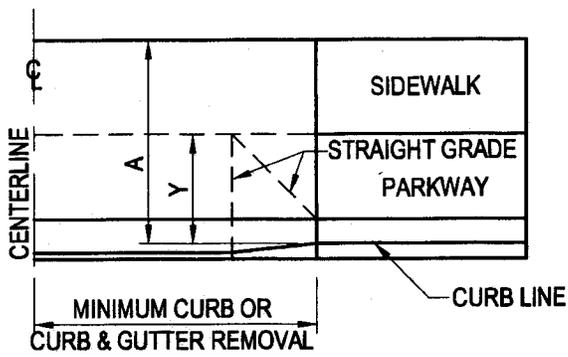
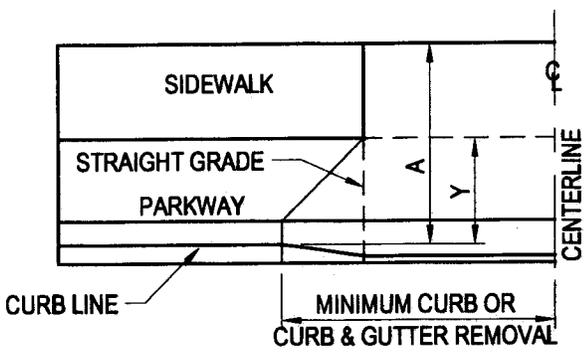


INDEX SHEET

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ST-2	STANDARD SIDEWALK DETAIL	9/2014
ST-3	SIDEWALK RAMPS	9/2014
ST-4	CURB AND SIDEWALK JOINTS	9/2014
ST-5	SIDEWALK AND DRIVEWAY REPLACEMENT	9/2014
ST-6	CURB AND GUTTER	9/2014
ST-7	CROSS GUTTER AND SPANDREL	9/2014
ST-8	ALLEY INTERSECTION	9/2014
ST-9	ALLEY SECTION	9/2014
ST-10	STREET CROSS SECTION	9/2014
ST-11	INDUSTRIAL STREET CROSS SECTION	9/2014
ST-12	STRUCTURAL DESIGN CHART FOR FLEXIBLE PAVEMENTS	9/2014
ST-13	STREET DESIGN TRAFFIC INDEX CHART	9/2014
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ST-17	STANDARD KNUCKLE	9/2014
ST-18	CONCRETE PAVEMENT REPLACEMENT	9/2014
ST-19	TRENCH EXCAVATION AND BACKFILL	9/2014
ST-20	CURB DRAIN	9/2014
ST-21	PARKWAY DRAIN	9/2014
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ST-27	CROSS WALK STRIPING	9/2014
ST-28	PEDESTRIAN CROSSINGS	9/2014
ST-29	LANE REDUCTION MARKINGS	9/2014
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ST-46	LOOP DETECTORS	9/2014
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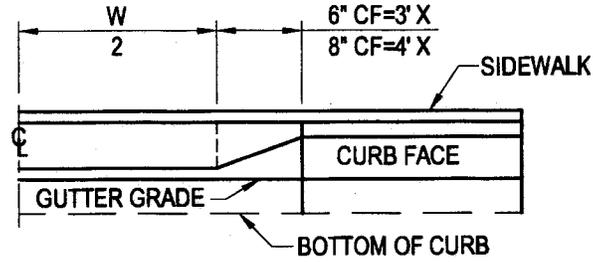
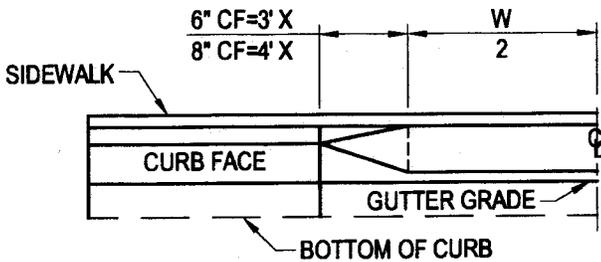
CASE I

CASE II



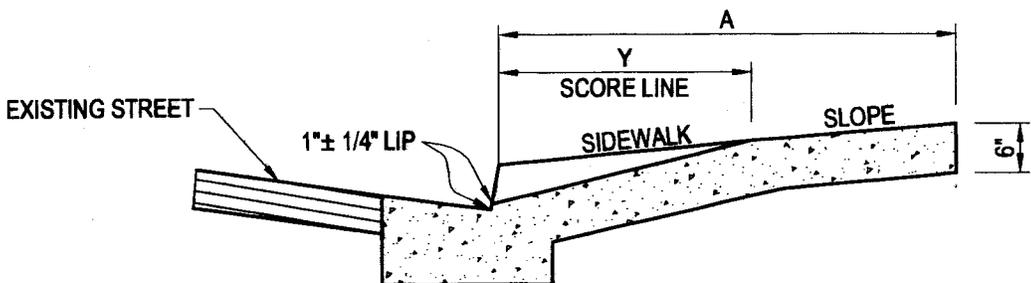
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PLAN



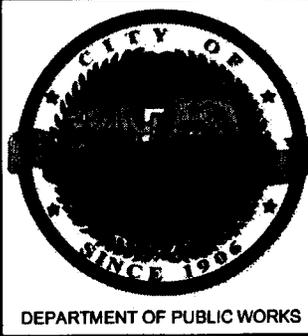
FRONT ELEVATION

FRONT ELEVATION



SECTION

(SIDEWALK BACK OF CURB)

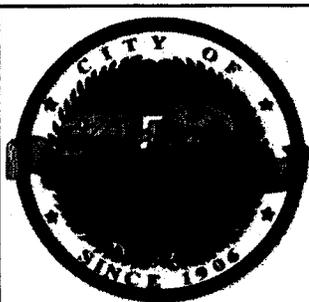


STANDARD DRAWING:
DRIVEWAY APPROACHES
 APPROVED: *[Signature]*
 CITY OF LAVERNE
 CITY UTILITY ENGINEER
 43296 RCE No.
 10/20/14 DATE
 9/5/14 DATE

DESIGNED	BY	DATE
DRAWN	B.A.S.	9/2014
CHECKED	J.M.	9/2014
SCALE:	C.S.H.	9/2014
AS SHOWN	DWG. No.	
DATE OF REVISION:	ST-1	
9/2014	SHT. 1 OF 3	

NOTES:

1. MINIMUM CLEARANCE FROM TOP OF "X" TO FIRE HYDRANTS, LIGHT STANDARDS, POWER POLES AND OTHER OBSTRUCTIONS SHALL BE 18-INCHES.
2. WHERE NO SIDEWALK EXISTS WITHIN THE LIMITS OF THE PROPOSED DRIVEWAY, THE SIDEWALK SHALL BE CONSTRUCTED 6-INCHES THICK AND AT A SLOPE OF 1/4-INCH PER FOOT.
3. WHERE CURB & GUTTER EXISTS, BOTH SHALL BE REMOVED & REPLACED AS SHOWN FOR MINIMUM CURB REMOVAL.
4. EXISTING CURB AND SIDEWALK SHALL BE REMOVED AS DIRECTED BY THE CITY ENGINEER.
5. A CLEAR CONCRETE CURING COMPOUND SHALL BE APPLIED AS A FINE SPRAY TO ALL EXPOSED SURFACES, INCLUDING THE BACK OF CURB, IMMEDIATELY AFTER COMPLETION OF FINISHING.
6. DIMENSIONS "A" & "Y" SHALL BE AS DESIGNATED ON THE IMPROVEMENT PLANS OR AS SPECIFIED BY THE CITY ENGINEER.
7. MORTAR FINISH IS PROHIBITED.
8. GUTTER FLOWLINES SHALL BE TROWEL FINISHED SMOOTH, 6-INCHES WIDE, WITH NO RIDGES FORMED.
9. WEAKEND PLANE EXPANSION JOINTS SHALL BE PLACED AT THE TOP OF EACH "X", AND AT 10' INTERVALS.
10. THERE SHALL BE A MINIMUM 18 INCH, FULL HEIGHT CURB BETWEEN THE DRIVEWAY APPROACHES OF ADJOINING PROPERTY.
11. THERE SHALL BE A MINIMUM 25 FOOT, FULL HEIGHT CURB BETWEEN THE DRIVEWAY APPROACHES SERVING THE SAME PROPERTY.
12. THE TOTAL WIDTH OF ANY DRIVEWAY APPROACH OR APPROACHES MAY NOT EXCEED 60% OF THE TOTAL FRONTAGE OF THE PROPERTY. THE FRONTAGE FOR ANY FLAG LOT OR PIE SHAPED LOTS (SUCH AS CUL-DEL-SACS) SHALL BE THE AVERAGE OF THE FRONT AND REAR PROPERTY DIMENSIONS.
13. THE MINIMUM WIDTH OF A RESIDENTIAL DRIVEWAY APPROACH SHALL BE 10 FEET.
14. THE STANDARD MINIMUM WIDTH OF A RESIDENTIAL DRIVEWAY APPROACH SHALL BE 18 FEET, UNLESS OTHERWISE AUTHORIZED BY THE DIRECTOR OF PUBLIC WORKS.
15. DRIVE APPROACH SHALL BE CONSTRUCTED OF PORTLAND CONCRETE CEMENT (P.C.C.), 5.5 SACK MINIMUM 2,500 PSI. IN THICKNESS NO LESS THAN 6 INCHES. THE CITY MAY REQUIRE ADDITIONAL THICKNESS UP TO 10 INCHES BASED UPON KNOWN SOIL CONDITIONS, ANTICIPATED LOAD OR OTHERS FACTORS.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

DRIVEWAY APPROACHES

APPROVED:

[Signature]
CITY OF LAVERNE

CITY UTILITY ENGINEER

10/20/14
DATE

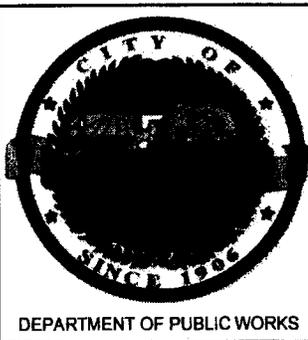
43296
RCE No.

9/5/14
DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
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AS SHOWN	ST-1	
DATE OF REVISION:	SHT. 2 OF 3	
9/2014		

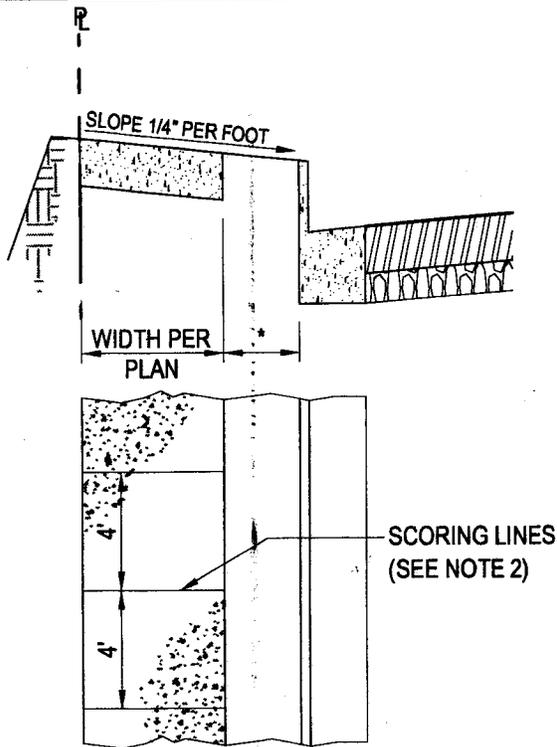
NOTES:

- 16. THE DIRECTOR OF PUBLIC WORKS MA AUTHORIZE A MINIMUM DRIVEWAY APPROACH OF UP TO 24 FEET IN WIDTH SUBJECT TO THE FOLLOWING CONSIDERATIONS:
 - A. THE LARGER DRIVEWAY APPROACH WILL BE IMPROVE ACCESS TO PROPERTIES WITH A 3+ CAR GARAGE OR APPROVED RV PARKING SPACE (RV SPACE MUST BE BEHIND A FENCE OR SIMILAR FEATURE AND BE BEYOND THE REQUIRED SETBACK AREA.);
 - B. LOSS OF ON STREET PARKING IS MINIMIZED;
 - C. ON STREET DRAINAGE WILL NOT BE ADVERSELY AFFECTED; AND
 - D. ALL OTHER DESIGN STANDARDS ARE MAINTAINED.
- 17. RESIDENTIAL DRIVEWAY STANDARDS.
 - A. THERE SHALL BE A MINIMUM 10 FEET WIDE, THREE AND ONE-HALF INCH THICK CONCRETE, BRICK OR SIMILAR APPROVED ALL WEATHER VEHICULAR ACCESSWAY FROM A STREET OR ALLEY TO SINGLE FAMILY OR TWO FAMILY OFF-STREET PARKING . (EXHIBIT 18.76.060 F)
 - B. DRIVEWAYS USED FOR PARKING FOR A SINGLE FAMILY OR TWO FAMILY RESIDENCES SHALL ALSO COMPLY WITH THE FOLLOWING:
 - i. MAXIMUM WIDTH AT THE CURB SHALL BE IN ACCORD WITH PUBLIC WORKS DEPARTMENT STANDARDS.
 - ii. THE MAXIMUM WIDTH IN FRONT OF A GARAGE SHALL BE THE WIDTH OF THE GARAGE OPENING, TO PREVENT EXCESSIVE FRONT YARD OR SIDE YARD PAVING ;
 - C. DRIVEWAYS SERVING THREE OR MORE DWELLING UNITS SHALL BE A MINIMUM OF TWELVE FEET WIDE FOR ONE WAY TRAFFIC, TWENTY FEET FOR TWO WAY TRAFFIC.
 - D. IN ORDER TO PREVENT PARKED VEHICLES FROM ENCROACHING INTO PUBLIC RIGHT-OF-WAY, THE DEPTH OF DRIVEWAYS SERVING A GARAGE SHALL BE :
 - i. A MINIMUM OF TWENTY FEET FROM THE PROPERTY LINE; OR
 - ii. FIVE FEET OR LESS WITH NO DRIVEWAY PARKING.
 - E. A PAD FOR RECREATIONAL VEHICLES STORAGE MAY BE PERMITTED BEHIND THE SETBACK AREA ;
 - F. THE PUBLIC WORKS DEPARTMENT STANDARDS FOR CIRCULAR DRIVEWAYS SHALL APPLY WHERE THERE IS A CITY-APPROVED CIRCULAR DRIVEWAY. (ORD. 888 S 2 (PART), 1996)

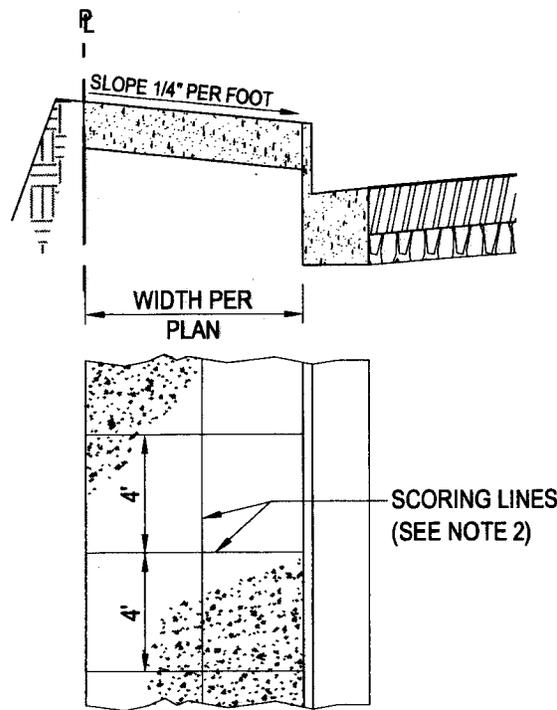


DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING: <h2 style="text-align: center;">DRIVEWAY APPROACHES</h2>		BY	DATE
		DESIGNED	B.A.S. 9/2014
		DRAWN	J.M. 9/2014
		CHECKED	C.S.H. 9/2014
APPROVED: CITY OF LA VERNE	 CITY UTILITY ENGINEER	SCALE: AS SHOWN	DWG. No. <h1 style="text-align: center;">ST-1</h1>
43296 <small>RCE No.</small>		9/5/14 <small>DATE</small>	9/2014 <small>DATE OF REVISION:</small>
			SHT. 3 OF 3



RESIDENTIAL SIDEWALK



FULL WIDTH SIDEWALK

* FOR VERTICAL MEANDERING SIDEWALKS, A MAXIMUM 4:1 DOWNSLOPE FROM SIDEWALK WILL BE ALLOWED. PARKWAY WILL BE GRADED TO DRAIN TO STREET OR AREA DRAINS AS APPROVED BY THE CITY ENGINEER.

NOTES:

1. WEAKENED PLANE JOINTS SHALL BE PLACED IN CURBING AT REGULAR INTERVALS NOT LESS THAN 10' OR GREATER THAN 20' APART. SPACING MAY VARY TO FIT EXISTING FIELD CONDITIONS. JOINTS IN SIDEWALK SHALL BE 1" DEEP MINIMUM, 2" MINIMUM IN CURBING. EXPANSION PAPER AT 60' APART AND AT B.C., E.C., TOP OF "X", POWER POLES, ETC.
2. WHEN JOINING EXISTING SIDEWALKS, EXISTING SCORING PATTERN SHALL BE MATCHED. COLOR AND FINISH SHALL ALSO BE MATCHED, UNLESS OTHERWISE APPROVED.
3. SIDEWALK THICKNESS SHALL BE 4" EXCEPT AT DRIVEWAYS, WHERE THICKNESS SHALL BE 6".
4. A SAND BEDDING (S.E.>25), 4" THICK, SHALL BE PLACED UNDER SIDEWALKS WHERE GROUND IS SOFT, SPONGY, OR EXPANSIVE. MINIMUM COMPACTION OF 90% IS REQUIRED.
5. LONGITUDINAL CONTROL JOINTS MAY BE REQUIRED WHERE WIDTH > 7'-4" OR AS REQUIRED BY THE CITY ENGINEER.
6. SIDEWALK TO BE TROWEL FINISHED AND HAIR-BROOMED.
7. CONCRETE CLASS - 520-C-2500, 4" MAX. SLUMP.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

STANDARD SIDEWALK DETAIL

APPROVED:

[Signature]
CITY OF LA VERNE

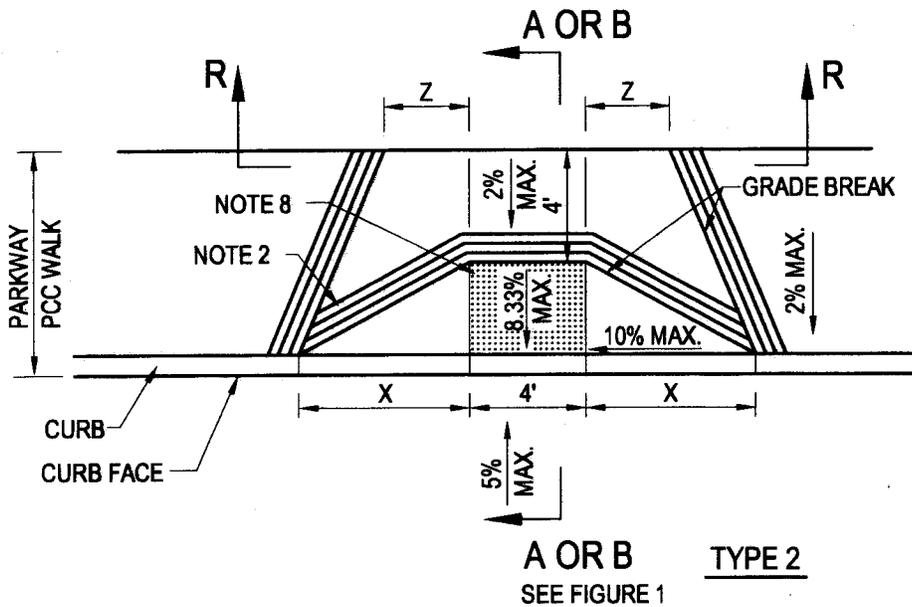
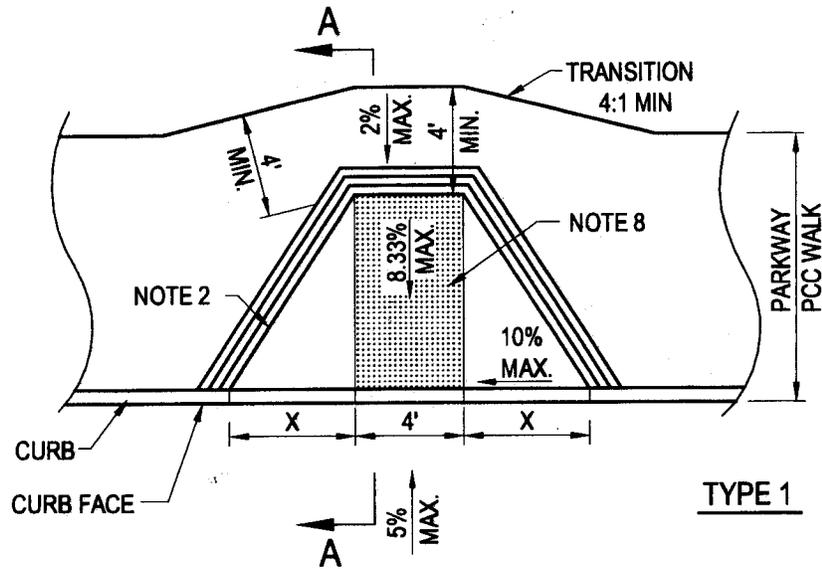
[Signature]
CITY UTILITY ENGINEER

43296
RCE No.

10/20/14
DATE

9/5/14
DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-2	
DATE OF REVISION:		
9/2014	SHT. 1 OF 1	



CASE A

PARTS OF THIS STANDARD PLAN SHOW INSTALLATION FOR TYPICAL RETROFIT CONDITIONS, AND ARE NOT FULLY COMPLIANT WITH CALIFORNIA BUILDING CODE REQUIREMENTS FOR NEW DEVELOPMENT.



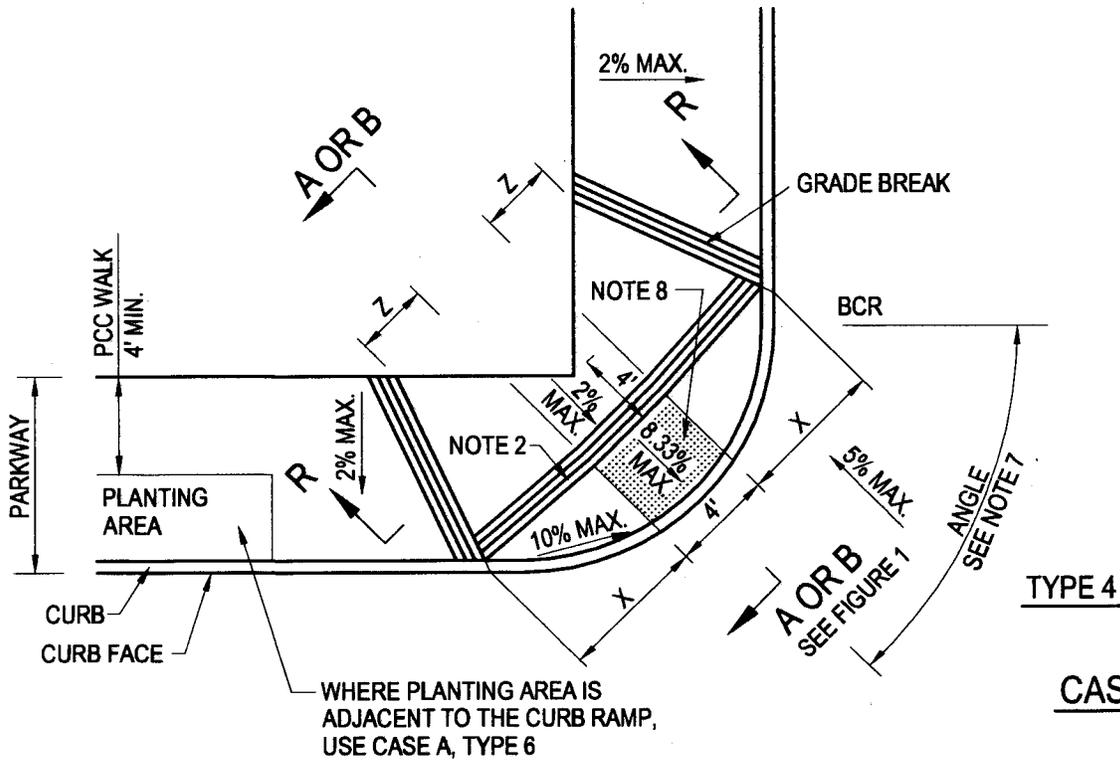
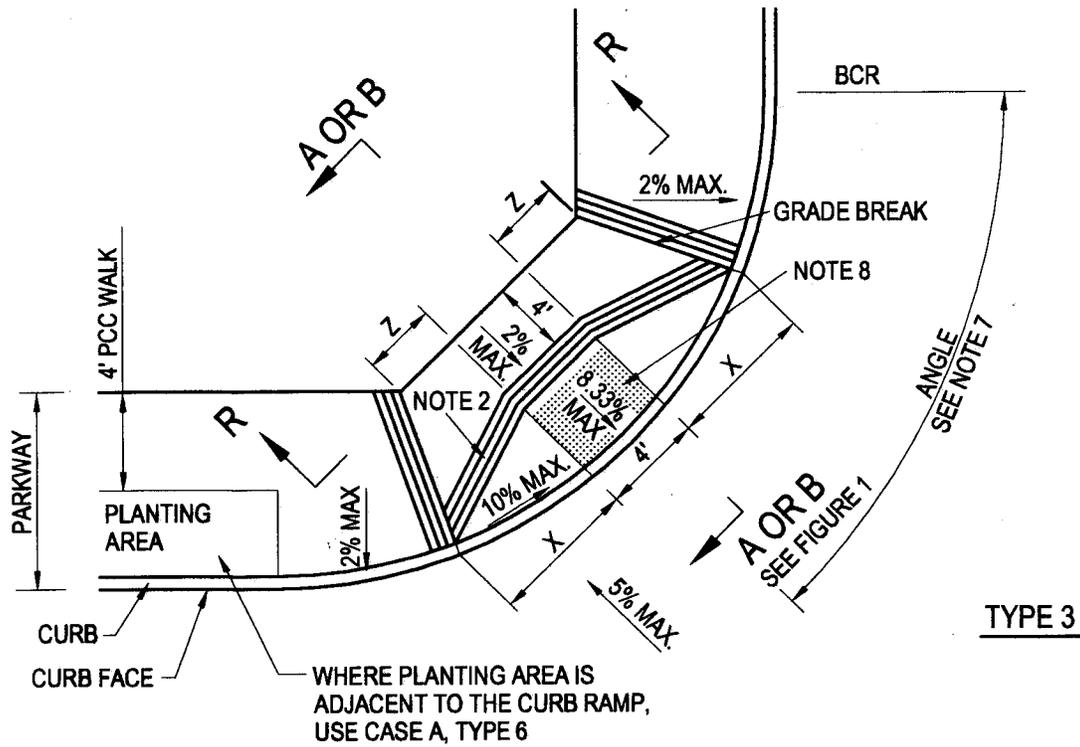
DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

SIDEWALK RAMPS

APPROVED: *[Signature]* 10/20/14
 CITY OF LAVERNE DATE
[Signature] 9/5/14
 CITY UTILITY ENGINEER RCE No. 43296 DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-3	
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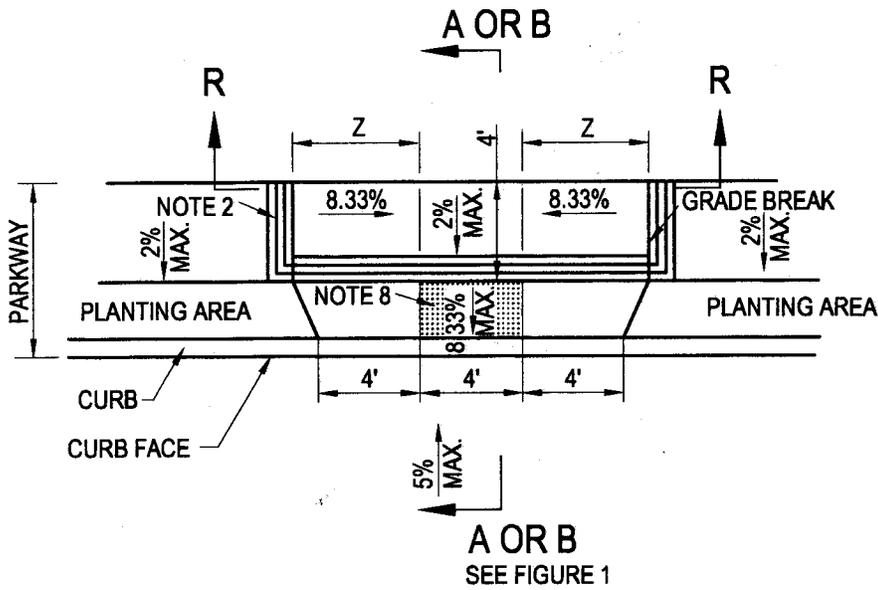
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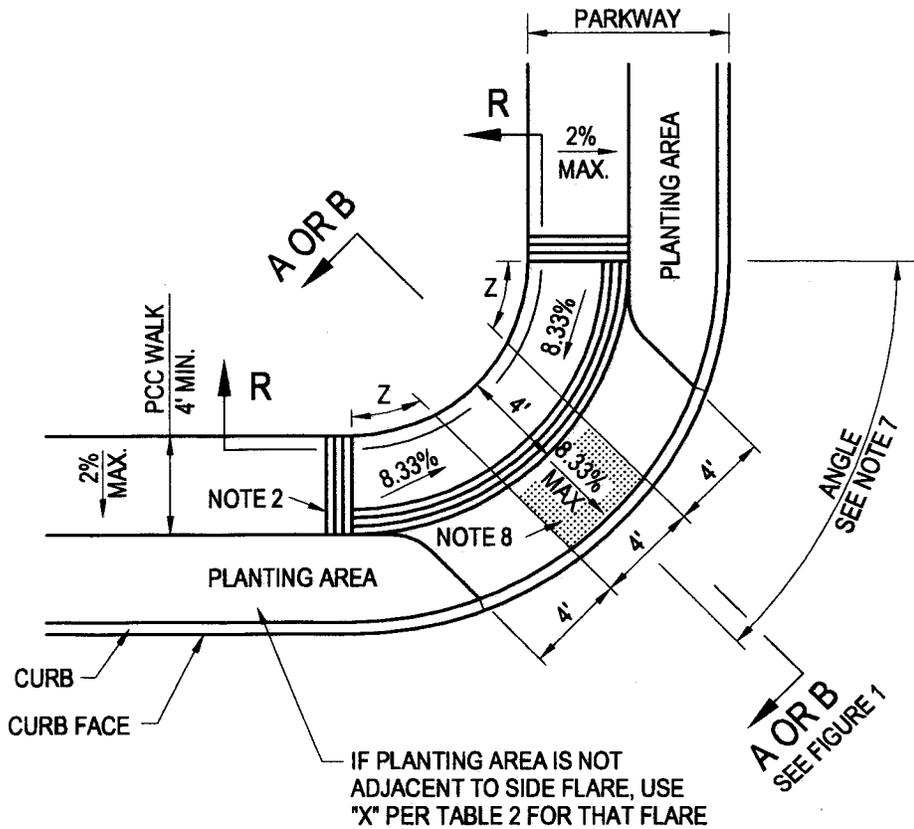
SIDEWALK RAMPS

APPROVED: *[Signature]* 10/20/14 DATE
 CITY OF LEVERNE
[Signature] 43296 9/5/14 DATE
 CITY UTILITY ENGINEER RCE No. DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
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CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-3	
DATE OF REVISION:	9/2014	
	SHT. 2 OF 13	



TYPE 5



TYPE 6

CASE A



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

SIDEWALK RAMPS

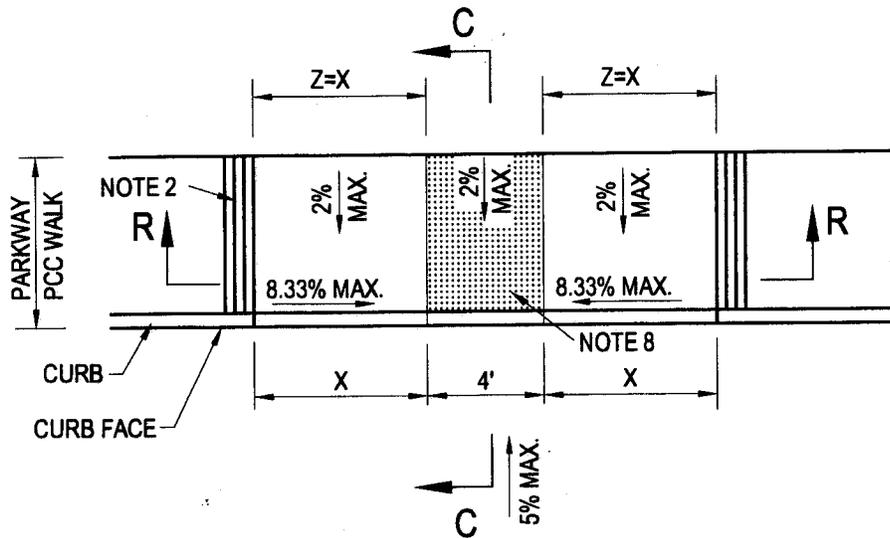
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CITY OF LAVERNE
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CITY UTILITY ENGINEER

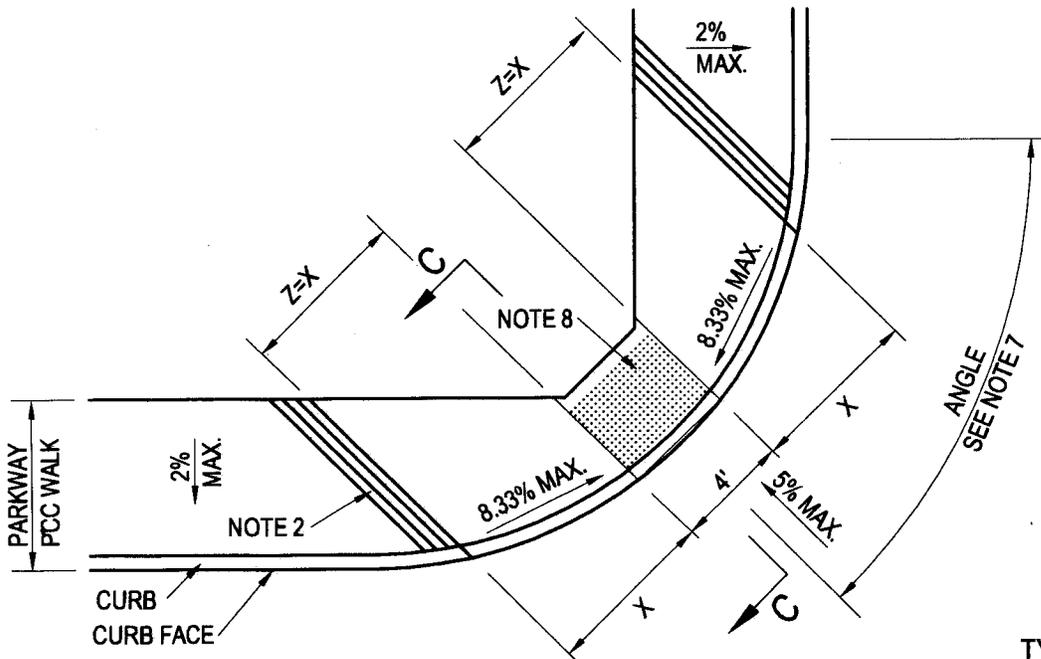
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RCE No.

10/20/14
DATE
9/5/14
DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-3	
DATE OF REVISION:	SHT. 3 OF 13	
9/2014		



TYPE 1



TYPE 2

CASE B



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

SIDEWALK RAMPS

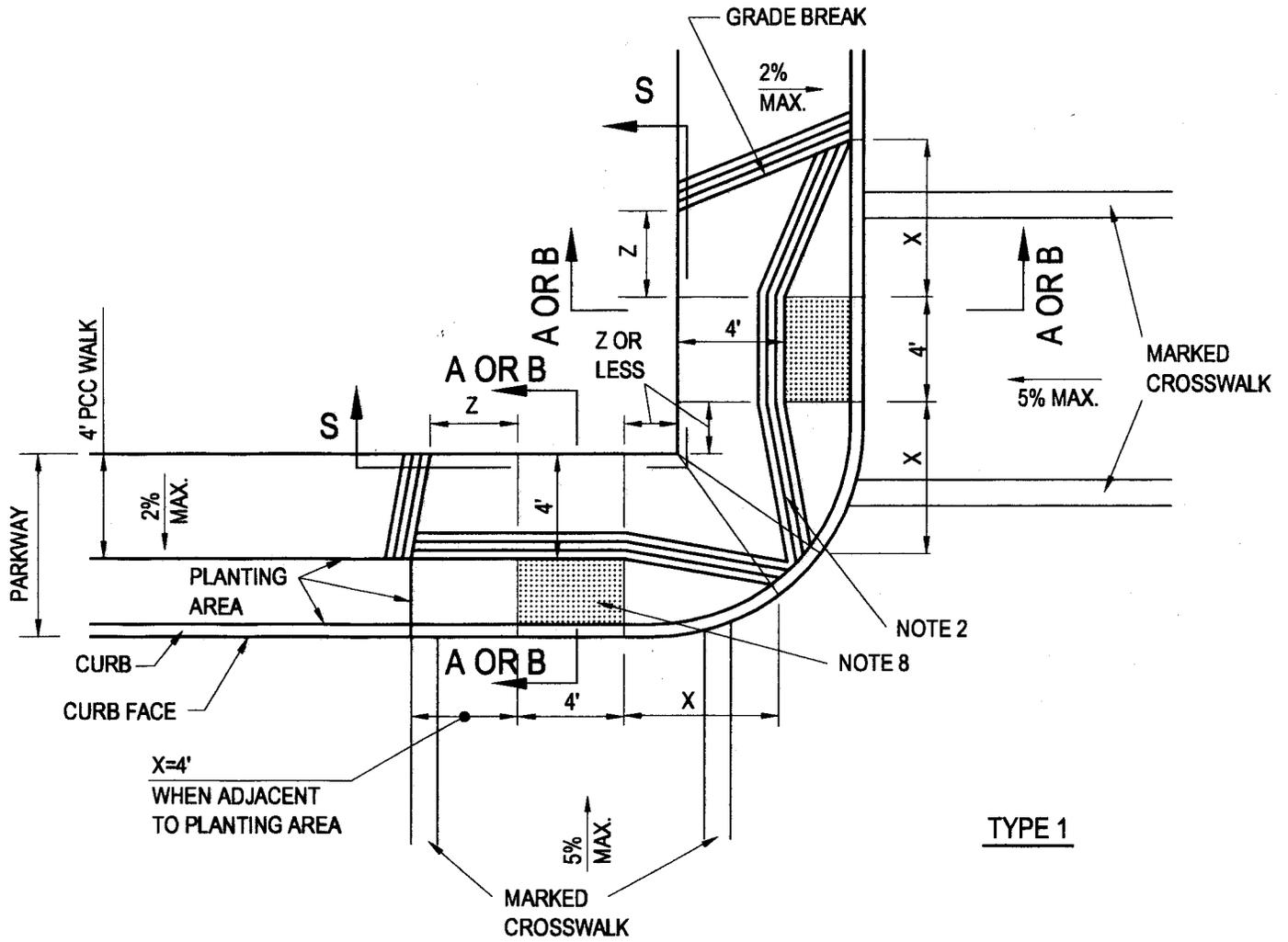
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 CITY OF LAVERNE
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 CITY UTILITY ENGINEER

43296
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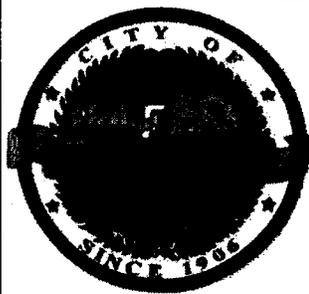
10/20/14
 DATE
 9/5/14
 DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-3	
DATE OF REVISION:	SHT. 4 OF 13	
9/2014		



TYPE 1

CASE E



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

SIDEWALK RAMPS

APPROVED:

[Signature]
CITY OF LAVERNE

CITY UTILITY ENGINEER

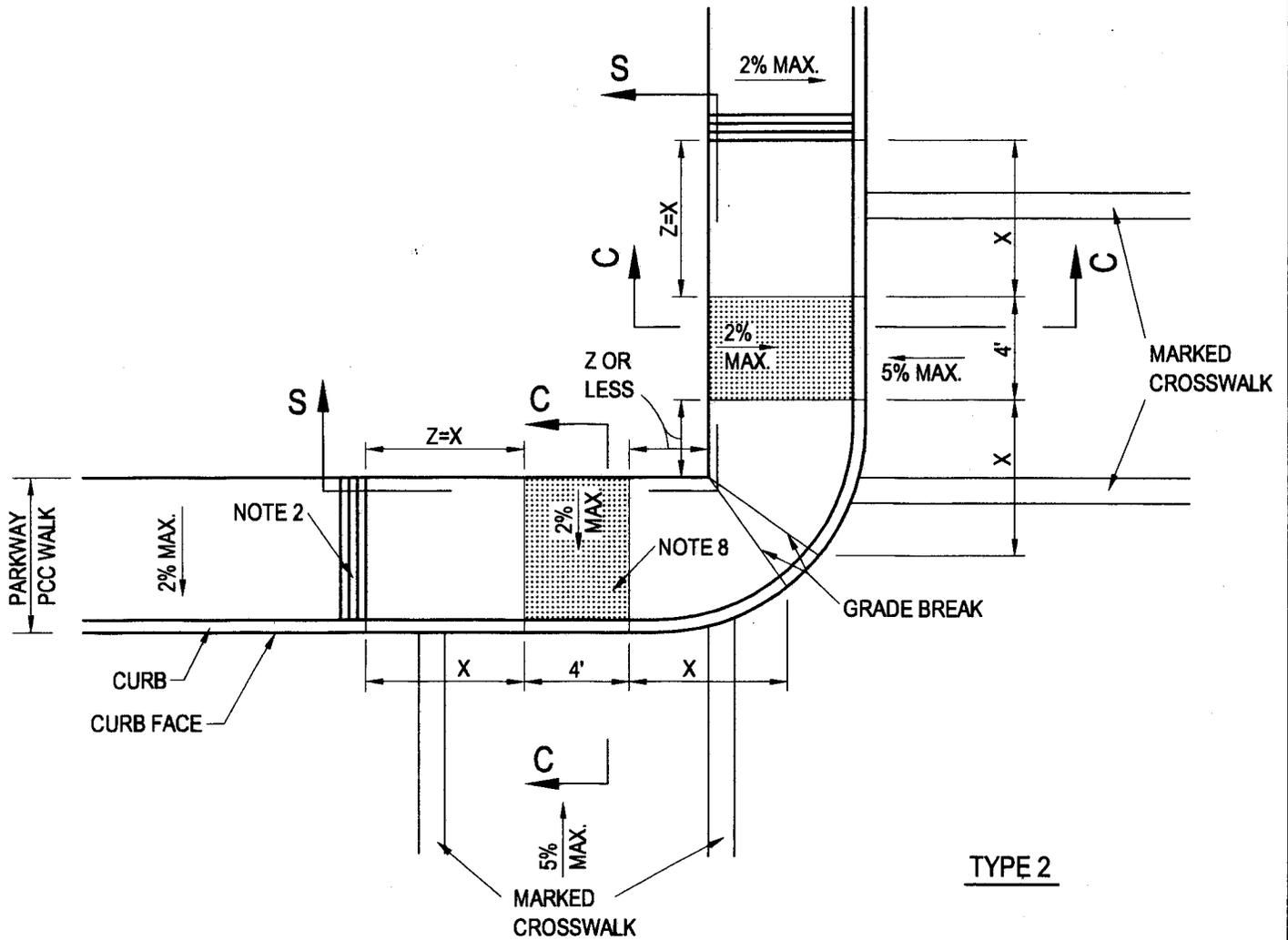
10/20/14
DATE

43296 9/5/14
RCE No. DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014

SCALE:
AS SHOWN
DATE OF REVISION:
9/2014

DWG. No.
ST-3
SHT. 6 OF 13



TYPE 2

CASE E



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

SIDEWALK RAMPS

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CITY OF JAVERNE

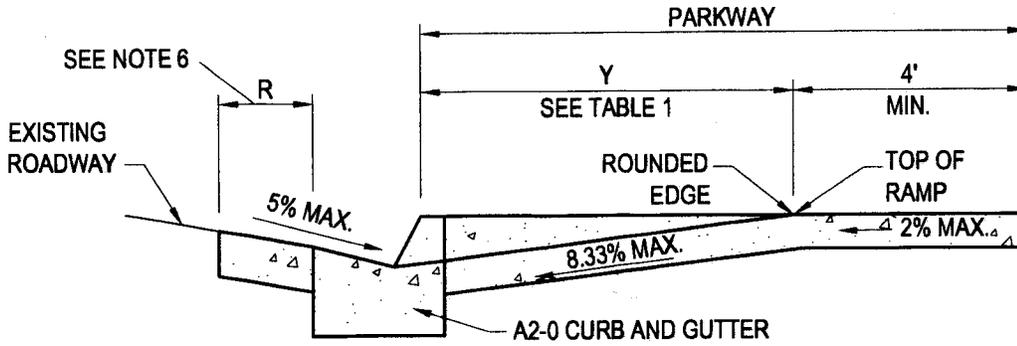
CITY UTILITY ENGINEER

10/20/14
DATE

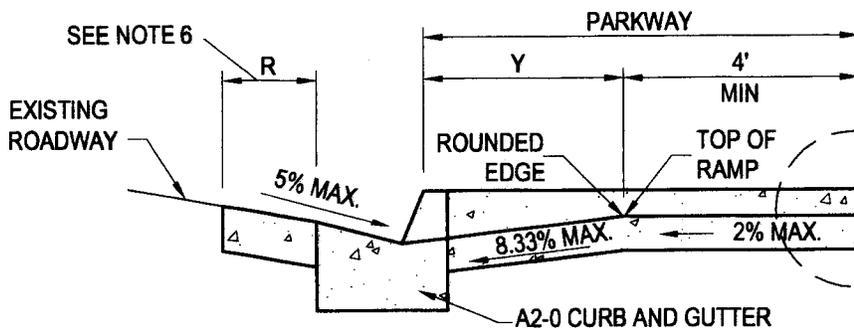
43296
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CHECKED	C.S.H.	9/2014
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AS SHOWN	ST-3	
DATE OF REVISION:		
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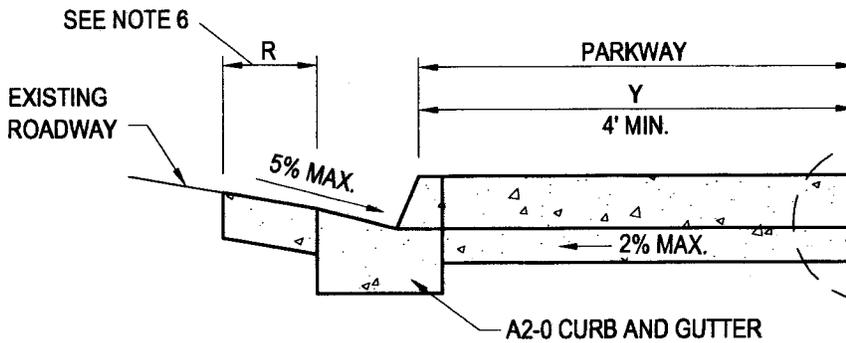
SECTION A-A



SECTION B-B

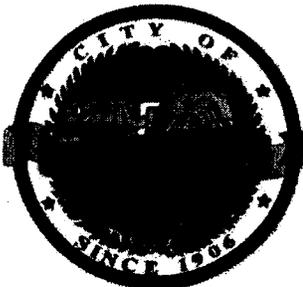
USE FIGURE 1 TO DETERMINE WHICH OF SECTIONS A-A, B-B OR C-C IS APPROPRIATE.

