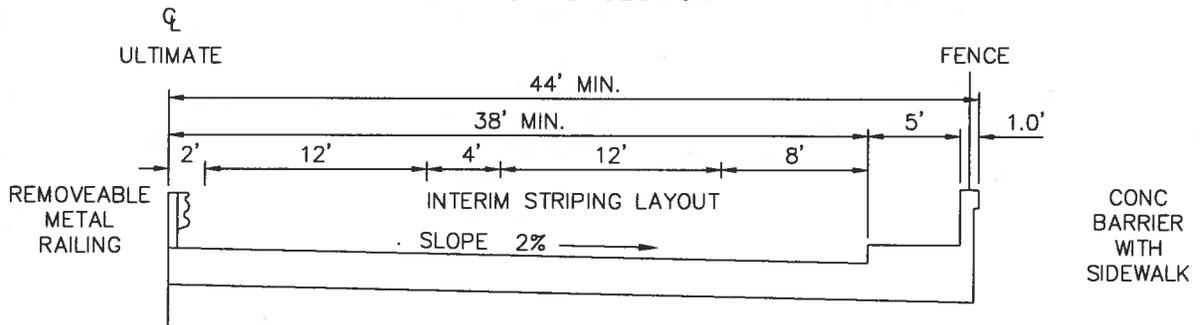
CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS		SECONDARY HIGHWAY BRIDGE	STD. NO. 118
5/92			
APPROVED 1/14/10			

SYMMETRICAL
ABOUT
℄



STANDARD SECTION



2 LANES
(INITIAL PHASE)

NOTES:

1. ULTIMATE BRIDGE SECTIONS TO BE CONSISTENT WITH THE APPROACH ROAD SECTION AS APPROVED BY THE ENGINEERING DEPARTMENT.
2. BRIDGE TYPE TO BE APPROVED BY ENGINEERING DEPT.
3. CURBED MEDIAN TO BE USED ONLY WHEN APPROACHING HIGHWAY HAS RAISED MEDIAN ALSO. MEDIAN WIDTH MAY VARY WITH RAISED CURB.
4. RAISED SIDEWALK TO BE PROVIDED WHEN WARRANTED. IF NOT WARRANTED, NON-SIDEWALK CONCRETE BARRIER SHALL BE USED.
5. CONCRETE BARRIER SHALL BE TO CALTRANS STANDARDS OR AS APPROVED BY THE CITY ENGINEER. FENCING REQUIRED ON CONCRETE BARRIER TO PROVIDE MIN 6' HEIGHT FROM SURFACE ADJACENT PER CALTRANS STANDARD TYPE 7.
6. FINISHED SURFACE SHALL BE MEDIUM BROOM FINISH UNLESS OTHERWISE APPROVED BY CITY ENGINEER.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
APPROVED 1/14/10	

**MAJOR AND ARTERIAL
HIGHWAY BRIDGE**

STD. NO.

119

MINIMUM STRUCTURAL SECTION IN INCHES

T.I.	4.0		4.5		5.0		6.0		8.0		8.5		9.0	
TYPE SUBGRADE	ALLEY/ PRKNG LTS		CUL-DE- SAC		LOCAL ROAD		RESIDENTIAL COLLECTOR		INDUSTRIAL COLLECTOR SECONDARY/MAJOR		ARTERIALS		EXPRESSWAY	
R-VALUE	AC	AB	AC	AB	AC	AB	AC	AB	AC	AB	AC	AB	AC	AB
8					3	10	4	13						
10			3	8					4	18	5	18	6	18
12	3	6			3	9	4	12						
14									4	17	5	17	6	17
16			3	7			4	11			5	16	6	16
18	3	6			3	8			4	16				
20							4	10	4	15	5	15	6	15
22			3	6									6	14
24	3	6			3	7	4	9	4	14	5	14		
26											5	13	6	13
28							4	8	4	13				
30					3	6					5	12	6	12
32							4	7	4	12			6	11
34									4	11	5	11		
36							4	6					6	10
38									4	10	5	10	6	9
40											5	9		
42									4	9			6	8
44											5	8		
46									4	8			6	7
48											5	7	6	6
50									4	7	5	6		
52														
54									4	6				

NOTES:

1. AC = ASPHALT CONCRETE 95% COMPACTION.
2. AB = AGGREGATE BASE MATERIAL SHALL BE CLASS 2 PER CALTRANS SPECIFICATIONS OR CRUSHED AGGREGATE BASE PER GREENBOOK SPECIFICATIONS FOR PUBLIC STREETS. AB USED ON PRIVATE PROPERTY MAY USE CRUSHED MISCELLANEOUS BASE. PROCESSED MISCELLANEOUS BASE SHALL NOT BE PERMITTED. ALL OTHER CONSIDERED BASE MATERIAL TO BE APPROVED BY CITY ENGINEER. AB SHALL BE COMPACTED TO 95%.
3. SG = SUBGRADE SHALL BE COMPACTED TO 95% FOR TOP 12"
4. ON-SITE PARKING AREAS SHALL BE DETERMINED BY SEPARATE SOILS ANALYSIS WITH MIN. TI=4.
5. PRIVATE STREET SECTION SHALL BE PER LOCAL ROAD.

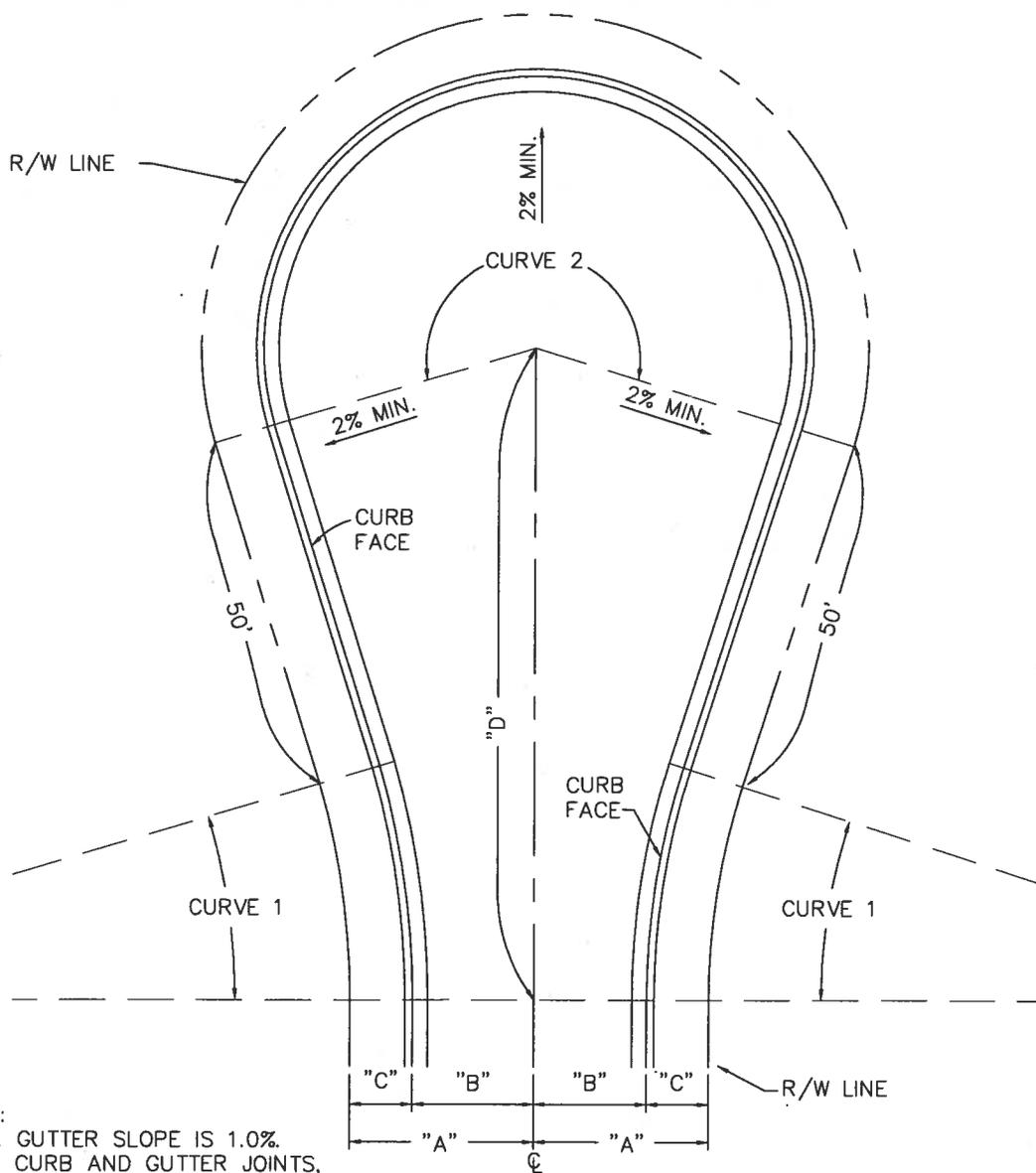
CITY OF MURRIETA DEPARTMENT OF PUBLIC WORKS

REVISIONS		STD. NO.
5/92		120
10/98		
APPROVED 1/14/10	ROADWAY STRUCTURAL SECTION REQUIREMENTS	

SECTION 200

GEOMETRICS



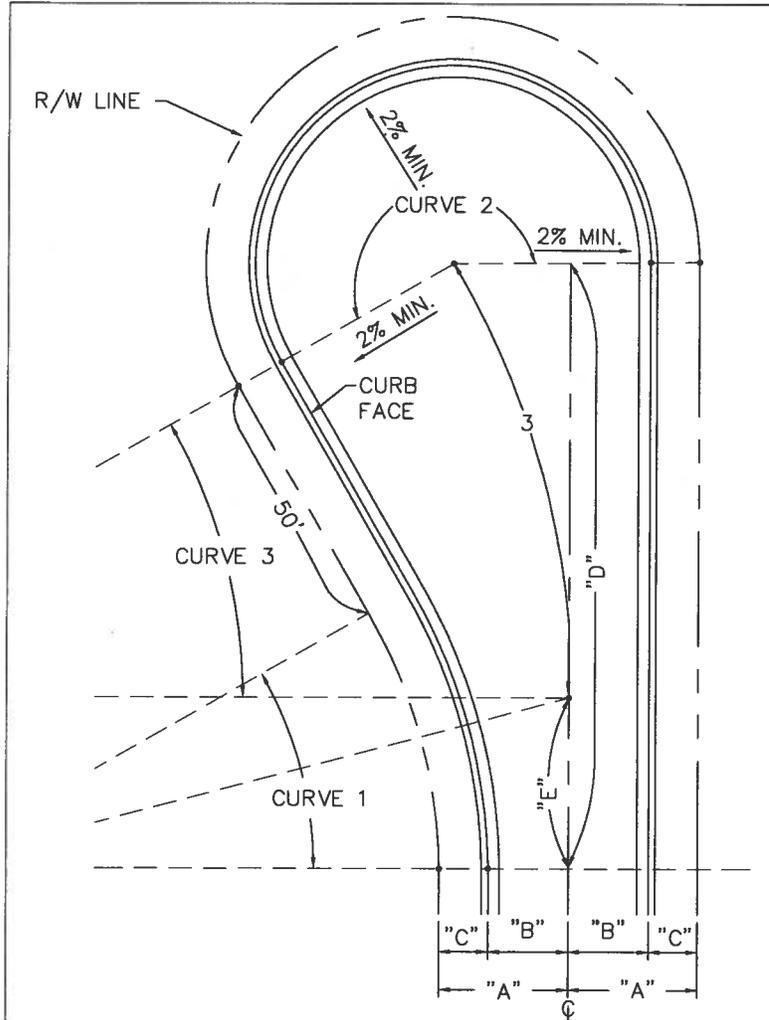


- NOTES:
 1. MIN. GUTTER SLOPE IS 1.0%.
 2. FOR CURB AND GUTTER JOINTS, SEE STD 306.

R/W	CURVE 1				CURVE 2									
	A	B	C	D	△	CURB		PROPERTY		△	CURB		PROPERTY	
						R	L	R	L		R	L	R	L
50'	25	16	9	92.11	17°36'02"	109	33.48	100	30.72	215°12'02"	38	142.73	47	176.53
56'	28	18	10	89.55	16°18'41"	110	31.31	100	28.47	212°37'22"	38	141.02	48	178.12
60'	30	18	12	90.00	16°15'37"	112	31.79	100	28.38	212°31'13"	38	140.95	50	185.46
60'	30	20	10	86.63	15°00'38"	110	28.82	100	26.20	210°01'17"	38	139.29	48	175.95
66'	33	22	11	83.74	13°38'40"	111	26.44	100	23.82	207°17'21"	38	137.48	49	177.28
78'	39	28	11	95.39	17°12'31"	111	33.33	100	30.03	214°25'02"	50	187.11	61	226.27
88'	44	32	12	103.27	19°15'21"	112	37.64	100	33.61	216°30'42"	58	221.20	70	266.96

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	CUL-DE-SAC	STD. NO.
5/92		201
APPROVED 1/14/10		



- NOTES:
 1. OFFSET MAY BE LOCATED EITHER LEFT OR RIGHT.
 2. MIN. GUTTER SLOPE IS 1.0%.
 3. FOR CURB AND GUTTER JOINTS, SEE STD 306.

R/W	CURVE 1				CURVE 2				CURVE 3						
	A	B	C	D	E	CURB		PROPERTY		CURB		PROPERTY		CROWN	
						R	L	R	L	R	L	R	L	R	L
50'	25	16	9	116.19	33.10	109	56.42	100	51.76	209	39	30	167.93	86.93	
56'	28	18	10	112.87	31.44	110	52.98	100	48.165	207	35	48	173.92	84.67	
60'	30	18	12	113.58	31.79	112	53.72	100	47.96	207	28	54	181.06	85.01	
60'	30	20	10	108.90	29.45	110	49.01	100	44.56	205	31	48	172.18	82.14	
66'	33	22	11	104.94	27.47	111	45.21	100	40.73	203	20	19	173.90	79.65	
78'	39	28	11	121.38	35.69	111	55.79	100	50.26	208	47	56	222.30	89.41	
88'	44	32	12	132.20	41.10	112	62.27	100	55.60	211	51	28	258.83	95.97	

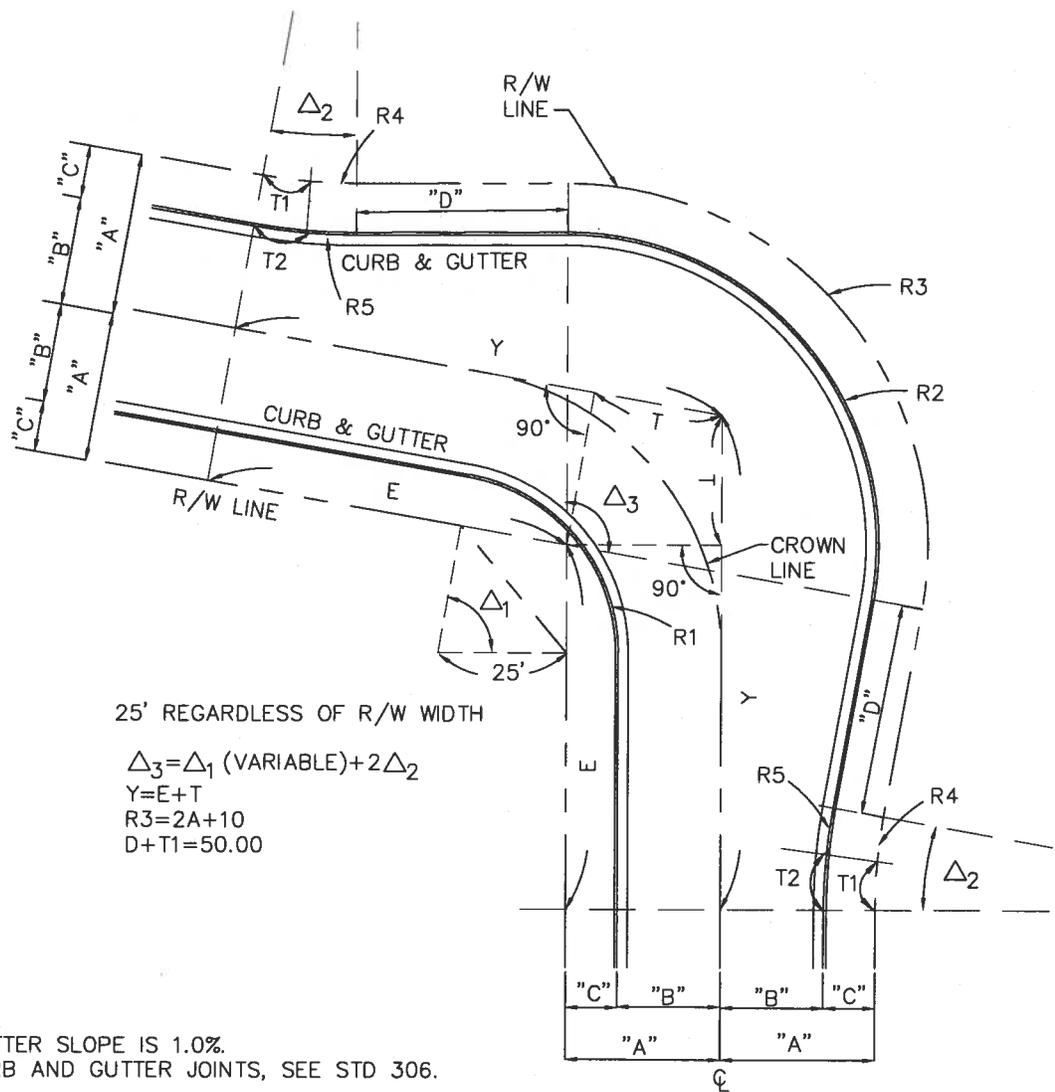
CITY OF MURRIETA
 DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
APPROVED 1/14/10	

**OFFSET
 CUL-DE-SAC**

STD. NO.

202



25' REGARDLESS OF R/W WIDTH

$$\Delta_3 = \Delta_1 \text{ (VARIABLE)} + 2\Delta_2$$

$$Y = E + T$$

$$R3 = 2A + 10$$

$$D + T1 = 50.00$$

- NOTES:
 1. MIN. GUTTER SLOPE IS 1.0%.
 2. FOR CURB AND GUTTER JOINTS, SEE STD 306.

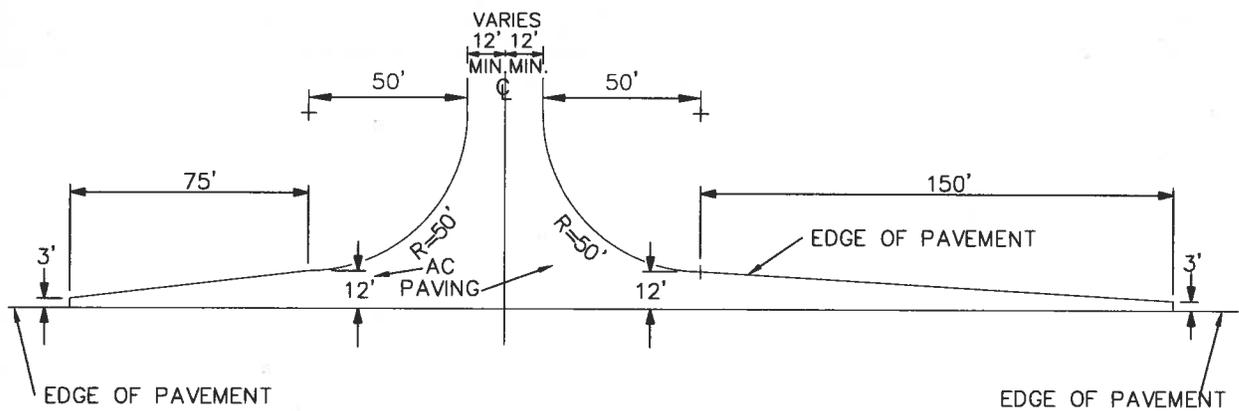
R/W	ROADWAY IMPROVEMENT WIDTH	A	B	C	D	E	R1	R2	R3	Δ_2	R4	T1	R5	T2
50'	32	25	16	9	40.91	69.09	34	51	60	10'23'20"	100	9.09	109	9.91
56'	36	28	18	10	40.99	70.00	35	56	66	10'17'48"	100	9.01	110	9.91
60'	36	30	18	12	41.04	70.60	37	58	70	10'14'12"	100	8.96	112	10.03
60'	40	30	20	10	41.04	70.60	35	60	70	10'14'12"	100	8.96	110	9.85
66'	44	33	22	11	41.12	71.49	36	65	76	10'08'58"	100	8.88	111	9.86
78'	56	39	28	11	41.26	73.23	36	77	88	9'58'58"	100	8.73	111	9.69
88'	64	44	32	12	41.38	74.65	37	86	98	9'51'06"	100	8.62	112	9.65

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
APPROVED 1/14/10	

STANDARD KNUCKLE

STD. NO.
203



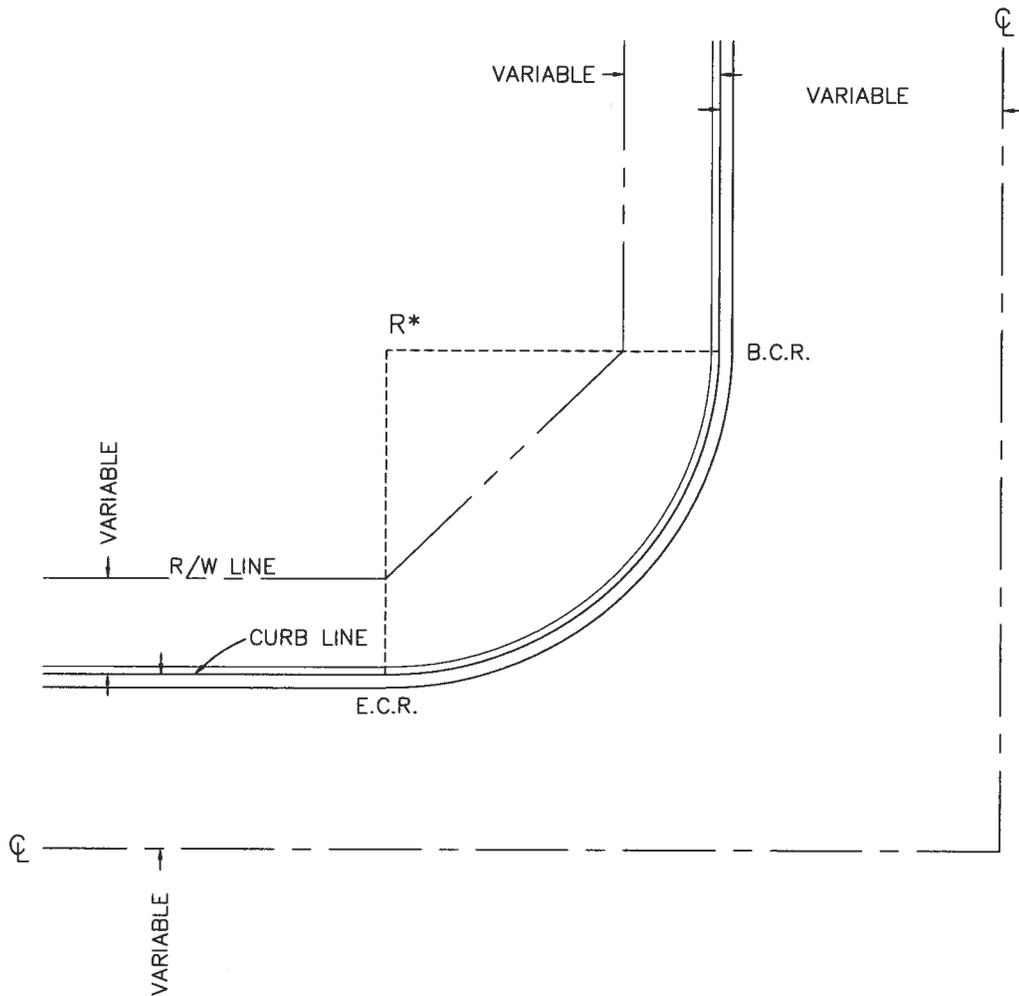
CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
APPROVED 1/14/10	

PRIVATE ROAD CONNECTION

STD. NO.

205

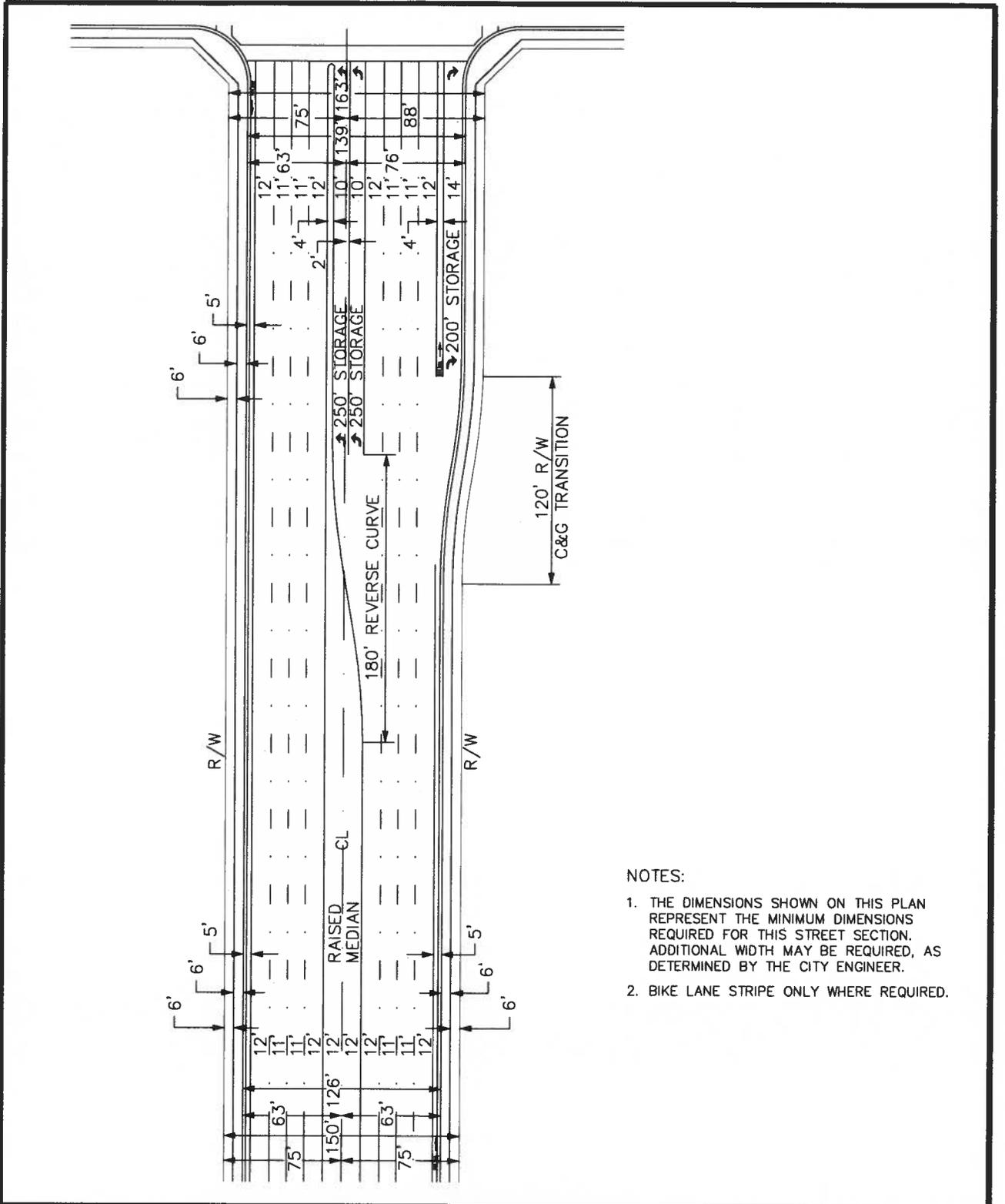


NOTES:

1. * CURB RADIUS = 25' IF BOTH STREETS HAVE A WIDTH OF LESS THAN STREET STD 111 (INDUSTRIAL COLLECTOR, 78' R/W).
2. * CURB RADIUS = 35' IF EITHER STREET HAS A WIDTH EQUAL TO OR GREATER THAN STREET STD 111 (INDUSTRIAL COLLECTOR, 78' R/W), EXCEPT IN CASES WHERE SPECIAL DESIGN EXIST. SUCH CASES SHALL BE APPROVED BY CITY ENGINEER.
3. FOR CURB AND GUTTER JOINTS, SEE STD 306.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS		PROPERTY LINE - CORNER CUT-BACK CURB RETURN RADIUS	STD. NO.
5/92			206
APPROVED 1/14/10			



NOTES:

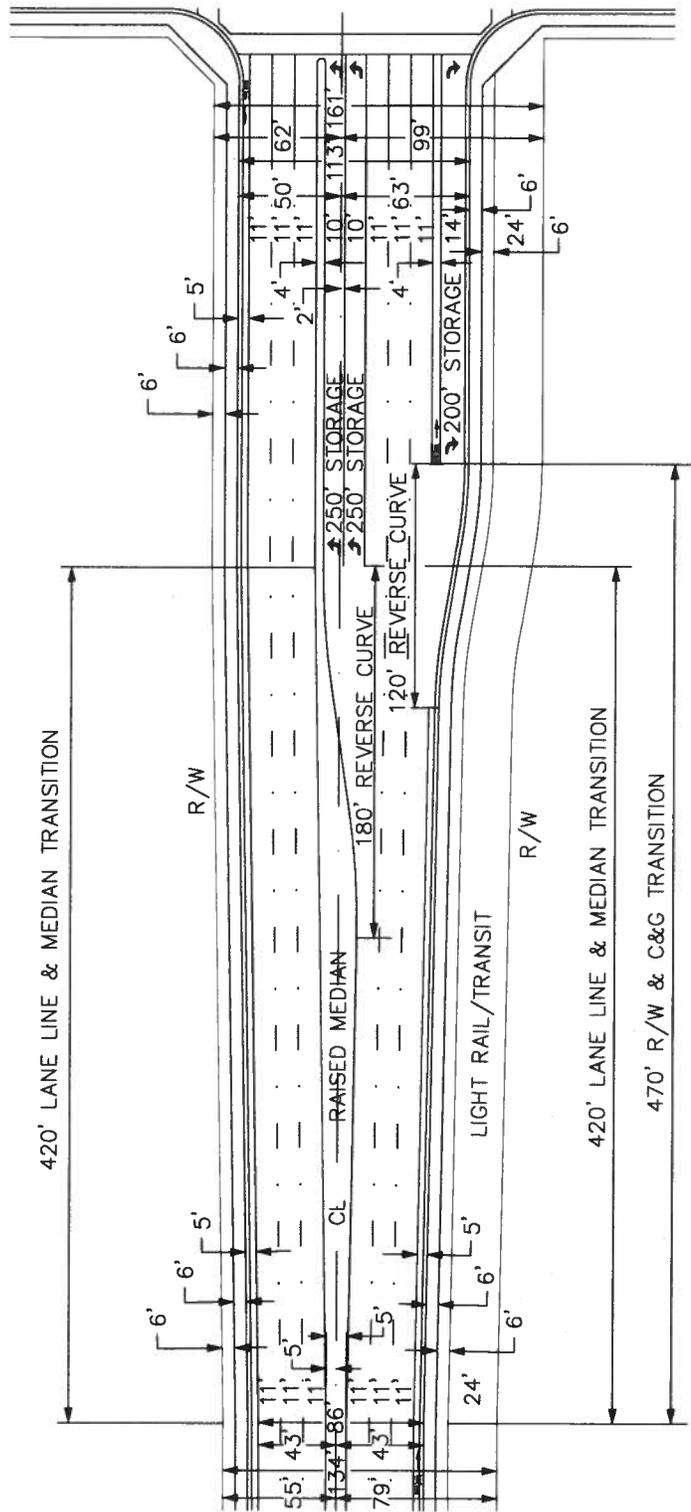
1. THE DIMENSIONS SHOWN ON THIS PLAN REPRESENT THE MINIMUM DIMENSIONS REQUIRED FOR THIS STREET SECTION. ADDITIONAL WIDTH MAY BE REQUIRED, AS DETERMINED BY THE CITY ENGINEER.
2. BIKE LANE STRIPE ONLY WHERE REQUIRED.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
APPROVED 1/14/10	

ENHANCED INTERSECTION GEOMETRICS
AUGMENTED URBAN ARTERIAL

STD. NO.
207a
 SHEET 1 OF 6



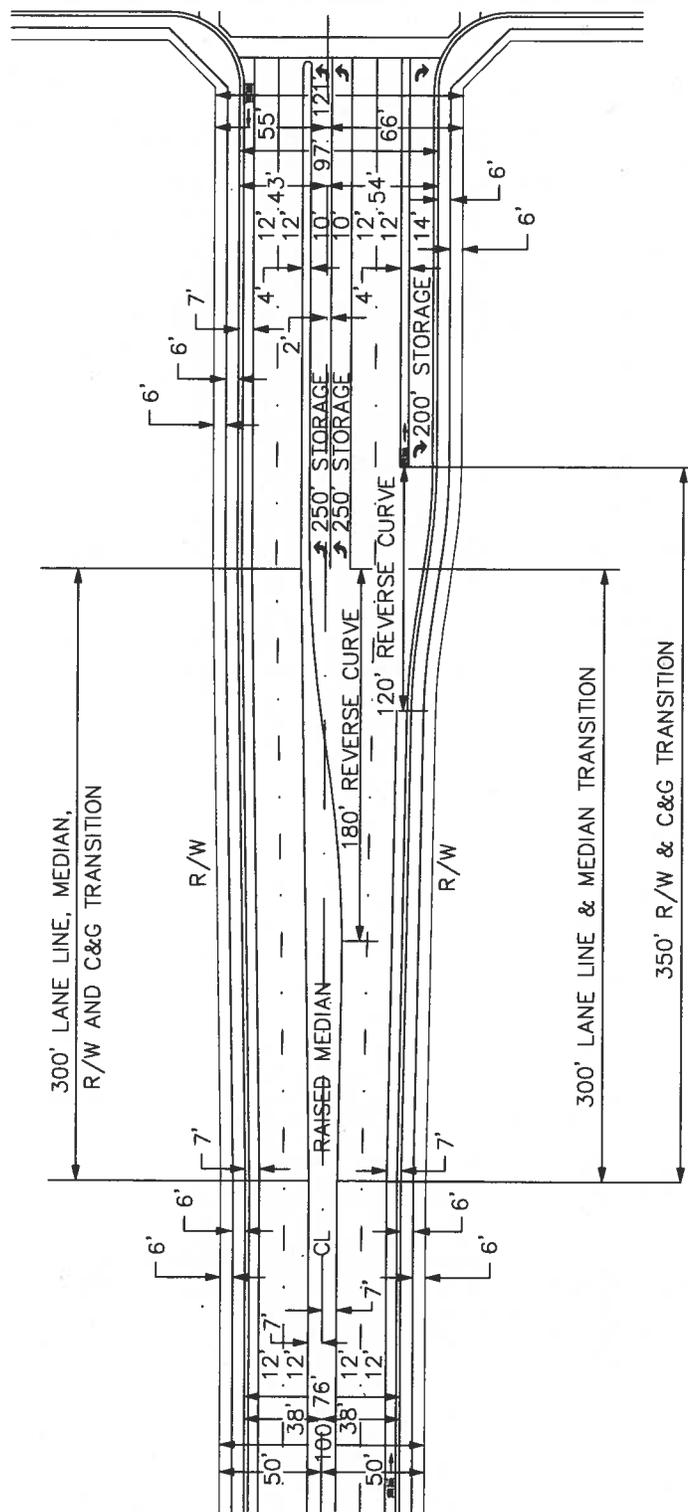
- NOTES:
1. THE DIMENSIONS SHOWN ON THIS PLAN REPRESENT THE MINIMUM DIMENSIONS REQUIRED FOR THIS STREET SECTION. ADDITIONAL WIDTH MAY BE REQUIRED, AS DETERMINED BY THE CITY ENGINEER.
 2. BIKE LANE STRIPE ONLY WHERE REQUIRED.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
APPROVED 1/14/10	

ENHANCED INTERSECTION GEOMETRICS
MULTI-MODAL TRANSPORTATION
CORRIDOR

STD. NO.
207b
 SHEET 2 OF 6



NOTES:

1. THE DIMENSIONS SHOWN ON THIS PLAN REPRESENT THE MINIMUM DIMENSIONS REQUIRED FOR THIS STREET SECTION. ADDITIONAL WIDTH MAY BE REQUIRED, AS DETERMINED BY THE CITY ENGINEER.
2. BIKE LANE STRIPE ONLY WHERE REQUIRED.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

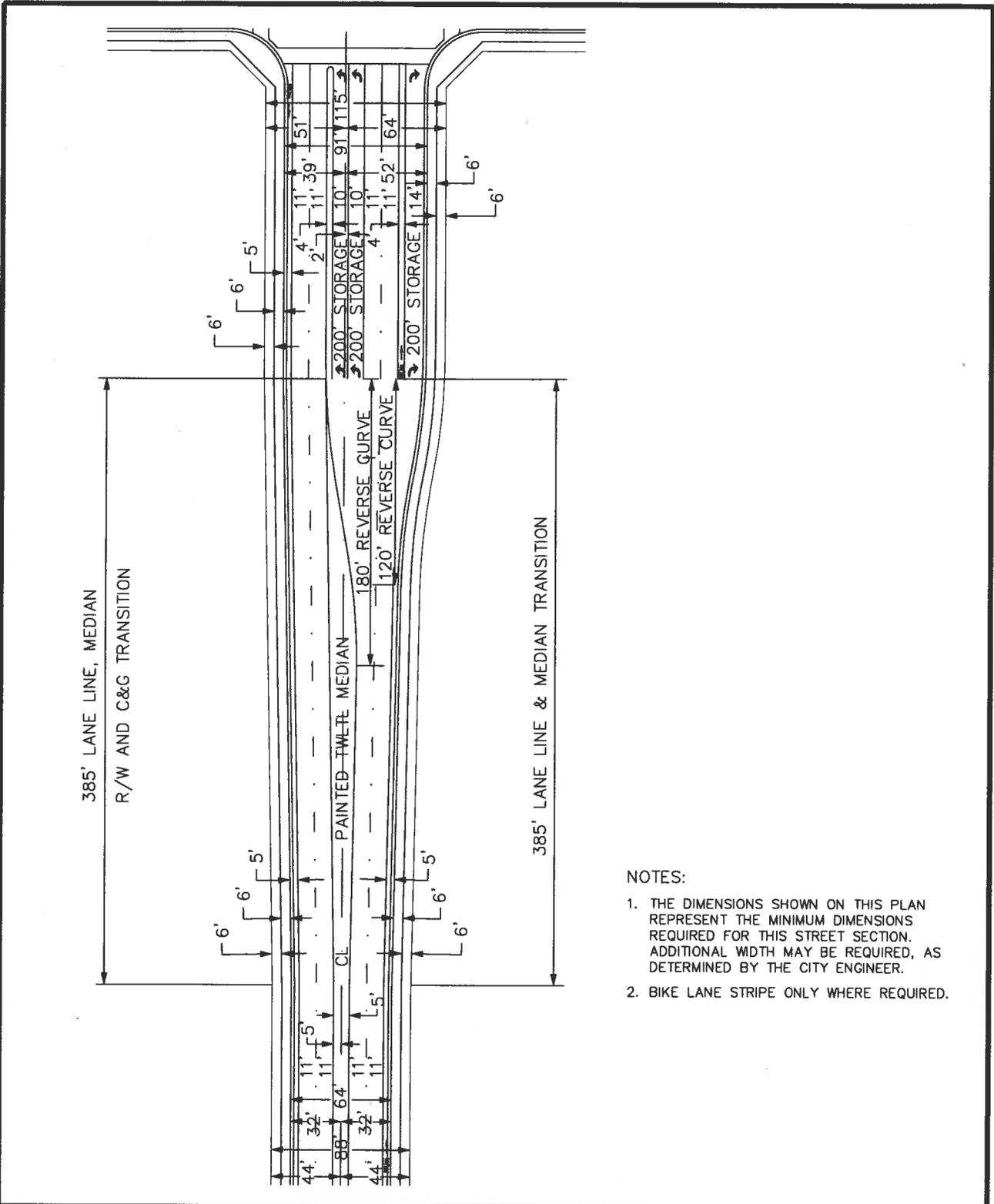
REVISIONS	
5/92	
APPROVED 1/14/10	

ENHANCED INTERSECTION GEOMETRICS
MAJOR

STD. NO.

207e

SHEET 5 OF 6



- NOTES:
1. THE DIMENSIONS SHOWN ON THIS PLAN REPRESENT THE MINIMUM DIMENSIONS REQUIRED FOR THIS STREET SECTION. ADDITIONAL WIDTH MAY BE REQUIRED, AS DETERMINED BY THE CITY ENGINEER.
 2. BIKE LANE STRIPE ONLY WHERE REQUIRED.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

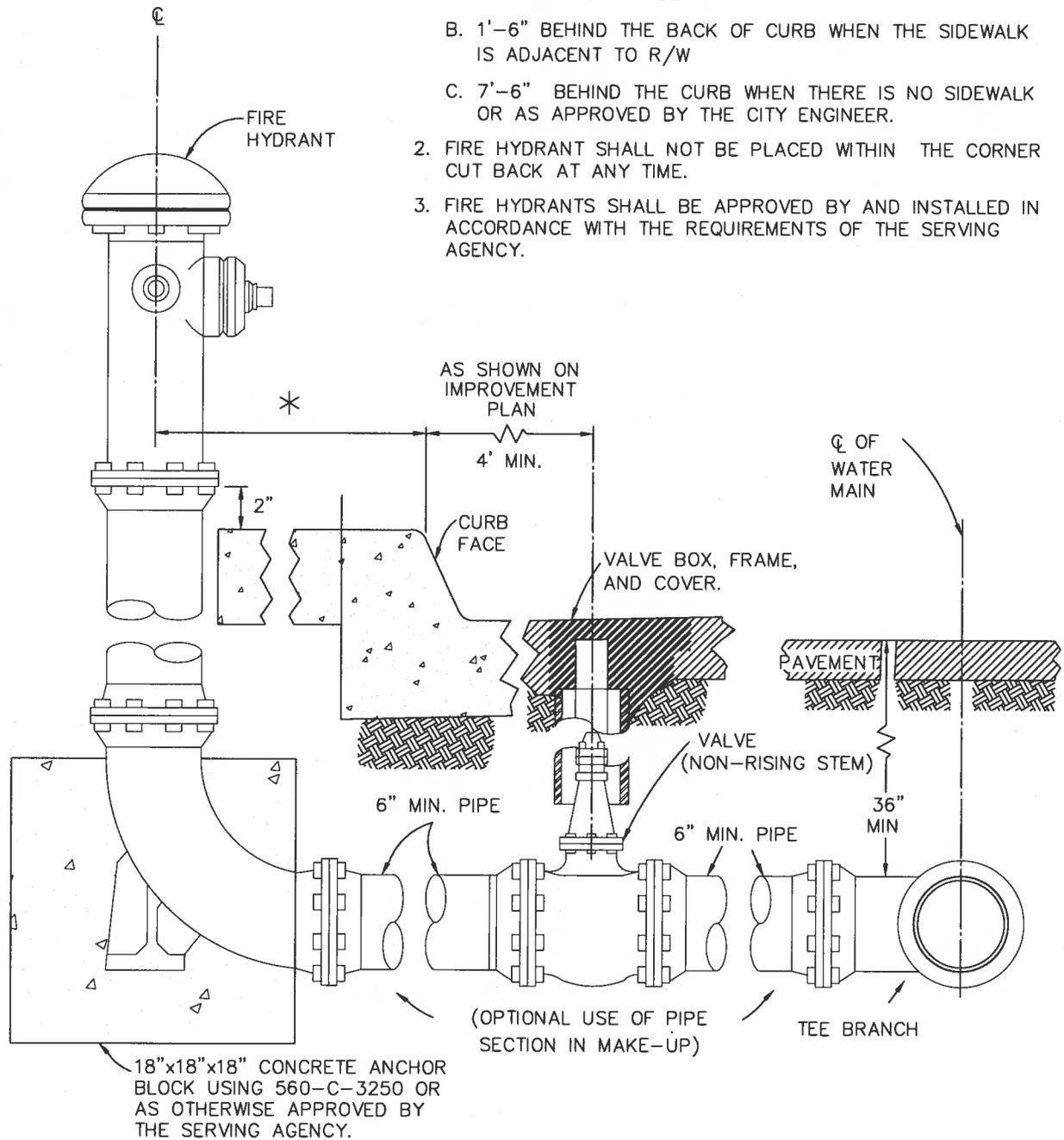
REVISIONS	
5/92	
APPROVED 1/14/10	

ENHANCED INTERSECTION GEOMETRICS
SECONDARY

STD. NO.
207f
 SHEET 6 OF 6

* NOTES:

1. FIRE HYDRANT SHALL BE PLACED:
 - A. 7'-6" BEHIND THE CURB WHEN THE WIDTH OF SIDEWALK IS 6' WIDE.
 - B. 1'-6" BEHIND THE BACK OF CURB WHEN THE SIDEWALK IS ADJACENT TO R/W
 - C. 7'-6" BEHIND THE CURB WHEN THERE IS NO SIDEWALK OR AS APPROVED BY THE CITY ENGINEER.
2. FIRE HYDRANT SHALL NOT BE PLACED WITHIN THE CORNER CUT BACK AT ANY TIME.
3. FIRE HYDRANTS SHALL BE APPROVED BY AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE SERVING AGENCY.



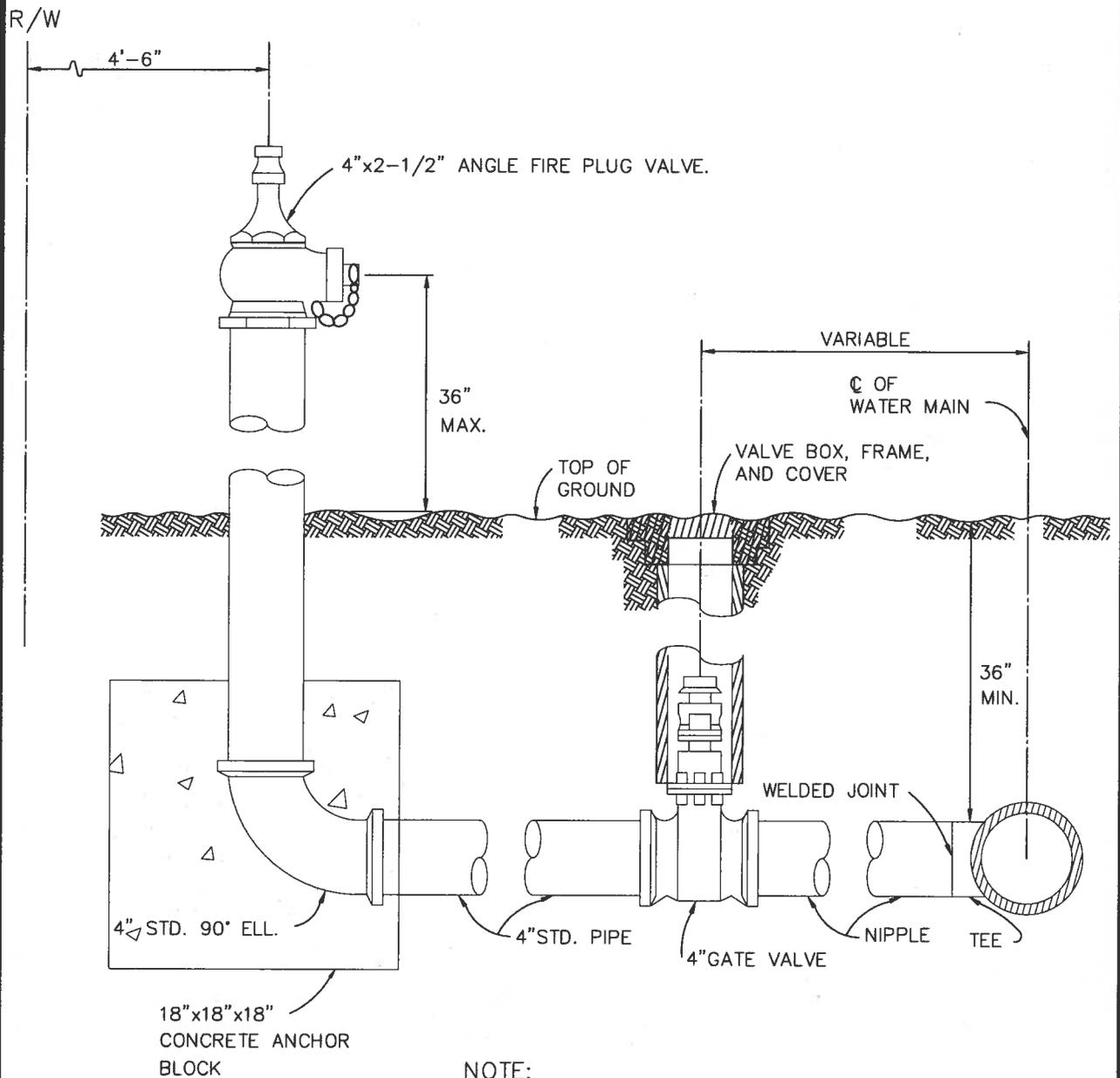
CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
APPROVED 1/14/10	

FIRE HYDRANT LOCATION

STD. NO.

208



NOTE:

1. FIRE HYDRANT SHALL BE APPROVED BY AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE SERVING AGENCY.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
APPROVED 1/14/10	

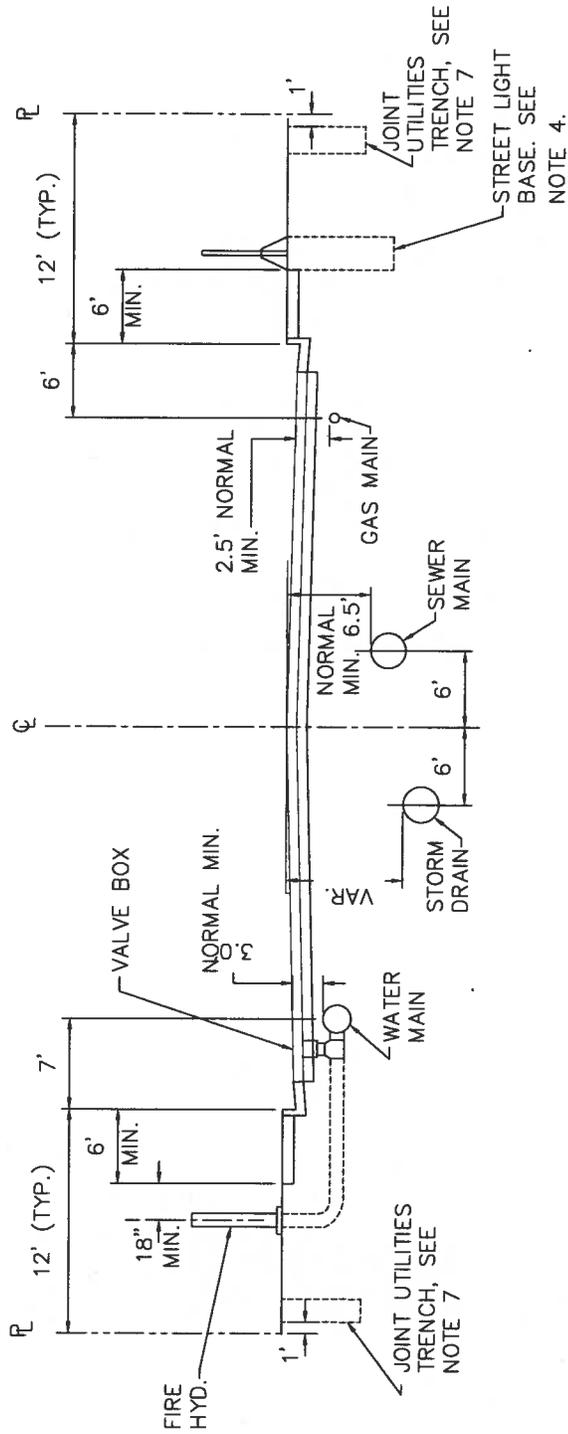
**FIRE HYDRANT LOCATION
(ALTERNATE)**

STD. NO.

209

NORTH SIDE OR EAST SIDE

SOUTH SIDE OR WEST SIDE



NOTES:

1. LOCATION AND DEPTH OF EXISTING AND PROPOSED UTILITIES MUST BE PROVIDED BY THE SUBDIVIDER AND SHOWN ON ANY PLANS SUBMITTED TO THE DEPT. OF PUBLIC WORKS FOR APPROVAL.
2. CHANGES MAY BE PERMITTED BY THE DEPT. OF PUBLIC WORKS IN CASES OF CONFLICTING FACILITIES.
3. CONFLICTS BETWEEN UTILITY COMPANY, FACILITIES, EXISTING AND PROPOSED, MUST BE MUTUALLY RESOLVED BY THE UTILITY COMPANIES.
4. STREET LIGHTS - ALTERNATE SIDE SPACING PER CITY POLICY.
5. STORM/SEWER MAIN MAY BE LOCATED 6' FROM MEDIAN CURB FACE.
6. TRENCH IN PAVEMENT METHOD FOR DRY UTILITY INSTALLATION SHALL BE PER STD 212C AND ONLY WHEN APPROVED BY THE CITY ENGINEER.
7. JOINT UTILITES WILL MOVE TO THE EDGE OF SIDEWALK WHEN SIDEWALK IS AGAINST THE R/W.

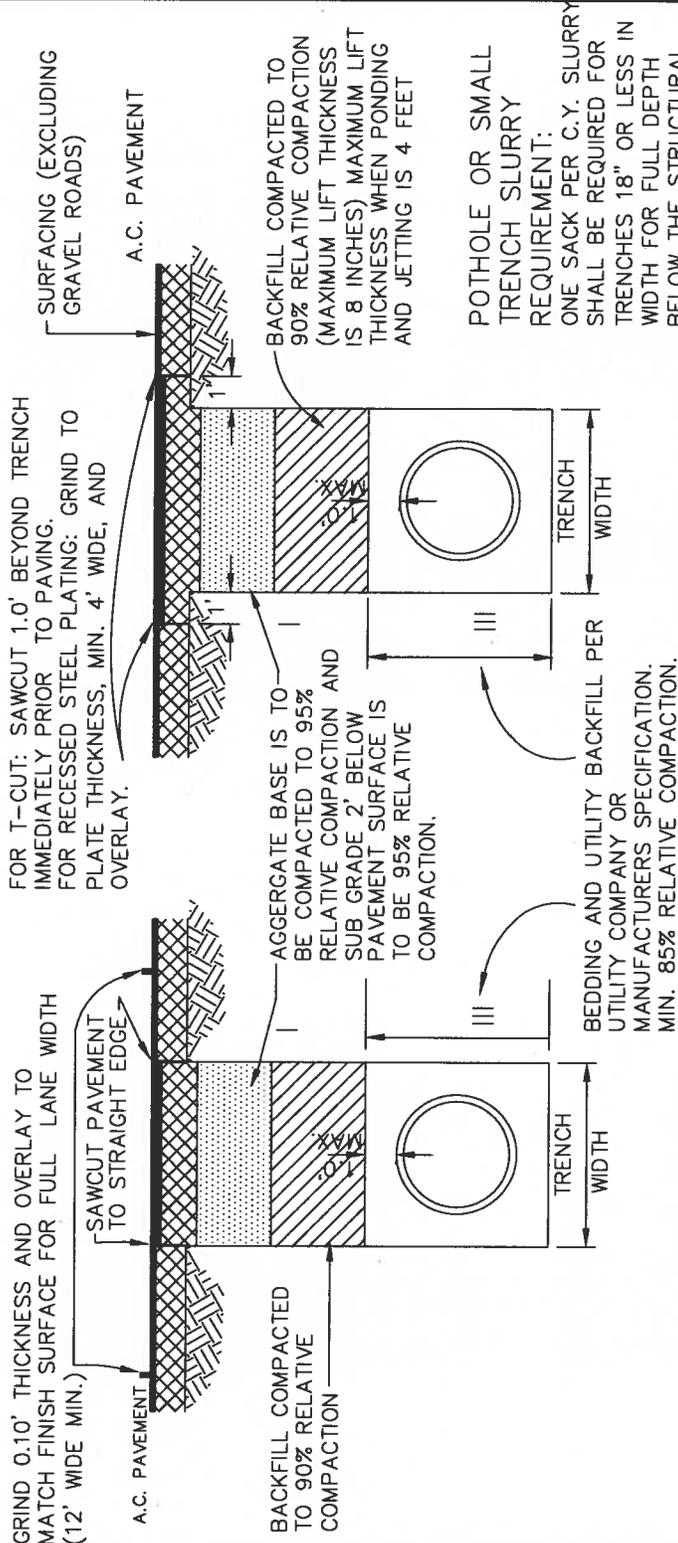
CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
APPROVED 1/14/10	

UNDERGROUND UTILITY
LOCATION

STD. NO.	211
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SURFACED STREETS



LONGITUDINAL CUTS

TRANSVERSE CUTS

- RECESSED STEEL PLATE NOTES:**
1. STEEL PLATES TO COVER TRENCHING ACTIVITIES SHALL BE RECESSED IN THE ASPHALT PAVEMENT.
 2. STEEL PLATES SHALL BE DESIGNED FOR H-20 LOADING FOR THE APPROPRIATE TRENCH WIDTH. CERTIFICATION SHALL BE PROVIDED TO THE CITY ENGINEER UPON REQUEST.
 3. STEEL PLATES SHALL BE SKID RESISTANT.
 4. NO MORE THAN 50 LINEAR FEET OF STEEL PLATING SHALL BE INSTALLED UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
 5. STEEL PLATES SHALL BE TACK WELDED OR PINNED TOGETHER.
- TRENCHING NOTE:**
ALL WET/DRY UNDERGROUND UTILITIES MUST BE INSTALLED PRIOR TO THE FINAL CAP LIFT OF ASPHALT PAVING TO AVOID NEW STREET IMPROVEMENTS FROM BEING DISTURBED BY CURBS, SAW CUTS, ROCK WHEELING, AND ALL OTHER EXCAVATIONS.
- REPLACE STRUCTURAL SECTION AS FOLLOWS:**
- I. STRUCTURAL ZONE
 - II. INTERMEDIATE ZONE
 - III. PIPE AND UTILITY ZONE SURFACE: EXISTING THICKNESS PLUS 1"
- BASE:** SAME TYPE AND THICKNESS AS EXISTING BASE MATERIAL, 6" MIN. OR AS DIRECTED
- SUBGRADE NOTE:**
WHEN A FIRM FOUNDATION IS NOT ENCOUNTERED, DUE TO SOFT, SPONGY OR OTHER UNSUITABLE MATERIAL, SUCH MATERIAL SHALL BE REMOVED AND THE RESULTING EXCAVATION BACKFILLED WITH SAND SLURRY OR PIPE BEDDING MATERIAL TO THE SATISFACTION OF THE CITY ENGINEER. (SEE SECTION 306-1.2.1, STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREEN BOOK))
- RECESSED STEEL PLATE NOTES:**
1. STEEL PLATES TO COVER TRENCHING ACTIVITIES SHALL BE RECESSED IN THE ASPHALT PAVEMENT.
 2. STEEL PLATES SHALL BE DESIGNED FOR H-20 LOADING FOR THE APPROPRIATE TRENCH WIDTH. CERTIFICATION SHALL BE PROVIDED TO THE CITY ENGINEER UPON REQUEST.
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 5. STEEL PLATES SHALL BE TACK WELDED OR PINNED TOGETHER.

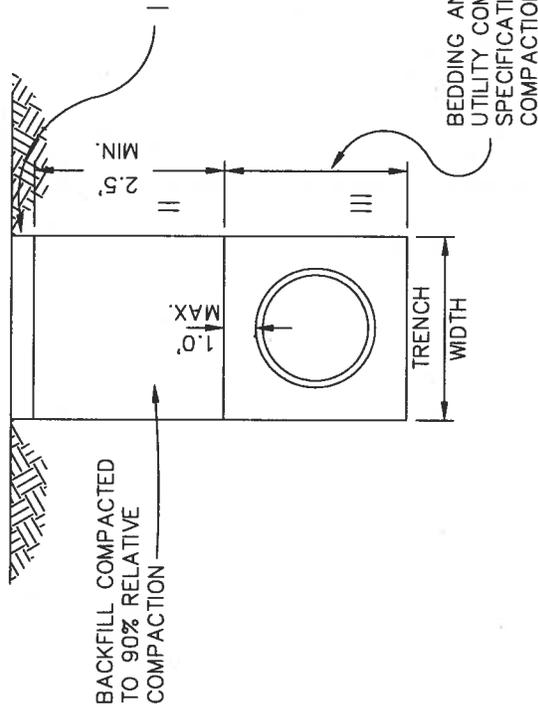
CITY OF MURRIETA DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
APPROVED 1/14/10	

UTILITY TRENCH BACKFILL AND SURFACE RESTORATION

STD. NO.
212a
SHEET 1 OF 3

UNSURFACED MEDIANS
ROADSIDE STRIPS
AND EASEMENTS



REPLACE STRUCTURAL SECTION AS FOLLOWS:

SURFACE: 3" MINIMUM DG SURFACE IF WITHIN 12' OF PAVED SURFACE OR WITHIN ROADWAY SHOULDER

BASE: SAME TYPE AND THICKNESS AS EXISTING BASE MATERIAL, 6" MIN. OR AS DIRECTED

- I. STRUCTURAL ZONE
- II. INTERMEDIATE ZONE
- III. PIPE AND UTILITY ZONE

SUBGRADE NOTE:
WHEN A FIRM FOUNDATION IS NOT ENCOUNTERED, DUE TO SOFT, SPONGY OR OTHER UNSUITABLE MATERIAL, SUCH MATERIAL SHALL BE REMOVED AND THE RESULTING EXCAVATION BACKFILLED WITH SAND SLURRY OR PIPE BEDDING MATERIAL TO THE SATISFACTION OF THE CITY ENGINEER. (SEE SECTION 306-1.2.1, STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREEN BOOK))

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

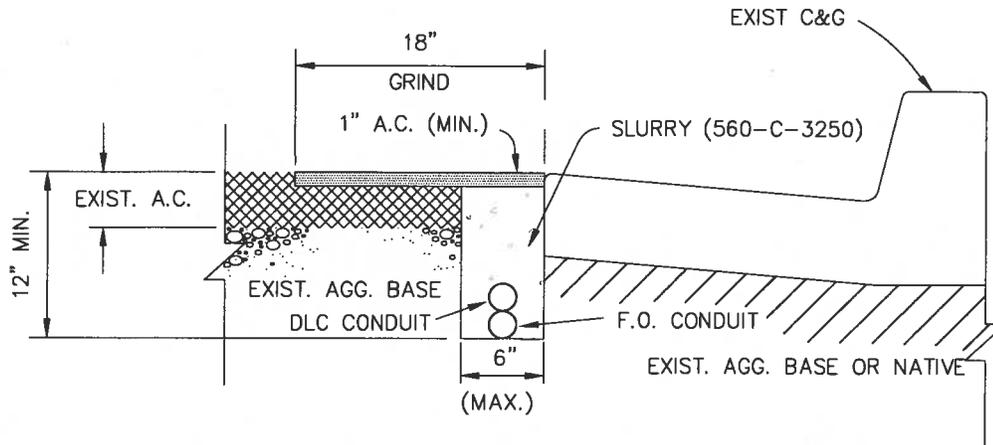
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5/92	
APPROVED 1/14/10	

UTILITY TRENCH BACKFILL
AND SURFACE RESTORATION

STD. NO.

212b

SHEET 2 OF 3



TRENCH IN PAVEMENT METHOD

NOTES:

1. TRENCHING IN PAVEMENT SHALL ONLY BE USED WHEN DIRECTIONAL BORING AND TRENCHING BEHIND THE CURB METHODS ARE NOT FEASIBLE DUE TO SITE CONSTRAINTS, SUBJECT TO APPROVAL BY CITY ENGINEER.
2. USE ROCKWHEEL FOR TRENCH EXCAVATION.
3. CEMENT SLURRY SHALL HAVE A MAXIMUM SLUMP OF FOUR (4) INCHES.
4. CEMENT SLURRY BACKFILL SHALL BE THOROUGHLY CONSOLIDATED TO ENCASE CONDUIT(S). TAMPERS OR VIBRATORS SHALL BE USED.
5. CEMENT SLURRY BACKFILL SHALL BE CLASS 560-C-3250.
6. A TACK COAT SHALL BE APPLIED TO THE CEMENT SLURRY BACKFILL AND EXISTING ASPHALT PAVEMENT PRIOR TO PLACING THE NEW ASPHALT SURFACE.
7. ALLOW CEMENT SLURRY BACKFILL SEVEN DAYS MINIMUM TO CURE BEFORE PLANING.
8. PLANE EXISTING ASPHALT PAVEMENT AND SLURRY BACKFILL ONE (1) INCH MINIMUM NOT TO EXCEED TWO (2) INCHES.
9. A.C. SHALL BE HOT MIX.
10. A.C. RESURFACING SHALL BE SEALED.
11. TRENCHING IN PAVEMENT WILL REQUIRE A MINIMUM 18-INCH GRIND AND CAP FOR FINISH RESTORATION.