DEPRESS BACK OF WALK SEE DETAIL A, B, C OR D, SHEET 12.



SECTION C-C

DEPRESS BACK OF WALK SEE DETAIL A, B, C OR D, SHEET 12.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

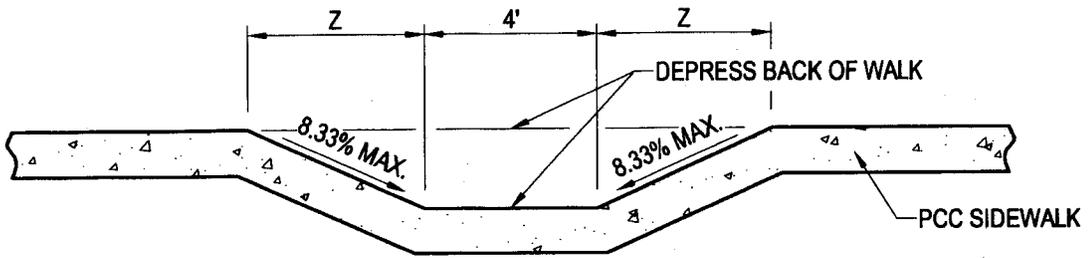
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[Signature]
CITY UTILITY ENGINEER

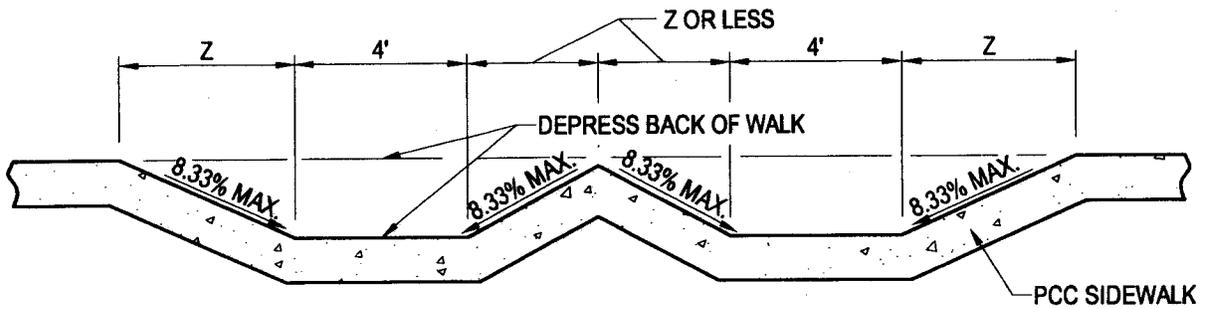
SIDEWALK RAMPS

10/20/14
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9/5/14
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	BY	DATE
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SCALE:	DWG. No.	
AS SHOWN	ST-3	
DATE OF REVISION:	SHT. 8 OF 13	
9/2014		



SECTION R-R



SECTION S-S



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

SIDEWALK RAMPS

APPROVED:

[Signature]
 CITY OF LAVERNE
 CITY UTILITY ENGINEER

10/20/14
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 43296
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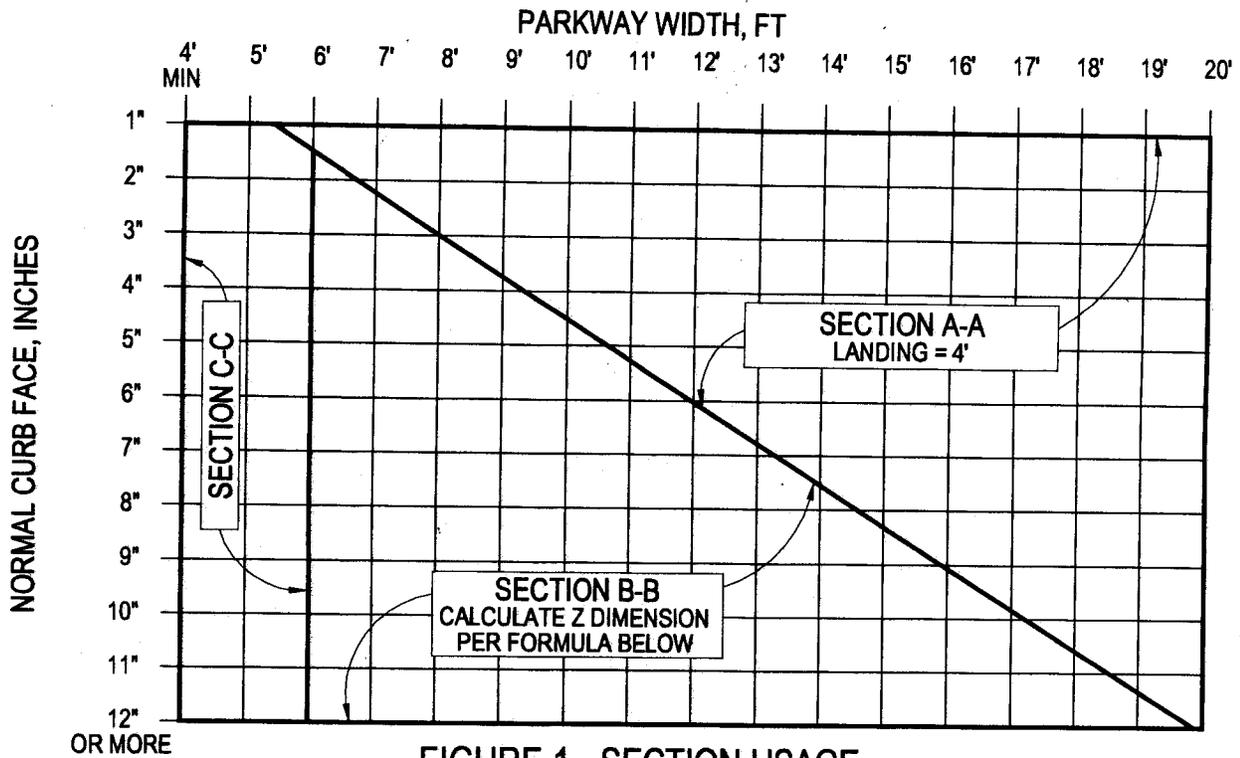


FIGURE 1 - SECTION USAGE

NORMAL CURB FACE, INCHES	X, FT	SECTION Y-Y Y, FT
2"	4.00' MIN.	2.63'
3"	4.00' MIN.	3.95'
4"	4.00' MIN.	5.26'
5"	4.17'	6.58'
6"	5.00'	7.90'
7"	5.83'	9.21'
8"	6.67'	10.53'
9"	7.50'	11.84'
10"	8.33'	13.16'
11"	9.17'	14.47'
12"	10.00'	15.79'

WHERE FIGURE 1 SHOWS USE OF SECTION B-B, FIGURE Z DIMENSION AS FOLLOWS:

W = PARKWAY WIDTH
 L = LANDING WIDTH, 4' TYP
 $Z = [(Y+L)-W] \times 0.760$

IF $(Y+L) < W$, THEN $Z = 0$

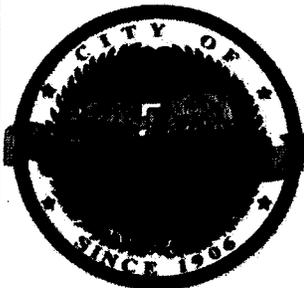
TABLE 1 - X AND Y VALUES

TABLE 1 REFERENCE FORMULAS:

$X = CF / 8.333\%$

$Y = CF / (8.333\% - 2\% \text{ WALK CROSS SLOPE})$

SEE SHEET 11 FOR STREET SLOPE ADJUSTMENT FACTORS, ALL STREETS



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

SIDEWALK RAMPS

APPROVED:

[Signature]
 CITY OF LAWRENCE

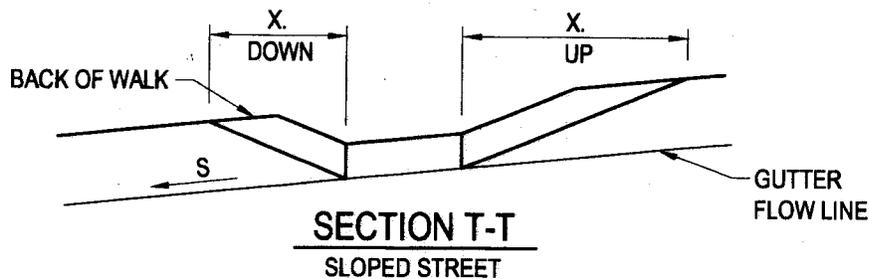
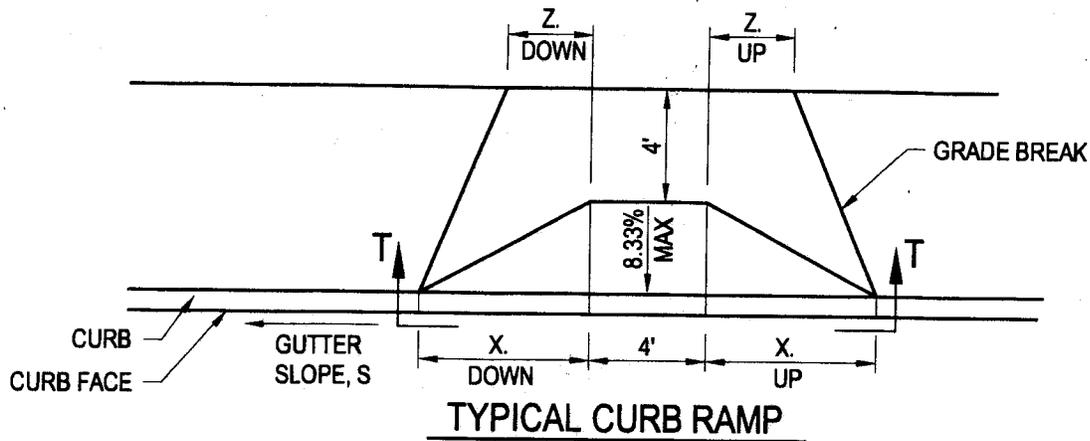
CITY UTILITY ENGINEER

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43296 9/5/14
 RCE No. DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014

SCALE:	DWG. No.
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SHT. 10 OF 13	



FOR SLOPED STREETS, MULTIPLY THE DIMENSIONS PARALLEL TO THE STREET, X AND Z, UPSTREAM AND DOWNSTREAM OF THE RAMP, BY THE FACTORS IN THE FOLLOWING TABLE.

FOR EXAMPLE, $X.DOWN = X \times K.DOWN$

S	K.DOWN	K.UP
0%	1.000	1.000
0.2%	0.977	1.025
0.5%	0.943	1.064
1%	0.893	1.136
2%	0.806	1.316
3%	0.735	1.563
4%	0.676	1.923
5%	0.625	2.500

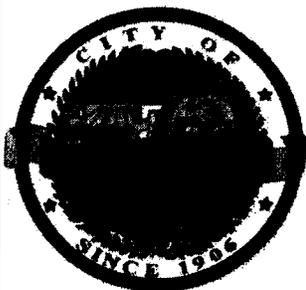
TABLE 2 - SLOPE ADJUSTMENTS

TABLE 2 REFERENCE FORMULAS:

$$K.DOWN = 8.333\% / (8.333\% + S)$$

$$K.UP = 8.333\% / (8.333\% - S)$$

STREET SLOPE ADJUSTMENTS



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STANDARD DRAWING:

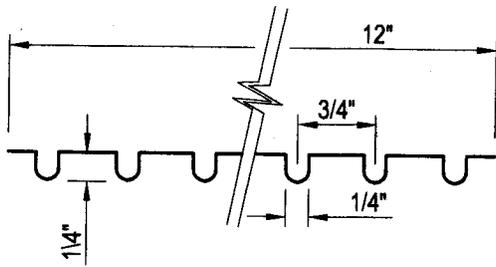
SIDEWALK RAMPS

APPROVED:

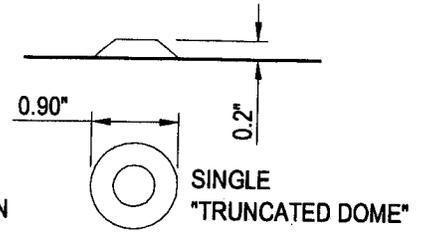
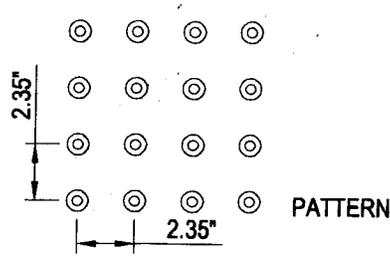
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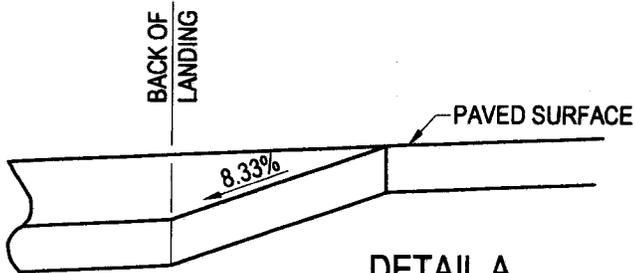
	BY	DATE
DESIGNED	B.A.S.	9/2014
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SCALE:	DWG. No.	
AS SHOWN	ST-3	
DATE OF REVISION:		
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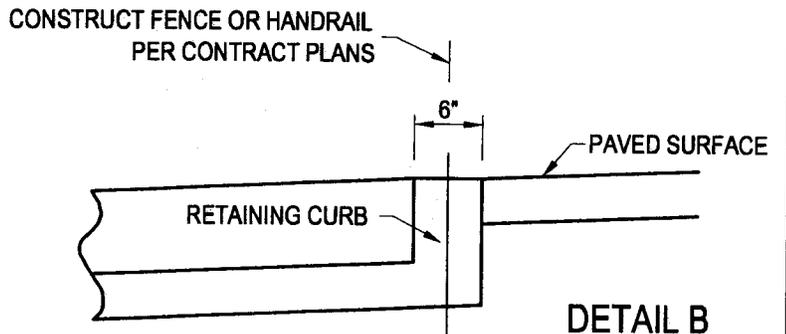
GROOVING DETAIL



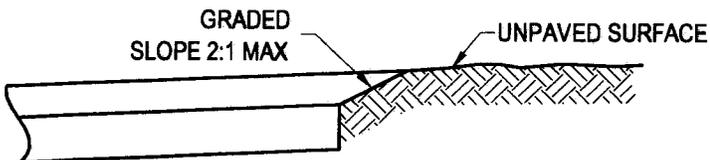
DETECTABLE WARNING DETAIL



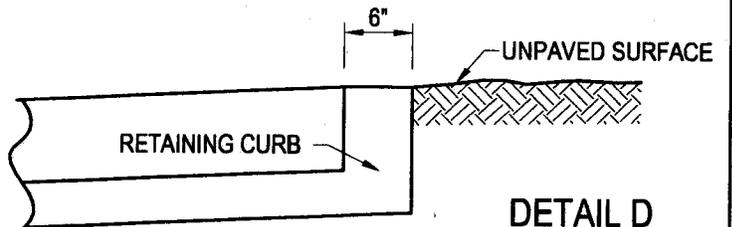
DETAIL A



DETAIL B



DETAIL C



DETAIL D



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STANDARD DRAWING:

SIDEWALK RAMPS

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AS SHOWN	ST-3
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9/2014	SHT. 12 OF 13

GENERAL NOTES:

1. CONCRETE SHALL BE CLASS 520-C-2500 CONFORMING TO SSPWC 201.-1.1.2 AND SHALL BE 4" THICK.
2. THE RAMP SHALL HAVE A 12" WIDE BORDER WITH 1/4" GROOVES APPROXIMATELY 3/4" OC. SEE GROOVING DETAIL.
3. THE RAMP SURFACE SHALL HAVE A TRANSVERSE BROOMED SURFACE TEXTURE CONFORMING TO SSPWC 303-1.9.
4. USE DETAIL "A" OR "B" IF EXISTING SURFACE BEHIND LANDING IS PAVED.
5. USE DETAIL "C" OR "D" IF EXISTING SURFACE BEHIND LANDING IS UNPAVED.
6. R = 3' UNLESS OTHERWISE SHOWN ON PLAN. SEE SHEET 8 AND 9.
7. ANGLE = Δ/2 UNLESS OTHERWISE SHOWN ON PLAN.
8. CONSTRUCTION DETECTABLE WARNING SURFACE PER DETAIL, SHEET 12. MATERIALS SHALL BE PER CONTRACT DOCUMENTS.



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STANDARD DRAWING:

SIDEWALK RAMPS

APPROVED:

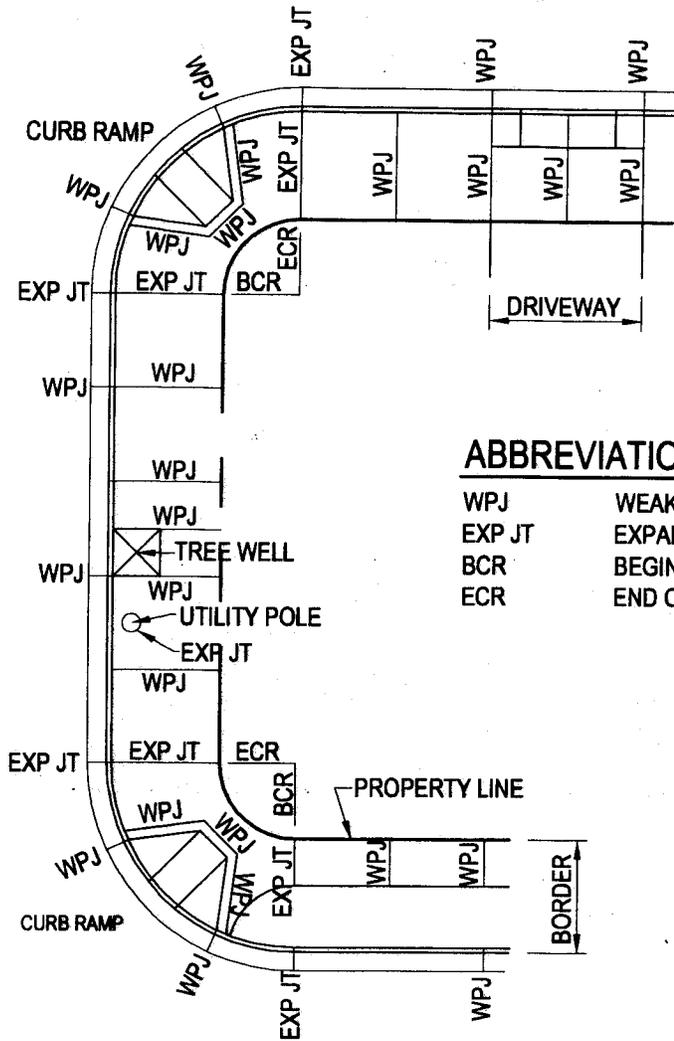
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ABBREVIATIONS:

- WPJ WEAKENED PLANE JOINT
- EXP JT EXPANSION JOINT
- BCR BEGINNING OF CURB RETURN
- ECR END OF CURB RETURN

NOTES:

1. WEAKENED PLANE JOINTS SHALL BE USED FOR ALL JOINTS, EXCEPT THAT EXPANSION JOINTS SHALL BE PLACED AT THE BCR AND ECR IN CURB, GUTTER AND SIDEWALK, AND AROUND UTILITY POLES LOCATED IN SIDEWALK AREAS.
2. WEAKENED PLANE JOINTS SHALL BE CONSTRUCTED AT REGULAR INTERVALS NOT EXCEEDING 10' (3000 mm) IN WALKS AND 20' (6000 mm) IN GUTTERS. JOINTS IN CURB AND WALK SHALL BE ALIGNED.
3. CURB AND GUTTER SHALL BE CONSTRUCTED SEPARATELY FROM SIDEWALK.



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STANDARD DRAWING:

CURB AND SIDEWALK JOINTS

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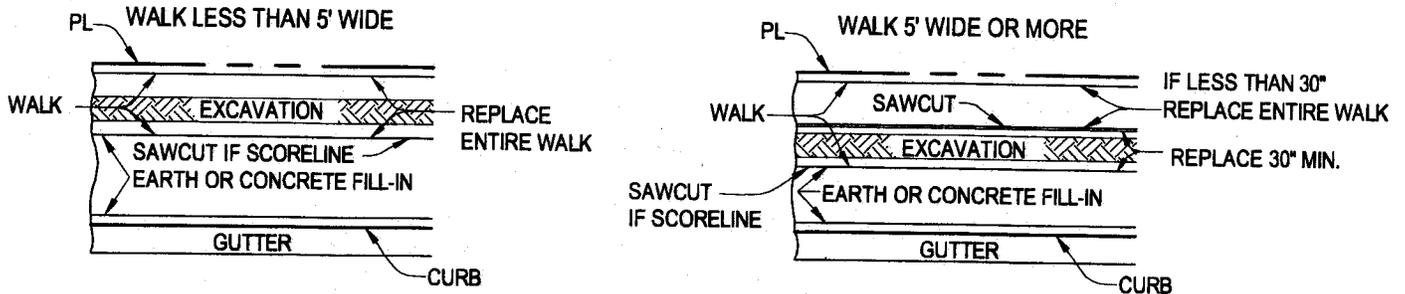
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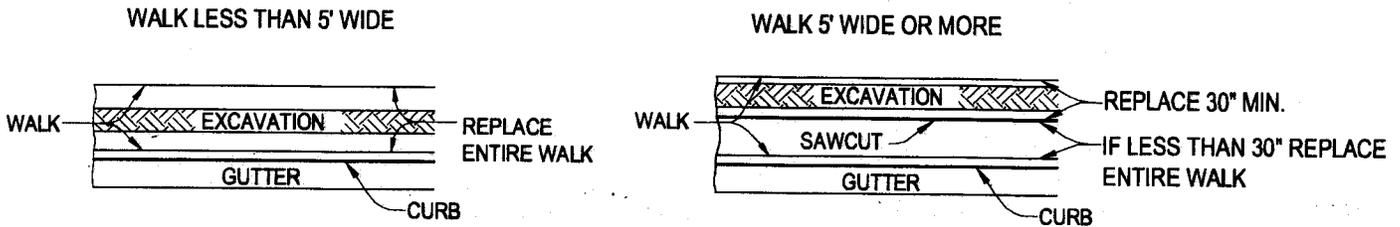
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AS SHOWN	ST-4	
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	SHT. 1 OF 1	

WALK OR FILL-IN REPLACEMENT FOR EXCAVATIONS MADE PARALLEL TO CURB OR PROPERTY LINE

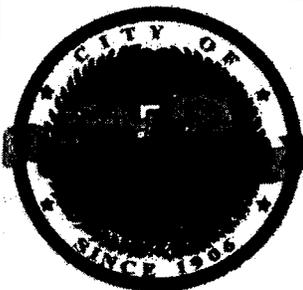
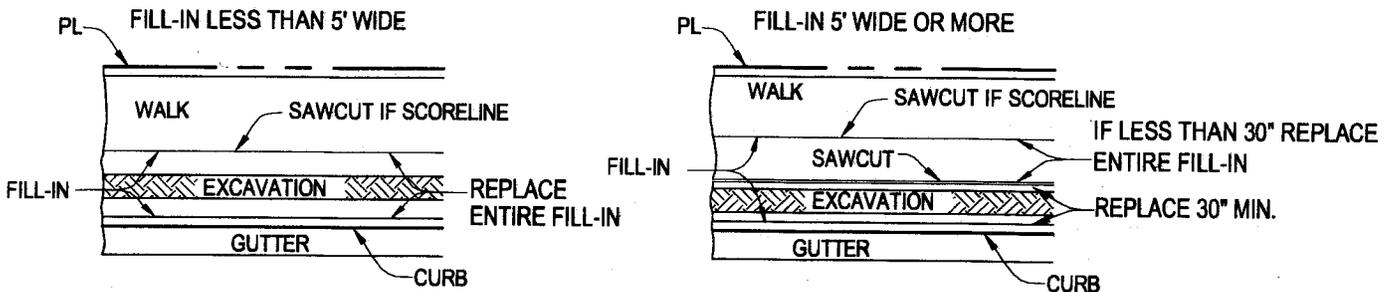
WALK ADJACENT TO PROPERTY LINE



WALK ADJACENT TO CURB



FILL-IN REPLACEMENT



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STANDARD DRAWING:

SIDEWALK & DRIVEWAY REPLACEMENT

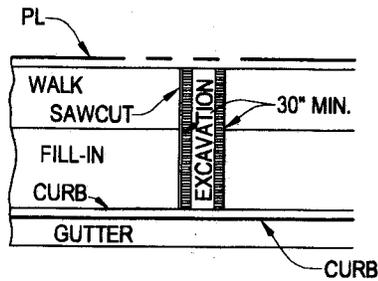
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9/2014		
	SHT. 1 OF 2	

**WALK OR FILL-IN REPLACEMENT FOR EXCAVATIONS MADE
NORMAL TO CURB OR PROPERTY LINE**



THESE REQUIREMENTS ALSO APPLY TO ENDS OF PARALLEL EXCAVATIONS. IF AN EXCAVATION FALLS WITHIN 30" OF AN EXPANSION JOINT, CONSTRUCTION JOINT, WEAKENED PLANE JOINT, OR EDGE, THE CONCRETE SHALL BE REMOVED AND REPLACED TO THE JOINT OR EDGE.

IF AN EXCAVATION FALLS WITHIN 12" OF A SCORELINE, THE CONCRETE SHALL BE REMOVED AND REPLACED TO THE SCORELINE. THE SCORELINE SHALL BE SAWCUT BEFORE CONCRETE REMOVAL. THE MINIMUM LENGTH OF REPLACEMENT IN BOTH CASES SHALL BE 30".

NOTES

1. CONCRETE WALK, FILL-IN AND DRIVEWAYS REMOVED IN CONNECTION WITH CONSTRUCTION SHALL BE REPLACED TO NEATLY SAWED EDGES. ALL CUTS SHALL BE PARALLEL TO OR PERPENDICULAR TO THE CURB; ON CURVES, THE CUT SHALL BE RADIAL TO THE CURB.
2. DRIVEWAY APRONS IN WHICH THE "W" DISTANCE IS LESS THAN 11' SHALL BE REPLACED IN THEIR ENTIRETY IF CUT IN ANY AREA.
3. DRIVEWAY APRONS IN WHICH THE "W" DISTANCE IS 11' OR MORE MAY BE CUT WITHIN THE "W" SECTION. THE MINIMUM REPLACEMENT SHALL BE 30" IN LENGTH. THE MINIMUM DISTANCE ALLOWED BETWEEN SUCH CUTS SHALL BE 14'.
4. DRIVEWAY APRONS IN WHICH THE "W" DISTANCE IS 11' (3300 mm) OR MORE MAY BE CUT IN THE X OR R SECTION. REPLACEMENT SHALL BE THE ENTIRE X OR R SECTION.
5. DRIVEWAY APRONS SHALL BE REPLACED FROM THE BACK OF THE CURB TO THE FRONT EDGE OF THE WALK, EXCEPT, WHERE WALK IS ADJACENT TO CURB, REPLACEMENT SHALL BE FROM BACK OF CURB TO BACK OF WALK.
6. WALK PORTIONS OF DRIVEWAYS SHALL BE REPLACED AS SHOWN ABOVE FOR EXCAVATIONS MADE PARALLEL OR NORMAL TO CURB.
7. REPLACEMENT OF THE X OR R SECTION SHALL MATCH EXISTING CONSTRUCTION.

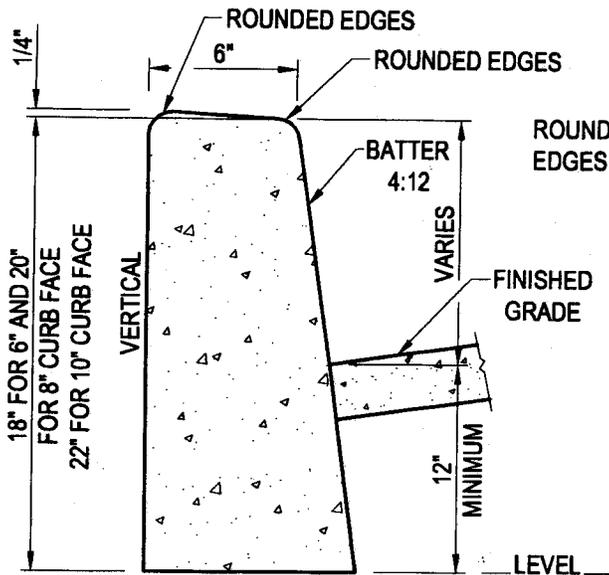


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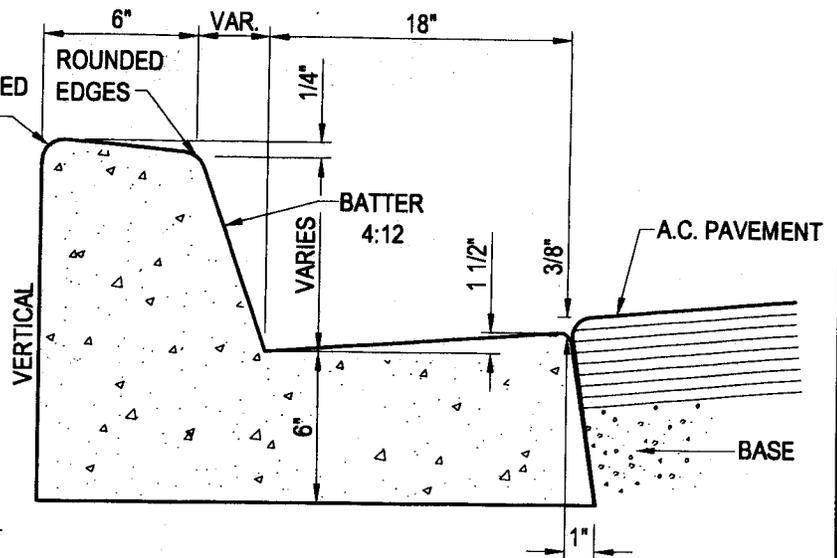
STANDARD DRAWING:
SIDEWALK & DRIVEWAY REPLACEMENT

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CITY UTILITY ENGINEER RCE No. 43296 DATE

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AS SHOWN	ST-5	
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9/2014	SHT. 2 OF 2	



CURB ONLY
(STREET & ALLEY RETURNS)

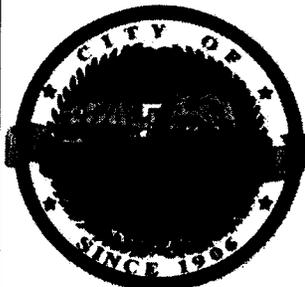


MONOLITHIC CURB & GUTTER
(ALL CITY STREETS)

CU. YDS. PER LINEAL FOOT		
CURB FACE	CURB ONLY	CURB & GUTTER
6"	0.0417	0.0695
8"	0.0482	0.0760
10"	0.0546	0.0824

NOTES:

1. CONCRETE SHALL BE CLASS 520-C-2500, MAXIMUM 4-INCH SLUMP.
2. EXPANSION JOINTS SHALL BE PLACED NOT TO EXCEED 60-FEET AND AT B.C.R.'S, E.C.R'S AND DRIVEWAY "X'S". FELT WILL NOT BE ALLOWED. WEAKENED PLANE JOINTS SHALL BE PLACED NOT TO EXCEED 15 FEET ON CENTERS.
3. A CLEAR CONCRETE CURING COMPOUND SHALL BE APPLIED AS A FINE SPRAY TO ALL EXPOSED SURFACES INCLUDING BACK OF CURB, IMMEDIATELY AFTER COMPLETION OF FINISHING.
4. MORTAR FINISH IS PROHIBITED.
5. GUTTER FLOW LINES SHALL BE TROWEL FINISHED SMOOTH, 6-INCHES WIDE, WITH NO RIDGES FORMED.
6. A CRUSHED AGGREGATE BASE, 6" THICK, SHALL BE PLACED UNDER ALL CURB AND GUTTER. MINIMUM COMPACTION OF 90% ON SUBGRADE AND 95% ON AGGREGATE BASE IS REQUIRED.



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STANDARD DRAWING:

CURB - CURB & GUTTER DETAILS

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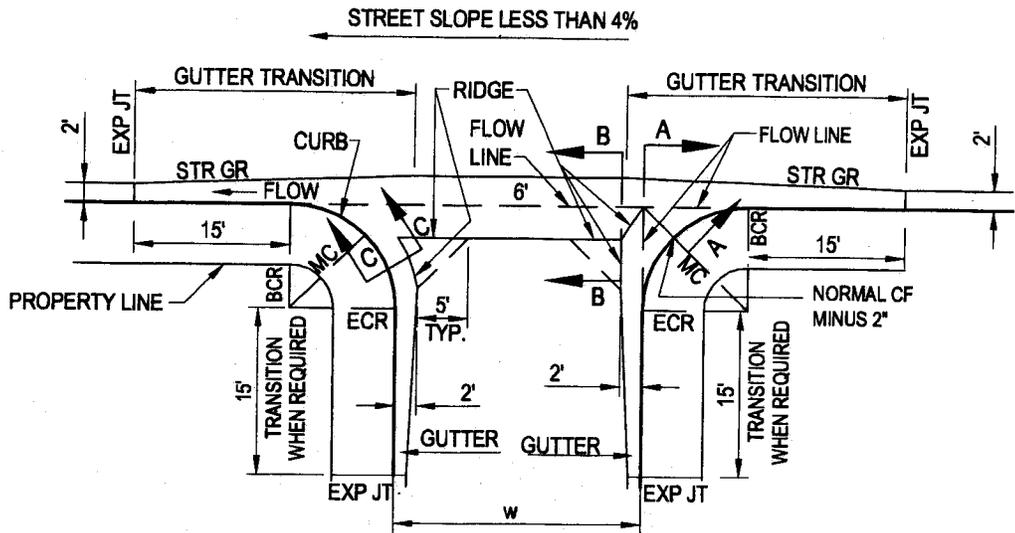
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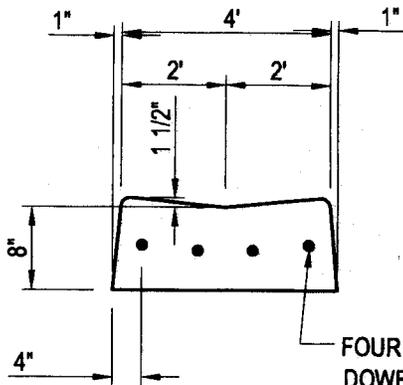
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DATE OF REVISION:	SHT. 1 OF 1
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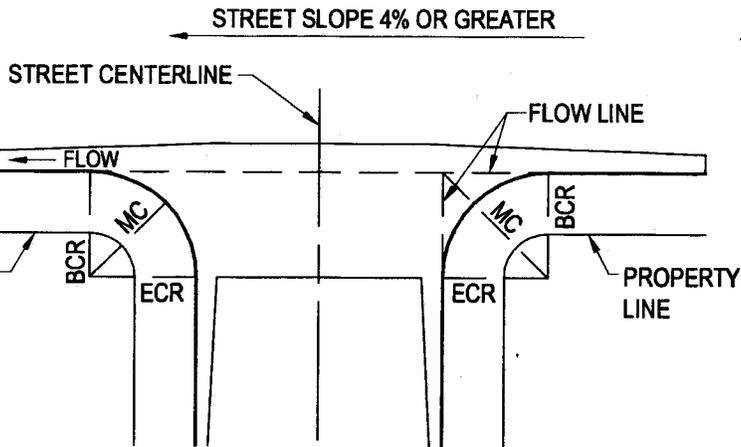


**TYPICAL CROSS GUTTER PLAN
STREET SLOPE LESS THAN 4%**

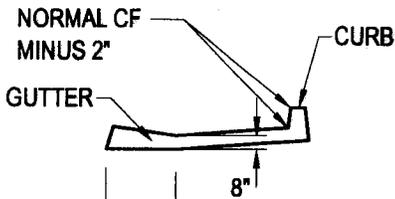


FOUR EQUALLY SPACED
DOWELS FOR CONTACT
JOINTS-SEE NOTE 4

**LONGITUDINAL
GUTTER**



**TYPICAL CROSS GUTTER PLAN
STREET SLOPE MORE THAN 4%**



SECTION A-A



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

CROSS GUTTER AND SPANDREL

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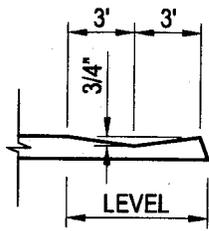
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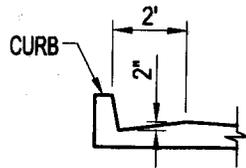
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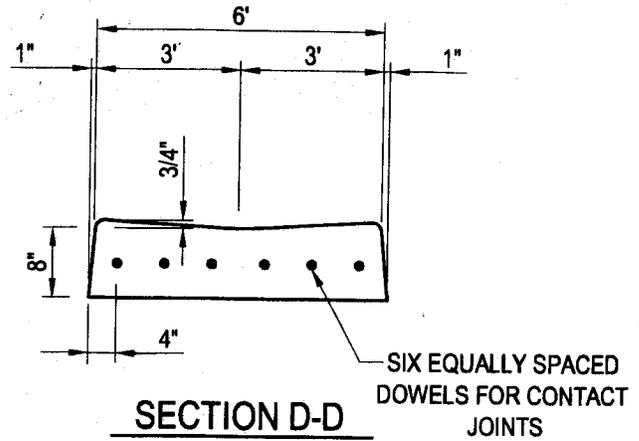
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SECTION B-B

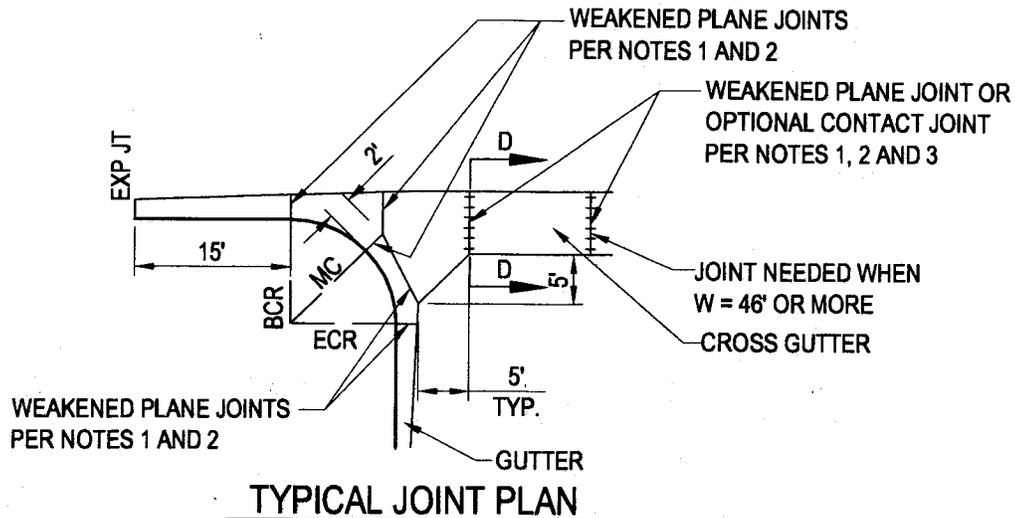


SECTION C-C



SECTION D-D

SIX EQUALLY SPACED DOWELS FOR CONTACT JOINTS



TYPICAL JOINT PLAN

NOTES:

1. WEAKENED PLANE AND/OR CONTACT JOINTS SHALL BE PLACED IN CURB AND GUTTER AT LOCATIONS SHOWN ON THE TYPICAL JOINT PLAN HEREON.
2. WEAKENED PLANE JOINTS SHALL BE PLASTIC CONTROL JOINTS OR 1-1/2" DEEP SAW CUTS. CONCRETE SAWING SHALL TAKE PLACE WITHIN 24 HOURS AFTER CONCRETE IS PLACED.
3. DOWELS FOR CONTACT JOINTS SHALL BE #4 BARS 18" LONG.
4. PLACE A WEAKENED PLANE OR CONTACT JOINT WHERE LONGITUDINAL ALLEY GUTTER JOINS CONCRETE ALLEY INTERSECTION.
5. ALL EXPOSED CORNERS ON PCC GUTTERS SHALL BE ROUNDED WITH 1/2" RADIUS.
6. CONCRETE SHALL BE INTEGRAL WITH CURB UNLESS OTHERWISE SPECIFIED.



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STANDARD DRAWING:

CROSS GUTTER AND SPANDREL

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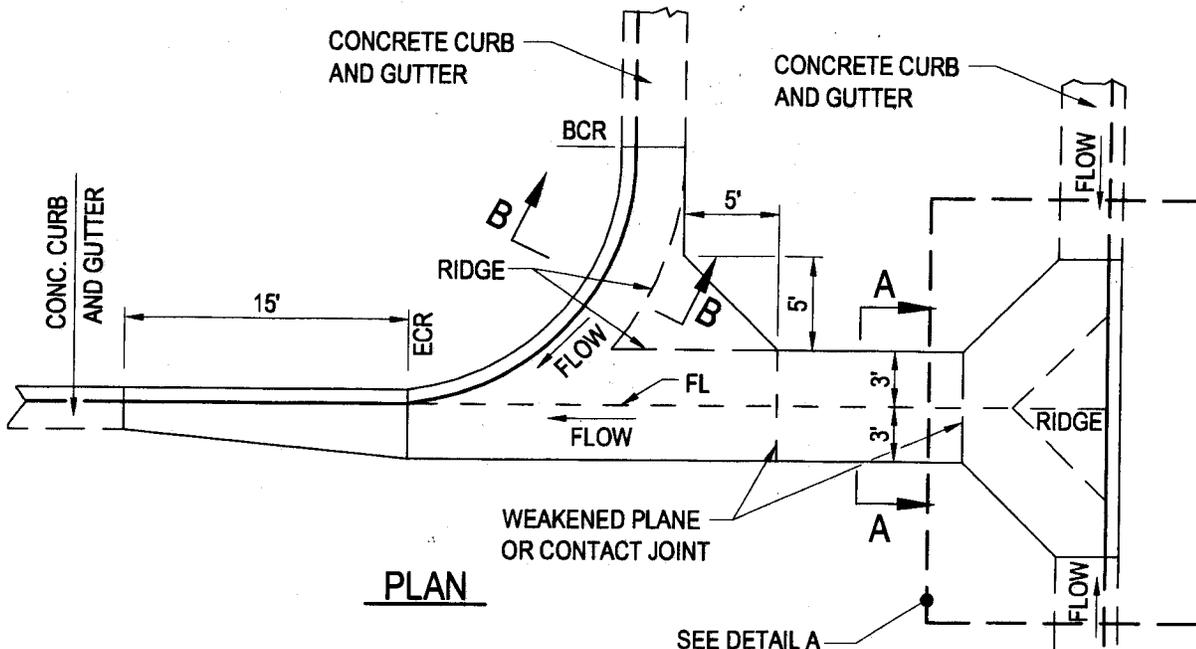
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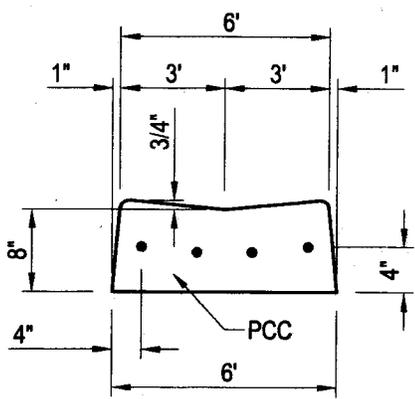
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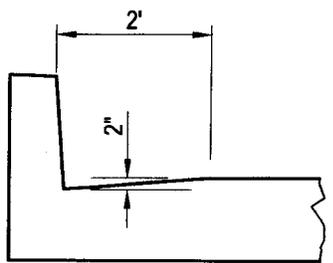
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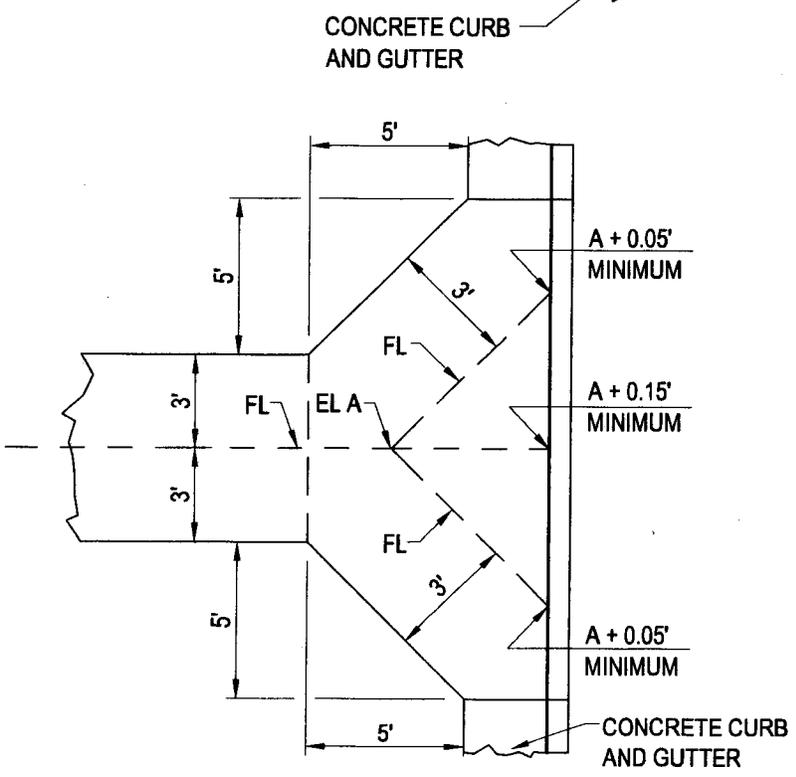
PLAN



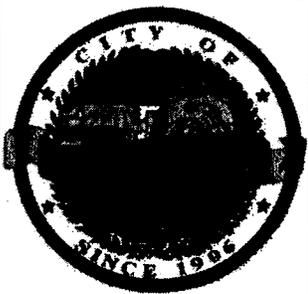
SECTION A-A



SECTION B-B



DETAIL A



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CROSS GUTTER AND SPANDREL

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[Signature] 43296 9/5/14
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AS SHOWN	ST-7	
DATE OF REVISION:	9/2014	
	SHT. 3 OF 4	

NOTES:

1. WEAKENED-PLANE JOINTS SHALL BE PLASTIC CONTROL JOINTS OR 1-1/2" DEEP SAW CUTS. CONCRETE SAWING SHALL TAKE PLACE WITHIN 24 HOURS AFTER CONCRETE IS PLACED.
2. DOWELS FOR CONTACT JOINTS SHALL BE #4 BARS 18" LONG .
3. ALL EXPOSED CORNERS SHALL BE ROUNDED WITH 1/2" RADIUS.
4. CONCRETE SHALL BE INTEGRAL WITH CURB UNLESS OTHERWISE SPECIFIED.



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CROSS GUTTER AND SPANDREL

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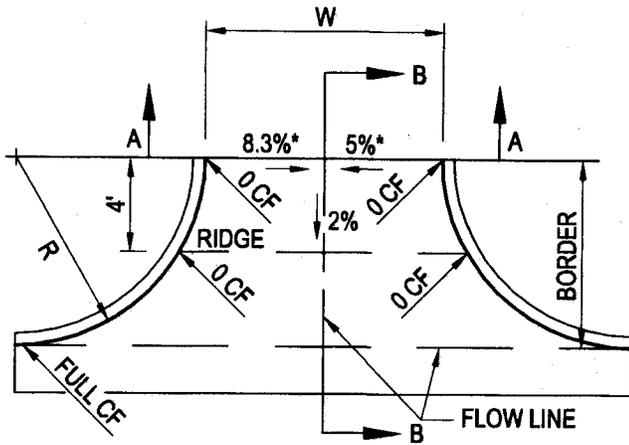
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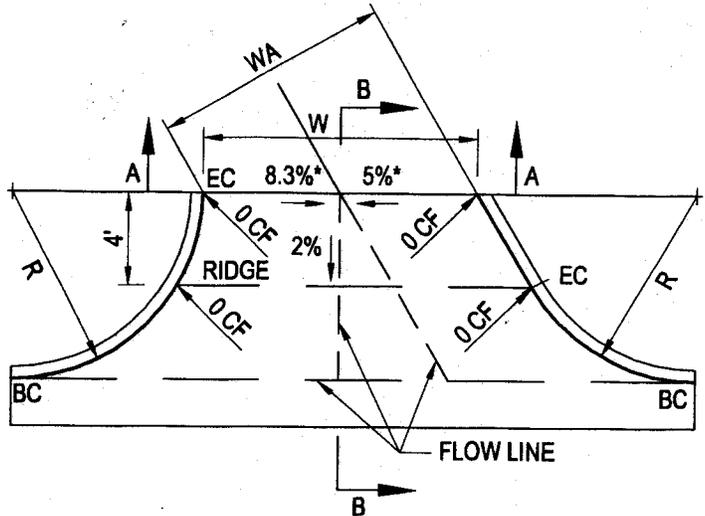
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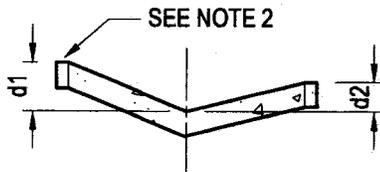
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SHT. 4 OF 4



STANDARD APPROACH



ANGLED APPROACH



SECTION A-A

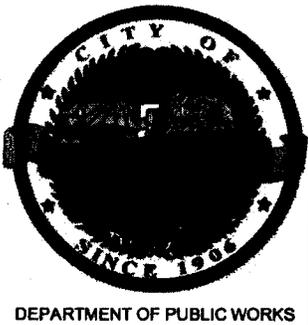


SECTION B-B

W, ft	8'	10'	15'	20'	25'	30'
d1, ft MAX	0.33'	0.42'	0.63'	0.83'	1.04'	1.25'
d2, ft MIN	0.17'	0.25'	0.25'	0.25'	0.25'	0.25'

NOTES:

- FOR CASE A, THE RADIUS OF THE CURB RETURN, R, IS EQUAL TO THE PARKWAY WIDTH.
- ALLEY INTERSECTION SHALL BE PCC, CLASS 520-C-2500, 6" THICK. CURB SHALL BE INTEGRAL TYPE "A".
- ASTERISKS, *, SHOW MAXIMUM GRADES.

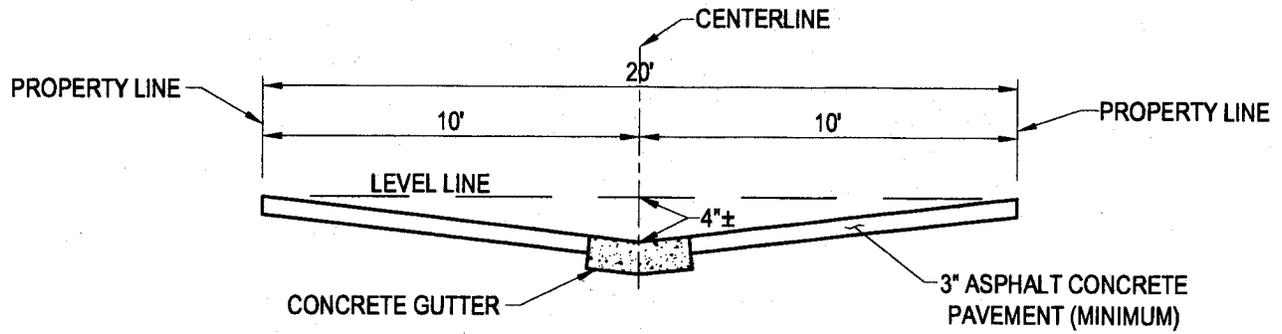


STANDARD DRAWING:
ALLEY INTERSECTION

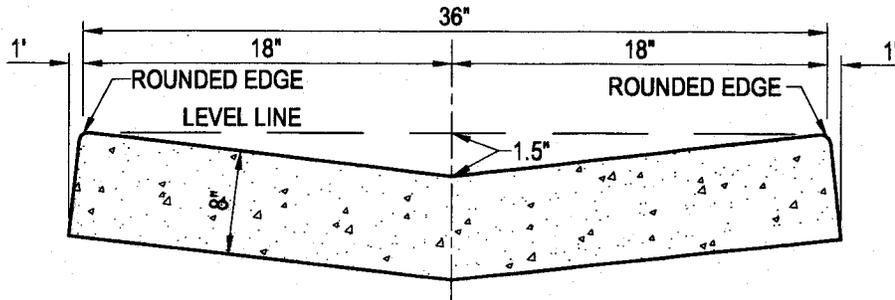
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DATE OF REVISION: 9/2014	SHT. 1 OF 1	



ALLEY SECTION



CONCRETE GUTTER

0.0763 CU.YDS. PER SQ. FT.

NOTES:

1. CONCRETE SHALL BE CLASS 520-C-2500, MAXIMUM 4-INCH SLUMP.
2. EXPANSION JOINTS SHALL BE PLACED NOT TO EXCEED 60-FEET WITH WEAKENED PLANE JOINTS NOT TO EXCEED 15-FEET ON CENTERS.
3. A CLEAR CONCRETE CURING COMPOUND SHALL BE APPLIED AS A FINE SPRAY TO ALL EXPOSED SURFACES, INCLUDING THE BACK OF CURB, IMMEDIATELY AFTER COMPLETION OF FINISHING.
4. THICKNESS OF A.C. PAVEMENT AND BASE SHALL BE AS SHOWN ON THE IMPROVEMENT PLANS AND SHALL BE DETERMINED FROM "R" VALUES OBTAINED FROM SOILS TESTS. MINIMUM 3 TESTS OR 1 PER 600 L.F. OF ALLEY.
5. FLOW LINES SHALL BE TROWEL FINISHED SMOOTH, 6-INCHES WIDE, WITH NO RIDGES FORMED.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

ALLEY SECTION

APPROVED:

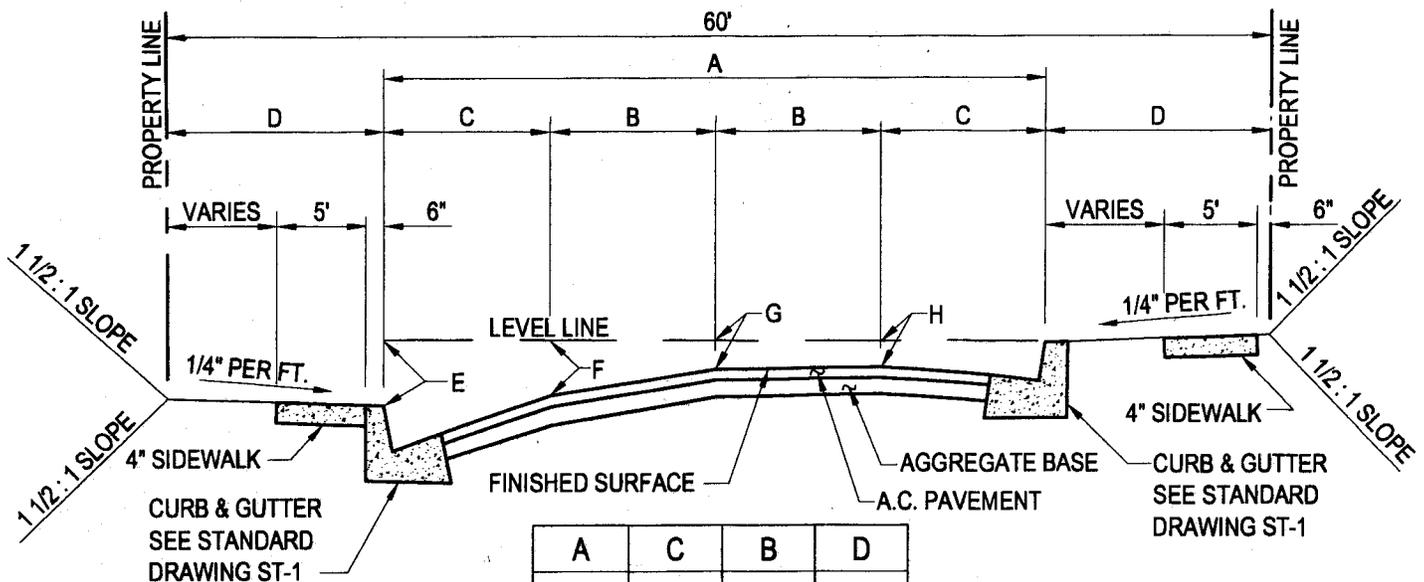
[Signature]
CITY OF LAVERNE

[Signature]
CITY UTILITY ENGINEER

10/20/14
DATE

43296
RCE No. 9/5/14
DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-9	
DATE OF REVISION:	SHT. 1 OF 1	
9/2014		



A	C	B	D
36'	9'	9'	12'
40'	10'	10'	10'

6" CURB FACE

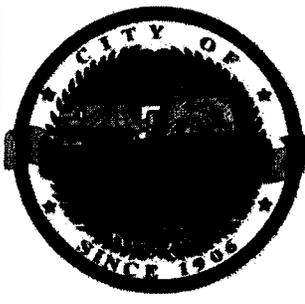
E	F	G	H
0"	1 1/2"	0"	1 1/2"
3"	3"	1 1/2"	1 1/2"
6"	4 1/2"	1"	1 1/2"
9"	6 1/2"	2 1/2"	2"

8" CURB FACE

E	F	G	H
0"	3 1/2"	2"	3 1/2"
3"	5"	2 1/2"	3 1/2"
6"	6 1/2"	3"	3 1/2"
9"	8 1/2"	4 1/2"	4"

NOTES:

- CURB SHALL HAVE EXPANSION JOINTS PLACED EVERY 60-FEET WITH WEAKENED PLANE JOINTS AT 15-FEET ON CENTERS.
- SIDEWALK SHALL HAVE EXPANSION JOINTS NOT TO EXCEED 60-FEET WITH WEAKENED PLANE JOINTS NOT TO EXCEED 15-FEET ON CENTERS. SIDEWALK SHALL BE SCORED AT FIVE FEET ON CENTER OR SHALL BE SCORED TO MATCH ADJACENT EXISTING SIDEWALK.
- SIDEWALK LOCATION WILL BE DETERMINED BY THE CITY ENGINEER.
- CROSS SECTIONS AND CURB LOCATIONS WILL BE DETERMINED BY THE CITY ENGINEER FOR ALL STREETS OTHER THAN 60' RW.
- EXPANSION JOINTS SHALL BE PLACED IN THE CURB AT ALL B.C.R.'S AND E.C.R.'S.
- THICKNESS OF PAVEMENT AND BASE SHALL BE AS SHOWN ON THE IMPROVEMENT PLANS AND SHALL BE DETERMINED FROM THE "R" VALUES OBTAINED FROM SOILS TESTS, MINIMUM 3 TESTS OR 1 PER 2 ACRES.
- RAISED PAVEMENT MARKERS ARE REQUIRED ON ALL ARTERIAL ROADWAYS.
- SLOPE SHALL BE A MAXIMUM OF 1 1/2 : 1 OR IN ACCORDANCE WITH AN APPROVED SLOPE STABILITY ANALYSIS.
- THESE SECTIONS MUST CONFORM TO TITLE 24 AND A.D.A. REQUIREMENTS.



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STANDARD DRAWING:

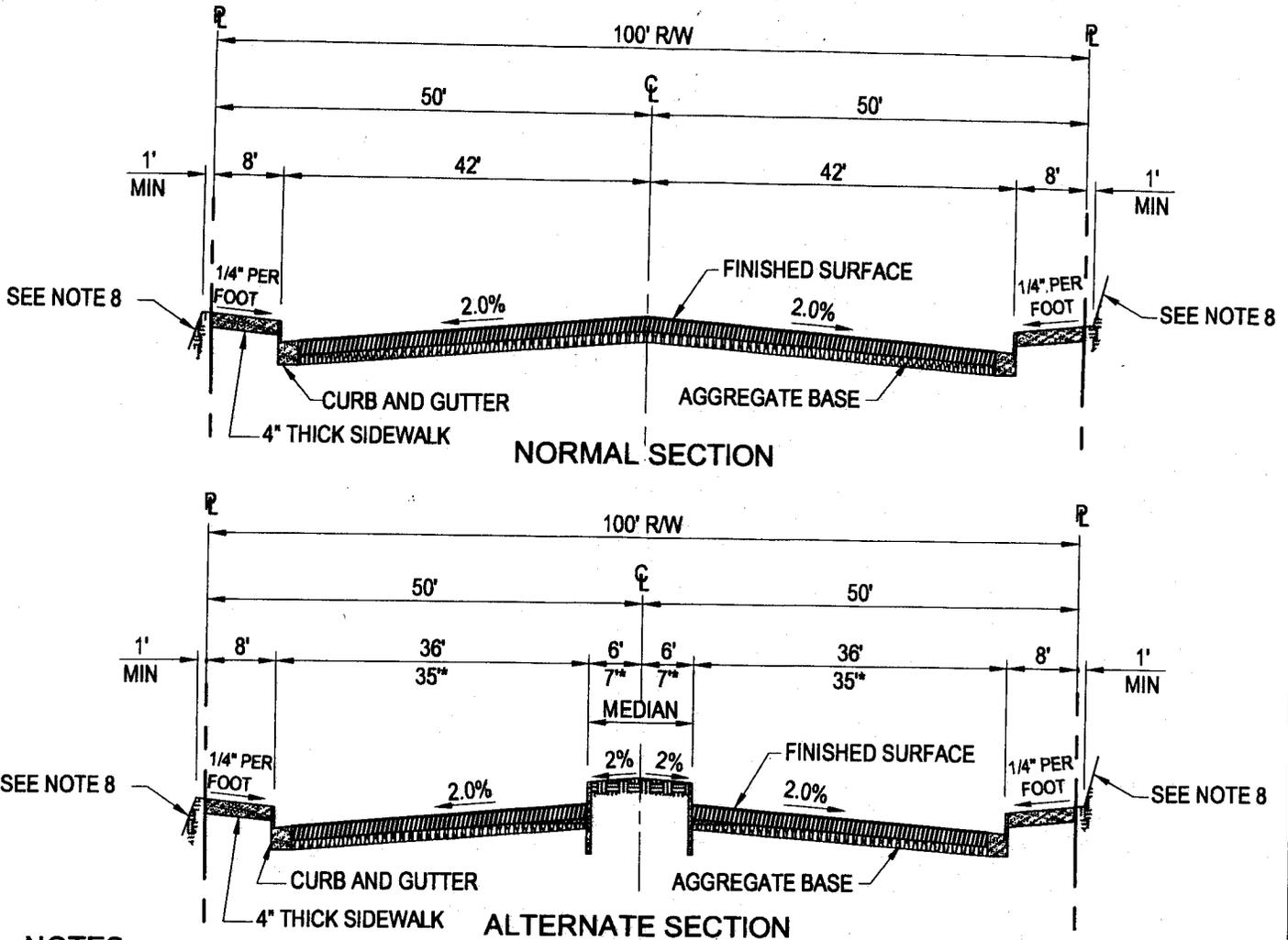
STREET CROSS SECTION

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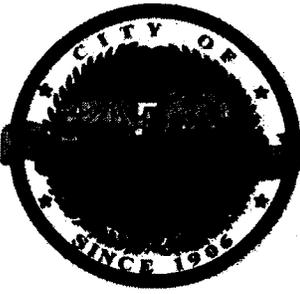
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DATE OF REVISION: 9/2014	SHT. 1 of 1	



NOTES:

1. CURB SHALL HAVE EXPANSION JOINTS PLACED EVERY 60-FEET WITH WEAKENED PLANE JOINTS AT 15-FEET ON CENTERS.
2. SIDEWALK SHALL HAVE EXPANSION JOINTS NOT TO EXCEED 60-FEET WITH WEAKENED PLANE JOINTS NOT TO EXCEED 15-FEET ON CENTERS. SIDEWALK SHALL BE SCORED AT FIVE FEET ON CENTER OR SHALL BE SCORED TO MATCH ADJACENT EXISTING SIDEWALK.
3. SIDEWALK LOCATION WILL BE DETERMINED BY THE CITY ENGINEER.
4. CROSS SECTIONS AND CURB LOCATIONS WILL BE DETERMINED BY THE CITY ENGINEER FOR ALL STREETS OTHER THAN 60' R/W.
5. EXPANSION JOINTS SHALL BE PLACED IN THE CURB AT ALL B.C.R.'S AND E.C.R.'S.
6. THICKNESS OF PAVEMENT AND BASE SHALL BE AS SHOWN ON THE IMPROVEMENT PLANS AND SHALL BE DETERMINED FROM THE "R" VALUES OBTAINED FROM SOILS TESTS, MINIMUM 3 TESTS OR 1 PER 2 ACRES.
7. RAISED PAVEMENT MARKERS ARE REQUIRED ON ALL ARTERIAL ROADWAYS.
8. SLOPE SHALL BE A MAXIMUM OF 1 1/2:1 OR IN ACCORDANCE WITH AN APPROVED SLOPE STABILITY ANALYSIS.
9. THESE SECTIONS MUST CONFORM TO TITLE 24 AND A.D.A. REQUIREMENTS.

*ALTERNATE SECTION



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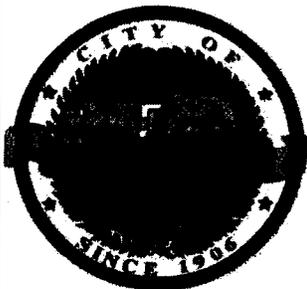
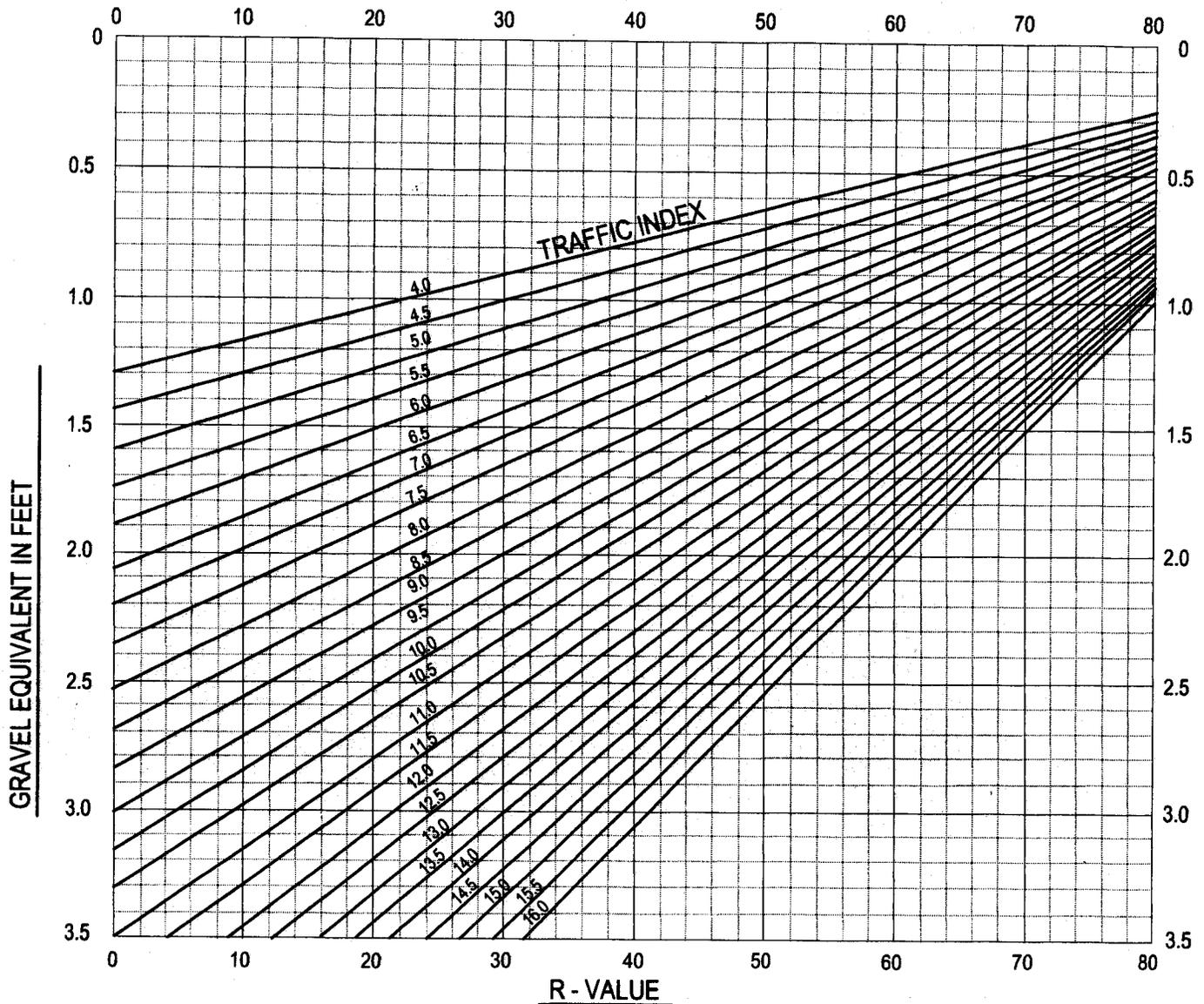
INDUSTRIAL STREET CROSS SECTION

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 CITY OF LAWRENCE DATE
[Signature] 43296 9/5/14
 CITY UTILITY ENGINEER RCE No. DATE

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EQUATION: $GE=0.0032(TI)(100-R)$

GE = GRAVEL EQUIVALENT
 TI = TRAFFIC INDEX
 R = RESISTANCE VALUE



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

STRUCTURAL DESIGN CHART FOR FLEXIBLE PAVEMENTS

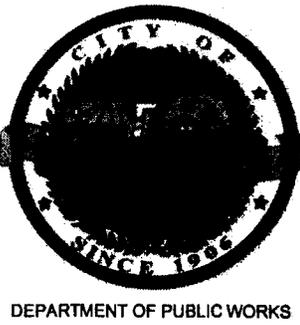
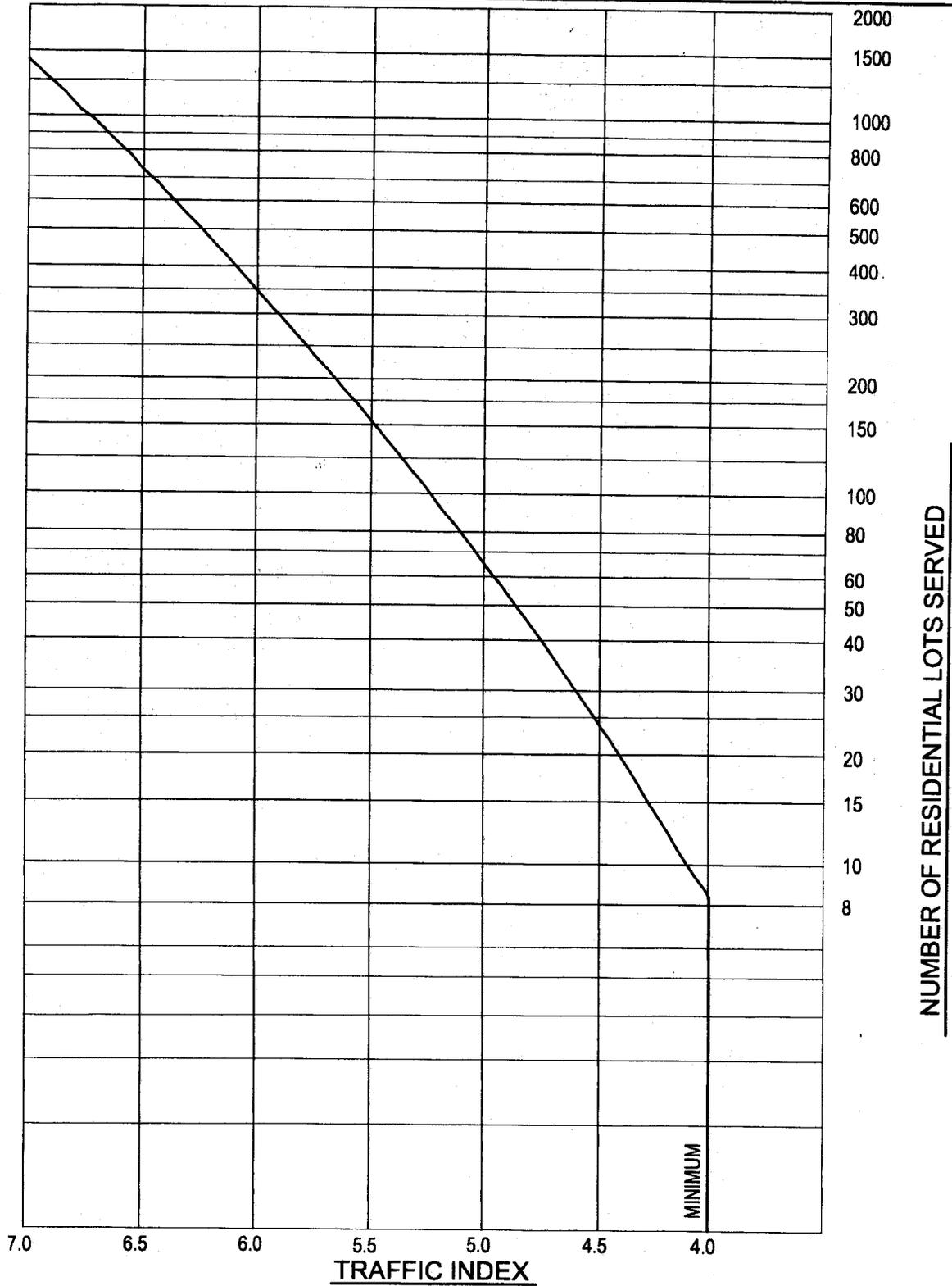
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AS SHOWN	ST-12
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STANDARD DRAWING:
STREET DESIGN TRAFFIC INDEX CHART

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 CITY OF WAVERNE

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9/5/14
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SHT. 1 OF 1		

TABLE 633.1
GRAVEL EQUIVALENTS (GE) AND THICKNESS OF STRUCTURAL LAYERS (FT)

ACTUAL THICKNESS OF LAYER (FT)	ASPHALT CONCRETE (DGAC)											BASE AND SUBBASE						
	TRAFFIC INDEX (TI)											ACB LCB	CTPB C1.A CTB	ATPB	C1.B CTB	AB	AS	
	5 & 5.5 below	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5							11.0
GRAVEL EQUIVALENT FACTOR (G _f)																		
G _f VARIES WITH TI**												G _f CONSTANT						
	2.54	2.32	2.14	2.01	1.89	1.79	1.71	1.64	1.57	1.52	1.46	1.9	1.7	1.4	1.2	1.1	1.0	
0.10	0.25	0.23	0.21	0.20	0.19	0.18	0.17	0.16	0.16	0.15	0.15	--	--	--	--	--	--	
0.15	0.38	0.35	0.32	0.30	0.28	0.27	0.26	0.25	0.24	0.23	0.22	--	--	--	--	--	--	
0.20	0.51	0.46	0.43	0.40	0.38	0.36	0.34	0.33	0.31	0.30	0.29	--	--	--	--	--	--	
0.25	0.63	0.58	0.54	0.50	0.47	0.45	0.43	0.41	0.39	0.38	0.37	--	--	*0.35	--	--	--	
0.30	0.76	0.69	0.64	0.60	0.57	0.54	0.51	0.49	0.47	0.45	0.44	--	--	0.42	--	--	--	
0.35	0.89	0.81	0.75	0.70	0.66	0.63	0.60	0.57	0.55	0.53	0.51	0.67	*0.60	0.49	0.42	0.39	0.35	
0.40	1.01	0.93	0.86	0.80	0.76	0.72	0.68	0.65	0.63	0.61	0.59	0.76	0.68	0.56	0.48	0.44	0.40	
0.45	1.14	1.04	0.96	0.90	0.85	0.81	0.77	0.74	0.71	0.68	0.66	0.86	0.77	0.63	0.54	0.50	0.45	
0.50	1.27	1.16	1.07	1.00	0.94	0.90	0.85	0.82	0.79	0.76	0.73	0.95	0.85	0.70	0.60	0.55	0.50	
0.55	1.41	1.29	1.19	1.12	1.05	1.00	0.95	0.91	0.87	0.84	0.81	1.05	0.94	0.77	0.66	0.61	0.55	
0.60	1.58	1.45	1.34	1.25	1.18	1.12	1.07	1.02	0.98	0.95	0.91	1.14	1.02	0.84	0.72	0.66	0.60	
0.65	1.76	1.61	1.49	1.39	1.31	1.25	1.19	1.14	1.09	1.05	1.02	1.24	1.11	0.91	0.78	0.72	0.65	
0.70	--	1.78	1.64	1.54	1.45	1.38	1.31	1.26	1.21	1.16	1.12	1.33	1.19	--	0.84	0.77	0.70	
0.75	--	1.95	1.80	1.69	1.59	1.51	1.44	1.38	1.32	1.27	1.23	1.43	1.28	--	0.90	0.83	0.75	
0.80	--	2.12	1.96	1.84	1.73	1.64	1.57	1.50	1.44	1.39	1.34	1.52	1.36	--	0.96	0.88	0.80	
0.85	--	--	2.13	1.99	1.88	1.78	1.70	1.63	1.56	1.51	1.46	1.62	1.45	--	1.02	0.94	0.85	
0.90	--	--	2.30	2.15	2.03	1.92	1.83	1.76	1.69	1.63	1.57	1.71	1.53	--	1.08	0.99	0.90	
0.95	--	--	--	2.31	2.18	2.07	1.97	1.89	1.81	1.75	1.69	1.81	1.62	--	1.14	1.05	0.95	
1.00	--	--	--	2.47	2.33	2.21	2.11	2.02	1.94	1.87	1.81	1.90	1.70	--	1.20	1.10	1.00	
1.05	--	--	--	2.64	2.49	2.36	2.25	2.16	2.07	2.00	1.93	2.00	1.79	--	1.26	1.16	1.05	

NOTES:

1. SEE TABLES 663.1B FOR SUBBASE AND BASE MATERIALS TERMINOLOGY, ABBREVIATIONS, AND GRAVEL FACTORS (G_f).

SOURCE: CALIFORNIA DEPARTMENT OF TRANSPORTATION, "HIGHWAY DESIGN MANUAL", SIXTH EDITION.

 <p>DEPARTMENT OF PUBLIC WORKS</p>	STANDARD DRAWING:	BY	DATE
	DESIGN PROCEDURE FOR FLEXIBLE PAVEMENTS	DESIGNED	B.A.S. 9/2014
	APPROVED: <i>[Signature]</i>	DRAWN	J.M. 9/2014
	CITY OF LAVERNE	CHECKED	C.S.H. 9/2014
<i>[Signature]</i>	SCALE: AS SHOWN	DWG. No. ST-14	
CITY UTILITY ENGINEER	DATE OF REVISION: 9/2014	SHT. 1 OF 4	
43296	DATE: 10/20/14		
RCE No.	DATE: 9/5/14		

**TABLE 663.1B
GRAVEL FACTOR AND CALIFORNIA R-VALUES FOR BASES AND SUBBASES**

TYPE OF MATERIAL	ABBREVIATION	CALIFORNIA R-VALUE	GRAVEL FACTOR (G _f)
AGGREGATE SUBBASE	AS - CLASS 1	60	1.0
	AS - CLASS 2	50	1.0
	AS - CLASS 3	40	1.0
	AS - CLASS 4	SPECIFY	1.0
	AS - CLASS 5	SPECIFY	1.0
AGGREGATE BASE	AB - CLASS 2	78	1.1
	AB - CLASS 3	SPECIFY	1.1 ⁽¹⁾
AGGREGATE TREATED PERMEABLE BASE	ATPB	NA	1.4
CEMENT TREATED BASE	CTB - CLASS A	NA	1.7
	CTB - CLASS B	80	1.2
CEMENT TREATED PERMEABLE BASE	CTPB	NA	1.7
LEAN CONCRETE BASE	LCB	NA	1.9
HOT MIX ASPHALT BASE	HMAB	NA	⁽²⁾
LIME TREATED SUBBASE	LTS	NA	0.9+(UCS/1,000)

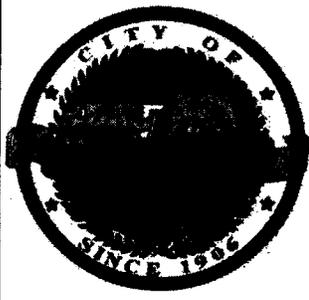
NOTES:

- (1) MUST CONFORM TO THE QUALITY REQUIREMENTS OF AB-CLASS 2.
- (2) WHEN USED WITH HMA, THE HMAB IS TO BE CONSIDERED AS PART OF THE PAVEMENT LAYER. THE HMAB WILL BE ASSIGNED THE SAME G_f AS THE REMAINDER OF THE HMA IN THE PAVEMENT STRUCTURE.

LEGEND:

NA = NOT APPLICABLE

UCS = UNCONFINED COMPRESSIVE STRENGTH IN PSI (MINIMUM 300 PSI PER CALIFORNIA TEST 373)



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

**DESIGN PROCEDURE FOR
FLEXIBLE PAVEMENTS**

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	SHT. 2 OF 4	

DESIGN EXAMPLE - UNDRAINED STRUCTURAL SECTIONS DESIGNED PER R-VALUES OF UNDERLYING LAYERS (AC/AB/AS OR AC/CTB-B/AS).

(A) DETERMINE THE REQUIRED STRUCTURAL SECTION GE USING THE STANDARD DESIGN FORMULA AND THE R-VALUE OF THE BASEMENT SOIL. FOR THIS EXAMPLE, ASSUME AN 8-LANE DIVIDED FREEWAY WILL BE CONSTRUCTED OVER A BASEMENT SOIL WITH A R-VALUE OF 10. USING THE TI EXAMPLE CITED IN SECTION 603.4, TIS OF 12.5 AND 11.0 ARE ASSIGNED, RESPECTIVELY, THE OUTSIDE LANES AND MEDIAN LANES, THUS, THE TOTAL REQUIRED GE IS:

GE = GRAVEL EQUIVALENT = $0.0032 (TI)(100-R)$

TI = TRAFFIC INDEX

R-VALUE = RESISTANCE VALUE

OUTSIDE LANES : $0.0032(12.5)(100-10) = 3.60$

INSIDE LANES : $0.0032(11.0)(100-10) = 3.17$

(B) DETERMINE THE REQUIRED GE OF THE AC LAYER USING THE STANDARD DESIGN FORMULA. IN THIS CASE, R IS THE R-VALUE OF THE AB LAYER.

OUTSIDE LANES : $0.0032(12.5)(100-78) = 0.88$

INSIDE LANES : $0.0032(11.0)(100-78) = 0.77$

(C) ADD THE REQUIRED 0.20 FOOT SAFETY FACTOR TO THESE VALUES TO DETERMINE THE TOTAL GE OF AC:

OUTSIDE LANES (OL) : $0.8 + 0.20 = 1.08$ FEET

INSIDE LANES (IL) : $0.77 + 0.20 = 0.97$ FOOT

(D) USE TABLE 608.4 TO DETERMINE THE ACTUAL THICKNESS REQUIRED:

OL : 0.65' (GE IS 1.08)

IL : 0.55' (GE IS 0.97)

(E) DETERMINE THE GE OF THE ACTUAL THICKNESSES FROM TABLE 608.4:

OL : 1.09

IL : 0.95

(F) DETERMINE THE REQUIRED GE OF THE COMBINED AC AND AB LAYERS USING THE STANDARD DESIGN FORMULA. IN THIS CASE, R IS THE R-VALUE OF THE AS LAYER FOR THIS EXAMPLE, ASSUME A CLASS 2 AS WHICH HAS A SPECIFIED MINIMUM R-VALUE OF 50.

OL : GE = $0.0032(12.5)(100-50) = 2.00$

IL : GE = $0.0032(11.0)(100-50) = 1.76$

(G) ADD THE REQUIRED 0.20 FOOT SAFETY FACTOR TO THESE VALUES TO DETERMINE THE REQUIRED GE OF THE COMBINED AC AND AB.

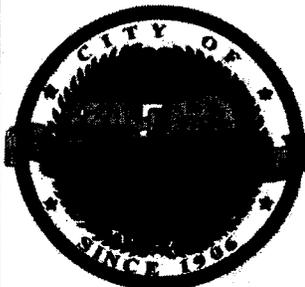
OL : $2.00 + 0.20 = 2.20$

IL : $1.76 + 0.20 = 1.96$

(H) SUBTRACT THE ADJUSTED GE OF THE AC (STEP E) FROM THE REQUIRED COMBINED GE OF THE AC AND AB TO DETERMINE THE REQUIRED GE OF THE AB.

OL : $2.20 - 1.09 = 1.11$

IL : $1.96 + 0.95 = 1.01$



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

DESIGN PROCEDURE FOR FLEXIBLE PAVEMENTS

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(I) USE TABLE 608.4 TO DETERMINE THE ACTUAL THICKNESS REQUIRED FOR THE AB.

OL : 1.00' (GE IS 1.10)
 IL : 0.90' (GE IS 0.99)

NOTE: IF CTB-B IS USED IN LIEU OF AB, USE TABLE 608.4 TO DETERMINE ACTUAL THICKNESSES:

OL : 0.95' (GE IS 1.14)
 IL : 0.85' (GE IS 1.02)

(J) SUBTRACT THE ADJUSTED GE OF THE AC AND AB LAYERS FROM THE REQUIRED GE OF THE TOTAL STRUCTURAL SECTION (STEP A) TO DETERMINE THE GE OF THE AS:

OL : $3.60 - 1.09(AC) - 1.10(AB) = 1.41$
 (ROUNDED TO 1.40)

IL : $3.17 - 0.95(AC) - 0.99(AB) = 1.23$
 (ROUNDED TO 1.25)

NOTE: IF CTB-B IS USED IN LIEU OF AB, THE GE OF THE AS WILL BE:

OL : $3.60 - 1.09(AC) - 1.14(CTB-B) = 1.37$
 (ROUNDED TO 1.35)

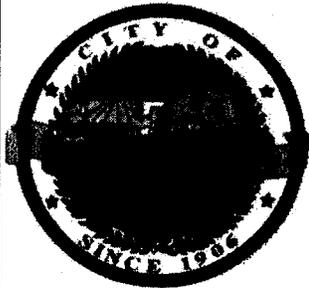
IL : $3.17 - 0.96(AC) - 1.02(CTB-B) = 1.19$
 (ROUNDED TO 1.20)

SINCE AS HAS A Gf OF 1.0, THE ACTUAL THICKNESS AND THE GE ARE EQUAL.

(K) THE STRUCTURAL SECTION LAYER THICKNESSES FOR THE ABOVE EXAMPLE ARE:

OL : 0.65'AC, 1.00'AB, 1.40'AS OR
 0.65'AC, 0.85'CTB-B, 1.35'AS

IL : 0.55'AC, 0.90'AB, 1.25'AS OR
 0.55'AC, 0.85'CTB-B, 1.20'AS



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STANDARD DRAWING:

DESIGN PROCEDURE FOR
 FLEXIBLE PAVEMENTS

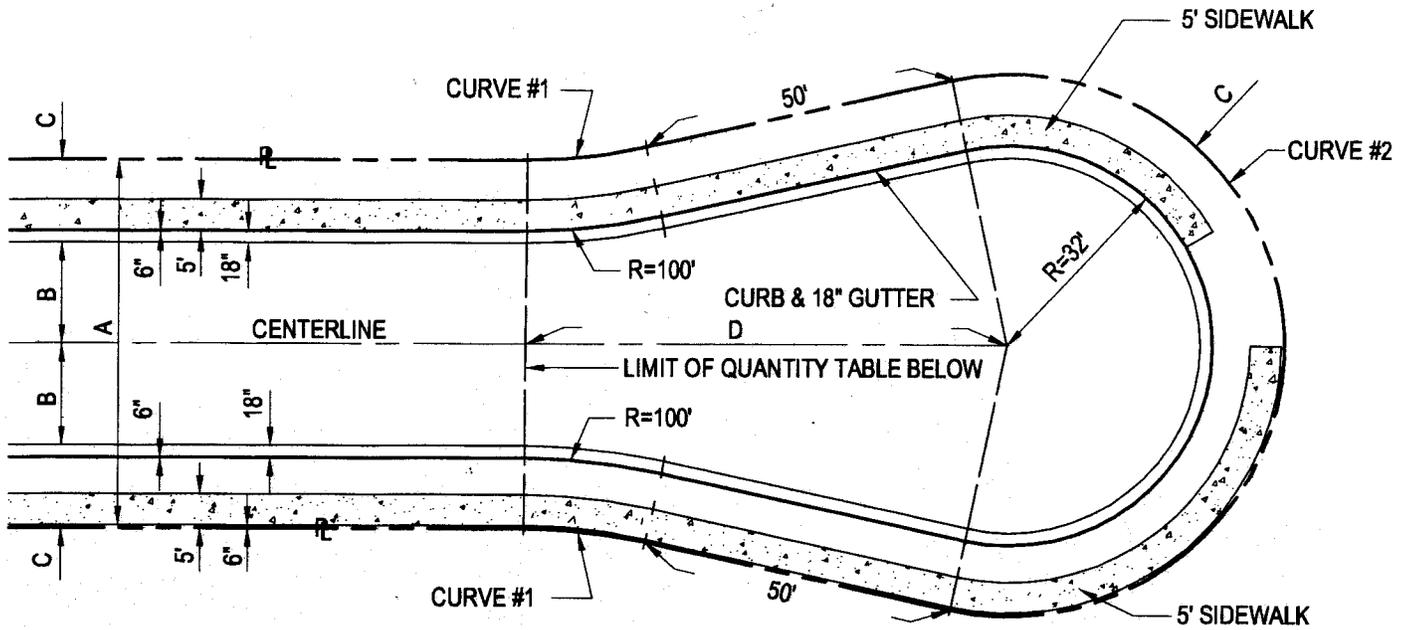
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AS SHOWN	ST-14	
DATE OF REVISION:	9/2014	
	SHT. 4 OF 4	



CURVE DATA TABLE

				CURVE #1						CURVE #2					
A	B	C	D	△	CURB			PROPERTY LINE			△	CURB		PROPERTY LINE	
					R	L	T	R	L	T		R	L	R	L
50	18	7	77.46	12°32'11"	100	21.88	10.98	93	20.35	10.22	205°04'22"	32	114.53	39	139.59
60	18	12	77.46	12°32'11"	100	21.88	10.98	88	19.25	9.67	205°04'22"	32	114.53	44	157.48
60	20	10	74.32	11°01'35"	100	19.24	9.65	90	17.32	8.69	202°03'10"	32	112.85	42	148.11

NOTES:

- ALL RESIDENTIAL CUL-DE-SAC STREETS SHALL HAVE A 6-INCH CURB FACE. UNLESS DRAINAGE CONSIDERATIONS DICTATE A GREATER CURB FACE HEIGHT.
- SIDEWALK LOCATIONS WILL BE DETERMINED BY THE CITY ENGINEER.
- ALL STREET WIDTHS SHALL BE 60-FEET UNLESS OTHERWISE APPROVED.
- EXPANSION JOINTS OR WEAKENED PLANE JOINTS SHALL BE PLACED AT B.C. AND E.C.

QUANTITY TABLE

A	B	CURB L.F.	SIDEWALK SQ. FT.		PAVEMENT SQ. FT.
			ADJ. TO CURB	ADJ. TO R	
50	18	258.3	1338.6	1354.3	5000.7
60	18	258.3	1338.6	1432.8	5000.7
60	20	251.3	1303.8	1366.6	5026.5



DEPARTMENT OF PUBLIC WORKS

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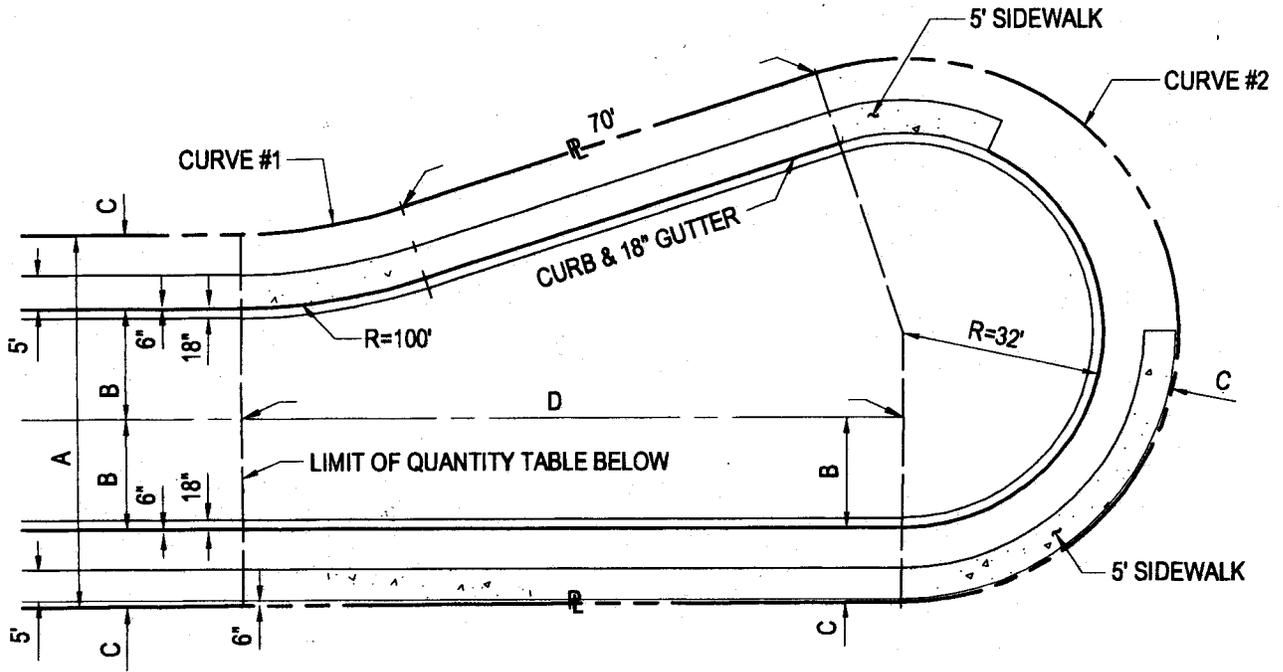
STANDARD CUL-DE-SAC

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CITY OF LA VERNE
[Signature]
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SCALE:	DWG. No.	
AS SHOWN	ST-15	
DATE OF REVISION:	9/2014	
	SHT. 1 OF 1	



CURVE DATA TABLE

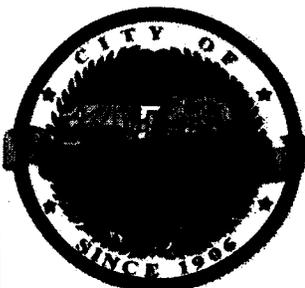
				CURVE #1						CURVE #2					
A	B	C	D	△	CURB			PROPERTY LINE			△	CURB		PROPERTY LINE	
					R	L	T	R	L	T		R	L	R	L
50	18	7	107.28	17°57'04"	100	31.33	15.79	93	29.14	14.69	197°57'04"	32	110.56	39	134.74
60	18	12	107.28	17°57'04"	100	31.33	15.79	88	27.57	13.90	197°57'04"	32	110.56	44	152.02
60	20	10	103.25	15°46'26"	100	27.53	13.85	90	24.78	12.47	195°46'26"	32	109.34	42	143.51

NOTES:

- ALL RESIDENTIAL CUL-DE-SAC STREETS SHALL HAVE A 6-INCH CURB FACE. UNLESS DRAINAGE CONSIDERATIONS DICTATE A GREATER CURB FACE HEIGHT.
- SIDEWALK LOCATIONS WILL BE DETERMINED BY THE CITY ENGINEER.
- ALL STREET WIDTHS SHALL BE 60-FEET UNLESS OTHERWISE APPROVED.
- EXPANSION JOINTS OR WEAKENED PLANE JOINTS SHALL BE PLACED AT B.C. AND E.C.