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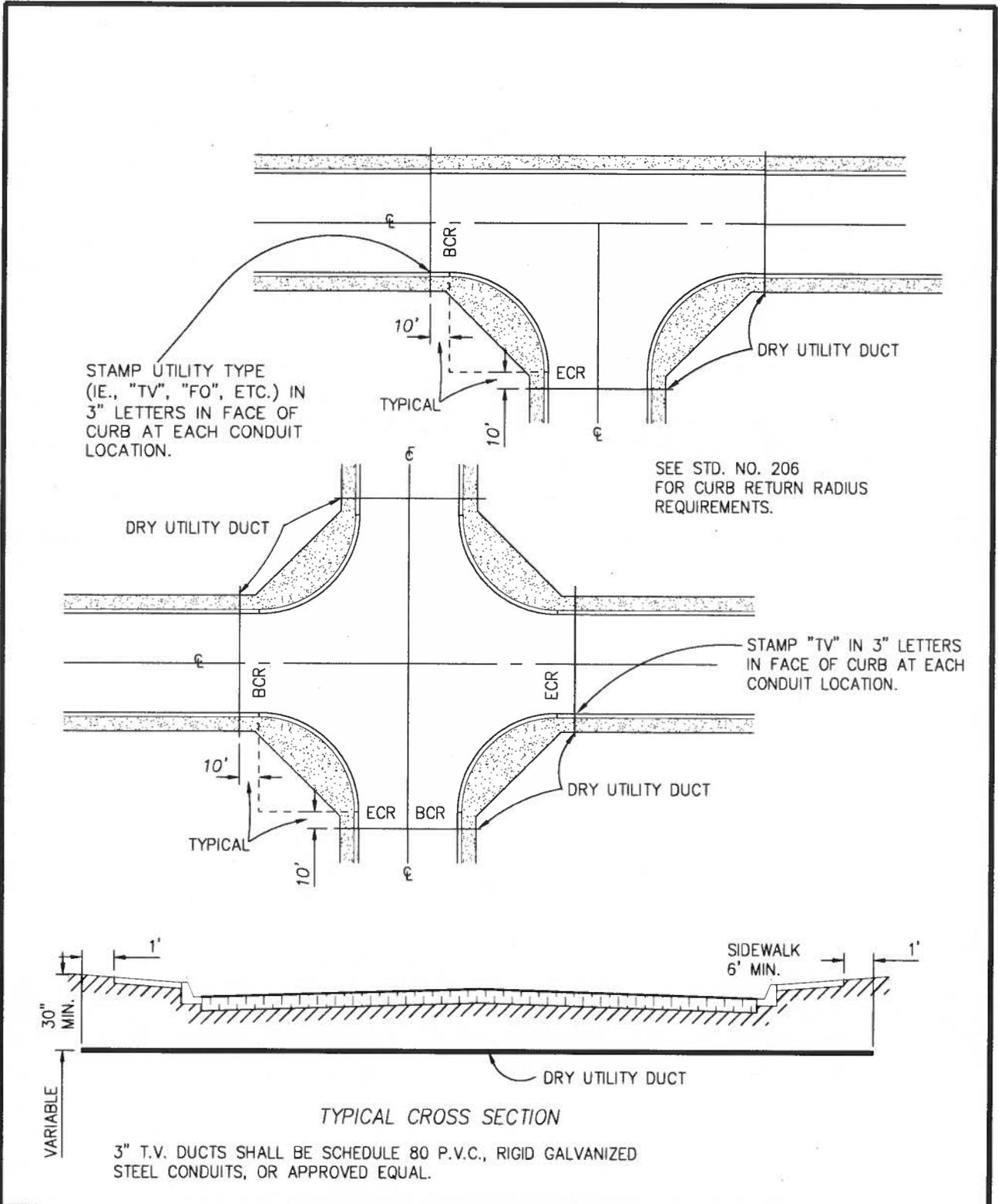
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**UTILITY TRENCH BACKFILL
AND SURFACE RESTORATION**

STD. NO.

212c

SHEET 3 OF 3



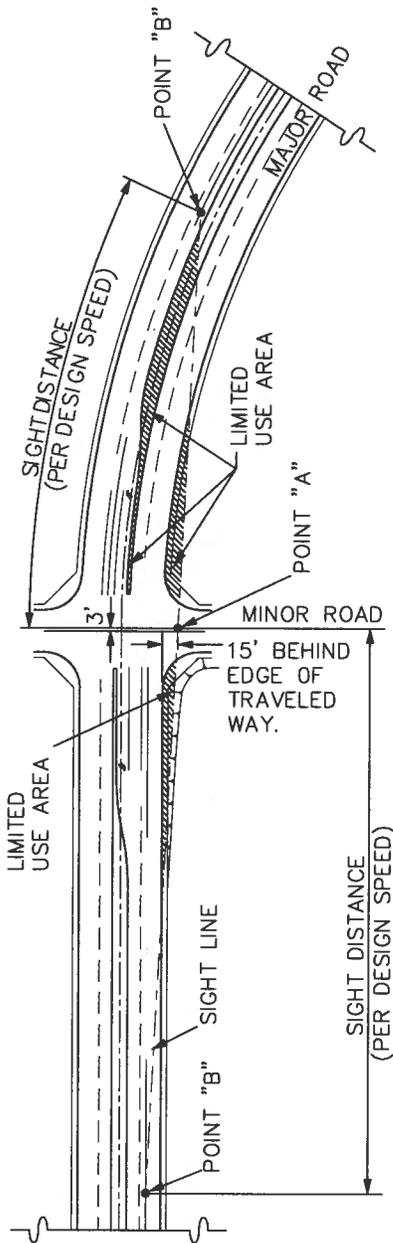
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**LOCATION OF DRY UTILITY DUCTS
 AT STREET INTERSECTIONS**

STD. NO.

213



LEGEND:

- LIMITED USE AREA
- SIGHT LINE
- CENTERLINE OF ROADWAY
- CENTERLINE OF TRAFFIC LANE

POINT "A": DRIVER'S VANTAGE POINT.

POINT "B": THE REQUIRED SIGHT DISTANCE POINT, MEASURED ALONG THE CENTERLINE OF THE NEAREST LANE OF APPROACHING TRAFFIC.

NOTES: NOT TO SCALE

1. THE LIMITED USE AREA IS DETERMINED BY THE GRAPHICAL METHOD. IT SHALL BE USED FOR THE PURPOSE OF PROHIBITING OR CLEARING OBSTRUCTIONS TO MAINTAIN ADEQUATE SIGHT DISTANCE AT INTERSECTIONS.
2. LIMITED USE AREA TO BE KEPT CLEAR OF ALL OBSTRUCTIONS OVER 30 INCHES HIGH, INCLUDING VEGETATION.
3. NO TREES, WALLS, OR ANY OBSTRUCTIONS SHALL BE ALLOWED IN THE LIMITED USE AREA.
4. THE TOE OF SLOPE SHALL NOT ENCRUCH INTO THE LIMITED USE AREA
5. THE SIGHT DISTANCE SHALL BE MEASURED ALONG THE CENTERLINE OF THE ROAD.
6. POINT "A" IS THE LOCATION OF THE DRIVER'S EYE, MEASURED 15 FEET BACK FROM THE EDGE OF THE TRAVELED WAY. (6 FEET FROM ETW, 1 FOOT STOP BAR, AND 8 FEET FROM FRONT BUMPER TO DRIVER.) IF THE STOP BAR IS MORE THAN 6 FEET FROM THE ETW, ADDITIONAL ALLOWANCE SHOULD BE CONSIDERED.
7. POINT "B" IS THE REQUIRED SIGHT DISTANCE POINT LOCATED ALONG THE CENTER OF THE NEAREST TRAFFIC LANE.
8. THE LINE OF SIGHT SHALL BE SHOWN AT INTERSECTIONS ON TENTATIVE MAPS, SITE PLANS, GRADING PLANS, STREET PLANS, AND LANDSCAPE PLANS.
9. CORNER SIGHT DISTANCE IS MEASURED FROM A 3.5 FOOT HEIGHT AT THE LOCATION OF THE DRIVER'S EYE ON THE MINOR ROAD, TO A 4.25 FOOT OBJECT HEIGHT IN THE CENTER OF THE NEAREST TRAFFIC LANE OF THE MAJOR ROAD.
10. WHEN AN INTERSECTION IS LOCATED ON A VERTICAL CURVE, A PROFILE OF THE SIGHT LINE SHALL BE PROVIDED.
11. IF DESIGNING A MINOR ROAD OR DRIVEWAY FOR TRUCK TRAFFIC, OR DOWNGRADES STEEPER THAN 3% AND LONGER THAN 1 MILE, ADDITIONAL SIGHT DISTANCE MAY BE REQUIRED AS DETERMINED BY THE CITY ENGINEER.

DESIGN SPEED (M.P.H.)	CORNER SIGHT DIST. (FT.)	STOPPING SIGHT DIST. (FT.)
25	275	150
30	330	200
35	385	250
40	440	300
45	495	360
50	550	430
55	605	500
60	660	580

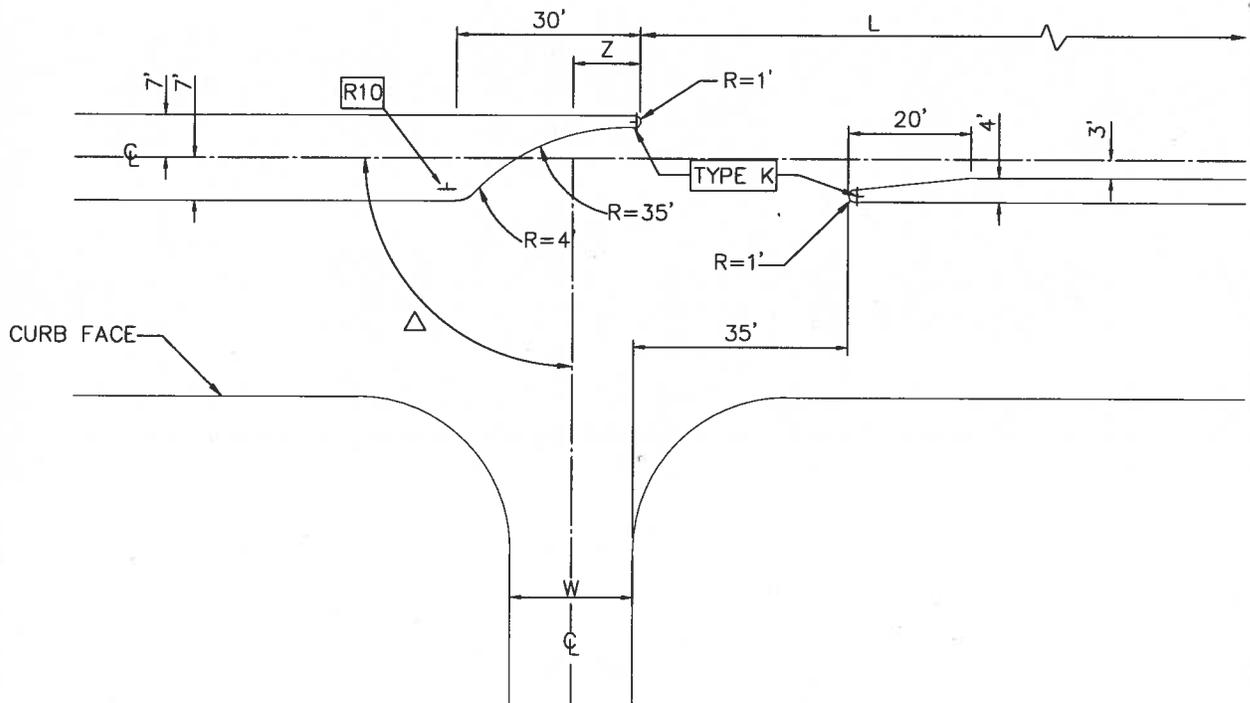
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INTERSECTION SIGHT DISTANCE

STD. NO.

214



NOTES:

$Z = W/2$

W = INTERSECTION STREET OR DRIVEWAY WIDTH (CURB TO CURB)

Δ = ANGLE OF INTERSECTION

L = POCKET LENGTH AS SHOWN PER PLANS

R = CURB RETURN RADIUS

† = TRAFFIC SIGN INSTALLED ON RAISED MEDIAN

☐ = SIGN TYPE PER CALTRANS STANDARD

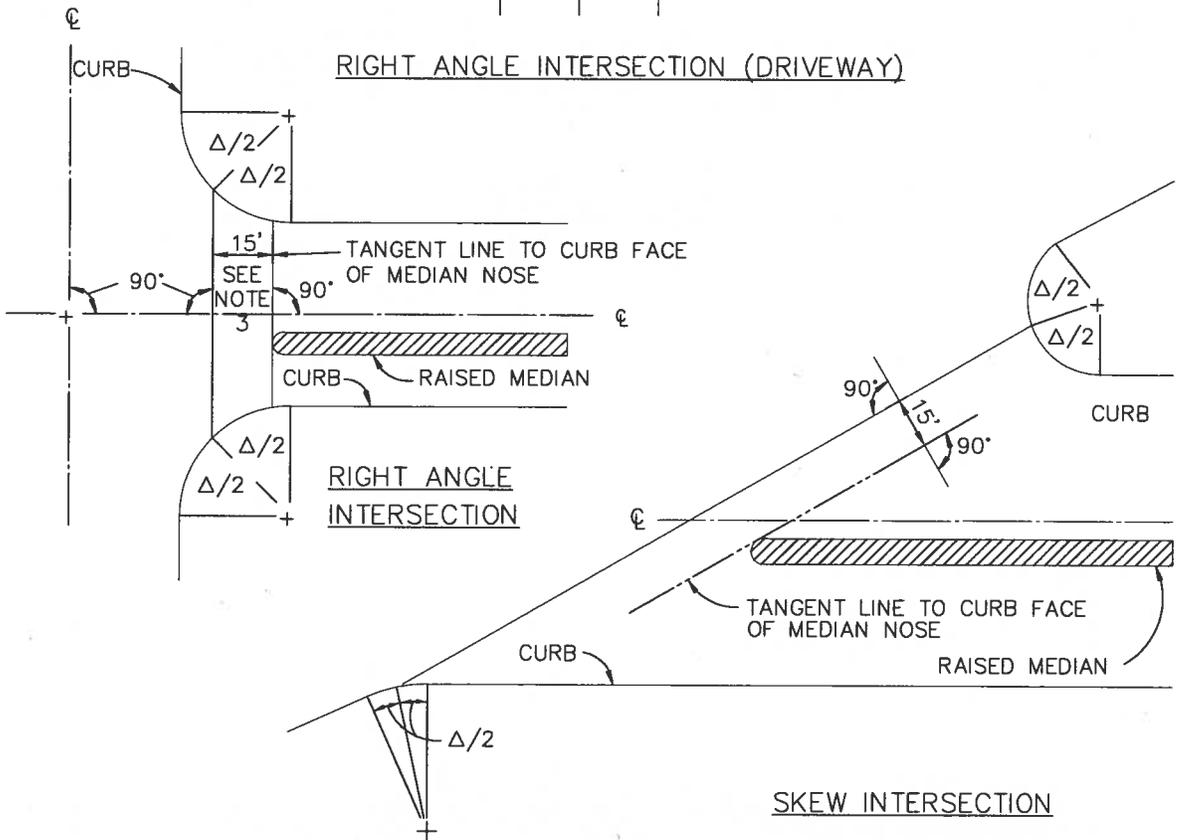
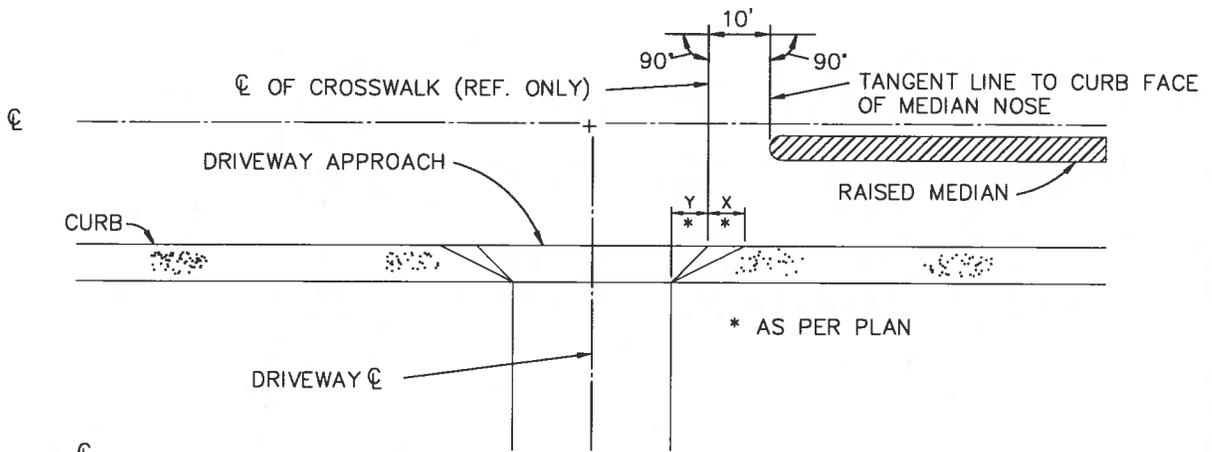
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LEFT TURN IN ONLY
MEDIAN OPENING

STD. NO.

215



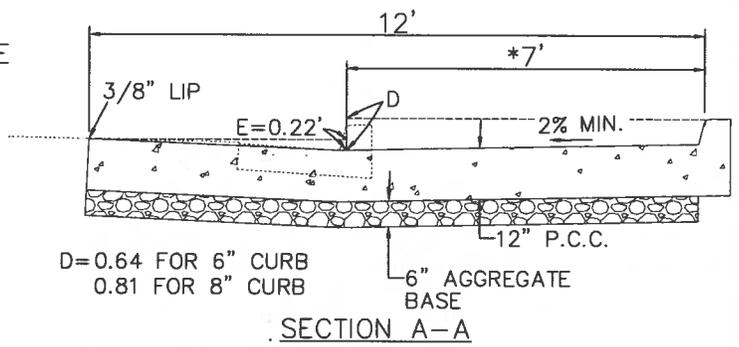
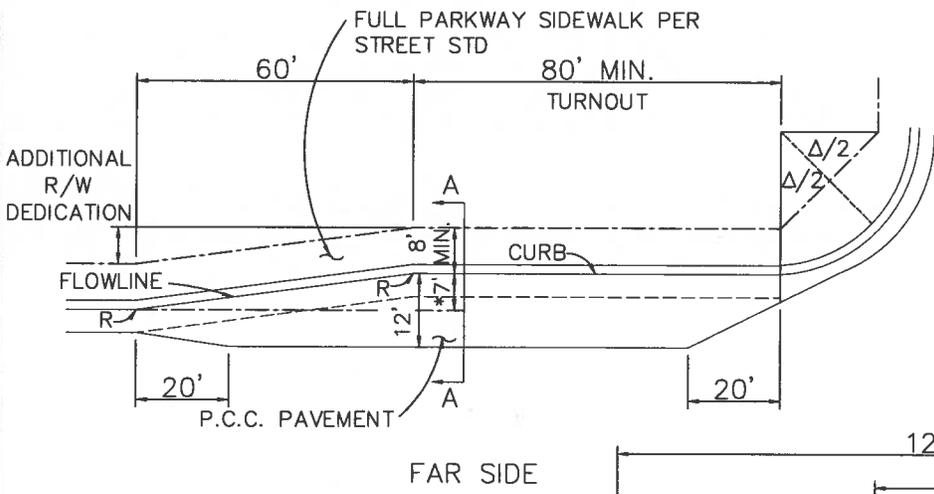
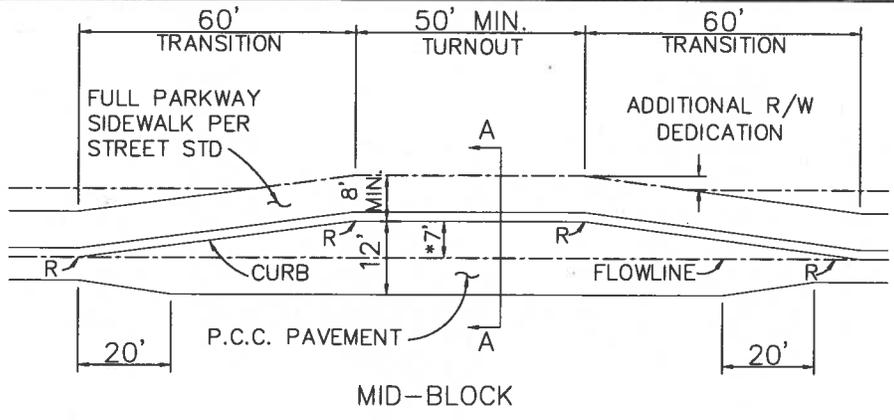
- NOTE:
1. EXTEND DOUBLE YELLOW STRIPING FROM MEDIAN NOSE TO CROSSWALK OR TO $\Delta/2$ IF THERE IS NO CROSSWALK.
 2. INSTALL MEDIAN NOSE MARKERS PER STANDARD 610.
 3. DISTANCE FROM MEDIAN NOSE TO CROSSWALK IS MINIMUM. VERIFY DISTANCE WITH A TRUCK TURNING TEMPLATE.

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**RAISED MEDIAN NOSE
LOCATION**

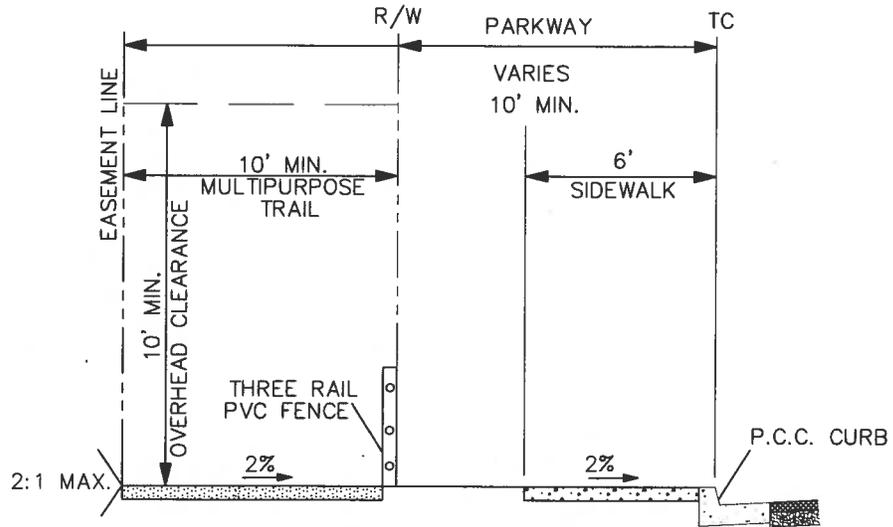
STD. NO.
216



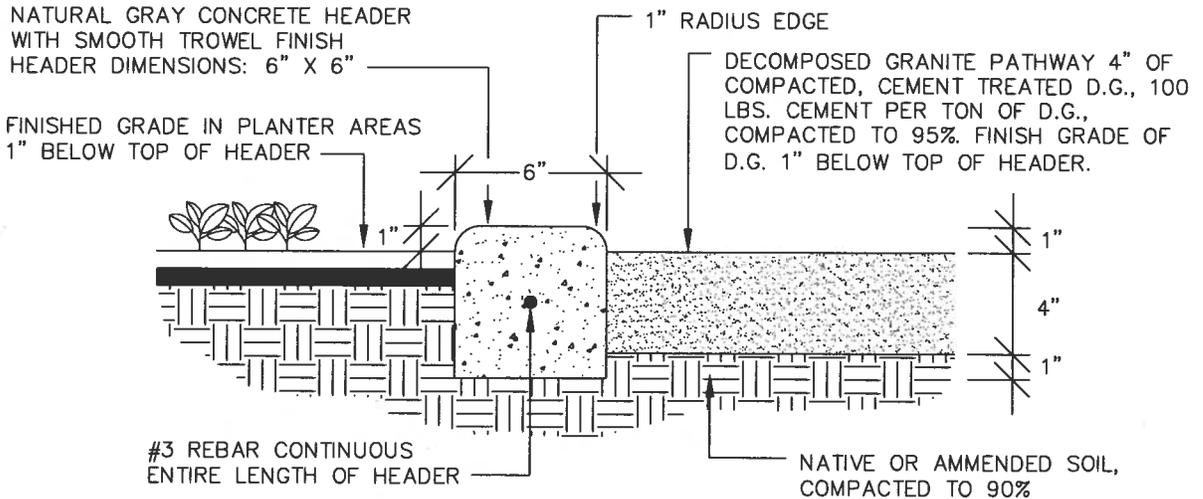
- NOTES:
1. R=50'
 2. P.C.C. PAVEMENT THICKNESS SHALL BE BY DESIGN APPROVED BY THE CITY ENGINEER.
 3. BUS SHELTERS SHALL BE SET BACK FROM THE FACE OF THE CURB A MINIMUM CLEAR DISTANCE OF FOUR (4) FEET FOR PEDESTRIAN TRAVELWAY.
 4. CURB SHALL BE POURED MONOLITHIC WITH P.C.C. PAVEMENT.
 5. MODIFICATIONS OF THIS STANDARD SHALL BE REVIEWED FOR ACCEPTABILITY BY THE CITY ENGINEER.
 6. CONSTRUCT CONTROL JOINTS AT 10' INTERVALS.
 7. CATCH BASINS SHOULD NOT BE LOCATED IN BUS TURNOUTS IF POSSIBLE.
 8. DRIVEWAYS MAY NOT BE LOCATED IN BUS TURNOUTS.
 9. CONCRETE SHALL BE 560-C-3250.
 10. BUS TURNOUTS IN SUPERELEVATED STREETS SHALL REQUIRE A SPECIAL DESIGN AS APPROVED BY THE CITY ENGINEER.
- * FOR BUS TURNOUT ON STREET STD 103, USE 5'. ADJUST DIMENSIONS D AND E ACCORDINGLY.

CITY OF MURRIETA
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REVISIONS		BUS TURNOUT	STD. NO.
5/92			217
APPROVED 1/14/10			



MULTIPURPOSE TRAIL SECTION



HEADER DETAIL

NOTE:

1. ALL IRRIGATION PIPING AND WIRES ROUTED UNDER D.G. PATHWAYS AND CONCRETE HEADERS SHALL BE INSTALLED INSIDE SCH. 40 SLEEVES AS IF UNDER PAVING.
2. CONCRETE HEADER SHALL BE INSTALLED ON BOTH SIDES OF D.G. PATHWAY.
3. THREE RAIL FENCE PER STANDARD 218b.

CITY OF MURRIETA
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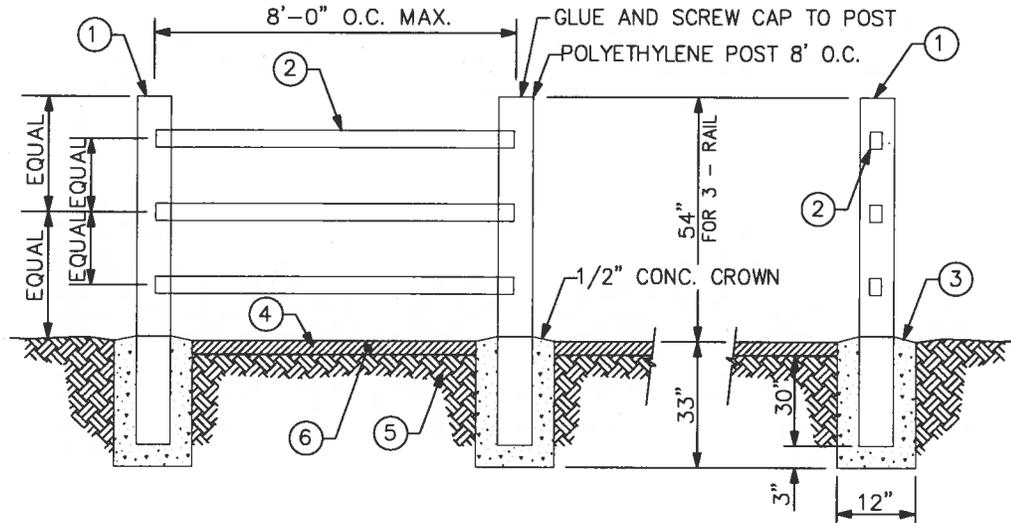
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10/98	
APPROVED 1/14/10	

**EQUESTRIAN TRAIL EASEMENT
ADJACENT TO PUBLIC STREET**

STD. NO.

218a

SHEET 1 OF 2



LEGEND:

1. 6 INCH SQUARE PVC POST WITH CAP @ 8'-0" O.C. MAXIMUM EMBED INTO FOOTING 30" MIN. CAPS TO BE SECURELY ATTACHED TO POSTS WITH GLUE AND SCREWS ON FOUR SIDES.
2. 2" X 6" NOMINAL PVC RAILS ATTACHED TO POST. ROUTE RAIL SLOTS ON POST AS REQ'D. TO ALLOW FOR ELEVATION CHANGES BETWEEN POST-TYPICAL. (2 RAIL FENCING ALLOWED ON A PROJECT SPECIFIC BASIS.
3. 12 INCH DIA. 33 INCH DEEP CONCRETE FOOTING.
4. FINISH GRADE.
5. COMPACTED PER SOIL ENGINEER'S REPORT. STERILIZE SOIL UNDER TRAIL SECTION AS REQUIRED.
6. DECOMPOSED GRANITE, SEE 218a.
7. PVC POSTS AND RAILS TO BE WHITE OR AS APPROVED BY CITY ENGINEER.

NOTES:

1. OMIT FENCE WITHIN SIGHT DISTANCE RESTRICTED USE AREAS.

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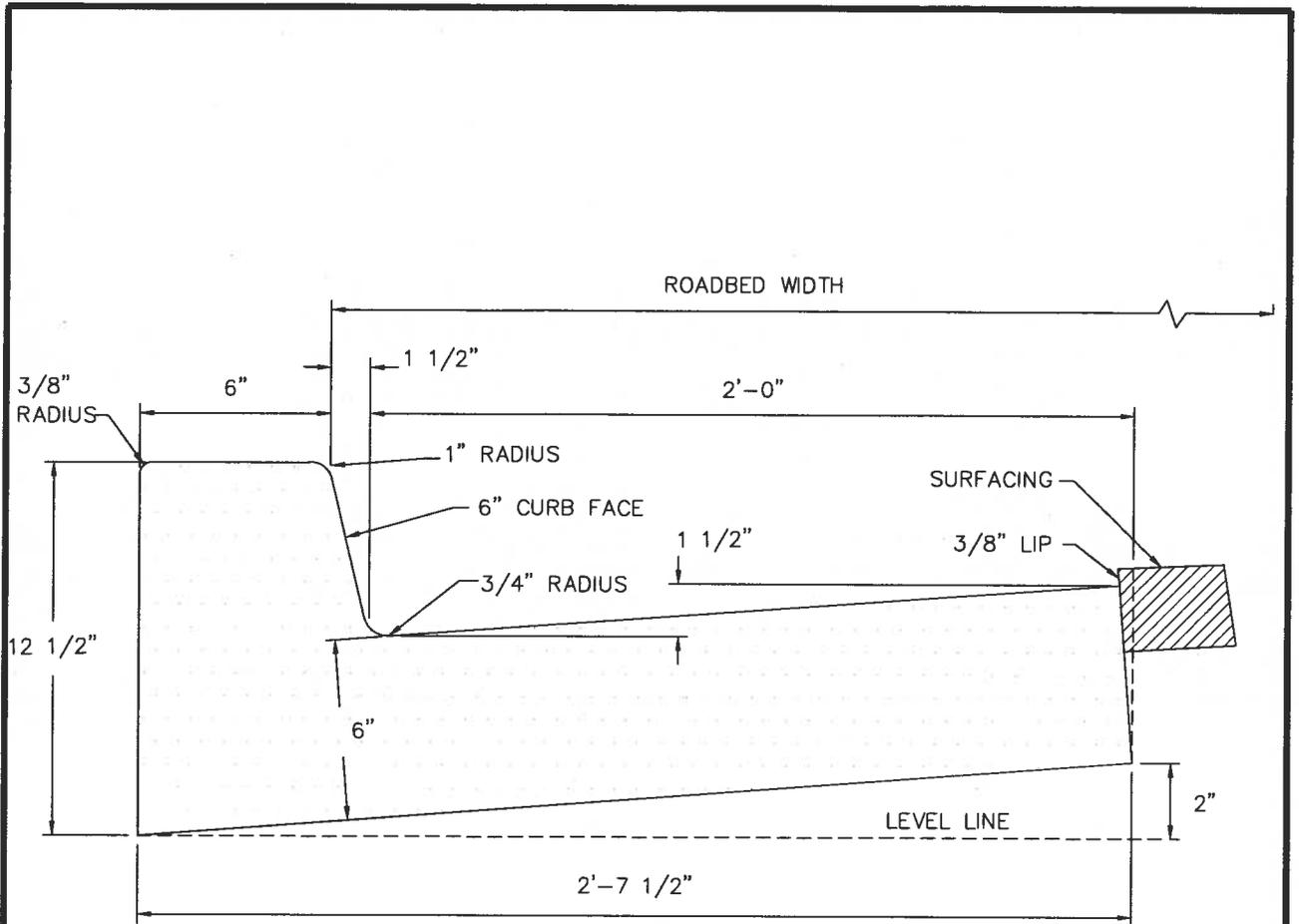
**EQUESTRIAN TRAIL EASEMENT
ADJACENT TO PUBLIC STREET**

STD. NO.
218b
SHEET 2 OF 2

SECTION 300

CURBS, DRIVEWAYS AND ALLEYS





NOTES:

1. CLASS 560-C-3250 CONCRETE.
2. 1.601 CU.FT./L.F.
3. CU.YD. = 16.86 L.F.
4. MINIMUM PERMISSIBLE GRADE 1.0% UNLESS SPECIFIC APPROVAL IS GIVEN BY THE CITY ENGINEER PRIOR TO DESIGN.
5. IF USED FOR MEDIAN CURB, GUTTER TO SLOPE AWAY FROM CURB AT SAME SLOPE AS SURFACING WITH NO GUTTER LIP.
6. PROVIDE A 4" SMOOTH TROWELED SURFACE AT FLOWLINE.

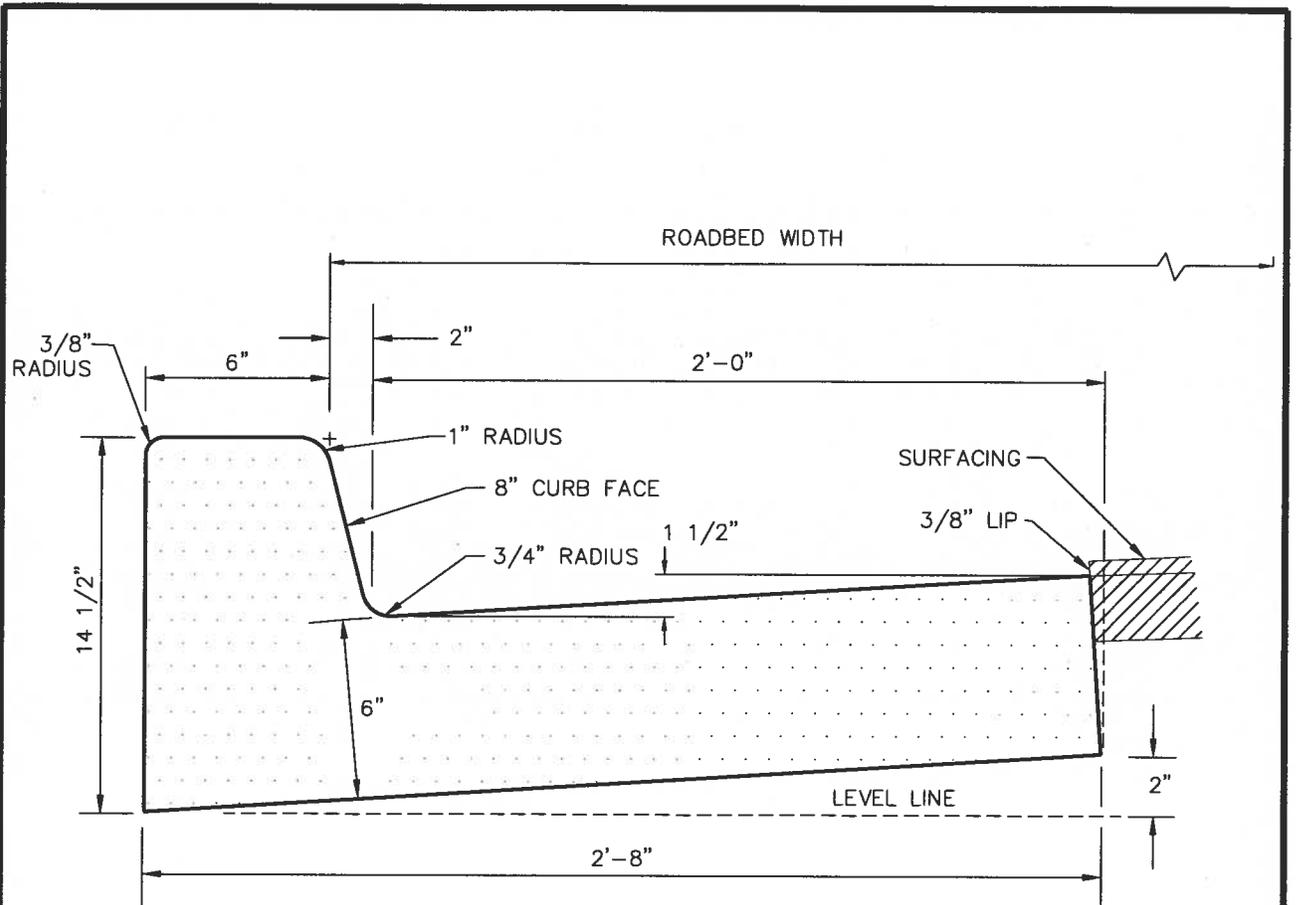
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TYPE A-6 CURB

STD. NO.

301



NOTES:

1. CLASS 560-C-3250 CONCRETE.
2. 1.730 CU.FT./L.F.
3. CU. YD. = 15.60 L.F.
4. MINIMUM PERMISSIBLE GRADE 1.0% UNLESS SPECIFIC APPROVAL IS GIVEN BY THE CITY ENGINEER PRIOR TO DESIGN.
5. IF USED FOR MEDIAN CURB, GUTTER TO SLOPE AWAY FROM CURB AT SAME SLOPE AS SURFACING WITH NO GUTTER LIP.
6. PROVIDE A 4" SMOOTH TROWELED SURFACE AT FLOWLINE.

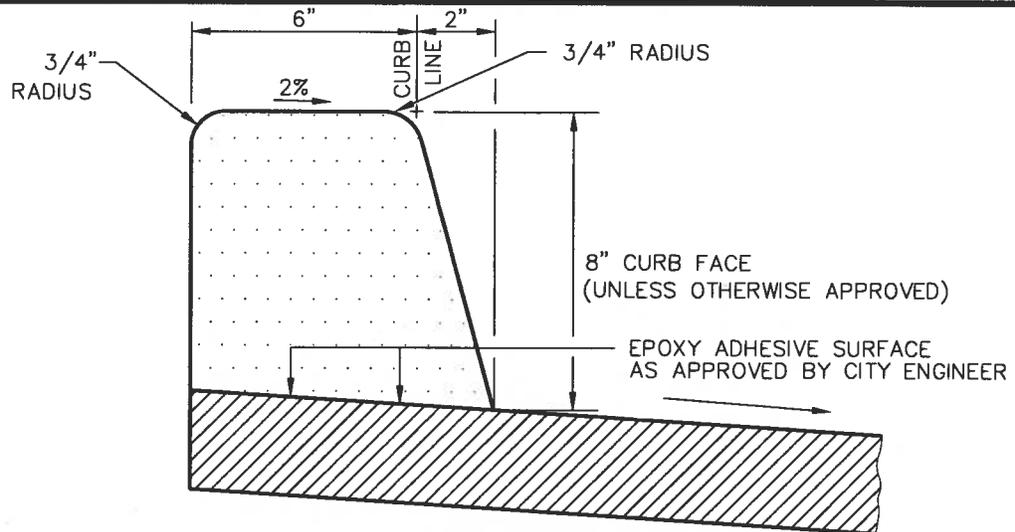
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TYPE A-8 CURB

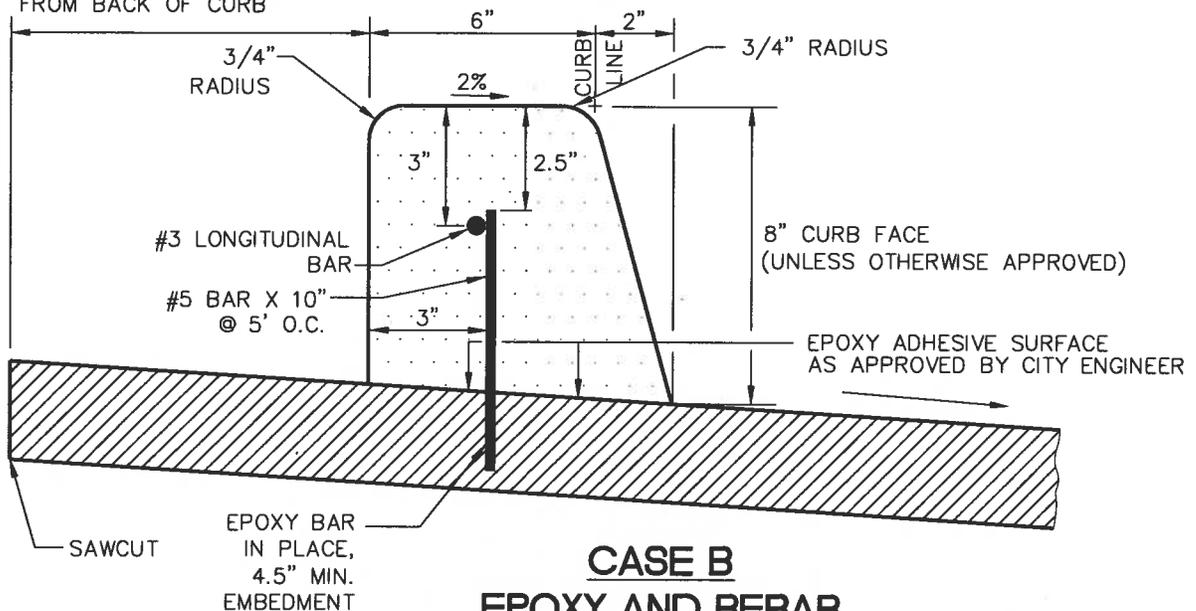
STD. NO.

302



**CASE A
EPOXY ONLY**

WHEN REMOVING AC BEHIND CURB, SAWCUT 12" MINIMUM FROM BACK OF CURB



**CASE B
EPOXY AND REBAR**

NOTES:

1. CONCRETE SHALL BE CLASS 560-C-3250.
2. MINIMUM PERMISSIBLE GRADE SHALL BE 1.0% UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
3. CASE A OR B SHALL BE SELECTED BASED ON SITE SPECIFIC CRITERIA AND SHALL BE APPROVED BY THE CITY ENGINEER.

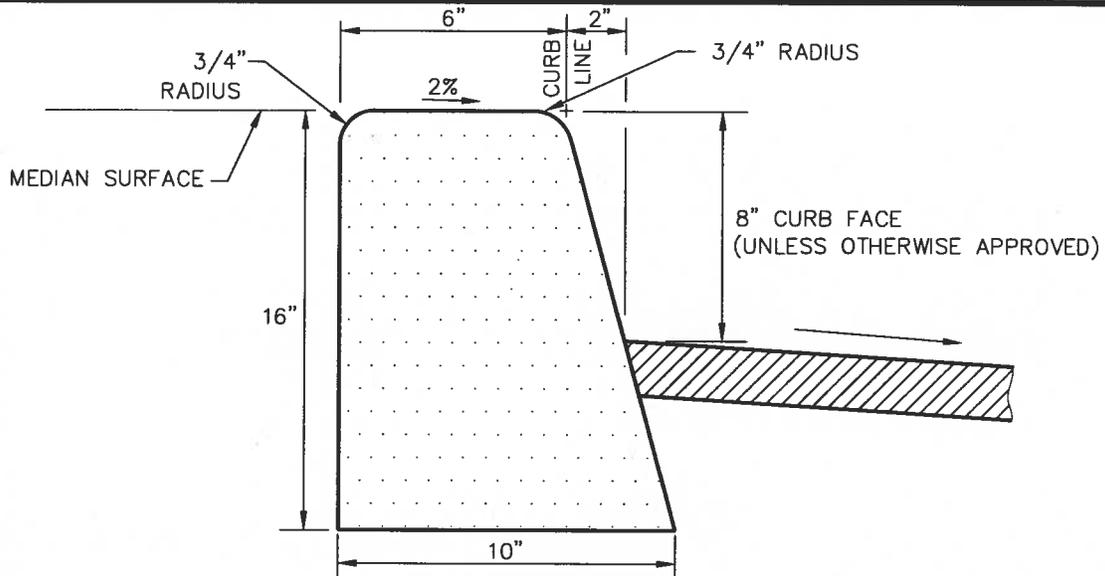
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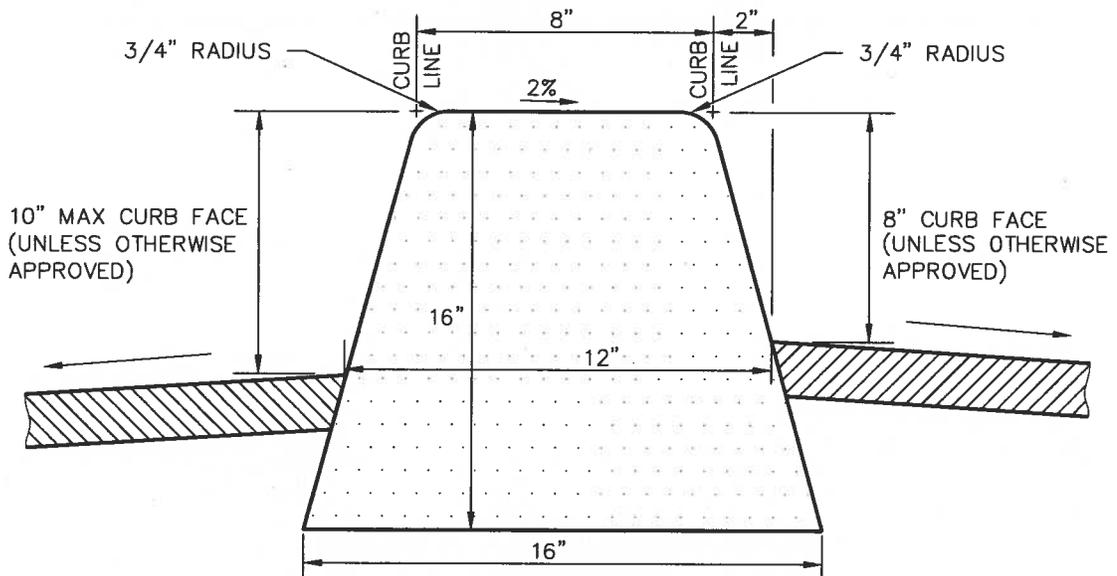
TYPE "D-1" CURB

STD. NO.

304



CASE A



CASE B

MONOLITHIC MEDIAN CURB

NOTES:

1. CONCRETE SHALL BE CLASS 560-C-3250.
0.888 CU. FT. / L.F. (CASE A)
CU. YD. = 30.42 L.F. (CASE A)
2. MINIMUM PERMISSIBLE GRADE SHALL BE 1.0% UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
3. CASE B REQUIRES CITY ENGINEER APPROVAL.

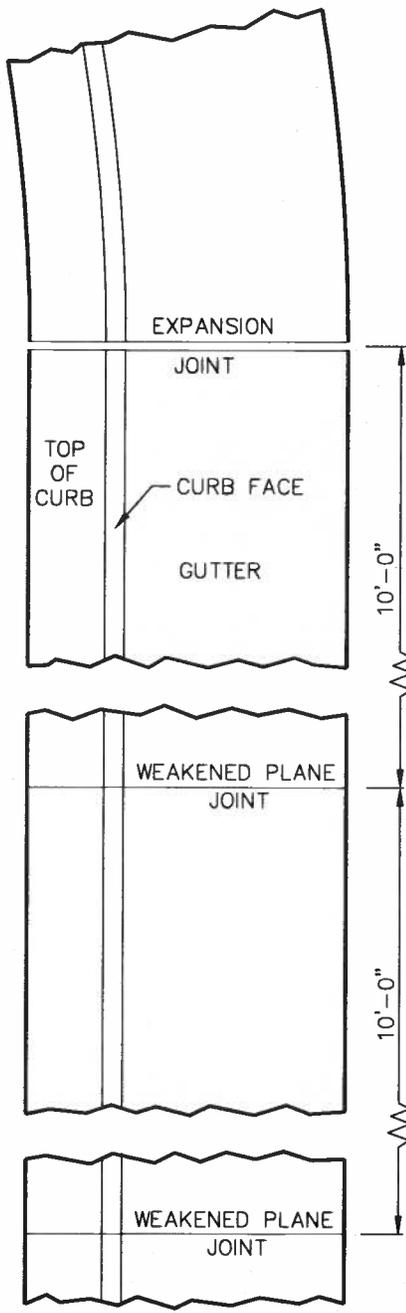
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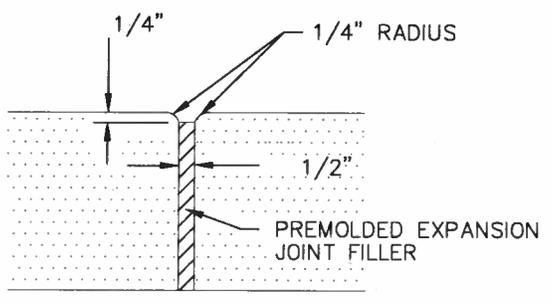
TYPE "D" CURB

STD. NO.

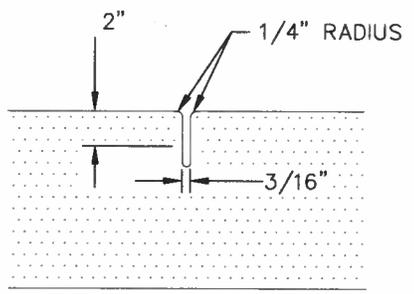
305



TYPICAL PLAN



EXPANSION JOINT



WEAKENED PLANE JOINT

- NOTES:
1. EXPANSION JOINTS TO BE INSTALLED AT THE BC AND EC OF ALL CURVES AND CURB RETURNS AND AT THE MID-POINT OF CUL-DE-SACS AND KNUCKLES.
 2. 10' INTERVAL BETWEEN TRANSVERSE WEAKENED PLANE JOINTS MAY BE VARIED TO ALLOW MATCHING OF JOINTS IN ADJACENT EXISTING IMPROVEMENTS.

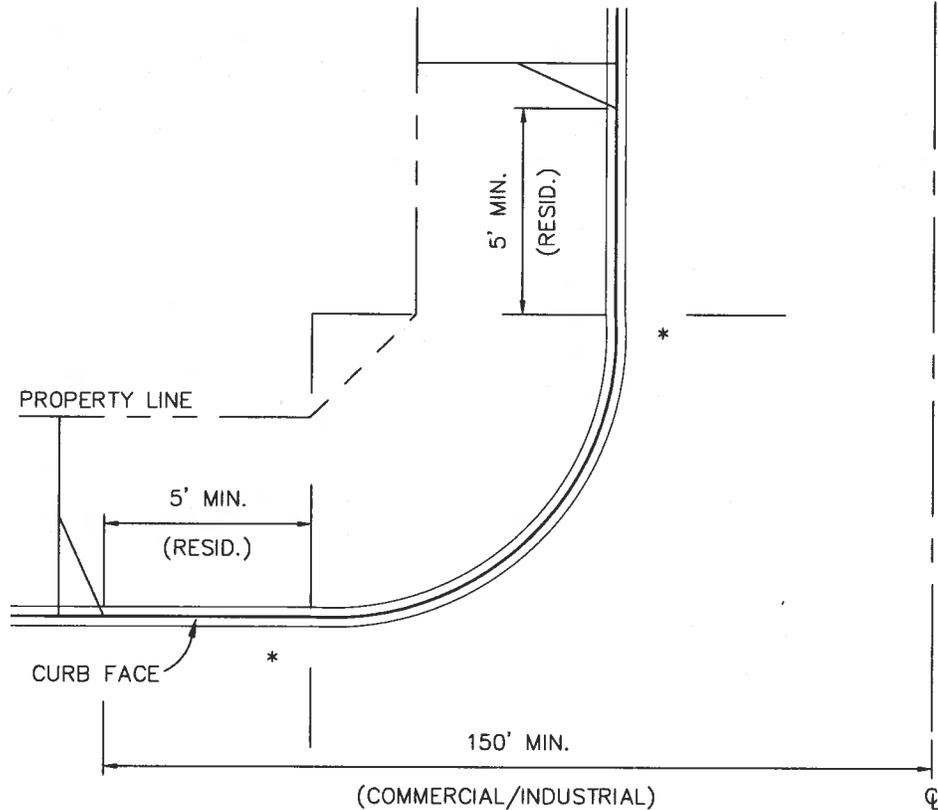
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CURB AND GUTTER JOINTS

STD. NO.

306



* RESIDENTIAL ONLY
 NO PORTION OF ANY DRIVEWAY SHALL BE PERMITTED WITHIN
 5' OF THE POINTS OF CURVATURE.

COMMERCIAL/ INDUSTRIAL
 NO PORTION OF ANY DRIVEWAY SHALL BE PERMITTED WITHIN
 150' OF THE CENTERLINE OF INTERSECTING STREET OR AS
 APPROVED BY THE CITY ENGINEER.

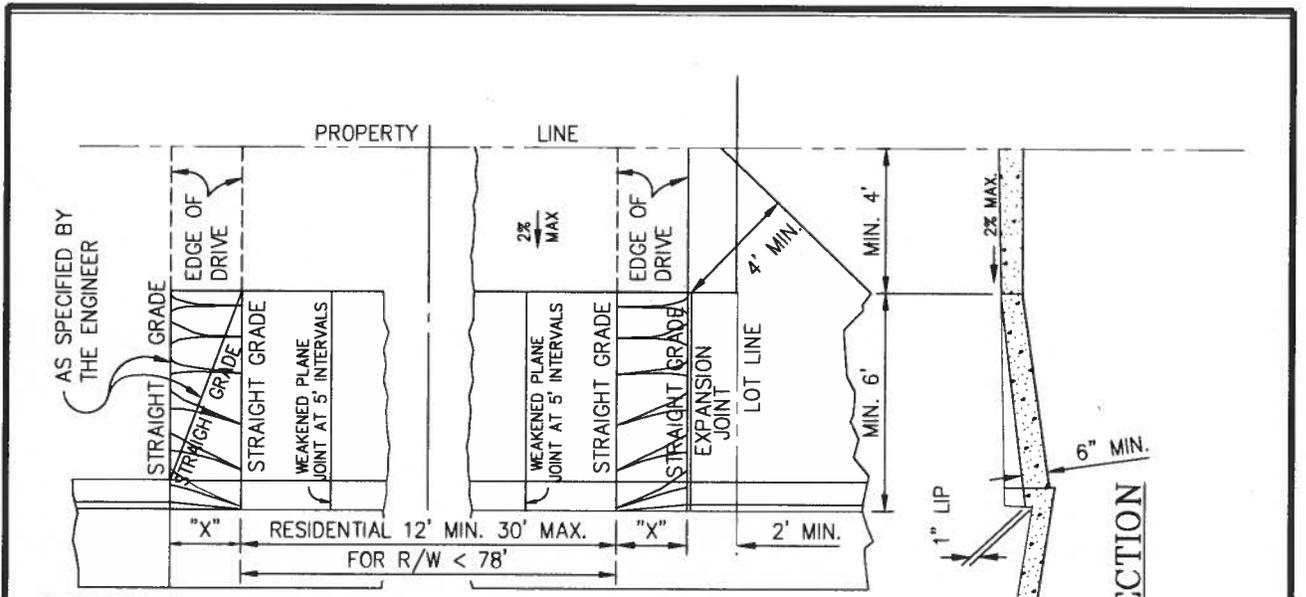
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**DRIVEWAY LOCATIONS AT
 INTERSECTION CURB RETURNS**

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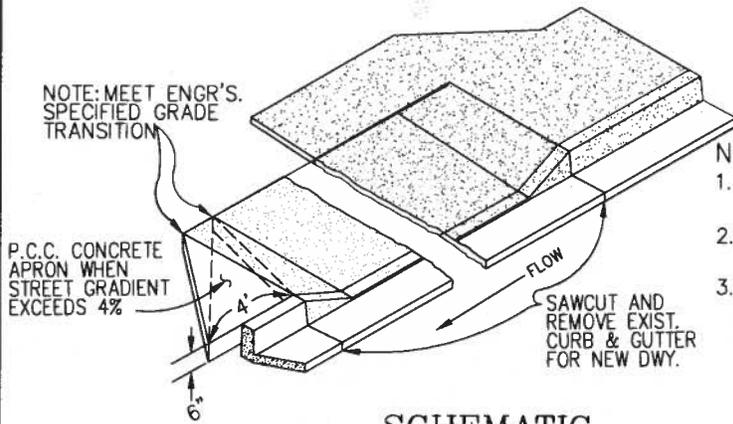
307



WHEN NO SIDEWALK EXISTS OR IS REQUIRED

SIDEWALK

SECTION



SCHEMATIC

NOTES:

1. ALL CONSTRUCTION SHALL BE 560-C-3250 CONCRETE.
2. 20' OF FULL HEIGHT CURB REQUIRED BETWEEN DRIVEWAYS WITHIN ANY ONE PROPERTY FRONTAGE.
3. WHERE ABOVE LIMITING SLOPES CAN NOT BE MET BECAUSE OF HEIGHT OF CURB, DEPRESS SIDEWALK UNTIL SAID SLOPES ARE OBTAINED. LONGITUDINAL SLOPE OF WARPED AREA ADJACENT TO DRIVEWAY SHALL NOT VARY MORE THAN 6% FROM THE LONGITUDINAL GRADE LINE OF THE SIDEWALK.
4. COMPACT TOP 12" OF SUBGRADE TO 95% COMPACTION.

TABLE OF "X" DIMENSIONS		
HEIGHT OF DIKE	RESIDENTIAL	COMMERCIAL
6"	2' 0"	2' 0"
8"	3' 0"	2' 8"

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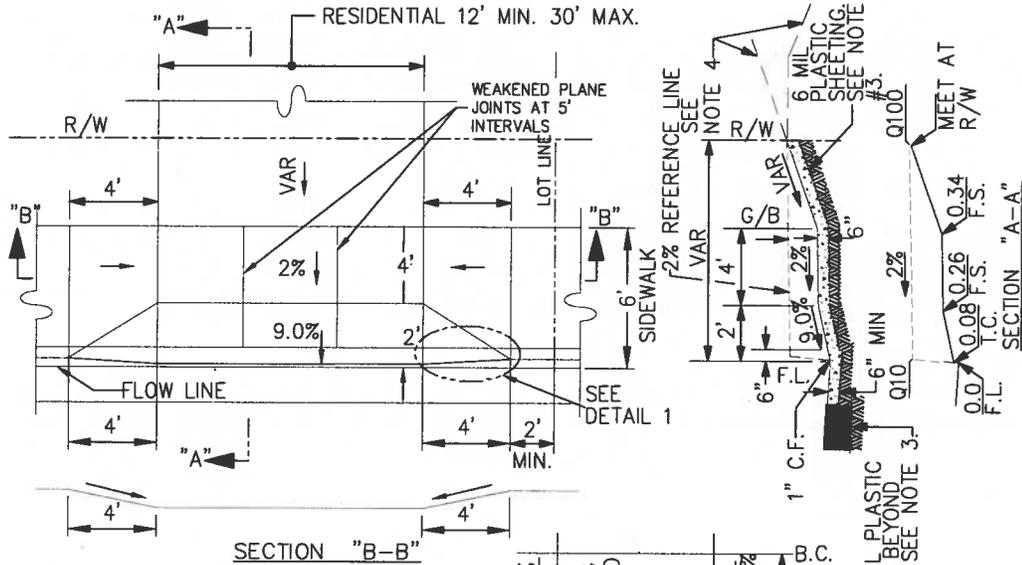
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**CONCRETE DRIVEWAY
APPROACH**

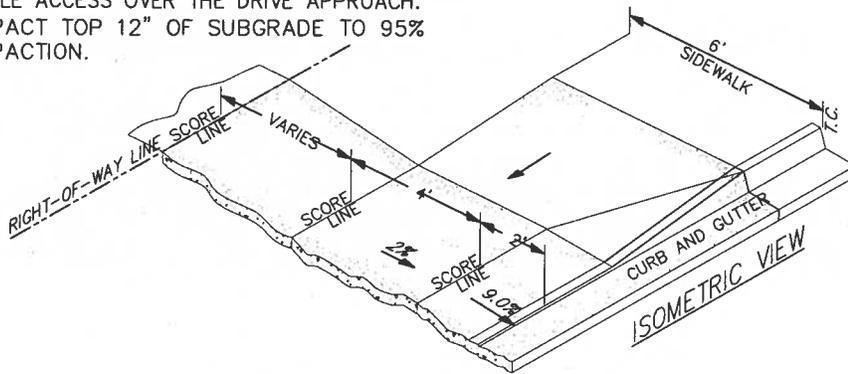
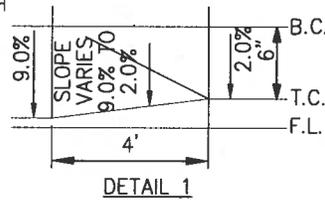
STD. NO.

308a

SHEET 1 OF 2



- NOTES:
1. USE OF THIS STANDARD SUBJECT TO APPROVAL OF CITY ENGINEER.
 2. CONCRETE SHALL BE 560-C-3250.
 3. 20' OF FULL-HEIGHT CURB REQUIRED BETWEEN DRIVEWAYS WITHIN ANY ONE PROPERTY FRONTAGE.
 4. USE 6 MIL PLASTIC SHEETING WHEN ABUTTING SOIL HAS A HIGH SULFATE CONTENT.
 5. CONSTRUCT THE PROFILE GRADE OF THE PRIVATE ON-SITE DRIVEWAY SO THAT IT PROVIDES SMOOTH VEHICLE ACCESS OVER THE DRIVE APPROACH.
 6. COMPACT TOP 12" OF SUBGRADE TO 95% COMPACTION.



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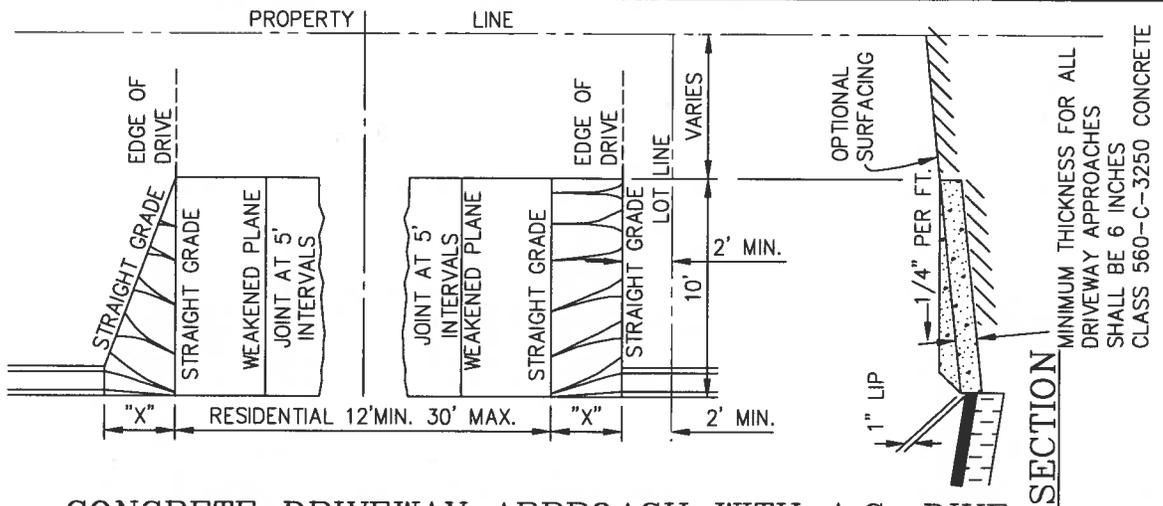
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CONCRETE DRIVEWAY APPROACH
ALTERNATE

STD. NO.

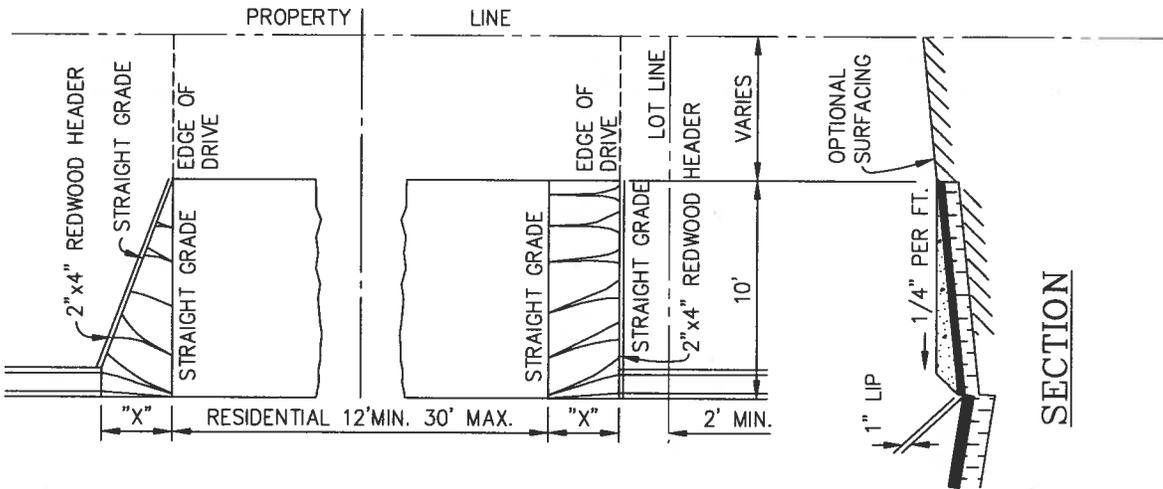
308b

SHEET 2 OF 2



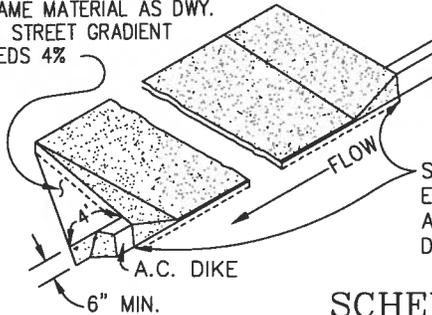
CONCRETE DRIVEWAY APPROACH WITH A.C. DIKE

NOT APPLICABLE TO INTERIM DIKE LOCATION



ASPHALTIC CONCRETE DRIVEWAY APPROACH WITH A.C. DIKE

APRON TO BE CONSTRUCTED OF SAME MATERIAL AS DWY. WHEN STREET GRADIENT EXCEEDS 4%



SAWCUT & REMOVE EXIST. A.C. PVMNT. AND DIKE FOR NEW DWY.

SCHMATIC

NOTES:

1. ALL CONSTRUCTION SHALL BE 4" MIN. THICKNESS A.C. ON 6" MIN. THICKNESS CLASS 2 OR CLASS 3 BASE, OR 5" THICKNESS A.C. ON NATIVE SOIL.
2. 20' OF FULL HEIGHT DIKE REQUIRED BETWEEN DRIVEWAYS WITHIN ANY ONE PROPERTY UNLESS OTHERWISE PERMITTED.
3. COMPACT TOP 12" OF SUBGRADE TO 95% COMPACTION.