QUANTITY TABLE

A	B	CURB L.F.	SIDEWALK SQ. FT.		PAVEMENT SQ. FT.
			ADJ. TO CURB	ADJ. TO P	
50	18	319.2	1642.9	1658.7	6358.5
60	18	319.2	1642.9	1737.2	6358.5
60	20	310.1	1597.5	1660.5	6411.1



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

OFFSET CUL-DE-SAC

APPROVED:

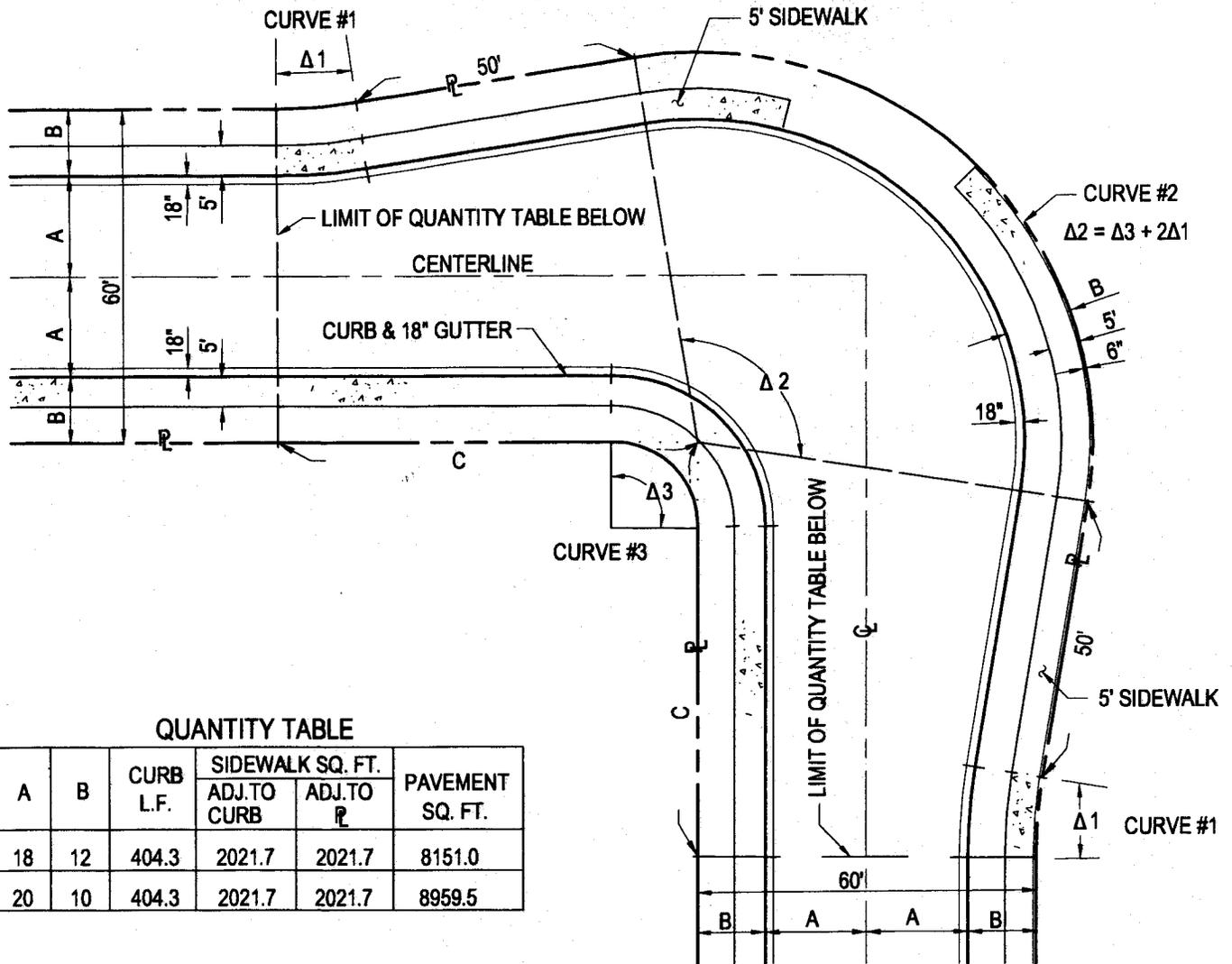
[Signature]
CITY OF WAVERNE

CITY UTILITY ENGINEER

12/14/14
DATE

43296 9/5/14
RCE No. DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-16	
DATE OF REVISION:	9/2014	
	SHT. 1 OF 1	



QUANTITY TABLE

A	B	CURB L.F.	SIDEWALK SQ. FT.		PAVEMENT SQ. FT.
			ADJ. TO CURB	ADJ. TO R	
18	12	404.3	2021.7	2021.7	8151.0
20	10	404.3	2021.7	2021.7	8959.5

CURVE DATA TABLE

A	B	C	CURVE #1						CURVE #2			CURVE #3			
			△	CURB			PROPERTY LINE			△	CURB R	R	△	CURB R	R
				R	L	T	R	L	T						
18	12	74.83	9°09'36"	102	16.31	8.17	90	14.39	7.21	VARIES	58	70	VARIES	27	15
20	10	74.83	9°09'36"	100	15.99	8.01	90	14.39	7.21	VARIES	60	70	VARIES	25	15

NOTES:

- SIDEWALK LOCATIONS WILL BE DETERMINED BY THE CITY ENGINEER.
- EXPANSION JOINTS OR WEAKENED PLANE JOINTS SHALL BE PLACED AT B.C. AND E.C.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

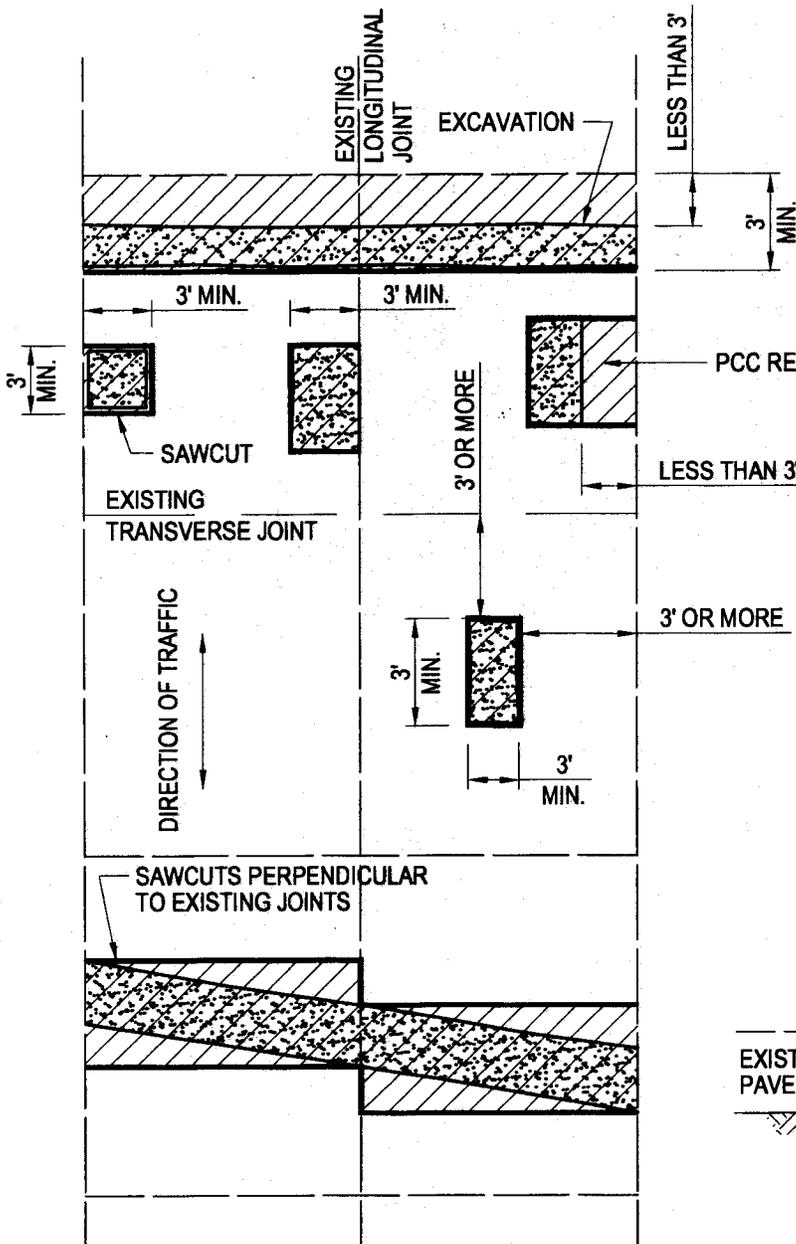
STANDARD KNUCKLE
(60' RIGHT-OF-WAY)

APPROVED:

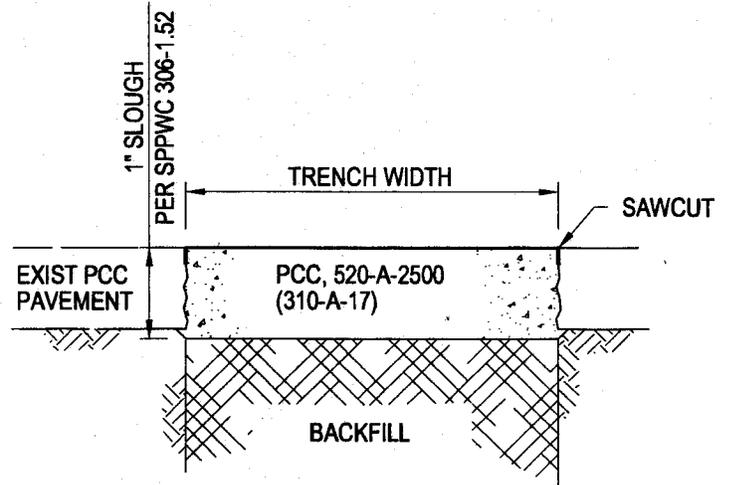
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CITY OF LAVERNE
[Signature]
CITY UTILITY ENGINEER

12/14/14
DATE
43296
RCE No.
9/5/14
DATE

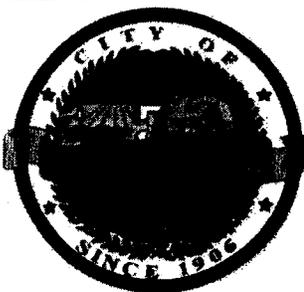
	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-17	
DATE OF REVISION:	9/2014	
	SHT. 1 OF 1	



PLAN



REPLACEMENT SECTION



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

CONCRETE PAVEMENT REPLACEMENT

APPROVED:

[Signature]
 CITY OF LAVERNE
[Signature]
 CITY UTILITY ENGINEER

12/14/14
 DATE
 43296
 RCE No.
 9/5/14
 DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-18	
DATE OF REVISION:	9/2014	
	SHT. 1 OF 2	

NOTES:

1. THE EXTENT OF REPAIRS FOR CONCRETE CUTS NOT SHOWN ON THIS STANDARD OR CUTS MADE WITHIN 3' OF EXISTING PATCHES, CRACKS, OR DETERIORATED SLABS SHALL BE DETERMINED BY THE ENGINEER.
2. CONCRETE PAVEMENT SHALL BE REMOVED PER SSPWC 300-1.3.
3. BACKFILL AND DENSIFICATION SHALL CONFORM TO SSPWC 306-1.3.
4. TEMPORARY RESURFACING SHALL BE PLACED PER SSPWC 306-1.5.1.



DEPARTMENT OF PUBLIC WORKS

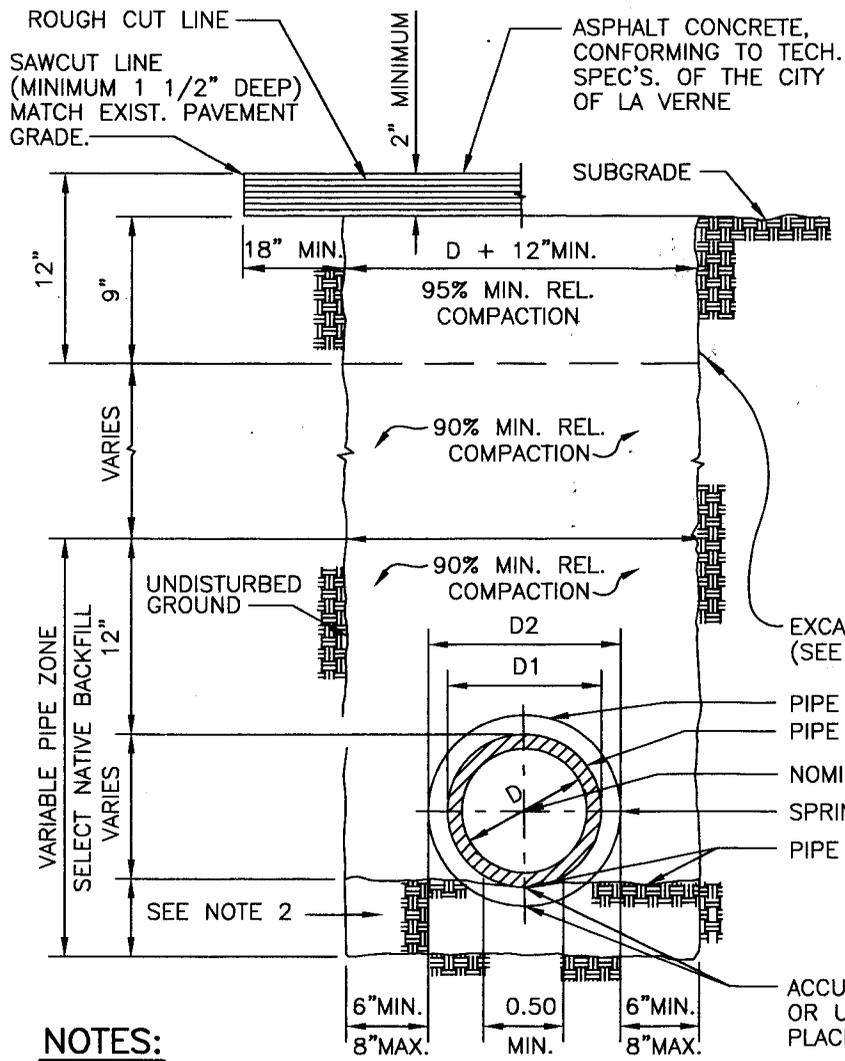
STANDARD DRAWING:

CONCRETE PAVEMENT REPLACEMENT

APPROVED:

[Signature] 12/14/14
 CITY OF LAVERNE DATE
[Signature] 43296 9/5/14
 CITY UTILITY ENGINEER RCE No. DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-18	
DATE OF REVISION:	SHT. 2 OF 2	
9/2014		



PAVEMENT SHALL BE ROUGH CUT AND REMOVED FROM SITE PRIOR TO EXCAVATION. UPON COMPLETION OF BACKFILL & COMPACTION, AND IMMEDIATELY PRIOR TO PAVING, PAVEMENT SHALL BE SAWCUT PARALLEL WITH, OR AT RIGHT ANGLES TO, THE TRUE CENTERLINE OF THE TRENCH. SAWCUTS SHALL BE DONE TO EXACT LINES SNAPPED WITH A CHALKLINE. EXCESS PAVEMENT REMOVED BEYOND THE MINIMUM ESTABLISHED LINES, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

IMMEDIATELY PRIOR TO PAVING, A TACK COAT SHALL BE EVENLY APPLIED TO ALL VERTICAL FACES. NEW PAVEMENT SHALL BE LAID BY A SELF-PROPELLED PAVER, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

ALL PERTINENT DATA, (CALCULATIONS, DIAGRAMS, ETC.), SHALL BE SUBMITTED BY THE CONTRACTOR FOR CHECKING, COMPLIANCE AND APPROVAL TO THE CITY ENGINEER PRIOR TO CONSTRUCTION.

MAXIMUM LIFT THICKNESS FOR BEDDING AND BACKFILL SHALL BE 8-INCHES (0.67') BEFORE COMPACTION. NO PONDING OR JETTING WILL BE ALLOWED WITHOUT THE APPROVAL OF THE CITY ENGINEER.

NOTES:

1. TRENCHES 5- FEET OR MORE IN DEPTH MUST BE PROTECTED BY A SHORING SYSTEM, SLOPING OF THE GROUND OR OTHER EQUIVALENT MEANS. ALTERNATE SHORING OR EQUIVALENT MEANS. ALTERNATE SHORING OR SLOPING SYSTEMS MAY BE USED WHEN DESIGNED BY A CIVIL ENGINEER LICENSED IN THE STATE OF CALIFORNIA; (CALIFORNIA ADMINISTRATION CODE, TITLE 8, INDUSTRIAL SAFETY ORDERS, SECTIONS 1500-1937).
2. WHEN HARDPAN, ROCKS OR OTHER NON-SELECT SOILS ARE ENCOUNTERED, OVER-EXCAVATE A MINIMUM OF 4-INCHES, OR AS DIRECTED, AND REPLACED WITH COMPACTED NATIVE (90% MINIMUM RELATIVE COMPACTION), TO PIPE SUBGRADE.
3. WHEN GROUND WATER IS ENCOUNTERED, CRUSHED ROCK (1/4-INCH MINIMUM, 3/4-INCH MAXIMUM) SHALL BE USED IN THE PIPE ZONE. THE SAME PERTAINS TO ANY UNSTABLE SOIL CONDITIONS.
4. SIX INCHES OF CRUSHED AGGREGATE BASE SHALL BE PLACED UNDER THE REQUIRED ASPHALT SECTION IN ALL CASES.
5. ASPHALT SHALL BE REPLACED AS 1-INCH THICKER THAN EXISTING.
6. ALL TRENCHES 30-INCHES IN WIDTH OR LESS SHALL BE BACKFILLED WITH CRUSHED AGGREGATE BASE MATERIAL OR 2 SACK CEMENT-SAND SLURRY AS DIRECTED BY THE CITY. ALL TRENCHES PERPENDICULAR TO THE STREET CENTERLINE SHALL BE BACKFILLED WITH 2 SACK CEMENT-SLURRY AS DIRECTED BY THE CITY.
7. TRENCHES BACKFILLED WITH NATIVE MATERIAL SHALL HAVE COMPACTION TESTS PERFORMED AT THE EXPENSE OF THE CONTRACTOR TO VERIFY DENSITY ACHIEVED. WRITTEN TEST REPORTS SHALL BE PROVIDED TO THE CITY BEFORE WORK WILL BE ACCEPTED.
8. WHEN DISTANCE BETWEEN EDGE OF GUTTER OR CURB AND TRENCH WALL IS FIVE FEET OR LESS, ASPHALT PAVING SHALL BE REMOVED AND REPLACED TO EDGE OF GUTTER OR CURB.

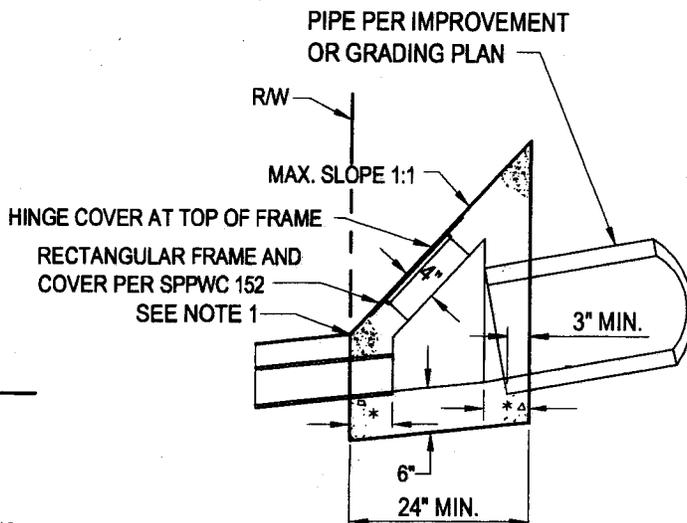
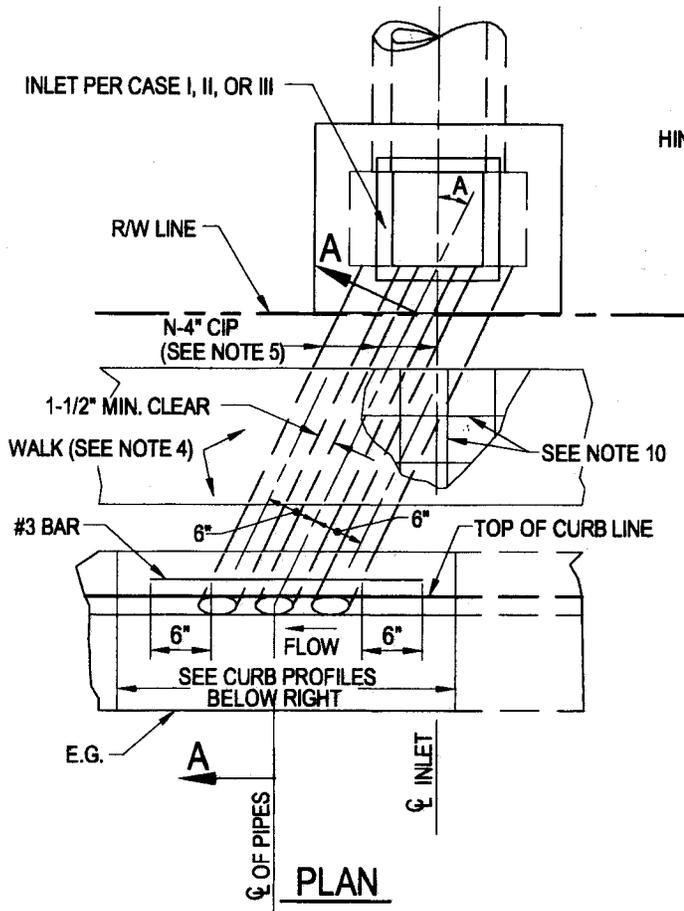


DEPARTMENT OF PUBLIC WORKS

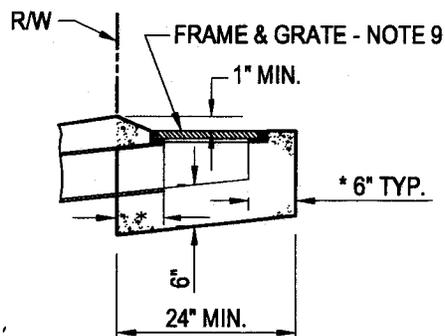
STANDARD DRAWING:
TRENCH EXCAVATION AND BACKFILL

APPROVED: *Ben B...* 4/30/87
CITY OF LA VERNE DATE
W. David ... 4/15/97
ENGINEER RCE No. 43296 DATE

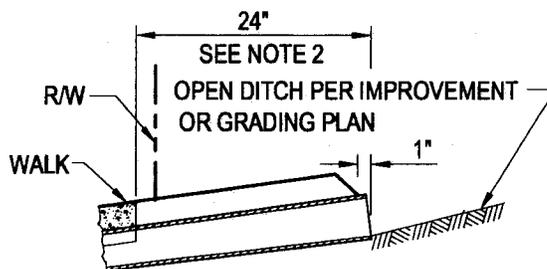
	BY	DATE
DESIGNED	W.D.B.	4/97
DRAWN	C.G.	4/97
CHECKED	W.D.B.	4/97
SCALE:	DWG. No.	
AS SHOWN	ST-19	
DATE OF REVISION:		
APRIL 1997	SHT. 1 OF 1	



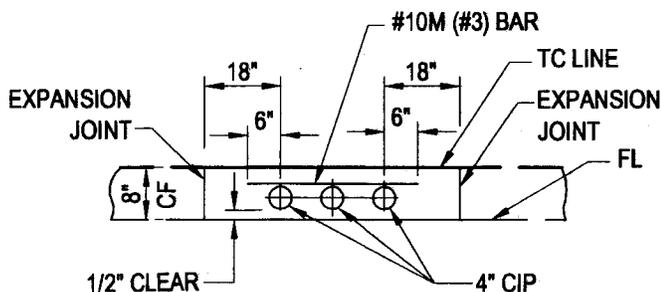
CASE I INLET
TRANSITION STRUCTURE SECTION



CASE II INLET
DROP INLET CATCH BASIN SECTION

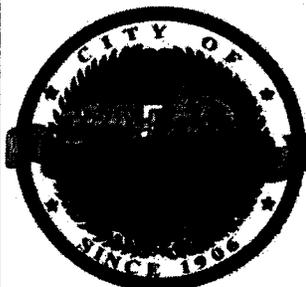


CASE III INLET
GRADED DITCH SECTION



NOTE: APPLIES TO ANY NUMBER OF PIPES

CURB PROFILE
8" CURB FACE



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

CURB DRAIN

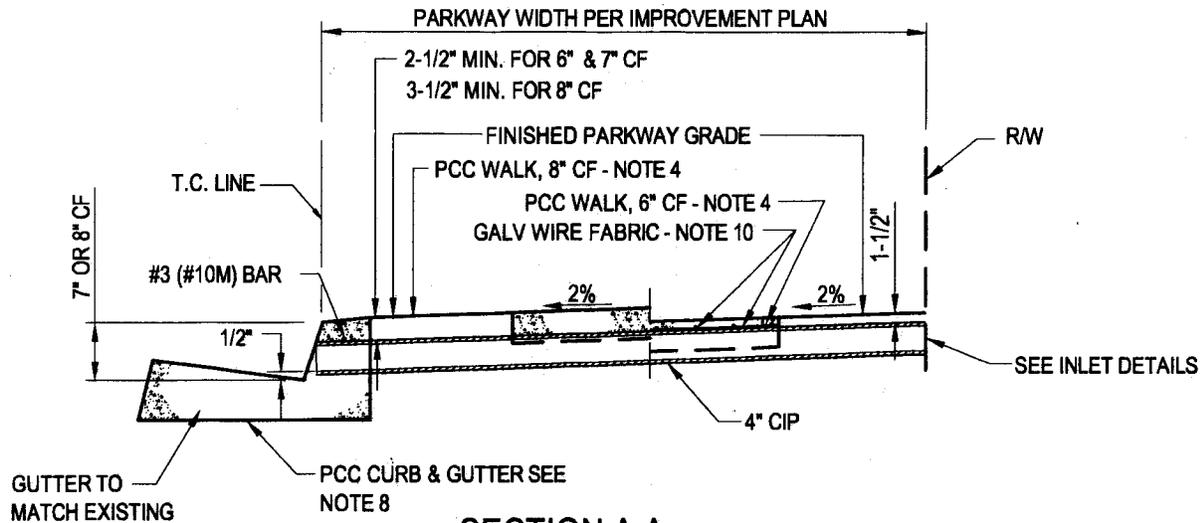
APPROVED:

[Signature]
CITY OF VERNE
[Signature]
CITY UTILITY ENGINEER

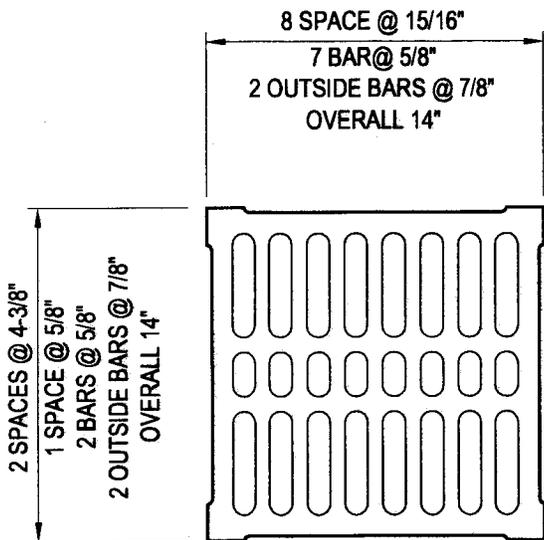
43296
RCE No.

12/14/14
DATE
9/5/14
DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-20	
DATE OF REVISION:	9/2014	
	SHT. 1 OF 3	

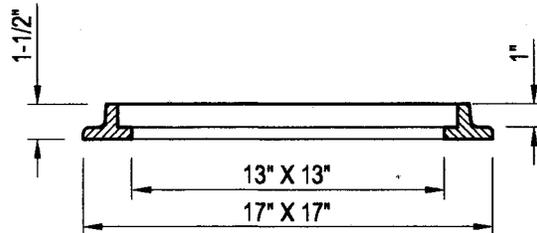


SECTION A-A



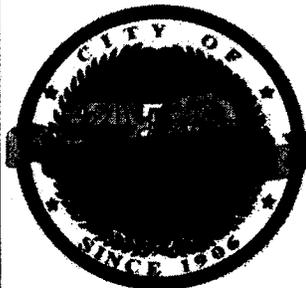
TOP OF GRATE

OPEN AREA 52%



SECTION THRU FRAME

GRATE FOR CASE II INLET



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

CURB DRAIN

APPROVED:

[Signature]
CITY OF LAVERNE

CITY UTILITY ENGINEER

12/14/14
DATE

43296
RCE No. 9/5/14
DATE

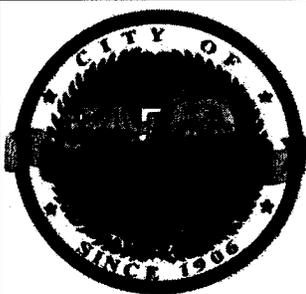
	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014

SCALE:
AS SHOWN
DATE OF REVISION:
9/2014

DWG. No.
ST-20
SHT. 2 OF 3

NOTES:

1. IF THE TOE OF SLOPE IS ALLOWED WITHIN THE R/W, INLET CASE I BEGINS AT THE TOE RATHER THAN THE R/W LINE.
2. FOR OPEN DITCH (CASE INLET III), THE 24" EXTENSION BEYOND THE R/W LINE IS NOT REQUIRED WHEN BACK OF WALK IS 24" OR MORE FROM THE R/W LINE; HOWEVER, PIPE SHALL EXTEND TO R/W LINE.
3. TOP OF INLET STRUCTURE (CASE I AND II) TO BE FLUSH WITH ADJACENT SURFACE WHERE PRACTICAL.
4. CONSTRUCT PCC WALK WHEN SPECIFIED ON PLANS. THE CONTRACT PRICE PAID FOR PCC WALK ITEM SHALL INCLUDE WALK CONSTRUCTED IN CONJUNCTION WITH PARKWAY CULVERT.
5. "N" EQUALS NUMBER OF PIPES (MAXIMUM OF THREE) AS SPECIFIED ON PLANS.
6. INLET CASE TO BE SPECIFIED ON PLANS.
7. ANGLE A EQUALS 0°, UNLESS OTHERWISE SPECIFIED.
8. TYPE, DIMENSIONS AND ELEVATIONS OF P.C.C. CURB AND GUTTER PER PLANS.
9. UNLESS OTHERWISE SPECIFIED, FRAME AND GRATE FOR CASE II INLET SHALL BE GALVANIZED CAST IRON. WEIGHT OF FRAME AND GRATE SHALL BE 80 LBS (36 kg).
10. AT LOCATIONS WITH LESS THAN 8" CURB FACE, USE 6x6-10/10 (152x152-MW9.1xMW9.1) GALVANIZED WIRE FABRIC. WIRE FABRIC SHALL EXTEND 8" BEYOND THE EDGE OF CAST IRON PIPES.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

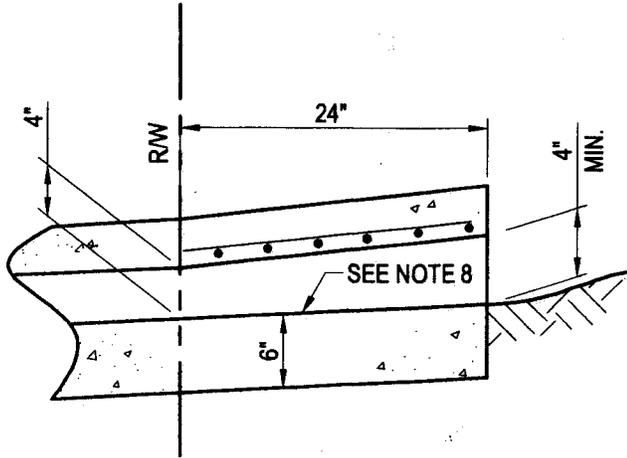
CURB DRAIN

APPROVED: *[Signature]* 12/14/14
CITY OF LAVERNE DATE

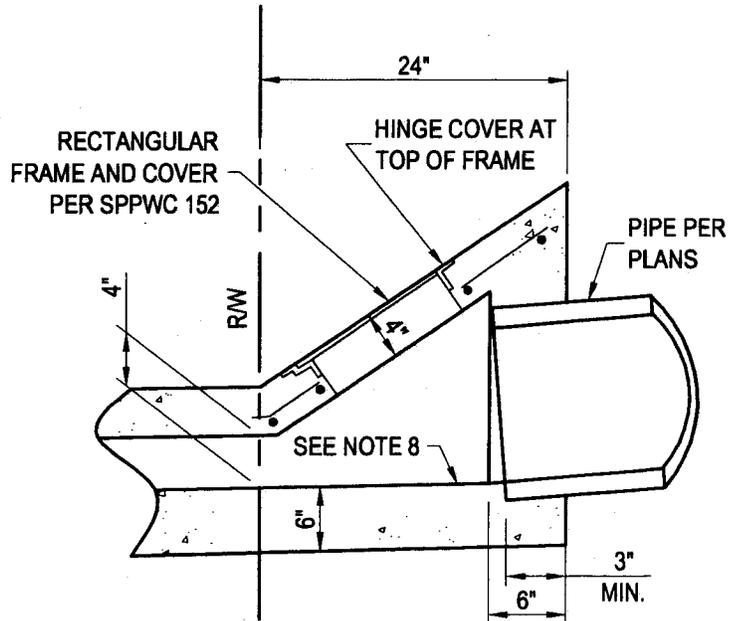
[Signature] 9/5/14
CITY UTILITY ENGINEER DATE

43296 RCE No.

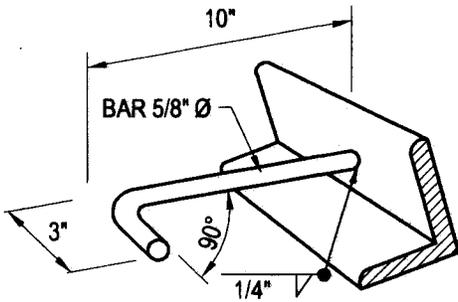
	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	<small>DWG. No.</small>	
AS SHOWN	ST-20	
DATE OF REVISION:		
9/2014	<small>SHT. 3 OF 3</small>	



SECTION
(INLET TYPE 2)



SECTION
(INLET TYPE 1)



DETAIL OF ANCHOR



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

PARKWAY DRAIN

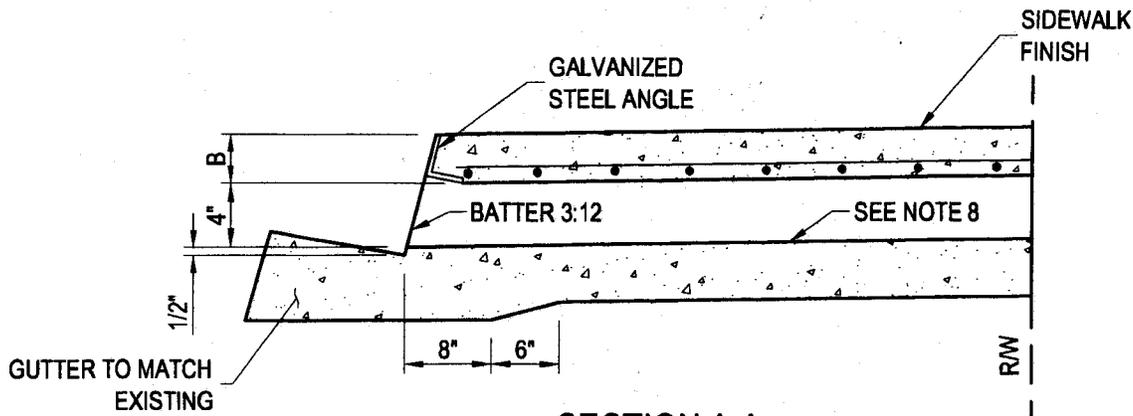
APPROVED:

[Signature]
CITY OF LAVERNE
CITY UTILITY ENGINEER

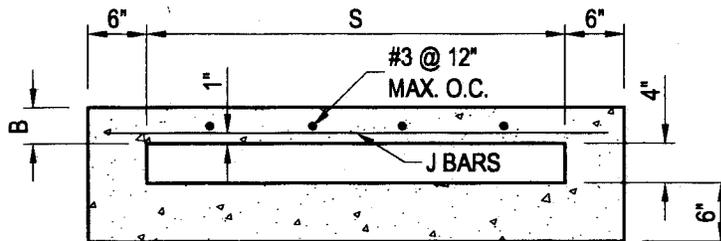
43296
RCE No.

12/14/14
DATE
9/5/14
DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	AS SHOWN	
DATE OF REVISION:	9/2014	
DWG. No.	ST-21	
SHT.	2 OF 4	



SECTION A-A



SECTION B-B

S, INCHES	J BAR SPACING
12"	7"
18"	7"
24"	7"
30"	7"
36"	7"
42"	6"
48"	5"
54"	6-1/2"
60"	5"
66"	4"
72"	3-1/2"

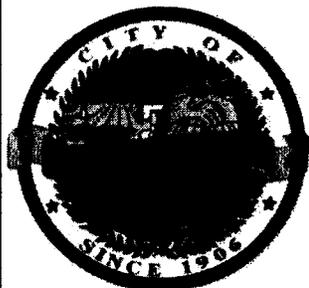
FOR S = 30" AND LESS, USE 2 ANCHORS.
OTHERWISE, USE 3 ANCHORS.

FOR S = 48" AND LESS, B = 3"

USE 2-1/2" x 2" x 3/8" GALVANIZED STEEL ANGLE.

OTHERWISE, B = 4"
USE 3-1/2" x 3" x 1/2" GALVANIZED STEEL ANGLE.

J BARS ARE #3.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

PARKWAY DRAIN

APPROVED:

[Signature]
CITY OF LAVERNE
CITY UTILITY ENGINEER

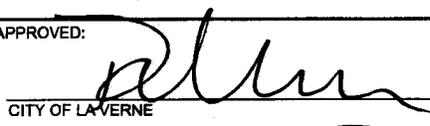
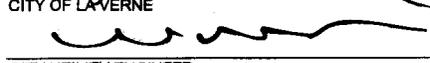
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DATE

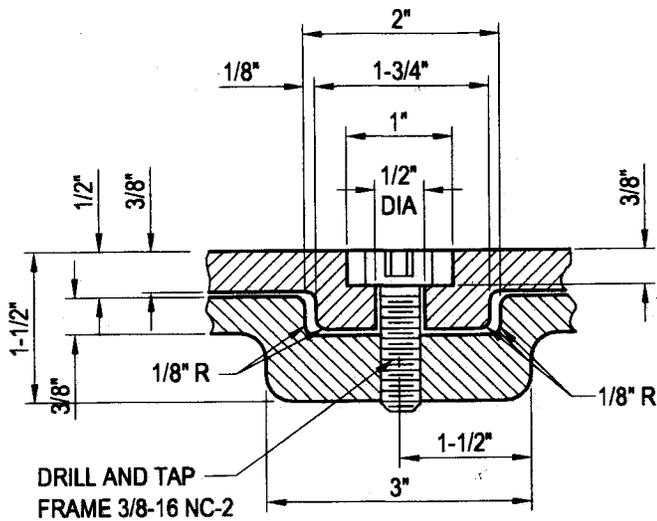
43296 9/5/14
RCE No. DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-21	
DATE OF REVISION:	9/2014	
	SHT. 3 OF 4	

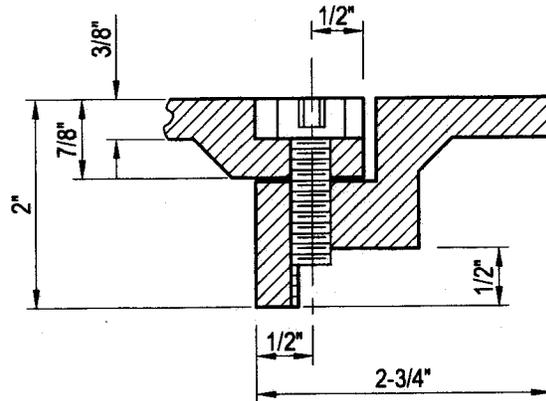
NOTES:

1. FLOOR OF BOX SHALL BE TROWLED SMOOTH.
2. IF THE TOE OF SLOPE IS ALLOWED WITHIN THE R/W, INLET TYPE 1 BEGINS AT THE TOE RATHER THAN AT THE R/W LINE
3. FOR THE OPEN DITCH (TYPE 2), THE 24" EXTENSION BEYOND THE R/W LINE IS NOT REQUIRED WHEN BACK OF WALK IS 24" OR MORE FROM THE R/W LINE; HOWEVER, THE PIPE SHALL EXTEND TO THE R/W LINE IN ANY EVENT.
4. TOP OF INLET STRUCTURE (TYPE 1 AND 2) SHALL BE FLUSH WITH ADJACENT SURFACE WHERE PRACTICAL.
5. HEADED STEEL STUD 5/8" x 6-3/8" WITH A 1" HEAD ATTACHED BY A FULL PENETRATION BUTT WELD MAY BE USED AS AN ALTERNATE ANCHOR.
6. NORMAL CURB FACE AT POINT M AND Q. CURB FACE IS B + 5" AT POINT N AND P.
7. THE 3" LEG OF THE 5/8" DIA, ANCHORS SHALL BE PARALLEL TO THE TOP OF SIDEWALK.
8. SLOPE = 2.0%.

 <p>DEPARTMENT OF PUBLIC WORKS</p>	STANDARD DRAWING:		BY	DATE
	PARKWAY DRAIN		DESIGNED	B.A.S. 9/2014
			DRAWN	J.M. 9/2014
			CHECKED	C.S.H. 9/2014
APPROVED:  CITY OF LAVERNE	12/14/14 DATE	SCALE: AS SHOWN	DWG. No. ST-21	
 CITY UTILITY ENGINEER	43296 RCE No.	DATE OF REVISION: 9/2014	SHT. 4 OF 4	



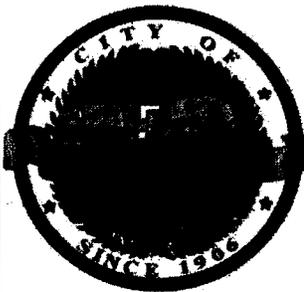
SECTION E-E



SECTION F-F

NOTES

1. FRAME AND COVER SHALL BE CAST IRON.
2. A PLAIN 1/4" BORDER SHALL BE TYPICAL FOR ALL BORDERS ON FRAME AND COVER.
3. ALL CASTING RADII SHALL BE 1/4" UNLESS OTHERWISE SHOWN.
4. WEIGHT OF FRAME AND COVER SHALL BE 43 LBS (19.5 kg).
5. USE ONE 3/8"-16x1" STAINLESS STEEL SOCKET CAP SCREW. APPLY HIGH ADHESIVE, OPEN GEAR GREASE TO THREADED PORTION PRIOR TO INSERTION.
6. USE 4" x 4" CAST ALUMINUM LINK HINGE WITH SST PIN FOR 180° OPENING.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

RECTANGULAR FRAME AND COVER

APPROVED:

[Signature]
CITY OF LA VERNE

CITY UTILITY ENGINEER

12/14/14

43296

RCE No.

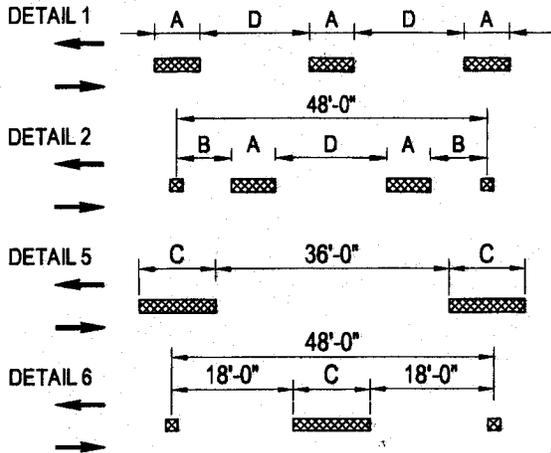
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9/5/14

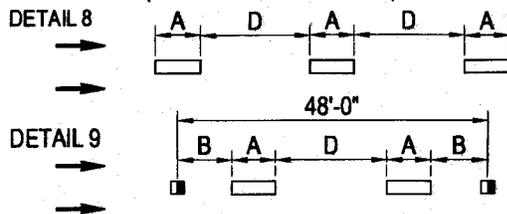
DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-22	
DATE OF REVISION:	9/2014	
	SHT. 2 OF 2	

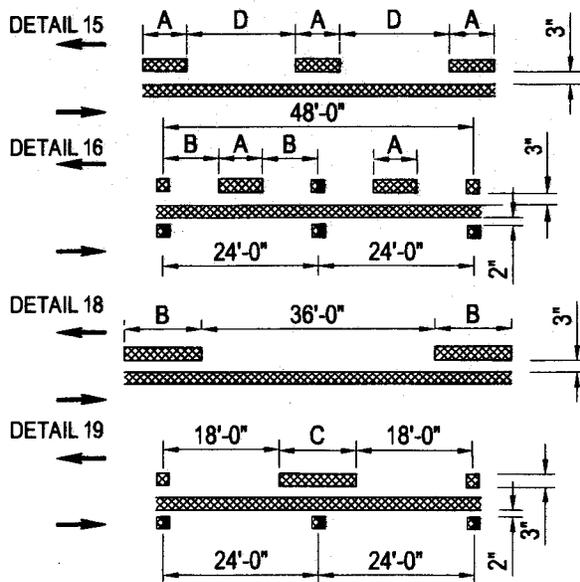
CENTERLINES
(2 LANE HIGHWAYS)



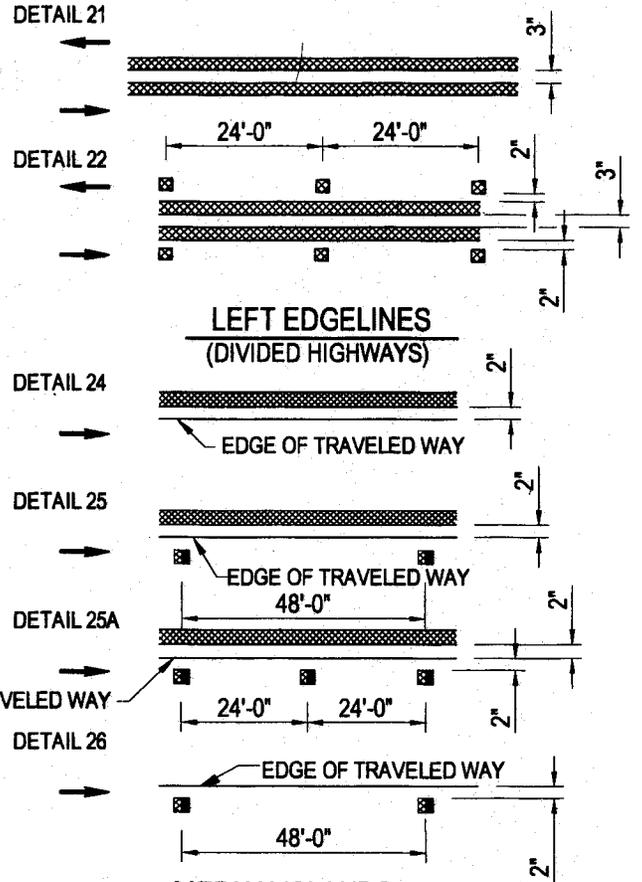
LANELINES
(MULTILANE HIGHWAYS)



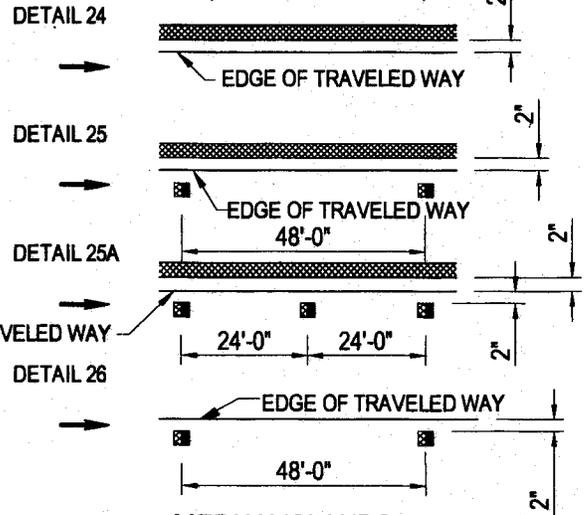
NO PASSING ZONES-ONE DIRECTION



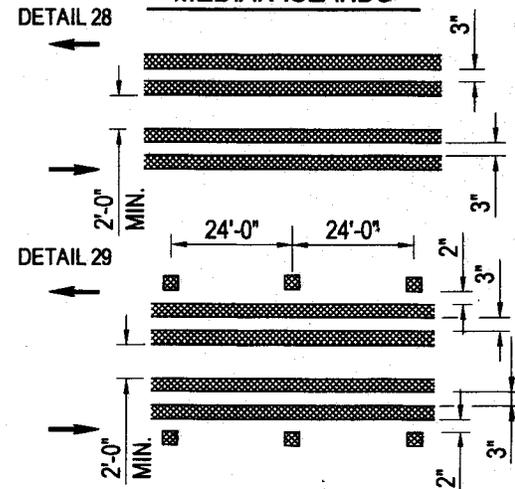
NO PASSING ZONES-TWO DIRECTION



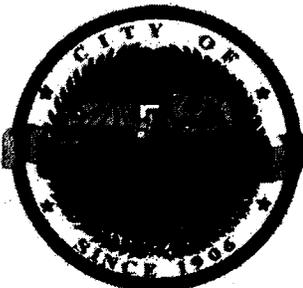
LEFT EDGELINES
(DIVIDED HIGHWAYS)



MEDIAN ISLANDS



SEE SHEET 2 FOR DIMENSIONS A TO D



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

PAVEMENT MARKERS AND TRAFFIC LINES

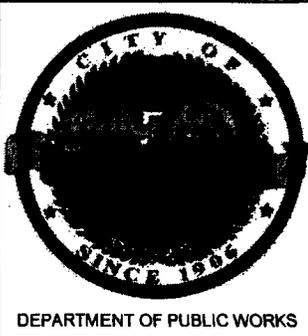
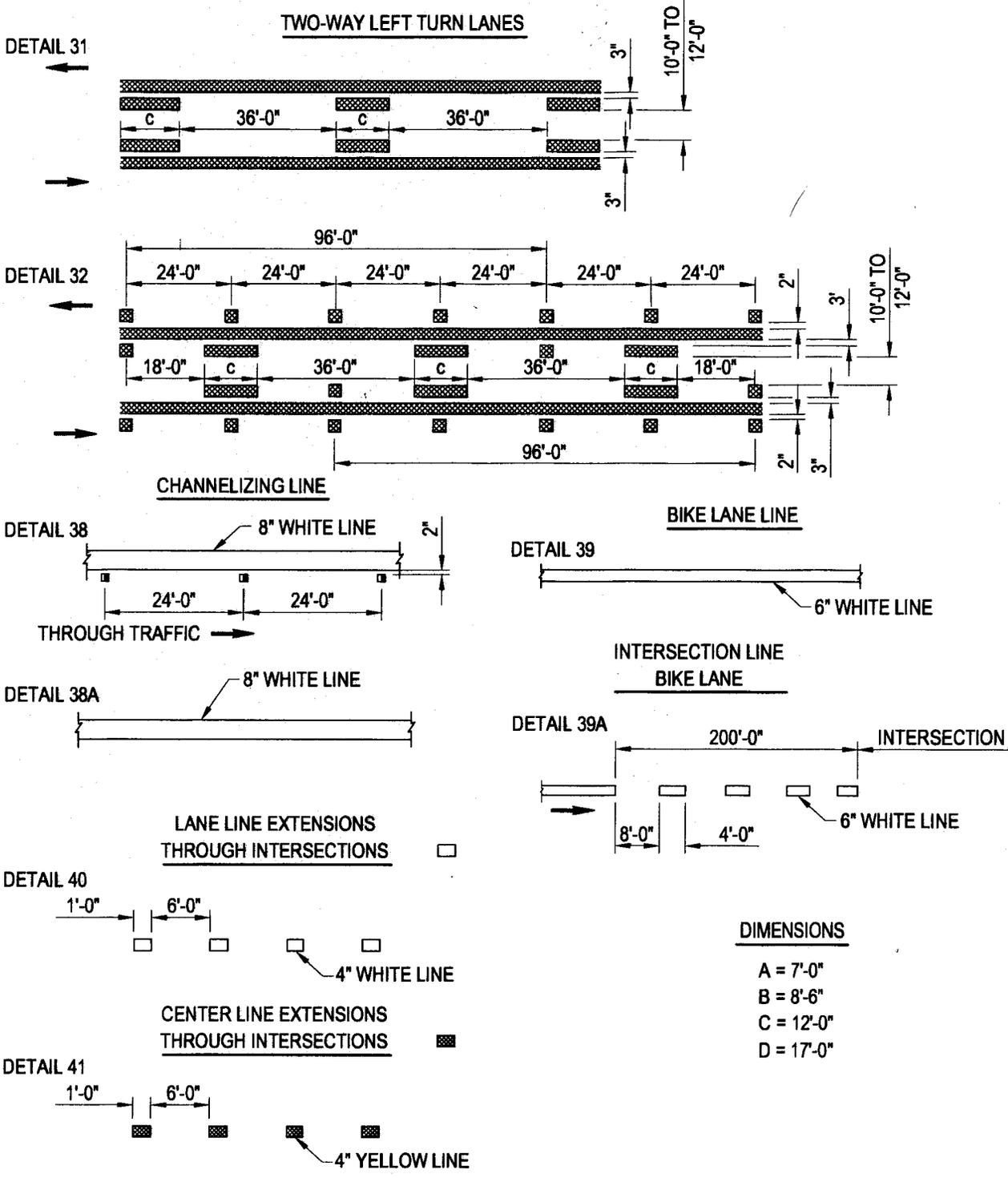
APPROVED:

[Signature]
CITY OF LAVERNE
CITY UTILITY ENGINEER

12/14/14

43296 9/5/14
RCE No. DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-23	
DATE OF REVISION:	9/2014	
	SHT. 1 of 4	



STANDARD DRAWING:

PAVEMENT MARKERS AND TRAFFIC LINES

APPROVED: *[Signature]* 12/14/14

CITY OF LAWRENCE DATE

CITY UTILITY ENGINEER 43296 9/5/14

RCE No. DATE

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AS SHOWN	ST-23	
DATE OF REVISION:		
9/2014	SHT. 2 OF 4	

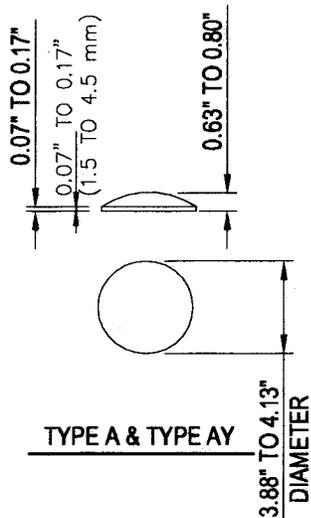
LEGEND

MARKERS

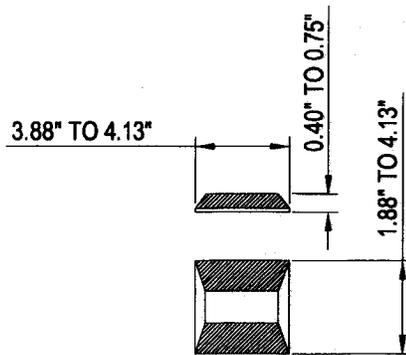
- TYPE A WHITE NON-REFLECTIVE
- ⊗ TYPE AY YELLOW NON-REFLECTIVE
- TYPE B CLEAR TWO-WAY RETROREFLECTIVE
- ▤ TYPE RED / CLEAR RETROREFLECTIVE
- ⊠ TYPE D YELLOW TWO-WAY RETROREFLECTIVE
- ▣ TYPE G CLEAR ONE-WAY RETROREFLECTIVE
- ▤ TYPE H YELLOW ONE-WAY RETROREFLECTIVE
- ▨ TYPE I BLUE TWO-WAY RETROREFLECTIVE

LINES

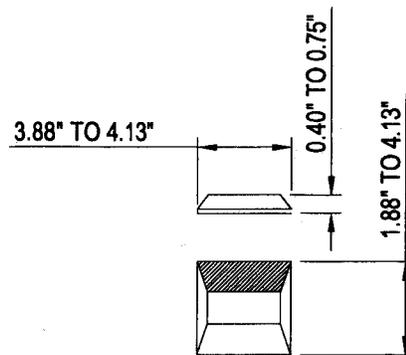
- ▬ 4" WHITE
- ▨ 4" YELLOW
- ← DIRECTION OF TRAVEL



TYPE A & TYPE AY



TYPE B, TYPE C, TYPE D & TYPE I



TYPE G & TYPE H

▨ RETROREFLECTIVE FACE

MARKER DETAILS



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

PAVEMENT MARKERS AND TRAFFIC LINES

APPROVED:

[Signature]
CITY OF LAVERNE

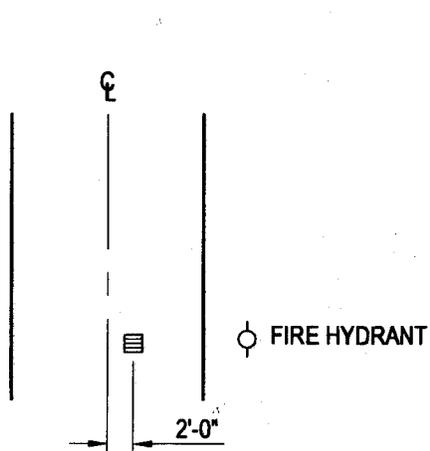
[Signature]
CITY UTILITY ENGINEER

12/14/14

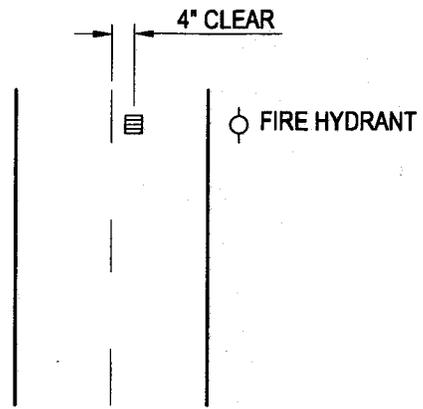
43296

DATE
9/5/14

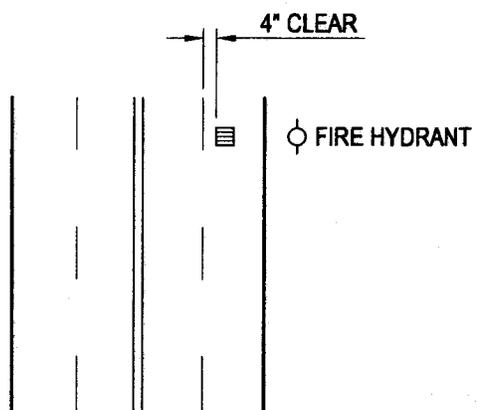
	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE: AS SHOWN	DWG. No. ST-23	
DATE OF REVISION: 9/2014	SHT. 3 OF 4	



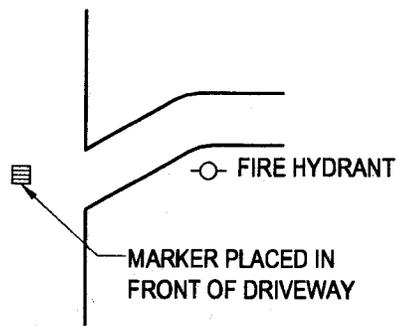
STREETS WITHOUT LANE STRIPING



STREETS WITH CENTER LINE
OR SINGLE LANE STRIPING



STREETS WITH MULTIPLE LANE STRIPING



AT DRIVEWAY OR SOME
DISTANCE FROM STREET

FIRE HYDRANT MARKERS



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

PAVEMENT MARKERS AND
TRAFFIC LINES

APPROVED:

[Signature]
CITY OF LAVERNE

[Signature]
CITY UTILITY ENGINEER

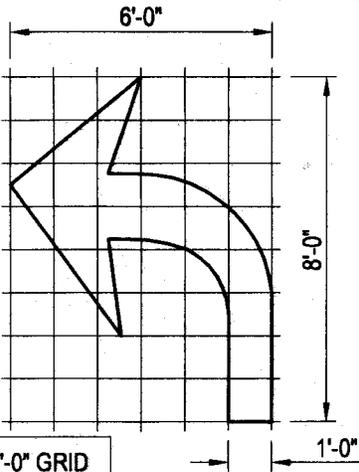
12/14/14
DATE

43296
RCE No.

9/5/14
DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014

SCALE: AS SHOWN	DWG. No. ST-23
DATE OF REVISION: 9/2014	SHT. 4 OF 4

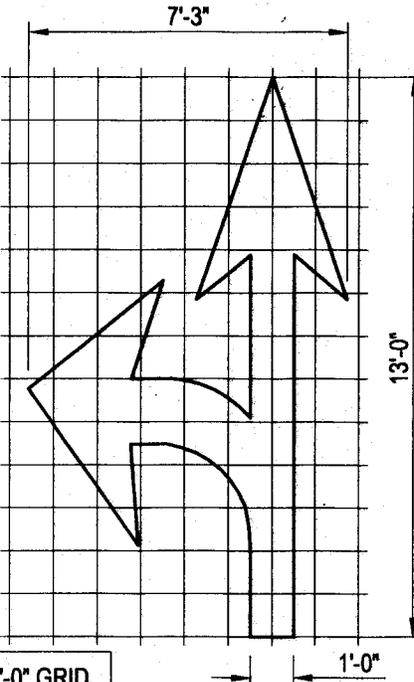


1'-0" x 1'-0" GRID

A = 15 FT²

TYPE II (L) ARROW

(FOR TYPE II (R) ARROW,
USE MIRROR IMAGE)

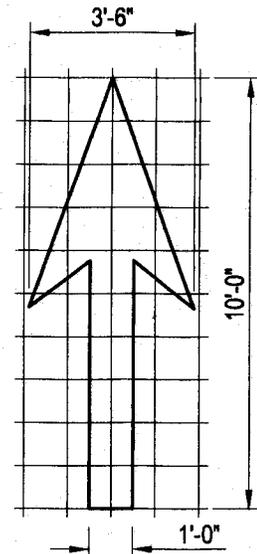


1'-0" x 1'-0" GRID

A = 27 FT²

TYPE III (L) ARROW

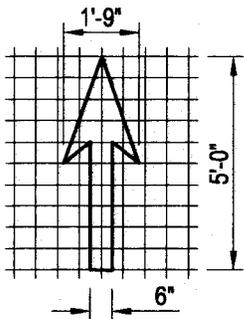
(FOR TYPE III (R) ARROW,
USE MIRROR IMAGE)



1'-0" x 1'-0" GRID

A = 14 FT²

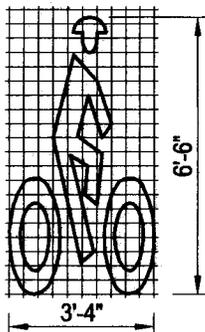
TYPE I 10' ARROW



6" x 6" GRID

A = 7 FT²

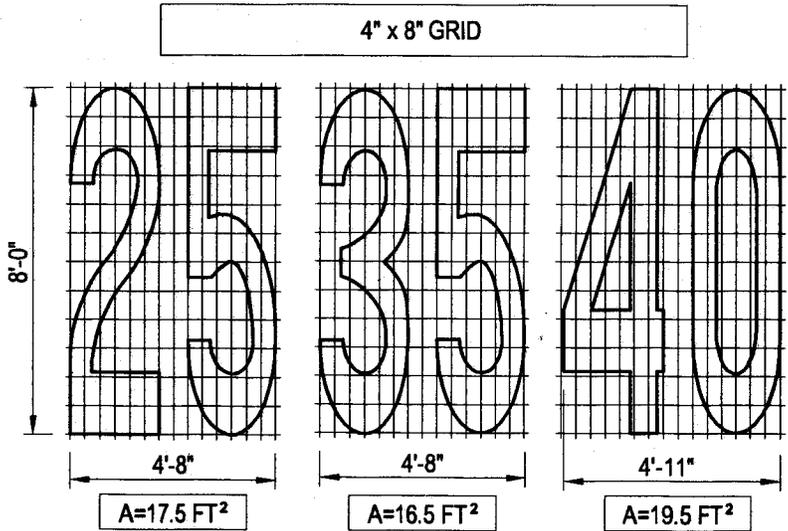
BIKE LANE ARROW



4" x 4" GRID

A = 7 FT²

BIKE LANE SYMBOL



4" x 8" GRID

NUMERALS



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

PAVEMENT MARKINGS AND SYMBOLS

APPROVED:

[Signature]
CITY OF LA VERNE

CITY UTILITY ENGINEER

12/14/14

DATE

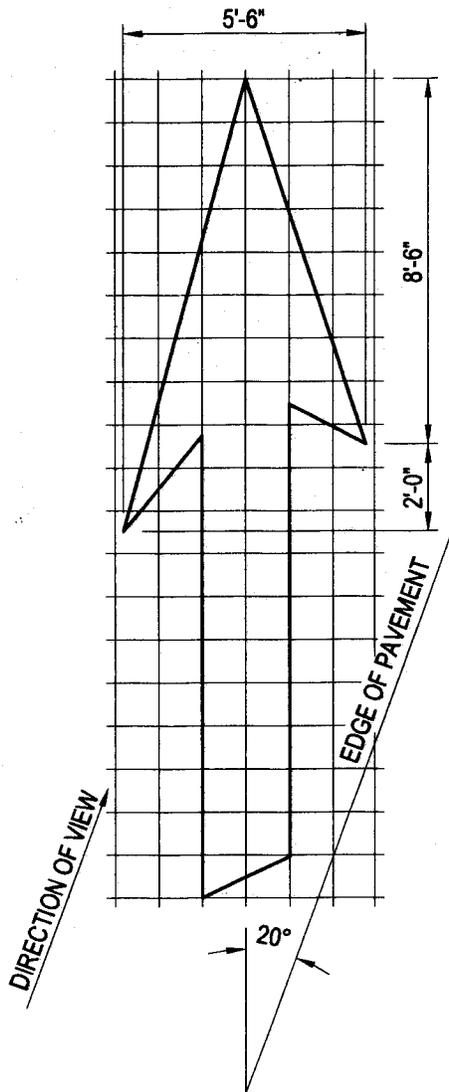
43296

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AS SHOWN	ST-24	
DATE OF REVISION:	9/2014	
	SHT. 1 OF 5	

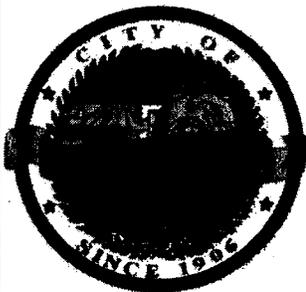


1'-0" x 1'-0" GRID
 A= 42 FT²

TYPE II ARROW
 RIGHT LANE DROP ARROW
 (FOR LEFT LANE, USE MIRROR IMAGE)

NOTES:

1. IF A MESSAGE CONSISTS OF MORE THAN ONE WORD, IT SHALL READ "UP"; THAT IS, THE FIRST WORD SHALL BE NEAREST THE DRIVER.
2. THE SPACE BETWEEN WORDS SHALL BE AT LEAST FOUR TIMES THE HEIGHT OF THE CHARACTERS FOR LOW SPEED ROADS, BUT NOT MORE THAN TEN TIMES THE HEIGHT OF THE CHARACTERS. THE SPACE MAY BE REDUCED APPROPRIATELY WHERE THERE IS LIMITED SPACE BECAUSE OF LOCAL CONDITIONS.
3. MINOR VARIATIONS IN DIMENSIONS MAY BE ACCEPTED BY THE ENGINEER.
4. PORTIONS OF A LETTER, NUMBER, OR SYMBOL MAY BE SEPARATED BY CONNECTING SEGMENTS NOT TO EXCEED 2" IN WIDTH.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

PAVEMENT MARKINGS AND SYMBOLS

APPROVED:

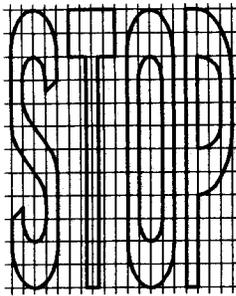
[Signature]
 CITY OF LAFAYETTE

[Signature]
 CITY UTILITY ENGINEER

12/14/14
 DATE

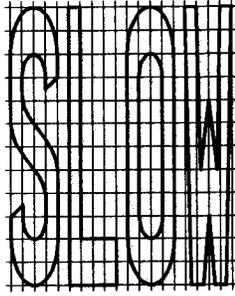
43296
 RCE No. 9/5/14
 DATE

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AS SHOWN	ST-24	
DATE OF REVISION:		
9/2014	SHT. 2 OF 5	



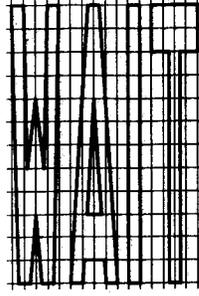
4" x 8" GRID

A = 22 FT²



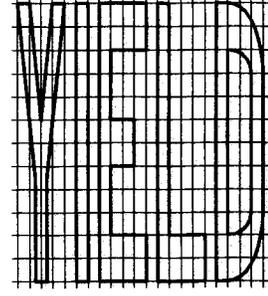
4" x 8" GRID

A = 23 FT²



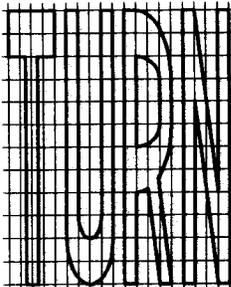
4" x 8" GRID

A = 19 FT²



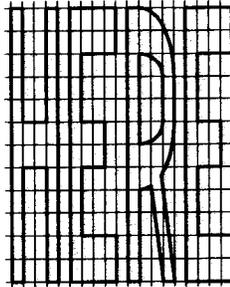
4" x 8" GRID

A = 24 FT²



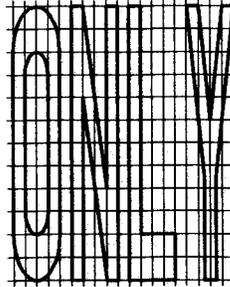
4" x 8" GRID

A = 24 FT²



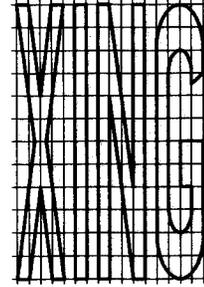
4" x 8" GRID

A = 26 FT²



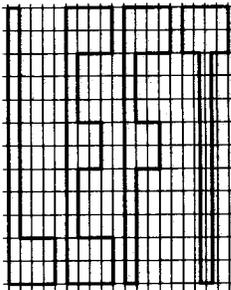
4" x 8" GRID

A = 22 FT²



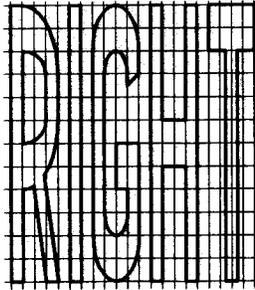
4" x 8" GRID

A = 21 FT²



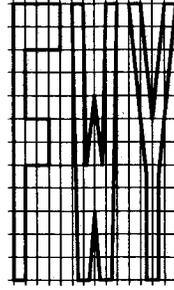
4" x 8" GRID

A = 19 FT²



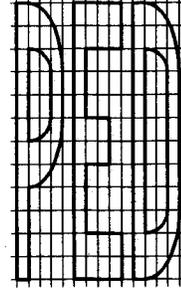
4" x 8" GRID

A = 26 FT²



4" x 8" GRID

A = 16 FT²



4" x 8" GRID

A = 18 FT²



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

PAVEMENT MARKINGS AND SYMBOLS

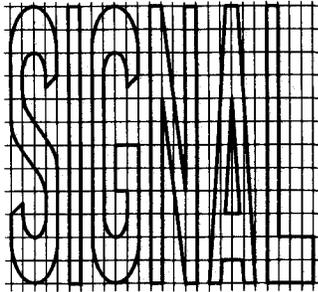
APPROVED:

[Signature]
CITY OF LA VERNE
[Signature]
CITY UTILITY ENGINEER

43296
RCE No.

12/14/14
DATE
9/5/14
DATE

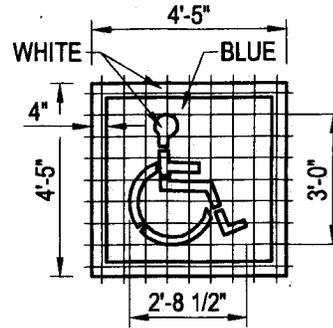
	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-24	
DATE OF REVISION:	9/2014	
	SHT. 3 OF 5	



4" x 8" GRID
A = 32 FT²

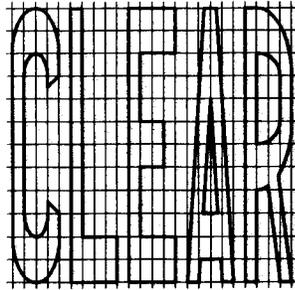


4" x 8" GRID
A = 14 FT²

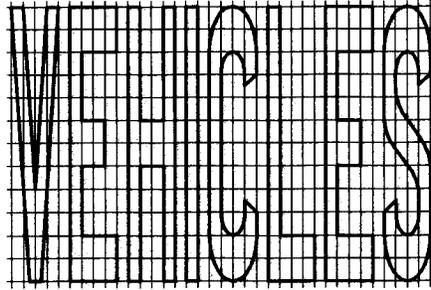


6" x 6" GRID
A (WHITE) = 9 FT²
A (BLUE) = 14 FT²

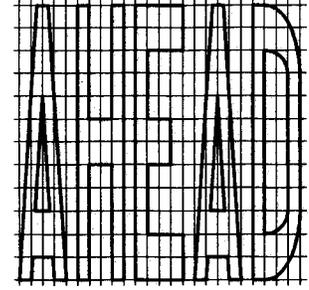
DISABLED PERSONS PARKING SYMBOL



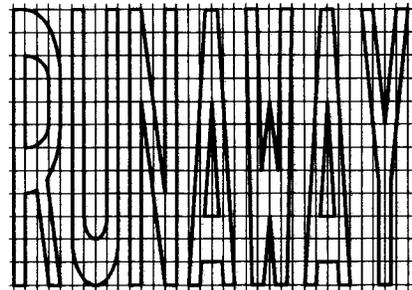
4" x 8" GRID
A = 27 FT²



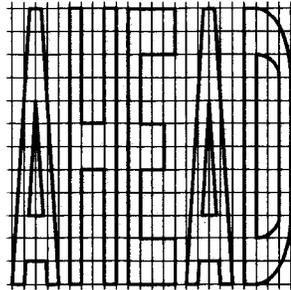
4" x 8" GRID
A = 42 FT²



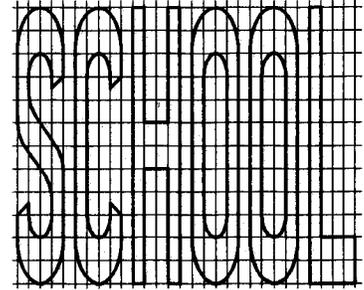
4" x 8" GRID
A = 31 FT²



4" x 8" GRID
A = 43 FT²



4" x 8" GRID
A = 31 FT²



4" x 8" GRID
A = 35 FT²



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

PAVEMENT MARKINGS AND SYMBOLS

APPROVED:

[Signature]
CITY OF LA VERNE

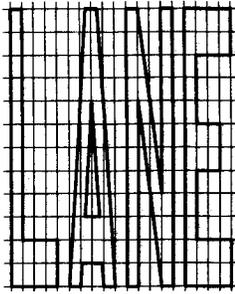
CITY UTILITY ENGINEER

12/14/14
DATE

43296
RCE No.

9/5/14
DATE

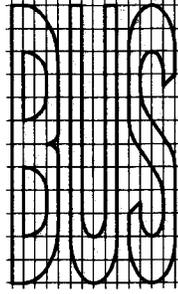
	BY	DATE
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SCALE:	DWG. No.	
AS SHOWN	ST-24	
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9/2014		



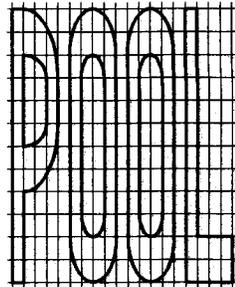
4" x 8" GRID
A = 24 FT²



4" x 8" GRID
A = 21 FT²



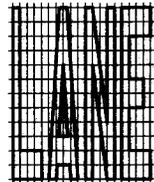
4" x 8" GRID
A = 20 FT²



4" x 8" GRID
A = 23 FT²



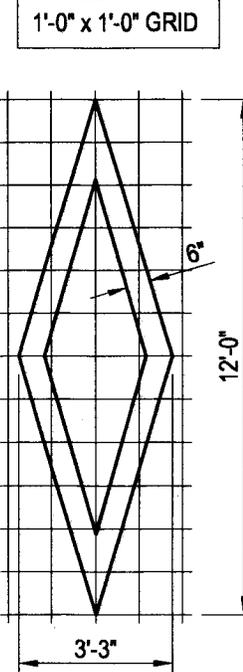
4" x 8" GRID
A = 17 FT²



2" x 4" GRID
A = 6 FT²

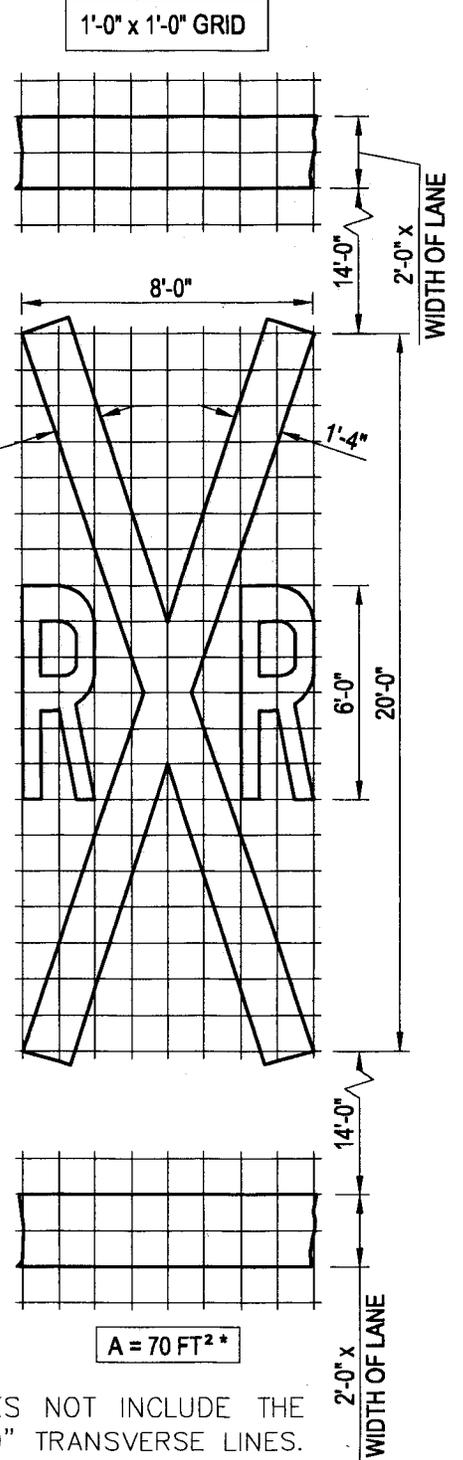


2" x 4" GRID
A = 5 FT²



A = 11 FT²

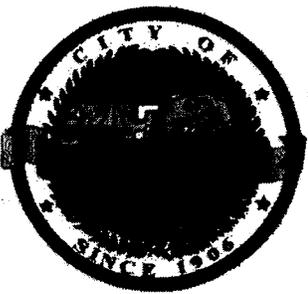
DIAMOND SYMBOL



A = 70 FT²*

*DOES NOT INCLUDE THE 2'-0" TRANSVERSE LINES.

RAILROAD CROSSING SYMBOL



DEPARTMENT OF PUBLIC WORKS

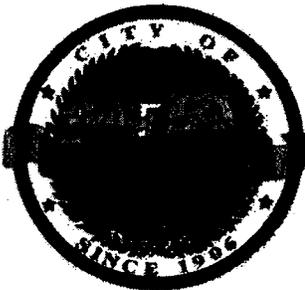
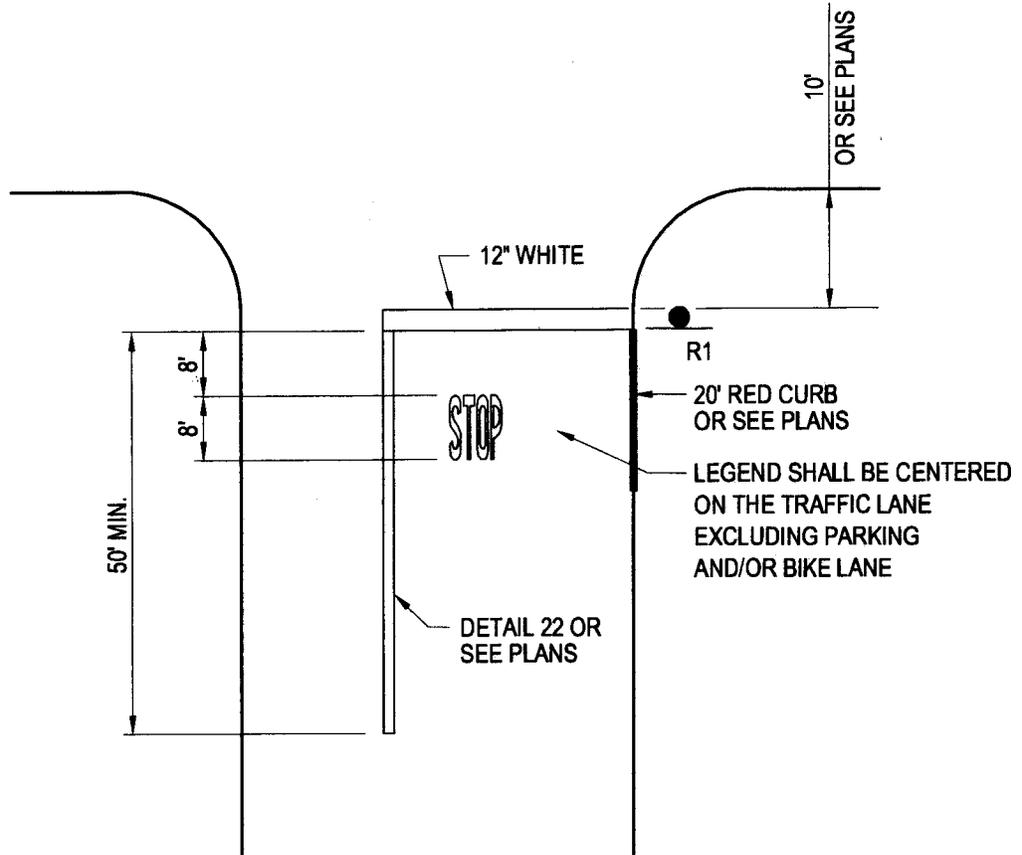
STANDARD DRAWING:

PAVEMENT MARKINGS AND SYMBOLS

APPROVED: *[Signature]*
CITY OF LAVERNE
CITY UTILITY ENGINEER

12/14/14
DATE
43296
RCE No.
9/5/14
DATE

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SCALE:	DWG. No.	
AS SHOWN	ST-24	
DATE OF REVISION:	9/2014	
	SHT. 5 OF 5	



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

STOP AND STOP BAR

APPROVED:

[Signature]
CITY OF LA VERNE

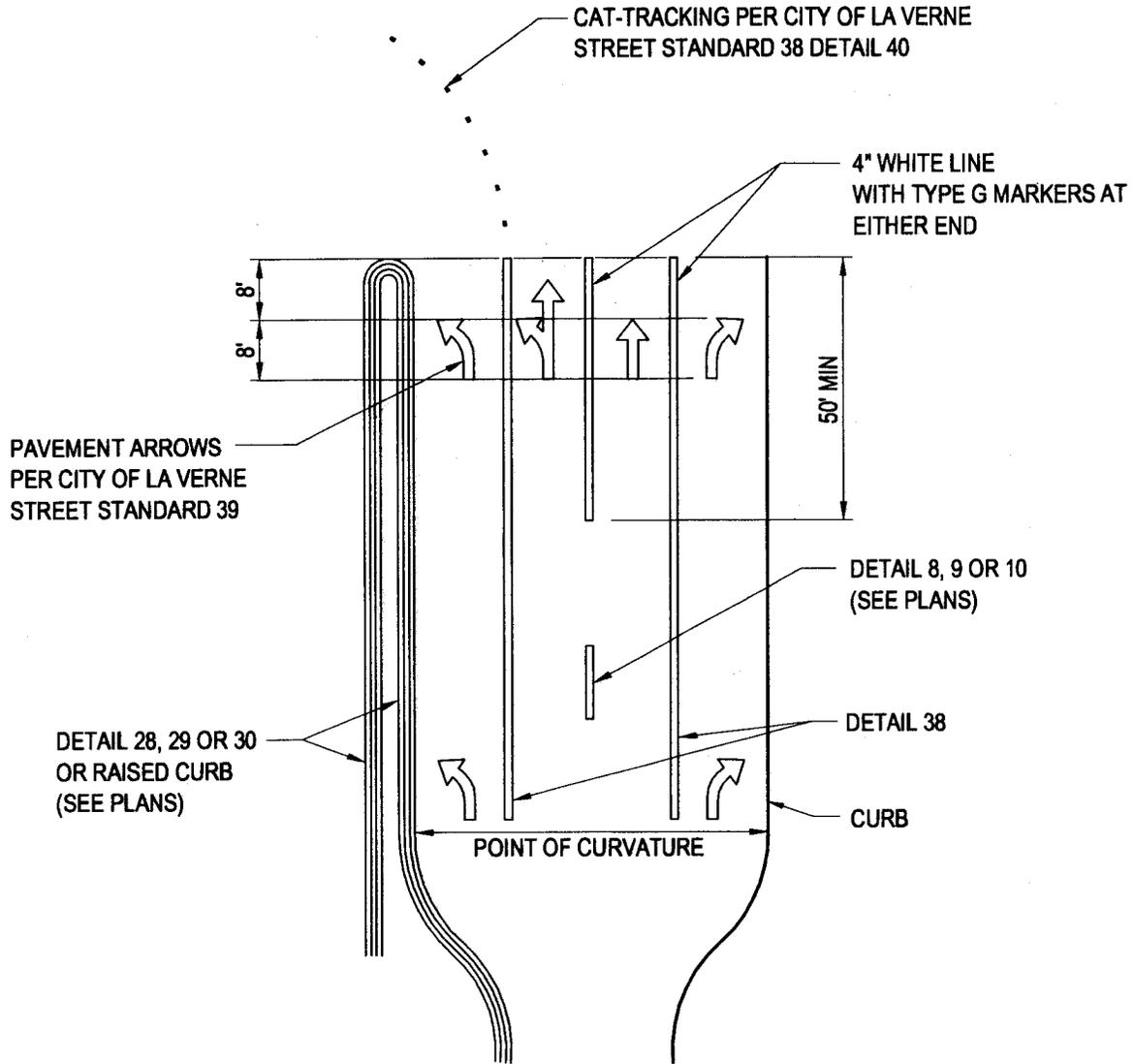
CITY UTILITY ENGINEER

43296
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12/14/14
DATE

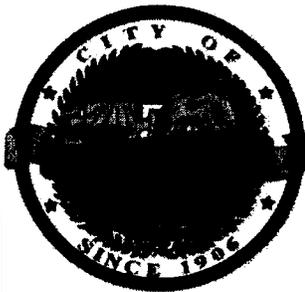
9/5/14
DATE

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DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-25	
DATE OF REVISION:	SHT. 1 OF 1	
9/2014		



NOTES:

1. ARROWS SHALL BE INSTALLED AT THE BEGINNING OF ALL LEFT TURN AND RIGHT TURN POCKETS.
2. ARROWS SHALL OPTIONALLY BE INSTALLED AT THE END OF LEFT AND RIGHT TURN POCKETS 100' OR MORE IN LENGTH.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

INTERSECTION APPROACH STRIPING

APPROVED:

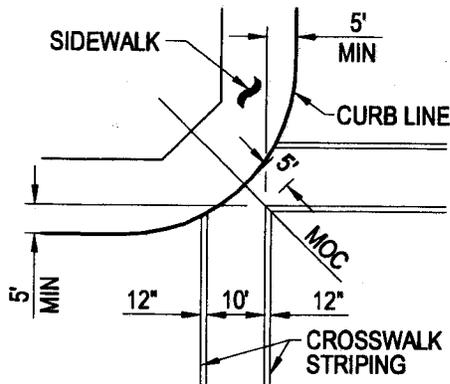
[Signature]
 CITY OF LA VERNE
[Signature]
 CITY UTILITY ENGINEER

12/14/14

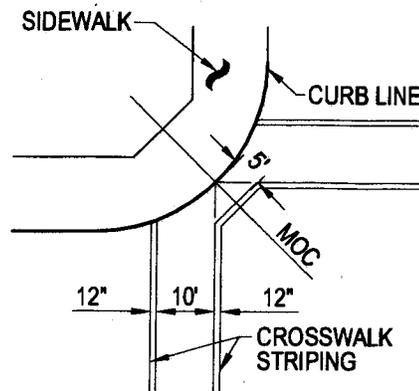
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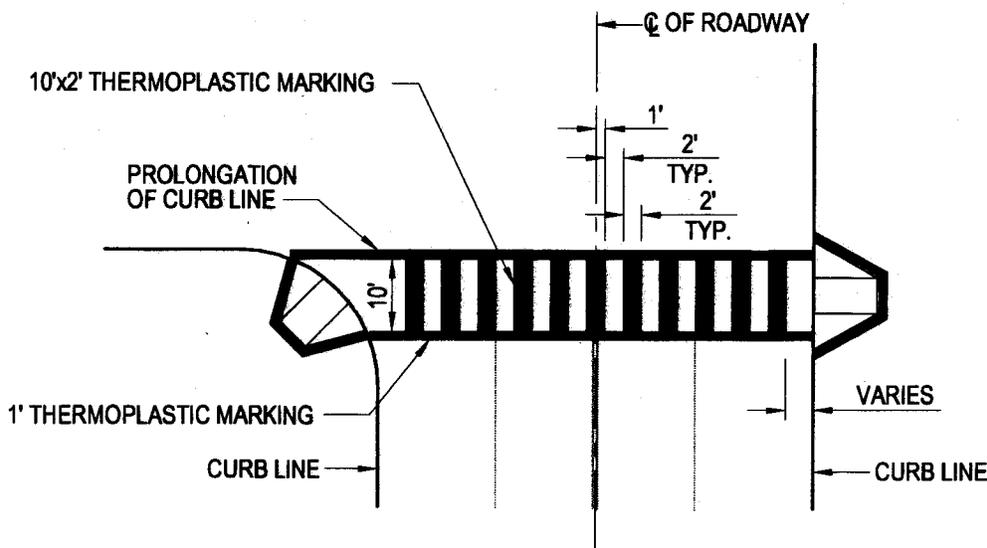
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DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-26	
DATE OF REVISION:	9/2014	
	SHT. 1 OF 1	



CASE I



CASE II



LADDER STYLE

NOTES:

1. ALL CROSSWALKS SHALL BE WHITE UNLESS NOTED OTHERWISE ON THE PLANS.
2. CASE II SHALL BE USED ONLY IF THE 5' MINIMUM DIMENSION FOR CASE I CANNOT BE MAINTAINED.
3. CASE I SHALL BE USED WITH 90° DELTA AND 25' OR GREATER CURB RETURN RADIUS.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

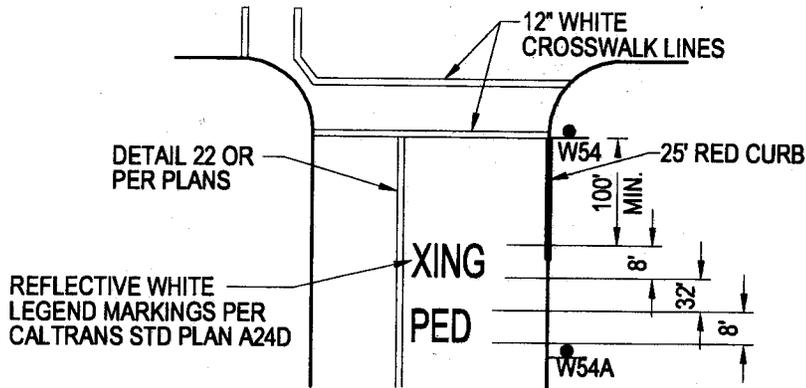
CROSSWALK STRIPING

APPROVED:

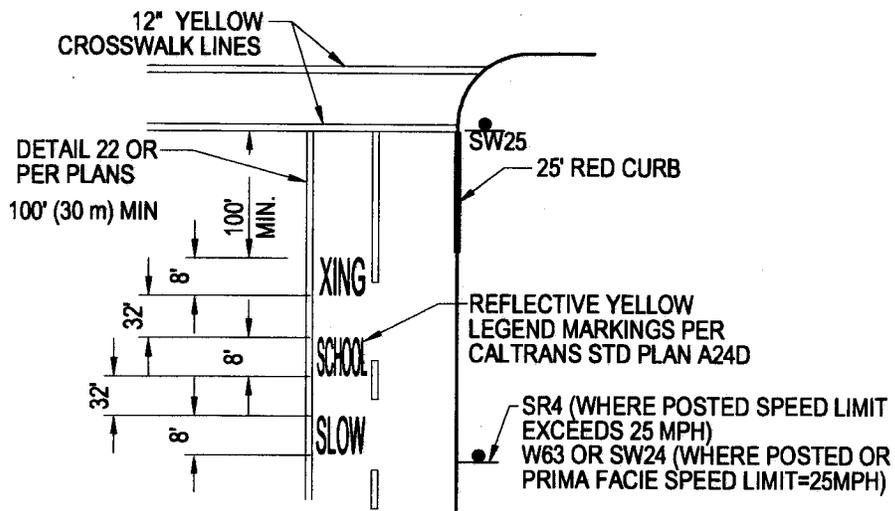
[Signature] 12/14/14
 CITY OF LAVERNE
[Signature] 43296 9/5/14
 CITY UTILITY ENGINEER RCE No. DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014

SCALE:	DWG. No.
AS SHOWN	ST-27
DATE OF REVISION:	
9/2014	SHT. 1 OF 1



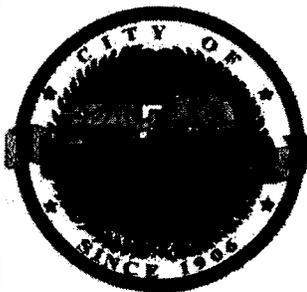
PEDESTRIAN MARKING AT CROSSWALK



PEDESTRIAN MARKING AT SCHOOL CROSSWALK

NOTES:

1. LEGEND SHALL BE INSTALLED IN EACH TRAFFIC LANE APPROACHING A SCHOOL OR PEDESTRIAN CROSSING UNLESS THE PLANS SHOW A DOUBLE SET OF LEGEND MARKINGS INSTALLED IN ONE EXCEPTIONALLY WIDE LANE.
2. LEGEND SHALL BE CENTERED ON THE TRAFFIC LANE EXCLUDING PARKING AND/OR BIKE LANE.
3. MINIMUM RED CURB ON APPROACH CROSSWALK SHALL BE 25', WITH 15' ON DEPARTURE LEGS.
4. ALL SCHOOL AND PEDESTRIAN WARNING SIGNS (W54, W54A, W63, SW24, SW25 and SR4) SHALL BE HIGH-VISIBILITY FLUORESCENT YELLOW-GREEN.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

PEDESTRIAN CROSSINGS

APPROVED:

[Signature]
CITY OF LAVERNE

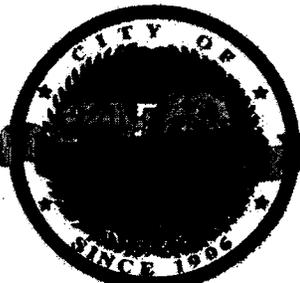
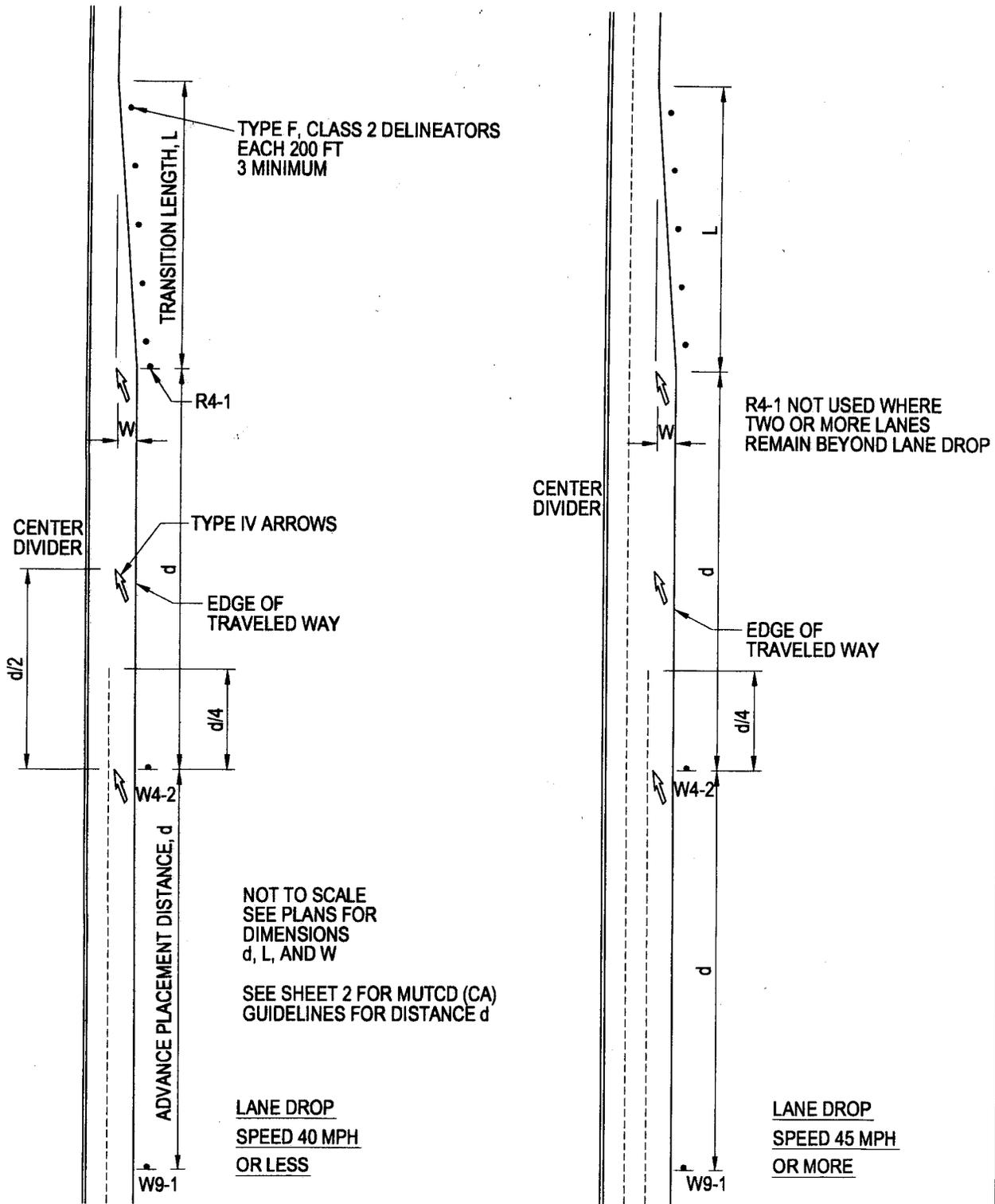
[Signature]
CITY UTILITY ENGINEER

12/14/14
DATE

43296
RCE No.

9/5/14
DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
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SCALE:	DWG. No.	
AS SHOWN	ST-28	
DATE OF REVISION:	9/2014	
	SHT. 1 OF 1	



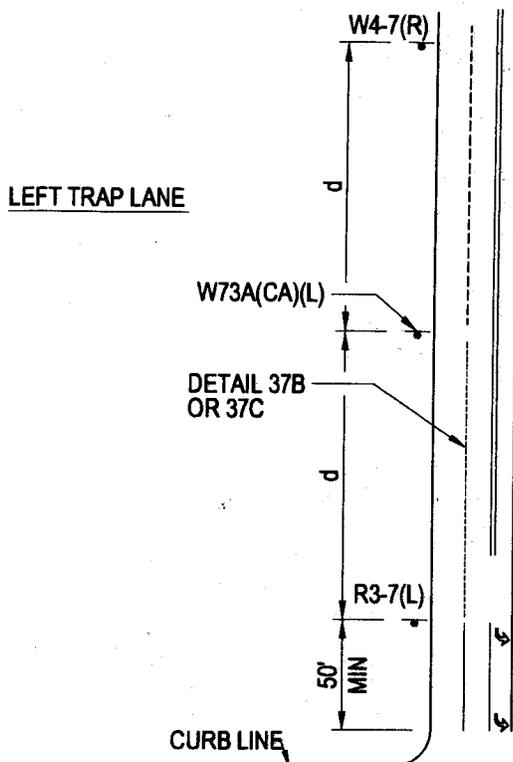
DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

LANE REDUCTION MARKINGS

APPROVED: *[Signature]* 12/14/14
 CITY OF LA VERNE DATE
[Signature] 43296 9/5/14
 CITY UTILITY ENGINEER RCE No. DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE: AS SHOWN	DWG. No. ST-29	
DATE OF REVISION: 9/2014	SHT. 1 OF 2	



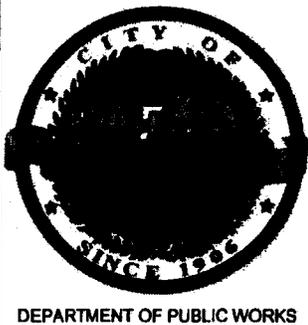
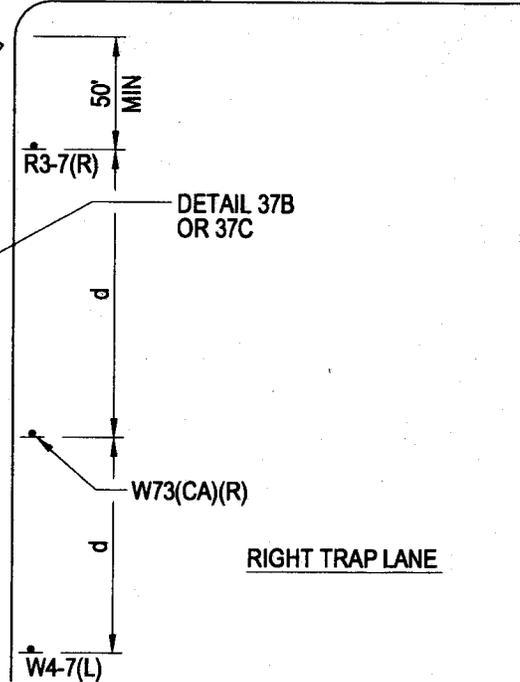
MUTCD (CA) GUIDELINES FOR ADVANCE PLACEMENT DISTANCE	
POSTED OR 85th PERCENTILE SPEED	d
20 mph	225' (59 m)
25 mph	325' (99 m)
30 mph	450' (137 m)
35 mph	550' (168 m)
40 mph	650' (198 m)
45 mph	750' (229 m)
50 mph	850' (259 m)
55 mph	950' (290 m)
60 mph	1100' (335 m)
65 mph	1200' (366 m)
70 mph	1250' (381 m)
75 mph	1350' (411 m)

NOT TO SCALE
SEE PLANS FOR DIMENSION d, ADVANCE PLACEMENT DISTANCE

POST SIGNS IN MEDIAN WHERE POSSIBLE

MUTCD (CA) EXCERPT:

"TYPICAL CONDITIONS ARE LOCATIONS WHERE THE ROAD USER MUST USE EXTRA TIME TO ADJUST SPEED AND CHANGE LANES IN HEAVY TRAFFIC BECAUSE OF A COMPLEX DRIVING SITUATION. TYPICAL SIGNS ARE MERGE AND RIGHT LANE ENDS. THE DISTANCES ARE DETERMINED BY PROVIDING THE DRIVER A PIEV TIME OF 14.0 TO 14.5 SECONDS FOR VEHICLE MANEUVERS (2001 AASHTO POLICY, EXHIBIT 3-3, DECISION SIGHT DISTANCE, AVOIDANCE MANEUVER E) MINUS THE LEGIBILITY DISTANCE OF 175 FEET OF THE APPROPRIATE SIGN."



DEPARTMENT OF PUBLIC WORKS

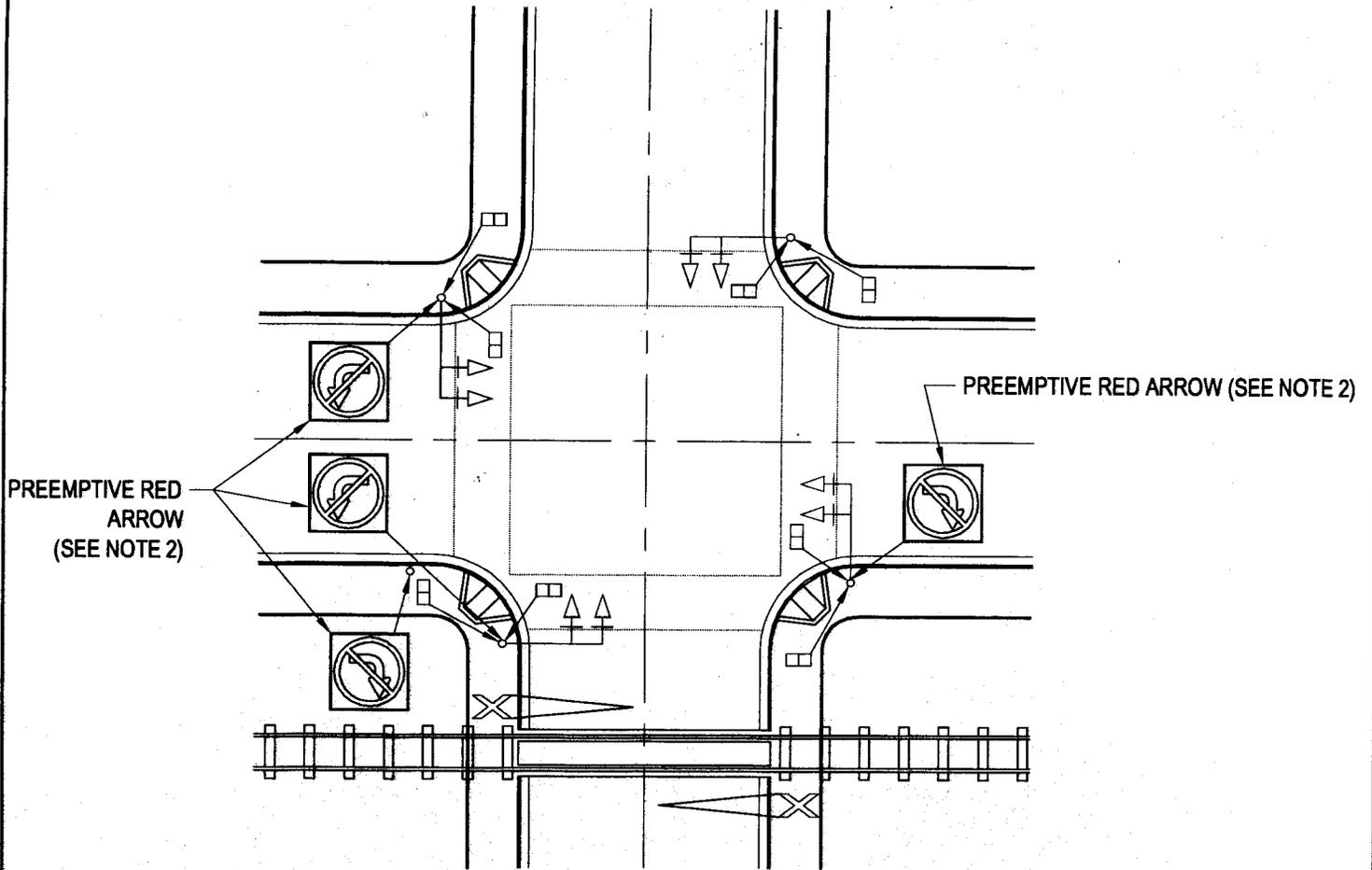
STANDARD DRAWING:

LANE REDUCTION MARKINGS

APPROVED: *[Signature]* 12/14/14
CITY OF LAVERNE DATE
[Signature] 43296 9/5/14
CITY UTILITY ENGINEER RCE No. DATE

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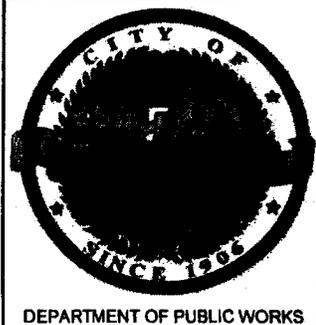
SCALE: AS SHOWN
DATE OF REVISION: 9/2014
DWG. No. ST-29
SHT. 2 OF 2



- ◁+ VEHICLE SIGNAL FACE
- + PEDESTRAIN SIGNAL FACE
- ⚡ FLASHING LIGHTS AND GATE

NOTES:

1. ACTIVE TRAFFIC CONTROL DEVICES, PAVEMENT MARKINGS, STRIPING, SIGNAGE, FLASHING LIGHT SIGNALS, AND AUTOMATIC GATES SHALL BE PER THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION RAILROAD-HIGHWAY GRADE CROSSING HANDBOOK, LATEST EDITION.
2. PREEMPTION OF TRAFFIC SIGNALS NEAR RAILROAD CROSSINGS SHALL BE PER PART 16, SECTION I., SECTION 4 OF THE TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION RAILROAD-HIGHWAY GRADE CROSSING HANDBOOK, LATEST EDITION.



STANDARD DRAWING:
**RAILROAD CROSSING
 PREEMPTIVE ARROW**

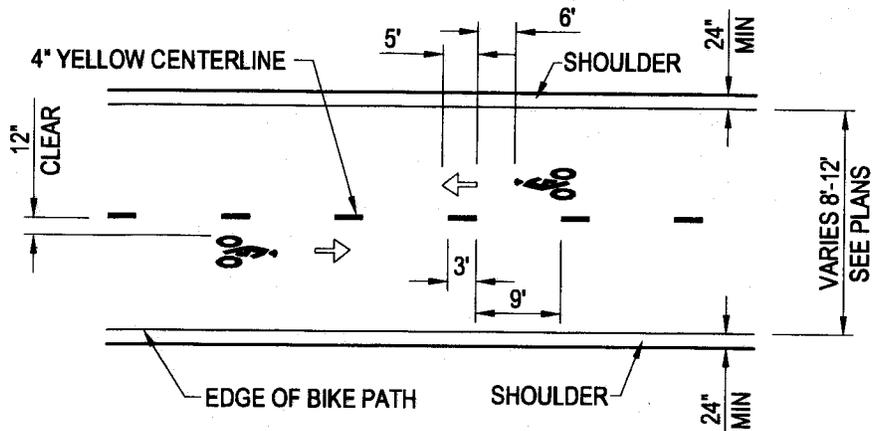
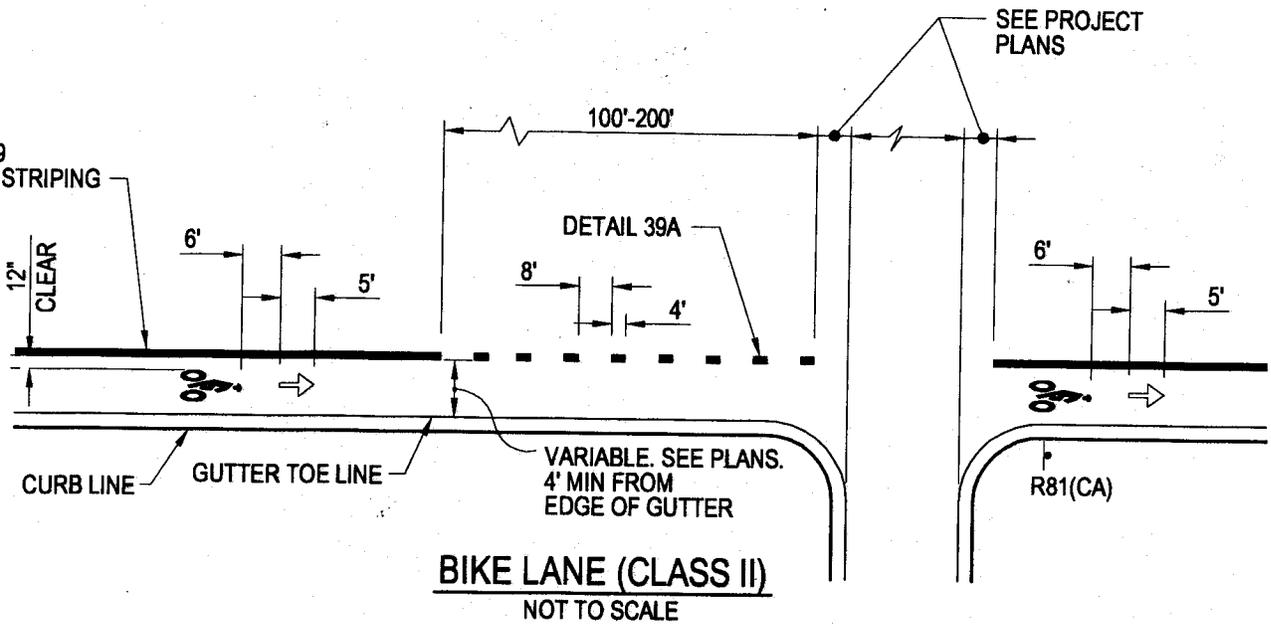
APPROVED: *[Signature]*
 CITY OF LAVERNE
 CITY UTILITY ENGINEER

12/14/14
 43296
 RCE No.

DATE
 9/5/14
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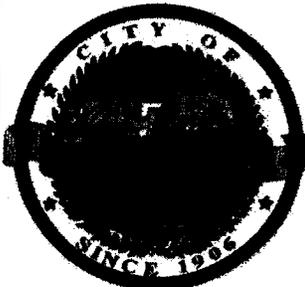
	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE: AS SHOWN	DWG. No. ST-30	
DATE OF REVISION: 9/2014	SHT. 1 OF 1	

DETAIL 39
6" WHITE STRIPING



NOTES:

1. ALL BICYCLE STRIPING AND MARKINGS SHALL BE WHITE REFLECTIVE PAINT EXCEPT AS NOTED FOR TWO-WAY BIKE PATH.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

BIKE LANE MARKING AND STRIPING

APPROVED:

[Signature]
CITY OF LAFAYETTE

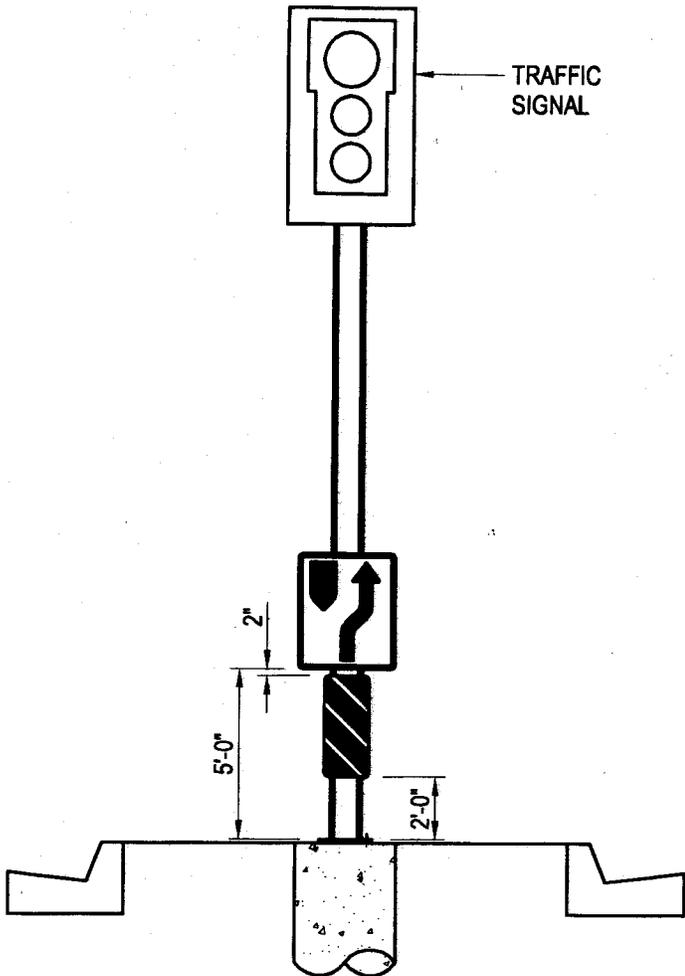
[Signature]
CITY UTILITY ENGINEER

12/14/14
DATE

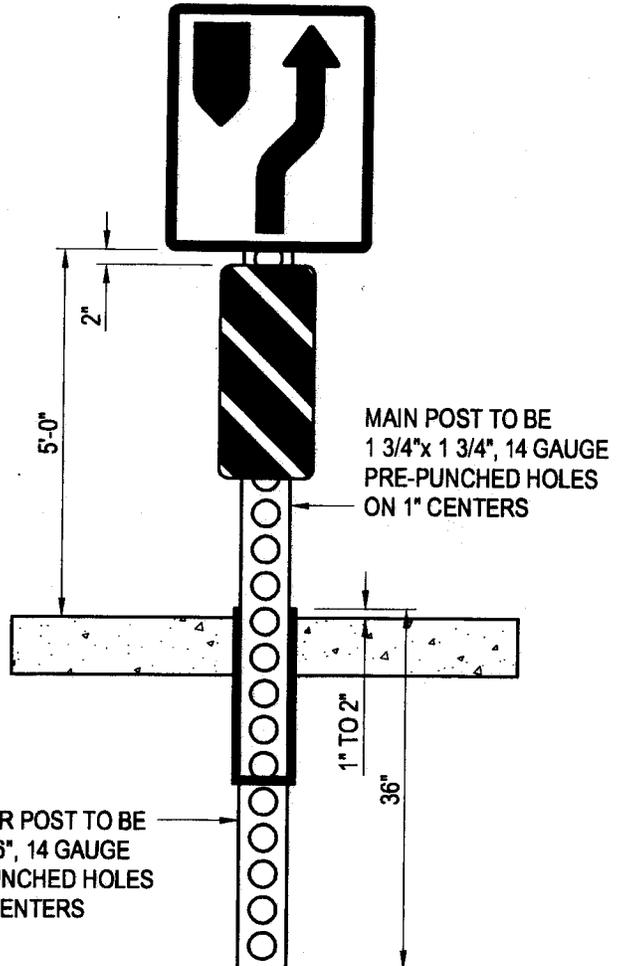
43296
RCE No.

9/5/14
DATE

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DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-31	
DATE OF REVISION:	9/2014	
	SHT. 1 OF 1	

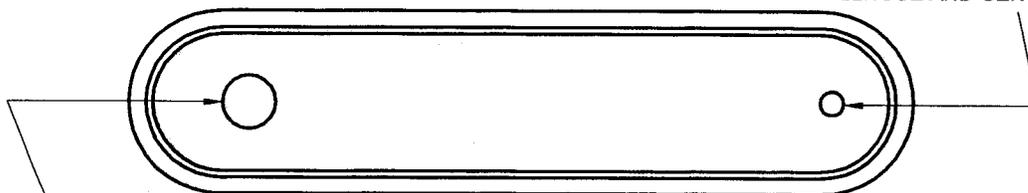


TYPICAL
TRAFFIC SIGNAL POLE
INSTALLATION DETAIL



TYPICAL
SQUARE POST AND ANCHOR POST
INSTALLATION DETAIL

SQUARE POST TO BE INSTALLED 5' FROM BULLNOSE AND CENTERED ON ISLAND



TYPICAL SETBACK FOR A TRAFFIC SIGNAL POLE ON AN ISLAND IS 10'
SIGNS TO BE BANDED ON TRAFFIC SIGNAL POLE, TRAFFIC SIGNAL
POLE TO BE USED IF PRESENT



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

**REGULATORY AND WARNING SIGNS
AND POSTS**

APPROVED:

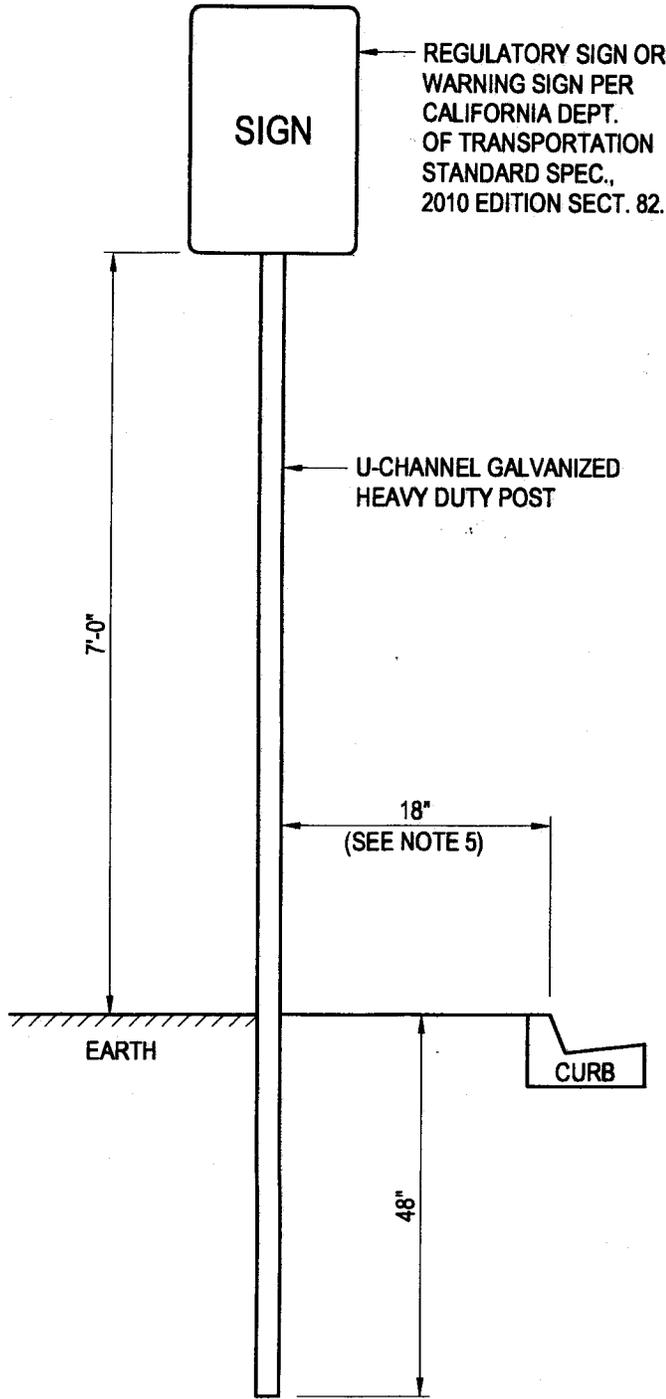
[Signature]
CITY OF LA VERNE
[Signature]
CITY UTILITY ENGINEER

43296
RCE No.

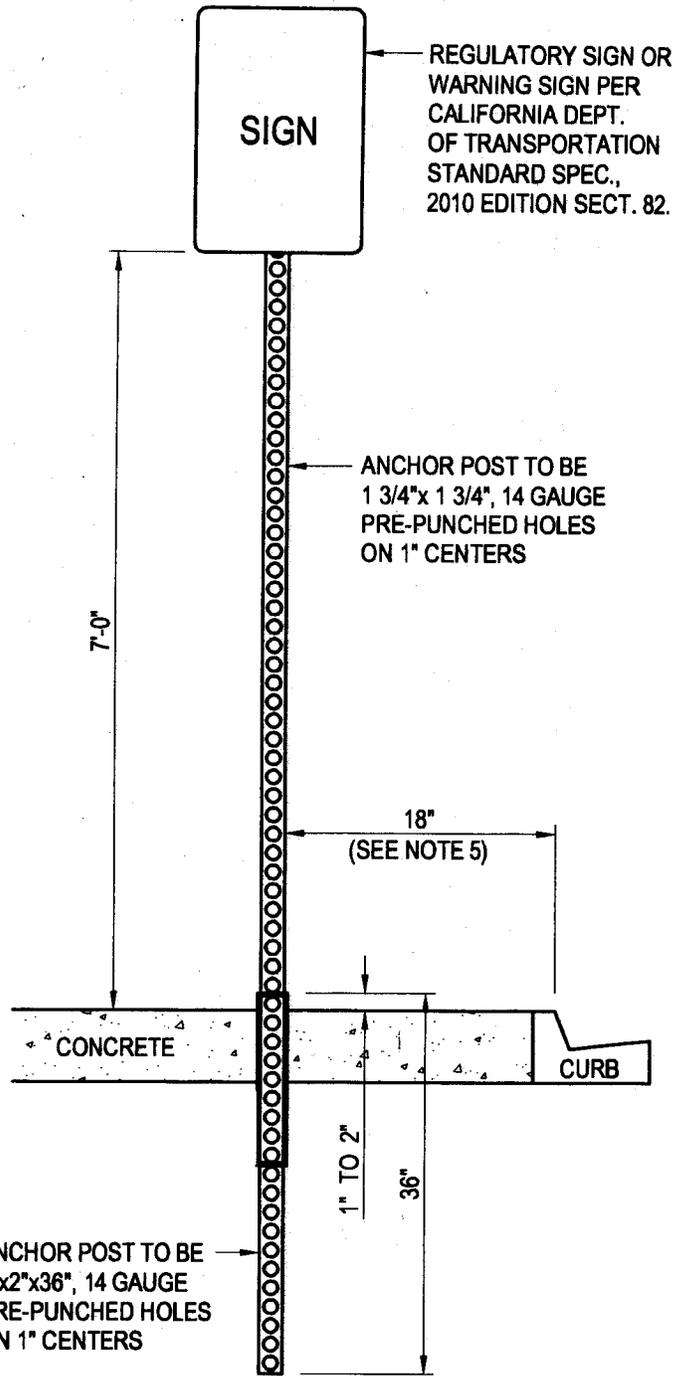
12/14/14
DATE

9/5/14
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SCALE:	DWG. No.	
AS SHOWN	ST-32	
DATE OF REVISION:	9/2014	
	SHT. 1 OF 3	



U-CHANNEL INSTALLATION DETAIL



SQUARE POST AND ANCHOR POST INSTALLATION DETAIL



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

REGULATORY AND WARNING SIGNS AND POSTS

APPROVED:

[Signature]
CITY OF LAVERNE

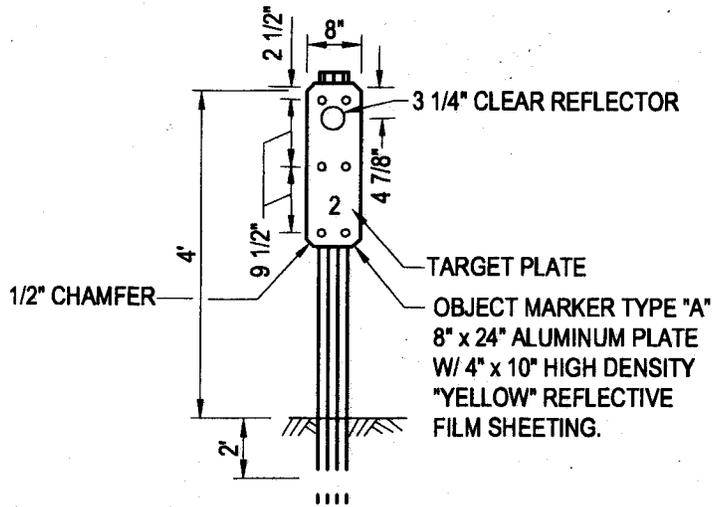
[Signature]
CITY UTILITY ENGINEER

12/14/14
DATE

43296 9/5/14
RCE No. DATE

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CHECKED	C.S.H.	9/2014

SCALE:	DWG. No.
AS SHOWN	ST-32
DATE OF REVISION:	
9/2014	SHT. 2 OF 3

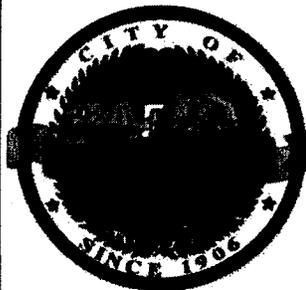


OBJECT MARKER

NOTES:

1. 2" SQUARE "UNISTRUT" PER SEC. 82-1.02C OF THE 2010 CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, POWDER COATED GREEN.
2. 36" ANCHOR WITH 18" SLEEVES, "UNISTRUT", OR APPROVED EQUAL. NO CONCRETE FOOTING ALLOWED. MINIMUM 2 RIVETS INSTALLED TO SECURE POST TO SLEEVE.
3. WHEN CLEAR ROADSIDE RECOVERY AREAS ARE PROVIDED, SIGNS SHALL BE PLACED AS FAR FROM THE EDGE OF TRAVELED WAY AS POSSIBLE, UP TO A MAXIMUM OF 30'. WHEN POSSIBLE, THEY SHALL BE PLACED IN PROTECTED LOCATIONS.
4. SIGNS IN MEDIANS SHALL BE PLACED AT MIDPOINT OF MEDIAN UP TO A MAXIMUM DISTANCE OF 30' FROM EDGE OF TRAVELED WAY. WHEN APPROPRIATE, SIGNS FOR OPPOSING DIRECTIONS SHALL BE PLACED BACK TO BACK.
5. DOES NOT APPLY AT LOCATIONS WHERE MINIMUM HORIZONTAL DISTANCE IS NOT REASONABLE DUE TO TERRAIN CHARACTERISTICS, STEEP SLOPES, ROADWAY FEATURES, OR WHEN SIGNS ARE INSTALLED ON STRUCTURES OR SIGNAL OR LIGHTING STANDARDS.
6. ALL SIGN STOCK SHALL BE MINIMUM 0.080 ALUMINUM.
7. SHEETING SHALL BE 3M VIP OR APPROVED EQUAL.
8. F-CAL GRAFFITI SHEETING OR APPROVED EQUAL INSTALLED ON ALL SIGN FACES.
9. POST SHALL BE TRIMMED TO TOP OF SIGN.
10. IF TWO OR MORE SIGNS ARE ON POST, MEASUREMENT TO THE BOTTOM OF THE LOWEST SIGN SHALL BE 7'-0".

EPS = EDGE OF PAVEMENT SHOULDER



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

**REGULATORY AND WARNING SIGNS
AND POSTS**

APPROVED:

[Signature]
CITY OF LAVERNE

[Signature]
CITY UTILITY ENGINEER

12/14/14

43296
RCE No.

DATE
9/5/14
DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
CHECKED	C.S.H.	9/2014
SCALE:	DWG. No.	
AS SHOWN	ST-32	
DATE OF REVISION:	SHT. 3 OF 3	
9/2014		

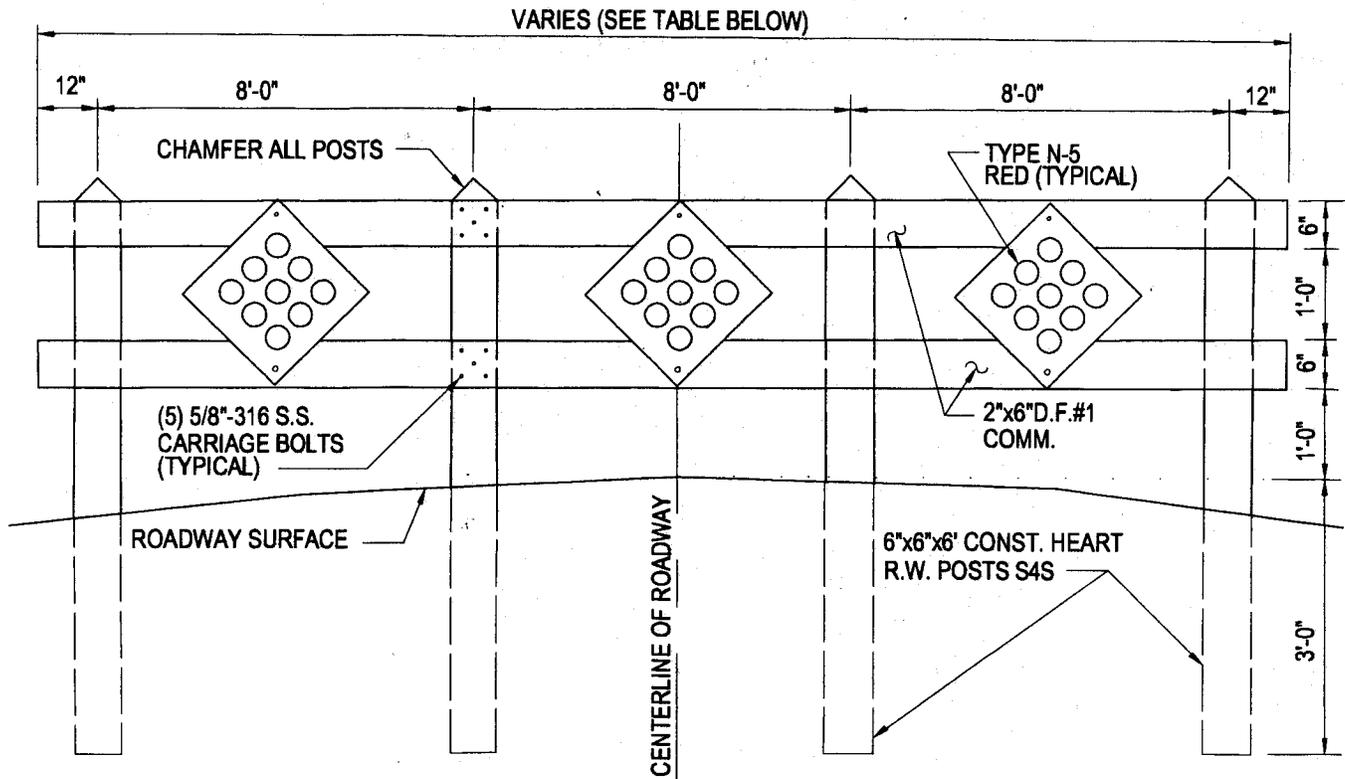


TABLE OF PANELS FOR VARIOUS ROADWAY WIDTHS

WIDTH OF ROADWAY	NO. OF 8' SECTIONS	TOTAL LENGTH OF PANELS *
20' ALLEY	2	18'-0"
36'	3	26'-0"
40'	4	34'-0"
44'	4	34'-0"
64'	7	58'-0"

* 8 FOOT SECTIONS SHALL BE ADDED OR DELETED TO MAKE THE APPROPRIATE WIDTHS.

NOTES:

1. OBJECT MARKER SHALL BE CA. TYPE N-5 ON .063 GA. ALUMINUM WITH RED REFLECTIVE BACKGROUND, 18"X18" SQ. WITH 3/8-INCH BLACK BORDER.
2. OBJECT MARKER SHALL BE BOLTED ON THE CENTER OF THE BARRICADE, AS SHOWN.
3. BARRICADE ASSEMBLY SHALL BE PAINTED WITH TWO COATS OF WHITE PAINT AS APPROVED BY THE CITY ENGINEER. A NON-GRAFITTI SEAL COAT SHALL BE APPLIED TO ALL EXPOSED SURFACES OF THE BARRICADE.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

STREET BARRICADE

APPROVED:

[Signature]
CITY OF LAVERNE

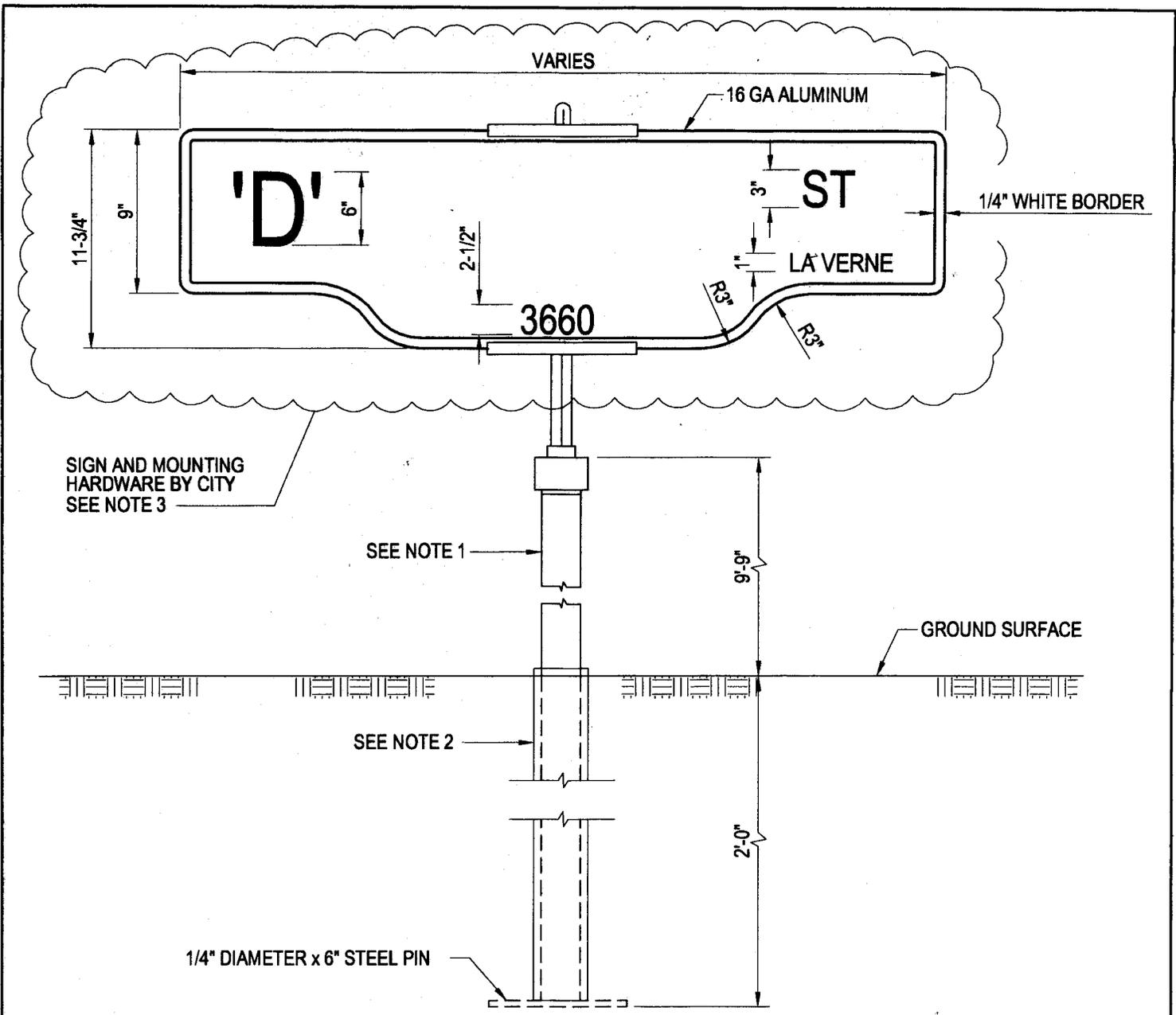
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CITY UTILITY ENGINEER

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SCALE:	DWG. No.	
AS SHOWN	ST-33	
DATE OF REVISION:	SHT. 1 OF 1	
9/2014		

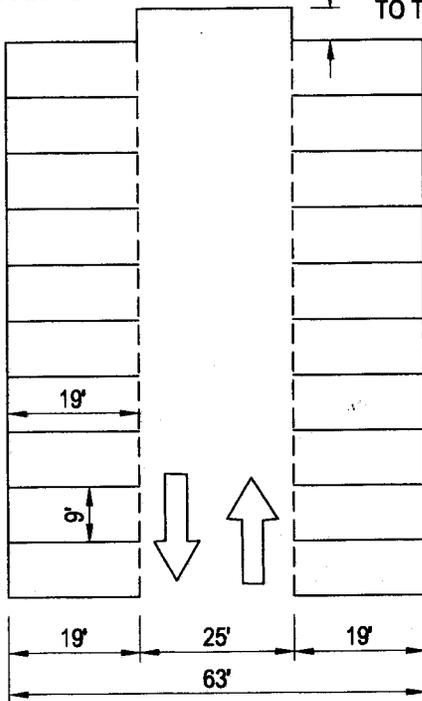


NOTES:

1. 2" SQUARE "UNISTRUT", OR APPROVED EQUAL, PER LA VERNE STREET STANDARD ST-37.
2. 30" ANCHOR WITH 18" SLEEVES, "UNISTRUT", OR APPROVED EQUAL NO CONCRETE FOOTING ALLOWED. MINIMUM 2 RIVETS INSTALLED TO SECURE POST TO SLEEVE.
3. STREET NAME SIGNS WITH WHITE BLOCK LETTERS AND CITY NAME, PROVIDED & INSTALLED BY CITY.