TABLE OF "X" DIMENSIONS		
HEIGHT OF DIKE	RESIDENTIAL	COMMERCIAL
6"	2' 0"	2' 0"
8"	3' 0"	2' 8"

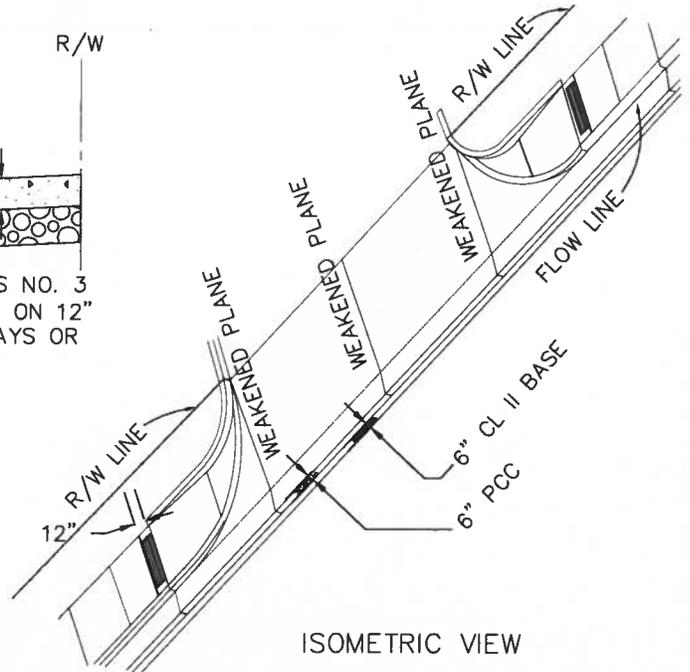
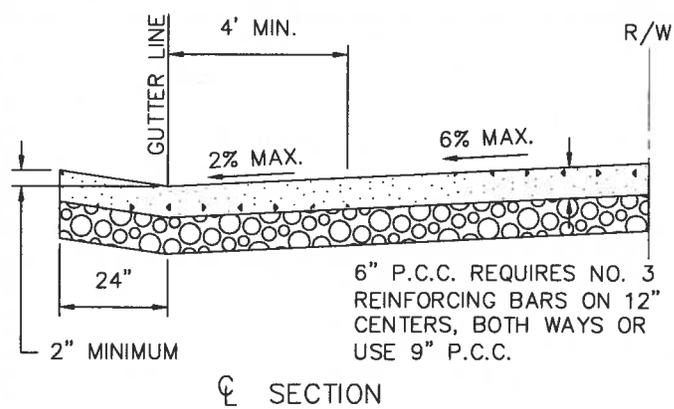
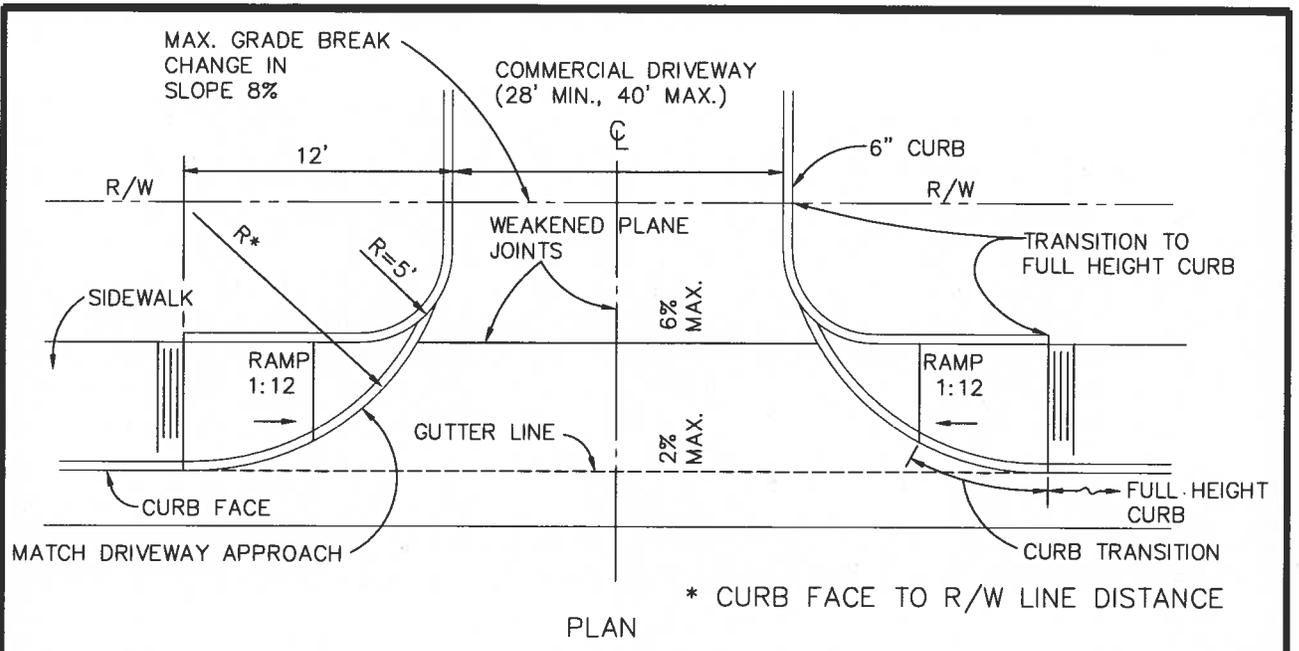
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**DRIVEWAY APPROACHES
WITH A.C. DIKE**

STD. NO.

309



NOTES:

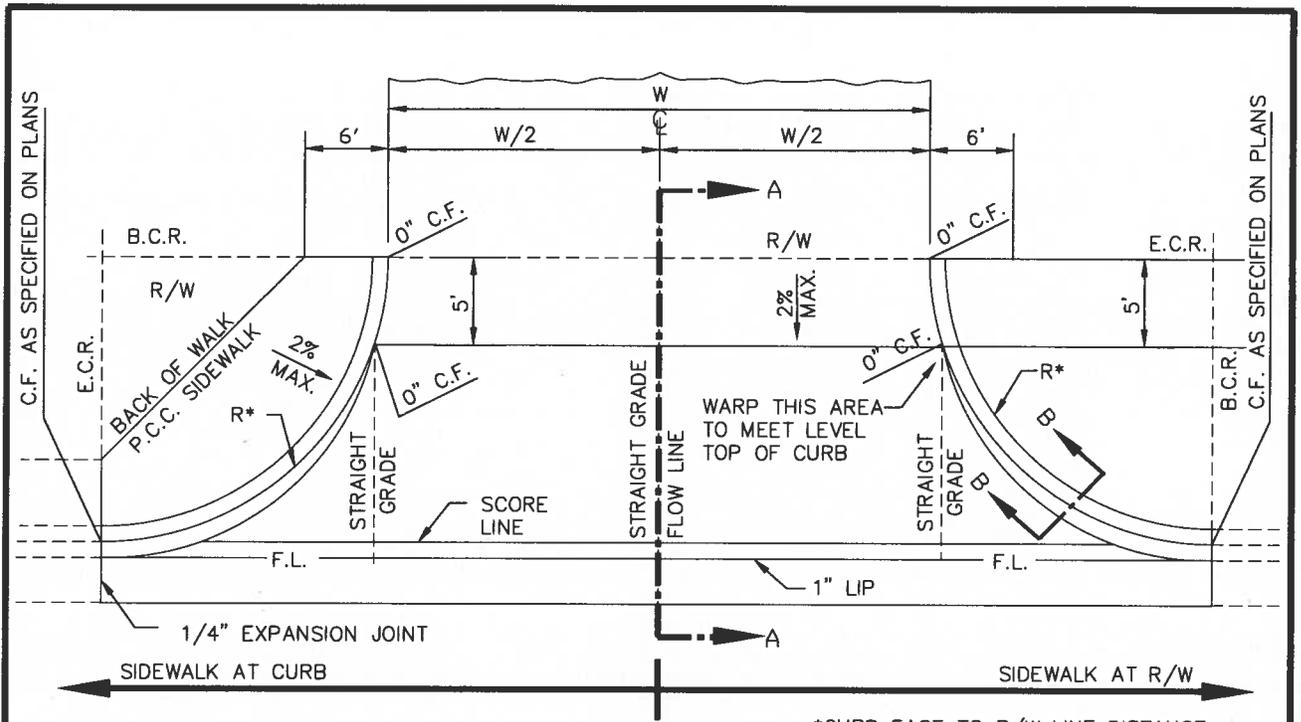
1. USE 560-C-3250 CONCRETE.
2. APRON BASE MATERIAL IS CRUSHED AGGREGATE BASE, 6" MIN. THICKNESS.
3. TYPE A-6 CURB AND GUTTER.
4. STD. 320 SIDEWALK.
5. COMMERCIAL DRIVES USE TRAFFIC INDEX OF 10 WITH CRUSHED AGGREGATE BASE.
6. THE RAMP SHALL HAVE A 12" WIDE BORDER WITH GROOVES APPROXIMATELY 3/4" O.C.
7. THREE 4-INCH SLEEVES SHALL BE INSTALLED ACROSS THE DRIVEWAY 5' OFF R/W FOR IRRIGATION UNLESS OTHERWISE APPROVED BY CITY ENGINEER.
8. COMPACT TOP 12" OF SUBGRADE TO 95% COMPACTION.
9. 6" P.C.C. REQUIRES NO. 3 REINFORCING BARS ON 12" CENTERS, BOTH WAYS OR USE 9" P.C.C.

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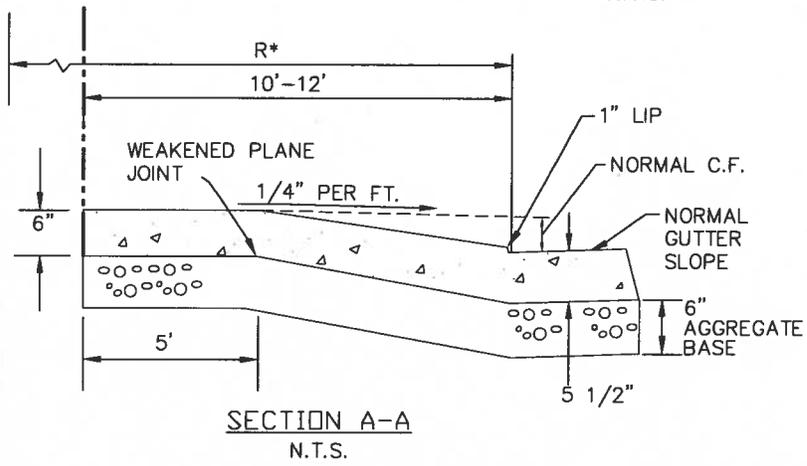
**COMMERCIAL DRIVEWAY ENTRANCE
FOR RIGHT OF WAY 78' AND LARGER**

STD. NO.
310a
SHEET 1 OF 2

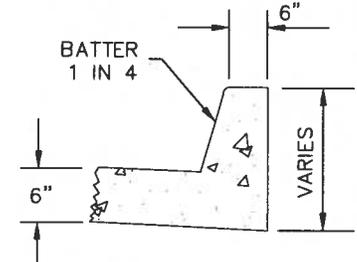


PLAN VIEW
N.T.S.

*CURB FACE TO R/W LINE DISTANCE



SECTION A-A
N.T.S.



SECTION B-B
N.T.S.

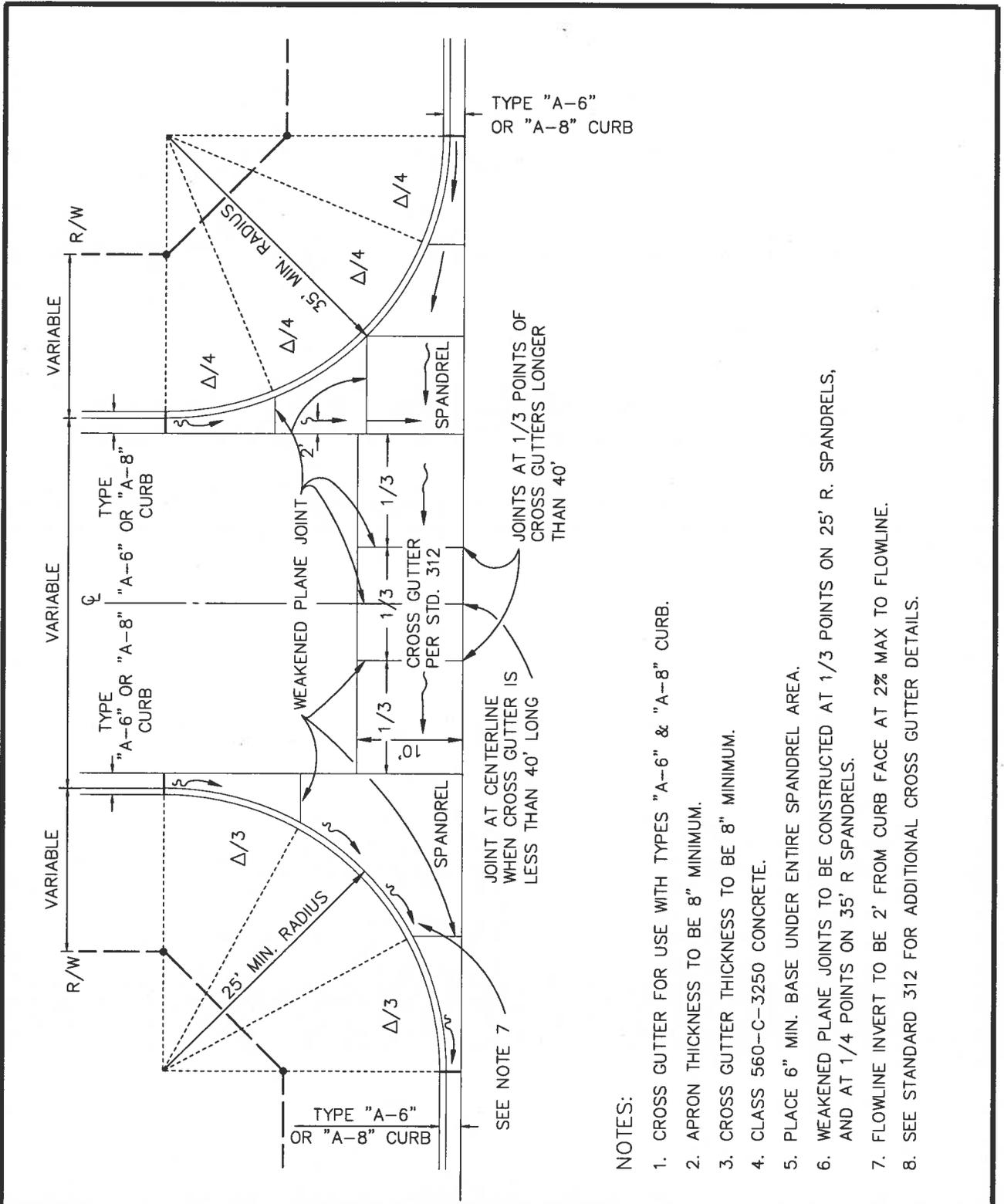
- NOTES:
1. APPROACHES EXCEEDING 20' IN WIDTH SHALL BE SCORED 1 1/2" DEEP AT CENTER OF APPROACH.
 2. CONCRETE SHALL BE CLASS 560-C-3250.
 3. WHEELCHAIR RAMP PER STD. NO. 321.
 4. STRAIGHT GRADE FLOW LINE.
 5. 6" PCC REQUIRES NO. 3 REINFORCING BARS 12" O.C. BOTH WAYS OR USE 9" P.C.C.
 6. THREE 4-INCH SLEEVES SHALL BE INSTALLED ACROSS THE DRIVEWAY 5' OFF R/W FOR IRRIGATION UNLESS OTHERWISE APPROVED BY CITY ENGINEER.
 7. COMPACT TOP 12" OF SUBGRADE TO 95% COMPACTION.

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DEPARTMENT OF PUBLIC WORKS

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5/92	
10/98	
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COMMERCIAL DRIVEWAY ENTRANCE
ALTERNATE

STD. NO.
310c
SHEET 2 OF 2



NOTES:

1. CROSS GUTTER FOR USE WITH TYPES "A-6" & "A-8" CURB.
2. APRON THICKNESS TO BE 8" MINIMUM.
3. CROSS GUTTER THICKNESS TO BE 8" MINIMUM.
4. CLASS 560-C-3250 CONCRETE.
5. PLACE 6" MIN. BASE UNDER ENTIRE SPANDREL AREA.
6. WEAKENED PLANE JOINTS TO BE CONSTRUCTED AT 1/3 POINTS ON 25' R. SPANDRELS, AND AT 1/4 POINTS ON 35' R SPANDRELS.
7. FLOWLINE INVERT TO BE 2' FROM CURB FACE AT 2% MAX TO FLOWLINE.
8. SEE STANDARD 312 FOR ADDITIONAL CROSS GUTTER DETAILS.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

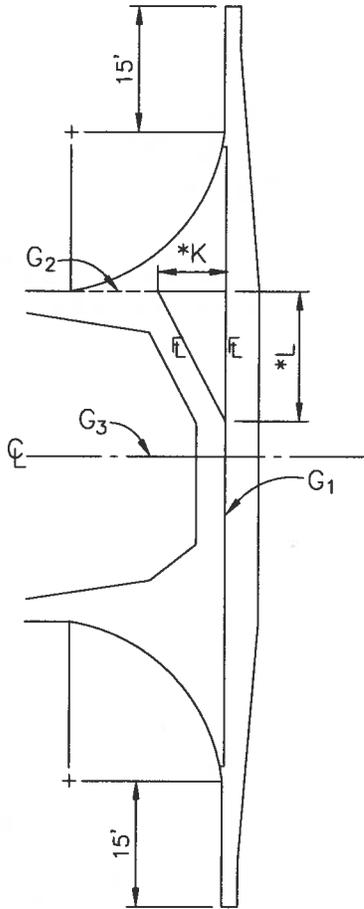
REVISIONS	
5/92	
APPROVED 1/14/10	

CROSS GUTTER LAYOUT

STD. NO.

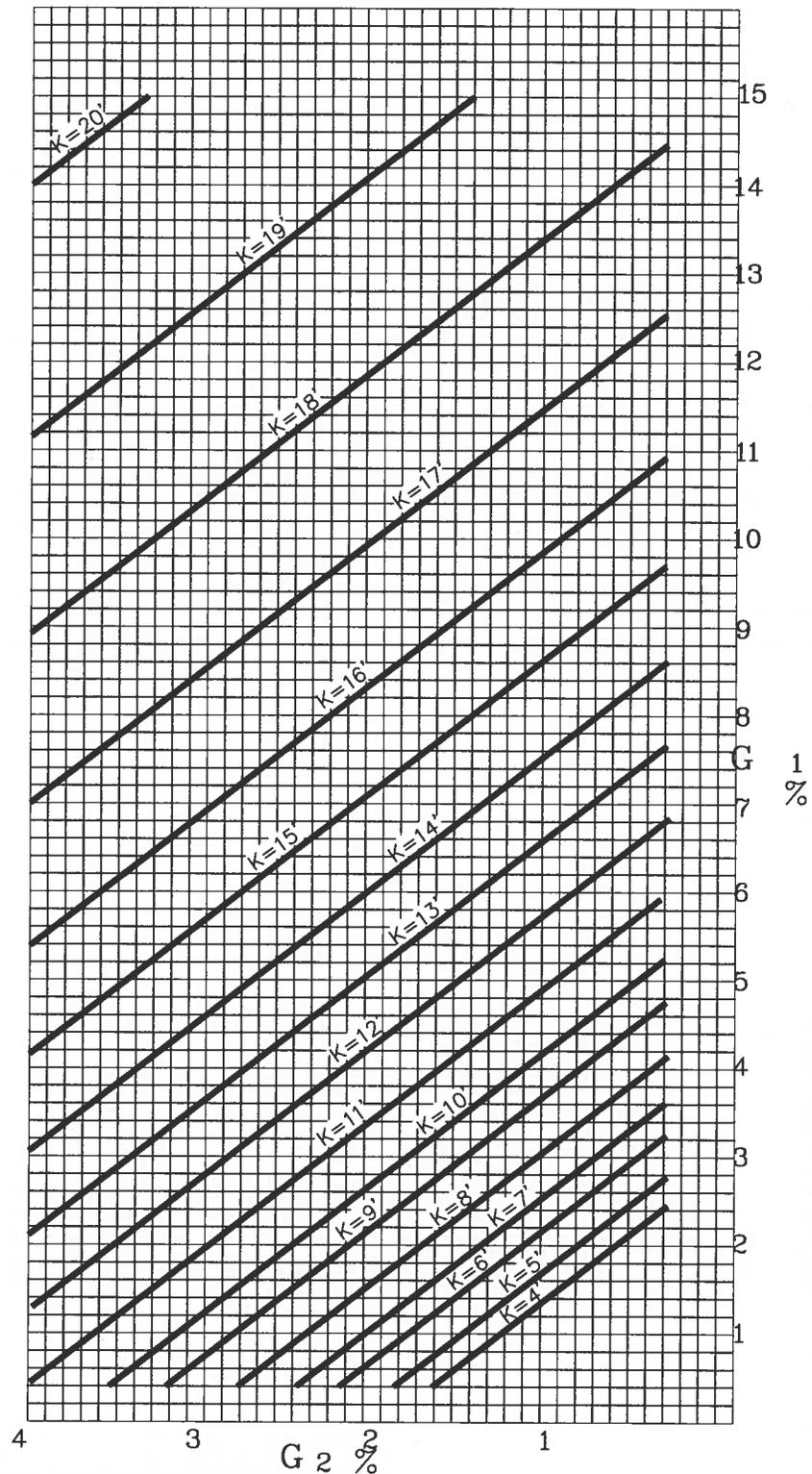
311

$$L = \frac{KG}{K \leq L} \frac{1}{G_2}$$



TO BE USED WITH SHEET 1

* K AND L TO BE SPECIFIED ON THE PLAN.



CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

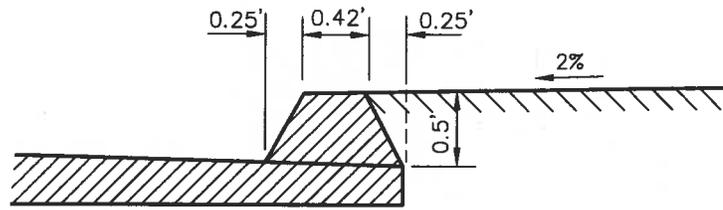
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5/92	
APPROVED 1/14/10	

**SPECIAL CROSS GUTTER
(STEEP GRADES)**

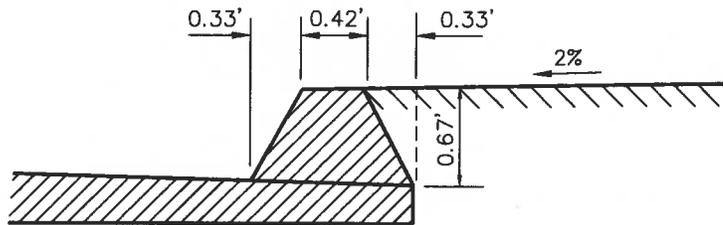
STD. NO.

313b

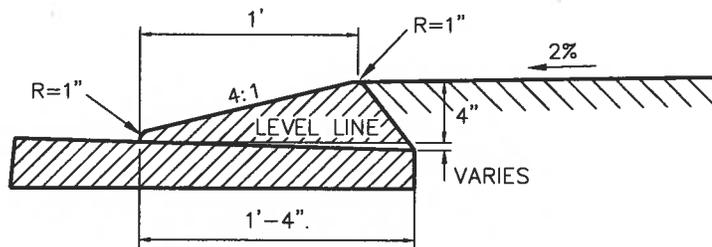
SHEET 2 OF 2



6" A.C. DIKE



8" A.C. DIKE



4" MOUNTABLE A.C. DIKE

NOTE:

A.C. DIKE REQUIRED WHERE FILL SLOPES ARE STEEPER THAN 4:1, MATERIAL IS SUSCEPTIBLE TO EROSION, OR WHERE ROADWAY GRADIENT EXCEEDS 3%.

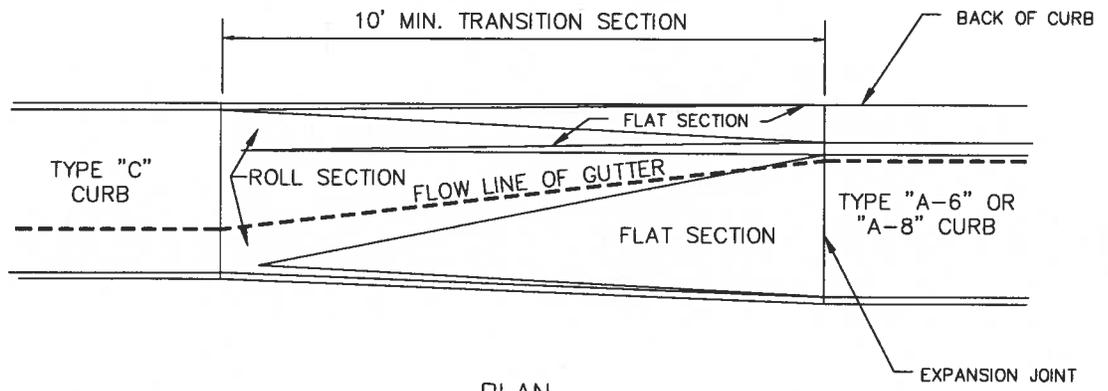
CITY OF MURRIETA
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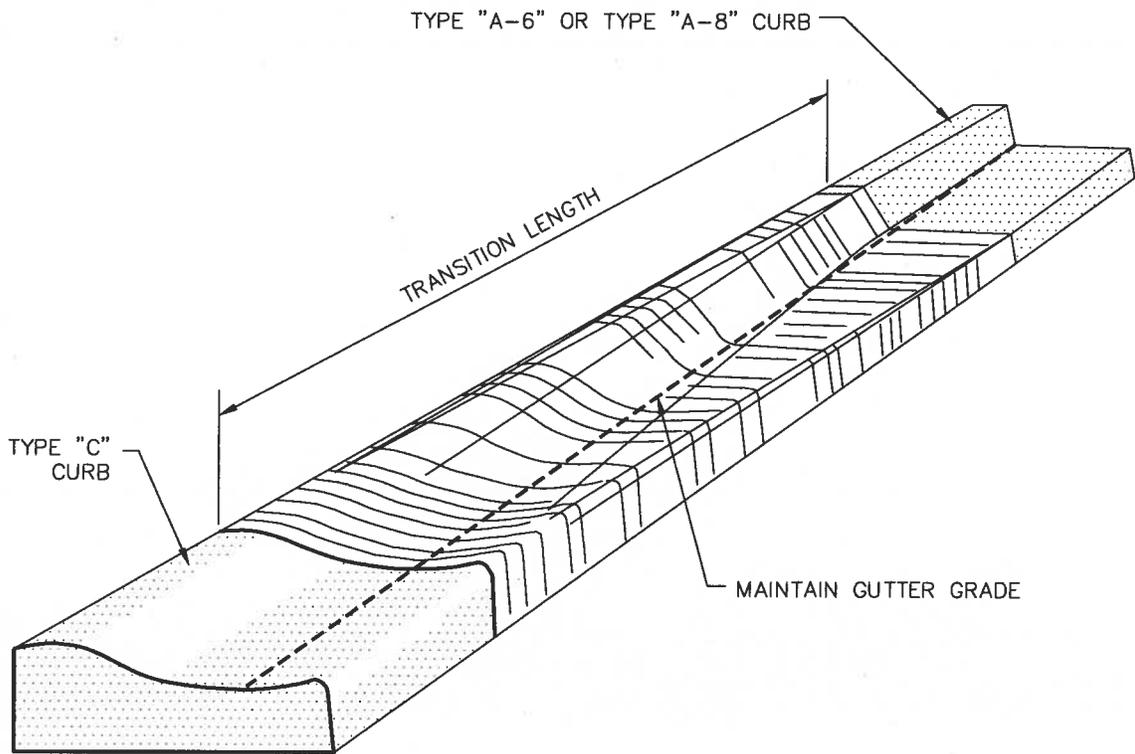
ASPHALT CONCRETE DIKES

STD. NO.

315



PLAN



SCHEMATIC EXAMPLE

NOTE:
CONCRETE SHALL BE 560-C-3250

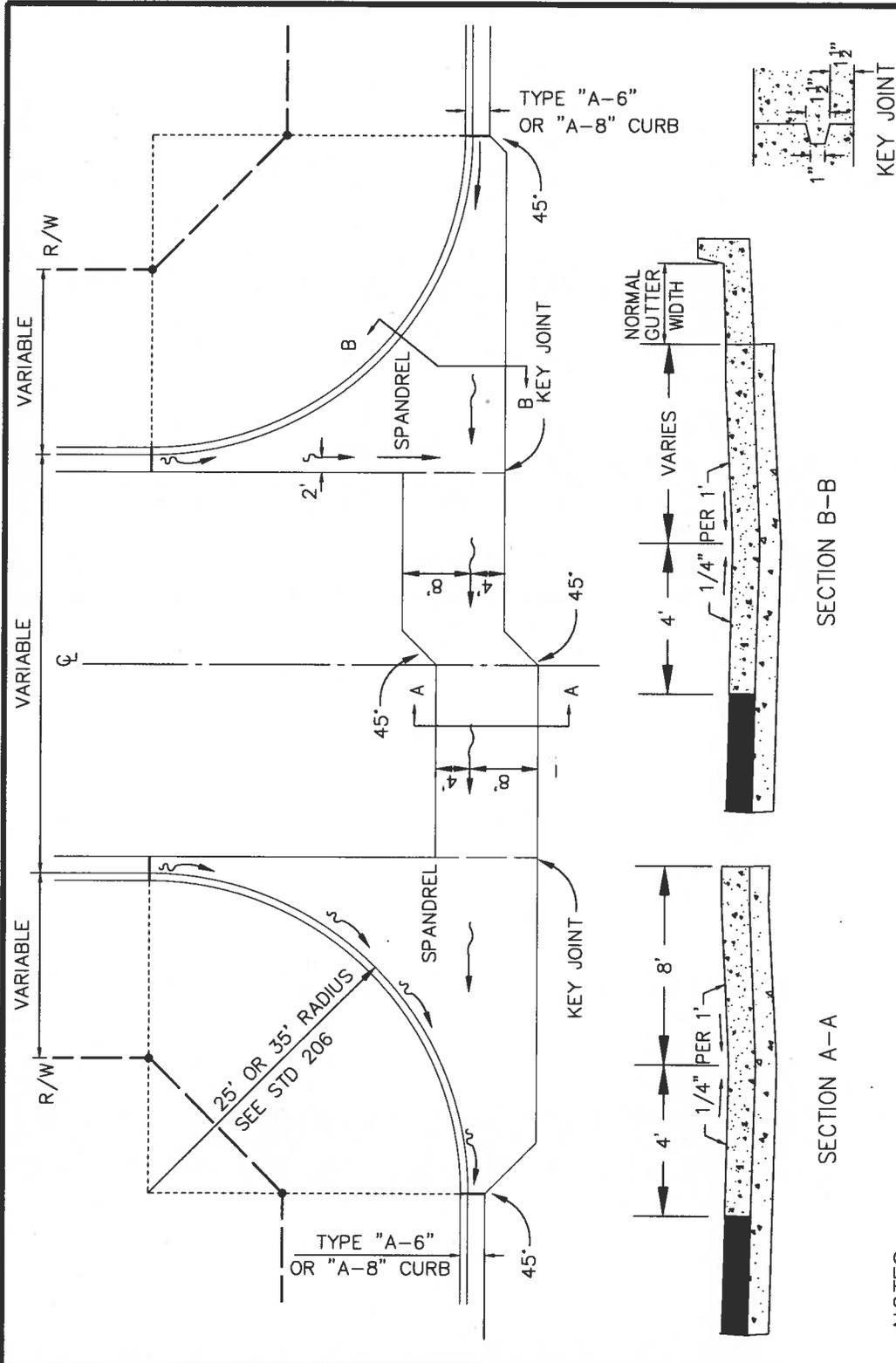
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5/92	
APPROVED 1/14/10	

CURB TRANSITION

STD. NO.

316



NOTES:

1. THIS CROSS GUTTER STANDARD TO BE CONSTRUCTED IN AREAS WHERE STREET GUTTERS HAVE CONSTANT OR FREQUENT FLOWS FROM LANDSCAPED PARKWAYS AND MEDIANS, GOLF COURSE AND AGRICULTURAL RUNOFF AND WHEN GRADIENT IS LESS THAN 1.0%.
2. CROSS GUTTER THICKNESS TO BE 8" MINIMUM.
3. CLASS 560-C-3250 CONCRETE.
4. SEE STANDARDS 311 AND 312 FOR ADDITIONAL CROSS GUTTER REQUIREMENTS.

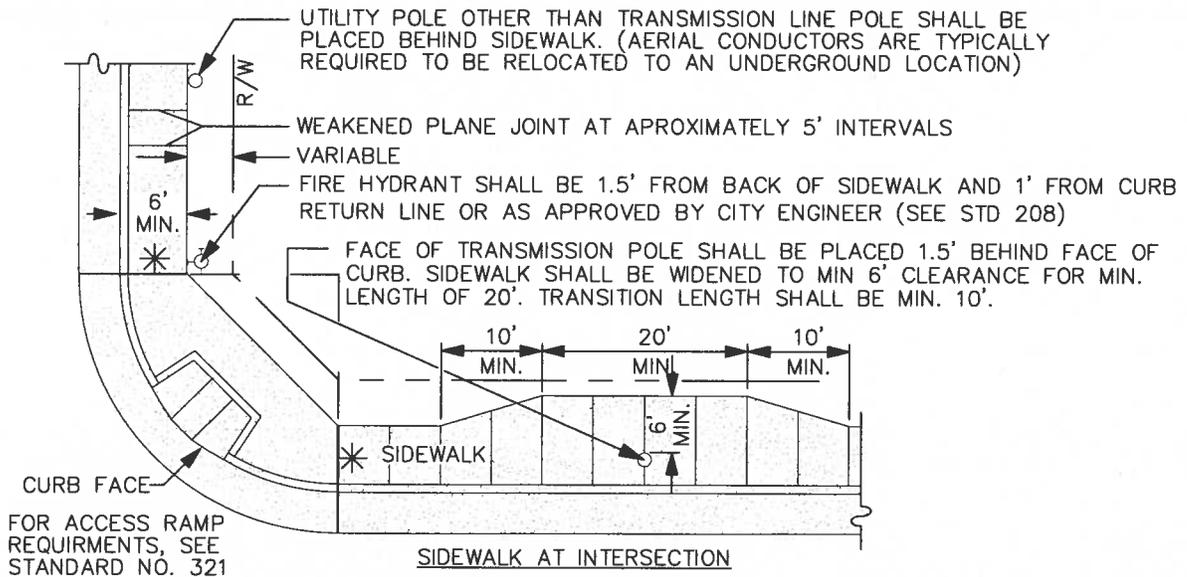
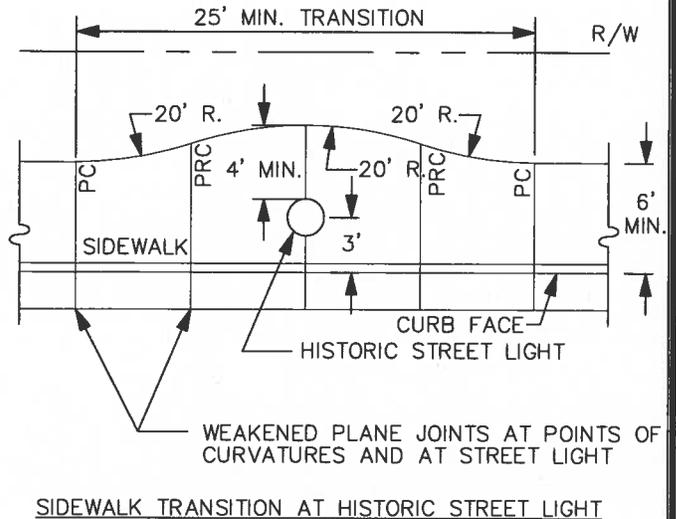
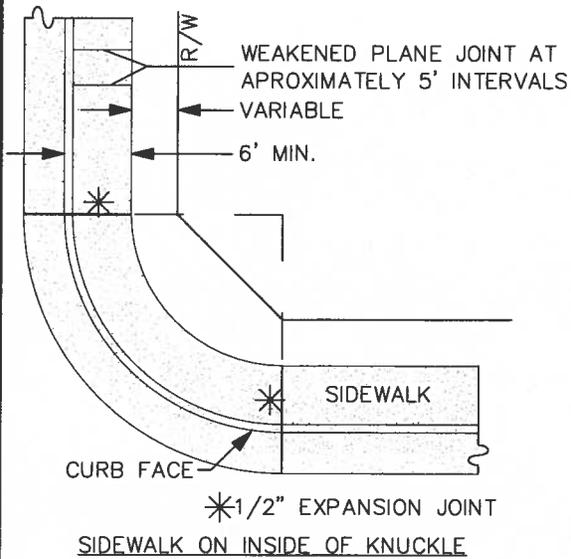
CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

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5/92	
APPROVED 1/14/10	

CROSS GUTTER
WITH SPLASH AREA

STD. NO.

318



*1/2" EXPANSION JOINT

NOTE:

1. VARIABLE DISTANCES TO BE SHOWN ON APPLICABLE TYPICAL ROAD SECTION STANDARD.
2. CONCRETE SHALL BE 560-C-3250, 4" MINIMUM THICKNESS.
3. THE TRANSITION FOR THE HISTORIC STREET LIGHT MAY BE USED FOR OTHER UTILITY POLES WHEN APPROVED BY THE CITY ENGINEER.

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DEPARTMENT OF PUBLIC WORKS

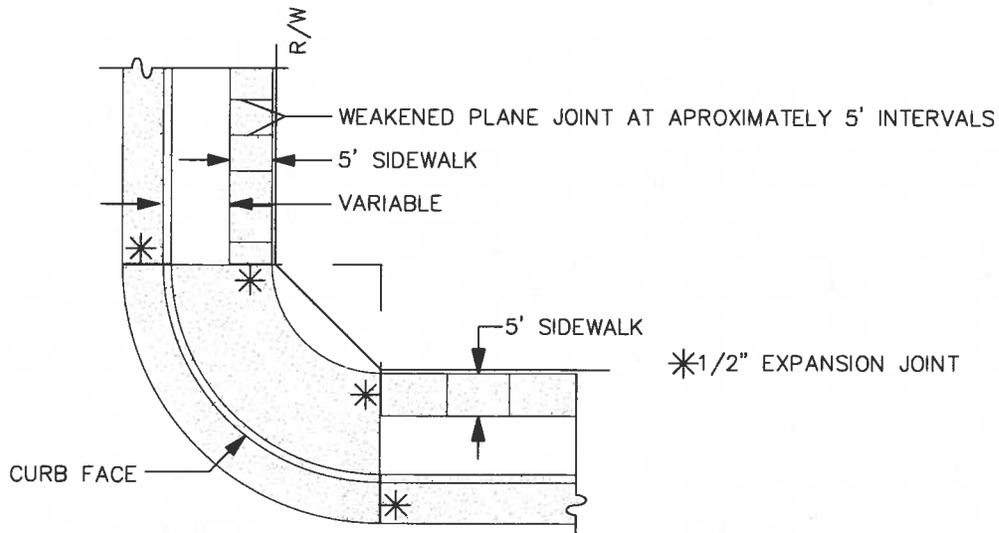
REVISIONS	
5/92	
10/98	
APPROVED 1/14/10	

**SIDEWALK, FIRE HYDRANT,
AND UTILITY POLE LOCATION
(SIDEWALK AT CURB)**

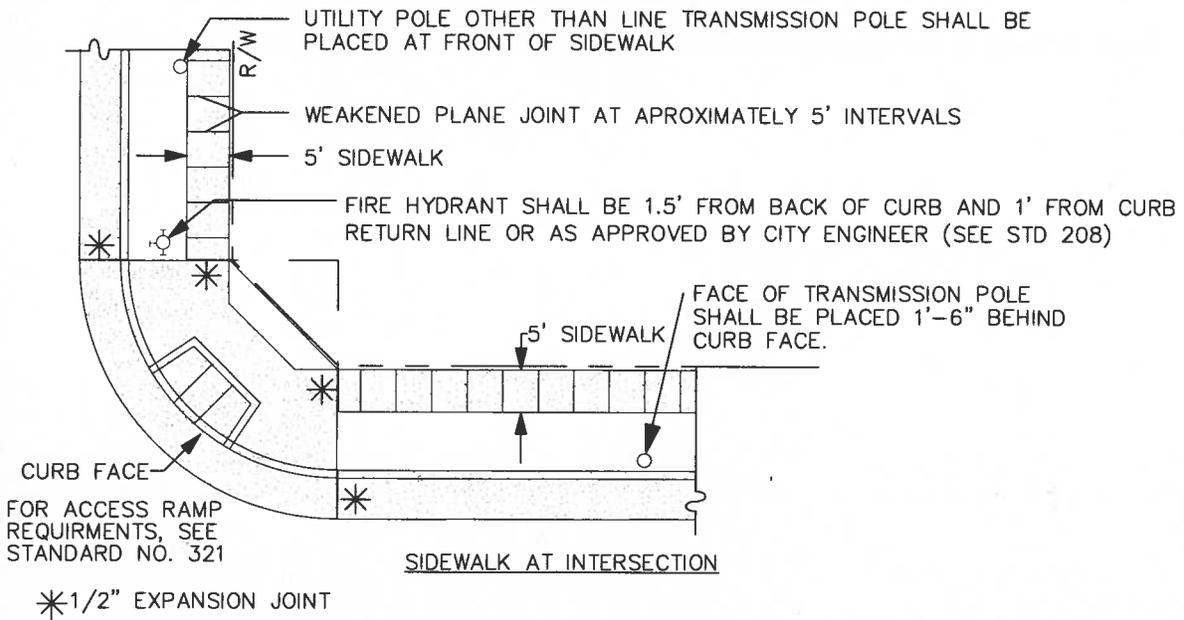
STD. NO.

319a

SHEET 1 OF 2



SIDEWALK ON INSIDE OF KNUCKLE



SIDEWALK AT INTERSECTION

NOTE:

1. VARIABLE DISTANCES TO BE SHOWN ON APPLICABLE TYPICAL ROAD SECTION STANDARD.
2. CONCRETE SHALL BE 560-C-3250, 4" MINIMUM THICKNESS.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

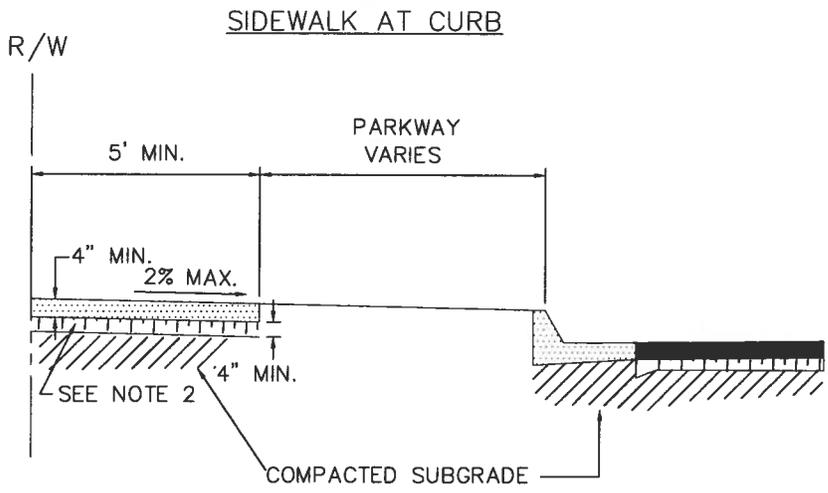
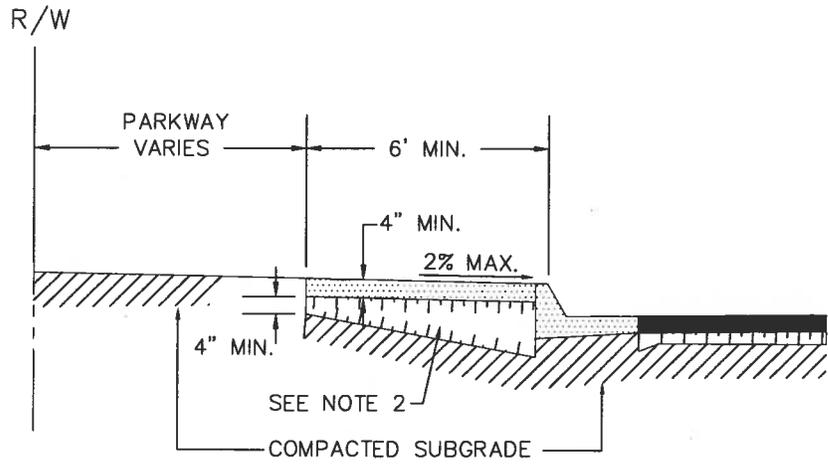
REVISIONS	
APPROVED 1/14/10	

SIDEWALK, FIRE HYDRANT,
AND UTILITY POLE LOCATION
(SIDEWALK AT R/W)

STD. NO.

319b

SHEET 2 OF 2



SIDEWALK AT R/W

NOTES:

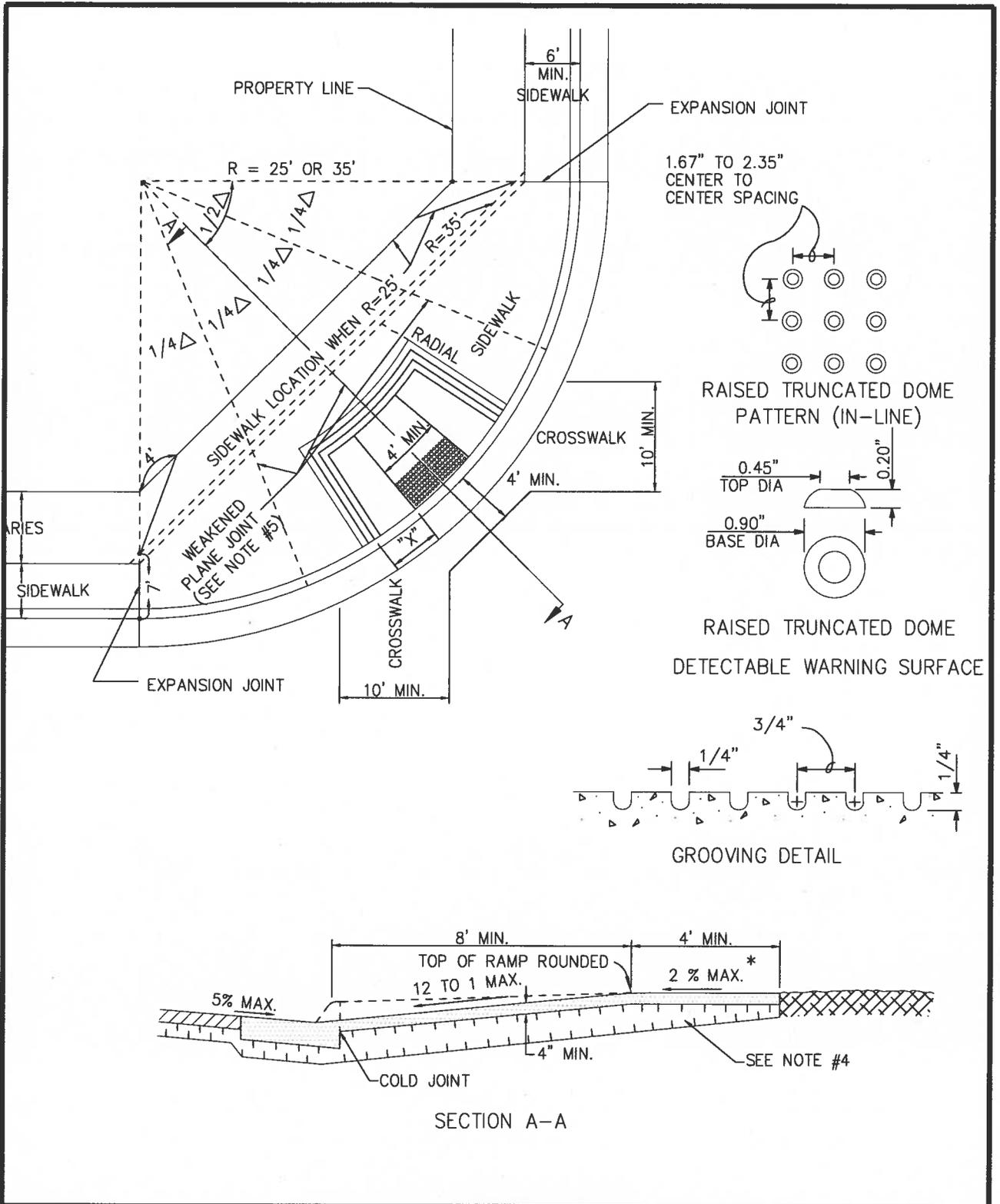
1. CONCRETE SHALL BE CLASS 560-C-3250.
2. AGGREGATE BASE OR APPROVED SELECT MATERIAL WHEN SOILS REPORT INDICATES PRESENCE OF EXPANSIVE SOIL CONDITIONS.
3. WALLS PLACED AT THE BACK OF SIDEWALK REQUIRE A SPECIAL DESIGN ALLOWING FOR A LANDSCAPING SETBACK OR ALTERNATE DESIGN TO LANDSCAPE THE WALL AS APPROVED BY THE CITY ENGINEER.
4. SIDEWALKS TRANSITIONING FROM CURB TO RIGHT OF WAY SHALL BE DONE WITH A 20' MINIMUM TRANSITION UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

**CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS**

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5/92	
10/98	
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SIDEWALK AND CURB

STD. NO.
320



**CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS**

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5/92	
10/98	
APPROVED 1/14/10	

**ACCESS RAMP FOR
ALL INTERSECTIONS**

STD. NO.

321a

SHEET 1 OF 2

NOTES:

1. THE RAMP SHALL HAVE A 12" WIDE BORDER WITH 1/4" GROOVES APPROXIMATELY 3/4" O.C.
2. RAMP SIDESLOPE VARIES UNIFORMLY FROM A MAXIMUM OF 10% AT CURB TO CONFORM WITH LONGITUDINAL SIDEWALK SLOPE ADJACENT TO TOP OF CURB. "X" = VARIES, 15' MAX.
3. THE SLOPE OF THE LANDINGS SHALL NOT EXCEED 2% IN ANY DIRECTION.
4. AGGREGATE BASE OR APPROVED SELECT MATERIAL IS REQUIRED WHEN SOILS REPORT INDICATES EXPANSIVE SOIL CONDITION.
5. WEAKENED PLANE JOINTS AT 1/4Δ WHEN R=35'; AND INSIDE EDGE OF GROOVED BORDER WHERE R=25'.
6. FINISHED SURFACE OF RAMP SHALL BE MEDIUM BROOM FINISH. FINISH SHALL CONTRAST WITH ADJACENT SIDEWALK. APPLY BROOM FINISH PERPENDICULAR TO DIRECTION OF SLOPE FOR SLIP-RESISTANCE.
7. CURB RAMPS SHALL HAVE A DETECTABLE WARNING SURFACE THAT EXTENDS THE FULL WIDTH AND 3'-0" DEPTH OF THE RAMP. DETECTABLE WARNING SURFACES SHALL CONFORM TO THE DETAILS ON THIS PLAN. DETECTABLE WARNING SURFACE MATERIALS SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO INSTALLATION.
8. THE EDGE OF THE DETECTABLE WARNING SURFACE NEAREST THE STREET SHALL BE BETWEEN 6" AND 8" FROM THE GUTTER FLOWLINE.

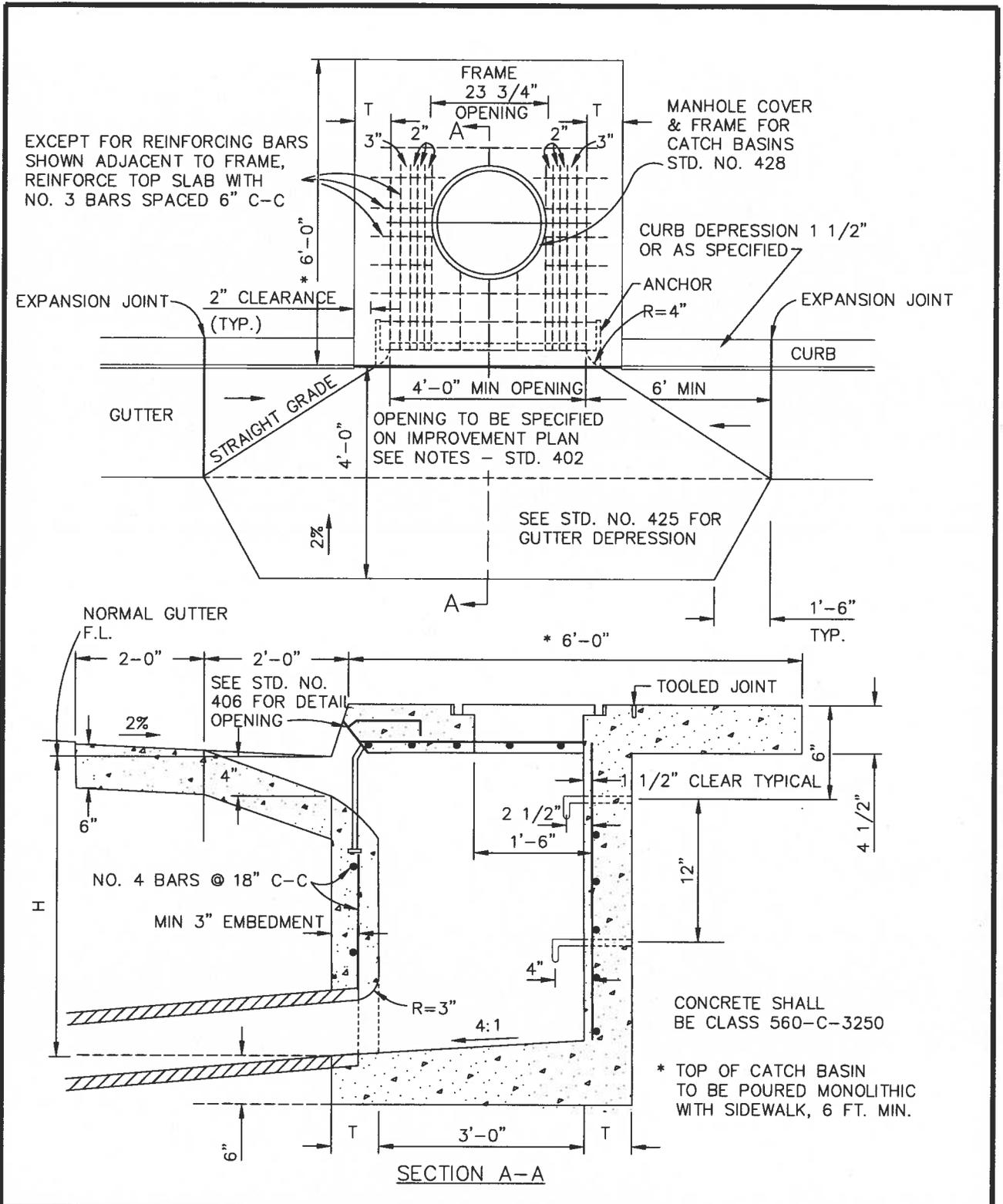
CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	ACCESS RAMP FOR ALL INTERSECTIONS	STD. NO.
5/92		321b
10/98		SHEET 2 OF 2
APPROVED 1/14/10		

SECTION 400

DRAINAGE





CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
APPROVED 1/14/10	

**CURB INLET
CATCH BASIN**

STD. NO.

401

CONNECTION PIPES MAY BE PLACED ANY POSITION AROUND THE WALLS, PROVIDED THEY POINT IN THE PROPER DIRECTION AND THE POSITION IS OTHERWISE CONSISTENT WITH THE IMPROVEMENT PLAN

CURVATURE OF THE LIP AND SIDEWALLS AT GUTTER OPENING SHALL BE FORMED BY CURVED FORMS AND SHALL NOT BE MADE BY PLASTERING

DIMENSIONS.

T=6 INCHES IF H IS 8 FEET OR LESS.
T=8 INCHES IF H IS GREATER THAT 8 FEET AND LESS THAN 20 FEET
H=3 FEET 6 INCHES, UNLESS OTHERWISE SPECIFIED.

FLOOR OF BASIN SHALL BE GIVEN A STEEL-TROWELLED FINISH.

MANHOLE SHALL BE PLACED AS SHOWN ON STANDARD NO. 401, UNLESS NOTED DIFFERENTLY ON IMPROVEMENT PLANS.

OUTLET PIPE SHALL BE TRIMMED TO THE FINAL SHAPE AND LENGTH BEFORE CONCRETE IS POURED.

OPENING SHALL BE 4'-0" UNLESS OTHERWISE SPECIFIED.

REINFORCING STEEL SHALL BE NO. 3 ROUND DEFORMED BARS IN TOP SLAB AND NO. 4 BARS AT 18 INCH CENTERS IN SIDES OF BOX.

STEPS: 3/4" PLAIN ROUND GALVANIZED STEEL STEPS ARE REQUIRED AS FOLLOWS:
(ALHAMBRA FDY. A-3320 OR EQUAL.)
IF H IS 3.5 FEET OR LESS, NO STEPS ARE REQUIRED
IF H IS MORE THAN 3.5 FEET, AND NO MORE THAN 5 FEET, INSTALL 1 STEP 16 INCHES ABOVE FLOOR OF BASIN.
IF H IS MORE THAN 5 FEET, INSTALL STEPS 12 INCHES APART, WITH THE TOP STEP 6 INCHES BELOW THE SURFACE OF THE BASIN
ALL STEPS SHALL BE 4 INCHES FROM THE WALL, EXCEPT THE TOP STEP, WHICH SHALL BE 2 1/2 INCHES (CLEAR) FROM THE WALL, AND ANCHORED NOT LESS THAN 5 INCHES IN THE WALL OF BASIN.

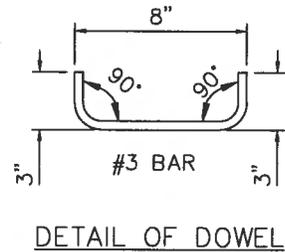
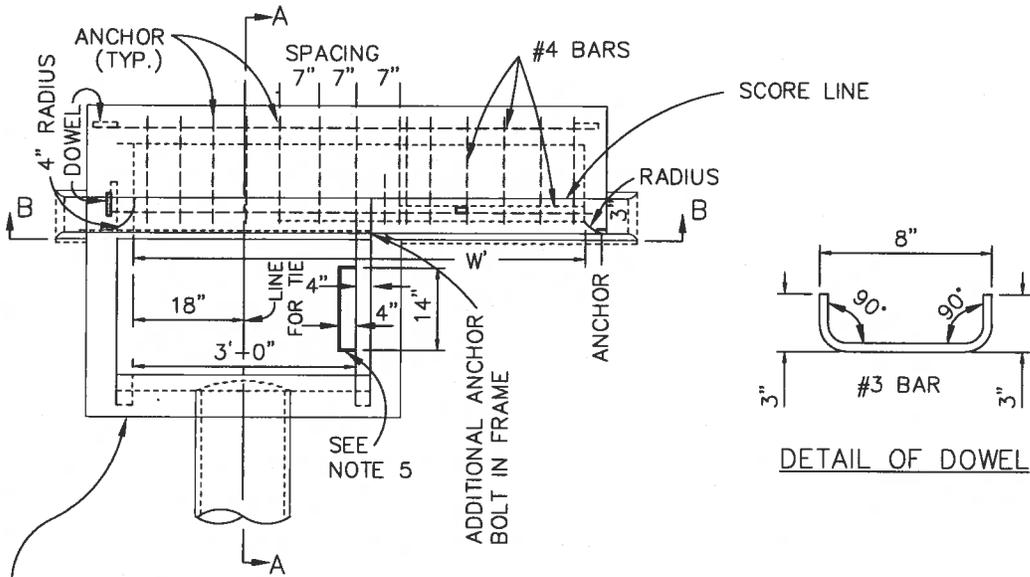
SURFACE OF ALL EXPOSED CONCRETE IN BASIN SHALL CONFORM IN SLOPE, GRADE, COLOR, FINISH AND SCORING TO EXISTING OR PROPOSED CURB AND WALL ADJACENT TO THE BASIN.

CONCRETE SHALL BE CLASS 560-C-3250 WHEN THE BASIN IS TO BE CONSTRUCTED WITHIN THE LIMITS OF A PROPOSED SIDEWALK OR IS CONTIGUOUS TO SUCH A SIDEWALK, THE TOP OF THE BASIN SHALL BE POURED MONOLITHIC WITH THE SIDEWALK, USING CLASS 560-C-3250 CONCRETE IN THE SIDEWALK AND THE TOP OF THE CATCH BASIN FINISHED PER SIDEWALK STANDARDS.

WATER QUALITY INSERT OR EQUIVALENT PER PROJECT SPECIFIC WQMP OR AS REQUIRED BY THE CITY ENGINEER. MAINTENANCE SHALL BE FUNDED BY THE PROJECT ANNEXING INTO OR FORMING A LANDSCAPE LIGHTING MAINTENANCE DISTRICT.

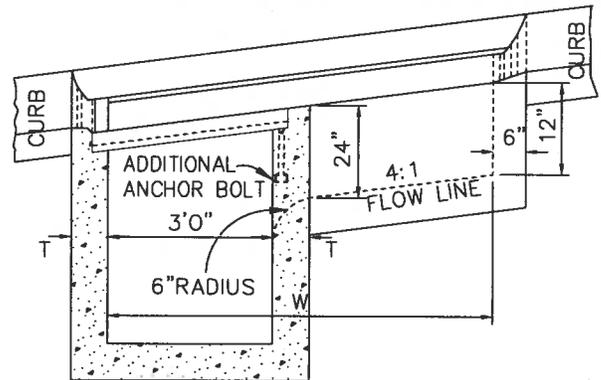
CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS		CURB INLET CATCH BASIN SPECIFICATIONS	STD. NO.
5/92			402
APPROVED 1/14/10			

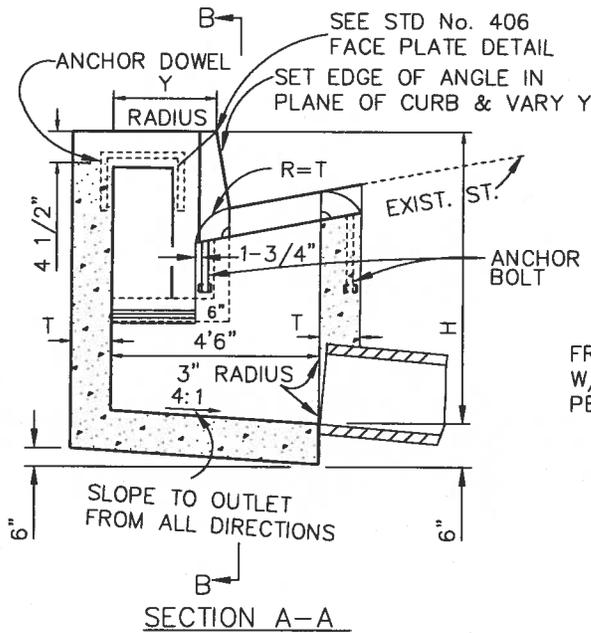


THE OUTER EDGES OF THE WALLS SHALL CONFORM TO THE STREET OR LOCAL DEPRESSION SURFACE. THE GRATING SHALL BE LAID IN THE PLANE OF THIS SURFACE. SEE STD. NO. 424 CASE B FOR GUTTER DEPRESSION.

PLAN



SECTION B-B



FRAME & GRATING
 W/ ANCHOR BOLTS
 PER STD. NO. 407

CITY OF MURRIETA
 DEPARTMENT OF PUBLIC WORKS

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5/92	
APPROVED 1/14/10	

COMBINATION INLET
 CATCH BASIN NO. 1

STD. NO.

403a

SHEET 1 OF 2

NOTES:

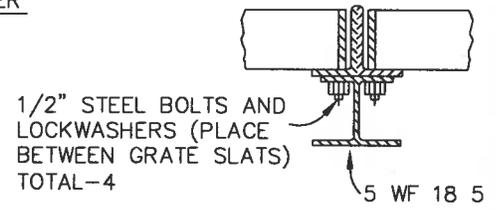
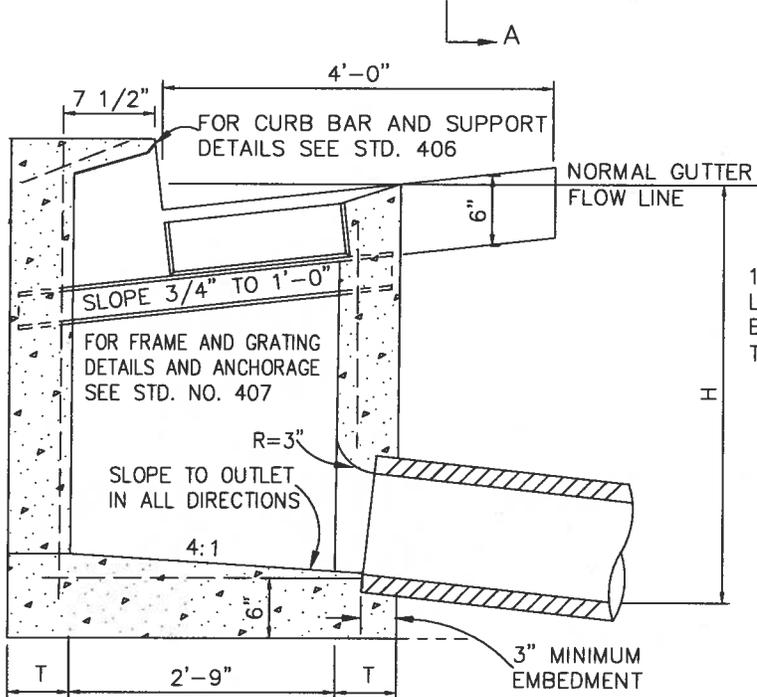
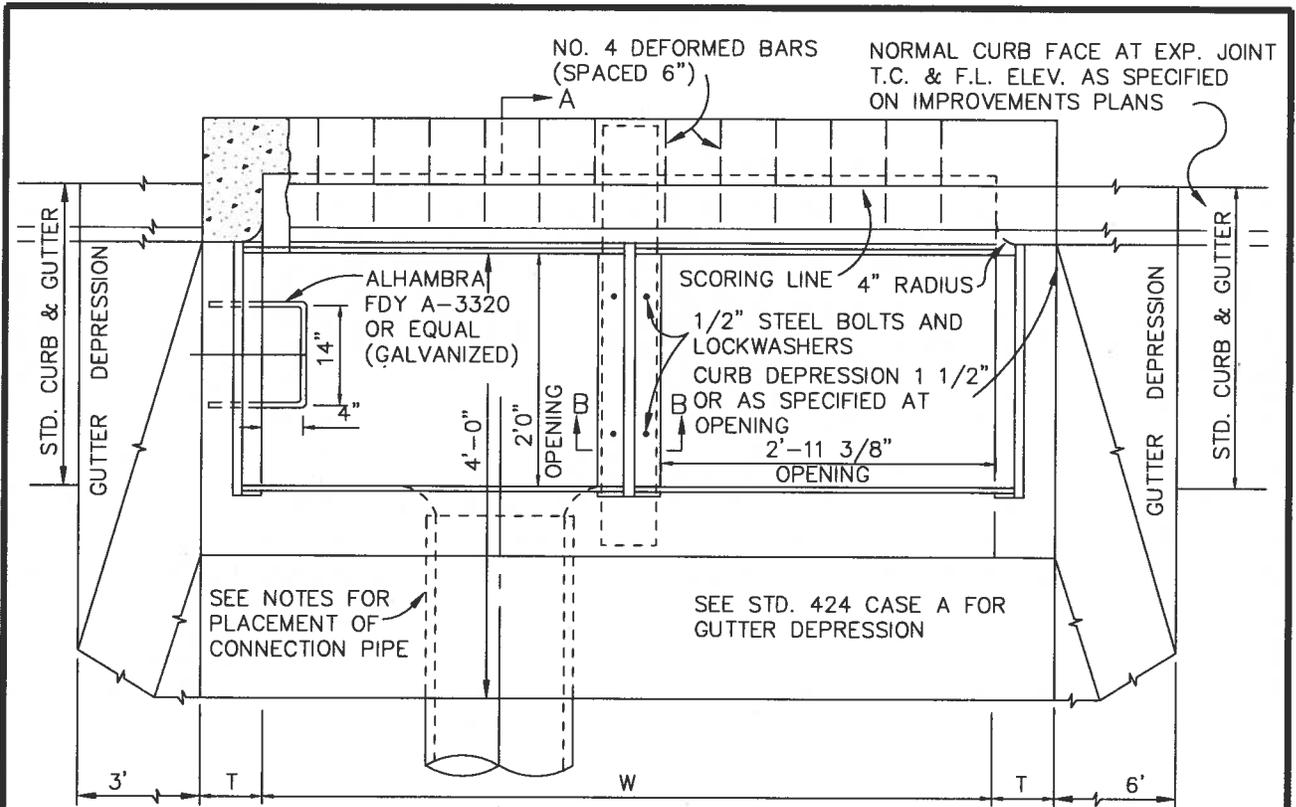
1. DIMENSIONS UNLESS OTHERWISE SPECIFIED *

Y	W	T	H
2'3"	7'*		4'6" *
		6"	5' OR LESS
		8"	5' TO 8'
		10"	8' OR GREATER

2. CONCRETE SHALL BE CLASS 560-C-3250 PORTLAND CEMENT CONCRETE.
3. THE REINFORCING STEEL SHALL BE NUMBER 4 DEFORMED BARS. CLEARANCE SHALL BE 1 1/2" FROM THE BOTTOM OF THE SLAB.
4. THE SURFACE OF ALL EXPOSED CONCRETE SHALL CONFORM TO SLOPE, GRADE COLOR, FINISH, AND SCORING IN THE EXISTING OR PROPOSED CURB AND WALK ADJACENT TO THE BASIN. THE BASIN FLOOR SHALL BE GIVEN A TIGHT WOOD FLOAT FINISH. CURVATURE OF THE LIP AND SIDEWALLS AT THE GUTTER OPENING SHALL NOT BE MADE BY PLASTERING. THE OUTLET PIPE SHALL BE TRIMMED TO FINAL SHAPE AND LENGTH BEFORE THE CONCRETE IS POURED.
5. STEPS: 3/4" PLAIN ROUND NON-GALVANIZED STEEL STEPS, OR MATERIAL AS APPROVED BY CITY ENGINEER SHALL BE INSTALLED 16 INCHES APART WHEN H EXCEEDS 4 FEET 6 INCHES. THE TOP STEP SHALL BE 6 INCHES BELOW THE TOP SURFACE AND SHALL BE 2 1/2 INCHES CLEAR FROM THE WALL. ALL OTHER OTHER SHALL BE 4 INCHES CLEAR OF THE WALL. ONLY ONE STEP 12 INCHES FROM THE BOTTOM SHALL BE INSTALLED IF H IS 4 FEET 6 INCHES OR LESS ALL STEPS SHALL BE ANCHORED NOT LESS THAN 4 INCHES INTO THE WALL OF THE BASIN.
6. WATER QUALITY INSERT OR EQUIVALENT PER PROJECT SPECIFIC WQMP OR AS REQUIRED BY THE CITY ENGINEER. MAINTENANCE SHALL BE FUNDED BY THE PROJECT ANNEXING INTO OR FORMING A LANDSCAPE LIGHTING MAINTENANCE DISTRICT.