 <p>DEPARTMENT OF PUBLIC WORKS</p>	STANDARD DRAWING:		BY	DATE
	STREET SIGN		DESIGNED	B.A.S. 9/2014
			DRAWN	J.M. 9/2014
			CHECKED	C.S.H. 9/2014
APPROVED: 	12/14/14 DATE 43296 RCE No. 9/5/14 DATE	SCALE: AS SHOWN	DWG. No. ST-34	
CITY OF LA VERNE CITY UTILITY ENGINEER		DATE OF REVISION: 9/2014		SHT. 1 OF 1

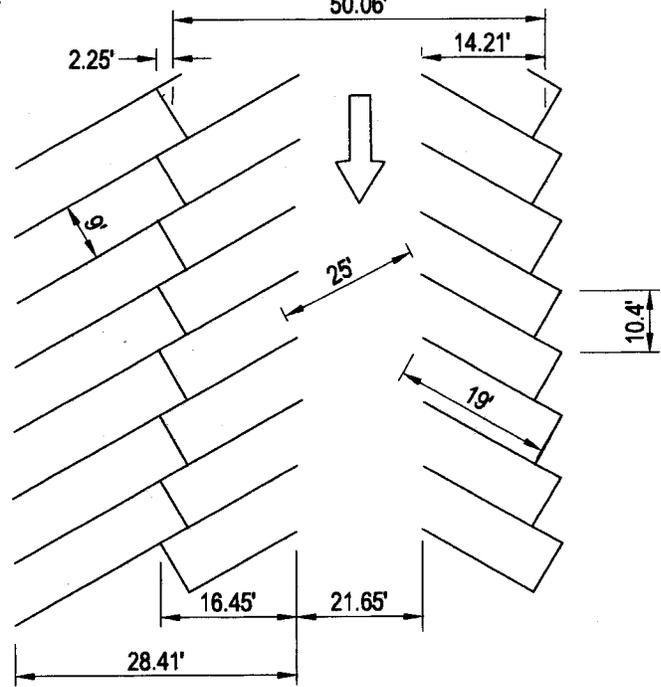
TWO-WAY TRAFFIC
90° PARKING



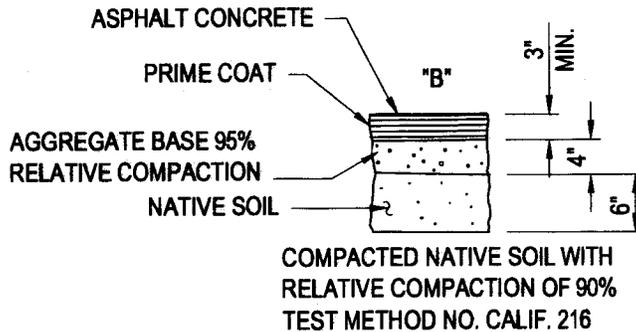
ANGLE	STALL WIDTH	STALL LENGTH	AISLE WIDTH	STALL TO STALL WITH AISLE
90°	9'	19'	25'	63'

MIN. 5 FEET REQUIRED FOR
TURNING MOVEMENT IF CLOSED
TO THRU TRAFFIC.

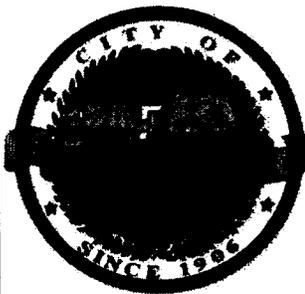
60° PARKING
WITH STALL OVERLAP
50.06'



ANGLE	STALL WIDTH	STALL LENGTH	CURB LENGTH	AISLE WIDTH	STALL TO STALL WITH AISLE
60°	9'	19'	10.4'	21.65'	54.55'



TYPICAL CROSS SECTIONS



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

TYPICAL PARKING LOT

APPROVED:

[Signature]
CITY OF LAVERNE

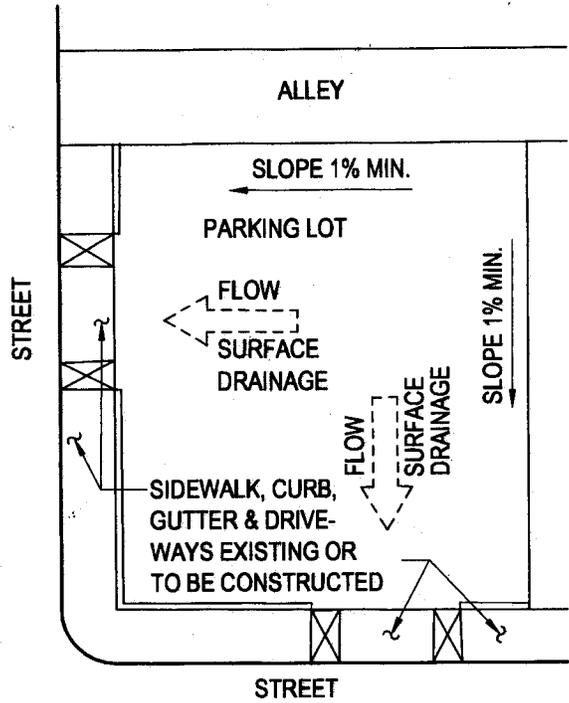
CITY UTILITY ENGINEER

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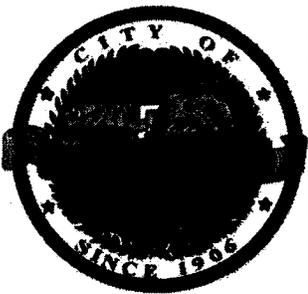
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SCALE:	DWG. No.	
AS SHOWN	ST-35	
DATE OF REVISION:	9/2014	
	SHT. 1 OF 2	



NOTES:

1. MINIMUM BACK-UP SPACE REQUIRED FOR ONE ROW PARKING WITH TWO-WAY TRAFFIC IS 25-FEET.
2. HANDICAP PARKING STALLS SHALL CONFORM TO CURRENT STATE REQUIREMENTS OF SIZE AND SIGNAGE.
3. PARKING BUMPERS SHALL BE PLACED SO THAT PARKED CARS WILL NOT OVERHANG ON SIDEWALKS OR PARKWAYS.
4. SURFACE DRAINAGE SHALL BE TOWARD THE STREET.
5. NO SURFACE DRAINAGE TOWARD ALLEY IS PERMITTED WITHOUT PRIOR WRITTEN APPROVAL FROM THE CITY ENGINEER.
6. REDWOOD HEADER SHALL BE USED WHEN PAVEMENT BORDERS SOIL.
7. DRIVEWAY LOCATIONS WILL BE DETERMINED BY THE CITY ENGINEER.
8. LANDSCAPING REQUIREMENTS PER CITY OF LAVERNE ORDINANCE NO. 18.76.080
9. LIGHTING REQUIREMENTS PER CITY OF LAVERNE ORDINANCE NO. 18.76.090.



DEPARTMENT OF PUBLIC WORKS

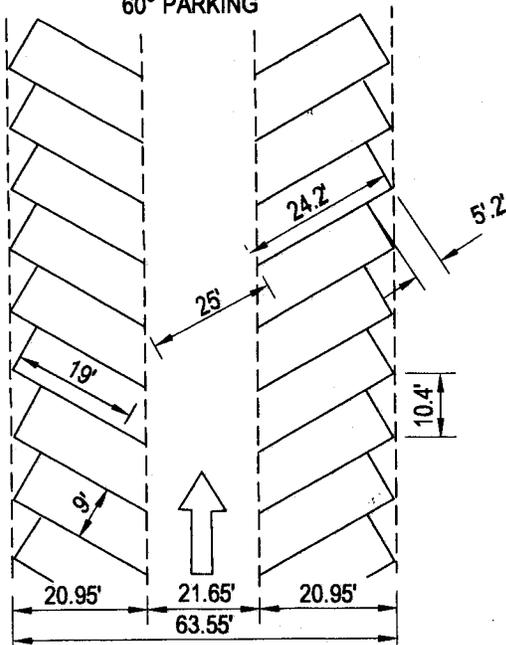
STANDARD DRAWING:

TYPICAL PARKING LOT

APPROVED: *[Signature]* 12/14/14
 CITY OF LAVERNE
[Signature] 43296 9/5/14
 CITY UTILITY ENGINEER RCE No. DATE

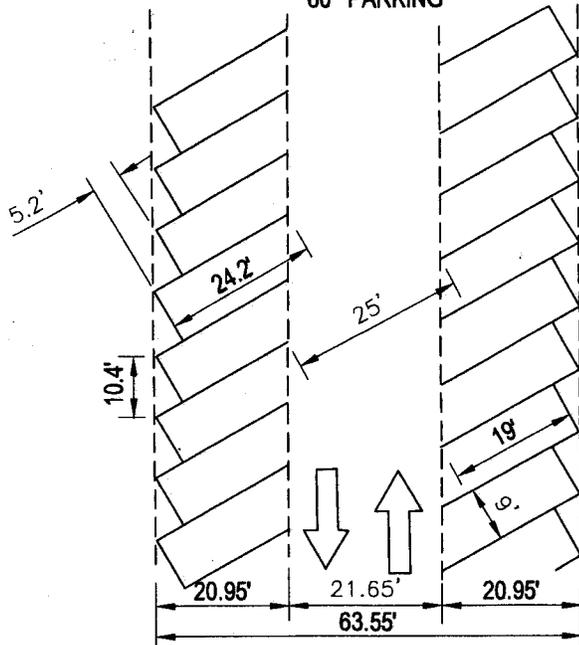
	BY	DATE
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SCALE:	DWG. No.	
AS SHOWN	ST-35	
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	SHT. 2 OF 2	

ONE-WAY TRAFFIC
60° PARKING



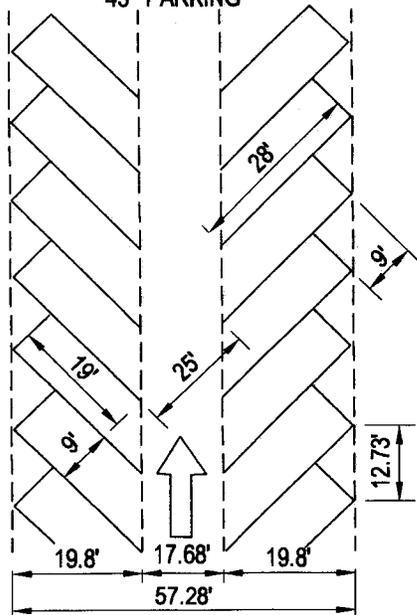
ANGLE	STALL WIDTH	STALL LENGTH	CURB LENGTH	AISLE WIDTH	STALL TO STALL WITH AISLE
60°	9'	19'	10.4'	21.65'	63.55'

TWO-WAY TRAFFIC
60° PARKING



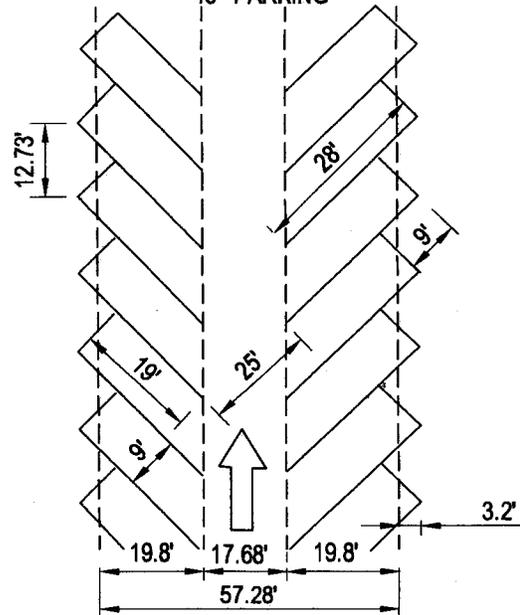
ANGLE	STALL WIDTH	STALL LENGTH	CURB LENGTH	AISLE WIDTH	STALL TO STALL WITH AISLE
60°	9'	19'	10.4'	21.65'	63.55'

ONE-WAY TRAFFIC
45° PARKING

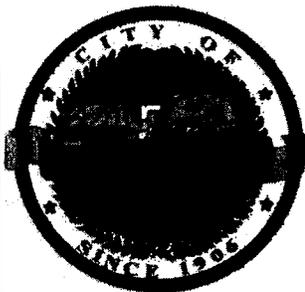


ANGLE	STALL WIDTH	STALL LENGTH	CURB LENGTH	AISLE WIDTH	STALL TO STALL WITH AISLE
45°	9'	19'	12.73'	17.68'	57.28'

ONE-WAY TRAFFIC
45° PARKING



ANGLE	STALL WIDTH	STALL LENGTH	CURB LENGTH	AISLE WIDTH	STALL TO STALL WITH AISLE
45°	9'	19'	12.7'	17.68'	57.28'



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

45 AND 60 ONE-WAY AND TWO-WAY
PARKING

APPROVED:

[Signature]
CITY OF LA VERNE

[Signature]
CITY UTILITY ENGINEER

12/14/14
DATE

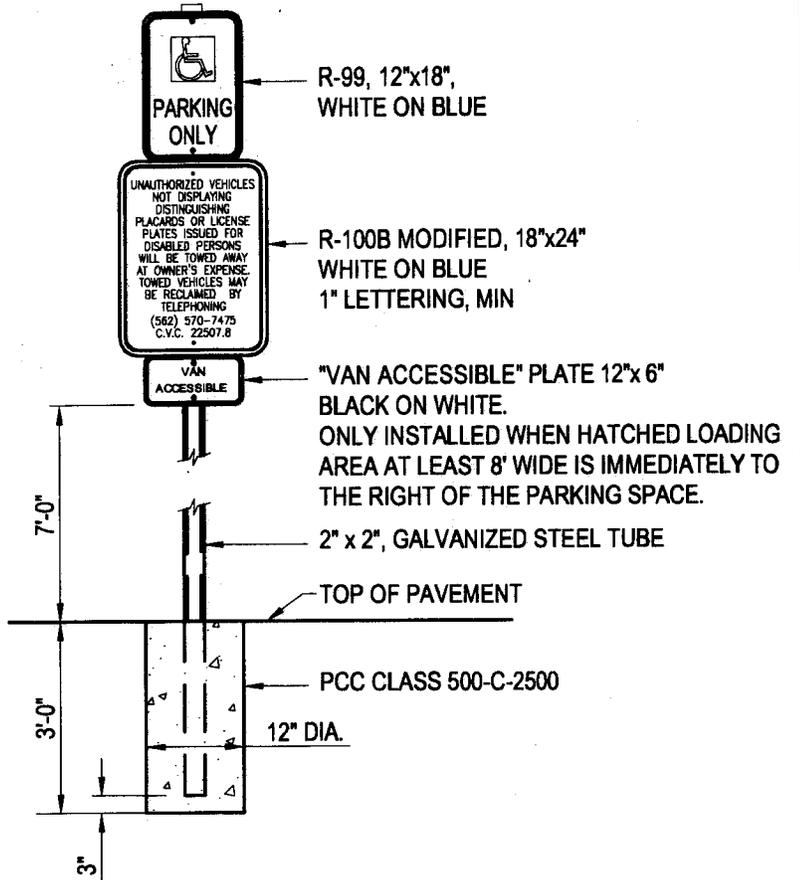
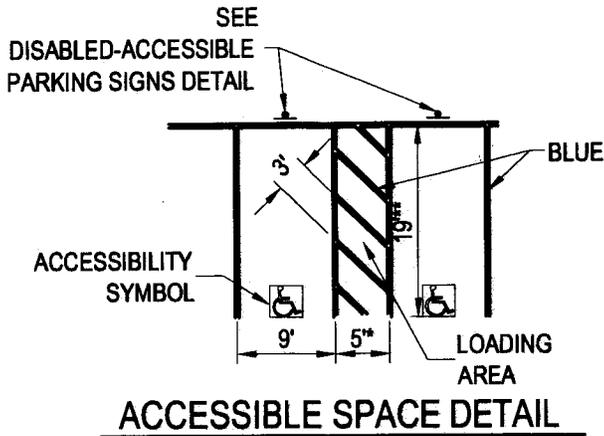
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CHECKED	C.S.H.	9/2014

SCALE:
AS SHOWN
DATE OF REVISION:
9/2014

DWG. No.
ST-36
SHT. 1 OF 1



* LOADING AREA SHALL BE 8' WIDE ADJACENT TO VAN ACCESSIBLE PARKING SPACES - SEE PLANS.

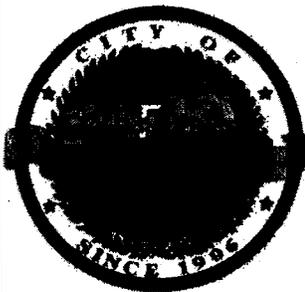
** OR GREATER PER PARKING LOT PLAN

(DISABLED-ACCESSIBLE PARKING SIGNS)

(NOTE: NOT FOR STREET USE)

NOTES:

1. STRIPING SHALL BE 4" WIDE WHITE NON-REFLECTORIZED PAINT, EXCEPT AS SHOWN. PAVEMENT MARKINGS SHALL ALSO BE NON-REFLECTORIZED PAINT.
2. SIGNS SHALL CONFORM TO SECTION 56, SIGNS, OF THE STATE STANDARD SPECIFICATIONS, AND THE STATE SPECIFICATIONS FOR ALUMINUM SINGLE SHEET PANEL SIGNS.
3. SEE LOCAL ZONING CODE FOR REQUIREMENTS FOR USAGE OF COMPACT AND ACCESSIBLE PARKING SPACES AND LOT LAYOUT.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

ACCESSIBLE SPACE AND SIGN DETAIL

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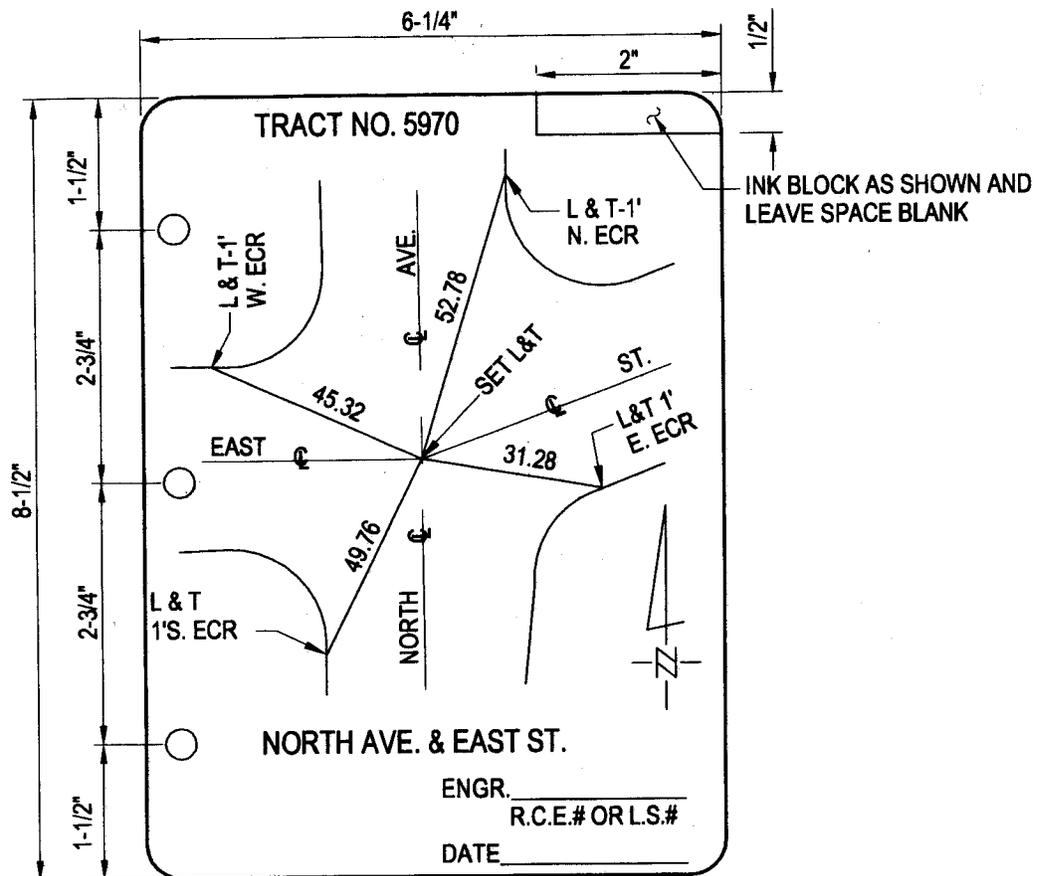
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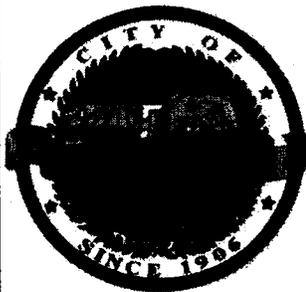
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1/2 ACTUAL SIZE

NOTES:

1. REFERENCE POINTS SHALL BE L. & T.'s IN SIDEWALKS OR IN TANGENT PORTION OF THE CURB. A MINIMUM OF THREE(3) REFERENCE POINTS SHALL BE SET AT EACH INTERSECTION.
2. CENTER LINE MONUMENTS SHALL BE:
 - A. IN PORTLAND CEMENT CONCRETE - LEAD TACK & TAG.
 - B. MACADAM OR PLANT MIX - 8" SPIKE & WASHER.
 - C. IN OIL & ROCK, GRAVEL & OTHER - 1" I.P. 12" DOWN.
 - D. WHERE MANHOLES EXIST - FOUR (4) PUNCH MARKS ON MANHOLE RING
3. TANGENT TIES AND POINTS ON CENTERLINE PRODS. ARE PREFERRED.
4. ONLY ONE STREET INTERSECTION SHALL BE SHOWN ON EACH SHEET.
5. SHEETS SHALL BE OF THE SIZE SHOWN AND SHALL BE LEITZ NO. 987-10 TOP FLIGHT OR OF EQUAL QUALITY TRACING PAPER.



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STANDARD DRAWING:

CENTERLINE TIE NOTES

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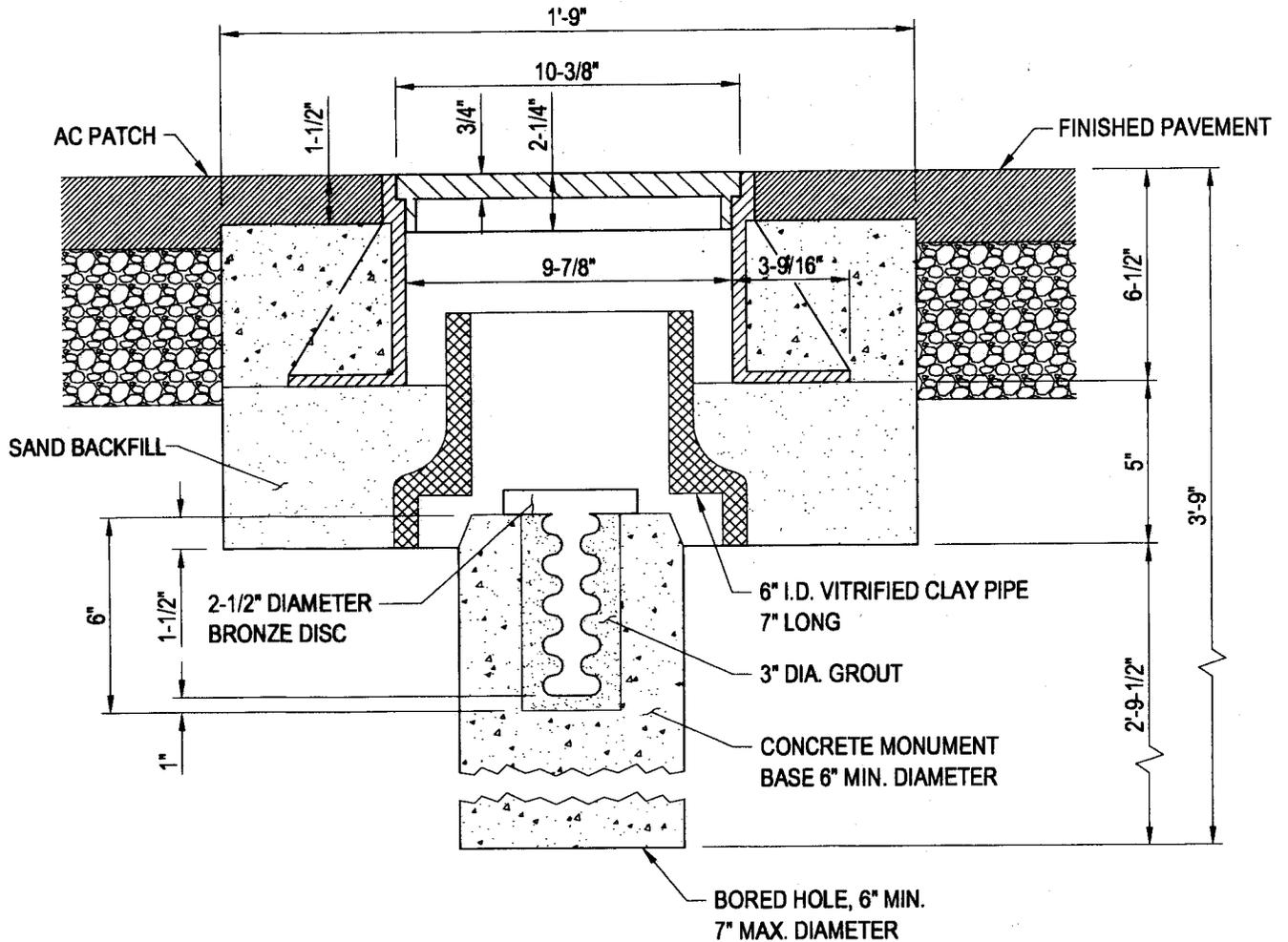
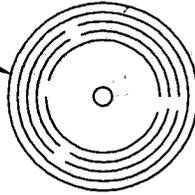
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MONUMENT MARKER HANDHOLE FRAME & COVER NO. 1242 AS MANUFACTURED BY ALHAMBRA FOUNDRY CO. OR EQUIVALENT.



NOTES:

1. FRAME AND COVER TO BE ASPHALT TREATED BY FOUNDRY.
2. IF MARKER IS INSTALLED UNDER CONTRACT, LEAVE 3" DIAMETER HOLE, 6" DEEP IN EXACT CENTER PER TIES.
3. MONUMENT MARKER WILL BE SET BY A PROFESSIONAL REGISTRANT, LICENSED TO PRACTICE SURVEYING IN THE STATE OF CALIFORNIA.
4. ALL CONCRETE SHALL BE 5-1/2 SACK, 3/4" AGGREGATE.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

SURVEY MONUMENT

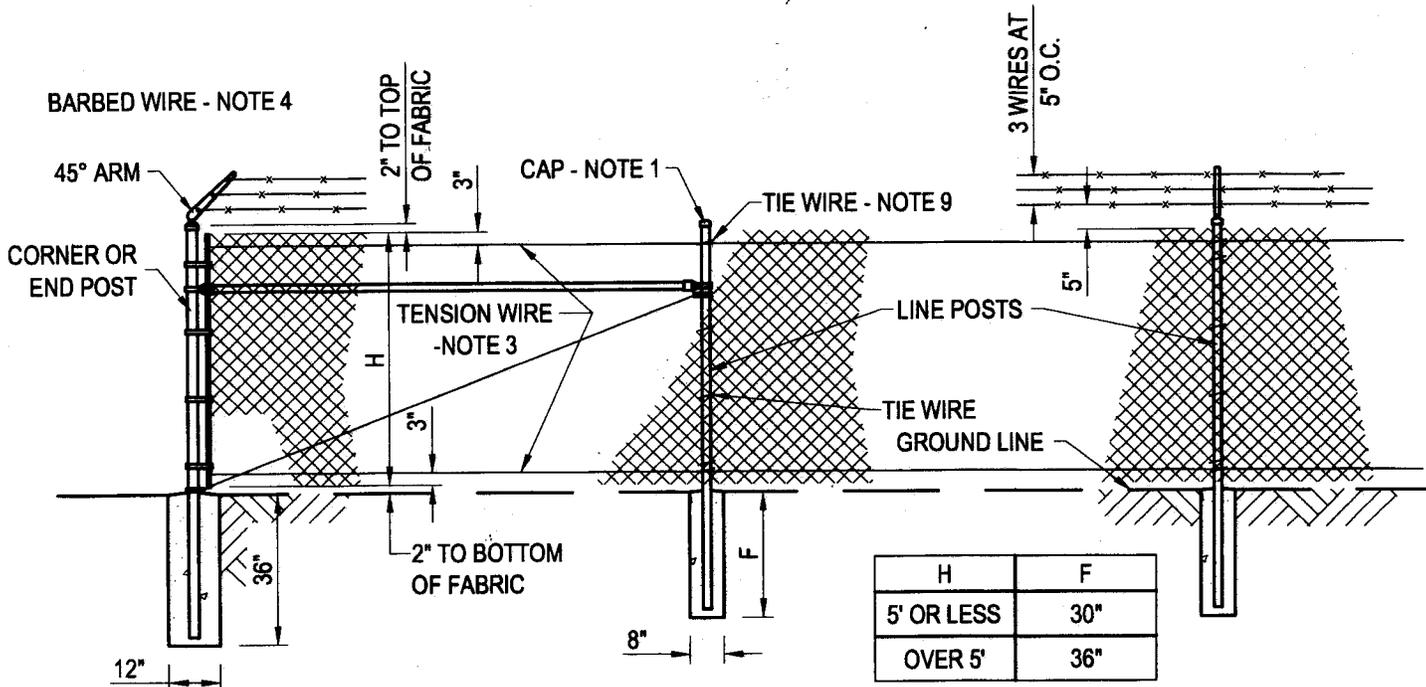
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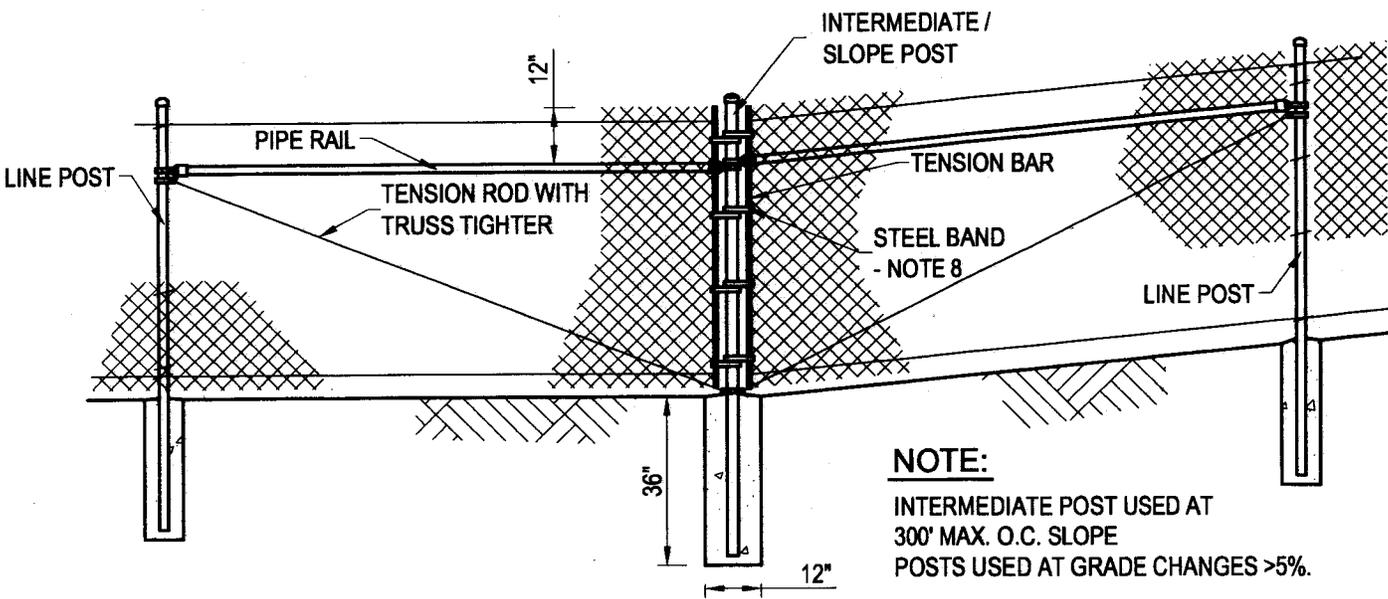
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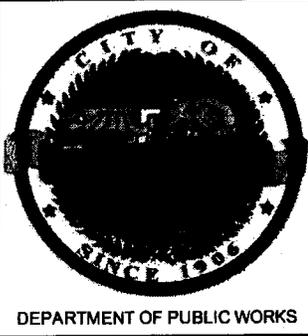
TYPICAL FENCE

NOTE:
CORNER POSTS USED WHERE FENCE LINE DEFLECTION GREATER THAN 30°



INTERMEDIATE / SLOPE POST

NOTE:
INTERMEDIATE POST USED AT 300' MAX. O.C. SLOPE
POSTS USED AT GRADE CHANGES >5%.



STANDARD DRAWING:
CHAIN LINK FENCE

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CITY OF LA VERNE DATE

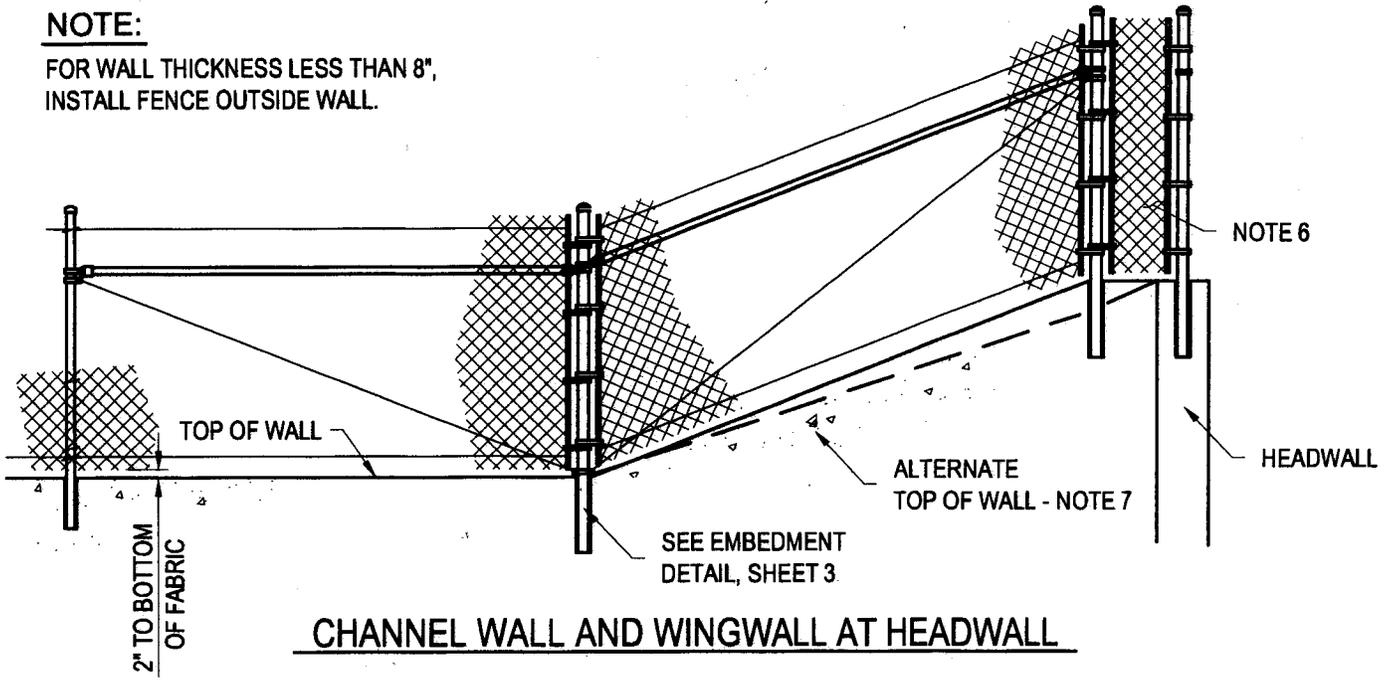
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AS SHOWN	ST-40	
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NOTE:

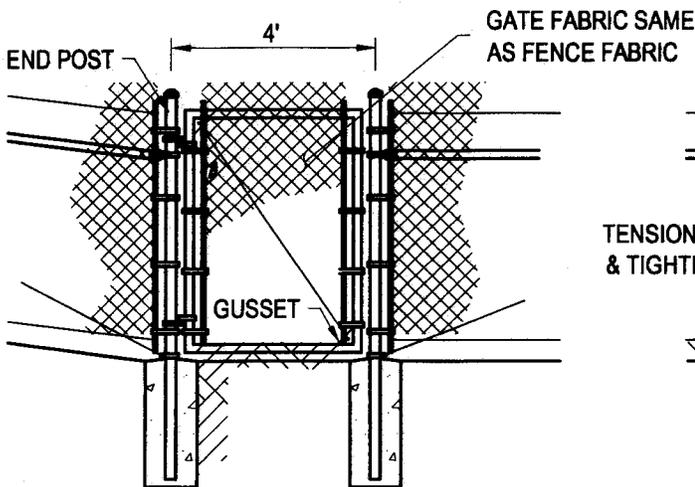
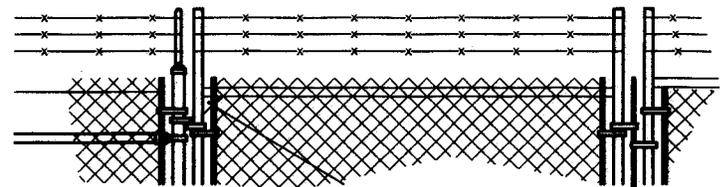
FOR WALL THICKNESS LESS THAN 8",
INSTALL FENCE OUTSIDE WALL.

HEADWALL FENCE - USE PIPE RAIL

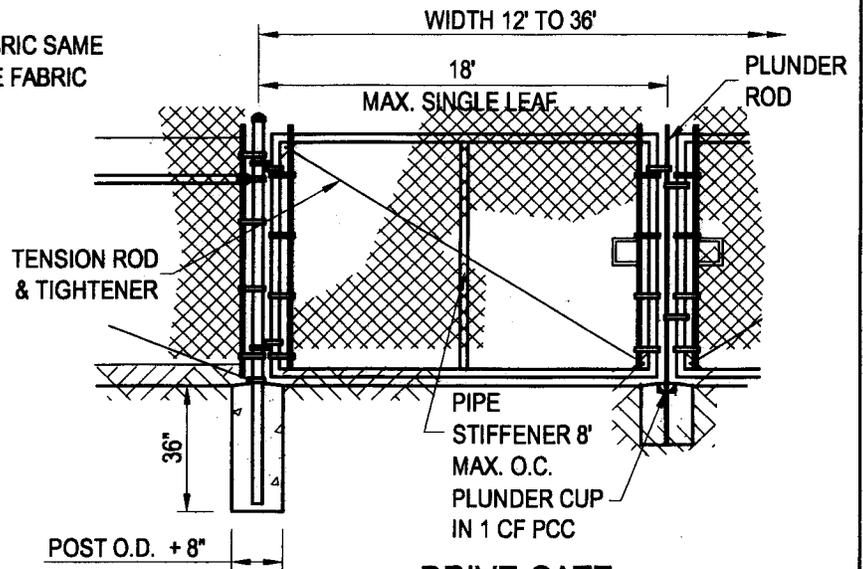


CHANNEL WALL AND WINGWALL AT HEADWALL

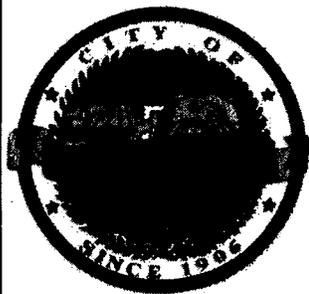
BARBED WIRE - NOTE 4



WALK GATE



DRIVE GATE



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STANDARD DRAWING:

CHAIN LINK FENCE

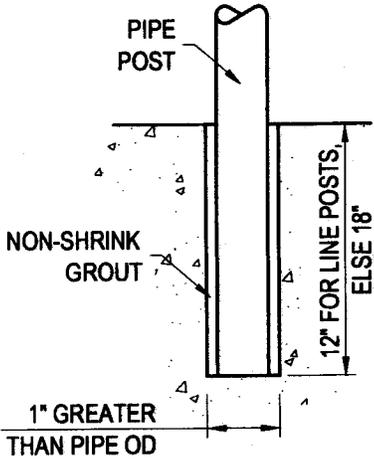
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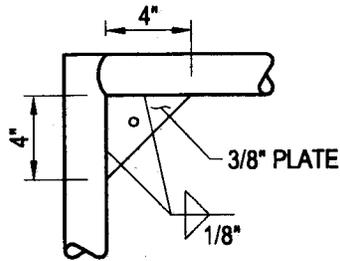
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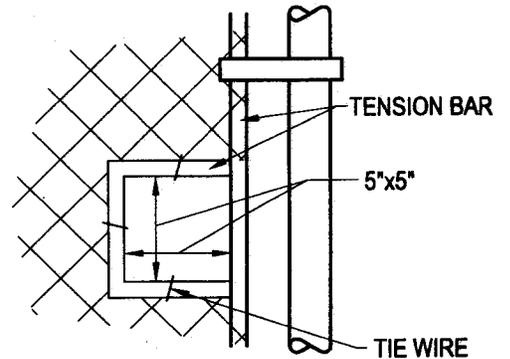
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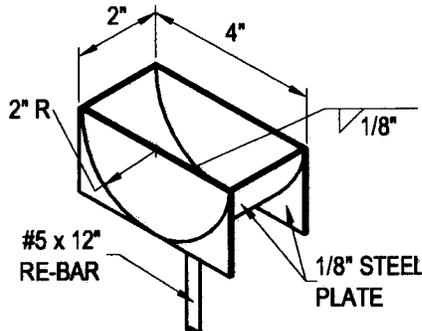
**POST
EMBEDMENT**



GUSSET



**CHAIN AND LOCK
CUT-OUT**



**PLUNGER CUP
ISOMETRIC**



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

CHAIN LINK FENCE

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NOTES:

1. SECURE DRIVE-FIT GALVANIZED CAP TO POST WITH 1/4" ROUNDHEAD RIVET.
2. H DENOTES FABRIC WIDTH AND NOMINAL FENCE HEIGHT. H = 5' UNLESS OTHERWISE NOTED.
3. IF FENCE WITH TOP RAIL IS SPECIFIED, DELETE STEEL TENSION WIRE AT TOP, AND PIPE RAILS AT INTERMEDIATE, SLOPE, END AND CORNER POSTS. EXTEND TENSION ROD TO TOP RAIL.
4. BARBED WIRE SHALL BE USED ONLY WHEN SPECIFIED.
5. POST SPACING IS MAXIMUM 10'.
6. FILL CLEAR OPENINGS GREATER THAN 3" WITH FABRIC. FOR OPENING LESS THAN 18", TIE FABRIC TO POSTS.
7. USE ONE POST FOR COMBINED SLOPE AND CORNER POST IF TOP OF CHANNEL WALL IS CONSTRUCTED AS SHOWN FOR "ALTERNATE".
8. STEEL BANDS AT TENSION BARS SHALL BE 1/8" x 1", MINIMUM, SPACED AT MAXIMUM 16".
9. SECURE TENSION WIRES TO EACH LINE POST WITH THE WIRES.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

CHAIN LINK FENCE

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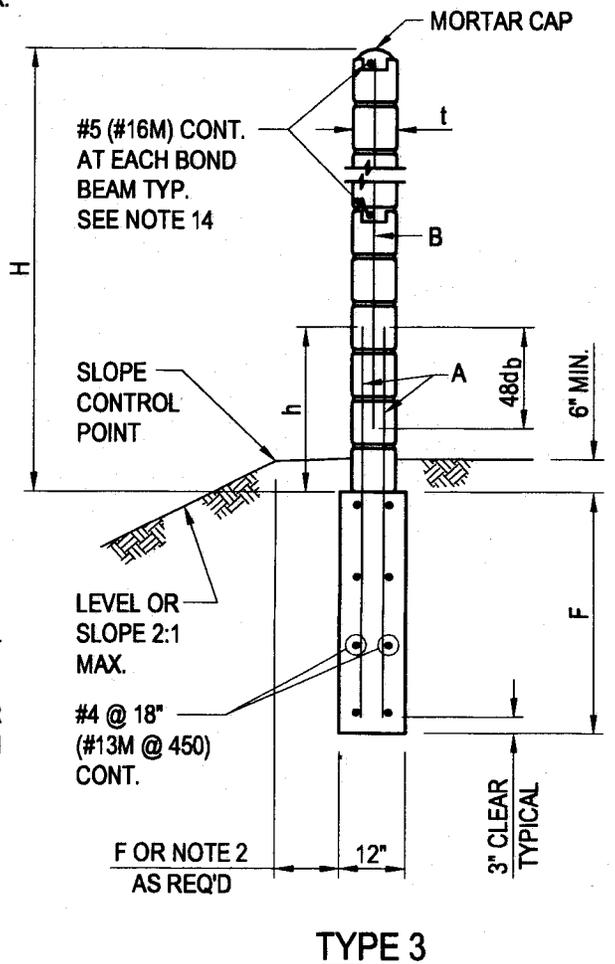
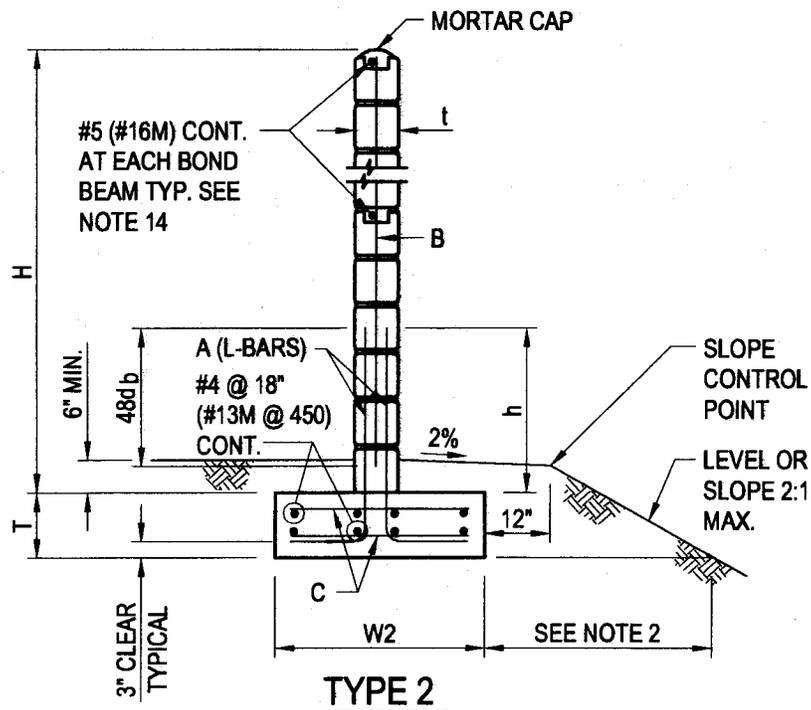
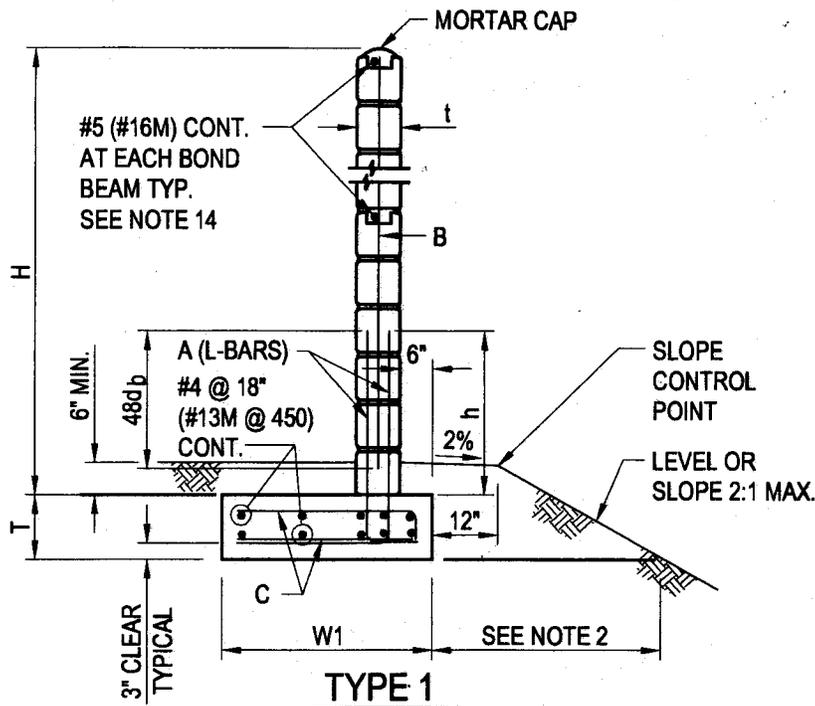
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DETAILS FOR DOUBLE REINFORCEMENT
SEE REINFORCING SCHEDULES FOR REQD USE