CITY OF MURRIETA
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REVISIONS		COMBINATION INLET CATCH BASIN NO. 1	STD. NO.
5/92			403b
			SHEET 2 OF 2
APPROVED 1/14/10			



SECTION B-B

SECTION A-A

CONCRETE SHALL BE CLASS 560-C-3250 CONCRETE

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DEPARTMENT OF PUBLIC WORKS

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COMBINATION INLET
CATCH BASIN NO. 2

STD. NO.

404

NOTES:

BASIN SHALL HAVE ONE GRATING UNLESS OTHERWISE SPECIFIED ON IMPROVEMENT PLANS.

CONCRETE SHALL BE CLASS 560-C-3250 WHEN THE BASIN IS TO BE CONSTRUCTED WITHIN THE LIMITS OF A PROPOSED SIDEWALK OR IS CONTIGUOUS TO SUCH A SIDEWALK, THE TOP OF THE BASIN SHALL BE POURED MONOLITHIC WITH THE SIDEWALK, USING CLASS 560-C-3250 CONCRETE IN THE SIDEWALK. THE TOP OF THE CATCH BASIN SHALL BE FINISHED PER SIDEWALK STANDARDS.

CONNECTION PIPES MAY BE PLACED IN ANY POSITION AROUND THE WALLS, PROVIDED THEY POINT IN THE PROPER DIRECTION AND THE POSITION IS OTHERWISE CONSISTENT WITH THE IMPROVEMENT PLAN.

CURVATURE OF THE END-WALLS AT CURB OPENING SHALL BE FORMED BY CURVED FORMS AND SHALL NOT BE MADE BY PLASTERING.

DIMENSIONS:

GRATE SHALL BE PARALLEL TO PLANE OF GUTTER SLOPE.

t=6 INCHES IF H IS 8 FEET OR LESS.

t=8 INCHES IF H IS GREATER THAN 8 FEET AND LESS THAN 20 FEET.

H=3 FEET 6 INCHES, UNLESS OTHERWISE SPECIFIED ON IMPROVEMENT PLANS.

W=2 FEET 11 3/8 INCHES FOR ONE GRATING. ADD 3 FEET 5 3/8 INCHES FOR EACH ADDITIONAL GRATING.

EXPOSED SURFACES OF THE CATCH BASIN SHALL CONFORM IN SLOPE, GRADE, COLOR, FINISH, AND SCORING TO EXISTING IMPROVEMENTS ADJACENT TO THE BASIN. WHERE NO SIDEWALK EXISTS, THE TOP SHALL BE FINISHED TO CONFORM TO STANDARD SIDE-WALK SLOPE AND FINISH. WHERE NO CURB EXISTS, THE BATTER OF EXPOSED END WALLS ABOVE THE STREET SURFACE SHALL CONFORM TO BATTER FOR STANDARD CURB.

FLOOR OF BASIN SHALL BE GIVEN A STEEL-TROWELLED FINISH.

OUTLET PIPE SHALL BE TRIMMED TO THE FINAL SHAPE AND LENGTH BEFORE CONCRETE IS POURED.

REINFORCING STEEL SHALL BE NO. 4 DEFORMED BARS. CLEARANCE SHALL BE 1 1/2 INCHES FROM INSIDE OF BOX. SPACING IS AS SHOWN IN TOP SLAB AND AT 18 INCH CENTERS IN SIDES OF BOX.

SLOPE OF FLOOR PARALLEL WITH CURB SHALL BE 1 IN 12 UNLESS OTHERWISE SPECIFIED SLOPE FLOOR FROM ALL DIRECTIONS TO THE OUTLET.

STEPS: 3/4 INCH PLAIN ROUND GALVANIZED STEEL STEPS ARE REQUIRED AS FOLLOWS. (ALHAMBRA FDY. A-3320 OR EQUAL)

IF H IS 3.5 FEET OR LESS, NO STEPS ARE REQUIRED.

IF H IS MORE THAN 3.5 FEET, AND NOT MORE THAN 5.0 FEET, INSTALL ONE STEP 16 INCHES ABOVE FLOOR OF BASIN.

IF H IS MORE THAN 5.0 FEET, INSTALL STEPS 12 INCHES APART, WITH THE TOP STEP 6 INCHES BELOW THE TOP OF INLET.

ALL STEPS SHALL BE 4 INCHES CLEAR FROM THE WALL EXCEPT THE TOP STEP, WHICH SHALL BE 2 1/2 INCHES (CLEAR) FROM THE WALL AND ANCHORED NOT LESS THAN 5 INCHES IN WALL OF BASIN.

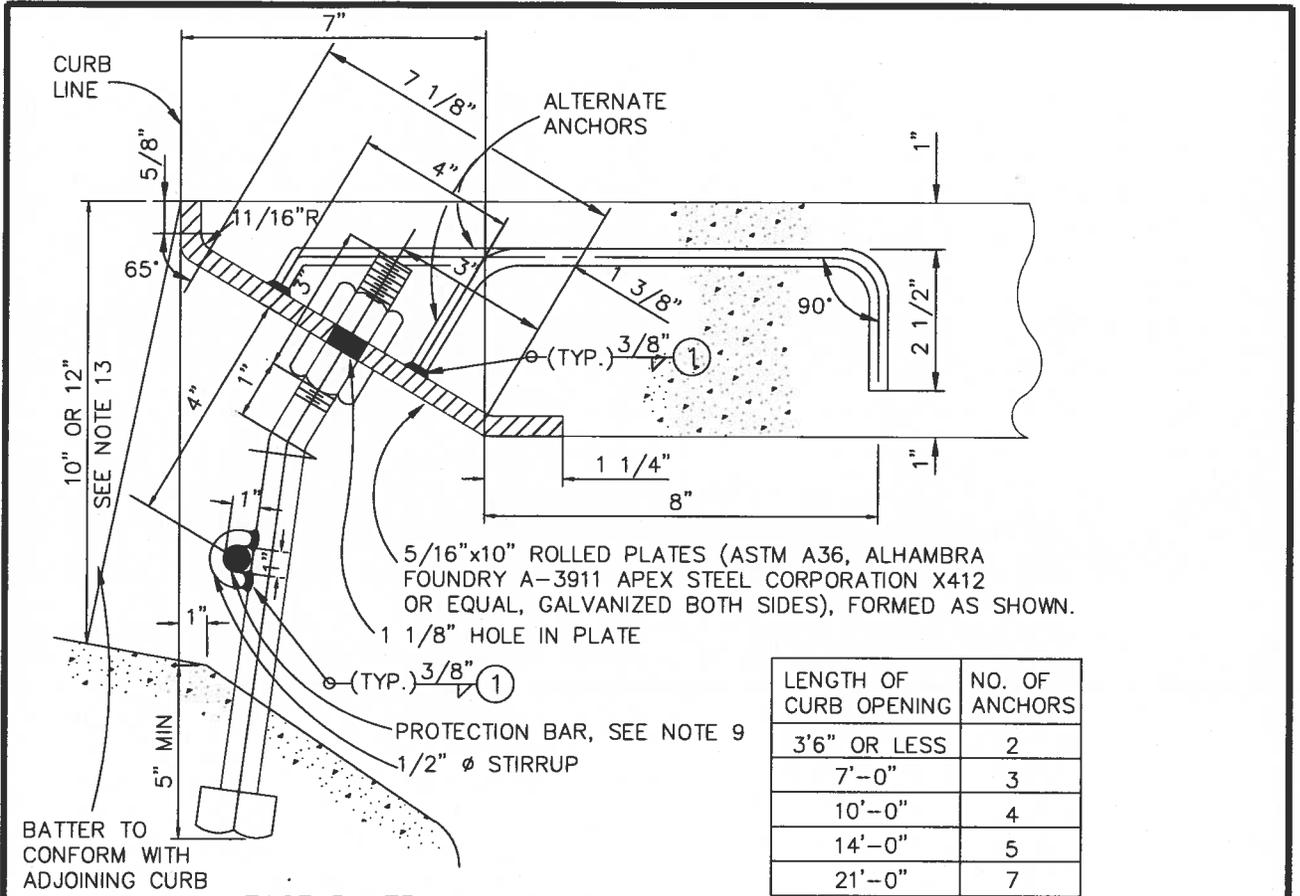
WATER QUALITY INSERT OR EQUIVALENT PER PROJECT SPECIFIC WQMP OR AS REQUIRED BY THE CITY ENGINEER. MAINTENANCE SHALL BE FUNDED BY THE PROJECT ANNEXING INTO OR FORMING A LANDSCAPE LIGHTING MAINTENANCE DISTRICT.

**CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS**

REVISIONS	
3/97	
APPROVED 1/14/10	

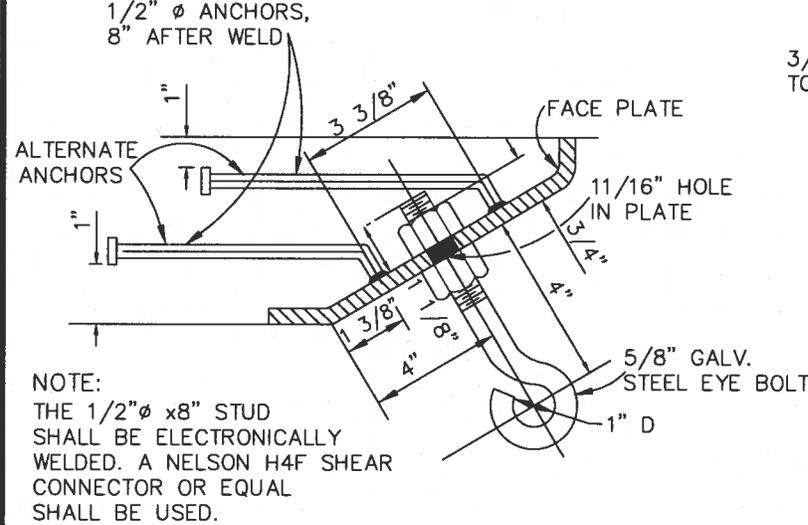
**COMBINATION INLET CATCH BASIN
SPECIFICATIONS**

STD. NO.
405

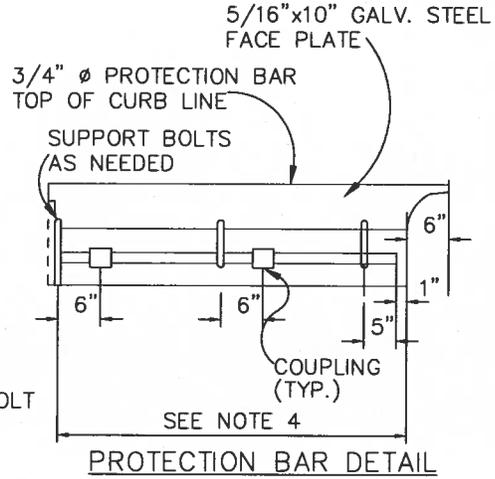


LENGTH OF CURB OPENING	NO. OF ANCHORS
3'-6" OR LESS	2
7'-0"	3
10'-0"	4
14'-0"	5
21'-0"	7

FACE PLATE ANCHORAGE AND CURB SUPPORT DETAIL



EYE BOLT AND ALTERNATE ANCHOR DETAIL FOR FACE PLATE



**CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS**

REVISIONS	
5/92	
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**MISCELLANEOUS CURB INLET
DETAILS AND NOTES**

STD. NO.

406a

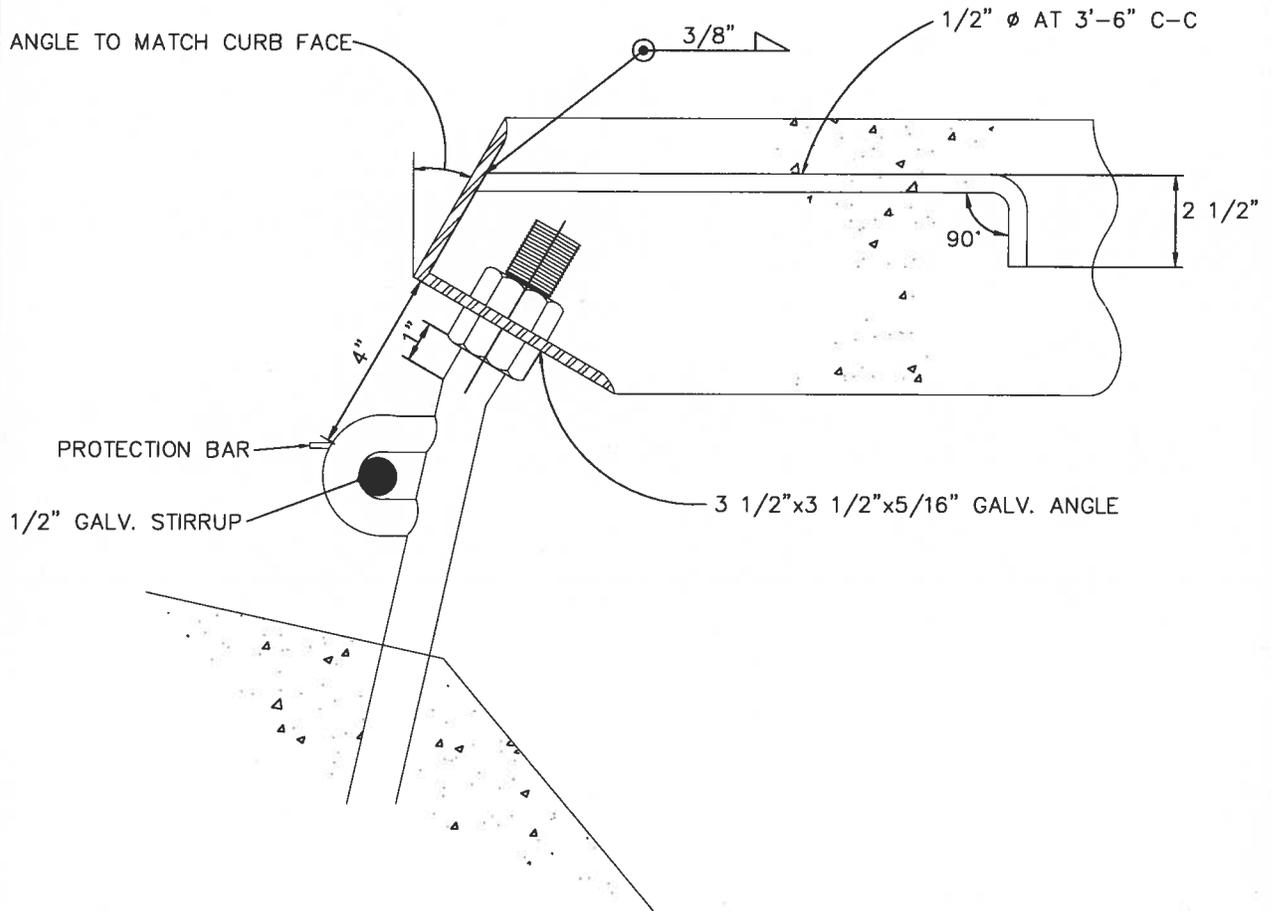
SHEET 1 OF 3

NOTES:

1. ONE EYE BOLT SHALL BE PLACED 12" FROM EACH END OF FACE PLATE.
2. EYE BOLTS SHALL BE SYMMETRICALLY SPACED IN THE CURB OPENING SO THAT THE UNSUPPORTED SPAN IS NOT MORE THAN 4', SUPPORT BOLTS, WHEN USED, SHOULD BE CONSIDERED AS EYE BOLTS IN THE SPACING.
3. ONE COUPLING SHALL BE PLACED 6" TO THE RIGHT OR LEFT OF EACH EYE BOLT WITH THE EXCEPTION OF THE LAST EYE BOLT. COUPLING SHALL BE THREADED TO FACILITATE REMOVAL OF PROTECTION BAR.
4. GALVANIZED STEEL SUPPORT BOLTS SHALL BE INSTALLED WHEN LENGTH OF CURB OPENING EXCEEDS 7'-0" AND SHALL BE SPACED AT NOT MORE THAN 7'-0" O.C. AND NOT LESS THAN 5'-0" O.C.
5. FACE PLATE ANCHORS SHALL BE UNIFORMLY SPACED NOT TO EXCEED 4' BETWEEN CENTERS AND SHALL BE PLACED 4 1/2" FROM EACH END OF THE FACE PLATE. AN ANCHOR SHALL BE PLACED OVER EACH W-BEAM IN A GRATING BASIN.
6. A COUPLING MAY BE OMITTED PROVIDED THE PROTECTION BAR IS REMOVABLE AFTER INSTALLATION.
7. ALL METAL SHALL BE GALVANIZED AFTER FABRICATION.
8. SUPPORT BOLTS, EYE BOLTS, AND ANCHOR BOLTS MAY BE ATTACHED BY A FULL PENETRATION BUTTWELD AS AN ALTERNATE.
9. PLACE A 3/4" ϕ PROTECTION BAR HORIZONTALLY ACROSS THE ENTIRE LENGTH OF THE CURB OPENING.
10. SEE STD. NO. 406c FOR ADDITIONAL MISCELLANEOUS INLET DETAILS AND NOTES
11. CURB SECTION SHALL MATCH ADJACENT CURB TYPE.
12. CURB OPENING SHALL CONFORM TO CURB ALIGNMENT.
13. HEIGHT OF CURB OPENING WILL VARY WITH THE TYPE OF CURB AND THE DEPTH OF THE LOCAL DEPRESSION
14. THE ANGLE AS SHOWN ON STD. NO. 406c DETAIL A SHALL BE ALLOWED ONLY WHEN SHOWN ON APPROVED PLANS.

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REVISIONS	MISCELLANEOUS CURB INLET DETAILS AND NOTES	STD. NO.
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APPROVED 1/14/10		



DETAIL A

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

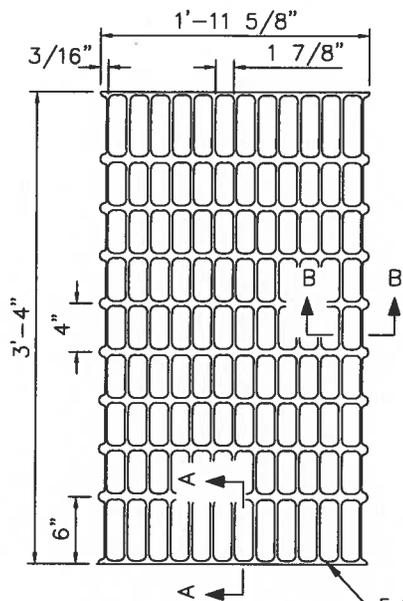
REVISIONS	
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APPROVED 1/14/10	

MISCELLANEOUS CURB INLET
DETAILS AND NOTES

STD. NO.

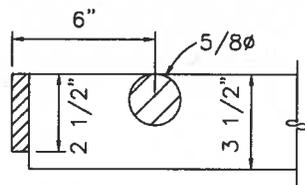
406c

SHEET 3 OF 3



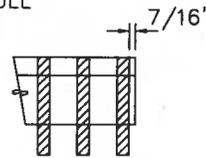
NOTE:

1. BEARING BARS TO BE
3 1/2" x 1/4" BARS
ON 1 7/8" CENTERS
3/8"Ø CROSS BARS RESISTANCE
WELDED OR ELECTROFORGED
TO BEARING BARS
2. WEIGHT OF GRATE 141 lbs
3. USE TYPICAL FRAME AS SHOWN



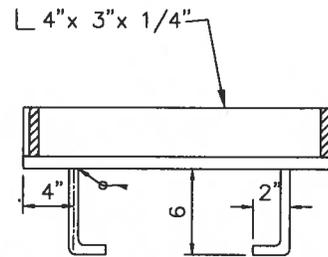
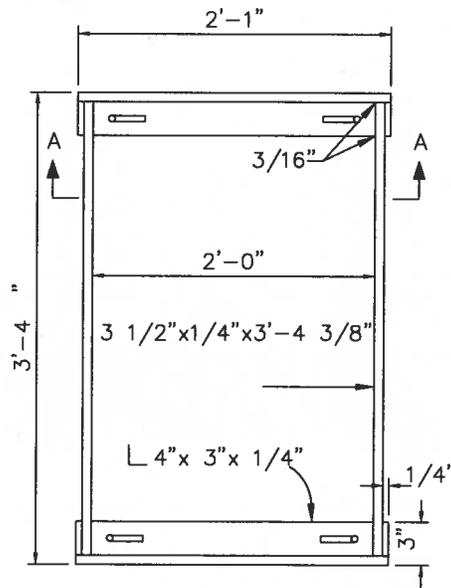
SECTION A-A

5/8 FILLET WELD FULL
DEPTH EACH SIDE
ALL BARS



SECTION B-B

WELDED STEEL GRATE



SECTION A-A
TYPICAL FRAME

GRATE & FRAME DETAILS
(SEE SHEET 2 FOR LOCKING DEVICE)

CITY OF MURRIETA
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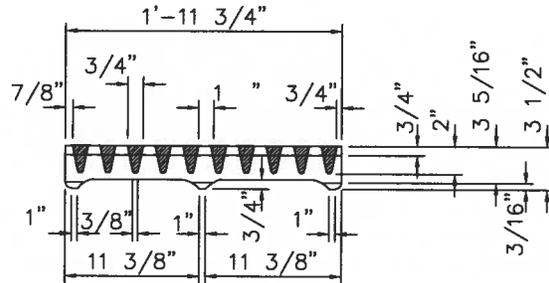
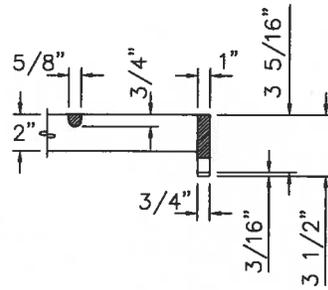
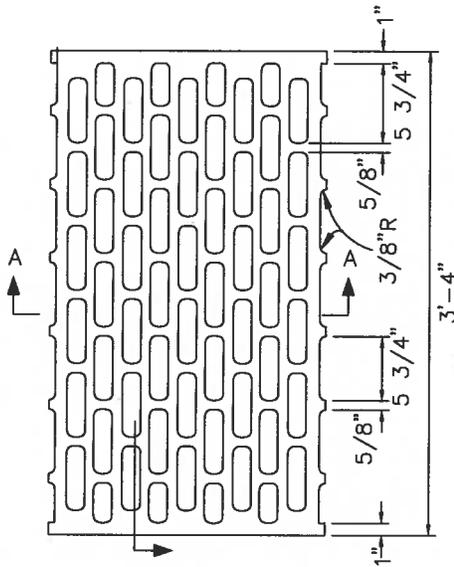
REVISIONS	
5/92	
APPROVED 1/14/10	

MISCELLANEOUS CURB INLET
DETAILS AND NOTES

STD. NO.

407a

SHEET 1 OF 4

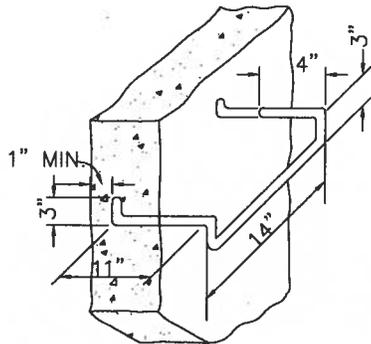


NOTES:

WEIGHT OF GRATE 155 lbs.
USE TYPICAL FRAME AS SHOWN

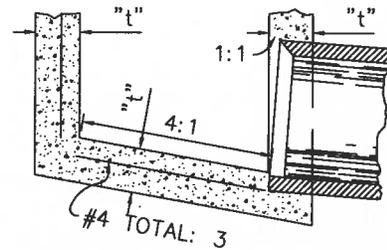
SECTION A-A
CAST NODULAR IRON GRATE

GRATE & FRAME DETAILS
(SEE SHEET 4 FOR LOCKING DEVICE)



STEP DETAIL

GALV. STEEL STEP
(SEE NOTE 7)



ALTERNATE
REINFORCED FLOOR
(SEE NOTE 7)

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MISCELLANEOUS CURB INLET
DETAILS AND NOTES

STD. NO.

407b

SHEET 2 OF 4

NOTES:

1. GRATE AND FRAME SHALL BE GALVANIZED. SEE STANDARD OR SPECIFICATIONS OR SPECIAL PROVISIONS.
2. FOR "t" WALL THICKNESS SEE TABLE ON INLET PLAN.
3. REINFORCING STEEL SHALL BE #4 BARS AT 18 ± CENTERS PLACED 1 1/2" CLEAR TO INSIDE OF BOX UNLESS OTHERWISE SHOWN.
4. STEP—NONE REQUIRED WHERE "H" IS 3'-6" OR LESS. INSTALL ONE STEP 16" ABOVE FLOOR WHEN "H" IS MORE THAN 3'-6" AND LESS THAN 5'-0". WHERE "H" IS MORE THAN 5'-0", STEPS SHALL BE EVENLY SPACED AT 12" INTERVALS FROM 16" ABOVE FLOOR TO WITHIN 6" OF THE TOP OF THE BOX. PLACE STEPS IN WALL WITHOUT PIPE OPENINGS.
5. PIPE(S) CAN BE PLACED IN ANY WALL.
6. EXCEPT FOR INLETS USED AS JUNCTION BOXES, BASIN FLOOR SHALL HAVE A MINIMUM SLOPE OF 4:1 FROM ALL DIRECTIONS TOWARD OUTLET PIPE AND SHALL HAVE A WOODEN TROWEL FINISH.
7. ALTERNATE REINFORCED FLOOR AT THE OPTION OF THE CONTRACTOR.

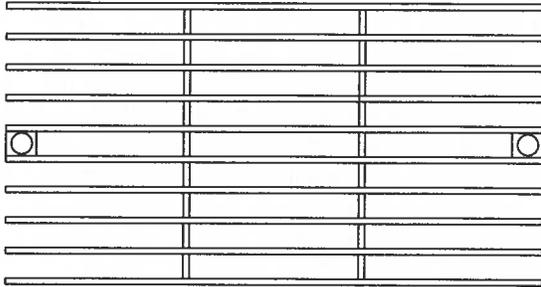
**CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS**

REVISIONS	MISCELLANEOUS CURB INLET DETAILS AND NOTES	STD. NO.
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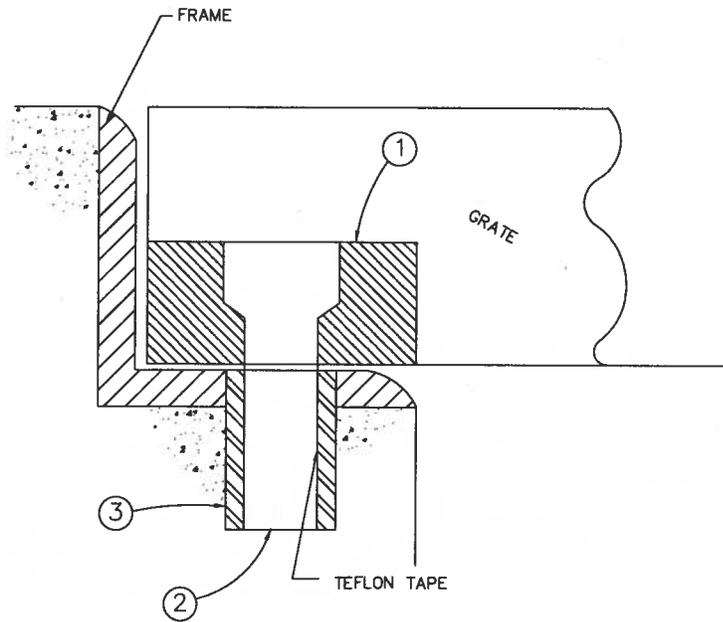
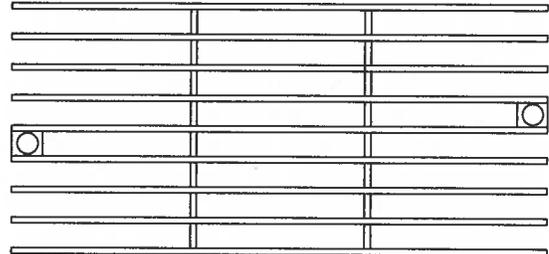
NOTES:

- ① USE 3/4" THICK STEEL BAR. DRILL 1/2" HOLE & COUNTERSINK WITH 3/4" DRILL 3/8" DEEP. WELD TO GRATE. PAINT TO PREVENT RUST.
- ② 1/2" DIA. ALLEN BOLT.
- ③ USE 1/2" CONCRETE ANCHOR OR 1/2" THREADED RECEIVER WELDED TO FRAME.

IF THERE ARE AN EVEN NUMBER OF BARS IN THE GRATE, INSTALL THE HOLD-DOWNS IN THE CENTER SPACE.



IF THERE ARE AN ODD NUMBER OF BARS IN THE GRATE, INSTALL THE HOLD-DOWNS ON OPPOSITE SIDES OF THE CENTER BAR.



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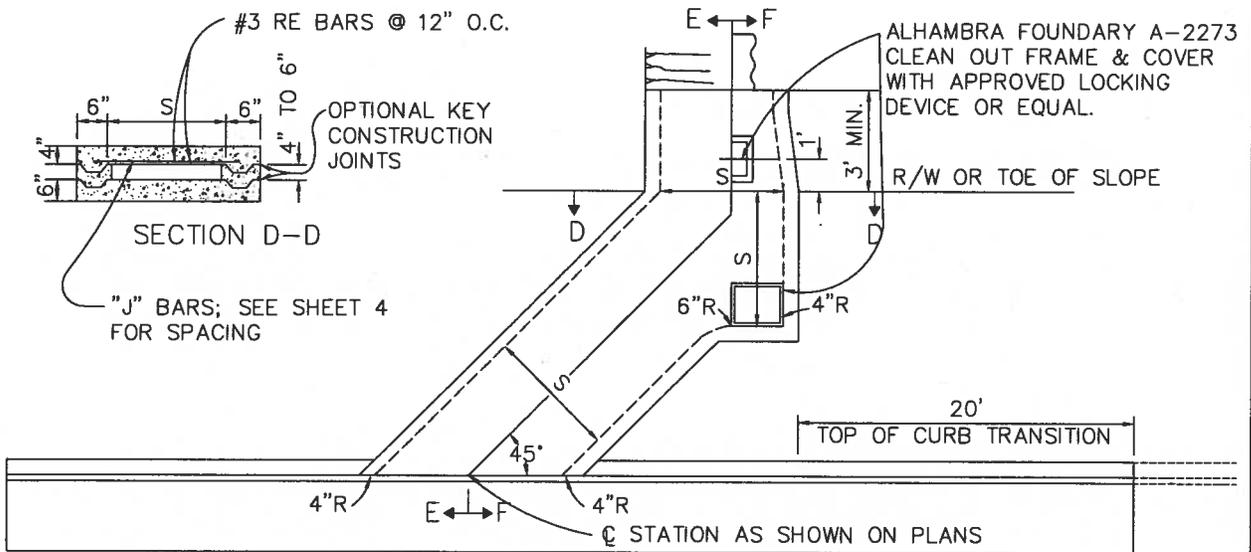
REVISIONS	
5/92	
APPROVED 1/14/10	

MISCELLANEOUS INLET
DETAILS AND NOTES

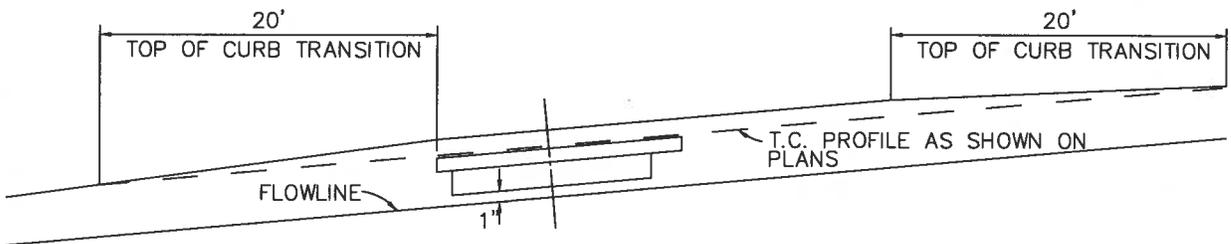
STD. NO.

407d

SHEET 4 OF 4



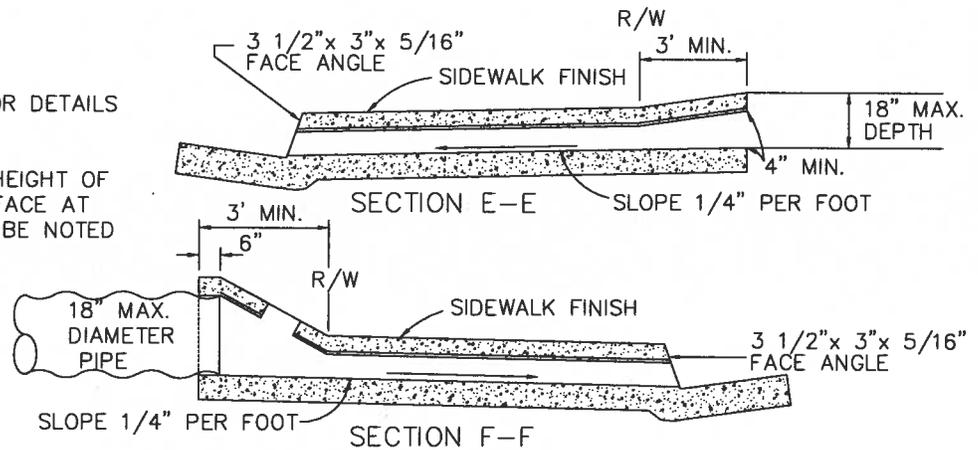
PLAN



PROFILE

NOTES:

1. SEE SHEET 4 FOR DETAILS AND NOTES.
2. SPAN "S" AND HEIGHT OF OPENING CURB FACE AT CULVERT SHALL BE NOTED ON PLANS.



CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

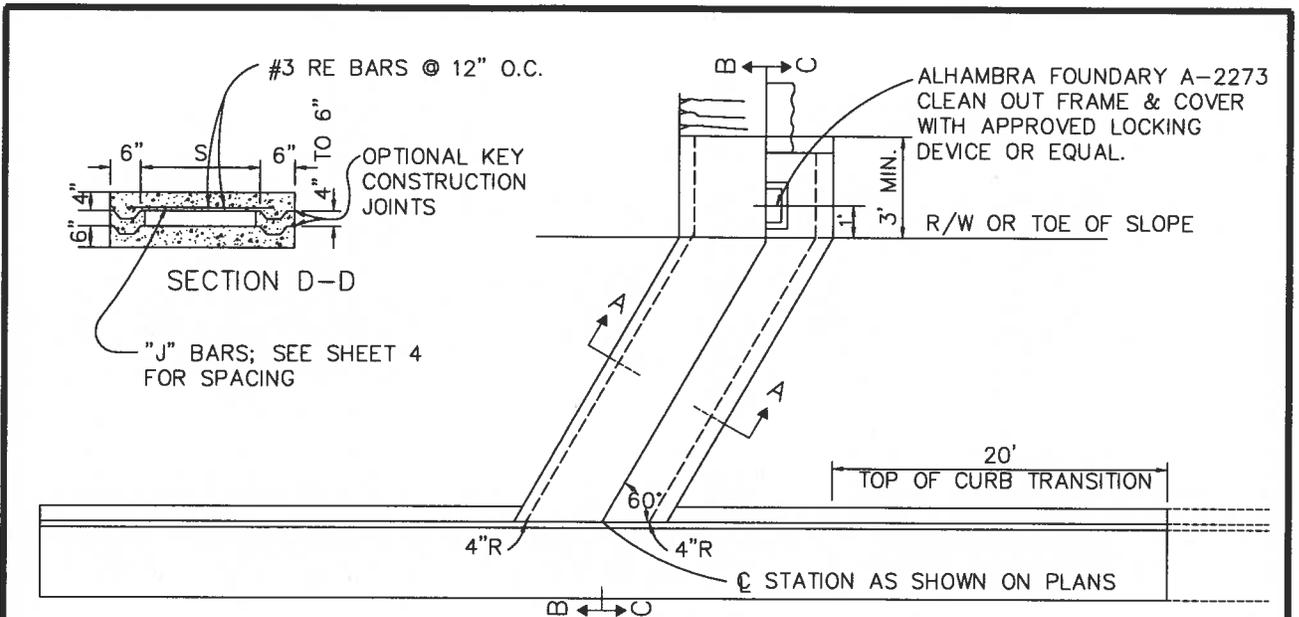
REVISIONS	
5/92	
APPROVED 1/14/10	

PARKWAY CULVERT - TYPE "A"

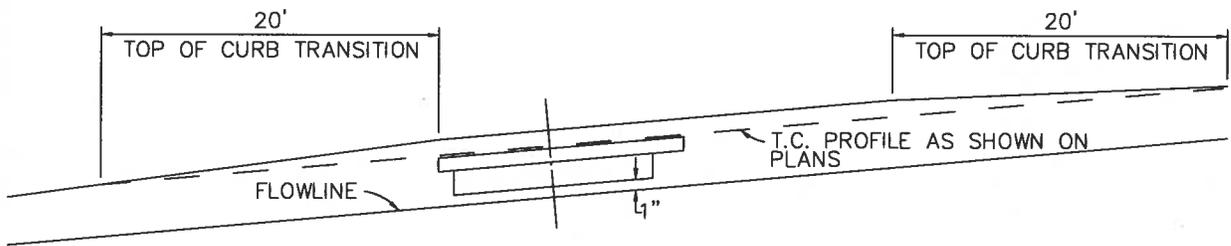
STD. NO.

409a

SHEET 1 OF 5



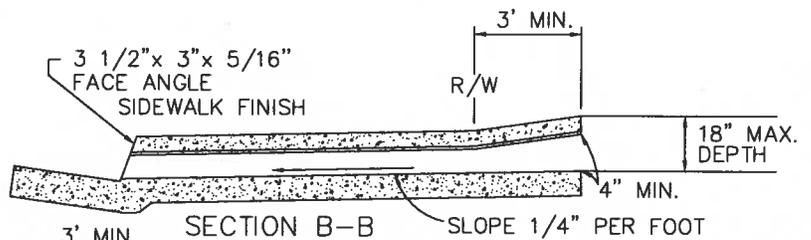
PLAN



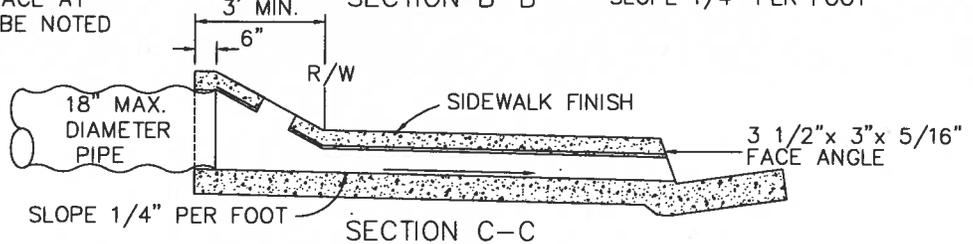
PROFILE

NOTES:

1. SEE SHEET 4 FOR DETAILS AND NOTES.
2. SPAN "S" AND HEIGHT OF OPENING CURB FACE AT CULVERT SHALL BE NOTED ON PLANS.



SECTION B-B



SECTION C-C

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

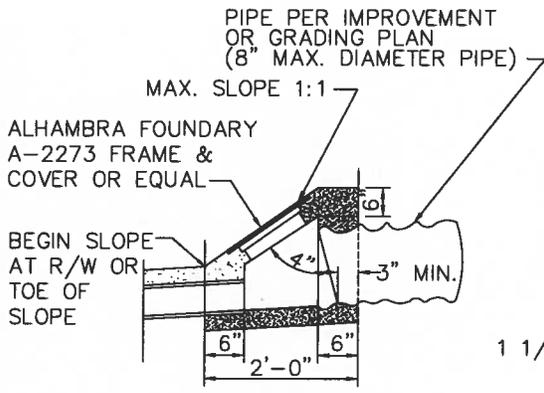
REVISIONS	
5/92	
APPROVED 1/14/10	

PARKWAY CULVERT - TYPE "B"

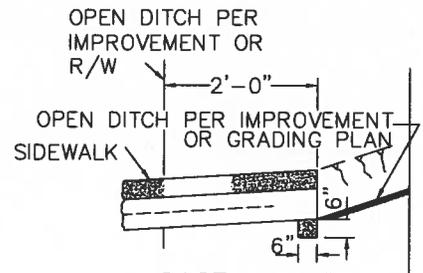
STD. NO.

409b

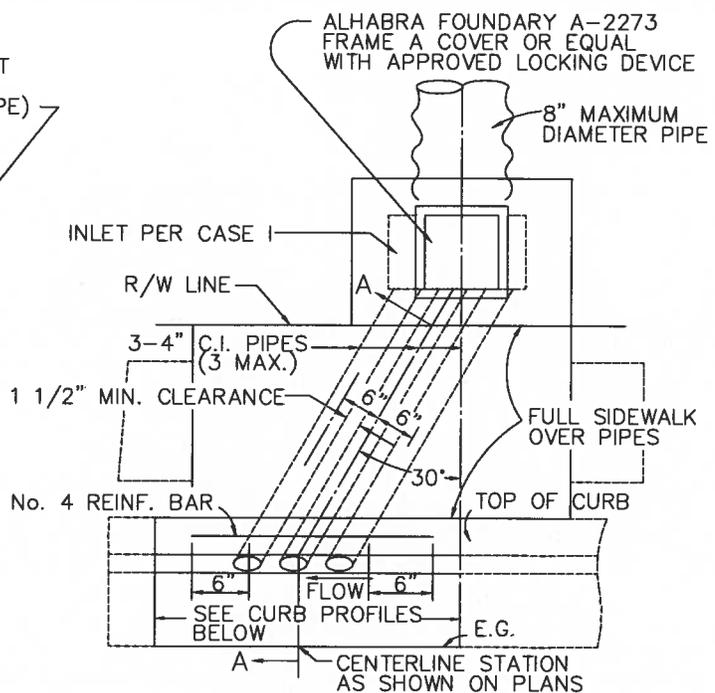
SHEET 2 OF 5



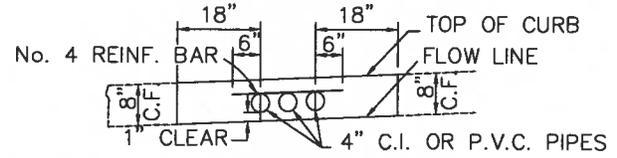
CASE I INLET TRANSITION STRUCTURE SECTION



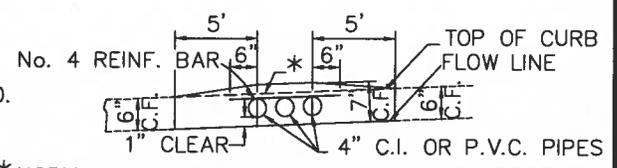
CASE II INLET



PLAN



CURB PROFILE 8" NORMAL CURB FACE

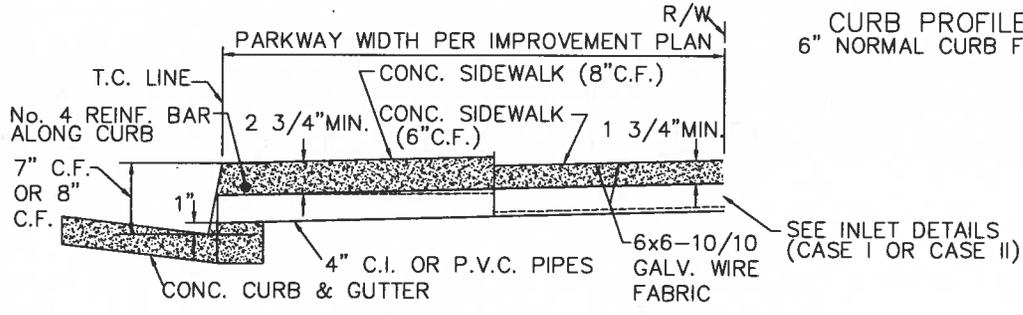


CURB PROFILE 6" NORMAL CURB FACE

NOTES:

1. SEE SHEET 4 FOR DETAILS AND NOTES
2. ASBESTOS-CEMENT PIPE MAY BE SUBSTITUTED AT THE CONTRACTOR'S OPTION OR AS SPECIFIED ON THE PLANS.
3. ALHAMBRA FOUNDRY A-470 RECTANGULAR CAST IRON PIPE MAY BE SUBSTITUTED AT THE CONTRACTOR'S OPTION OR AS SPECIFIED ON THE PLANS.
4. CAST IRON FACILITIES SHALL HAVE A BITUMINOUS COATING CONFORMING TO AASHO DESIGNATION=M190.
5. P.V.C. PIPES SHALL BE SCHEDULE 80.

*NORMAL T C GRADE LINE AS SHOWN ON PROFILE



SECTION A-A

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

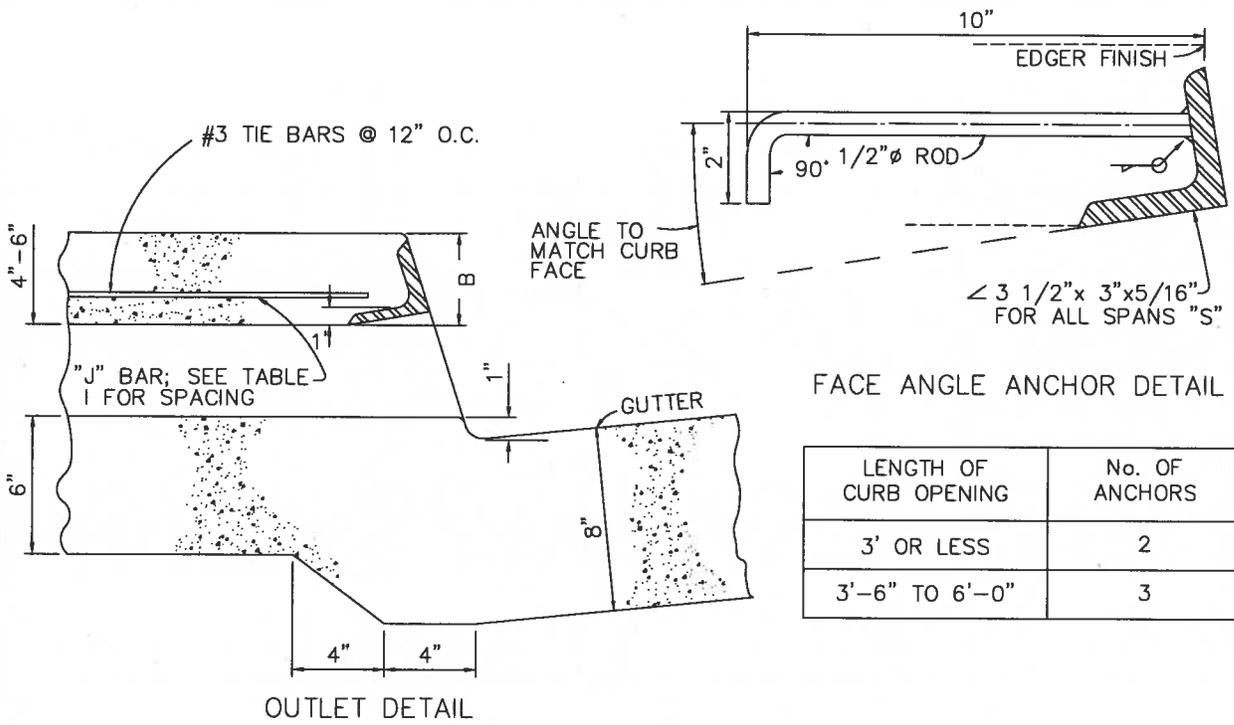
REVISIONS	
5/92	
APPROVED 1/14/10	

PARKWAY CULVERT - TYPE "C"

STD. NO.

409c

SHEET 3 OF 5



LENGTH OF CURB OPENING	No. OF ANCHORS
3' OR LESS	2
3'-6" TO 6'-0"	3

NOTES:

1. USE PARKWAY CULVERT-TYPE "A" WHEN INLET VELOCITIES WILL BE 10 FEET PER SECOND OR GREATER.
2. USE PARKWAY CULVERT-TYPE "B" WHEN INLET VELOCITIES WILL BE LESS THAN 10 FEET PER SECOND.
3. USE PARKWAY CULVERT-TYPE "C" WHEN INLET VELOCITIES ARE LESS THAN 5 FEET PER SECOND.
4. FLOOR OF PARKWAY CULVERT SHALL HAVE A STEEL TROWEL FINISH.
5. ALL EXPOSED METAL SHALL BE GALVANIZED AFTER FABRICATION.
6. HEIGHT OF CURB OPENING FOR TYPES "A" & "B" PARKWAY CULVERTS WILL VARY WITH TYPE OF CURB.
7. SPAN "S" AND HEIGHT OF CURB OPENING WILL BE DETERMINED FROM THE REQUIRED HYDRAULIC CAPACITY AND LIMITED TO THE DIMENSION IN TABLE I.
8. REINFORCING STEEL SHALL BE 1" CLEAR TO INSIDE OF CULVERT UNLESS OTHERWISE SHOWN.

SPAN S	B	STEEL SCHEDULE J-BARS		
		SIZE	SPACING C-C	LENGTH
2'-0"	3"	#3	7"	2'-9"
2'-6"	"	"	"	3'-3"
3'-0"	"	"	"	3'-9"
3'-6"	"	"	6"	4'-3"
4'-0"	"	"	5"	4'-9"
4'-6"	4"	"	6 1/2"	5'-3"
5'-0"	"	"	5"	5'-9"
5'-6"	"	"	4"	6'-3"
6'-0"	"	"	3 1/2"	6'-9"

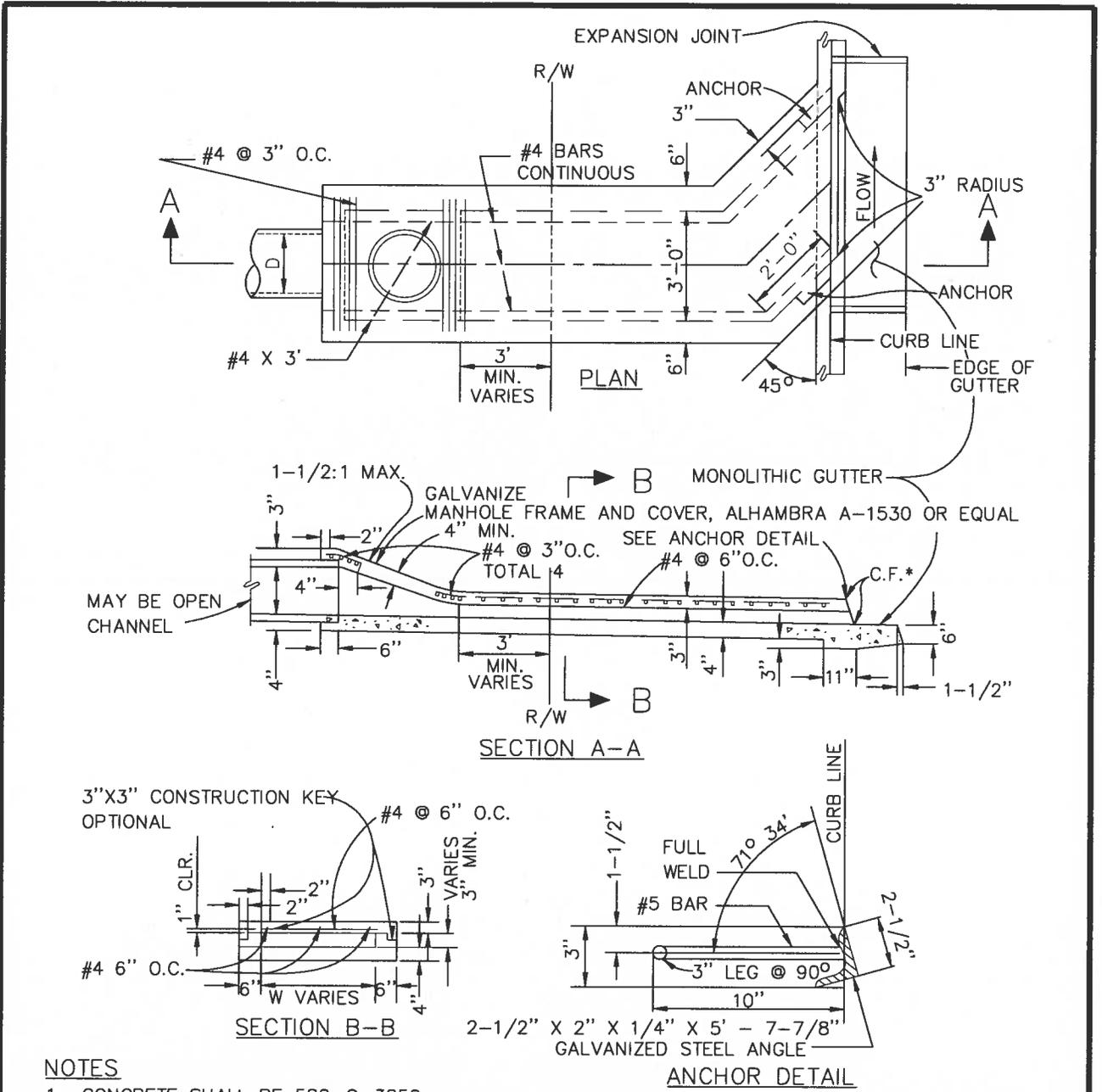
TABLE I

**CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS**

REVISIONS	
5/92	
APPROVED 1/14/10	

**PARKWAY CULVERT
DETAILS AND NOTES**

STD. NO.
409d
SHEET 4 OF 5



NOTES

1. CONCRETE SHALL BE 580-C-3250.
D=INSIDE DIAMETER OF PIPE OR DEPTH OF CHANNEL.
2. SECTION TO BE SLOPED LATERALLY WITH TOP CONFORMING TO THE GRADES OF THE EXISTING SIDEWALK AND CURB.
3. EXISTING SIDEWALK AND CURB.
4. MANHOLE FRAME AND COVER MAY BE DELETED WITH OPEN CHANNEL.
5. TROWEL FINISH TOP SURFACE AND REPRODUCE MARKINGS OF EXISTING SIDEWALK AND CURB.
6. TROWEL FINISH FLOOR OF OUTLET.
7. ELEVATION OF TOP OF CURB PER CURB GRADE LINE. LOWER FLOW LINE IF OPENING IS GREATER THAN 4\".
8. SEE STD. 415b FOR TRANSITION TO DOWN DRAIN OR OPEN CHANNEL.

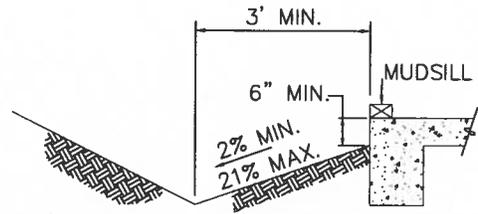
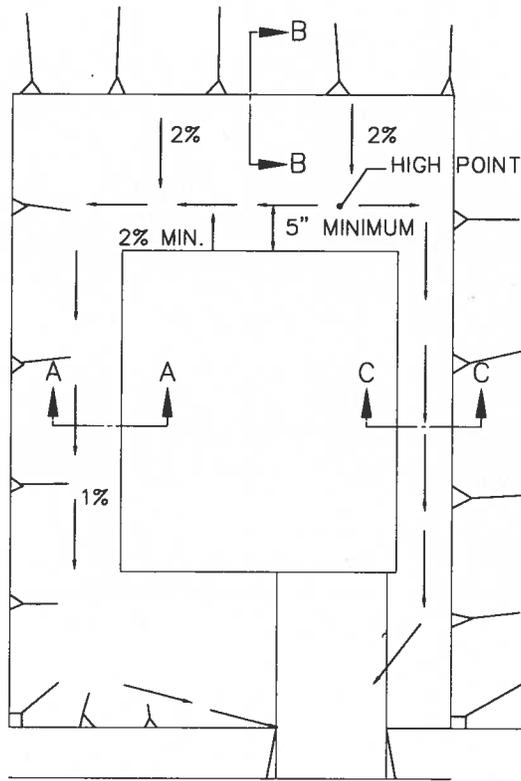
**CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS**

REVISIONS	
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APPROVED 1/14/10	

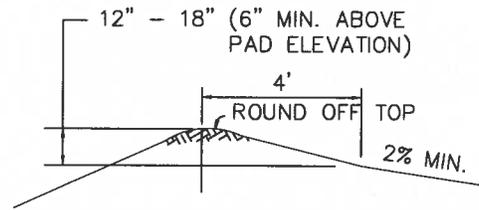
PARKWAY CULVERT - TYPE "D"

STD. NO.

409e

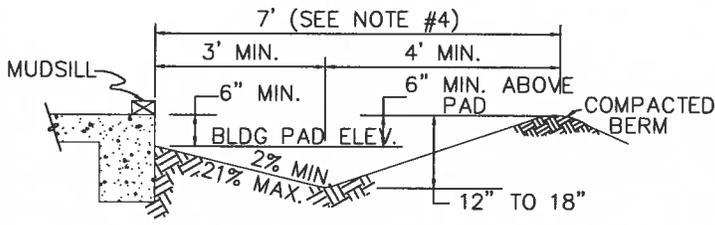


SECTION A-A



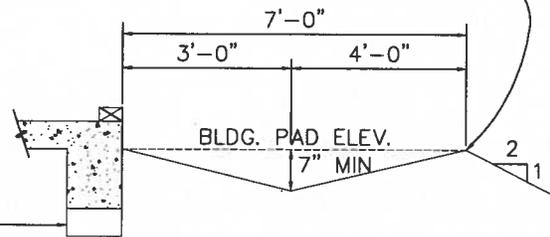
SECTION B-B
TYPICAL BERM DETAIL

PLAN



SECTION C-C

ELEV. MUST BE EQUAL TO BLDG. PAD ELEV. OR HIGHER.



SECTION C-C
ALTERNATE

DEEPEMED FOOTING REQUIRED (SEE SHEET 3 OF 3)

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
10/98	
APPROVED 1/14/10	

HILLSIDE LOT DRAINAGE

STD. NO.

413a

SHEET 1 OF 3

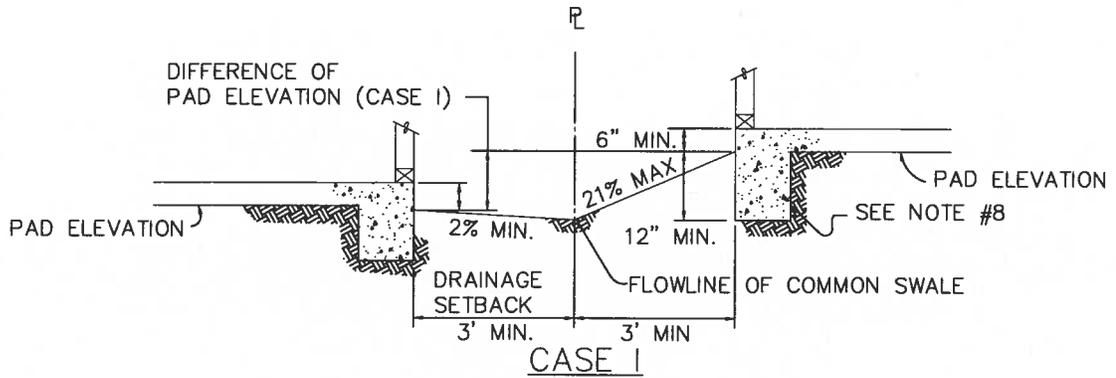
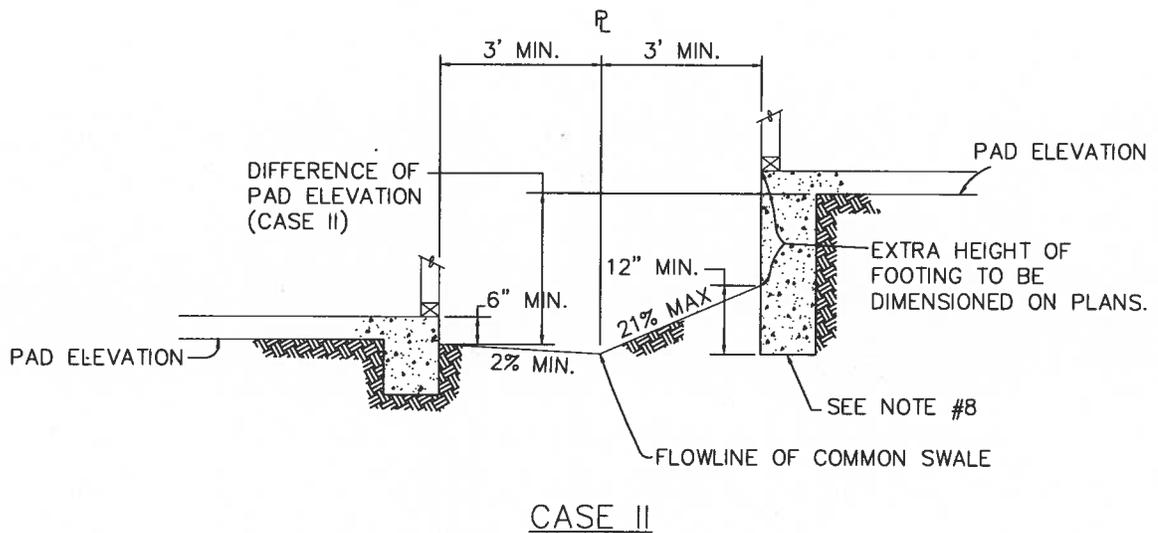


TABLE A
LIMITING
CASE I
CONDITIONS

DRAINAGE SETBACK	MAXIMUM DIFFERENCE OF PAD ELEVATIONS
3'	.6'
4'	.8'
5'	1.0'



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DEPARTMENT OF PUBLIC WORKS

REVISIONS	
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APPROVED 1/14/10	

COMMON SIDEYARD DRAINAGE

STD. NO.

413b

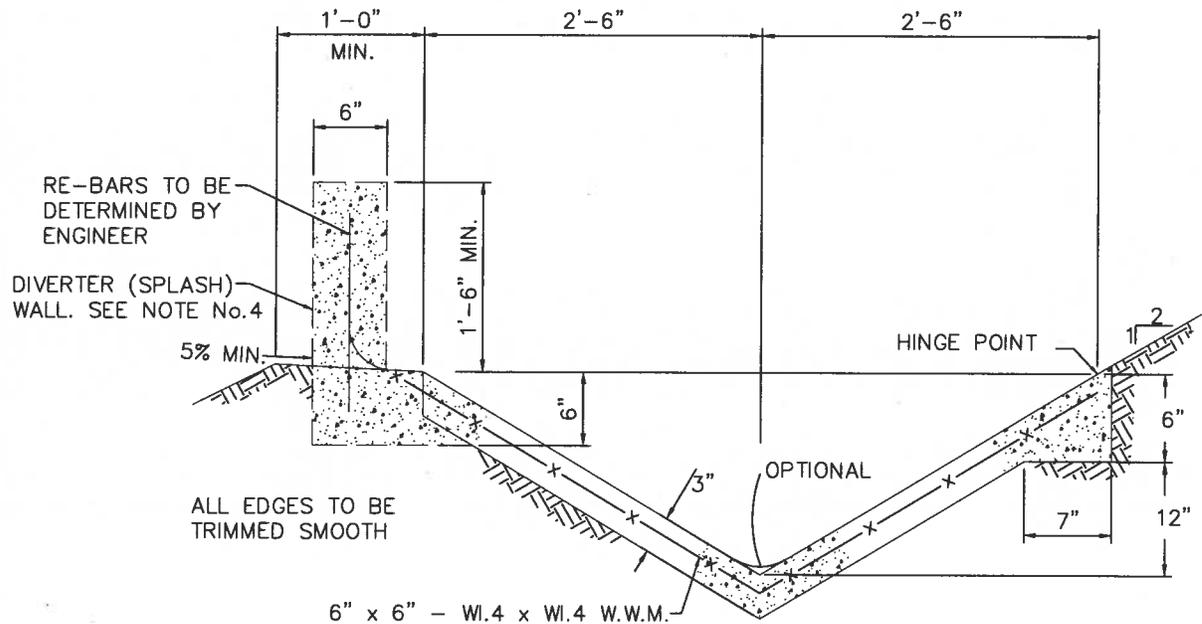
SHEET 2 OF 3

NOTES:

1. SWALES TO BE CUT IN AT 1% AT ROUGH GRADING AND PRIOR TO BUILDING CONSTRUCTION.
2. A PAVED DRAINAGE SWALE, CATCH BASIN AND PIPE, OR OTHER SIMILIAR DRAINAGE DEVICE IS REQUIRED WHEN A STOOP, FIREPLACE, OR PORTION OF THE BUILDING EXTENDS WITHIN THE MINIMUM ESTABLISHED DRAINAGE SETBACKS.
3. A COMMON DRAINAGE SWALE MAY BE USED ALONG SIDEYARD PROPERTY LINES AS SHOWN ON SHEET 2 OF 3. A DRAINAGE EASEMENT SHALL BE PROVIDED.
4. THIS DIMENSION MAY BE REDUCED TO THE REQUIRED MINIMUM SETBACK IN THE GRADING & EXCAVATION CODE IF AN IMPROVED (i.e. CONCRETE) DRAINAGE DEVICE IS USED.
5. ALL BUILDING SETBACKS FROM SLOPES SHALL BE IN ACCORDANCE WITH THE GRADING & EXCAVATION CODE.
6. CASE 1 APPLIES WHEN THE DIFFERENCE IN PAD ELEVATION AND DRAINAGE SETBACK ALLOWS A COMMON DRAINAGE SWALE TO BE CONSTRUCTED IN ACCORDANCE WITH TABLE A.
7. CASE II MAY BE USED WITH A COMMON DRAINAGE SWALE WHEN THE DIFFERENCE OF PAD ELEVATIONS EXCEEDS THE LIMITING CONDITIONS OF TABLE "A" AND THE EXTRA HEIGHT FOOTING IS SHOWN ON THE GRADING AND STRUCTURAL PLANS.
8. IN NO CASE SHALL THE SWALE FLOWLINE BE LOWER THAN THE BOTTOM OF THE FOOTING WITHIN 5' OF THE FOOTING.
9. A COMMON SIDEYARD DRAINAGE SWALE SHALL NOT BE USED WHEN THE DIFFERENCE BETWEEN THE PAD ELEVATIONS EXCEED ONE FOOT.

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DEPARTMENT OF PUBLIC WORKS

REVISIONS	COMMON SIDEYARD DRAINAGE	STD. NO.
5/92		413c
		SHEET 3 OF 3
APPROVED 1/14/10		



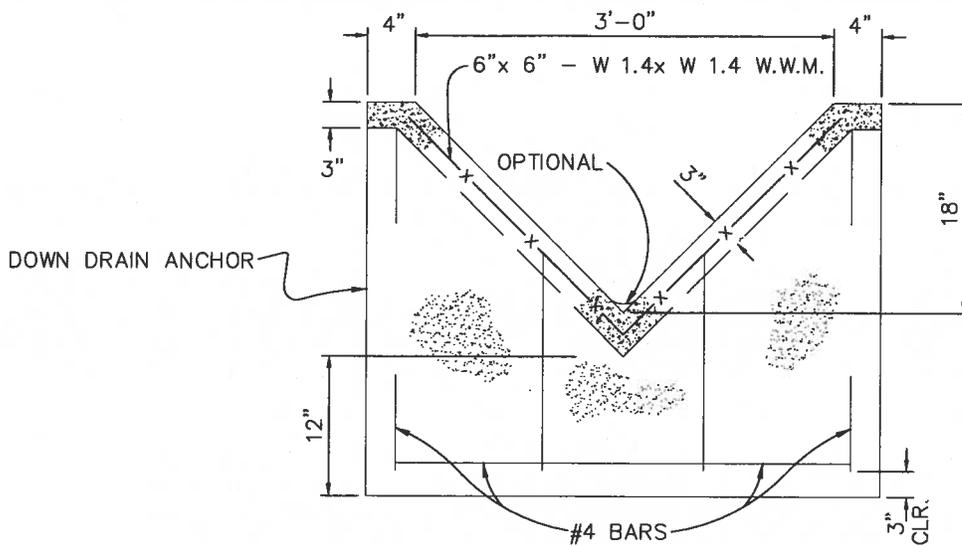
TERRACE DRAIN

NOTES:

1. CONCRETE SHALL BE 560-C-3250. CONCRETE MAY BE PNEUMATICALLY PLACED AND SHALL CONFORM TO SECTION 2621 OF THE UNIFORM BUILDING CODE.
2. REINFORCING SHALL BE 6"x6"-W1.4 x W1.4 WELDED WIRE MESH (W.W.M.) OR APPROVED EQUAL.
3. GROUND SHALL BE PRE-WETTED TO THE SATISFACTION OF THE CITY ENGINEER PRIOR TO PLACEMENT OF CONCRETE. MOISTURE LOSS RETARDANT SHALL BE USED WHEN REQUIRED BY THE CITY ENGINEER.
4. CONCRETE OR CONCRETE BLOCK DIVERTER (SPLASH) WALL TO BE CONSTRUCTED WHEN DOWN DRAIN TERMINATES AT TERRACE DRAIN. SEE PLAN FOR LOCATION AND DETAILS.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

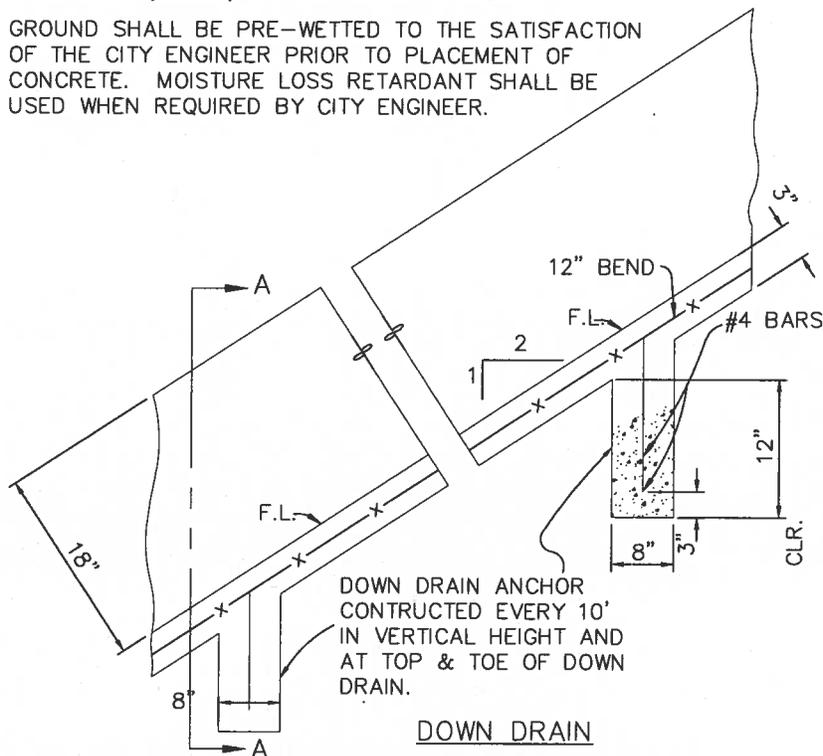
REVISIONS		TERRACE DRAIN	STD. NO.
5/92			415a
			SHEET 1 OF 3
APPROVED 1/14/10			



SECTION A-A

NOTES:

1. CONCRETE SHALL BE 560-C-3250. CONCRETE MAY BE PNEUMATICALLY PLACED AND SHALL CONFORM TO SECTION 2621 OF THE UNIFORM BUILDING CODE.
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CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

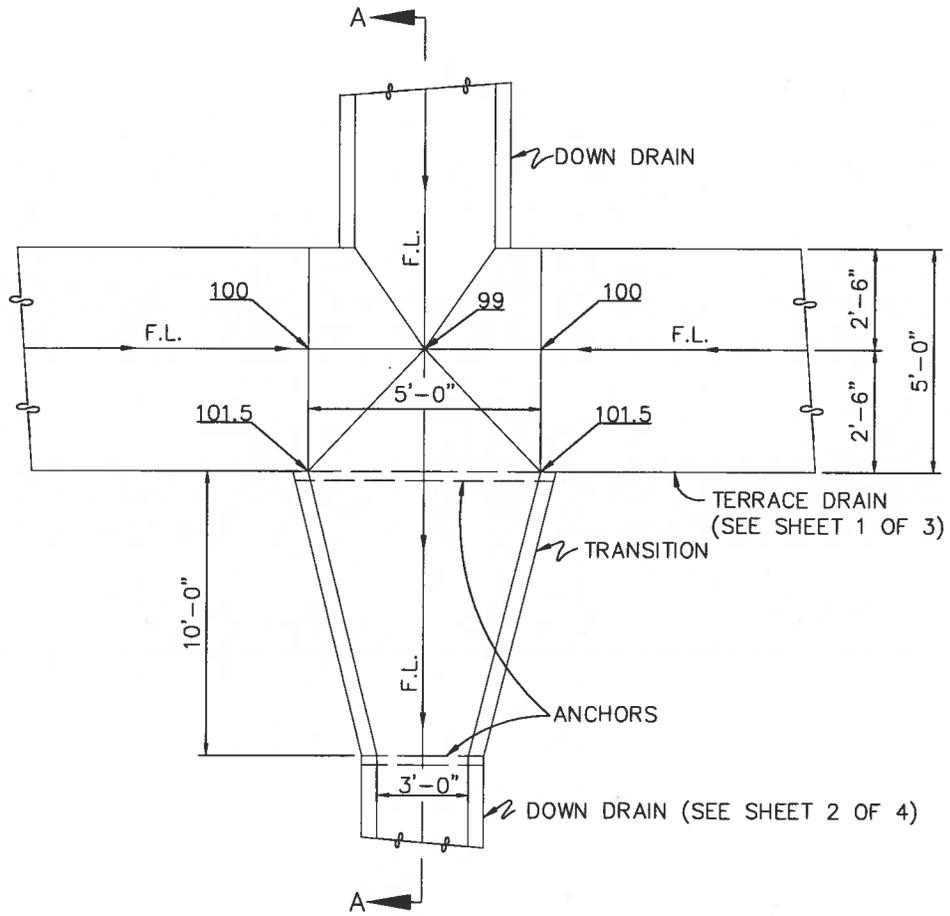
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DOWN DRAIN

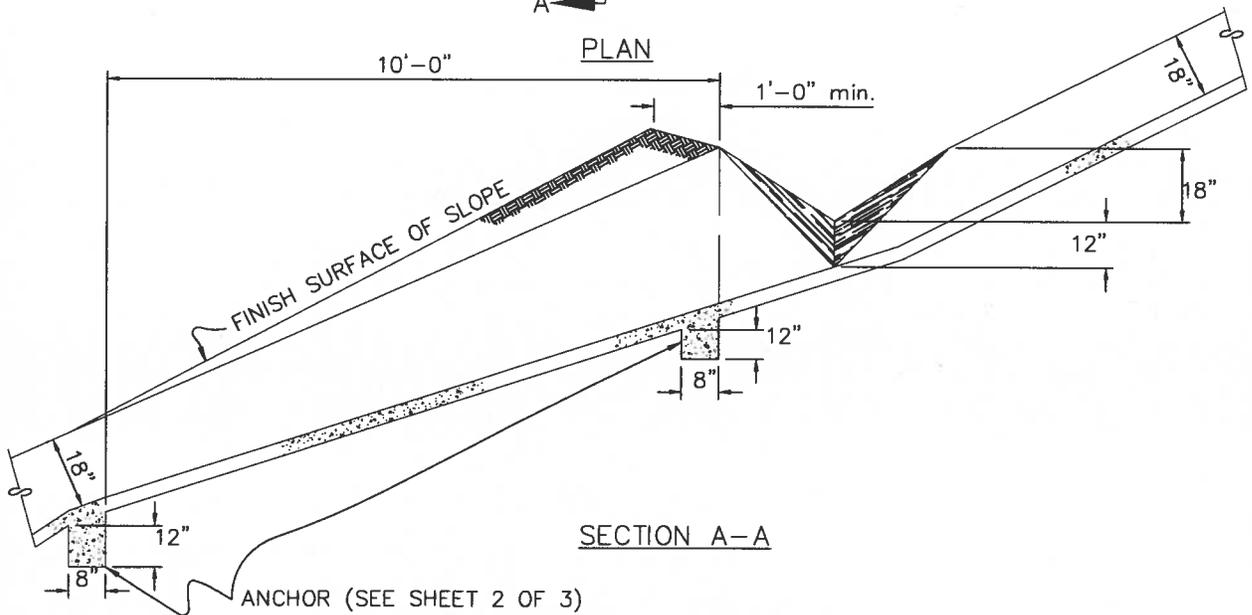
STD. NO.

415b

SHEET 2 OF 3



PLAN



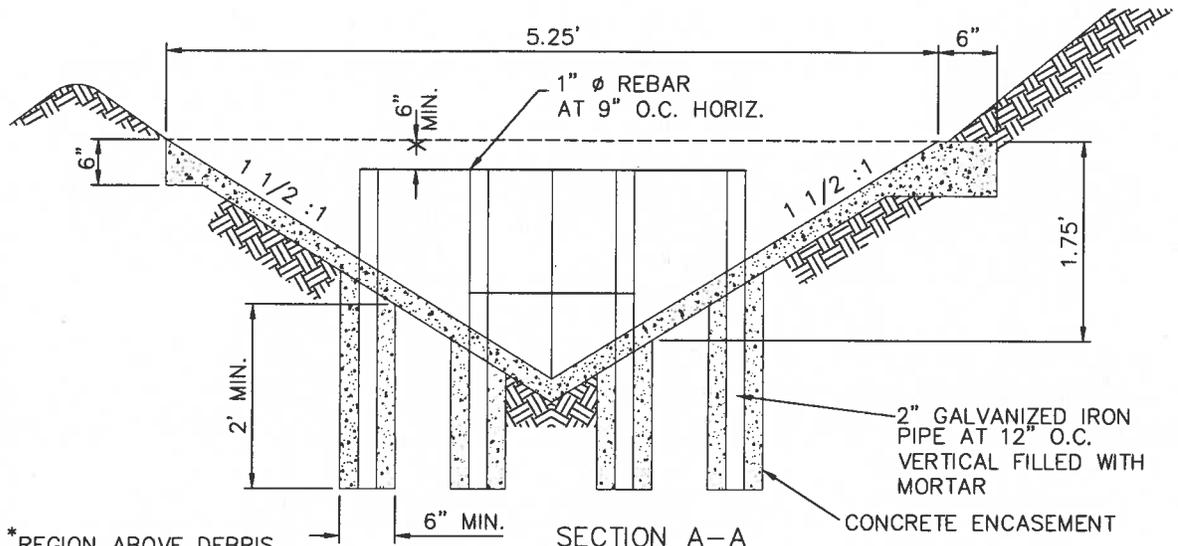
SECTION A-A

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

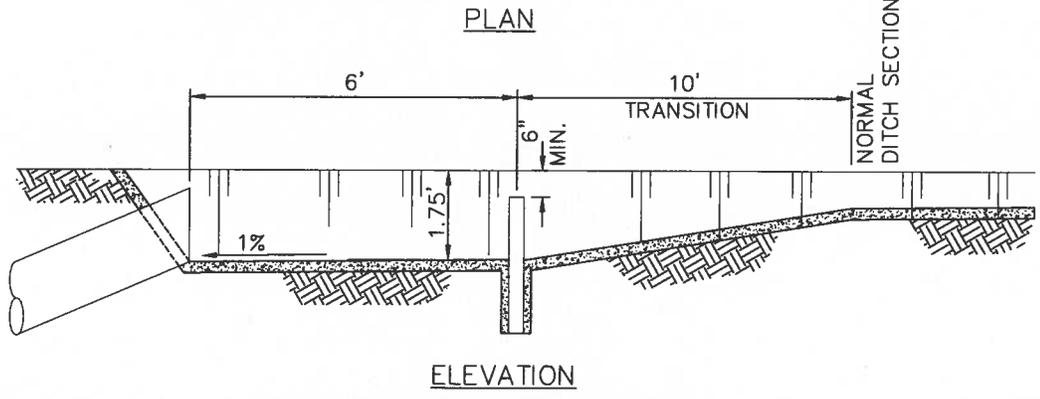
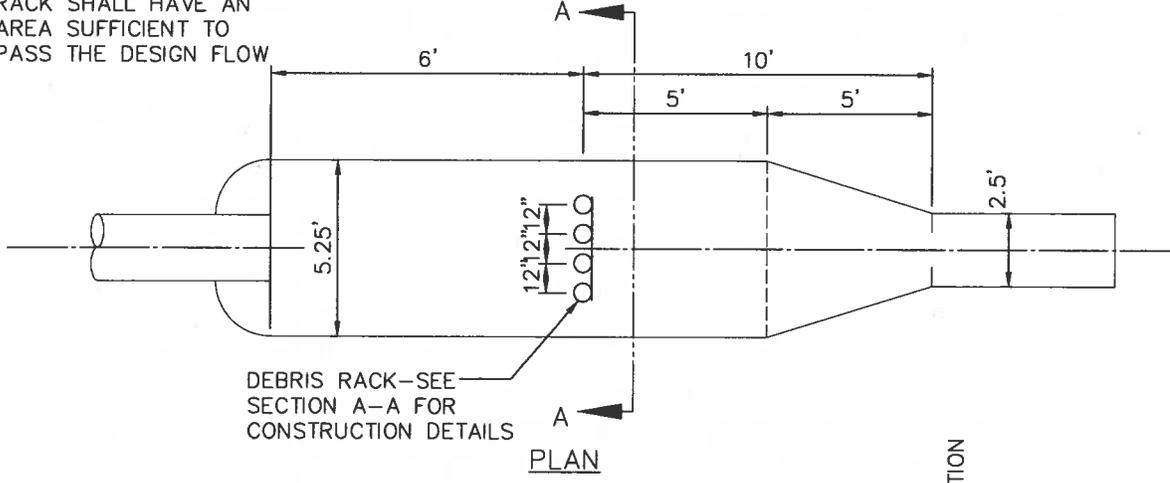
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5/92	
APPROVED 1/14/10	

TERRACE DRAIN AND
DOWN DRAIN INTERSECTION

STD. NO.
415c
 SHEET 3 OF 3



* REGION ABOVE DEBRIS RACK SHALL HAVE AN AREA SUFFICIENT TO PASS THE DESIGN FLOW

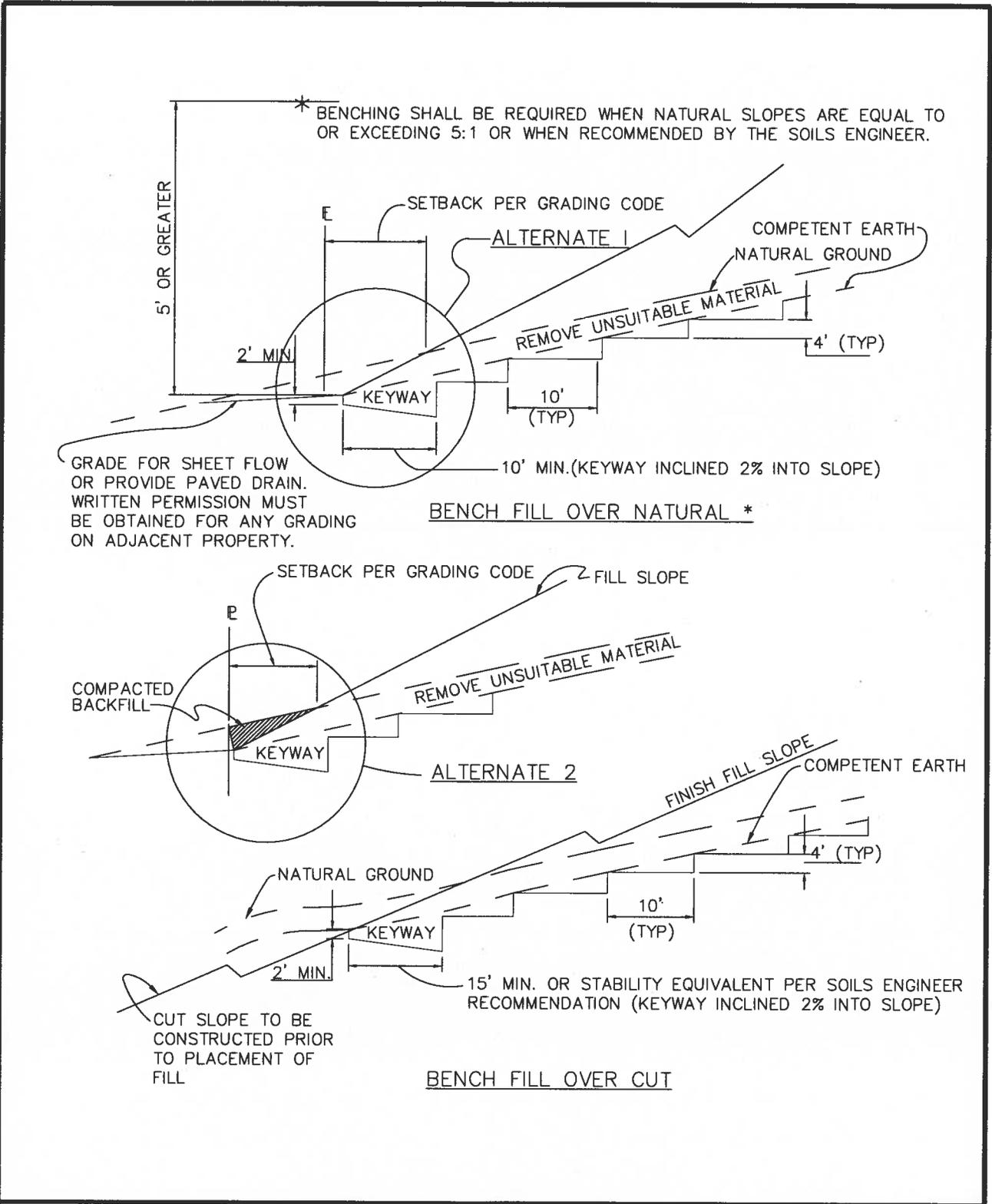


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BROW DITCH DEBRIS RACK

STD. NO.
416

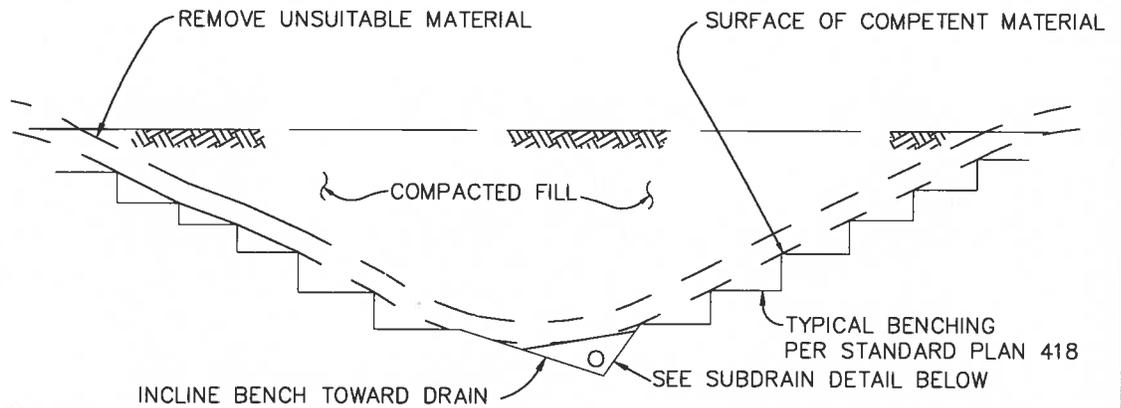


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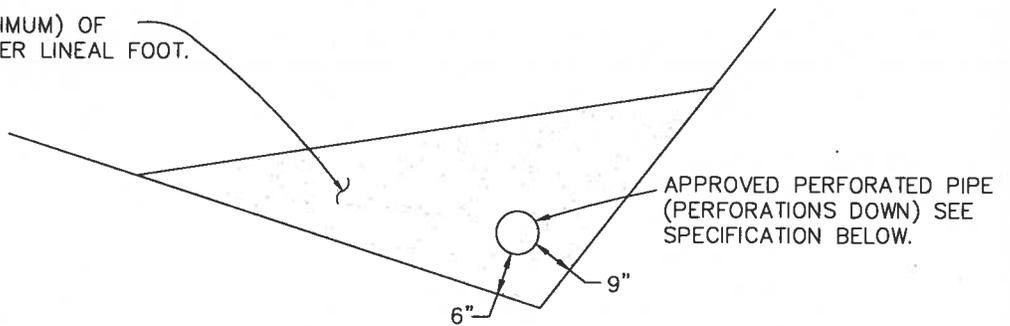
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BENCHING FOR COMPACTED FILL

STD. NO.
418



9 CUBIC FEET (MINIMUM) OF FILTER MATERIAL PER LINEAL FOOT.



SUBDRAIN DETAIL

NOTES:

1. PIPE SPECIFICATION: DRAIN PIPE SHALL BE A MINIMUM OF 4" DIAMETER (6" MINIMUM FOR RUNS OF 500' OR GREATER OR AS RECOMMENDED BY SOILS ENGINEER). PIPE SPECIFICATIONS SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OR AS RECOMMENDED BY THE SOILS ENGINEER AND APPROVED BY THE CITY ENGINEER.
2. FILTER MATERIALS SHALL MEET THE FOLLOWING SPECIFICATIONS OR AS RECOMMENDED BY THE SOILS ENGINEER AND APPROVED BY THE CITY ENGINEER.

<u>SIEVE SIZE</u>	<u>PERCENTAGE PASSING</u>
1"	100
3/4"	90-100
3/8"	40-100
NO.4	25-40
NO.8	18-33
NO.30	5-15
NO.50	0-7
NO.200	0-3

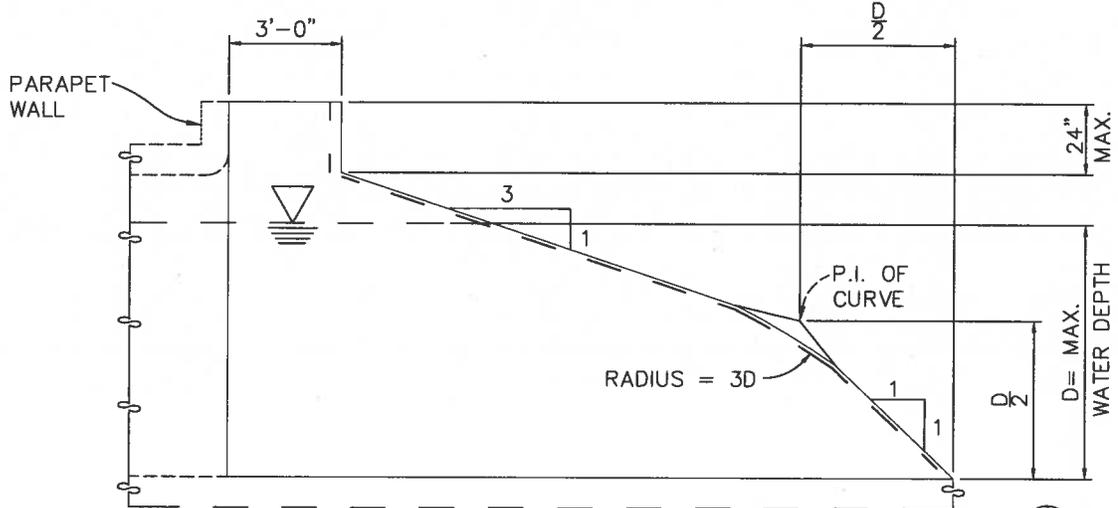
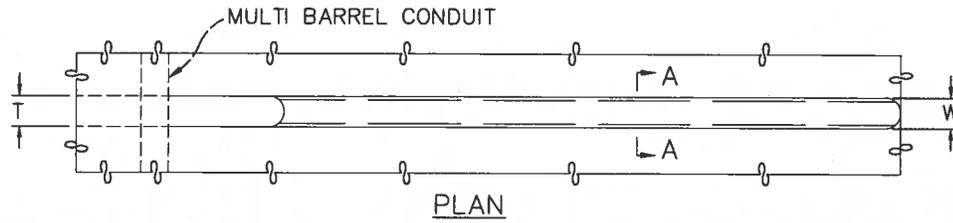
CITY OF MURRIETA
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CANYON SUBDRAIN

STD. NO.

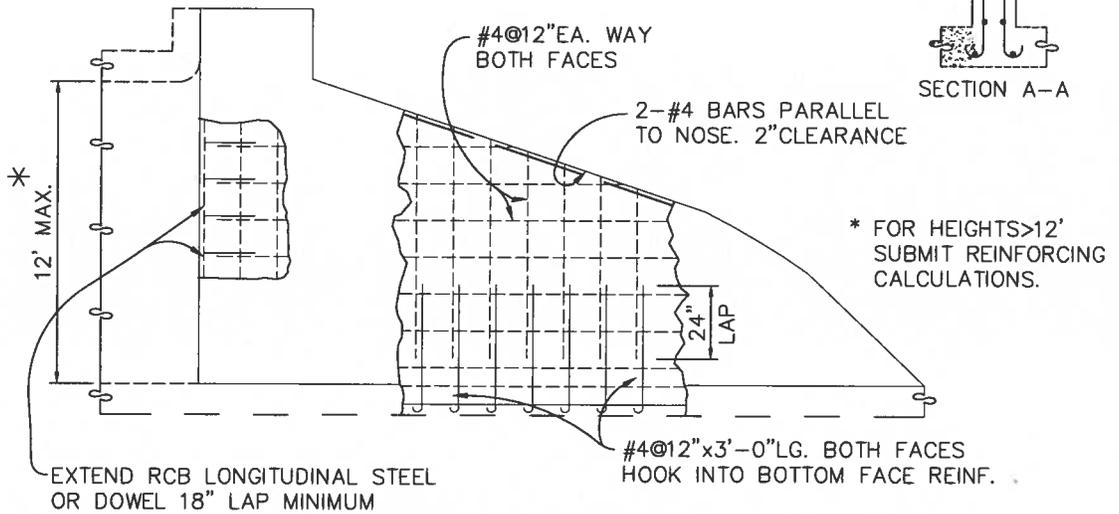
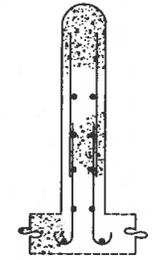
419



T = WALL THICKNESS
 W = DEBRIS WALL THICKNESS

W EQUALS T, IF T ≤ 12"
 W = 12" IF T > 12"

ELEVATION



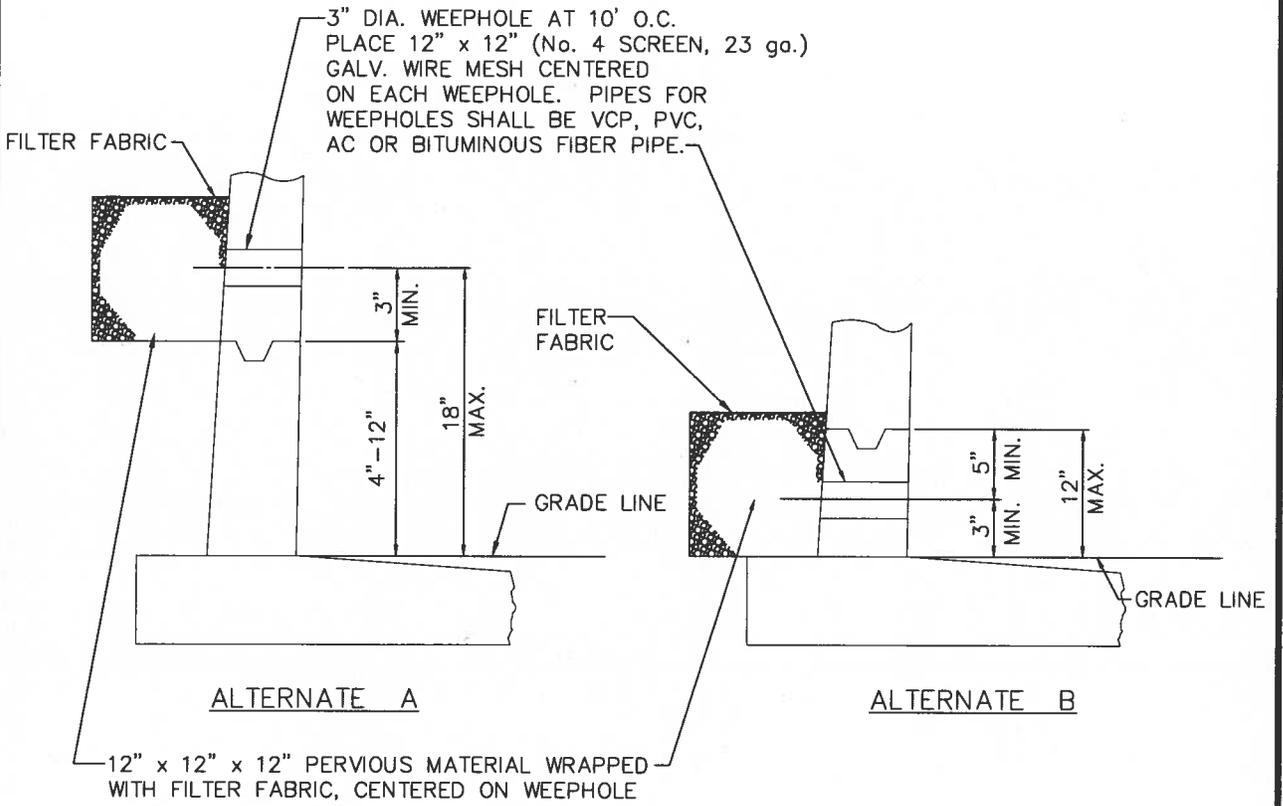
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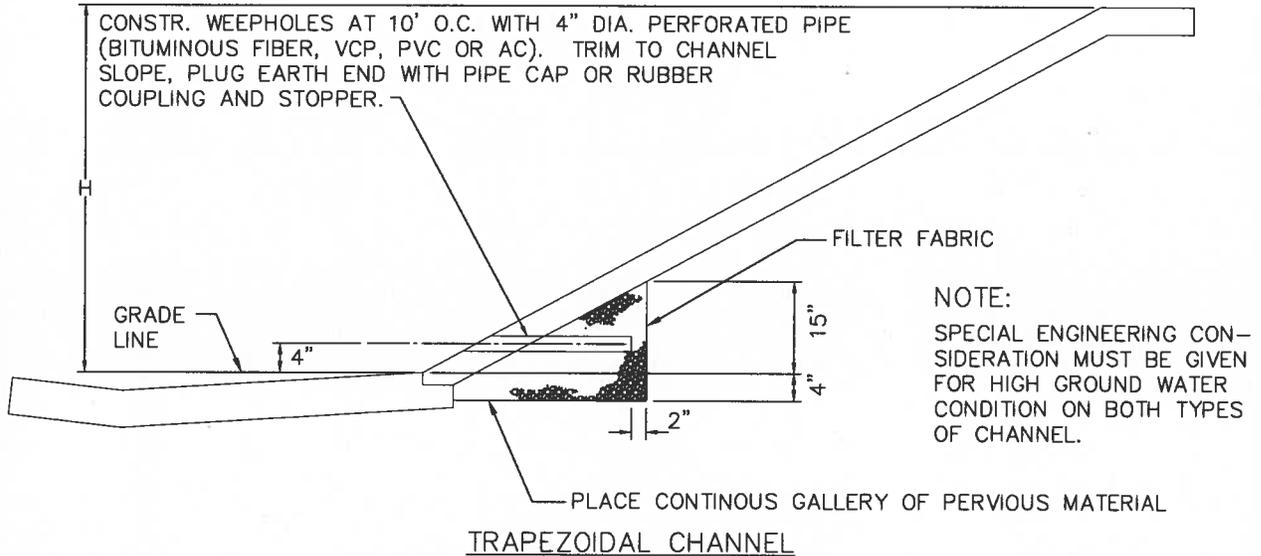
CULVERT DEBRIS WALL

STD. NO.

420



VERTICAL WALL CHANNEL

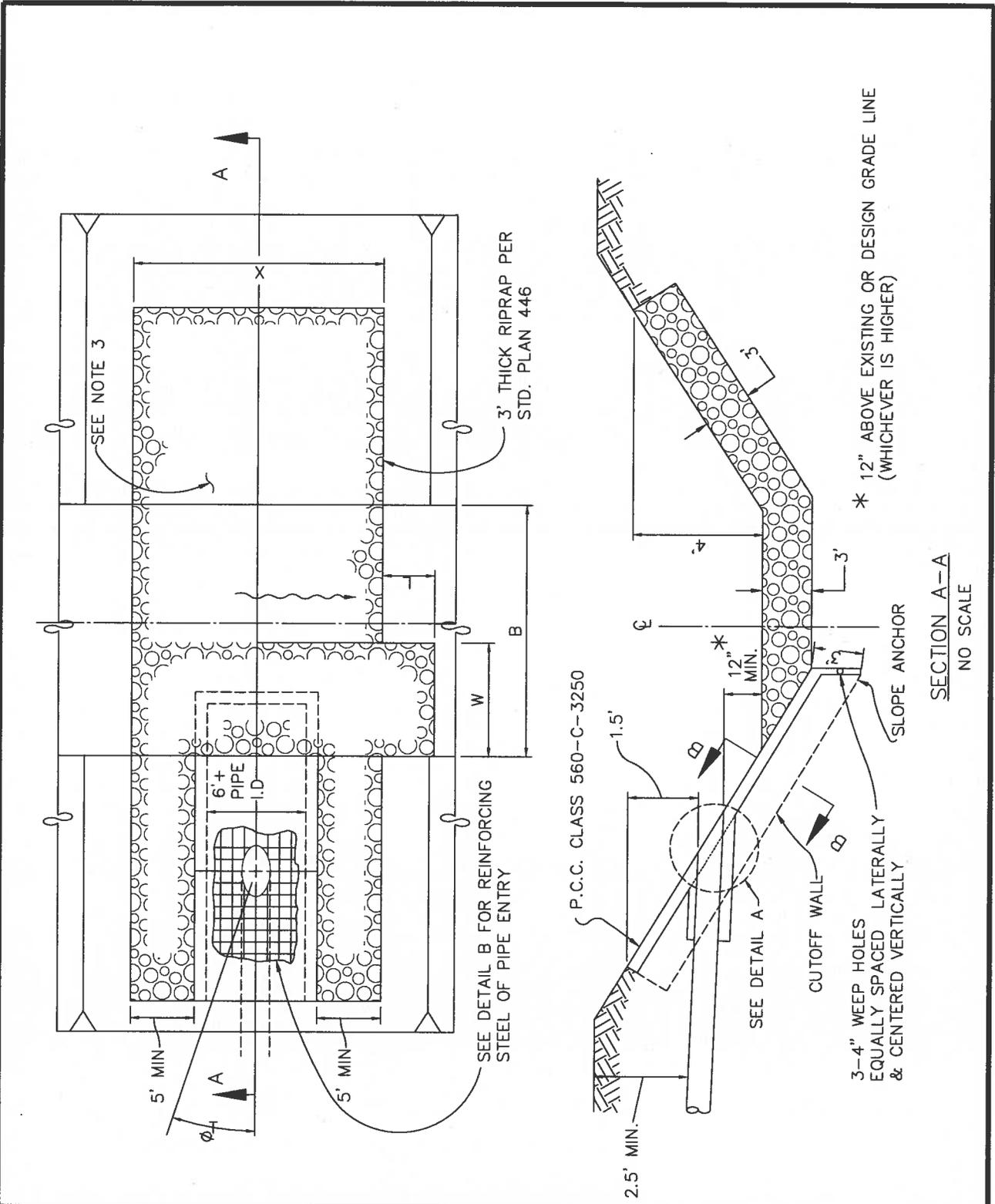


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CHANNEL WEEPHOLES

STD. NO.
421



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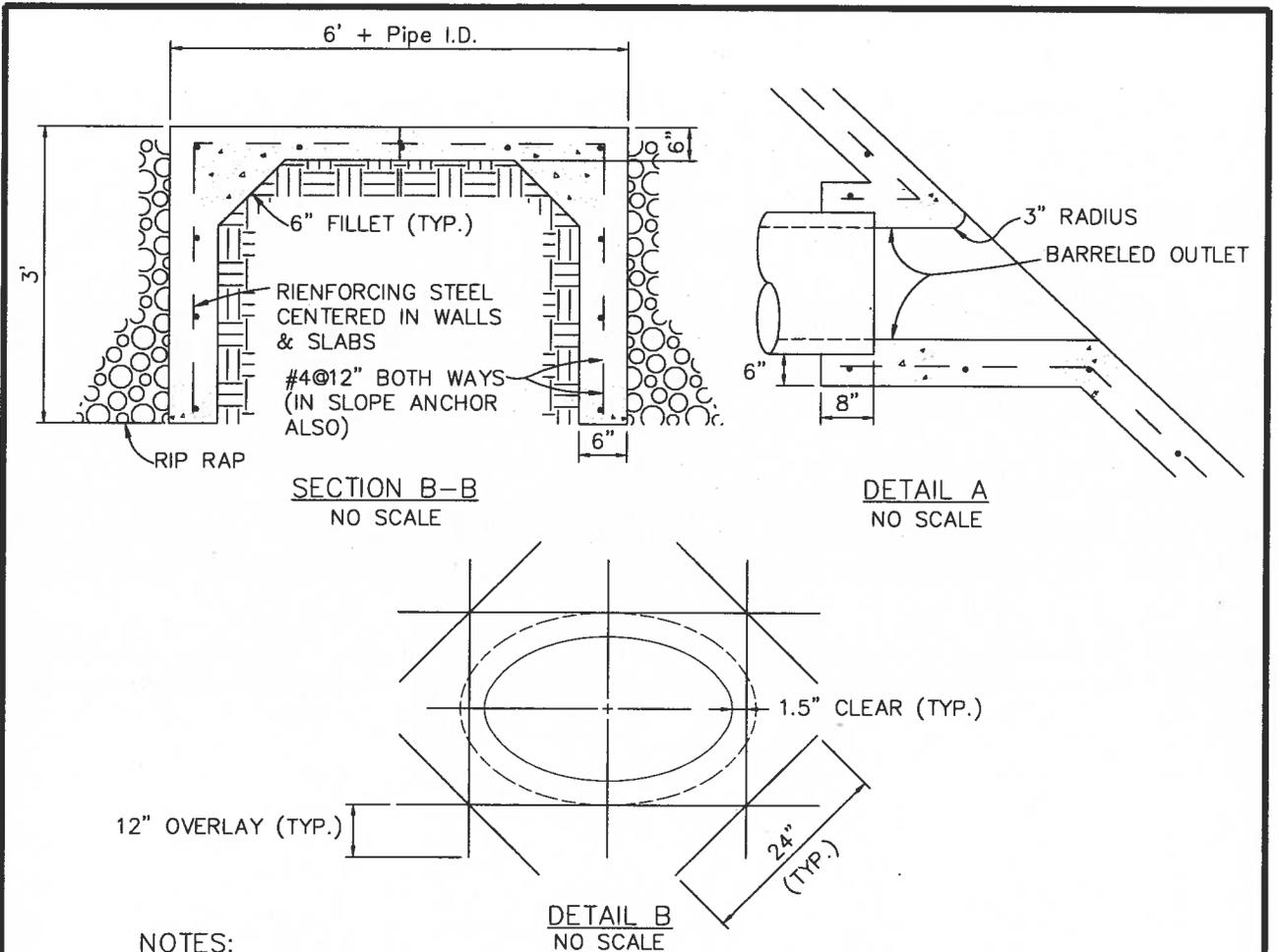
**PIPE ENTRANCE
TO EARTH CHANNEL**

STD. NO.

422a

SHEET 1 OF 2

SECTION A-A
NO SCALE



NOTES:

1. IF LATERAL FLOW EXCEEDS 10% OF THE UPSTREAM FLOW, ANGLE ϕ SHALL BE DETERMINED BY THE HYDRAULICS OF THE CONFLUENCE.
2. MAXIMUM SLIDE SLOPE EQUALS 1.5 TO 1.0.
3. TERMINATE TRANSVERSE DIMENSIONS OF RIPRAP 10 FEET FROM TOE OF SLOPE. IF 10 FEET EXCEEDS 50% OF CHANNEL BASE WIDTH, OR CHANNEL VELOCITY EXCEEDS 10 f.p.s, RIPRAP 'X' FEET WIDE SHALL EXTEND ACROSS INVERT AND 4 FEET UP OPPOSITE SLOPE, PER SECTION A-A.
4. INCREASE DOWNSTREAM LIMIT OF INVERT RIPRAP BLANKET BY 'L' FEET IF LATERAL PIPE'S HORIZONTAL ENTRY ANGLE IS DEFLECTED FROM NORMAL. $L=2 \sin \phi$ (PIPE DIAMETER). IF 'W' EXCEED 50% OF CHANNEL BASE WIDTH, OR CHANNEL VELOCITY EXCEEDS 10 f.p.s., RIPRAP SHALL EXTEND ACROSS ENTIRE INVERT, (MIN. 'W'=10'.)
5. PROVIDE 1.5" STEEL COVER.
6. LATERALS OF 24" OR LESS MAY BE BEVELED PIPE, 27" OR LONGER SHALL BE BARRELED OR DESIGNED STRUCTURE.
7. FINISH EXPOSED SURFACE OF P.C.C. WITH WOOD FLOAT.

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**PIPE ENTRANCE
TO EARTH CHANNEL**

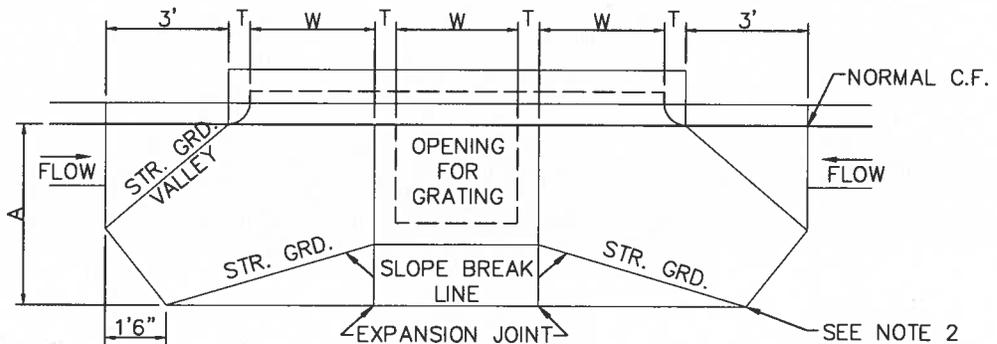
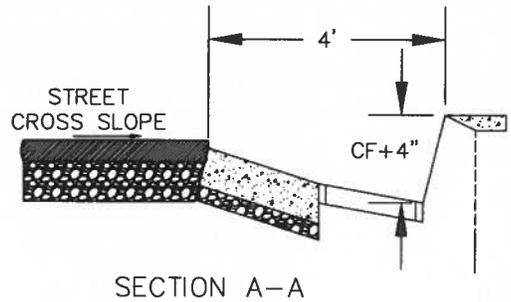
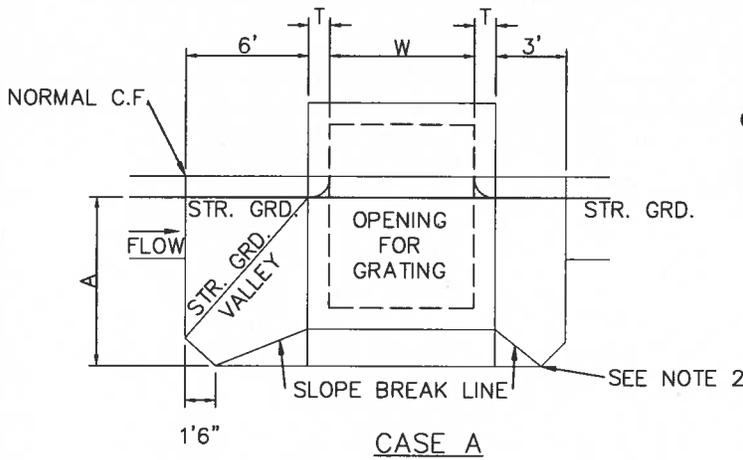
STD. NO.

422b

SHEET 2 OF 2

NOTES

1. GUTTER DEPRESSIONS SHALL BE CASE "A" (CASE "B" FOR SAG).
2. ELEVATIONS AT OUTER CORNERS SHOWN ON THE PROJECT DRAWINGS. IF NO ELEVATIONS ARE SPECIFIED, THE OUTER EDGE OF THE GUTTER DEPRESSION SHALL CONFORM TO THE FINISHED STREET SURFACE.
3. A = 4 FEET UNLESS OTHERWISE SPECIFIED. FOR T AND W, SEE STD 403.
4. WHERE NO CURB EXISTS, CURB SHALL BE CONSTRUCTED BETWEEN ENDS OF GUTTER DEPRESSION. CURB SECTION SHALL CONFORM TO A STD CURB APPROVED BY THE CITY ENGINEER.
5. DEPRESSION SHALL BE CLASS 560-C-3250.
6. LOCAL DEPRESSION SHALL NOT BE CONSTRUCTED UNTIL CONNECTING CURB AND GUTTER HAS BEEN COMPLETED OR SHALL BE CONSTRUCTED MONOLITHICALLY WITH CONNECTING CURB AND GUTTER, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
7. WIDTH OF OPENING "W" SHALL BE SPECIFIED ON PLANS.



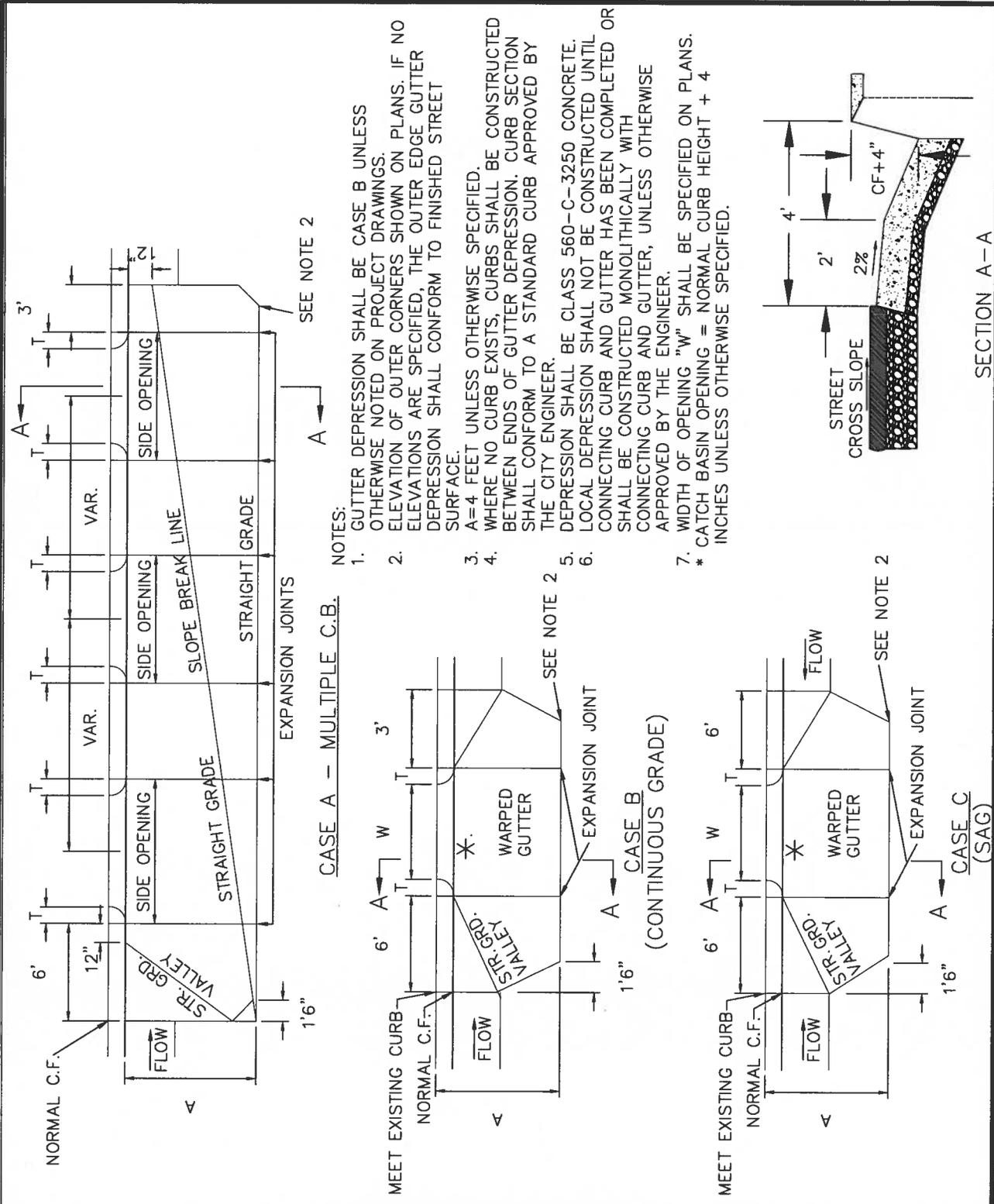
**CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS**

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10/98	
APPROVED 1/14/10	

**GUTTER DEPRESSION FOR
GRATE OPENING CATCH BASIN**

STD. NO.

424



NOTES:

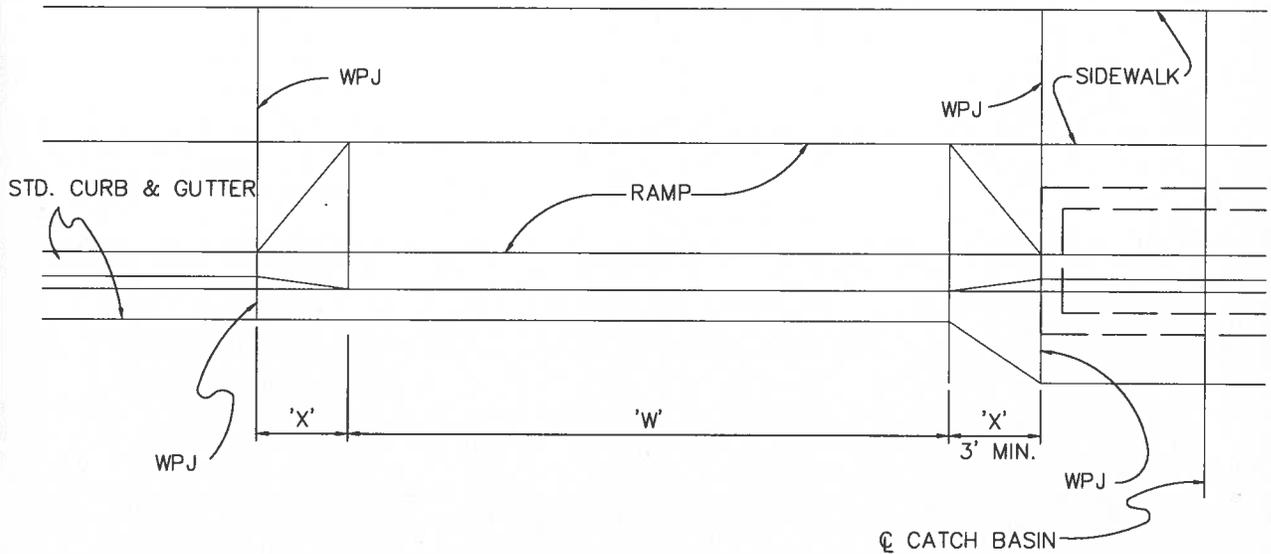
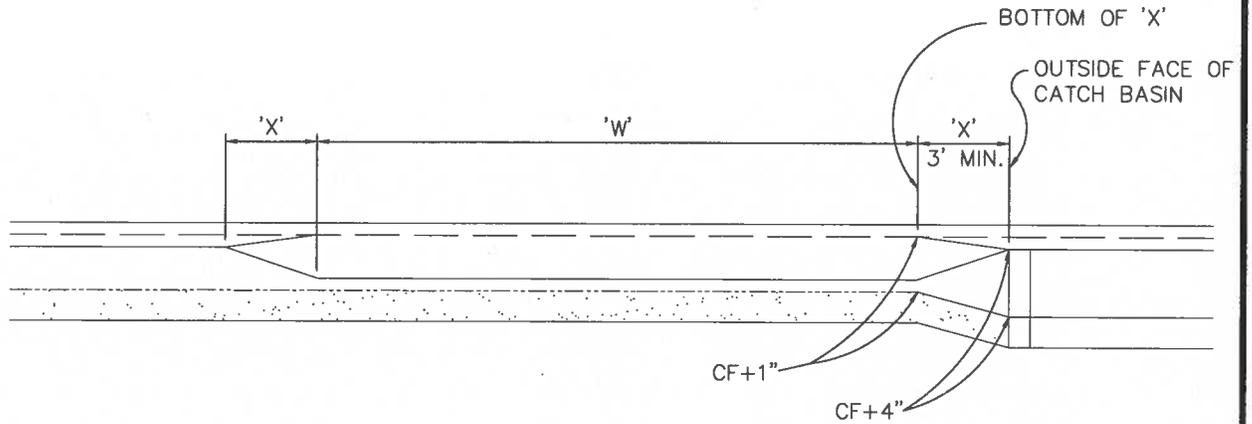
1. GUTTER DEPRESSION SHALL BE CASE B UNLESS OTHERWISE NOTED ON PROJECT DRAWINGS.
2. ELEVATION OF OUTER CORNERS SHOWN ON PLANS. IF NO ELEVATIONS ARE SPECIFIED, THE OUTER EDGE GUTTER DEPRESSION SHALL CONFORM TO FINISHED STREET SURFACE.
3. A=4 FEET UNLESS OTHERWISE SPECIFIED.
4. WHERE NO CURB EXISTS, CURBS SHALL BE CONSTRUCTED BETWEEN ENDS OF GUTTER DEPRESSION. CURB SECTION SHALL CONFORM TO A STANDARD CURB APPROVED BY THE CITY ENGINEER.
5. DEPRESSION SHALL BE CLASS 560-C-3250 CONCRETE. LOCAL DEPRESSION SHALL NOT BE CONSTRUCTED UNTIL CONNECTING CURB AND GUTTER HAS BEEN COMPLETED OR SHALL BE CONSTRUCTED MONOLITHICALLY WITH CONNECTING CURB AND GUTTER, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
6. WIDTH OF OPENING "W" SHALL BE SPECIFIED ON PLANS. * CATCH BASIN OPENING = NORMAL CURB HEIGHT + 4 INCHES UNLESS OTHERWISE SPECIFIED.

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GUTTER DEPRESSION FOR
CURB OPENING CATCH BASIN

STD. NO.
425a
SHEET 1 OF 2



NOTES:

1. TYPE A LOCAL DEPRESSION SHALL BE USED ADJACENT TO DRIVEWAY DEPRESSIONS ONLY.
2. USE OF TYPE A LOCAL DEPRESSION MAY REQUIRE LENGTHENING OF INLET TO PROVIDE ADEQUATE HYDRAULIC CAPACITY.
3. SEE STD 425a FOR ADDITIONAL NOTES AND DETAILS FOR LOCAL DEPRESSION.

CITY OF MURRIETA
DEPARTMENT OF DEVELOPMENT SERVICES

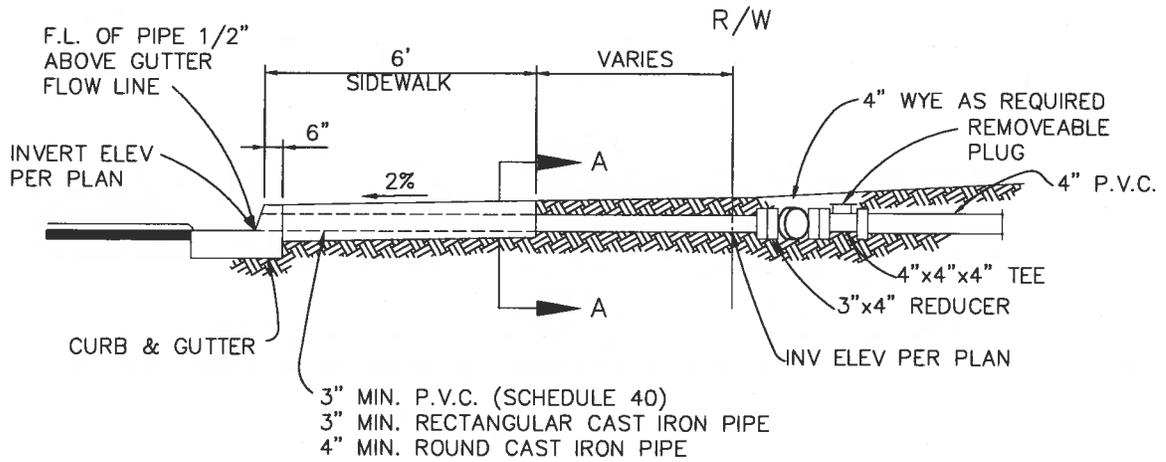
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5/92	
10/98	
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LOCAL DEPRESSION TYPE A
(ADJACENT TO DRIVEWAY)

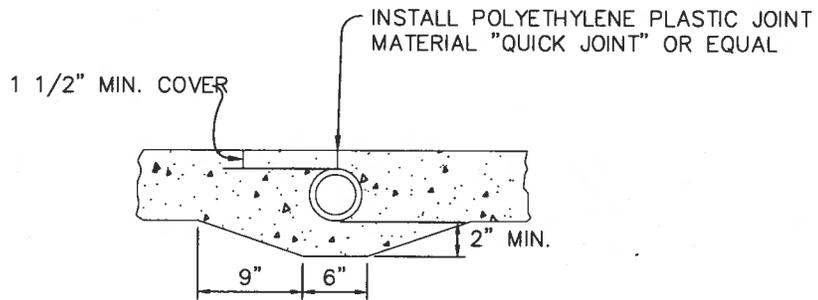
STD. NO.

425b

SHEET 2 OF 2



ELEVATION



SECTION A-A

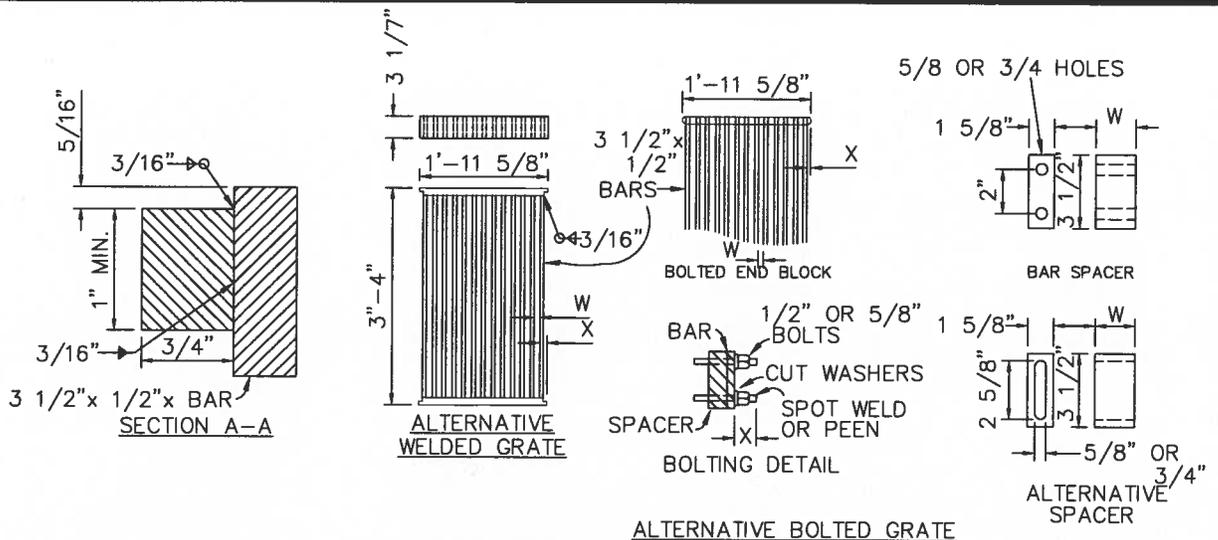
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PRIVATE DRAIN
THROUGH CURB

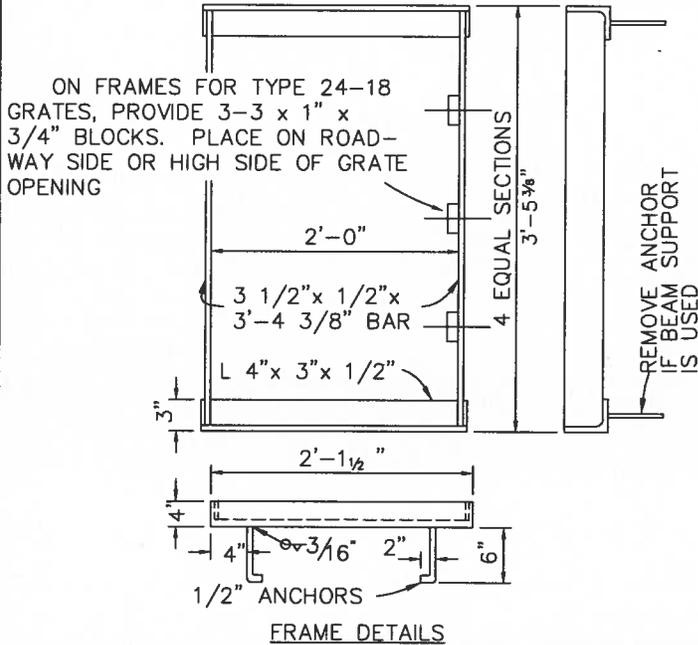
STD. NO.

426



GRATE DETAILS
(SEE TABLE BELOW)

TYPE	NO	"W"	"X"	USAGE
24-9	9	2"	1 9/16"	USE IN LOCATIONS OFF THE ROADBED ON ALL TYPES OF HIGHWAYS
24-12	12	1 3/8"	1 1/4"	USE WITHIN THE ROADBED ON HIGHWAYS WHERE BICYCLES AND PEDESTRIANS ARE EXCLUDED - OR FOR RURAL CONDITIONS
24-18	18	3/4"	1 1/15"	USE WITHIN THE ROADBED UNDER URBAN CONDITIONS WHERE BICYCLES AND PEDESTRIANS ARE PERMITTED



WEIGHTS		
TYPE	WELDED	BOLTED
24-9	200	230
24-12	258	286
24-18	372	400
24" FRAME	90	

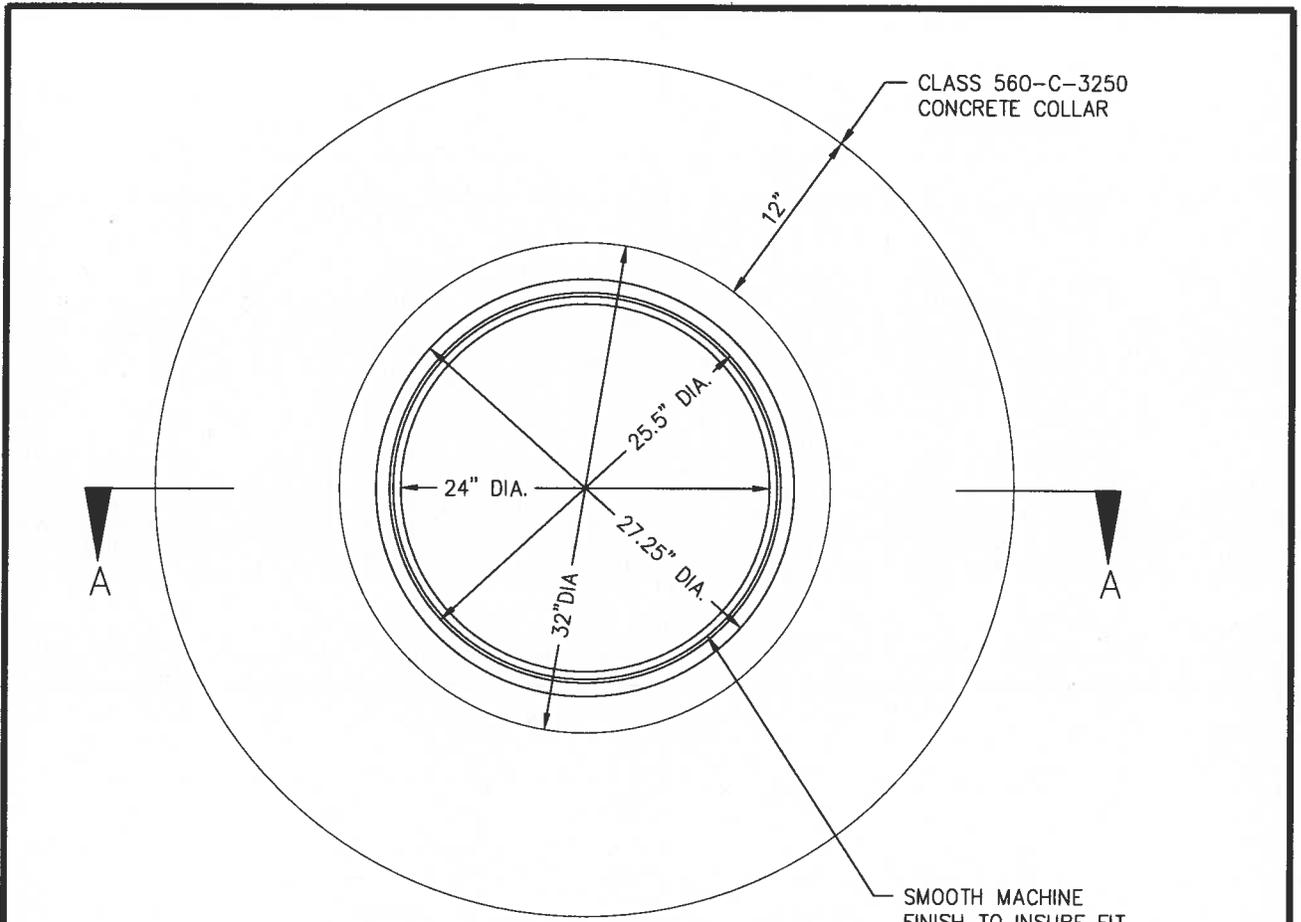
- GENERAL NOTES:
- 1.- GRATE TYPE NUMBERS REFER TO WIDTH OF GRATE IN INCHES AND THE NUMBER OF BARS RESPECTIVELY.
 - 2.- CONTRACTOR HAS THE OPTION OF USING WELDED OR BOLTED GRATES.
 - 3.- GRATES AND FRAMES TO BE PAINTED.
 - 4.- ROUND TOP OF BARS OPTIONAL ON ALL GRATES.
 - 5.- GRATE SHALL BE PLACED SO THAT BARS ARE PARALLEL TO THE DIRECTION OF PRINCIPAL SURFACE FLOW.

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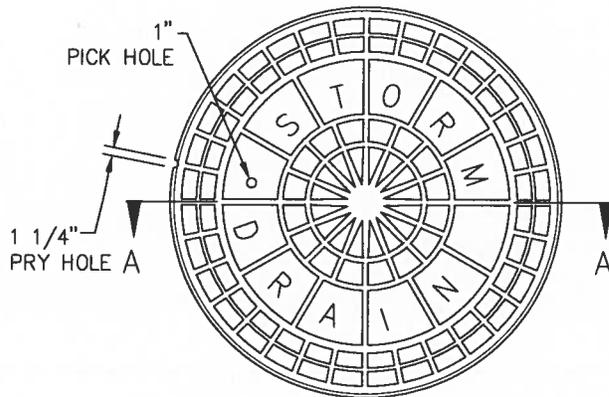
GRATE AND FRAME DETAIL

STD. NO.
427



MANHOLE COVER FRAME

CAST IRON - WT. 150 LB.



MANHOLE COVER

CAST IRON - WT. 150 LB.

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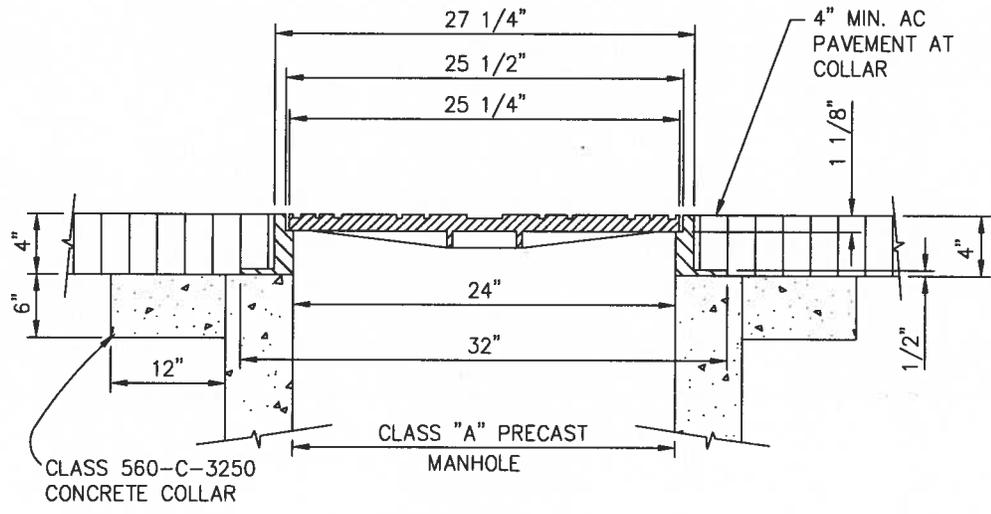
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APPROVED 1/14/10	

**MANHOLE COVER AND FRAME
FOR CATCH BASINS**

STD. NO.

428a

SHEET 1 OF 2



SECTION A-A

NOTES:

1. THE MANHOLE FRAME AND COVER SHALL BE MADE OF GRAY CAST IRON CONFORMING TO THE LATEST A.S.T.M. STANDARD A48, CLASS 30 OR BETTER.
2. ALL PARTS OF THE MANHOLE FRAME AND COVER EXCEPT MACHINE SURFACES SHALL BE COATED WITH ASPHALTUM PAINT.
3. THE MANHOLE FRAME AND COVER SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS BEFORE DELIVERY. THE COVER SHALL FIT THE FRAME SNUGLY BUT NOT TIGHTLY.
4. THE WEIGHT OF THE FRAME AND COVER SHALL NOT VARY MORE THAN TWO PERCENT FROM THOSE GIVEN HEREON.

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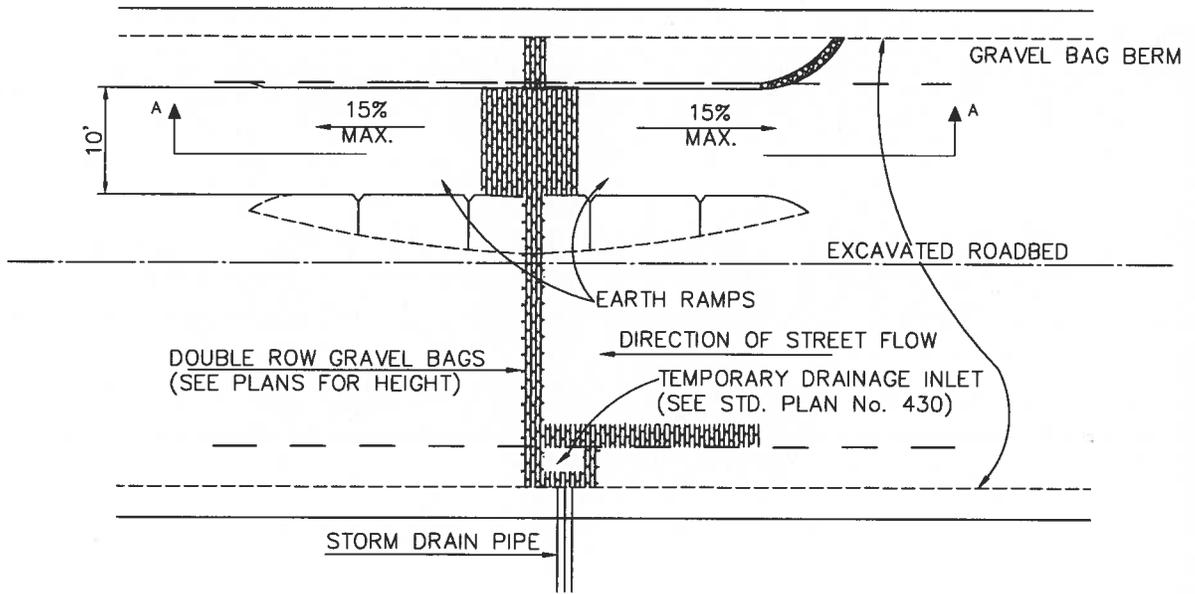
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**MANHOLE COVER AND FRAME
FOR CATCH BASINS**

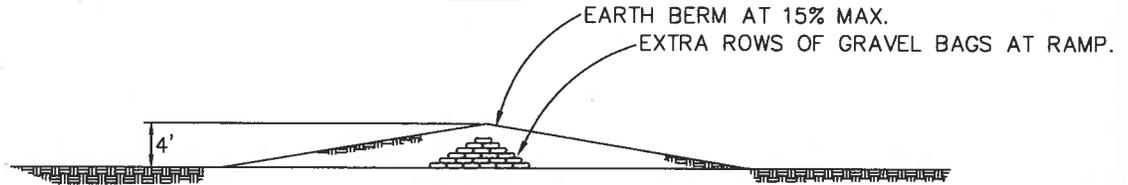
STD. NO.

428b

SHEET 2 OF 2



PLAN



SECTION A-A

NOTES:

1. STORAGE CAPACITY SHALL BE IN ACCORDANCE WITH STD. PLAN No. 423 & THE DIMENSIONS OF THE STORAGE AREA SHALL BE SHOWN ON THE EROSION CONTROL PLAN.
2. GRAVEL BAGS ARE ENCOURAGED OVER SANDBAGS AND MAY BE REQUIRED IN AREAS WHICH ARE PARTICULARLY SENSITIVE TO SEDIMENT DEPOSITION.
3. THIS STANDARD DETAIL SHALL BE USED AS SHOWN ON THE APPROVED EROSION CONTROL PLAN.

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**STREET DESILTING BASIN
 VEHICLE ACCESS RAMP**

STD. NO.

429

6" X 6"-W 1.4 X W 1.4 W.W.M. OR APPROVED
ALT. SCREEN AS SAFETY BARRIER

2' MAX. HEIGHT OF
BAGS AT SPILLWAY

3'
MIN.

12"
MIN.

STREET
SUB-GRADE

DOUBLE ROW
SANDBAGS

BASE COURSE SANDBAGS
ON EDGE.

2%
SLOPE

STORM DRAIN PIPE. SEE
PLAN FOR TYPE AND
LOCATION.

SECTION C-C

MIN. 4' WIDE
SPILLWAY

PLAN

NOTES:

1. GRAVEL BAGS ARE ENCOURAGED OVER THE USE OF SANDBAGS AND MAY BE REQUIRED IN AREAS WHICH ARE PARTICULARLY SENSITIVE TO SEDIMENT DEPOSITION.
2. A PORTION OF THE CATCH BASIN MAY BE CONSTRUCTED IN PLACE OF SANDBAGS.
3. THIS STANDARD DETAIL SHALL BE USED AS SHOWN ON THE APPROVED EROSION CONTROL PLAN.

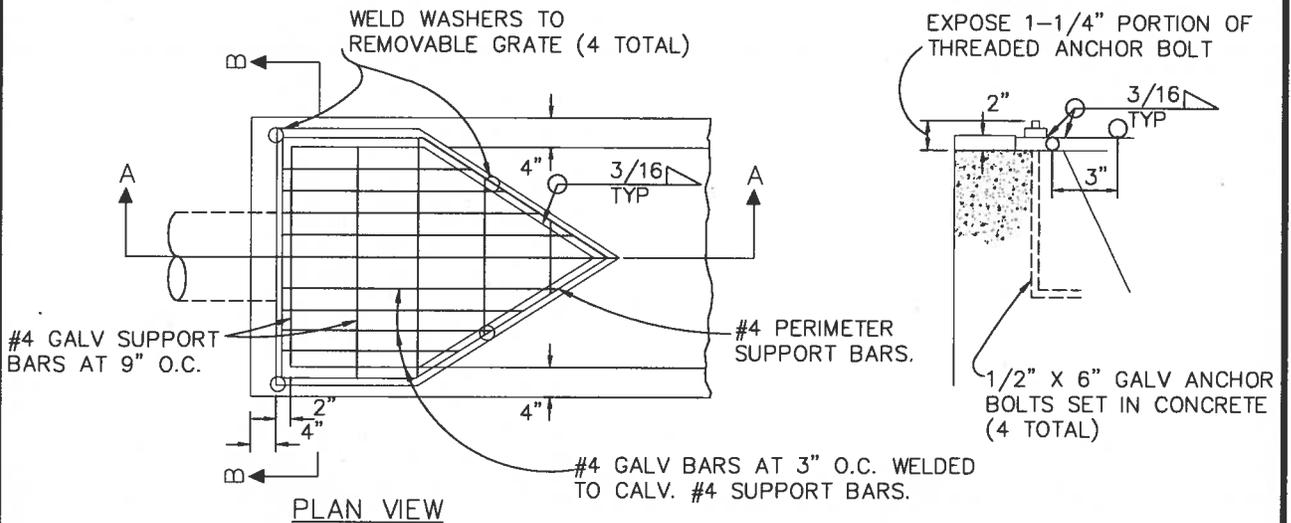
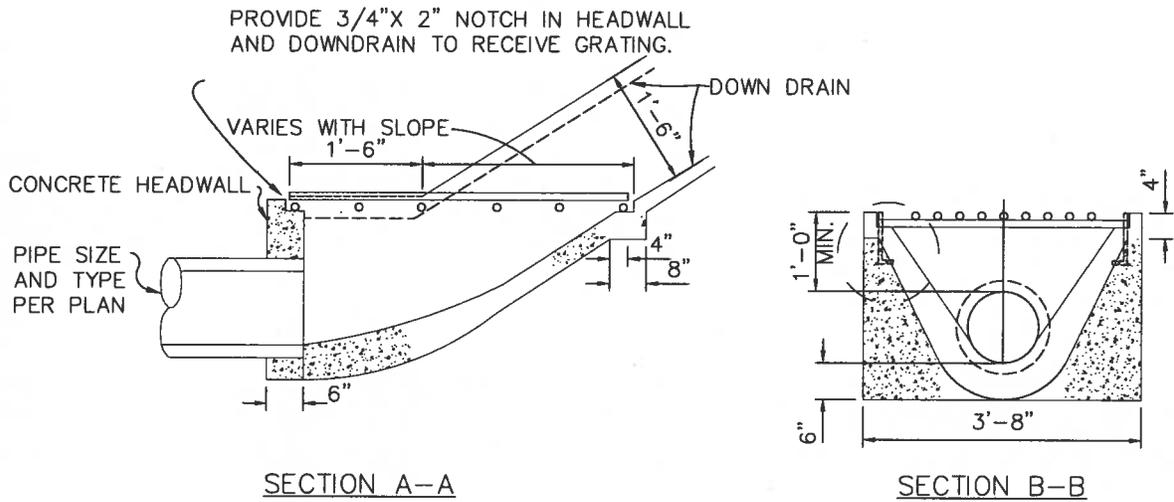
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TEMPORARY DRAINAGE INLET

STD. NO.

430

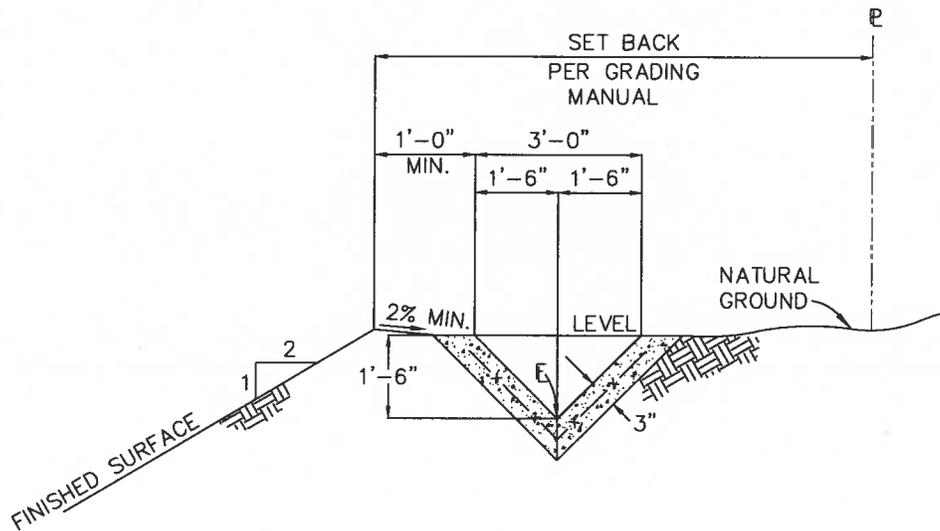


NOTES:

1. GROUND SHALL BE PRE-WETTED TO THE SATISFACTION OF THE CITY ENGINEER PRIOR TO PLACEMENT OF CONCRETE.
2. MATERIAL FOR CONSTRUCTION OF DOWNDRAIN SHALL BE CONCRETE REINFORCED WITH 6" x 6" W 1.4 x W 1.4 WELDED WIRE FABRIC.
3. DOWNDRAIN TO PIPE TRANSITION SHALL NOT BE USED WITHIN PUBLIC ROAD RIGHT-OF-WAY.
4. GRATE SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.

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DEPARTMENT OF PUBLIC WORKS

REVISIONS		DOWNDRAIN AND PIPE TRANSITION	STD. NO.
5/92			431
APPROVED 1/14/10			



NOTES:

1. CONCRETE SHALL BE 560-C-3250. CONCRETE MAY BE PNEUMATICALLY PLACED.
2. REINFORCING SHALL BE 6" x 6"-W 1.4 x W 1.4 WELDED WIRE MESH (W.W.M.) OR APPROVED EQUAL.
3. GROUND SHALL BE PRE-WETTED TO THE SATISFACTION OF THE CITY ENGINEER PRIOR TO PLACEMENT OF CONCRETE. CURING COMPOUND SHALL BE USED WHEN REQUIRED BY THE CITY ENGINEER.
4. ANCHORS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD PLANS 415b (SHEET 2) WHEN SLOPE OR EXCEEDS 2:1.

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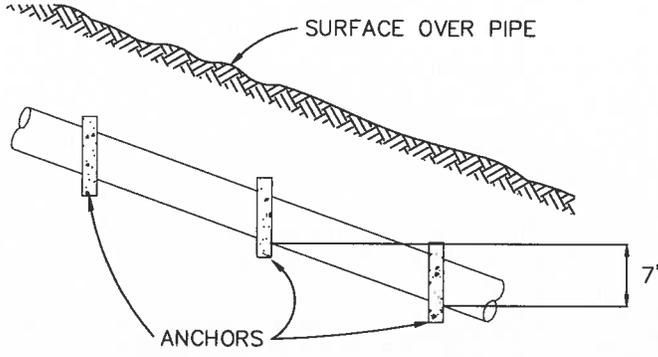
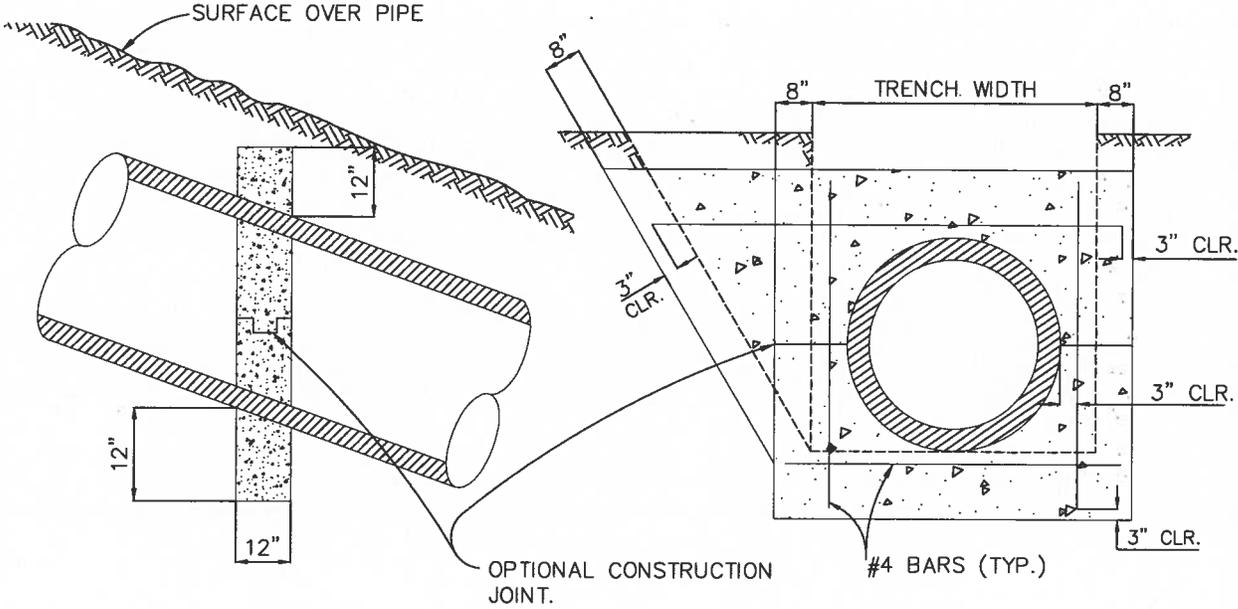
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INTERCEPTOR DRAIN

STD. NO.

432

CONSTRUCTION OF ANCHOR FOR TRENCH W/ SLOPING SIDE WALLS



NOTES:

1. PIPE ANCHORS SHALL BE CONSTRUCTED AT 7' VERTICAL INTERVAL ON ALL SLOPES OF 5:1 OR STEEPER.
2. ALL REINFORCING STEEL SHALL BE #4 BARS.
3. CONCRETE SHALL BE CLASS 560-C-3250 CONCRETE.

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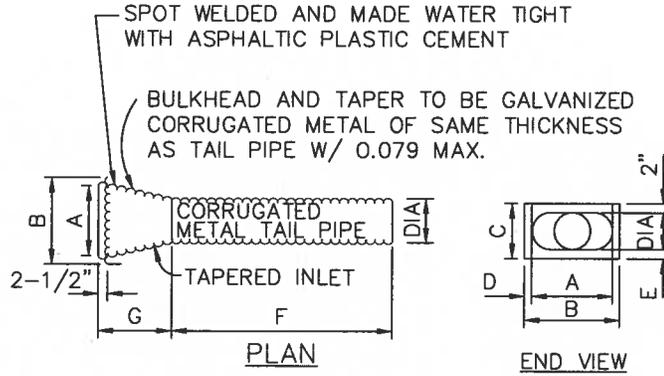
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CONCRETE PIPE SLOPE ANCHOR

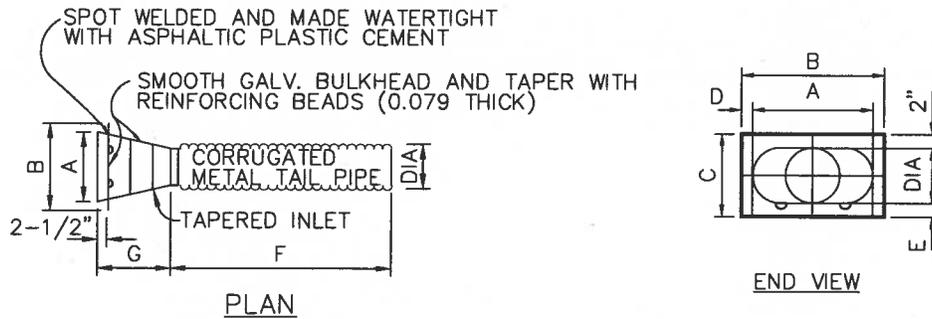
STD. NO.

433

GALVANIZED STEEL OVERSIDE DRAIN



ENTRANCE TAPER-TYPE 1
ALTERNATIVE A



ENTRANCE TAPER-TYPE 1
ALTERNATIVE B

DIA	A	B	C	D	E	F	G
8"	16"	25-1/2"	15"	4-3/4"	5"	6'	2'
12"	18"	25-1/2"	19"	3-3/4"	5"	6'	2'
15"	21"	30"	23"	4-1/2"	6"	6'	2'
18"	24"	34"	27"	5"	7"	6'	2'
24"	34"	46"	35"	6"	9"	4'	4'

ENTRANCE TAPER-TYPE 1
ALTERNATIVE A & B

NOTES:

1. TAIL PIPE SAME THICKNESS AS DOWNDRAIN PIPE
2. TAPER JOINTS MAY BE WELDED OR RIVETED
3. DIMENSIONS TO BE AS TABULATED BELOW FOR TYPE 1 ALTERNATIVES A AND B

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OVERSIDE DRAIN

STD. NO.

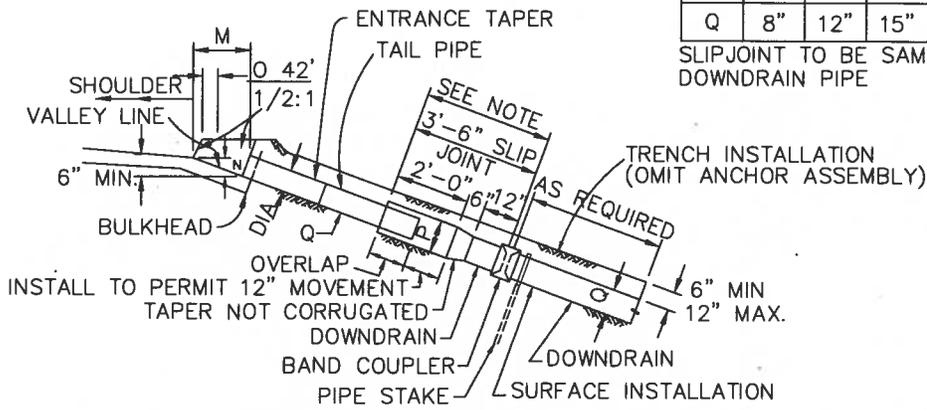
434a

SHEET 1 OF 4

C S P DIMENSIONS AS TABULATED BELOW

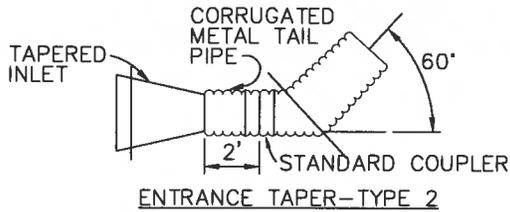
P	10"	15"	18"	21"	27"
Q	8"	12"	15"	18"	24"

SLIPJOINT TO BE SAME THICKNESS AS DOWNDRAIN PIPE



NOTE SECTION A-A (TYPE1)

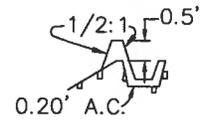
- (1) CABLE, SKIP JOINT OR ANCHOR ASSEMBLY TO BE PLACED WHEN SPECIFIED.
- (2) SLIP JOINT TO BE OMITTED WHEN COMPLETELY BURIED.
- (3) SLIP JOINT FOR TYPE 1 ENTRANCE TAPER SHOWN. TYPE 2 SIMILIAR



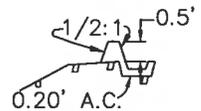
NOTE TAPERED INLET OF SAME CONSTRUCTION AND DIMENSIONS AS TYPE 1-ALTERNATIVE A OR B.

ENTRANCE TAPER AND PIPE DOWNDRAIN

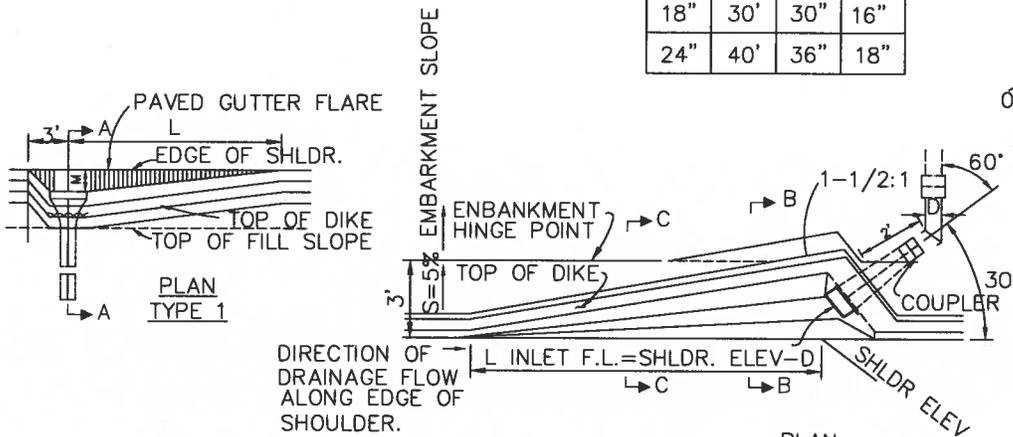
DIA	DIA L	M	N
8"	10'	18"	8"
12"	15'	20"	12"
15"	25'	24"	15"
18"	30'	30"	16"
24"	40'	36"	18"



SECTION B-B



SECTION C-C



NOTE: EXTEND DIKE BASE TO PROVIDE SUITABLE SUPORT WHERE DIKE EXTENDS BEYOND HINGE POINT. (RECOMMENDED FOR GRADES OF 2% OR GREATER)

DIA D	MIN L
8"	15'
12"	20'
15"	30'
18"	35"
24"	45'

SEE SHEET 3 OF 4 FOR ANCHOR ASSEMBLY

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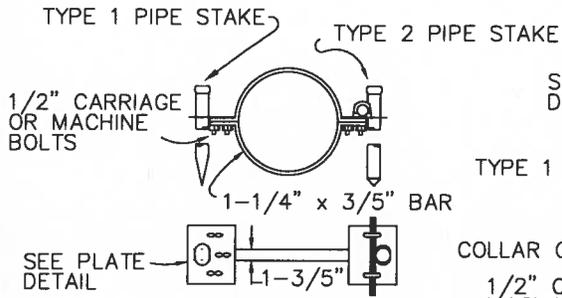
REVISIONS	
5/92	
APPROVED 1/14/10	

OVERSIDE DRAIN

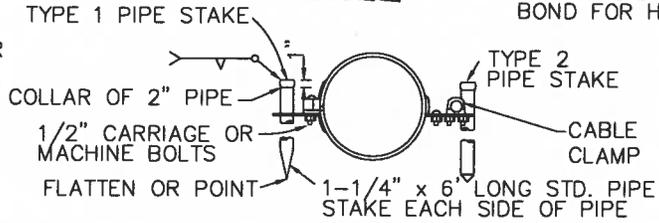
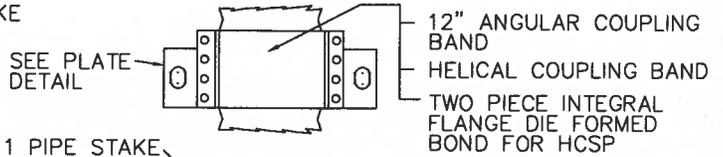
STD. NO.

434b

SHEET 2 OF 4

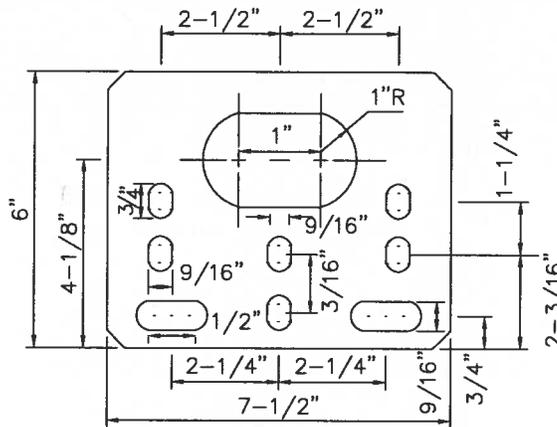


ANCHOR ASSEMBLY
ALTERNATIVE A

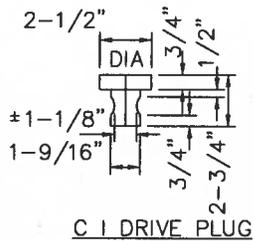


ANCHOR ASSEMBLY
ALTERNATIVE B

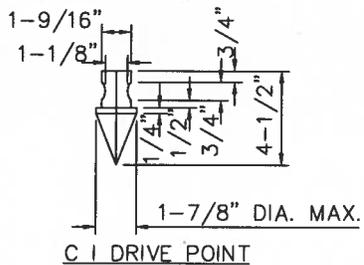
NOTE: CABLE AND CABLE CLAMPS TO BE USED WHEN REQUIRED BY THE SPECIAL PROVISIONS



MATERIAL TO BE 1/4" PLATE GALVANIZED AFTER FABRICATION

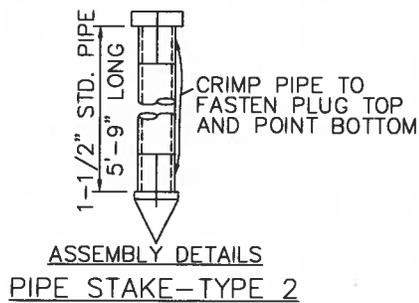


C I DRIVE PLUG



C I DRIVE POINT

PLATE DETAIL



ASSEMBLY DETAILS

PIPE STAKE-TYPE 2

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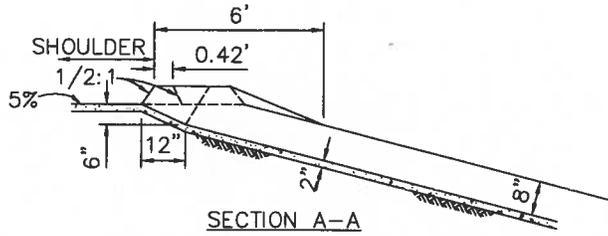
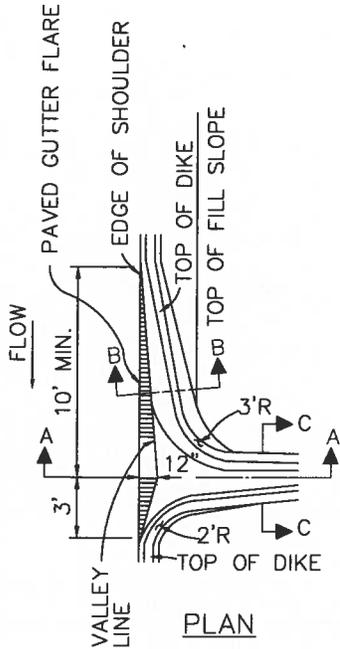
REVISIONS	
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APPROVED 1/14/10	

OVERSIDE DRAIN

STD. NO.

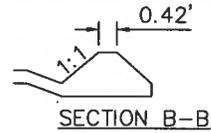
434c

SHEET 3 OF 4

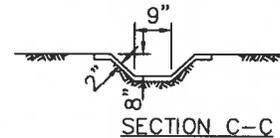


ASPHALT CONCRETE OVERSIDE DRAINS

TO BE USED ON FILL SLOPES FLATTER THAN 2:1. USE MIN 10' LENGTH OF GUTTER ON BOTH SIDES IN A SAG LOCATION



NOTE: CROSS-SECTION OF SLOPE DITCH MAY BE SEMICIRCULAR, VEE OR TRAPEZOIDAL MIN. TOP WIDTH=25" MIN. DEPTH=8"



NOTES:

- 1-FOR PAYMENT PURPOSES AN ANCHOR ASSEMBLY SHALL INCLUDE TWO PIPE STAKES.
- 2-ALL PIPE STAKES AND HARDWARE TO BE GALVANIZED AFTER FABRICATION.
- 3-EITHER ALTERNATIVE A OR ALTERNATIVE B ANCHOR ASSEMBLIES AND TYPE 1 OR TYPE 2 PIPE STAKES MAY BE USED AT CONTRACTORS OPTION FOR C.M.P. OR C.A.P. ALTERNATIVE A ANCHOR ASSEMBLY ONLY TO BE PLACED IN ANNULAR CORRUGATION. MAY BE PLACED ON ANNULAR OR REFORMED END H C S P. COUPLING BAND IF SECURELY FASTENED ON DOWNSTREAM SIDE OF JOINT. ALTERNATIVE B ANCHOR ASSEMBLY TO BE FASTENED TO PIPE SECTION AND NOT TO BE A BAND COUPLER USED TO JOIN SECTIONS.

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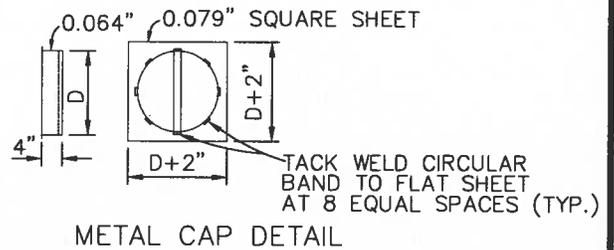
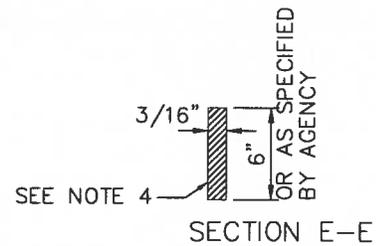
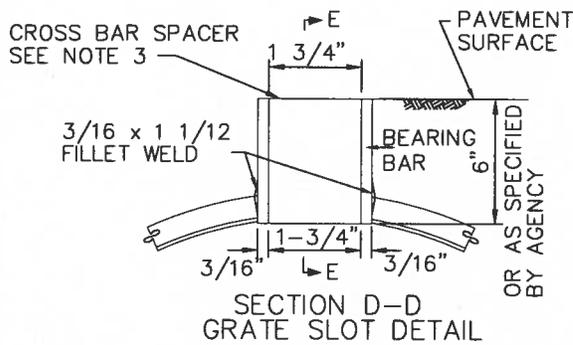
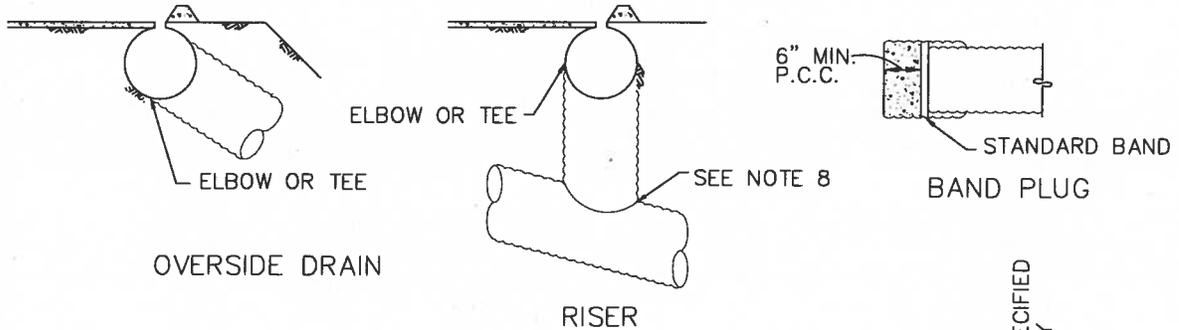
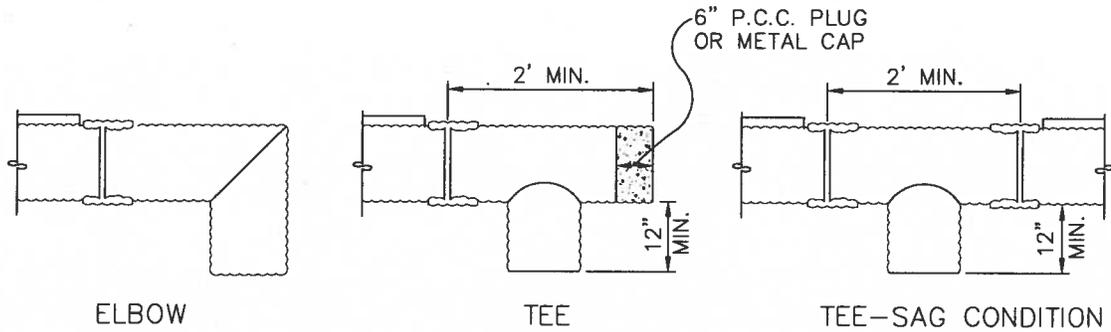
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APPROVED 1/14/10	

OVERSIDE DRAIN

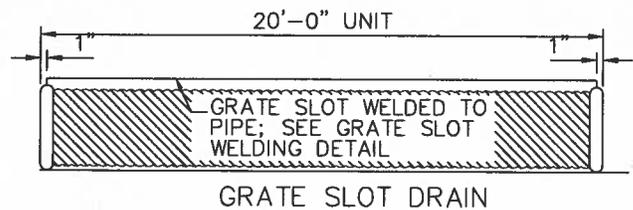
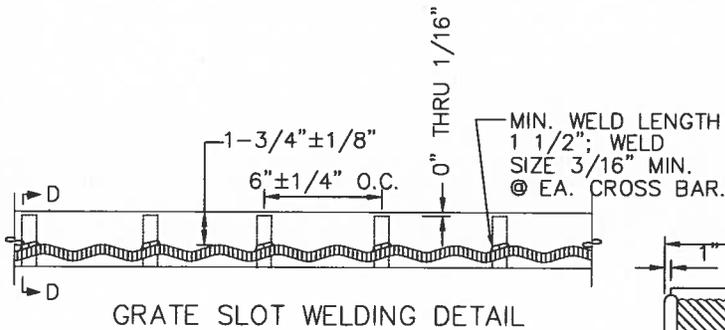
STD. NO.

434d

SHEET 4 OF 4



NOTE:
"D" EQUALS NOMINAL
PIPE DIAMETER



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**SLOTTED CORRUGATED
STEEL PIPE DRAIN
12" THROUGH 24"**

STD. NO.

435a

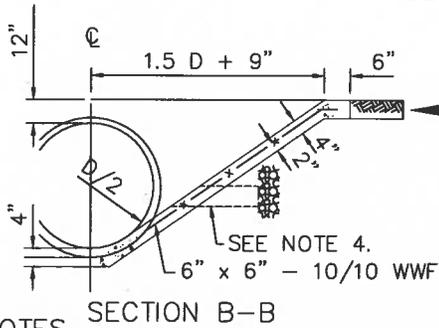
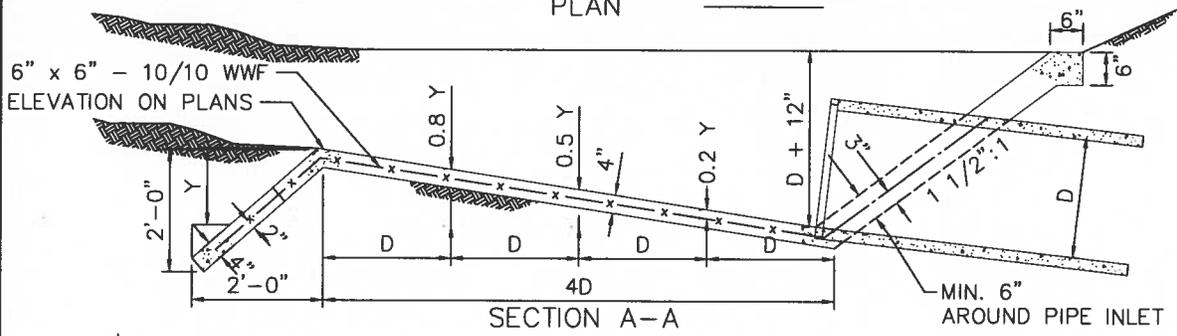
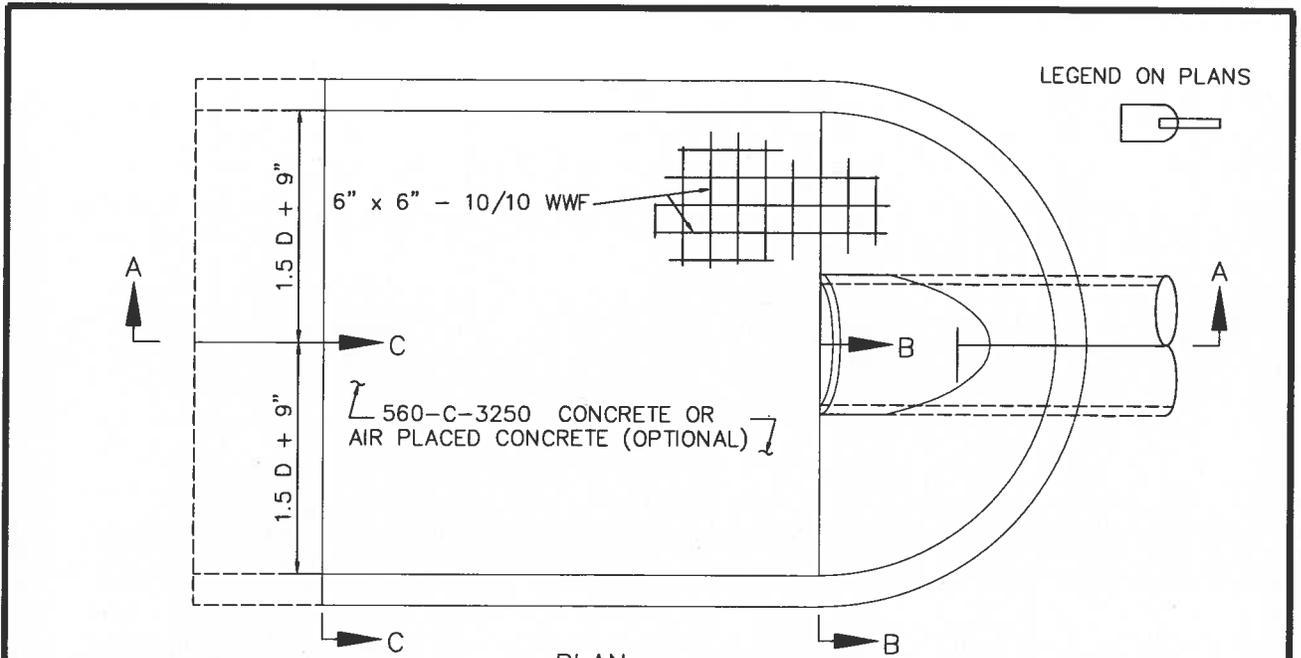
SHEET 1 OF 2

NOTES:

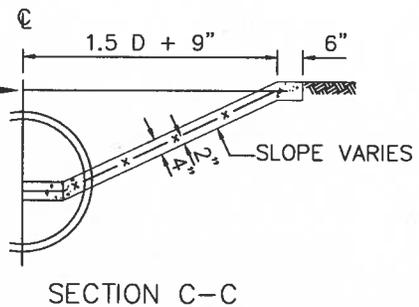
1. DRAIN SEAMS MAY BE RIVETED OR RESISTANCE SPOTWELDED AT EQUAL CENTERS, CONTINUOUS HELICAL LOCK SEAM OR HELICAL WELDED SEAM.
2. EACH DRAIN SECTION SHALL BE ASSEMBLED WITH STANDARD COUPLING BANDS.
3. CROSS BAR SPACER OF GRATE SHALL BE PRESSURE FUSION OR PLUG WELDED TO BEARING BARS IN SUCH A MANNER AS TO DEVELOP THE STRENGTH OF THE CROSS BAR SPACER.
4. CROSS BAR SPACER (SECTION E-E) MAY DIFFER FROM THAT SHOWN PROVIDED SECTION AREA IS EQUAL OR GREATER.
5. GRATE MATERIALS SHALL BE WELDED OF STEEL COMPLYING TO THE REQUIREMENTS OF ASTM A 36.
6. THE MAXIMUM VARIANCE FROM A STRAIGHT LINE FROM THE EXTREME TOP OF THE BEARING BAR SHALL BE 1/2" IN 20 FEET.
7. INSTALLATION LENGTHS SHALL BE 10 FEET OR MULTIPLES THEREOF.
8. EITHER FIELD JOINT SEALED WITH A PLIABLE MIXTURE OF SAND, PORTLAND CEMENT AND EMULSFIED ASPHALT (MIXTURE OF 1 PART PORTLAND CEMENT, 3-5 PARTS SAND AND 1 1/2 PARTS SSI EMULSFIED ASPHALT) OR CONTINUOUS WELD.

**CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS**

REVISIONS	SLOTTED CORRUGATED STEEL PIPE DRAIN 12" THROUGH 24"	STD. NO.
5/92		435b
		SHEET 2 OF 2
APPROVED 1/14/10		



INLET CONSTR. SYM. ABOUT C EXCEPT FOR MULTIPLE PIPE INSTALLATIONS (SEE NOTE 1)



NOTES

1. WHEN MORE THAN ONE PIPE IS USED THE PROFILE VIEW SHOWN SHALL HOLD FOR THE DISTANCE ACROSS ALL PIPE OPENINGS. SECTION A-A AND B-B SHALL BE FROM THE OUTERMOST PIPE. THE DISTANCE BETWEEN PIPES SHALL BE D/2 FOR ROUND AND SPAN/3 FOR ARCH PIPE. (12" MINIMUM)
2. CULVERT SHALL BE CUT OFF EVEN WITH APRON SURFACE WHEN REQUIRED BY THE AGENCY.
3. USE INLET APRON ONLY WHERE A FLARED END SECTION CAN NOT BE UTILIZED.
4. PLACE WEEP HOLES WHEN REQUIRED BY THE AGENCY.

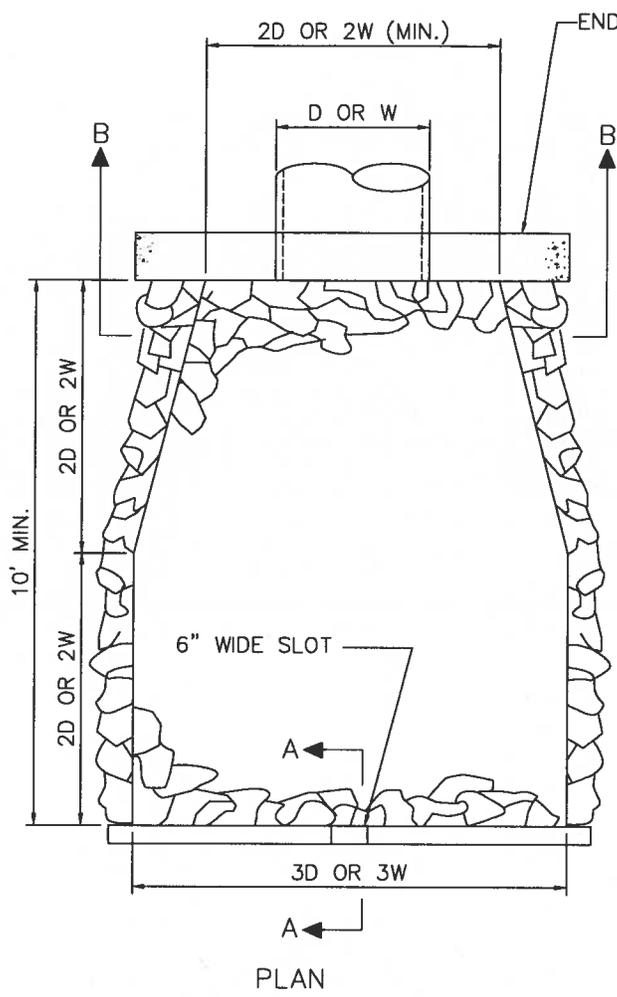
**CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS**

REVISIONS	
5/92	
APPROVED 1/14/10	

**INLET APRON FOR CULVERTS
UP TO 42" DIAMETER**

STD. NO.

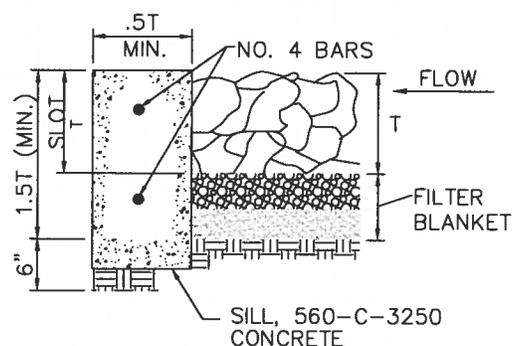
445



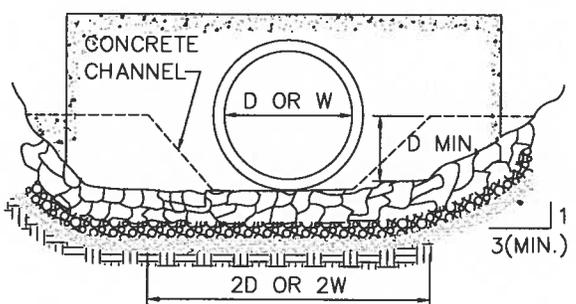
DESIGN VELOCITY (FT./SEC)	ROCK CLASSIFICATION	T (MIN)
6-10	NO. 2 BACKING	1.1 FT
10-12	1/4 TON	2.7 FT
12-14	1/2 TON	3.5 FT
14-16	1 TON	4.4 FT
16-18	2 TON	5.4 FT

* OVER 18 FPS REQUIRES SPECIAL DESIGN SECTION OF RIP RAP

D = PIPE DIAMETER
W = BOTTOM WIDTH OF CHANNEL



SECTION A-A



SECTION B-B

NOTES:

- PLANS SHALL SPECIFY:
 - ROCK CLASS AND THICKNESS (T).
 - FILTER MATERIAL, NUMBER OF LAYERS AND THICKNESS.
- RIP RAP SHALL BE EITHER QUARRY STONE OR BROKEN CONCRETE (IF SHOWN ON THE PLANS). COBBLES ARE NOT ACCEPTABLE.
- RIP RAP SHALL BE PLACED OVER FILTER BLANKET WHICH MAY BE EITHER GRANULAR MATERIAL OR FILTER FABRIC (WOVEN FILTER SLIT FILM FABRIC SHALL NOT BE USED).
- RIP RAP ENERGY DISSIPATOR SHALL BE DESIGNATED AS EITHER TYPE 1 OR TYPE 2. TYPE 1 SHALL BE WITH CONCRETE SILL; TYPE 2 SHALL BE WITHOUT SILL.
- SEE 446B FOR FILTER FABRIC SPECIFICATIONS.

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RIP RAP
ENERGY DISSIPATOR

STD. NO.

446a

SHEET 1 OF 2

ROCK CLASSIFICATION	FILTER BLANKET UPPER LAYER(S) (3)			LOWER LAYER (6)
	OPTION 1 (4) SECT. 200	OPTION 2 (4) SECT. 400	OPTION 3 (5)	
NO. 2 BACKING	1/4"	B3	D.G.	-
1/4 TON	3/4"	-	3/4"-1 1/2"	SAND
1/2 TON	1"	-	3/4"-1 1/2"	SAND
1 TON	1 1/2"	-	TYPE B	SAND
2 TON	2"	-	TYPE B	SAND

PRACTICAL USE OF THIS TABLE IS LIMITED TO SITUATIONS WHERE "T" IS LESS THAN INSIDE DIAMETER.

FILTER BLANKET NOTES:

1. AVERAGE VELOCITY IN PIPE OR BOTTOM VELOCITY IN ENERGY DISSIPATER, WHICHEVER IS GREATER.
2. IF DESIRED RIP RAP AND FILTER BLANKET CLASS IS NOT AVAILABLE, USE NEXT LARGER CLASS.
3. FILTER BLANKET THICKNESS = 1 FOOT OR "T", WHICHEVER IS LESS.
4. STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
5. D.G. = DISINTEGRATED GRANITE, 1mm TO 10 mm.
P.B. = PROCESS MISCELLANEOUS BASE
TYPE B = TYPE B BEDDING MATERIAL, (MIN 75% CRUSHED PARTICLES, 100% PASSING 2 1/2" SIEVE, 10% PASSING 1" SIEVE.
6. SAND 75% RETAINED ON #200 SIEVE.

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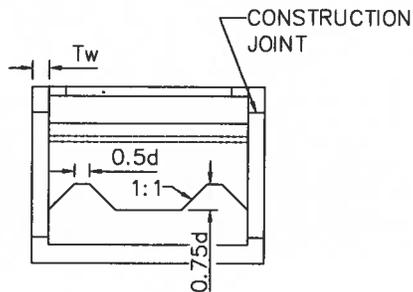
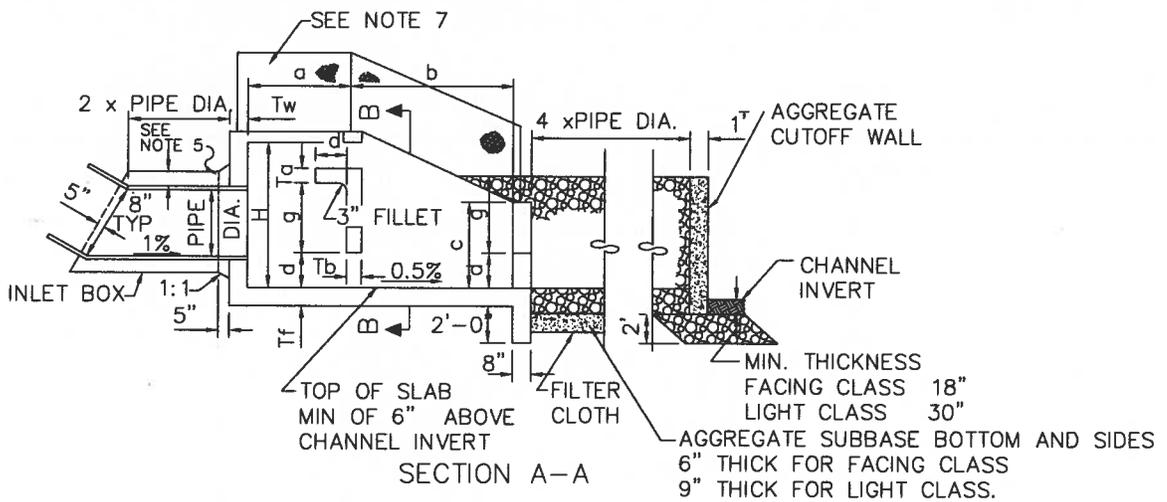
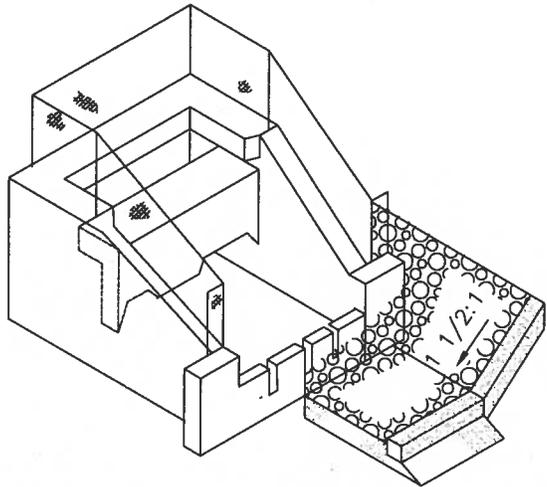
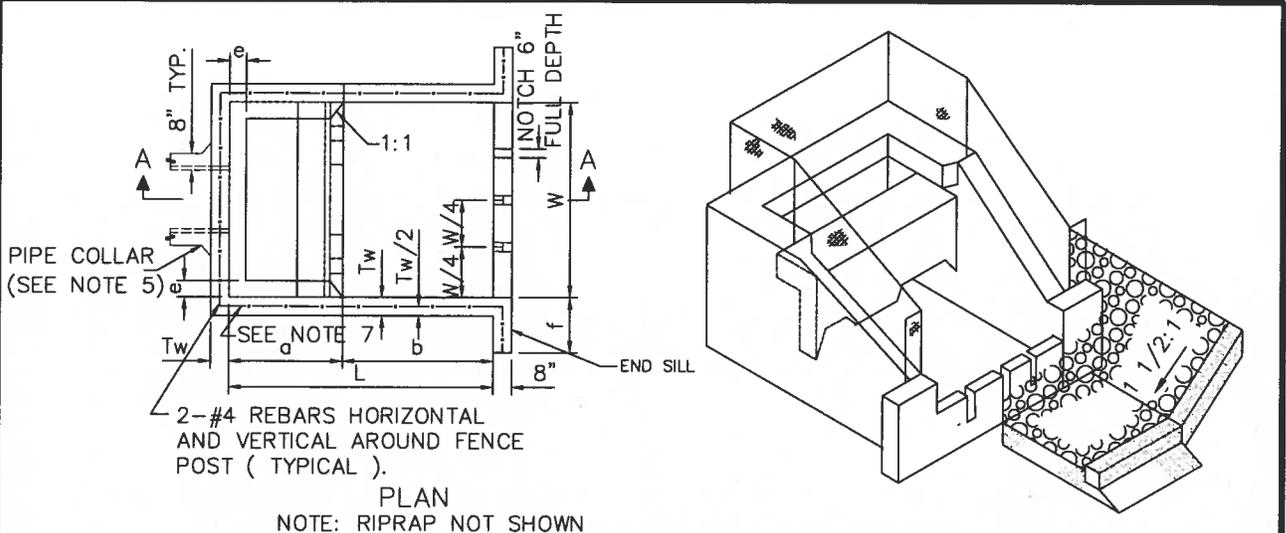
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RIP RAP
ENERGY DISSIPATOR

STD. NO.

446b

SHEET 2 OF 2



SECTION B-B

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5/92	
APPROVED 1/14/10	

CONCRETE ENERGY DISSIPATOR

STD. NO.

447a

SHEET 1 OF 2

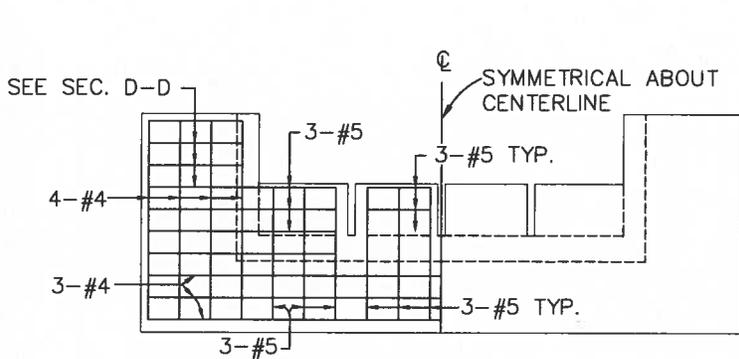
Pipe Dia. (in)	18	24	30	36	42	48	54	60	72
Area (sq.ft.)	1.77	3.14	4.91	7.07	9.62	12.57	15.90	19.63	28.27
Max. Q (cfs)	21	38	59	85	115	151	191	236	339
W	5'-6"	6'-9"	8'-0"	9'-3"	10'-6"	11'-9"	13'-0"	14'-3"	16'-6"
H	4'-3"	5'-3"	6'-3"	7'-3"	8'-0"	9'-0"	9'-9"	10'-9"	12'-3"
L	7'-4"	9'-0"	10'-8"	12'-4"	14'-0"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

NOTES:

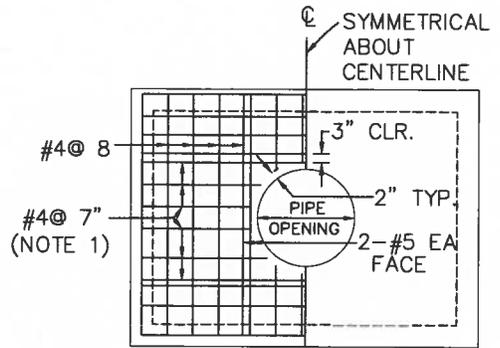
- DESIGN:
EQUIVALENT FLUID PRESSURE = 60 p.c.f.
MAXIMUM OUTLET VELOCITY = 35 f.p.s.
- CONCRETE SHALL BE 560-C-3250
- REINFORCING SHALL CONFORM TO ASTM DESIGNATION A615 AND MAY BE GRADE 40 OR 60. REINFORCING SHALL BE PLACED WITH 2" CLEAR CONCRETE COVER UNLESS NOTED OTHERWISE. SPLICES SHALL NOT BE PERMITTED EXCEPT AS INDICATED ON THE PLANS.
- FOR PIPE GRADE NOT EXCEEDING 20%, INLET BOX MAY BE OMITTED.
- IF INLET BOX IS OMITTED, CONSTRUCT PIPE COLLAR AS SHOWN.
- UNLESS NOTED OTHERWISE, ALL REINFORCING BAR BENDS SHALL BE FABRICATED WITH STANDARD HOOKS.
- FIVE FOOT HIGH CHAIN LINK FENCING, EMBED POST 18" DEEP IN WALLS AND ENCASE WITH CLASS B MORTAR.
- IN SANDY AND SILTY SOIL:
A) RIPRAP AND AGGREGATE CUTOFF WALL REQUIRED AT THE END OF ROCK APRON.
B) FILTER CLOTH (POLYFILTER X OR EQUIVALENT) SHALL BE INSTALLED ON NATIVE SOIL AND BASE, MINIMUM OF 1ft. OVERLAPS AT JOINTS.
- RIP RAP AND SUBBASE CLASSIFICATION SHALL BE SHOWN ON PLANS.

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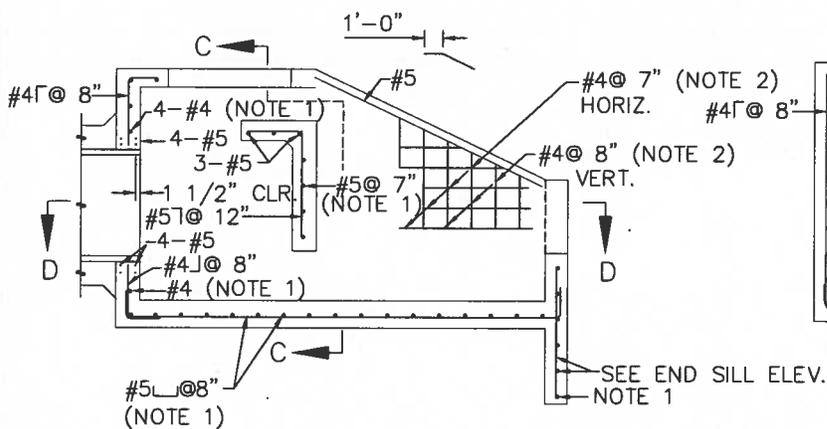
REVISIONS		CONCRETE ENERGY DISSIPATOR	STD. NO.
5/92			447b
APPROVED 1/14/10		SHEET 2 OF 2	



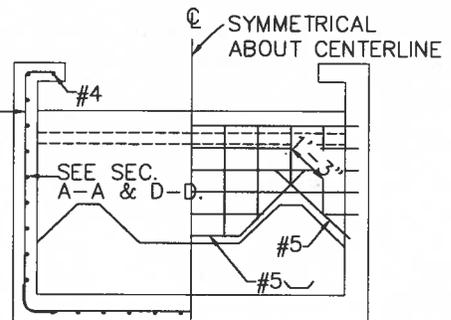
END SILL ELEVATION



HEADWALL ELEVATION



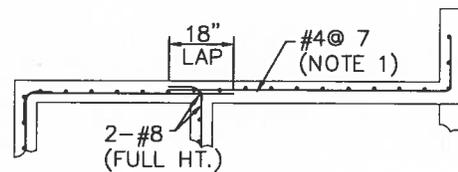
SECTION A-A



SECTION C-C

NOTES:

1. PLACE REINFORCING, AS NOTED, AT CENTER WALL (OR SLAB).
2. MATCH LOCATION OF REINFORCING WITH THAT IN HEADWALL, END SILL AND FOUNDATION SLAB.
3. ALL REINFORCING SHALL BE PLACED WITH 2" CONCRETE COVER, UNLESS NOTED OTHERWISE.



SECTION D-D

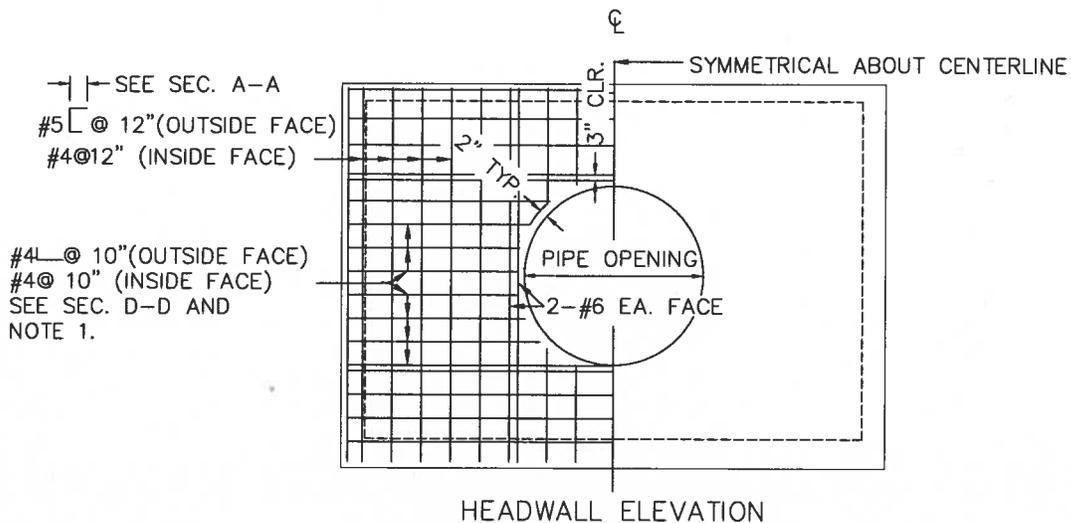
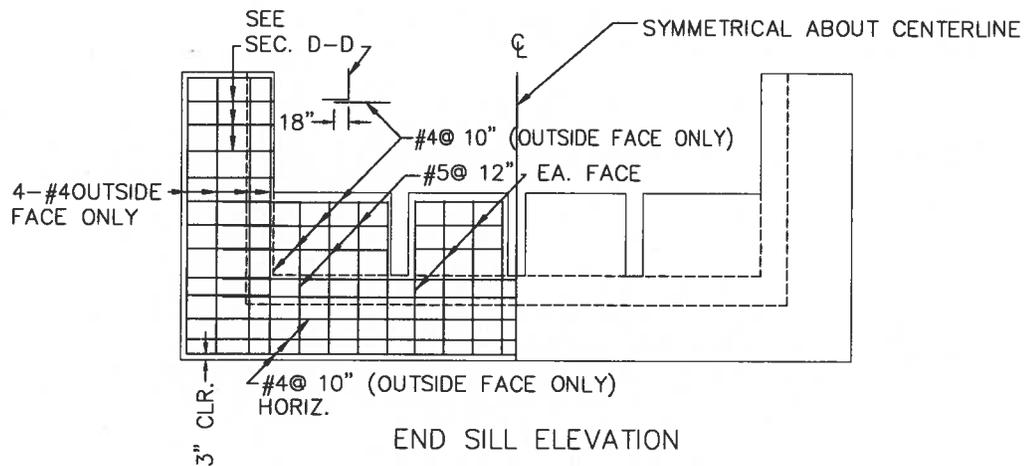
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CONCRETE ENERGY DISSIPATOR
(REINFORCEMENT)
18" TO 30" DIAMETER PIPE

STD. NO.

448



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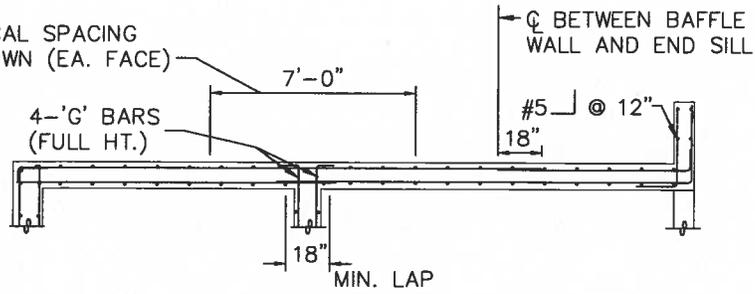
CONCRETE ENERGY DISSIPATOR
(REINFORCEMENT)
36" TO 72" DIAMETER PIPE

STD. NO.

449a

SHEET 1 OF 3

ADD #4 @ 20" VERTICAL SPACING
TO REINFORCING SHOWN (EA. FACE)



SECTION D-D

PIPE DIA. (IN.)	36	42	48	54	60	72
'A' BAR	#5 @ 12"		#6 @ 12"		#7 @ 12"	
'B' BAR	#5 @ 12"		#6 @ 12"			
'C' BAR	#4 @ 12"		#5 @ 12"			
'D' BAR	#4 @ 12"		#5 @ 12"		#6 @ 12"	
'E' BAR	#4 @ 12"		#5 @ 12"			
'F' BAR	#4 @ 9"		#5 @ 9"		#6 @ 9"	
'G' BAR		#7			#11	

NOTES:

1. MATCH LOCATION OF SIDEWALL REINFORCING.
2. DOWELS HAVING SAME SIZE AND SPACING AS WALL REINFORCING MAY BE USED IN LIEU OF CONTINUOUS BARS AT CONTRACTORS OPTION.
3. MATCH LOCATION OF HEADWALL OR END SILL REINFORCING.

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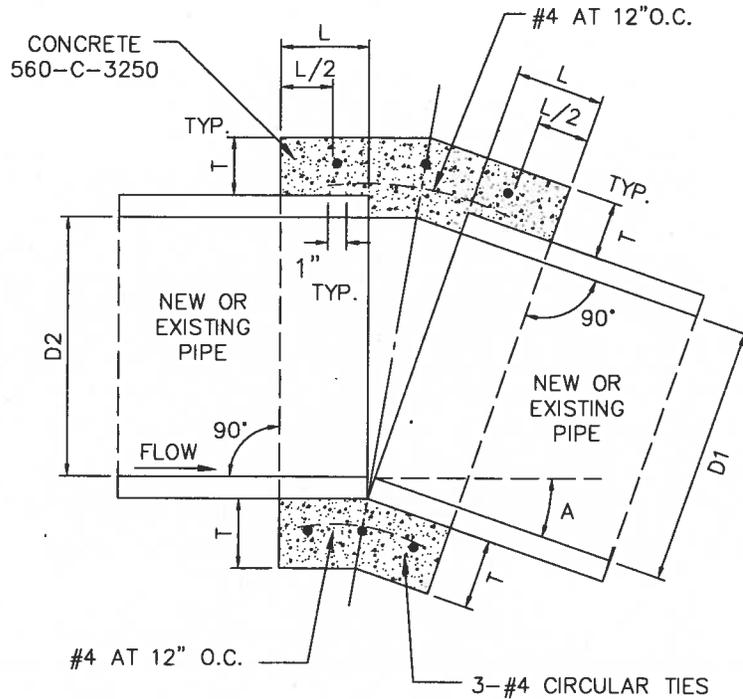
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**CONCRETE ENERGY DISSIPATOR
(REINFORCEMENT)
36" TO 72" DIAMETER PIPE**

STD. NO.

449c

SHEET 3 OF 3



NOTES:

1. A CONCRETE COLLAR IS REQUIRED WHERE THE CHANGE IN GRADE EXCEEDS 0.10 FT. PER FT.
2. WHERE PIPES OF DIFFERENT DIAMETER ARE JOINED WITH CONCRETE COLLAR, L AND T SHALL BE THOSE OF THE LARGER PIPE. D=D1 OR D2 WHICHEVER IS GREATER.
3. FOR PIPES LARGER THAN 66" A SPECIAL COLLAR DETAIL IS REQUIRED.
4. FOR PIPE SIZE NOT LISTED USE NEXT SIZE LARGER.
5. OMIT REINFORCING ON PIPES 24" AND LESS IN DIAMETER AND ON ALL PIPES WHERE ANGLE A IS LESS THAN 10.
6. WHERE REINFORCING IS REQUIRED THE DIAMETER OF THE CIRCULAR TIES SHALL BE $D+(2 \times \text{WALL THICKNESS}) + 8"$
7. WHEN D1 IS EQUAL TO OR LESS THAN D2, JOIN INVERTS AND WHEN D1 IS LARGER THAN D2 JOIN SOFFITS.
8. PIPE MAY BE CORRUGATED METAL PIPE, CONCRETE PIPE OR REINFORCED CONCRETE PIPE.

D	L	T
12"	1'-0"	4"
18"	1'-0"	5"
24"	1'-0"	6"
36"	1'-6"	8"
48"	1'-6"	10"
57"	1'-6"	10"
60"	1'-9"	11"
66"	1'-9"	11"

**CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS**

REVISIONS	
5/92	
APPROVED 1/14/10	

**CONCRETE PIPE COLLAR
FOR PIPES 12" THROUGH 66"**

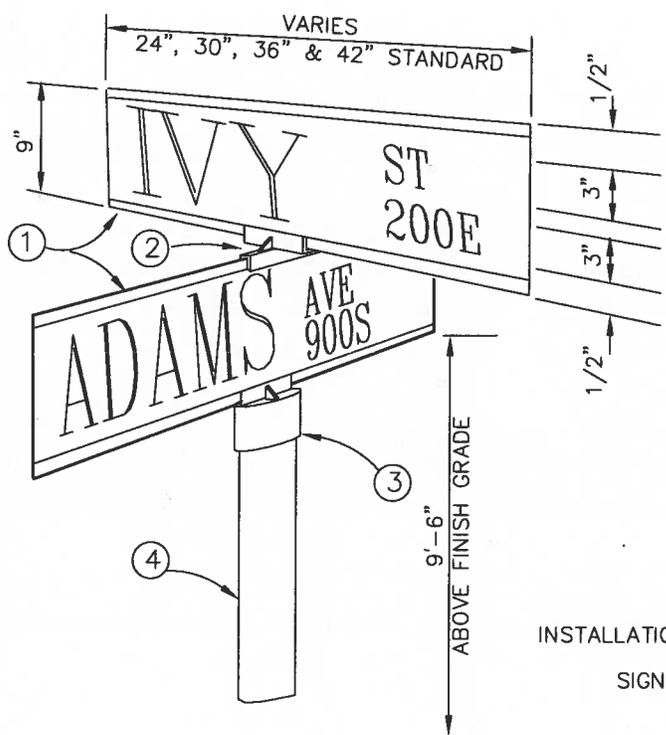
STD. NO.

451

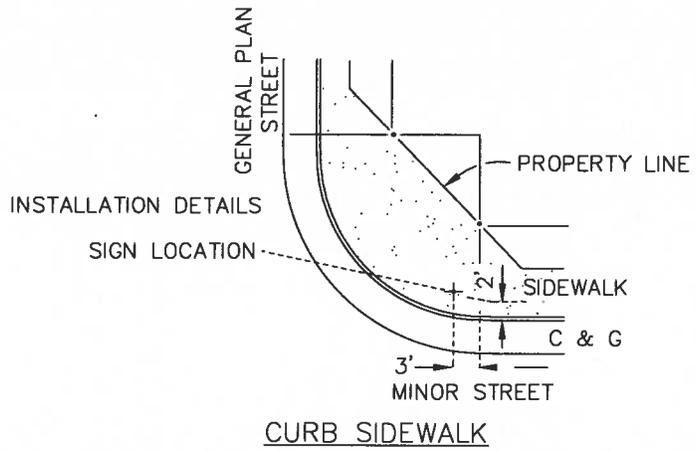
SECTION 600

MISCELLANEOUS, MONUMENTING, LIGHTING, AND FIRE





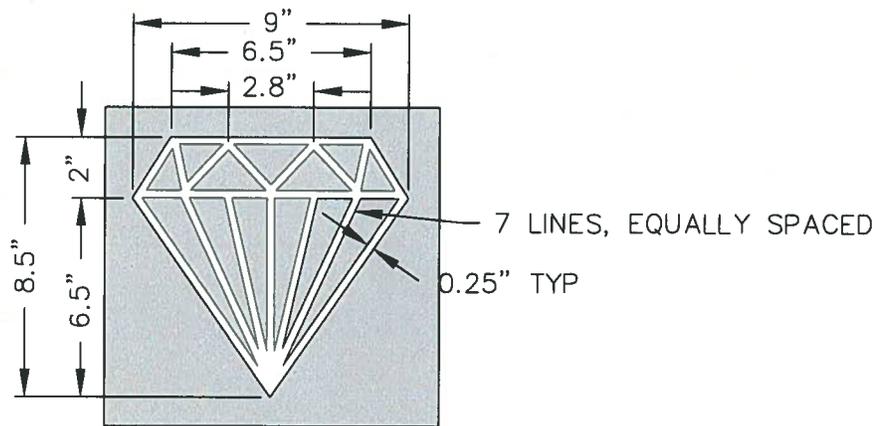
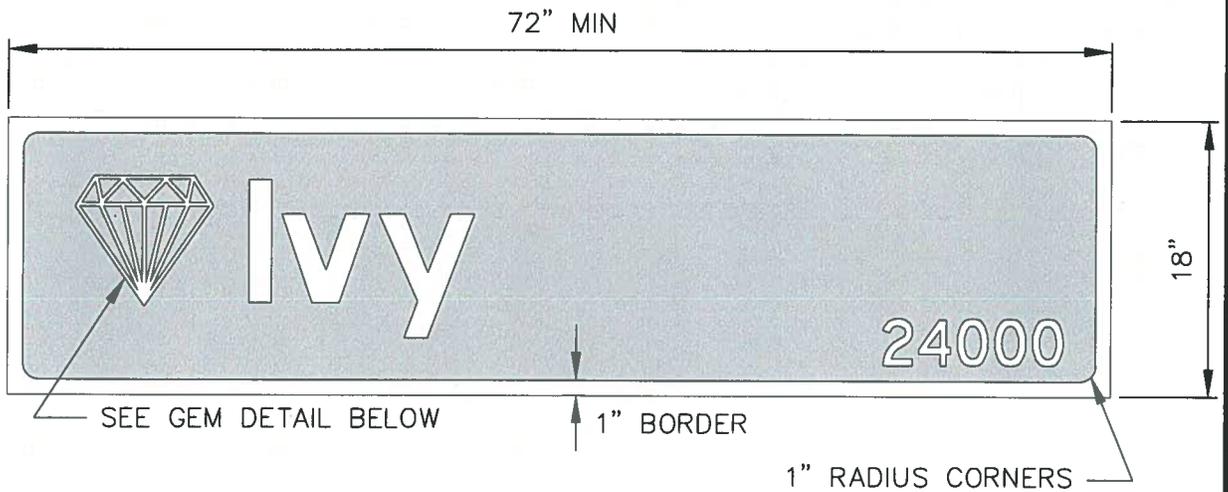
NOTE
 ONE COMPLETE NAME SIGN UNIT REQUIRED ON EACH INTERSECTION WHEN PAVED WIDTH OR CURBED WIDTH IS 40 FEET OR LESS. TWO COMPLETE NAME SIGN UNITS REQUIRED FOR WIDTH GREATER THAN 40 FEET. WHEN TWO SIGN UNITS ARE PLACED THEY SHALL BE ON DIAGONALLY OPPOSITE CORNERS SO THAT THEY WILL BE ON THE FAR RIGHT-HAND SIDE OF THE INTERSECTION FOR TRAFFIC ON THE MORE IMPORTANT STREET.



- NOTE:**
- ① STREET SIGN SHALL BE 9" EXTRUDED ALUMINUM HIGH TENSILE STRENGTH 6063T5 ALLOY BLADE, 0.091" THICK WITH 0.250" STIFFENER ALONG THE TOP AND BOTTOM EDGE. SIGN SHALL BE PAINTED ON BOTH SIDES AND INCLUDE WHITE REFLECTED 6" SERIES "C" STREET NAME LETTERS AND 3" BLOCK NUMBERS ON INTERSTATE GREEN REFLECTIVE SHEETING. PRIVATE STREET SHALL HAVE GREEN REFLECTED LETTERS AND NUMBERS ON WHITE REFLECTIVE SHEETING. REFLECTIVE SHEETING SHALL BE HIGH INTENSITY PRISMATIC GRADE WITH 1160 ANTI-GRAFFITI FILM.
 - ② EXTRUDED ALUMINUM 90° CROSSPIECE.
 - ③ SQUARE CAP.
 - ④ SEE STD 612A.

**CITY OF MURRIETA
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REVISIONS		STREET NAME SIGN	STD. NO.
5/92			
APPROVED 1/14/10			



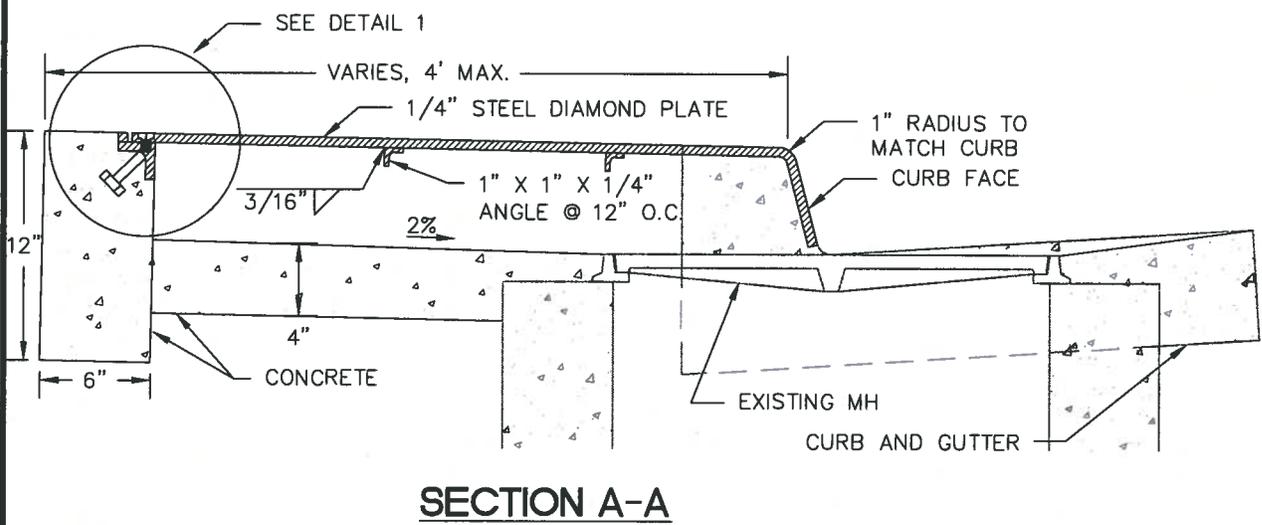
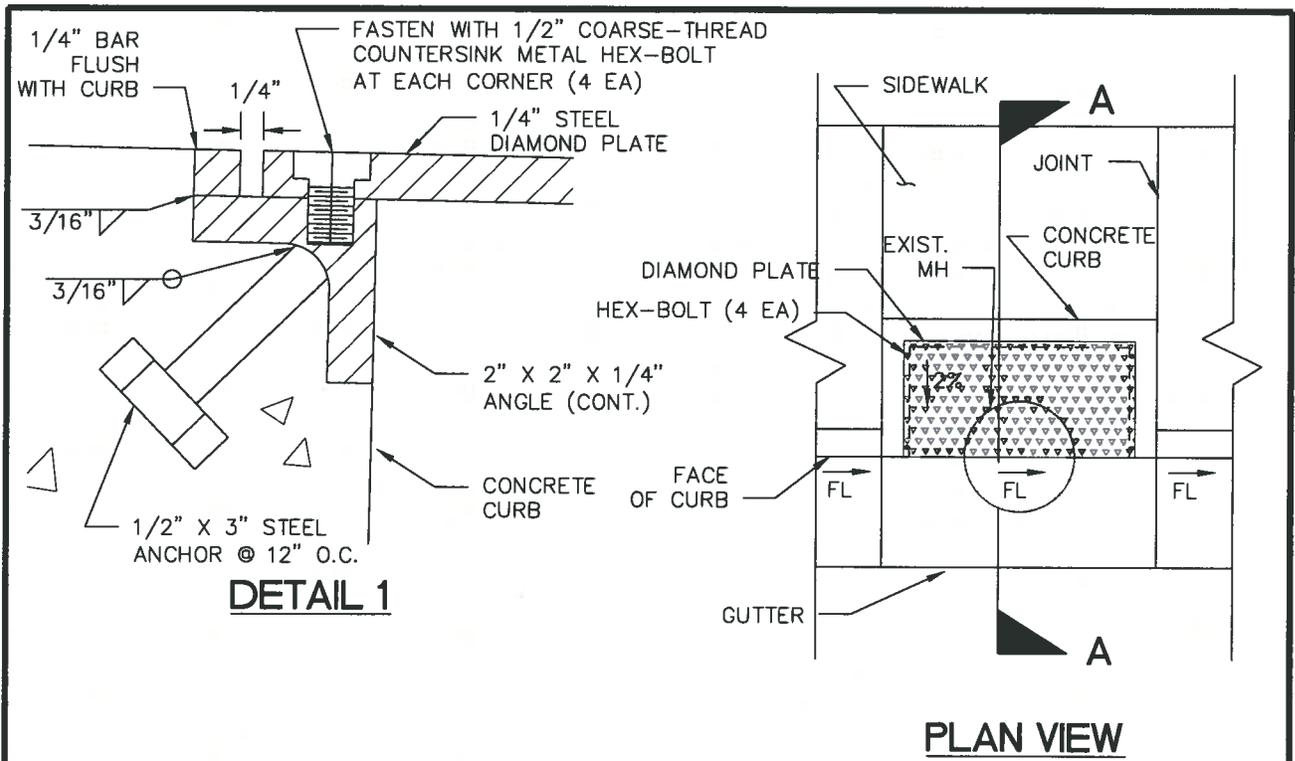
GEM DETAIL
NOT TO SCALE

NOTES:

1. SIGN SHALL BE TYPE SG AS MANUFACTURED BY SAFEWAY SIGN COMPANY OR CITY-APPROVED EQUAL.
2. SIGN SHALL BE DOUBLE-SIDED.
3. REFLECTIVE SHEETING FOR THE SIGN BACKGROUND SHALL BE 3M DIAMOND GRADE VIP BLUE #3995.
4. REFLECTIVE SHEETING FOR THE LETTERING, ONE-INCH BORDER, AND CITY OF MURRIETA 'GEM' LOGO SHALL BE 3M DIAMOND GRADE VIP WHITE #3990.
5. STREET NAME LETTERING SHALL BE MUTCD FONT SERIES EM, 8-INCH U.C., 6-INCH L.C. BLOCK NUMBER LETTERING SHALL BE MUTCD FONT SERIES D, 3-INCH.
6. SIGN SHALL BE MOUNTED PER CALTRANS STANDARD ES-70.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	REFLECTIVE STREET NAME SIGN MAST-ARM-MOUNTED	STD. NO.
		601A
APPROVED 1/14/10		

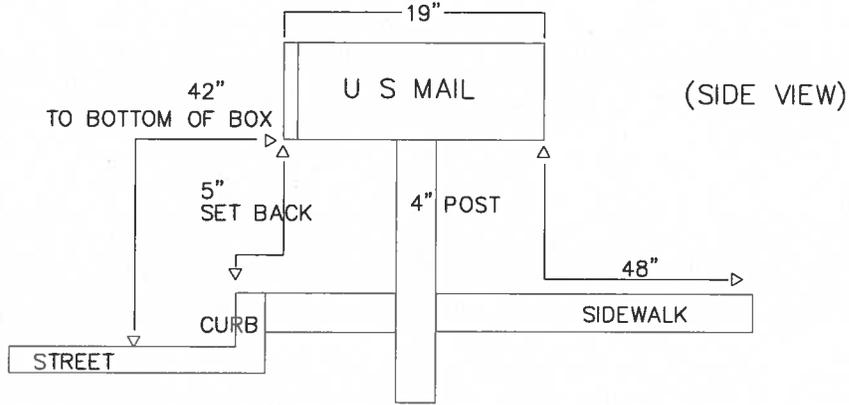


- NOTES:
1. ALL EXPOSED METAL PARTS TO BE GALVANIZED AFTER FABRICATION. ALL GALVANIZING DAMAGED BY FABRICATION OR INSTALLATION SHALL RECEIVE TWO COATS OF ALUMINUM PAINT (GALVONOX OR EQUAL).
 2. CONCRETE SHALL BE CLASS 560-C-3250.
 3. WELD UTILITY IDENTIFICATION PLATE ONTO CURB FACE OF DIAMOND PLATE.
 4. IN CASE OF MEDIAN CONDITION WHERE TYPE D CURB IS USED, GRADE TO DRAIN AWAY FROM CURB AS DIRECTED BY THE CITY ENGINEER.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	DIAMOND PLATE CURB COVER	STD. NO.
		602
APPROVED 1/14/10		

CURBLINE MAIL RECEPTACLE
INSTALLATION REQUIREMENTS
RURAL STYLE BOX

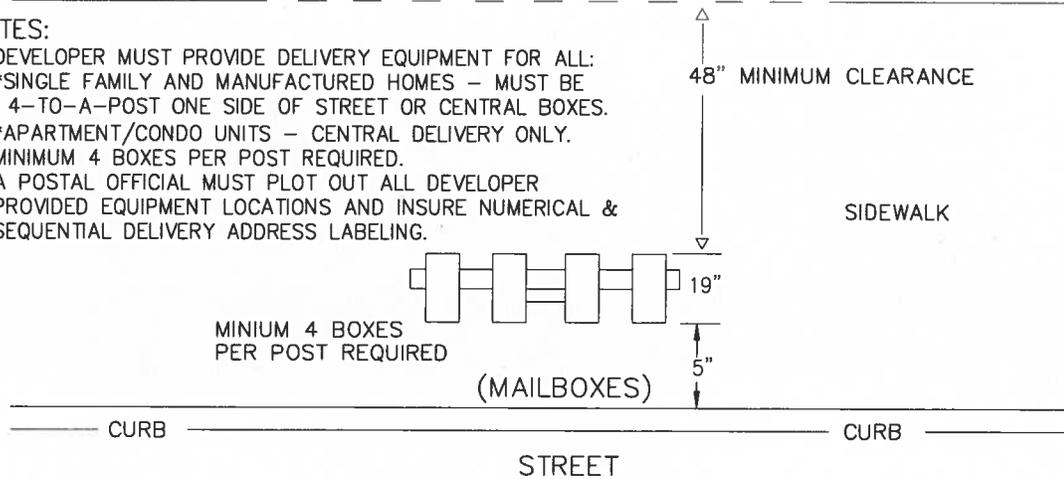


(TOP VIEW)

— WIDTH OF BOXES —

NOTES:

1. DEVELOPER MUST PROVIDE DELIVERY EQUIPMENT FOR ALL:
 *SINGLE FAMILY AND MANUFACTURED HOMES – MUST BE 4-TO-A-POST ONE SIDE OF STREET OR CENTRAL BOXES.
 *APARTMENT/CONDO UNITS – CENTRAL DELIVERY ONLY.
2. MINIMUM 4 BOXES PER POST REQUIRED.
3. A POSTAL OFFICIAL MUST PLOT OUT ALL DEVELOPER PROVIDED EQUIPMENT LOCATIONS AND INSURE NUMERICAL & SEQUENTIAL DELIVERY ADDRESS LABELING.



**CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS**

REVISIONS	
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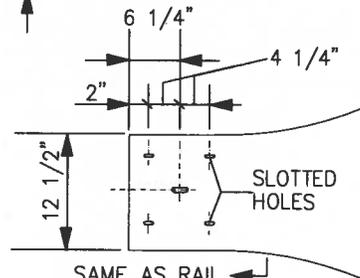
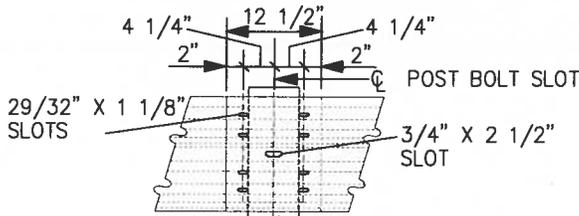
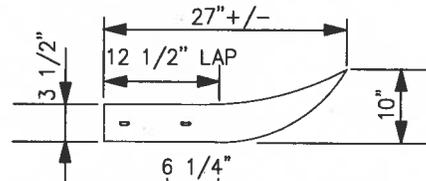
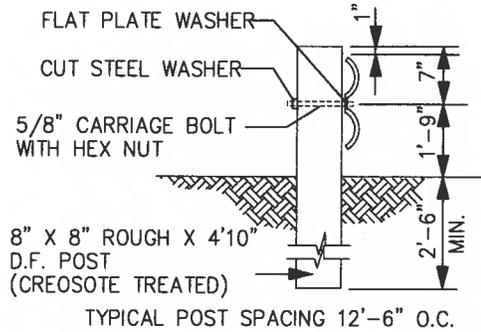
**CURBLINE MAIL
RECEPTACLE INSTALLATION**

STD. NO.

603

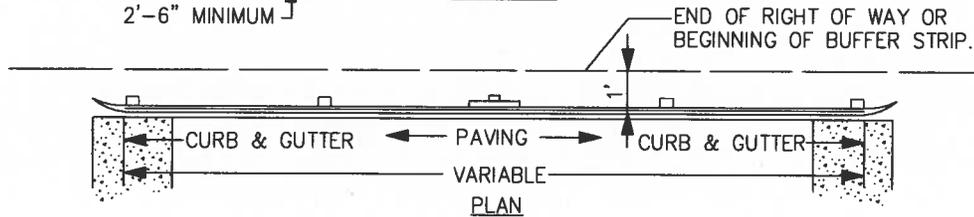
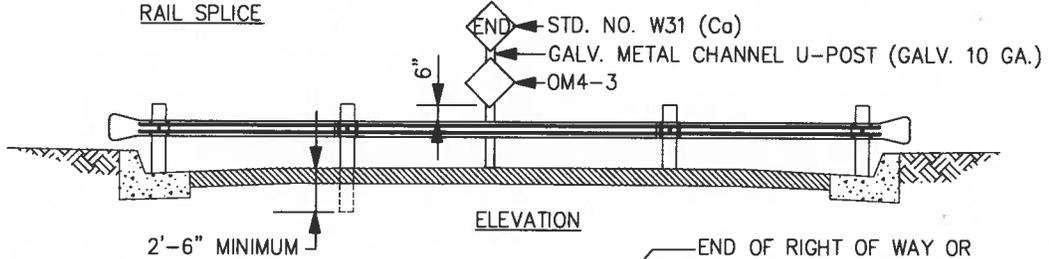
NOTES:

1. GUARD RAIL ELEMENT MAY BE EITHER STEEL OR ALUMINUM.
2. STEEL RAIL SHALL BE GALVANIZED PER ASTM DESIGNATION A-123.
3. STEEL RAIL THICKNESS SHALL BE MIN. 12 GAUGE.
4. ALUMINUM RAIL THICKNESS SHALL BE MIN. 0.105 IN.
5. ALL HOLES IN WOOD POSTS AND BLOCKS SHALL BE 3/4" DIAMETER
6. ALL HOLES IN STEEL POSTS AND BLOCKS SHALL BE 13/16" DIAMETER MAXIMUM.



5/8" X 1 1/4" BUTTON HEAD OVAL SHOULDER BOLTS WITH 1 1/4" RECESSED HEX NUTS - TOTAL: 8 PER SPLICE AND 4 PER TERMINAL SECTION.

RAIL SPLICE



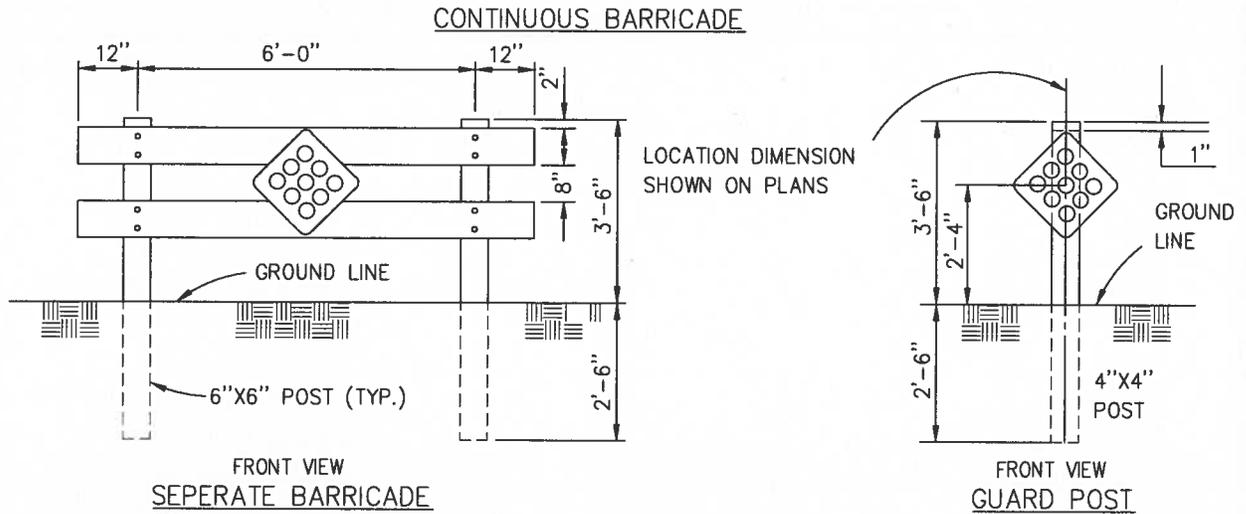
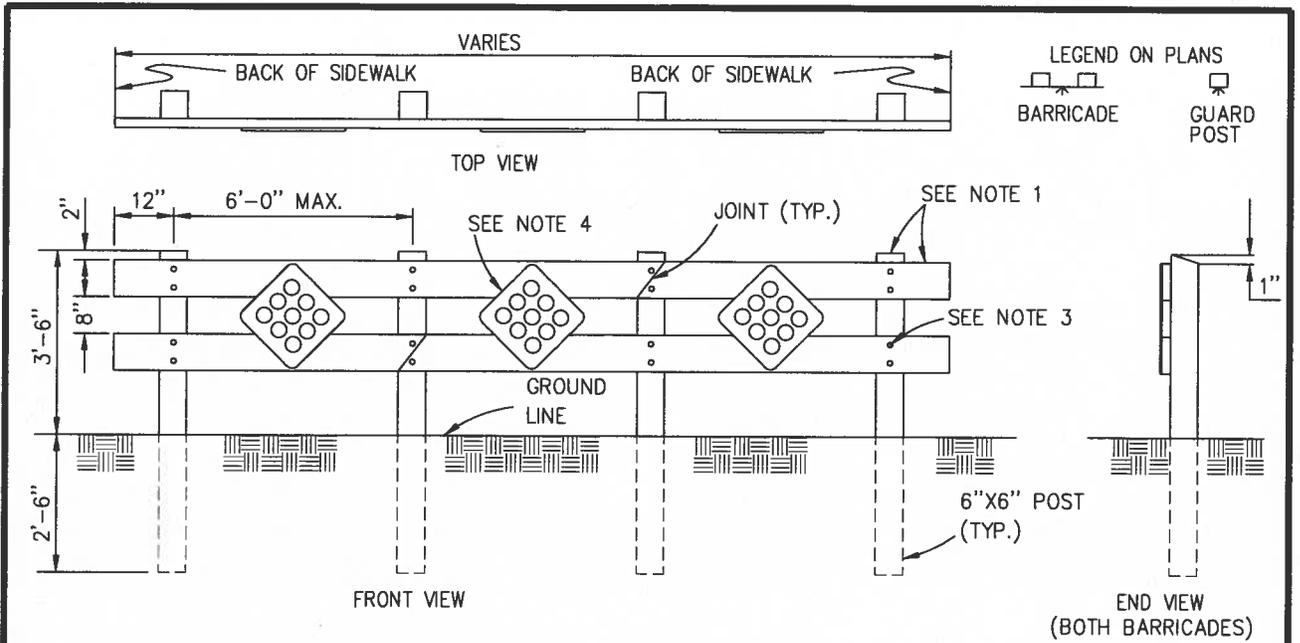
CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
10/98	
APPROVED 1/14/10	

BARRICADE

STD. NO.

604



NOTES

1. POSTS TO BE STRUCTURAL GRADE REDWOOD OR PRESSURE TREATED (WITH WOOD PRESERVATIVE) DOUGLAS FIR, SURFACED FOUR SIDES; CROSS PIECES TO BE 2"X8" SELECT GRADE DOUGLAS FIR, SURFACED FOUR SIDES.
2. ALL EXPOSED PORTIONS OF BARRICADES SHALL BE PAINTED WITH TWO COATS OF WHITE EXTERIOR ENAMEL OVER PRIME COAT.
3. CONNECTIONS SHALL BE MADE WITH 3/8" X 6" GALVANIZED LAG SCREWS WITH ONE (1) WASHER EACH. REFLECTOR SIGN FASTENERS TO BE 3/8" X 1 1/2" GALVANIZED LAG SCREWS.
4. REFLECTOR SIGNS - CALIFORNIA TYPE N. SIZE 18" X 18" - YELLOW WITH NINE (9) - 3 1/2" REFLECTORS (CENTER MOUNT).
 - A. REFLECTORS SHALL BE RED FOR USE ON DEAD END STREETS, IN ALL OTHER CASES THEY SHALL BE YELLOW. REFLECTOR MATERIAL SHALL BE PLASTIC OR OTHER APPROVED REFLECTORIZED MATERIAL.
 - B. SIGN MATERIAL SHALL BE ALUMINIUM ALLOY 6061-T6 OR 5052-H38, ALUMINIUM THICKNESS 0.063 INCHES.
5. SIX FOOT LONG HAT SECTION METAL POST PER CALTRANS STD. PLAN A74-A OPTIONAL FOR GUARD POST.

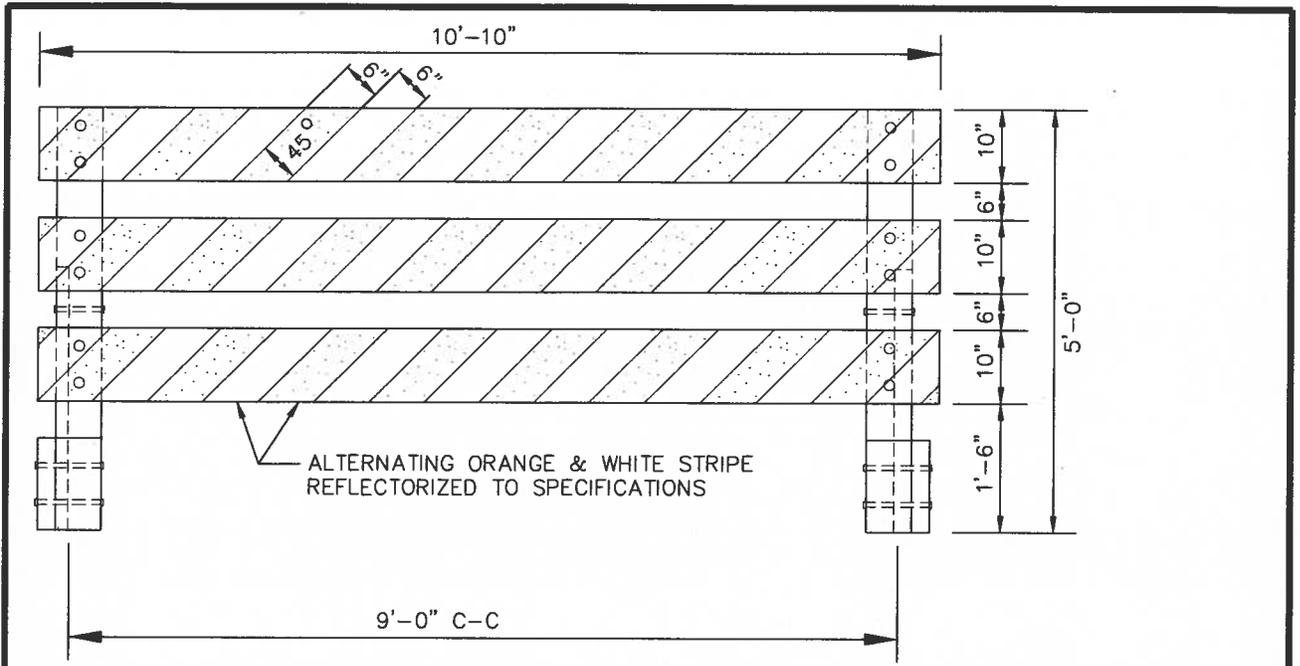
**CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS**

REVISIONS	
5/92	
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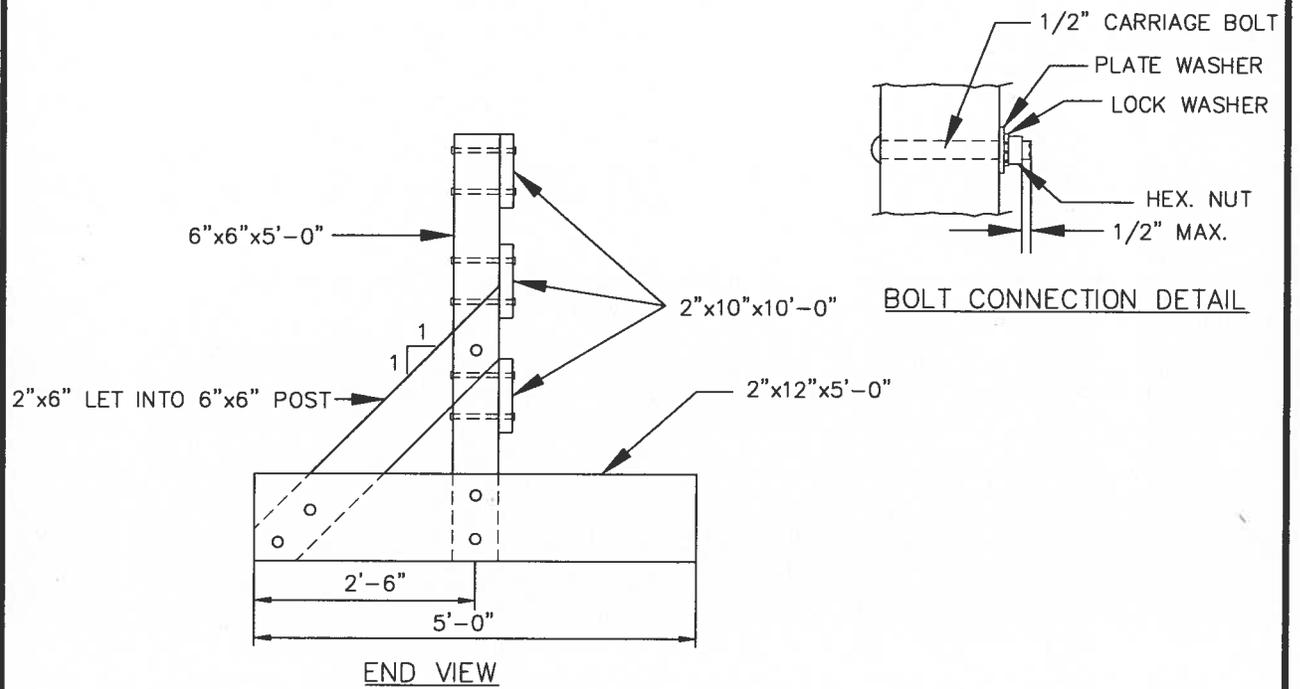
GUARD POST AND BARRICADE

STD. NO.

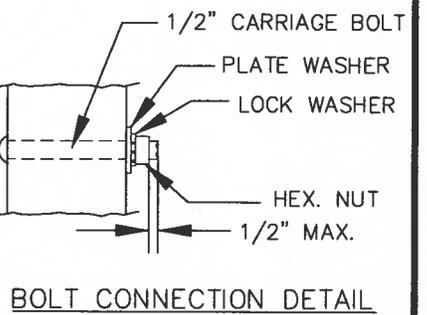
606



FRONT VIEW



END VIEW



BOLT CONNECTION DETAIL

TIMBER BARRICADES – TYPE III SHALL BE USED BY THE ENGINEER FOR SPECIAL TRAFFIC CONTROL APPLICATIONS. BARRICADES SHALL BE SECURED WITH CHAINS AS DIRECTED BY THE ENGINEER.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
APPROVED 1/14/10	

TIMBER BARRICADE - TYPE III

STD. NO.

609a

SHEET 1 OF 2

LUMBER:

ALL LUMBER SHALL BE KILN DRIED DOUGLAS FIR, CONSTRUCTION GRADE OR BETTER. S4S.

CONNECTIONS:

ALL CONNECTIONS SHALL BE BOLTED AS SHOWN ON PLAN AND BOLT CONNECTION DETAIL. ALL BOLTS, WASHERS SHALL BE HOT DIPPED GALVANIZED.

PAINTING:

ALL WOOD SURFACES SHALL BE PAINTED WITH ONE COAD OF WOOD PRIMER. WOOD PRIMER SHALL COMPLY IN ALL RESPECTS WITH FEDERAL SPECIFICATIONS TT-P-0025D, EXCEPT THAT IT SHALL DRY HARD IN NOT MORE THAN 12 HOURS. SUSEQUENT TO APPLICATION OF WOOD PRIMER, ALL WOOD SURFACES, EXCEPT RAIL SURFACES TO BE REFLECTORIZED, WILL BE PAINTED WITH ONE COAT OF LATEX-BASE WHITE PAINT. PAINT SHALL COMPLY IN ALL RESPECTS WITH FEDERAL SPECIFICATION TT-P-0096B.

REFLECTORIZED RAILS:

THE ENTIRE FRONT FACE OF ALL 2" x 10" x 10' - 0 (3 ea.) RAILS SHALL BE COVERED SUCH A REFLECTORIZED SHEETING MATERIAL HAVING ALTERNATING 6" WIDE ORANGE AND WHITE STRIPES SLOPING DOWNWARD TO THE LEFT AT 45 . REFLECTIVE SHEETING SHALL BE APPIED TO THE WOOD RAIL SURFACE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, AND SHALL NOT CHIP, PEEL OR CRACK, AND SHALL MAINTAIN THE SPECIFIED MINIMUM REFECTANCE VALUES WHEN EXPOSED TO EXTERNAL USE FOR A PERIOD OF 3 YEARS. REFLECTIVE SHEETING SHALL MEET THE FOLLOWING MINIMUM DRY REFLECTANCE VALUES AT 0.2 AND 0.5 DEGREE DIVERGENCE EXPRESSED IN UNITS OF CANDLEPOWER PER FOOT CANDLE PER SQUARE FOOT, AS MEASURED AT A DISTANCE OF 50 FEET FROM THE LIGHT SOURCES. THE WET REFLECTANCE VALUES SHALL BE A MINIMUM OF 90 PERCENT OF THE DRY VALUES.

DRY REFLECTANCE VALUES

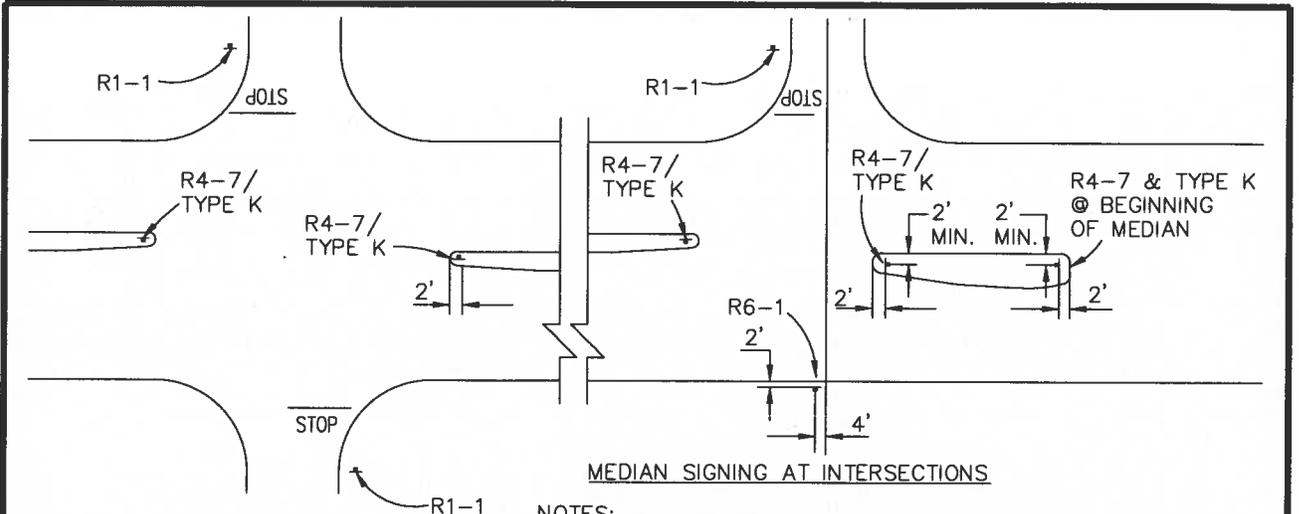
DIVERGENCE ANGLE (DEGREE)	INCIDENCE ANGLE (DEGREE)	WHITE	ORANGE
0.2	-4	50.0	13.0
0.2	30	12.0	4.0
0.5	-4	15.0	6.5
0.5	30	6.0	2.5

CERTIFICATES OF COMPLIANCE

SUPPLIER SHALL FURNISH CERTIFICATES OF COMPLIANCE SPECIFITIONS FOR LUMBER, PAINT, AND REFLECTIVE SHEETING AS REQUIRED BY THE ENGINEER.

**CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS**

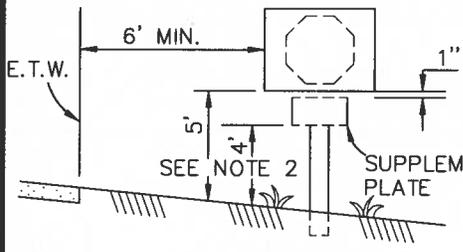
REVISIONS		TIMBER BARRICADE - TYPE III	STD. NO.
5/92			609b
			SHEET 2 OF 2
APPROVED 1/14/10			



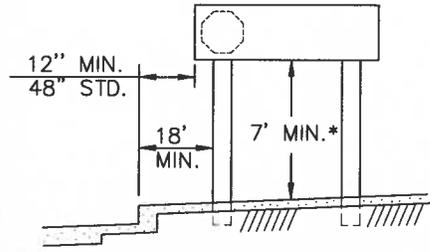
MEDIAN SIGNING AT INTERSECTIONS

NOTES:

1. SEE SHOULDER AND PARKWAY LOCATION DETAILS FOR STANDARD MOUNTING HEIGHTS. EXCEPTIONS SHOULD BE MADE TO AVOID SIGHT RESTRICTIONS OR UNDESIREABLE CONDITIONS, AT THE DIRECTION OF THE ENGINEER.
2. WHEN SUPPLEMENTAL PLATE IS USED, THE 4' MOUNTING HEIGHT SHALL SUPERSEDE THE 5' MOUNTING HEIGHT AT SHOULDER LOCATIONS.
3. SEE THE LATEST STATE OF CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) R1-1, R4-7, TYPE K AND TYPE N DETAILS. SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE NOTED. R1-1 and TYPE N SHALL BE FACED WITH HIGH INTENSITY PRISMATIC (HIP) OR EQUIVALENT GRADE REFLECTIVE MATERIAL, MEETING STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, SECTION 718, REFLECTIVE SHEETING AND 1160 ANTI-GRAFFITI FILM.
4. PARKWAY AND SHOULDER SIGNS HAVING A HORIZONTAL WIDTH 48" OR GREATER SHALL BE DUAL-POST MOUNTED. SIGNS LESS THAN 48" IN WIDTH SHALL BE MOUNTED ON A SINGLE POST. POST(S) SHALL BE SQUARE PERFORATED STEEL TUBING WITH BREAKAWAY BASE EXCEPT WHEN MOUNTED ON SAME POST AS STREET NAME SIGN. SEE PLAN VIEW FOR ANGULAR PLACEMENT OF SIGNS. SEE STD. NO. 612 FOR SQUARE PERFORATED STEEL TUBING DETAIL.
5. ADVANCE STREET NAME SIGNS PLACED IN MEDIANS SHALL BE 2' FROM THE EDGE OF THE TRAVELED WAY, AND BE LOCATED APPROXIMATELY 300' FROM THE INTERSECTION OR 100' FROM THE BEGINNING OF A LEFT TURN POCKET. SIGN MOUNTING HEIGHT SHALL BE 5' ABOVE MEDIAN SURFACE OR AS DIRECTED BY THE ENGINEER. POSTS FOR ADVANCE STREET NAME SIGNS SHALL BE SQUARE PERFORATED STEEL TUBING.
6. SIZING OF R1-1 ("STOP") SIGNS:
 - 24" - LOCAL TO LOCAL INTERSECTION WITH LOW APPROACH SPEED AND GOOD VISIBILITY.
 - 30" - STANDARD SIZE.
 - 36" - WHERE THE APPROACH WIDTH IS GREATER THAN 30'; DUAL SIGNS SHALL BE USED WHERE THERE IS A RAISED MEDIAN AND APPROACH WIDTH IS GREATER THAN 30'.
 - 48" - WHERE THE ENGINEER DETERMINES THERE IS A DEMONSTRATED OR POTENTIAL ACCIDENT PROBLEM.



SHOULDER LOCATIONS

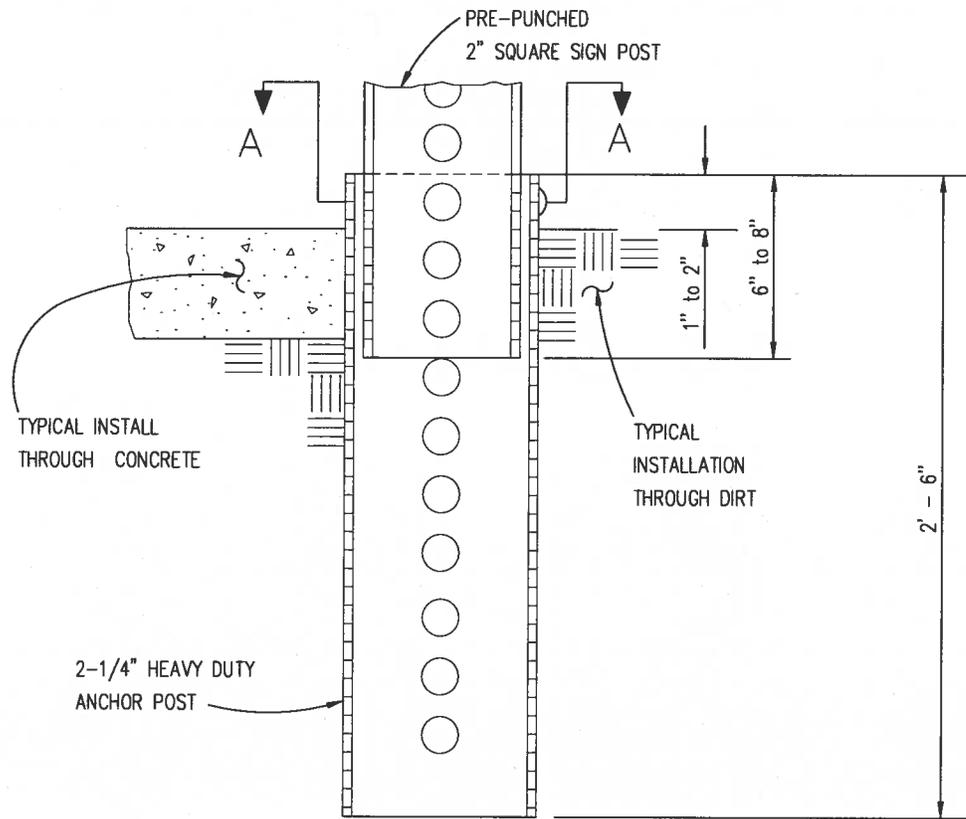
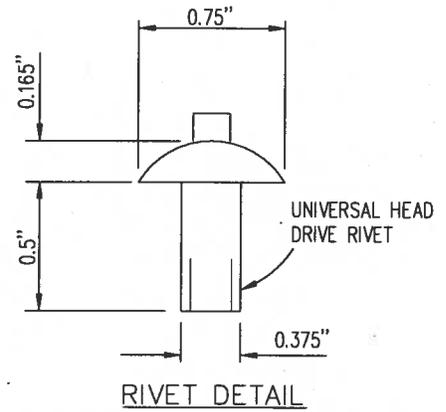
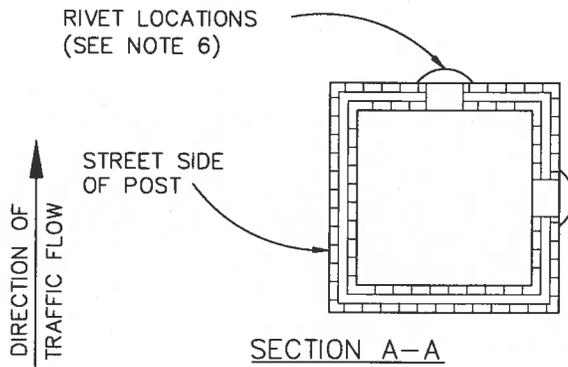


PARKWAY LOCATIONS

* 8' MINIMUM AT DESIGNATED BIKE TRAIL

**CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS**

REVISIONS		TRAFFIC SIGN PLACEMENT	STD. NO.
5/92			610
APPROVED 1/14/10			



TYPICAL SECTION

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
APPROVED 1/14/10	

SIGN POST INSTALLATION

STD. NO.

612a

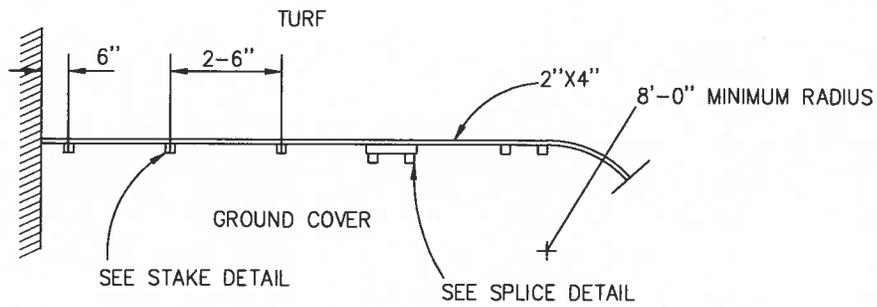
SHEET 1 OF 2

NOTES:

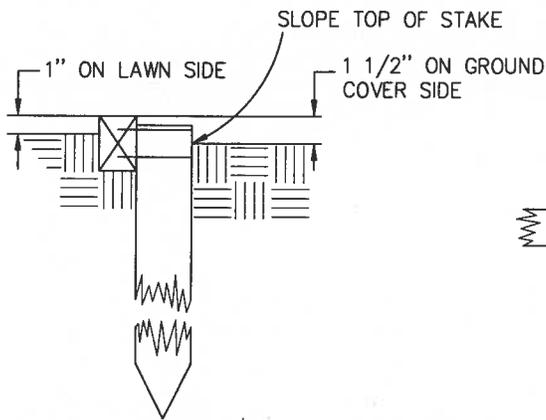
1. SQUARE PERFORATED STEEL TUBE POSTS WITH BREAK-AWAY BASE, "TELESPAR," SHALL BE USED FOR ALL TRAFFIC CONTROL AND INFORMATIONAL SIGNS WITHIN ROAD RIGHT-OF-WAY, WITH THE EXCEPTION OF STREET NAME SIGNS PER STANDARD PLAN 601.
2. THE NUMBER OF POSTS REQUIRED FOR SIGN INSTALLATION SHALL BE DETERMINED BY THE AREA OF THE SIGN OR COMBINATION OF SIGNS TO BE INSTALLED. A SINGLE POST SHALL BE USED WHERE BOTH THE LENGTH AND WIDTH ARE LESS THAN 48", WITH THE EXCEPTION OF A 48" X 48" STOP SIGN. DOUBLE POSTS SHALL BE USED WHERE EITHER THE LENGTH OR THE WIDTH EXCEEDS 48".
3. THE ANCHOR ASSEMBLY SHALL CONSIST OF A 2 1/2" SQUARE BY 2'-6" HEAVY DUTY ANCHOR POST.
4. THE ANCHOR ASSEMBLY, CONSISTING OF THE ANCHOR POST, SHALL BE DRIVEN SIMULTANEOUSLY UNTIL ONLY 1" TO 2' REMAINS ABOVE GROUND LEVEL. THE TOPS OF BOTH PIECES SHALL BE FLUSH.
5. ALL DIRT SHALL BE REMOVED FROM THE INSIDE TOP 8" OF THE ANCHOR ASSEMBLY TO ALLOW FOR INSTALLATION OF THE SIGN POST.
6. INSTALL THE 2" SQUARE SIGN POST 6" TO 8" INTO THE ANCHOR ASSEMBLY AND SECURE IN PLACE WITH TWO 5/16" UNIVERSAL HEAD DRIVE RIVETS AS SHOWN. THE RIVETS SHALL BE INSTALLED ON THE SIDE OPPOSITE TRAFFIC FLOW AND THE SIDE AWAY FROM TRAFFIC AS SHOWN IN ORDER TO ACHIEVE THE MAXIMUM BREAK-AWAY EFFECT.
7. INSTALLATION ACCORDING TO THESE REQUIREMENTS IS ESSENTIAL TO MAINTAIN THE BREAK-AWAY CHARACTERISTICS OF THE POST SYSTEM. UNDER NO CIRCUMSTANCE SHALL THE ANCHOR ASSEMBLY BE SECURED IN CONCRETE FOOTINGS.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

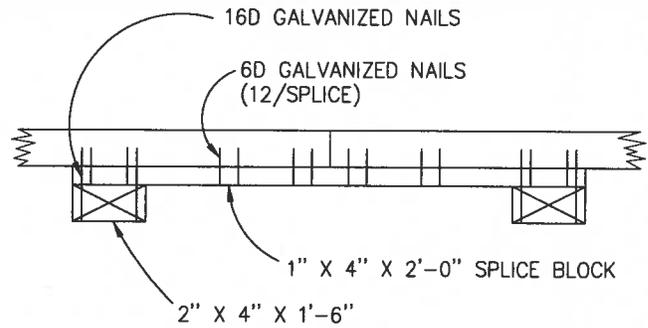
REVISIONS	SIGN POST INSTALLATION	STD. NO.
5/92		612b
		SHEET 2 OF 2
APPROVED 1/14/10		



PLAN OF HEADER



STAKE DETAIL



SPLICE DETAIL

NOTES:

1. HEADERS AND STAKES SHALL BE REDWOOD OR DOUGLAS FIR TREATED PER AWPA RECOMMENDED PRACTICE.
2. USE TWO LAMINATED 1" X 4" BOARDS FOR CURVED HEADER BOARDS.
3. USE GALVANIZED NAILS.

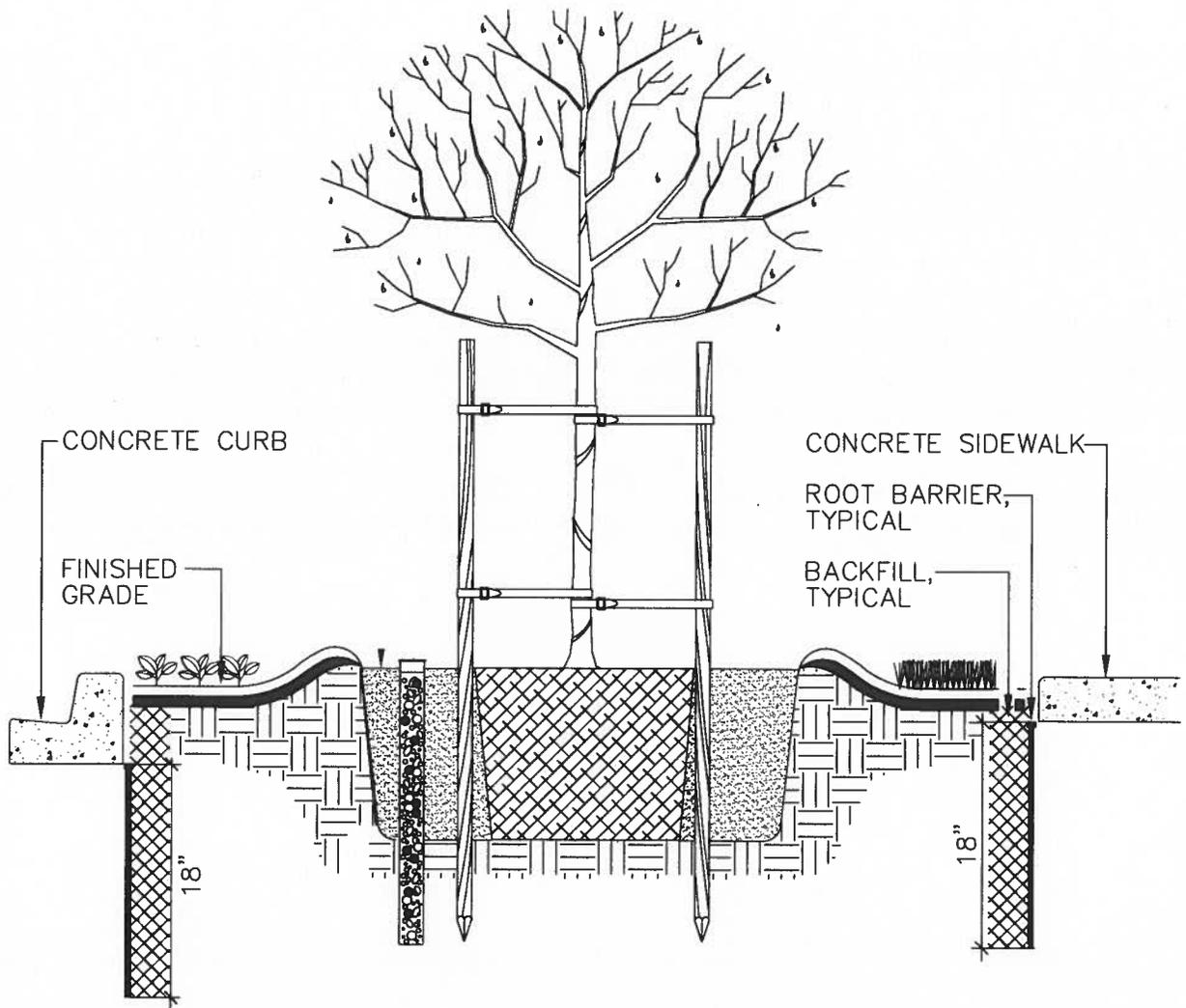
CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
5/92	
APPROVED 1/14/10	

HEADER DETAILS

STD. NO.

613



NOTES:

1. DETAIL IS FOR THE INSTALLATION OF ROOT BARRIERS ONLY, REFER TO THE TREE DETAILS FOR INSTALLATION INSTRUCTIONS FOR TREES.
2. PROVIDE A MIN. OF 20 FEET OF ROOT BARRIER CENTERED ON TREE.
3. ROOT BARRIER SHALL BE 18" BIO BARRIER OR APPROVED EQUAL.
4. CENTER TREE BETWEEN CURB AND SIDEWALK.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

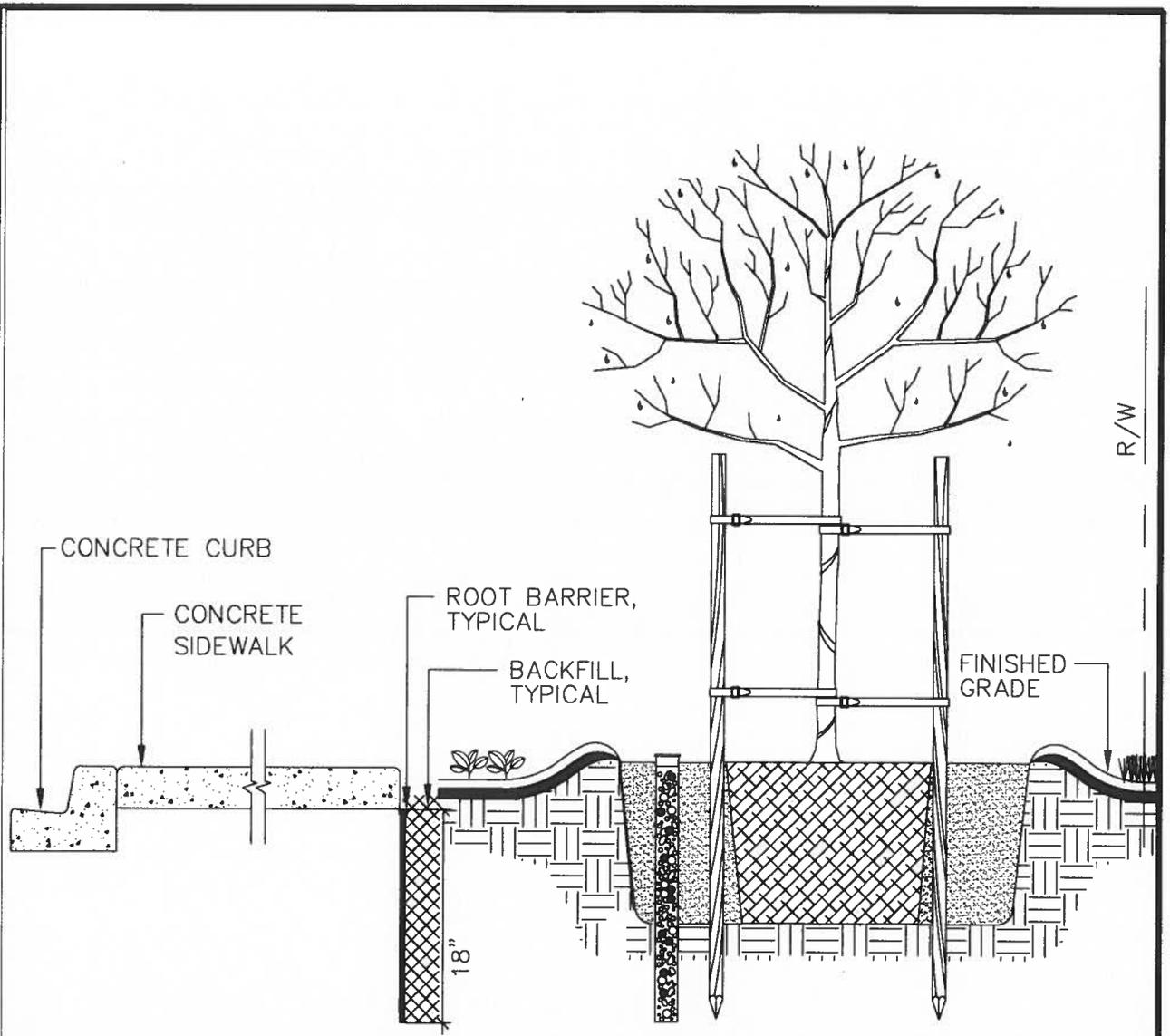
REVISIONS	
5/92	
APPROVED 1/14/10	

**TREE ROOT BARRIER
SIDEWALK AT R/W**

STD. NO.

614a

SHEET 1 OF 2



NOTES:

1. DETAIL IS FOR THE INSTALLATION OF ROOT BARRIERS ONLY, REFER TO THE TREE DETAILS FOR INSTALLATION INSTRUCTIONS FOR TREES.
2. PROVIDE A MIN. OF 20 FEET OF ROOT BARRIER CENTERED ON TREE.
3. ROOT BARRIER SHALL BE 18" BIO BARRIER OR APPROVED EQUAL.
4. PLACE TREE 4' MIN FROM SIDEWALK.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

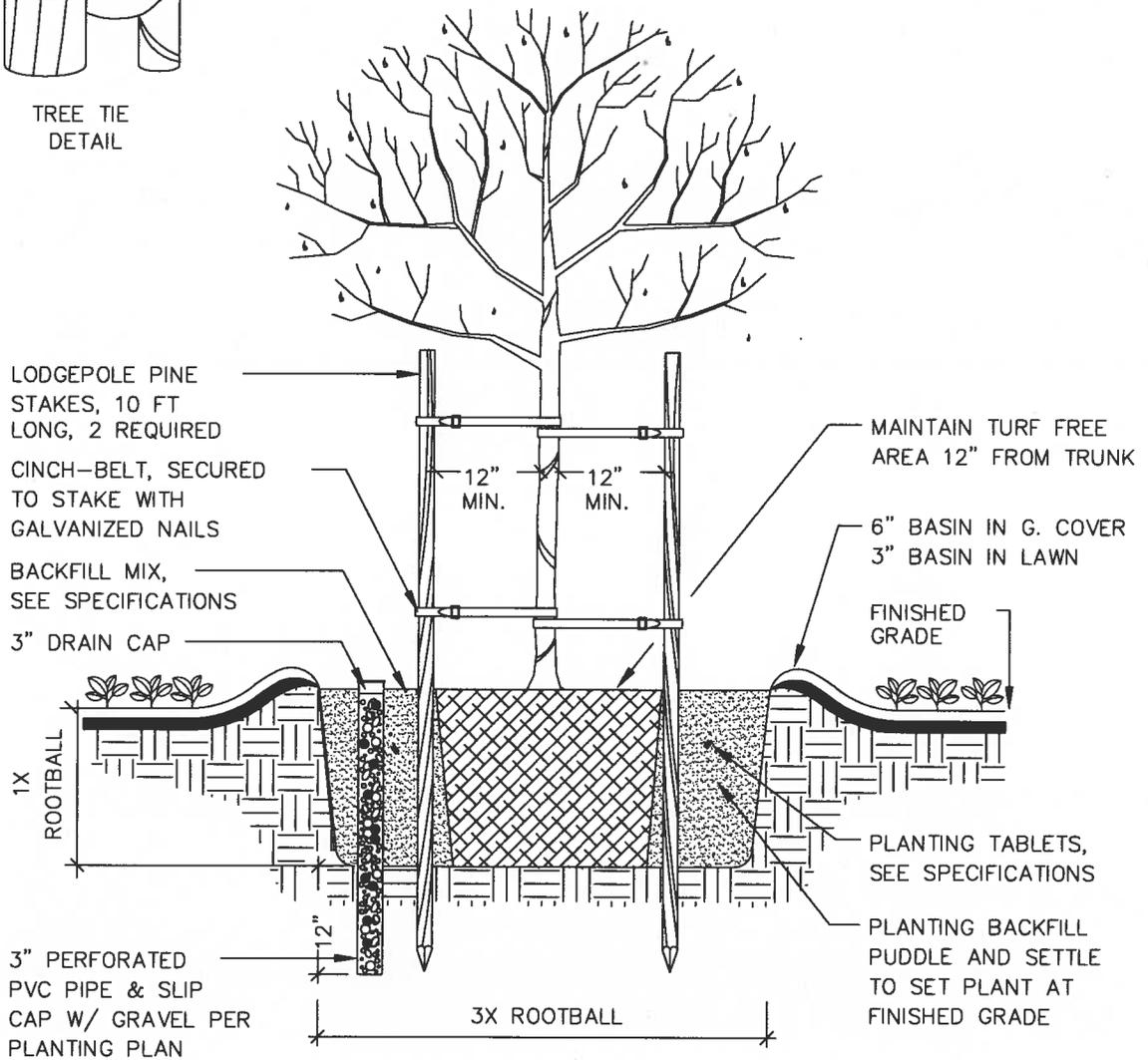
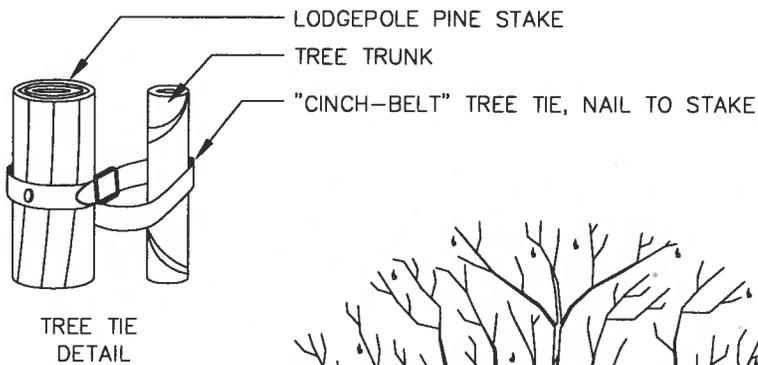
REVISIONS	
5/92	
APPROVED 1/14/10	

TREE ROOT BARRIER
SIDEWALK AT CURB

STD. NO.

614b

SHEET 2 OF 2



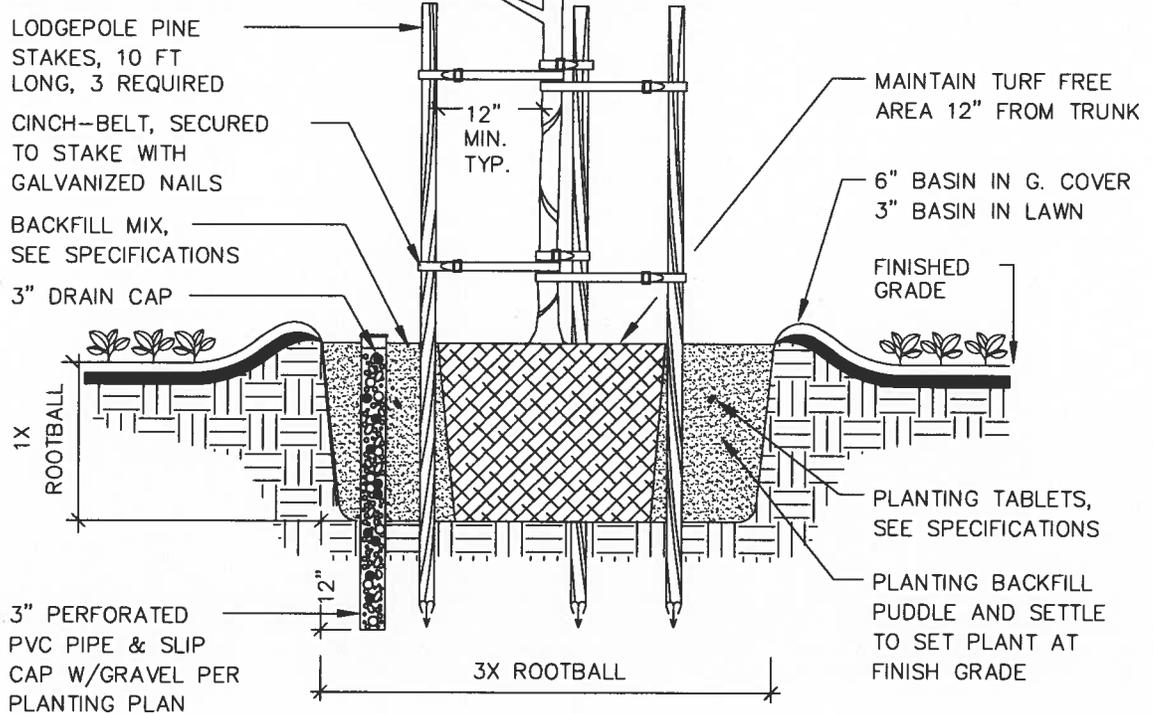
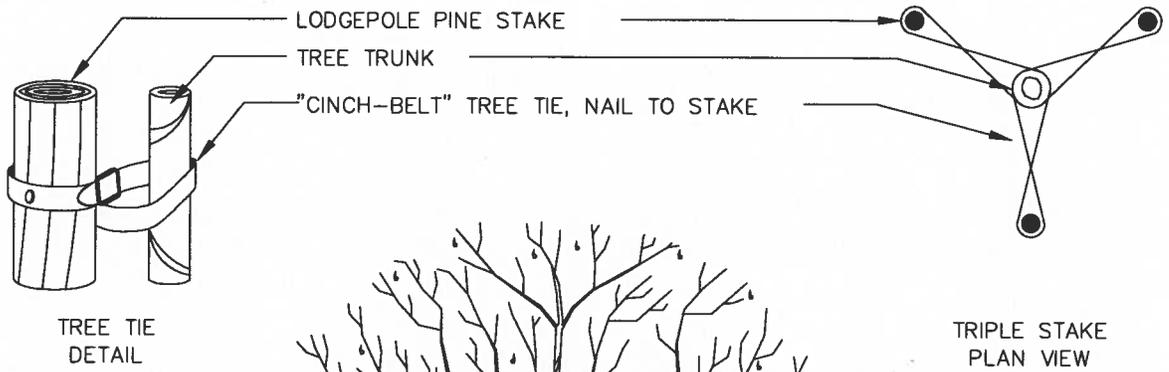
NOTE:
ALL PLANT BASINS SHALL RECEIVE A 4" DEEP LAYER OF APPROVED MULCH.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	
APPROVED 1/14/10	

STREET TREE
DOUBLE STAKE TREE
5 GAL, 15 GAL, 24" BOX

STD. NO.
615a
SHEET 1 OF 5



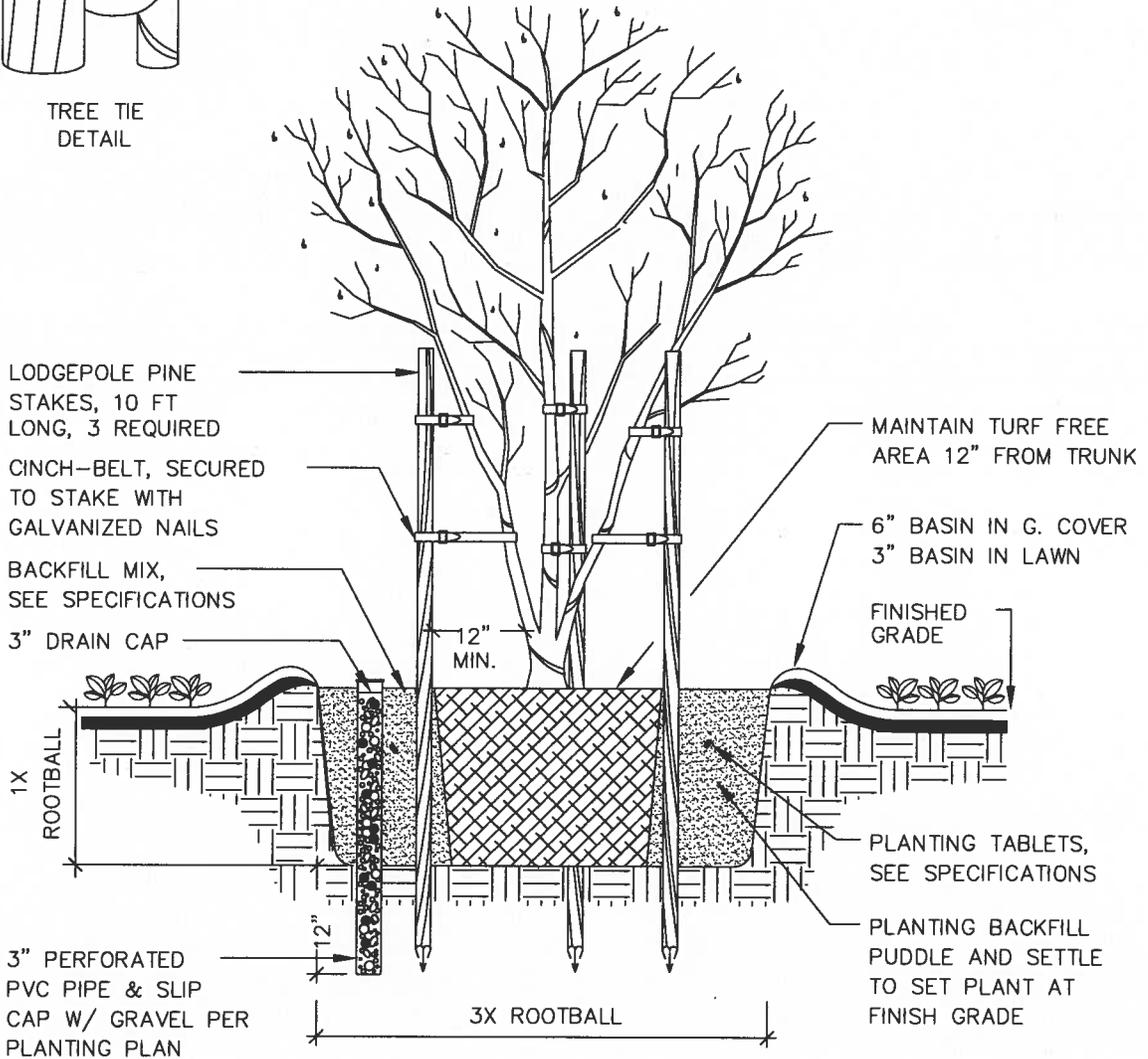
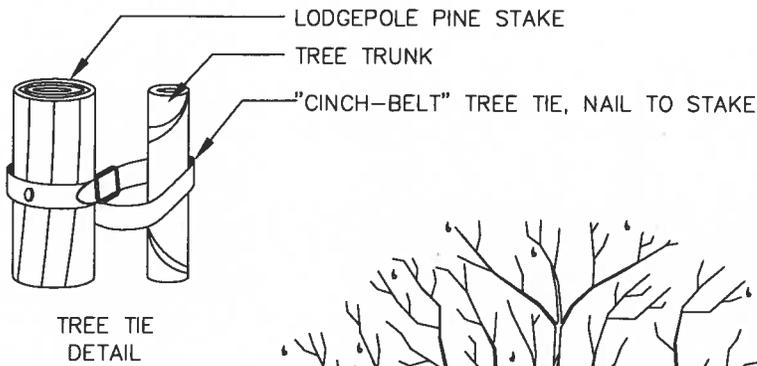
NOTE:
ALL PLANT BASINS SHALL RECEIVE A 4" DEEP LAYER OF APPROVED MULCH.

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DEPARTMENT OF PUBLIC WORKS

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STREET TREE
DOUBLE STAKE TREE
30" BOX SIZE OR GREATER

STD. NO.
615b
SHEET 2 OF 5



NOTE:
 ALL PLANT BASINS SHALL RECEIVE A 4" DEEP LAYER OF APPROVED MULCH.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

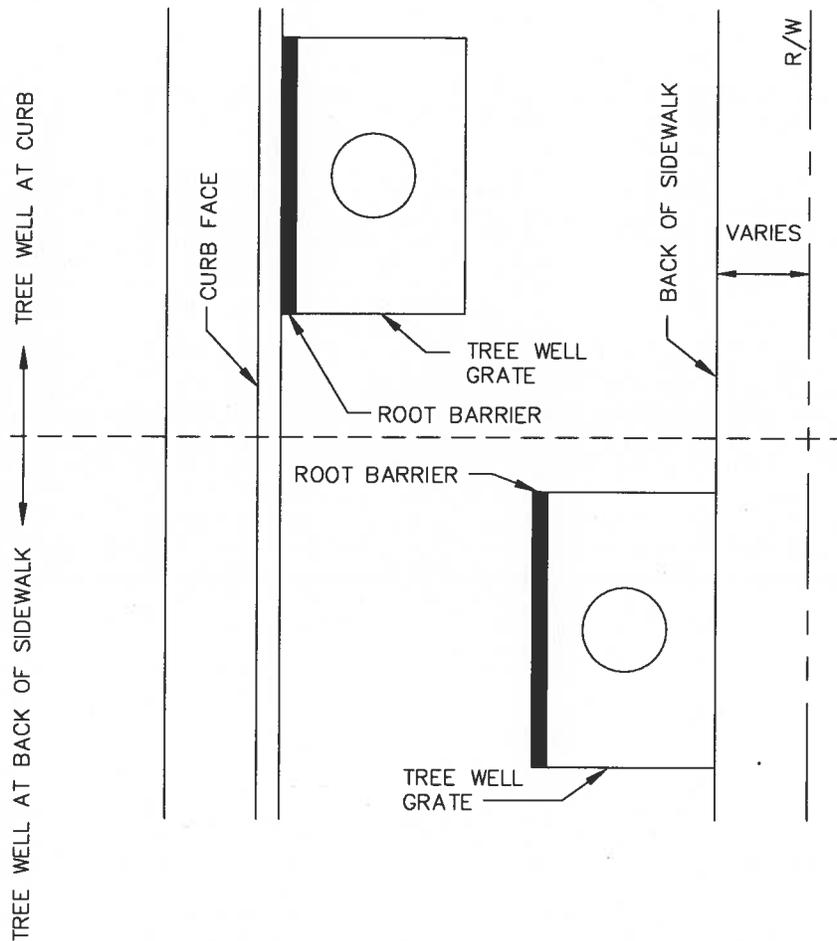
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STREET TREE
MULTI TRUNK TREE
24" BOX SIZE OR GREATER

STD. NO.

615c

SHEET 3 OF 5



NOTES:

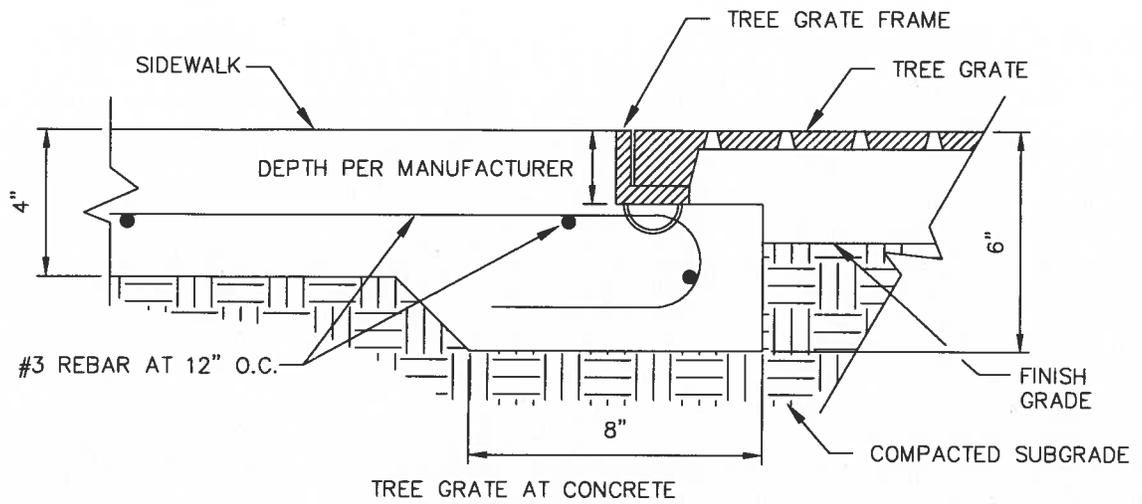
1. ROOT BARRIER PER STANDARD 614.
2. TREE WELL GRATE AND FRAME SHALL BE SOUTH BAY FOUNDRY MODEL SP D00 4'X6', OR APPROVED EQUAL.
3. TREE WELLS SHALL BE SPACED APPROXIMATELY 50 FEET APART, BUT NOT LESS THAN ONE PER RESIDENTIAL LOT.
4. LOCATION OF TREE WELLS SHALL BE SUBJECT TO THE FOLLOWING CONDITIONS:
 - A. 50' FROM CURB RETURNS
 - B. 20' FROM LIGHT STANDARDS
 - C. 10' FROM FIRE HYDRANTS
 - D. 10' FROM DRIVEWAYS
5. TREE WELLS SHALL BE BACKFILLED WITH CLEAN SOIL AND FLUSH WITH ADJACENT WALK UNTIL TREES ARE PLANTED.
6. FOR TREE GRATE AND FRAME DETAILS, SEE 615e.

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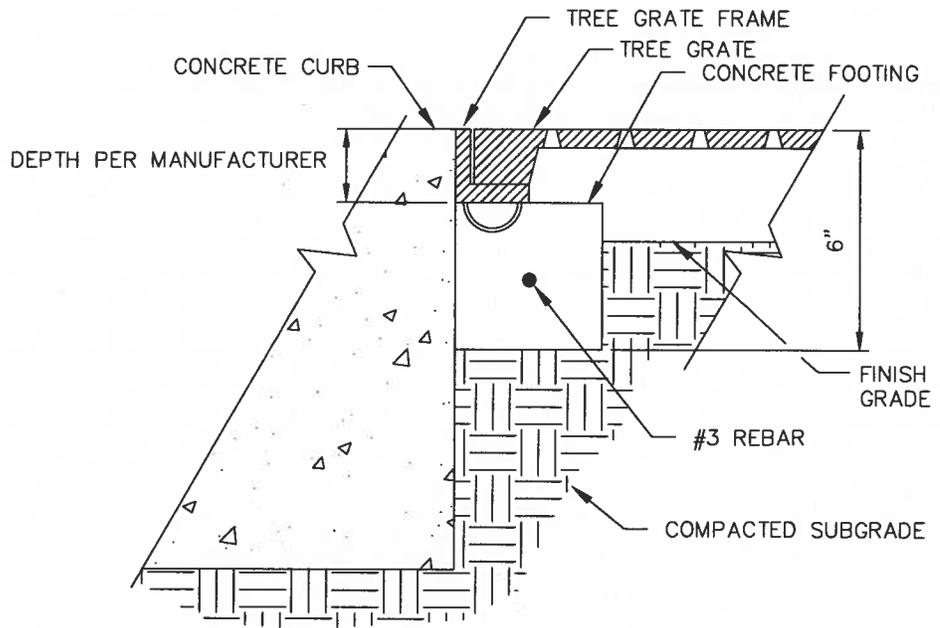
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TREE WELL

STD. NO.
615d
SHEET 4 OF 5



TREE GRATE AT CONCRETE



TREE GRATE AT CURB

NOTES:

1. CONCRETE SHALL BE 560-C-3250.
2. CONCRETE FOOTING SHALL BE MIN. 4" X 4".
3. TREE GRATE AND FRAME PER STANDARD 615d.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

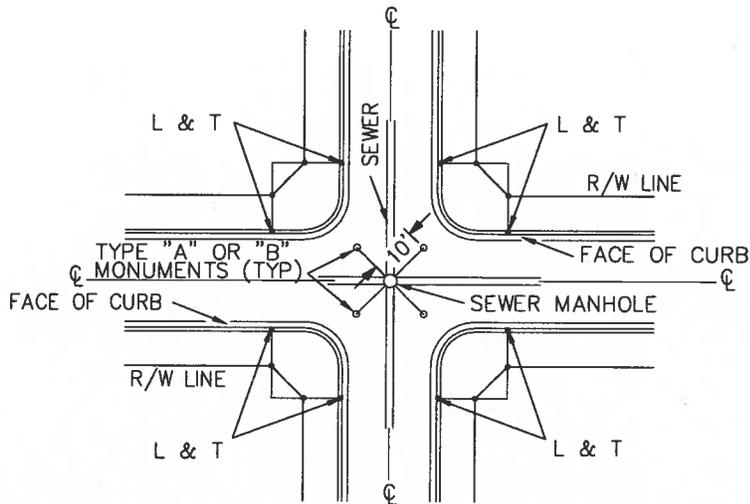
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TREE WELL

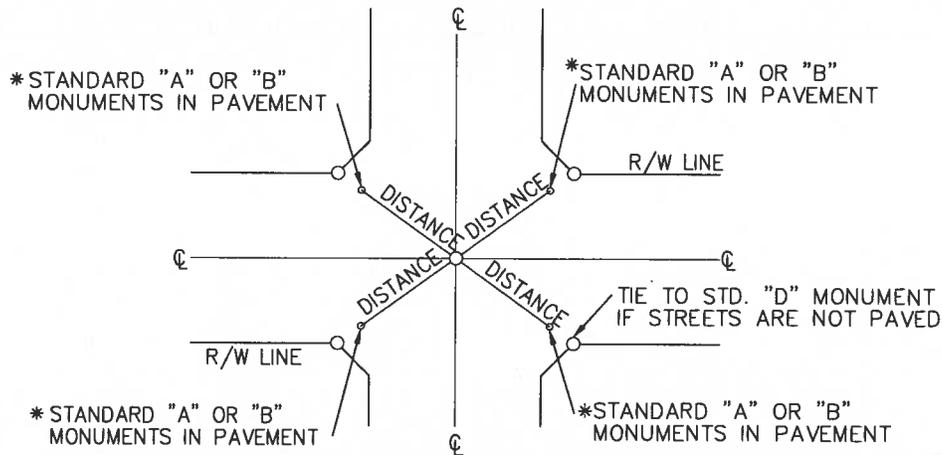
STD. NO.

615e

SHEET 5 OF 5



MONUMENTING STREET CENTERLINES WHEN SEWERS ARE LOCATED ON CENTERLINE



*SET TIE IN PAVEMENT IF R/W IS UNAVAILABLE.

MONUMENTING STREET CENTERLINES WHERE CURBS ARE NOT REQUIRED

NOTES:

1. L & T AS SHOWN HEREON INDICATES LEAD AND TACK OR STEEL PIN MONUMENT SET IN CURB.
2. LEAD AND TAG OR STEEL PIN MONUMENT WITNESS TO PROPERTY CORNER MAY BE SET, NOT REQUIRED.
3. SEE MONUMENT SPECS 21 (RIVERSIDE COUNTY ROAD IMPROVEMENT STANDARDS AND SPECIFICATIONS) FOR TYPE "A, C, D, & E" MONUMENT DESCRIPTION AND STD. 618 FOR TYPE "B" MONUMENT DRAWING.

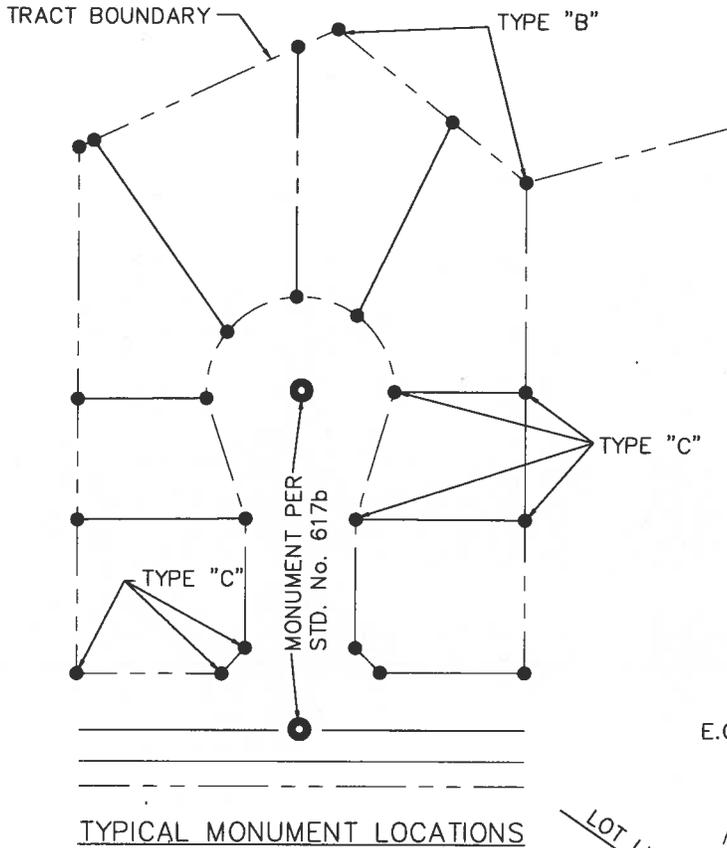
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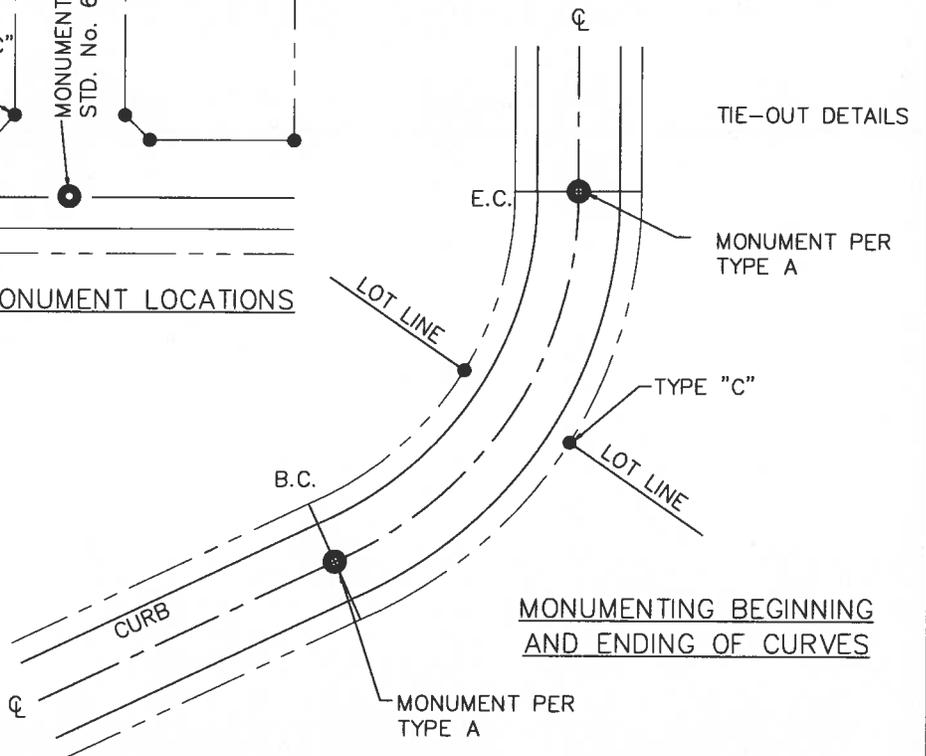
TIE-OUT STANDARDS

STD. NO.

616



TYPICAL MONUMENT LOCATIONS



MONUMENTING BEGINNING AND ENDING OF CURVES

NOTES:

1. L & T AS SHOWN HEREON INDICATES LEAD AND TACK OR STEEL PIN MONUMENT SET IN CURB.
2. LEAD AND TAG OR STEEL PIN MONUMENT WITNESS TO PROPERTY CORNER MAY BE SET, NOT REQUIRED.
3. SEE MONUMENT SPECS 21 (RIVERSIDE COUNTY ROAD IMPROVEMENT STANDARDS AND SPECIFICATIONS) FOR TYPE "A, C, D, & E" MONUMENT DESCRIPTION AND STD. 618 FOR TYPE "B" MONUMENT DRAWING.

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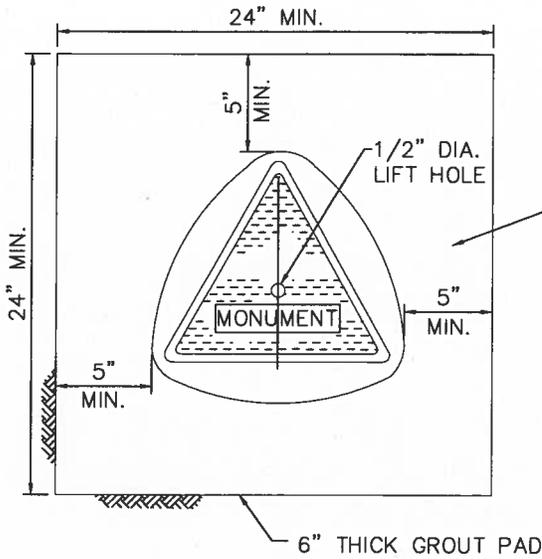
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MONUMENT LOCATIONS

STD. NO.

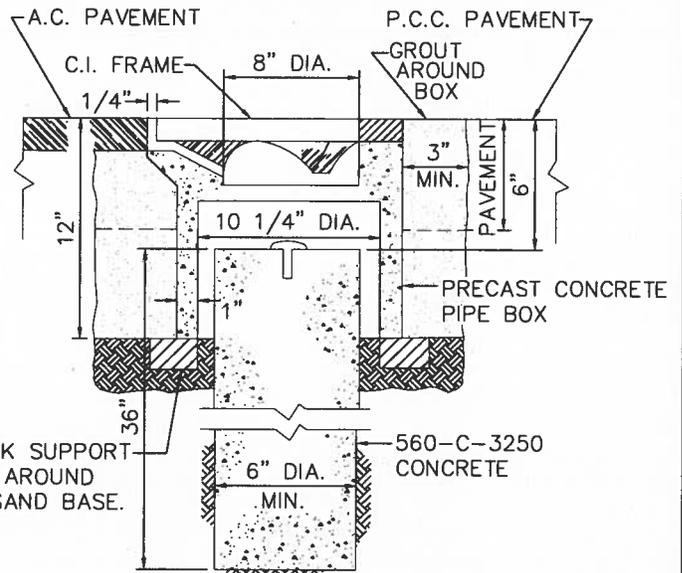
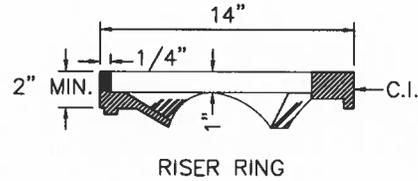
617a

SHEET 1 OF 3

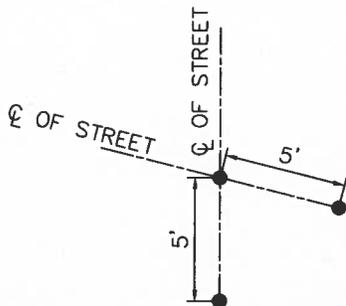


PLAN-IN UNPAVED AREA

SLOPE SURFACE OF GROUT PAD TO DRAIN AWAY FROM COVER, AND TO MEET EXISTING GRADE.



TYPICAL MONUMENT SECTION IN PAVED AREA



ALTERNATE LOCATION OF MONUMENT. TIE DISTANCES SHOWN ON FINAL SUB-DIVISION MAP IF ALTERNATE LOCATION IS USED.

LOCATION OF STREET SURVEY MONUMENT

TO BE USED AT INTERSECTION STREETS ONLY. NOT AT B.C./E.C. MONUMENT LOCATIONS IN STREETS

CITY OF MURRIETA
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STREET CENTERLINE
INTERSECTION MONUMENT

STD. NO.

617b

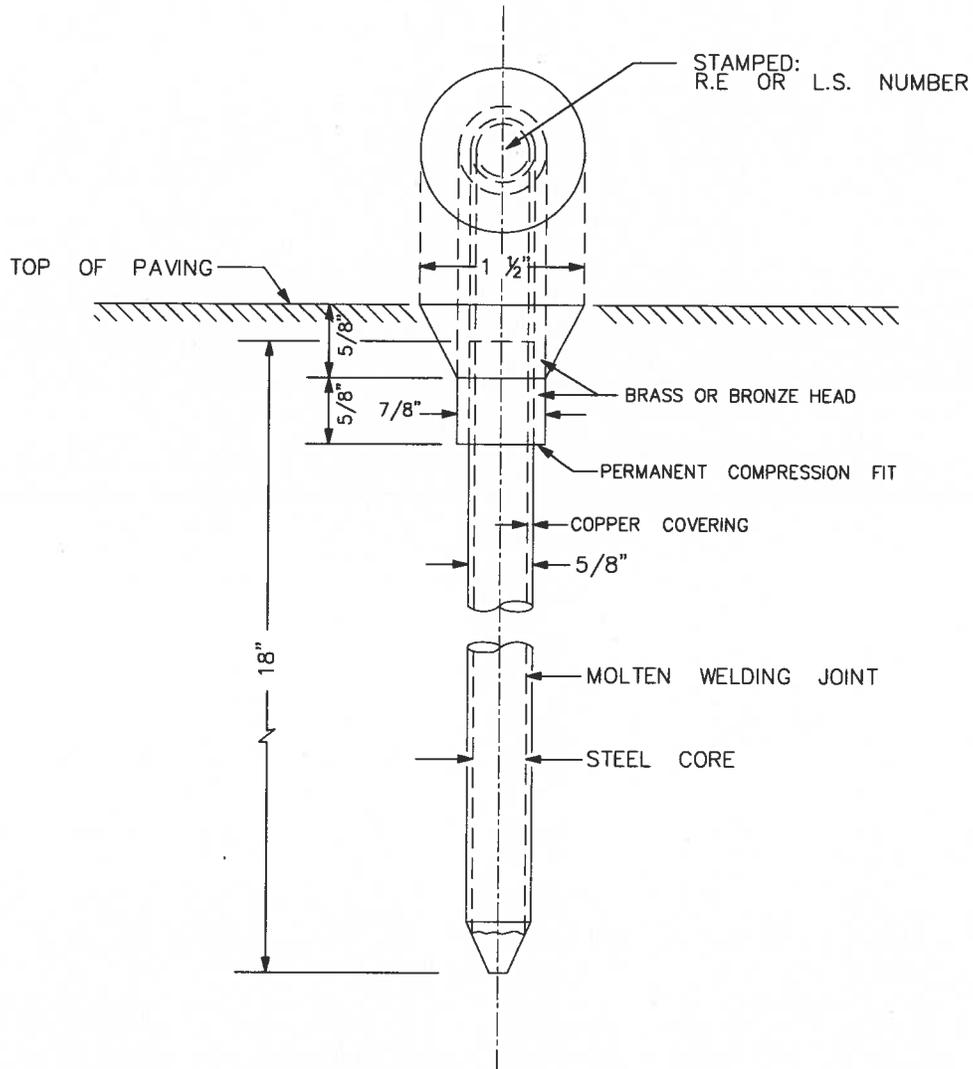
SHEET 2 OF 3

NOTES:

1. COVER AND FRAME TO BE CAST WITH PIPE BOX.
2. MONUMENT BASE MAY BE CAST IN PLACE OR PRECAST.
3. FORM AND TAPER EXPOSED UPPER 6" OF CAST IN PLACE BASE TO TOP DIAMETER OF 5". (PRECAST BASE SHALL BE SAND BACKFILLED).
4. MONUMENT MARKER SHALL BE A DOMED BRASS, 3" IN DIAMETER.
5. MONUMENT LOCATION:
 - A) SET ON ALL CENTERLINE INTERSECTIONS UNLESS ACTUAL LOCATION IS MODIFIED BY THE AGENCY AND SHOWN IN MODIFIED LOCATION ON MAP. WHEN CENTERLINE INTERSECTION IS IMPARTIAL, OFFSET 5 FEET ON CENTERLINE OF MAJOR STREET, (SEE DETAIL ON SHEET 2). IF NEITHER CENTERLINE CAN BE OCCUPIED, TWO MONUMENTS WILL BE SET INLINE AROUND THE FRONT ON THE PERIMETER OF A 10-FOOT DIAMETER CIRCLE, WHOSE CENTER IS THE POINT.
 - B) SET ON CENTERLINE AT INTERVALS NOT EXCEEDING 1000 FEET ON STRAIGHT RUNS.
 - C) SET ON CENTERLINE AT POINTS OF CURVATURE.
 - D) SET ON CENTER AT CENTER POINTS OF CUL-DE-SACS.
 - E) SET ON CENTERLINE WHEN CENTER POINT OF CUL-DE-SAC IS OFFSET FROM CENTERLINE.
 - F) THESE STANDARDS MAY BE MODIFIED BY THE AGENCY IN CASES WHERE STRICT COMPLIANCE THERWITH RESULTS IN MORE MONUMENTS THAN IS CONSIDERED NECESSARY. THE FOLLOWING TECHNIQUE FOR REDUCING THE NUMBER OF MONUMENTS WILL BE ROUTINE.
 - G) SUBSTITUTION OF ONE MONUMENT ON THE "POINT OF INTERSECTION" FOR MONUMENTS AT THE "BEGINNING OF CURVE" AND THE "ENDING OF CURVE" WHEN THE "POINT OF INTERSECTION" FALLS WITHIN THE PAVEMENT AREA.
 - H) A MONUMENT MAY BE DELETED WHICH IS OTHERWISE REQUIRED BY THESE STANDARDS WHEN ITS POSITION CAN BE DETERMINED BY TURNING ONE ANGLE FROM A POINT ON A STRAIGHT LINE BETWEEN TWO OTHER MONUMENTS, PROVIDING SUCH POINT IS NOT MORE THAN 300 FEET FROM THE POINT ON WHICH THE DELETED MONUMENT WOULD HAVE BEEN PLACED.

CITY OF MURRIETA
DEPARTMENT OF PUBLIC WORKS

REVISIONS	STREET CENTERLINE MONUMENT	STD. NO.
5/92		617c
		SHEET 3 OF 3
APPROVED 1/14/10		



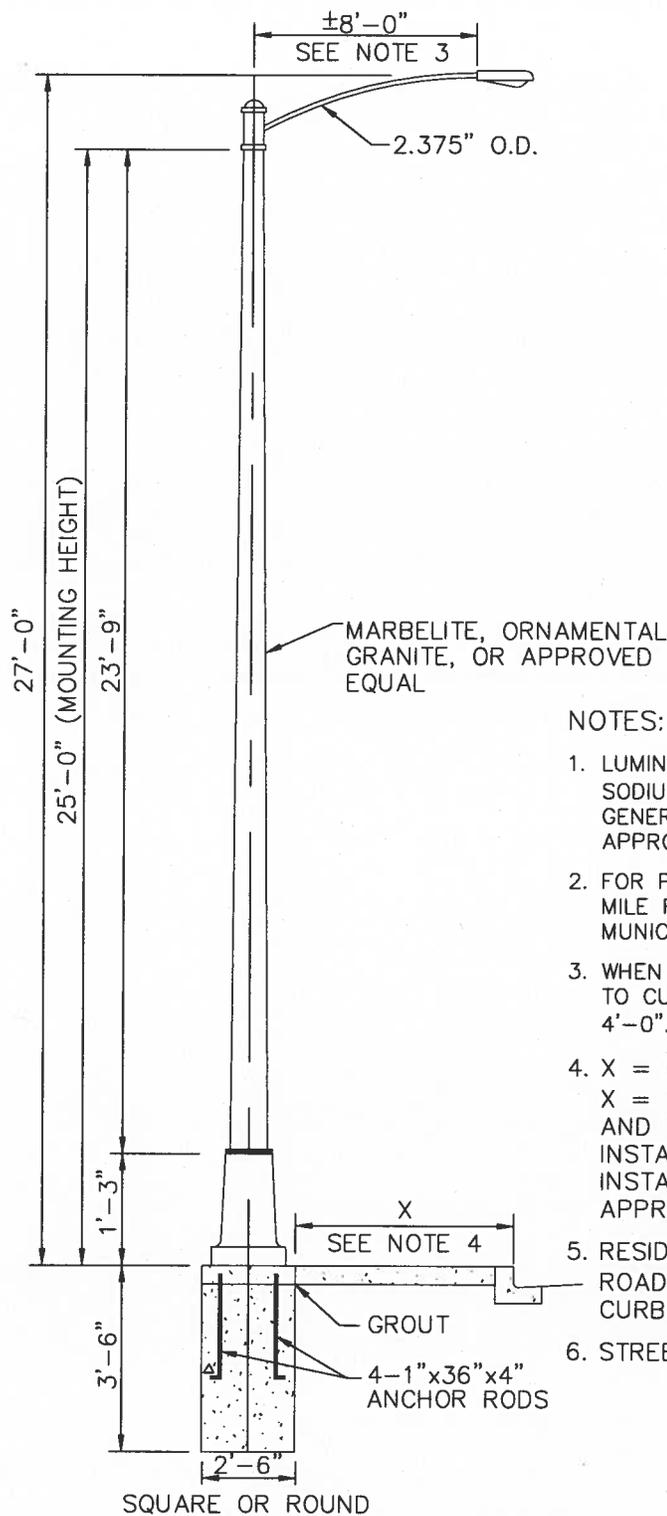
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TYPE "B" MONUMENT

STD. NO.

618



NOTES:

1. LUMINAIRE 8,000 LUMEN LOW PRESSURE SODIUM VAPOR (LPSV) TYPE TO BE SHOWN ON GENERAL LIGHTING PLAN SUBJECT TO APPROVAL OF CITY ENGINEER.
2. FOR PRIVATE LIGHTING RESTRICTIONS WITHIN 45 MILE RADIUS OF MT. PALOMAR, SEE MURRIETA MUNICIPAL CODE 16.18.110.
3. WHEN STREET LIGHT IS INSTALLED ADJACENT TO CURB, LIGHTING ARM LENGTH SHALL BE 4'-0".
4. X = 6'-0" STANDARD
X = 1'-6" FOR COMMERCIAL SIDEWALKS AND WHEN SIDEWALKS ARE NOT INSTALLED OR PROPOSED FOR FUTURE INSTALLATION, UNLESS OTHERWISE APPROVED BY CITY ENGINEER.
5. RESIDENTIAL LIGHTING APPLIES TO ROADWAYS WITH 44' OR LESS CURB TO CURB WIDTH.
6. STREET LIGHT SPACING PER 620A.

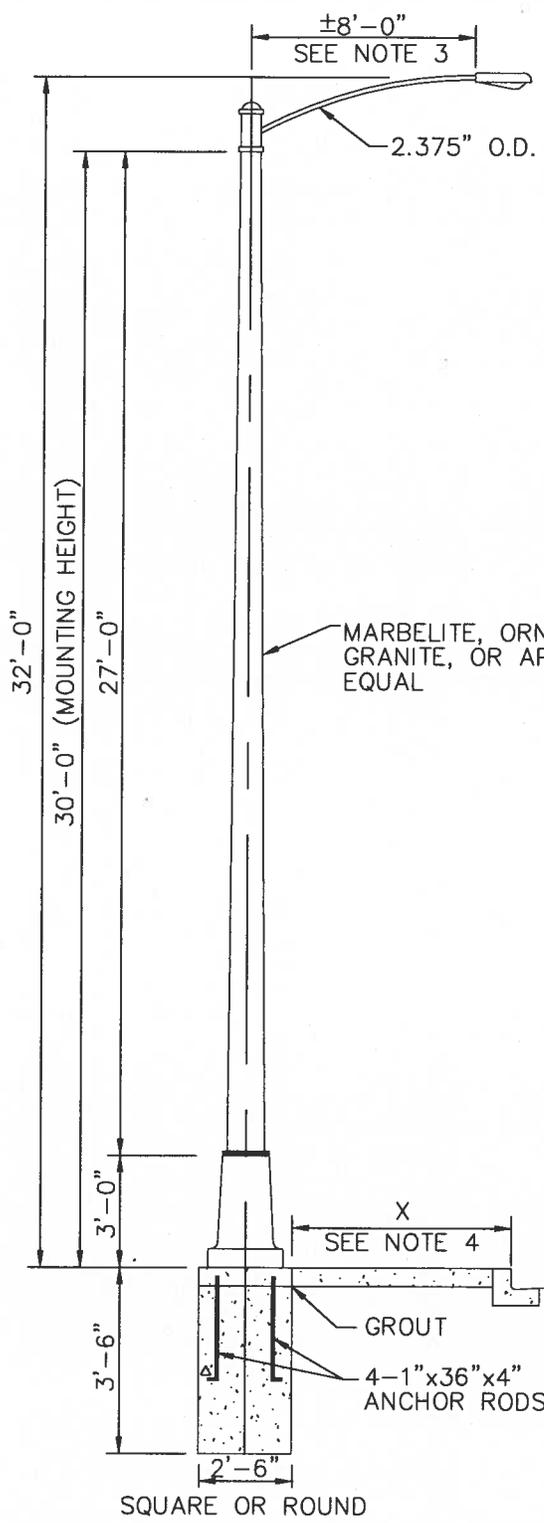
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RESIDENTIAL LIGHTING

STD. NO.

619



NOTES:

1. LUMINAIRE 22,500 LUMEN LOW PRESSURE SODIUM VAPOR (LPSV) TYPE TO BE SHOWN ON GENERAL LIGHTING PLAN SUBJECT TO APPROVAL OF CITY ENGINEER.
2. FOR PRIVATE LIGHTING RESTRICTIONS WITHIN 45 MILE RADIUS OF MT. PALOMAR, SEE MURRIETA MUNICIPAL CODE 16.18.110.
3. WHEN STREET LIGHT IS INSTALLED ADJACENT TO CURB, LIGHTING ARM LENGTH SHALL BE 4'-0".
4. X = 6'-0" STANDARD
X = 1'-6" FOR COMMERCIAL SIDEWALKS AND WHEN SIDEWALKS ARE NOT INSTALLED OR PROPOSED FOR FUTURE INSTALLATION, UNLESS OTHERWISE APPROVED BY CITY ENGINEER.
5. RESIDENTIAL LIGHTING APPLIES TO ROADWAYS WITH GREATER THAN 44' CURB TO CURB WIDTH.
6. STREET LIGHT SPACING PER 620A.

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**ARTERIAL HIGHWAY
LIGHTING**

STD. NO.
620

STREET LIGHT SPACING CRITERIA

STREET CLASSIFICATION	RESIDENTIAL COMMERCIAL	INDUSTRIAL OPEN SPACE	ADJACENT TO SCHOOLS & PARKS
PRIME ARTERIAL & MAJOR ARTERIAL SECONDARY ARTERIAL	300' STAGGERED 600' MEAS. ON EA SIDE	400' STAGGERED 800' MEAS. ON EA SIDE	300' STAGGERED 600' MEAS. ON EA SIDE
COLLECTOR	250' STAGGERED 500' MEAS. ON EA SIDE	350' STAGGERED 700' MEAS. ON EA SIDE	200' STAGGERED 400' MEAS. ON EA SIDE
INDUSTRIAL	300' STAGGERED 600' MEAS. ON EA SIDE	400' STAGGERED 800' MEAS. ON EA SIDE	-----
LOCAL	AT ALL INTERSECTIONS 250' STAGGERED 500' MEAS. ON EA SIDE	AT ALL INTERSECTIONS AT MID-BLOCK	200' STAGGERED 400' MEAS. ON EA SIDE
CUL-DE-SAC	AT INTERSECTION AT FAR END OF BULB AT MID-BLOCK IF GREATER THAN 300' IN LENGTH	AT INTERSECTION AT FAR END OF BULB SEE INDUSTRIAL STREET IF APPLICABLE	200' STAGGERED 400' MEAS. ON EA SIDE
HISTORIC DOWNTOWN MURRIETA NOSTALGIC	100' SPACING, LADDER STYLE (NON-STAGGERED) OR AS OTHERWISE APPROVED BY CITY ENGINEER	100' SPACING, LADDER STYLE (NON-STAGGERED) OR AS OTHERWISE APPROVED BY CITY ENGINEER	100' SPACING, LADDER STYLE (NON-STAGGERED) OR AS OTHERWISE APPROVED BY CITY ENGINEER

CITY OF MURRIETA DEPARTMENT OF PUBLIC WORKS

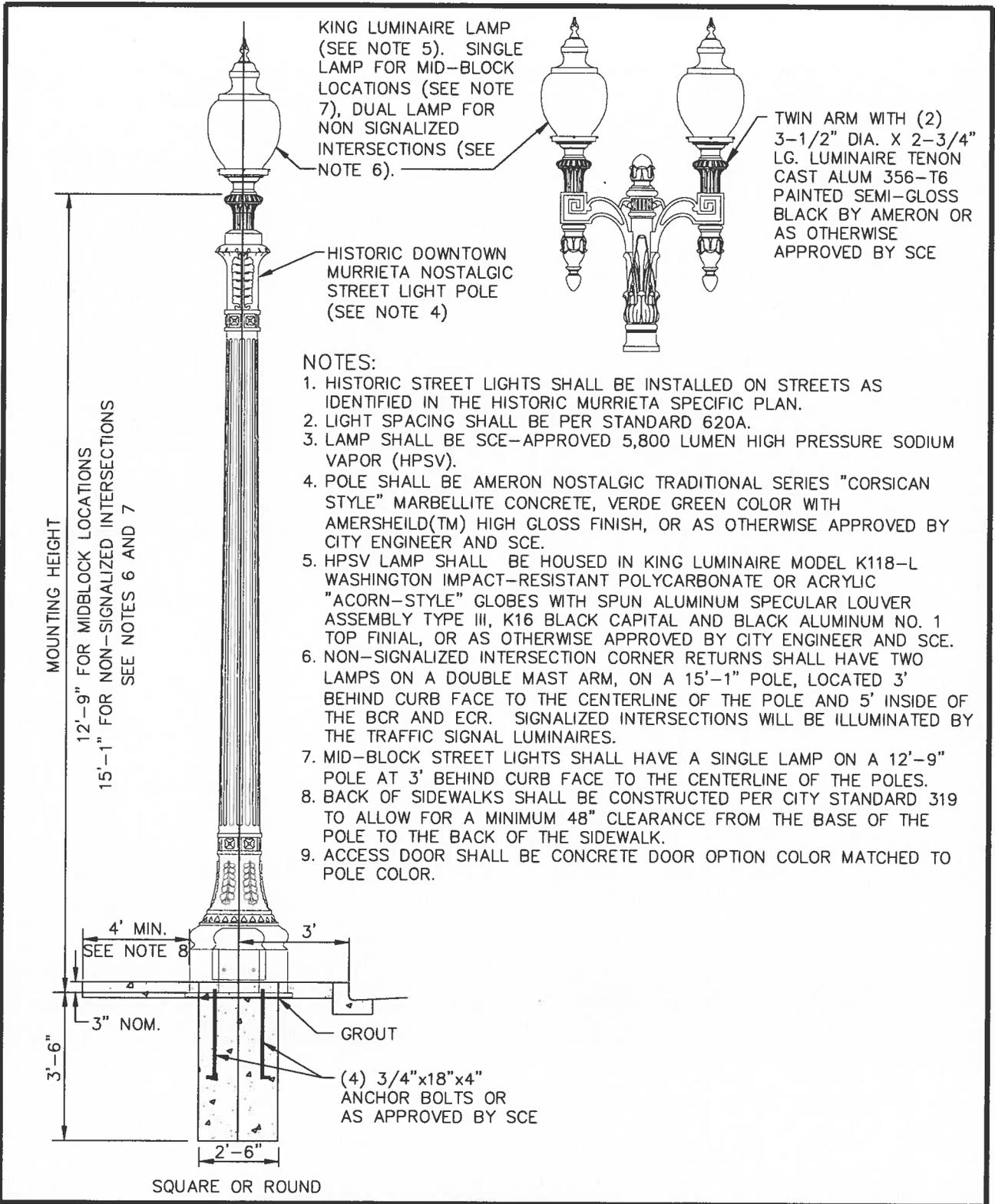
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STREET LIGHT SPACING

STD. NO.

620a

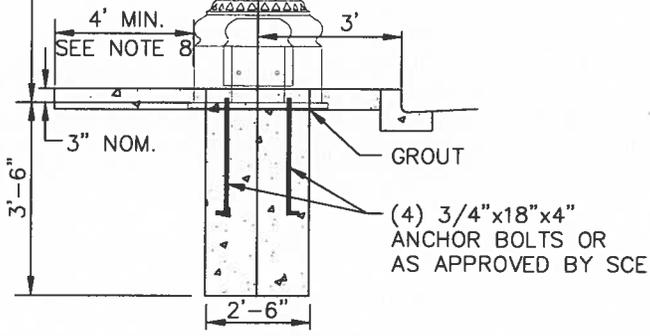
SHEET 1 OF 2



NOTES:

1. HISTORIC STREET LIGHTS SHALL BE INSTALLED ON STREETS AS IDENTIFIED IN THE HISTORIC MURRIETA SPECIFIC PLAN.
2. LIGHT SPACING SHALL BE PER STANDARD 620A.
3. LAMP SHALL BE SCE-APPROVED 5,800 LUMEN HIGH PRESSURE SODIUM VAPOR (HPSV).
4. POLE SHALL BE AMERON NOSTALGIC TRADITIONAL SERIES "CORSIKAN STYLE" MARBELLITE CONCRETE, VERDE GREEN COLOR WITH AMERSHEILD(TM) HIGH GLOSS FINISH, OR AS OTHERWISE APPROVED BY CITY ENGINEER AND SCE.
5. HPSV LAMP SHALL BE HOUSED IN KING LUMINAIRE MODEL K118-L WASHINGTON IMPACT-RESISTANT POLYCARBONATE OR ACRYLIC "ACORN-STYLE" GLOBES WITH SPUN ALUMINUM SPECULAR LOUVER ASSEMBLY TYPE III, K16 BLACK CAPITAL AND BLACK ALUMINUM NO. 1 TOP FINIAL, OR AS OTHERWISE APPROVED BY CITY ENGINEER AND SCE.
6. NON-SIGNALIZED INTERSECTION CORNER RETURNS SHALL HAVE TWO LAMPS ON A DOUBLE MAST ARM, ON A 15'-1" POLE, LOCATED 3' BEHIND CURB FACE TO THE CENTERLINE OF THE POLE AND 5' INSIDE OF THE BCR AND ECR. SIGNALIZED INTERSECTIONS WILL BE ILLUMINATED BY THE TRAFFIC SIGNAL LUMINAIRES.
7. MID-BLOCK STREET LIGHTS SHALL HAVE A SINGLE LAMP ON A 12'-9" POLE AT 3' BEHIND CURB FACE TO THE CENTERLINE OF THE POLES.
8. BACK OF SIDEWALKS SHALL BE CONSTRUCTED PER CITY STANDARD 319 TO ALLOW FOR A MINIMUM 48" CLEARANCE FROM THE BASE OF THE POLE TO THE BACK OF THE SIDEWALK.
9. ACCESS DOOR SHALL BE CONCRETE DOOR OPTION COLOR MATCHED TO POLE COLOR.

MOUNTING HEIGHT
 12'-9" FOR MIDBLOCK LOCATIONS
 15'-1" FOR NON-SIGNALIZED INTERSECTIONS
 SEE NOTES 6 AND 7



SQUARE OR ROUND

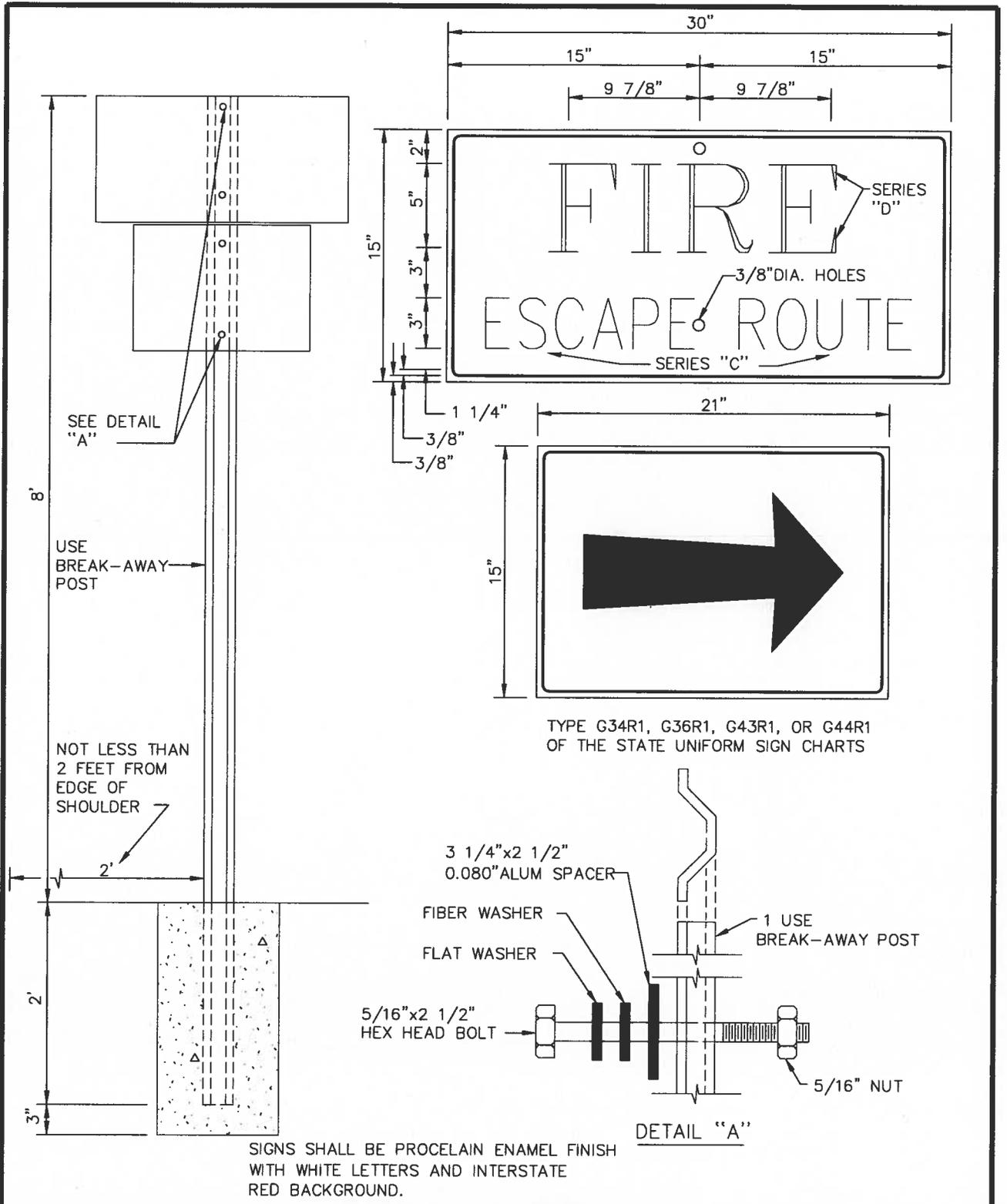
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HISTORIC DOWNTOWN MURRIETA
NOSTALGIC STREET LIGHTING

STD. NO.

620b



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FIRE ESCAPE ROUTE

STD. NO.

621