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

REINFORCED CONCRETE BLOCK WALL

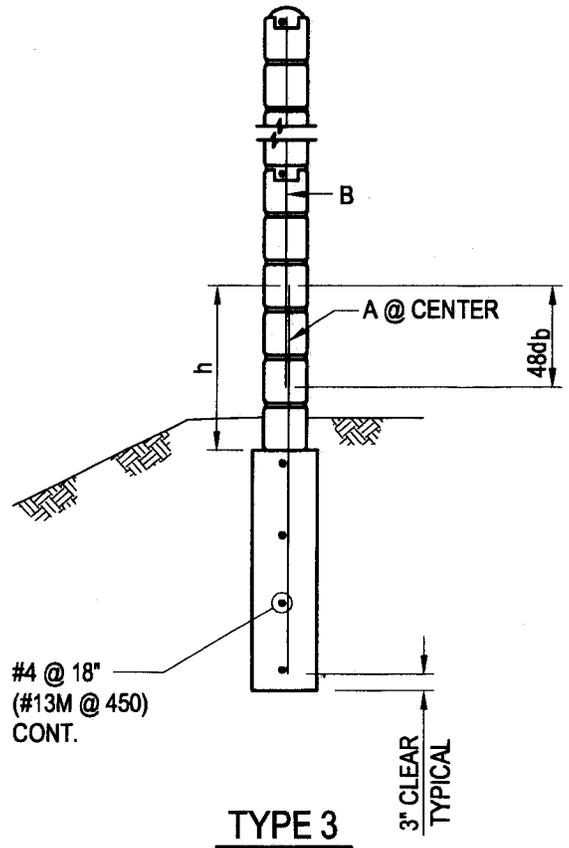
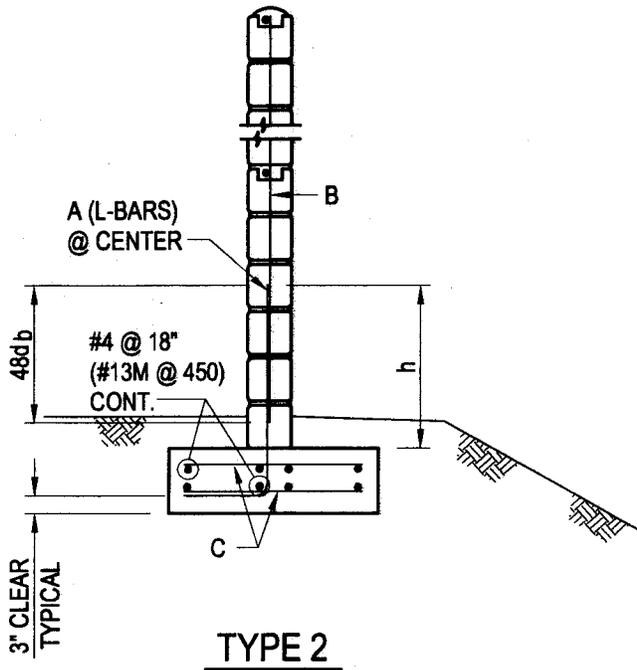
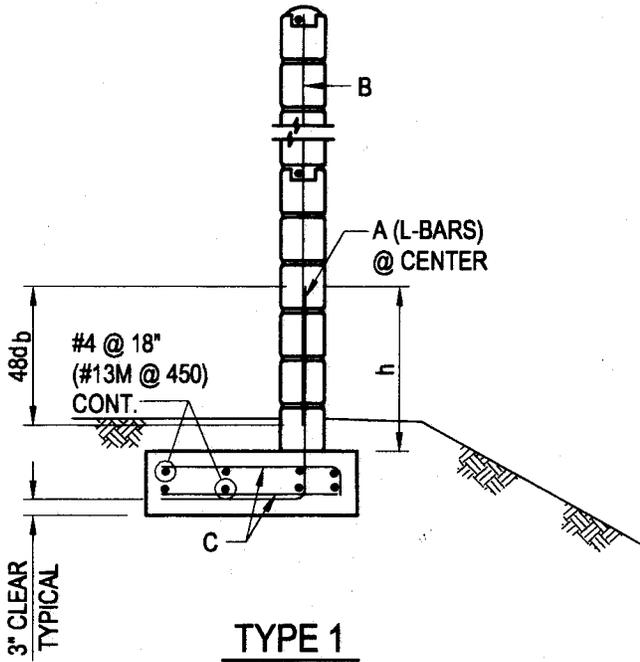
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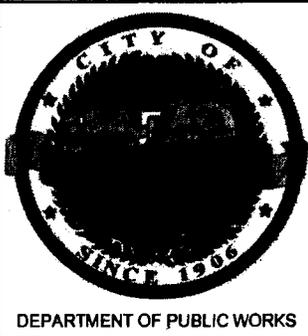
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DETAILS FOR SINGLE REINFORCEMENT

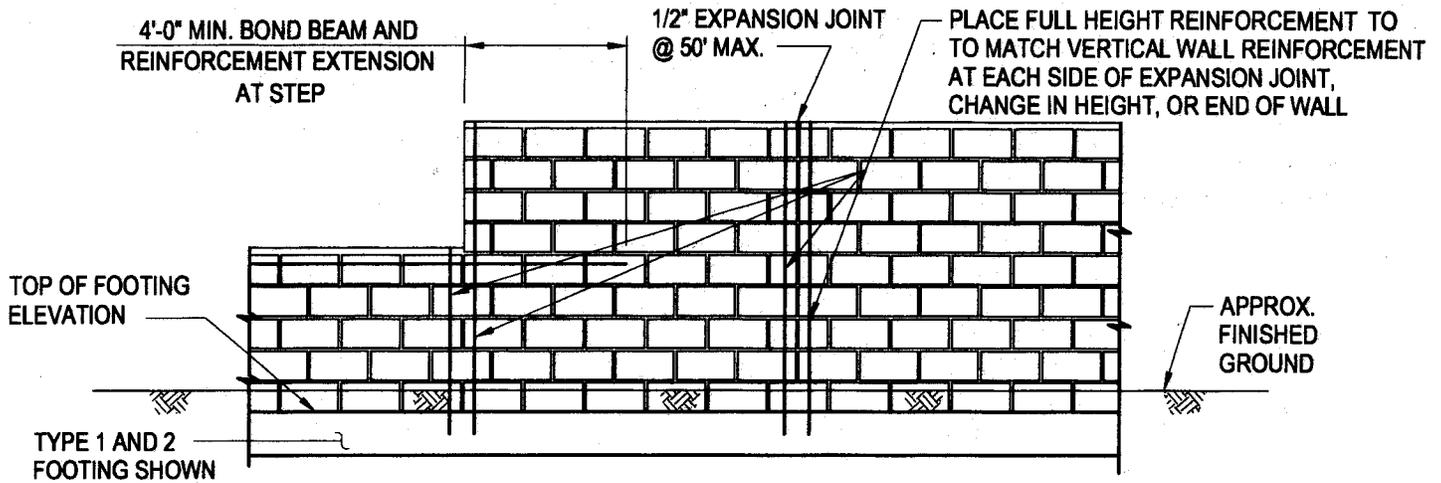
SEE REINFORCING SCHEDULES FOR ALLOWED USE
SEE SHEET 1 FOR OTHER DIMENSIONS AND DETAILS



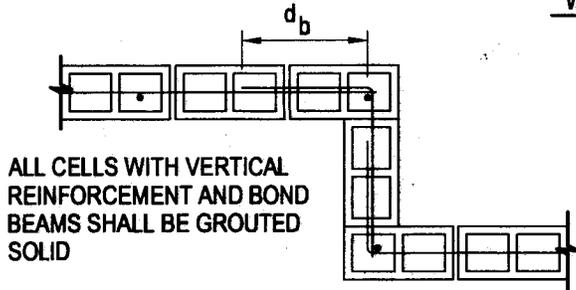
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REINFORCED CONCRETE BLOCK WALL

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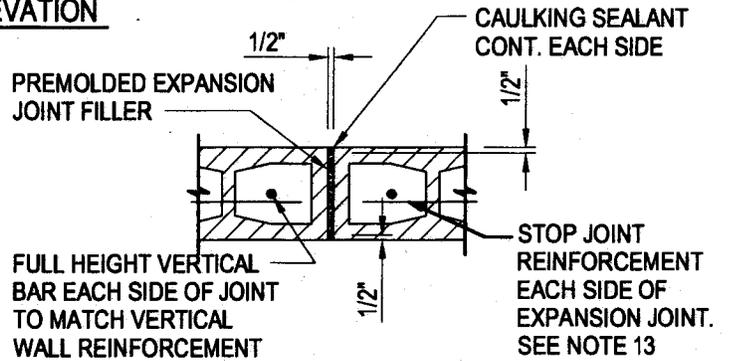
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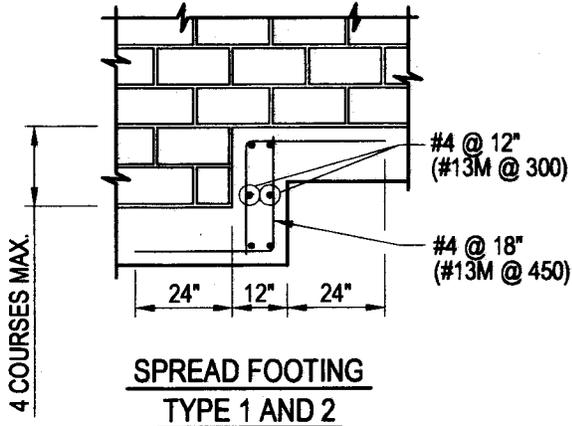
WALL ELEVATION



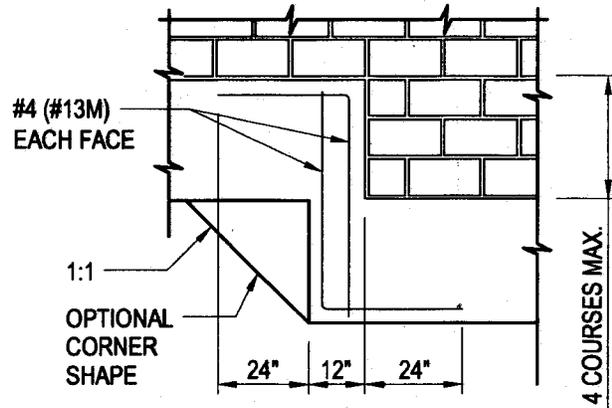
CORNER DETAIL



EXPANSION JOINT DETAIL



**SPREAD FOOTING
TYPE 1 AND 2**



**TRENCH FOOTING
TYPE 3**

NOTE:

SINGLE VERTICAL REINFORCING BARS SHALL BE CENTERED IN CELLS. DOUBLE ROWS OF VERTICAL REINFORCING BARS SHALL HAVE THE REINFORCEMENT PLACED IN EACH FACE (EF).

FOOTING STEP DETAILS



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STANDARD DRAWING:

REINFORCED CONCRETE BLOCK WALL

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LATERAL LOAD = 15 PSF (720 Pa)									
STEM		FOOTING				REINFORCING BARS			
						CUTOFF	SPACING, O.C.		
H	t	T	W1 (TYPE 1)	W2 (TYPE 2)	F (TYPE 3)	h	A	B	C
6'-0"	6"	12"	2'-3"	2'-3"	2'-9"	30"	#4 @ 48**	#4 @ 48"	#4 @ 48**
8'-0"	8"	12"	2'-9"	2'-6"	3'-3"	30"	#4 @ 32**	#4 @ 32"	#4 @ 32**
10'-0"	8"	12"	3'-9"	3'-0"	3'-9"	30"	#4 @ 32"EF	#4 @ 32"	#4 @ 32"

LATERAL LOAD = 20 PSF (960 Pa)									
STEM		FOOTING				REINFORCING BARS			
						CUTOFF	SPACING, O.C.		
H	t	T	W1 (TYPE 1)	W2 (TYPE 2)	F (TYPE 3)	h	A	B	C
6'-0"	6"	12"	2'-9"	2'-6"	3'-3"	30"	#5 @ 32**	#4 @ 32"	#4 @ 32**
8'-0"	8"	12"	3'-3"	3'-0"	3'-9"	30"	#4 @ 32"EF	#4 @ 32"	#4 @ 32"
10'-0"	8"	12"	4'-3"	3'-6"	4'-3"	42"	#5 @ 32"EF	#4 @ 32"	#5 @ 32"

LATERAL LOAD = 25 PSF (1200 Pa)									
STEM		FOOTING				REINFORCING BARS			
						CUTOFF	SPACING, O.C.		
H	t	T	W1 (TYPE 1)	W2 (TYPE 2)	F (TYPE 3)	h	A	B	C
6'-0"	6"	12"	3'-0"	2'-9"	3'-6"	30"	#5 @ 16**	#4 @ 32"	#4 @ 32"
8'-0"	8"	12"	3'-9"	3'-3"	4'-0"	30"	#4 @ 16"EF	#4 @ 32"	#4 @ 32"
10'-0"	8"	12"	4'-9"	4'-0"	4'-9"	50"	#5 @ 16"EF	#4 @ 32"	#5 @ 32"

NOTE

SINGLE VERTICAL REINFORCING BARS SHALL BE CENTERED IN CELL.

* FOR SINGLE A-BARS IN FOUNDATION, SEE SHEET 2.

DOUBLE ROWS OF VERTICAL REINFORCING WHERE INDICATED SHALL BE PLACED AT EACH FACE (EF).



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

REINFORCED CONCRETE BLOCK WALL

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DESIGN CRITERIA:

MATERIALS DESIGN DATA:

REINFORCING STEEL $f_y = 60 \text{ KSI (400 MPa)}$

CONCRETE 28TH-DAY STRENGTH:

FOOTING $f'_c = 2,500 \text{ PSI (17 MPa)}$

CONCRETE MASONRY:

PARTIALLY GROUTED $f'_m = 1,500 \text{ PSI (10 MPa)}$

DESIGN CODE: GOVERNING BUILDING CODE

DESIGN METHOD:

CONCRETE ULTIMATE STRENGTH METHOD

CONCRETE MASONRY WORKING STRESS METHOD

FOUNDATION:

ALLOWABLE SOIL BEARING PRESSURE 1,000 PSF (48 kPa)

ALLOWABLE LATERAL SOIL BEARING PRESSURE 100 PSF / FT OF DEPTH
(157 kPa / m OF DEPTH)

LATERAL SLIDING RESISTANCE AT CONTACT AREA 130 PSF (6.2 kPa)
BUT NOT TO EXCEED 0.40 X DL

SOIL DENSITY 110 PCF (1760 kg/m³)

FACTORS OF SAFETY FOR SPREAD FOOTING (BASED ON SERVICE LOAD CONDITIONS):

OVERTURNING 1.75 MINIMUM

SLIDING 1.5 MINIMUM

ONE THIRD INCREASE IS ALLOWED FOR SHORT TERM LOADS.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

REINFORCED CONCRETE BLOCK WALL

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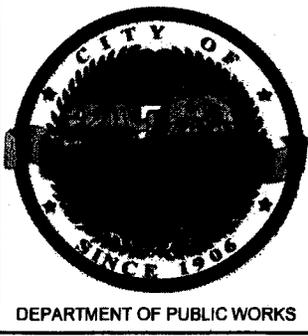
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GENERAL NOTES:

1. CONSULT WITH LOCAL GOVERNING AGENCY FOR DETERMINATION OF LATERAL LOAD AND WALL TYPE LISTED IN TABLES, FOR PROJECT-SPECIFIC USE.
2. DISTANCE OF THE FOOTING FROM DESCENDING SLOPE SHALL BE PER LATEST GOVERNING BUILDING CODE OR PER AGENCY REQUIREMENTS.
3. SPECIAL INSPECTION IS NOT REQUIRED FOR WALLS.
4. GROUND LINE TO BE AT THE SAME ELEVATION ON BOTH SIDES OF THE WALL. WALL SHALL NOT BE USED TO RETAIN EARTH.
5. USE TABULAR INFORMATION FOR THE NEXT HIGHER H FOR INTERMEDIATE WALL HEIGHTS THAT ARE BETWEEN THE H'S GIVEN.
6. CONCRETE SHALL BE 500-C-2500 (295-C-17) PER SSPWC 201-1.1.2.
7. REINFORCING SHALL BE LAPPED A MINIMUM 48 BAR DIA. GRADE 60 UNLESS NOTED OTHERWISE PER SSPWC SECTION 201-2, 303-4.1.3, JOINT REINFORCING WIRE: ASTM A82.
8. ALL REINFORCED CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH SSPWC 303.
9. FOR TYPE OF BLOCKS, BOND PATTERN AND JOINT FINISH, SEE PROJECT PLANS.
10. ALL MASONRY CONSTRUCTION TO BE IN ACCORDANCE WITH SSPWC 303-4.
11. HOLLOW MASONRY UNITS...ASTM C-90. TYPE I. NORMAL WEIGHT UNITS.
MORTAR ... 1:1/2:3, PORTLAND CEMENT - LIME - SAND RATIO, 1800 PSI (13 MPa) PER SSPWC 202-2.2.1.
GROUT 1:3:2 PORTLAND CEMENT - SAND - PEA GRAVEL RATIO, 2,000 PSI (14 MPa) PER SSPWC 202-2.2.2.
12. PROVIDE FULL MORTAR BED AT THE BOTTOM OF THE FIRST COURSE AND OMIT MORTAR BETWEEN VERTICAL JOINTS OF LOWEST EXPOSED COURSE.
13. WHEN BLOCKS ARE LAID IN STACKED BOND, CONTINUOUS HORIZONTAL JOINT REINFORCEMENT SPACED AT 4'-0" OC SHALL BE PROVIDED IN ADDITION TO THE BOND BEAM REINFORCEMENT PER SSPWC 303-4.1.2, LOCATE REINFORCEMENT IN JOINTS THAT ARE APPROXIMATE MIDPOINT BETWEEN BOND BEAMS.
14. BOND BEAMS SHALL BE PLACED AT TOP OF WALL AND SUBSEQUENTLY SPACED NOT TO EXCEED 4'-0" O.C. BELOW.
15. ONLY CELLS WITH REINFORCING BARS SHALL BE GROUTED PER SSPWC 303-4.1.3.
16. HORIZONTAL JOINTS SHALL BE TOOLED CONCAVE OR WEATHERED. VERTICAL JOINTS SHALL BE TOOLED CONCAVE OR RAKED. WEATHERED AND RAKED JOINTS ARE NOT PERMITTED FOR SLUMPED BLOCKS.

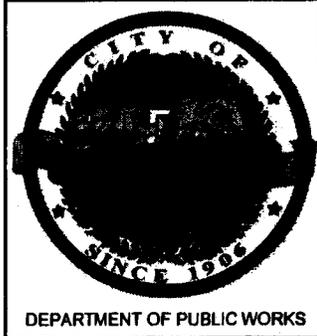
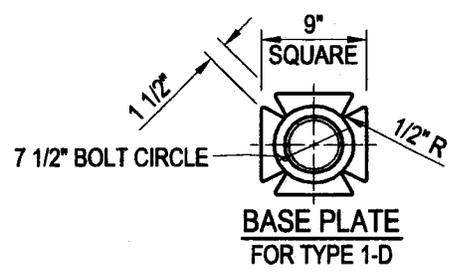
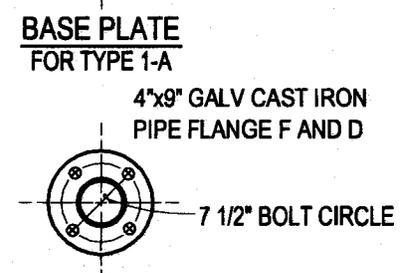
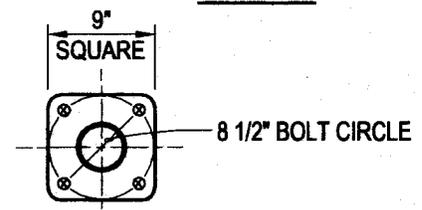
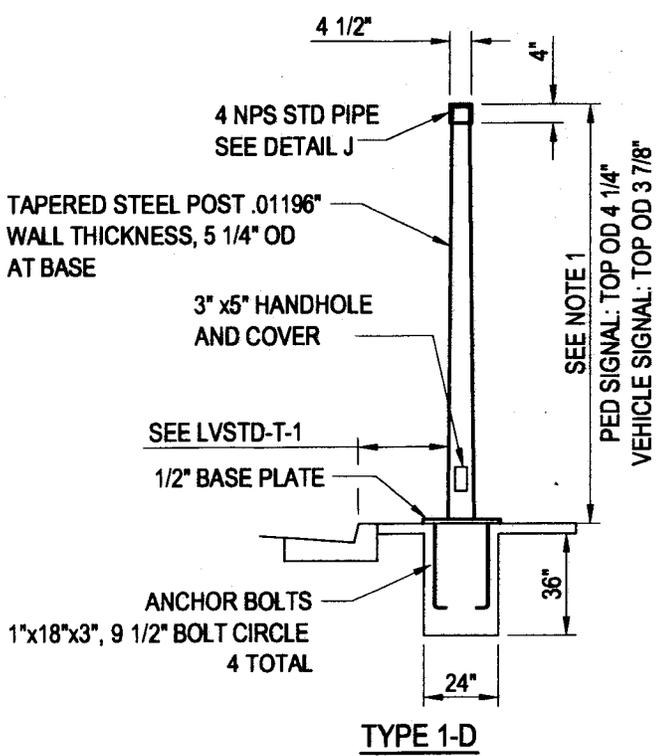
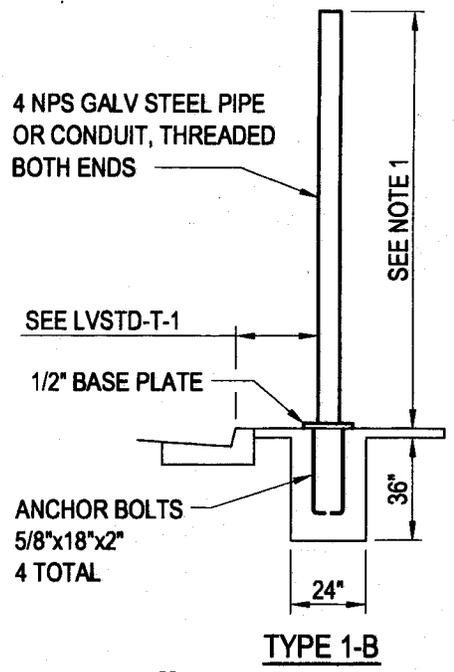
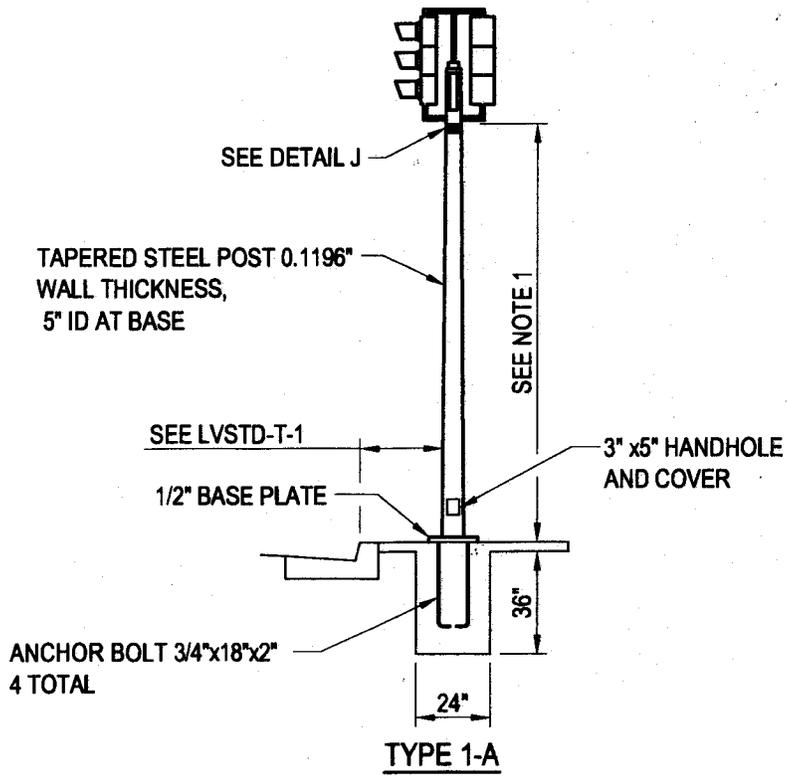


STANDARD DRAWING:

REINFORCED CONCRETE BLOCK WALL

APPROVED: *[Signature]* 12/14/14
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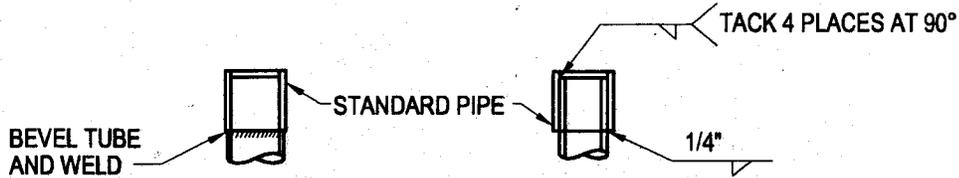
	BY	DATE
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STANDARD DRAWING:
SIGNAL STANDARDS

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AS SHOWN	ST-42	
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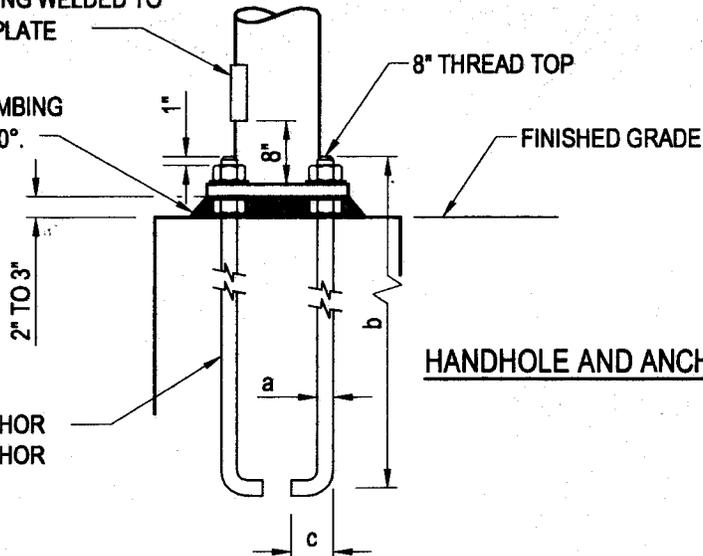


DETAIL J

TUBE MAY BE INSERTED INTO PIPE OR BUTTED AS APPROVED

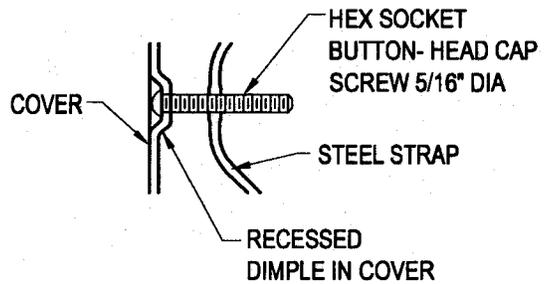
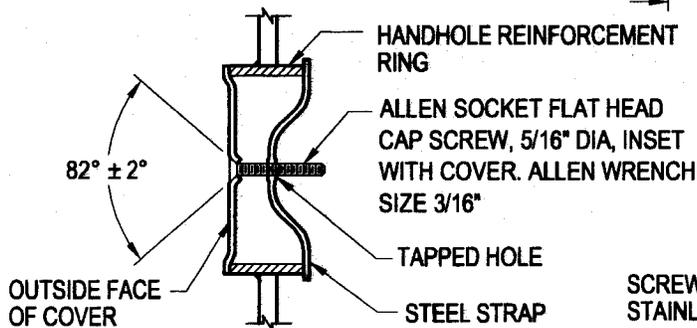
HANDHOLE REINFORCED WITH RING WELDED TO OUTSIDE OF POLE & 1/8" COVER PLATE

PLACE MORTAR AFTER PLUMBING STANDARD. SLOPE 45° TO 90°.



HANDHOLE AND ANCHORAGE

ASTM A307 GALVANIZED ANCHOR BOLTS, 4 TOTAL SIZE OF ANCHOR BOLTS SHOWN AS "a x b x c"

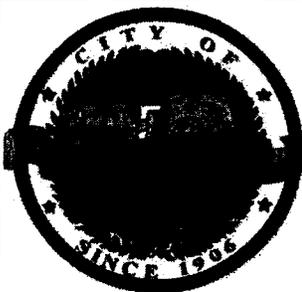


ALTERNATE DETAIL

NOTES:

TAMPER RESISTANT HANDHOLE COVER

1. TYPE 1 STANDARDS SHALL BE 10' LONG FOR VEHICLE SIGNALS AND 7' LONG FOR PEDESTRIAN SIGNALS. LENGTHS ARE $\pm 2'$.
2. TOP OF TYPE 1 STANDARDS SHALL BE 4 1/2" OD.
3. CONDUITS SHALL EXTEND 2" MAXIMUM ABOVE FINISHED SURFACE OF FOUNDATION AND FOR TYPES 1-A AND 1-D SHALL BE SLOPED TOWARD MANHOLE.
4. ANCHOR BOLTS SHALL BE BONDED TO CONDUIT OR GROUNDING CONDUCTOR.
5. CONDUIT BETWEEN STANDARD AND ADJACENT PULL BOX SHALL BE 2" MINIMUM.



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STANDARD DRAWING:

SIGNAL STANDARDS

APPROVED:

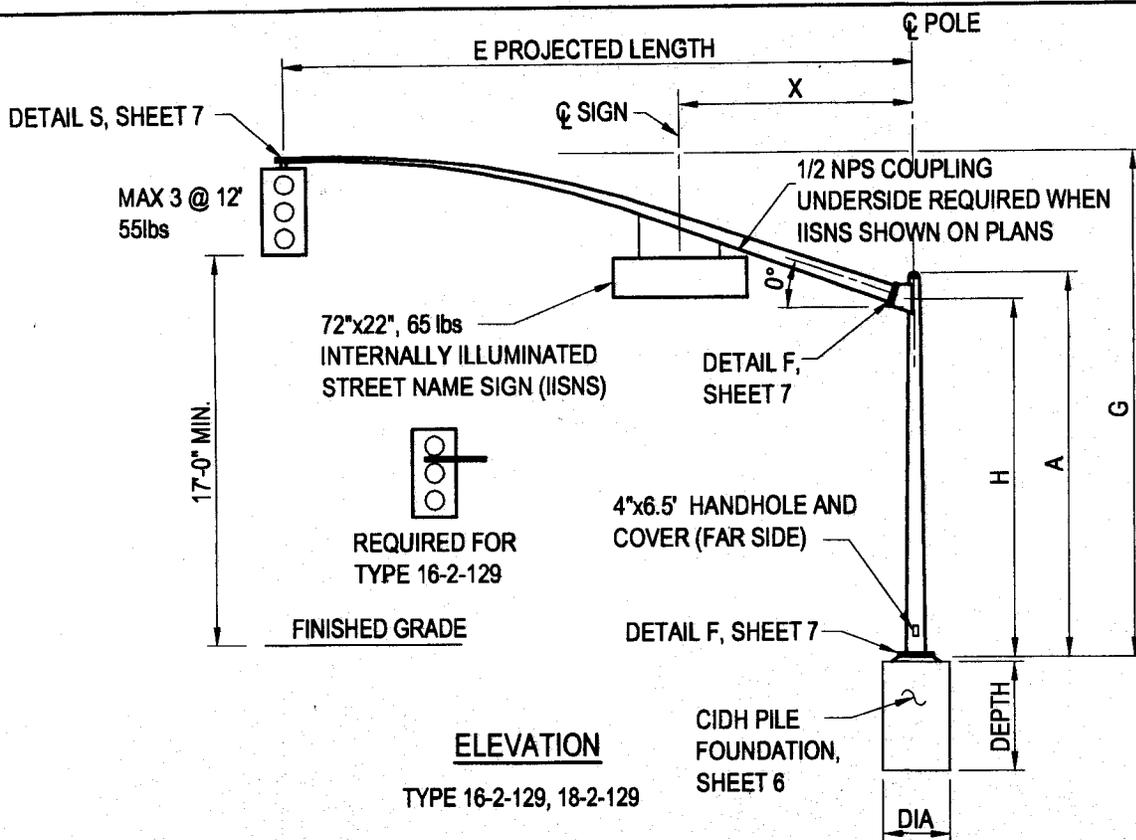
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CITY UTILITY ENGINEER

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9/2014	SHT. 2 OF 8	



ELEVATION
TYPE 16-2-129, 18-2-129

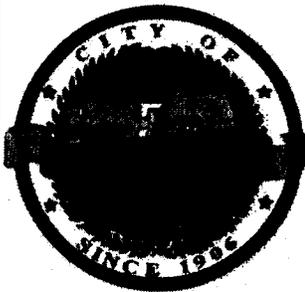
POLE DATA							
POLE TYPE	A HEIGHT	MIN OD		THICK,	B LENGTH	ALTERNATIVE SECTION	
		BASE	TOP			BOTTOM	TOP
16-2-129	17'		8.438"	0.180"	NONE		
17-2-129	30'		6.625"		9'	8"	6.625"
19-2-129	30'	10.75"	6.625"			9.375"	

SEE SHEET 4 FOR OTHER DIMENSIONS

BASE PLATE						
POLE TYPE	C	D1 BOLT CIRCLE	THICK	ANCHOR BOLTS	LUMINAIRE ARM	SIGNAL ARM
16-2-129	18.0"	17.50"	1.25"	1.5"x42"x6"	NONE	20'
17-2-129			1.50"	2"x42"x6"	6'-15' 12**	20'
19-2-129						25' OR 30'

**DEFAULT VALUE

SIGNAL ARM DATA			LUMINAIRE ARM DATA				
E PROJECTED LENGTH	G MOUNTING HEIGHT	MIN OD AT POLE,	M PROJECTED LENGTH	N RISE,	MIN OD AT POLE	P MOUNTING HEIGHT*	
						30' POLE	35' POLE
15'	22'-4"	6.625"	6'-0"	24"	3 1/4"	31'-6"	36'-6"
20'	21'-8"	6.625"	8'-0"	30"	3 1/2"	32'-0"	37'-0"
25'	22'-8"	7.313"	10'-0"	39"	3 7/8"	32'-9"	37'-9"
30'	23'-0"	8.000"	12'-0"	51"	3 7/8"	33'-9"	38'-9"
			15'-0"	57"	4 1/4"	34'-3"	39'-3"



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STANDARD DRAWING:

SIGNAL STANDARDS

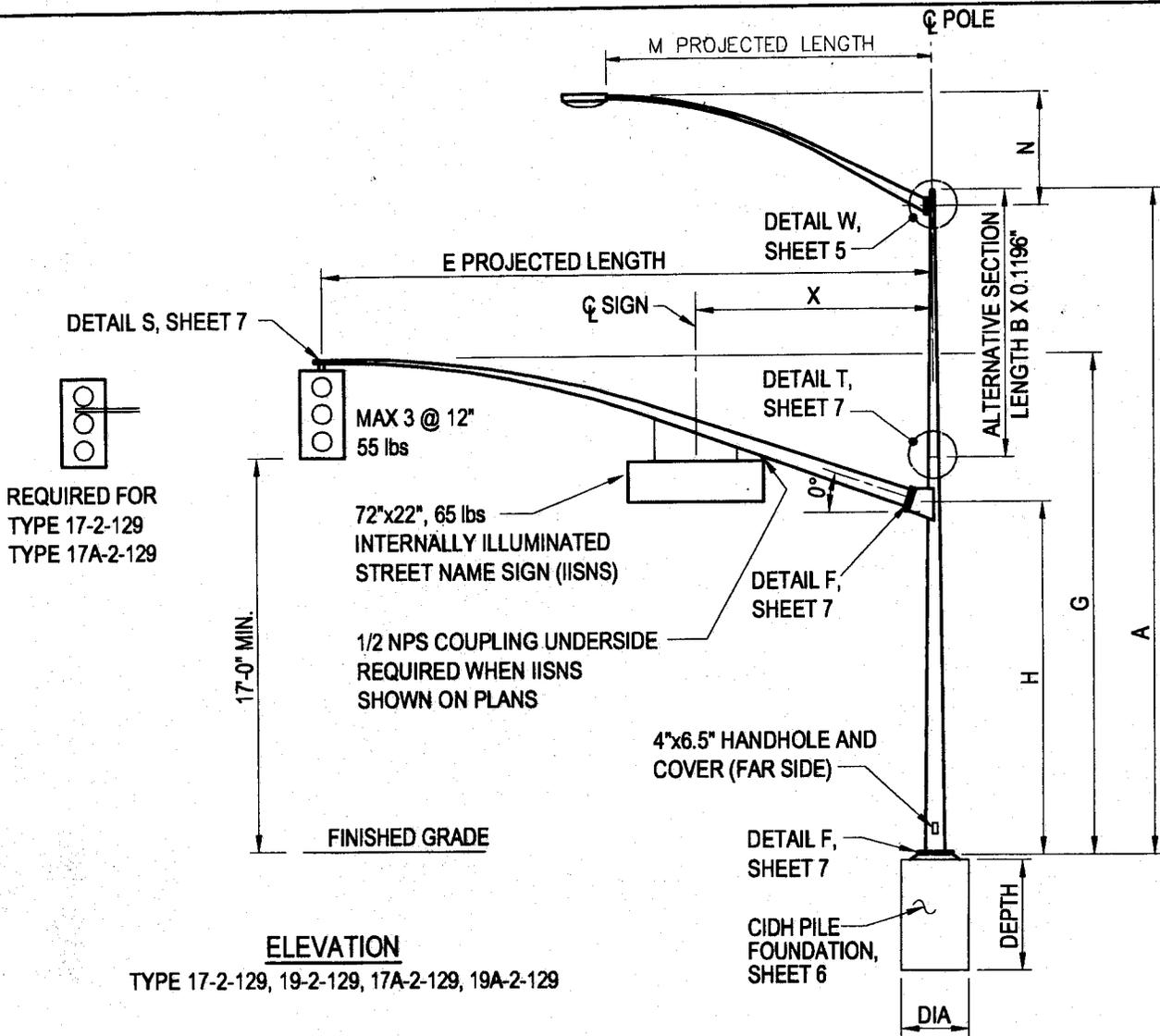
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9/2014		

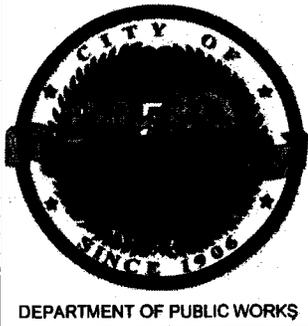


ELEVATION

TYPE 17-2-129, 19-2-129, 17A-2-129, 19A-2-129

SEE SHEET 3 FOR OTHER DIMENSIONS

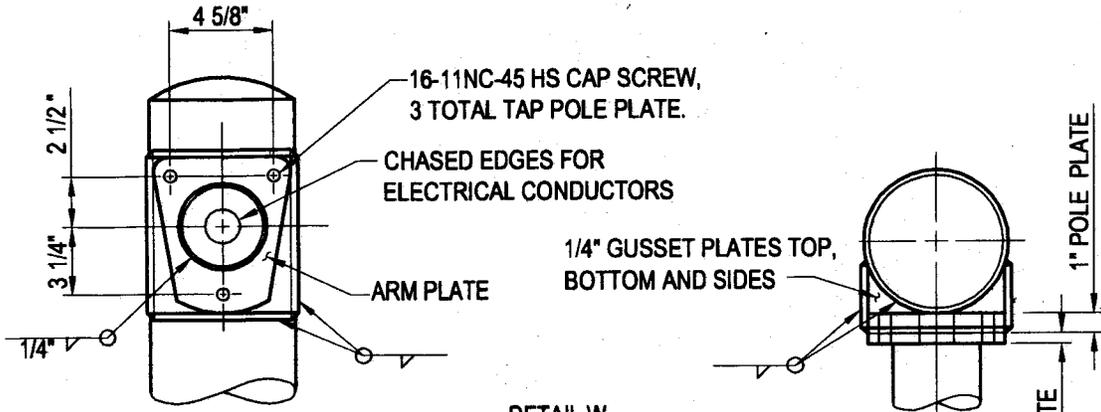
SIGNAL ARM:		DESIGN:	
H	16"	CALTRANS LOAD CASE	2
THICK	0.180"	WIND VELOCITY	180 mph
I BOLT CIRCLE	12"	CIDH PILE FOUNDATION:	
HS CAP SCREWS	32-7NC-76	DIAMETER	30"
J PLATE SIZE	12"	DEPTH	7'-3"
K ARM PLATE THICK	1.25"	REINFORCED	YES
L POLE PLATE THICK	1.50"		
Ø	23°		
X MAX	10'-6"		
LUMINAIRE ARM:			
THICKNESS	0.1196"		



STANDARD DRAWING:
SIGNAL STANDARDS

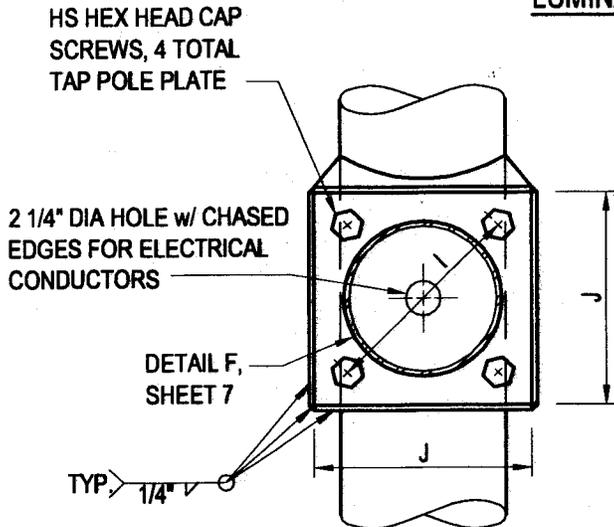
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	SHT. 4 OF 8	

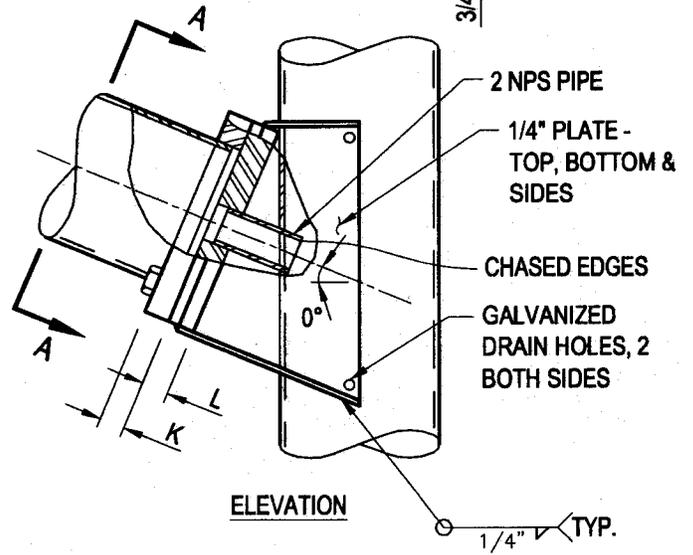


DETAIL W

LUMINAIRE ARM CONNECTION

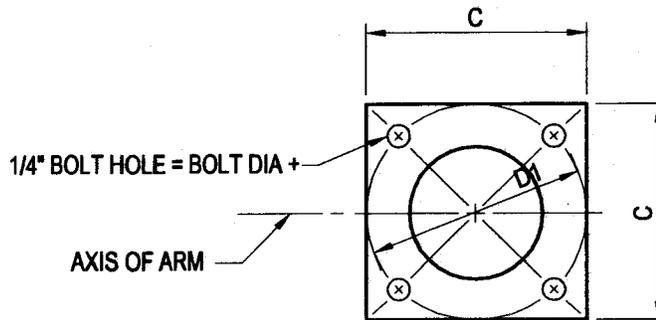


SECTION A-A



ELEVATION

SIGNAL ARM CONNECTION DETAILS



BASE PLATE



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SIGNAL STANDARDS

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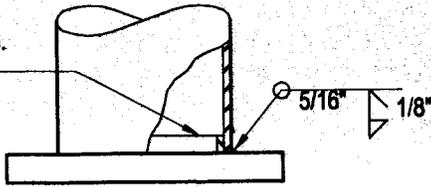
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	SHT. 5 OF 8	

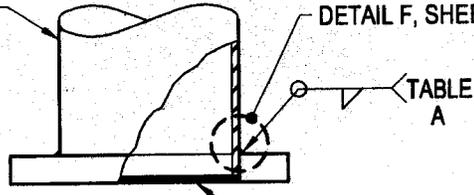
1"x1/4"
BACKING RING.
TACK WELD



USE THIS DETAIL FOR 2-PLY POLES

ELEVATION B

POLE OR ARM



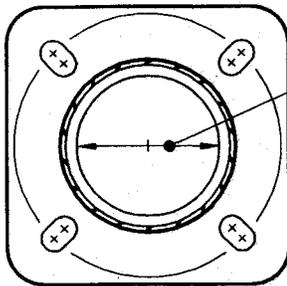
DETAIL F, SHEET 7

TABLE A

TABLE B

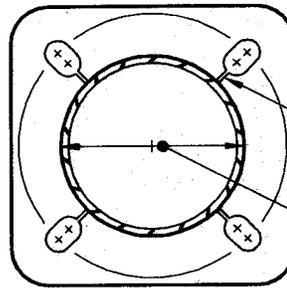
WALL THICKNESS	WELD SIZE
0.1196"	1/4"
0.1793"	5/16"
0.2391"	3/8"
0.3125"	7/16"

WALL THICKNESS	WELD SIZE
0.1196"	1/8"
0.1793"	3/16"
0.2391"	1/4"
0.3125"	5/16"



HOLE DIA =
POLE ID - 2"

**PLAN
DETAIL B**

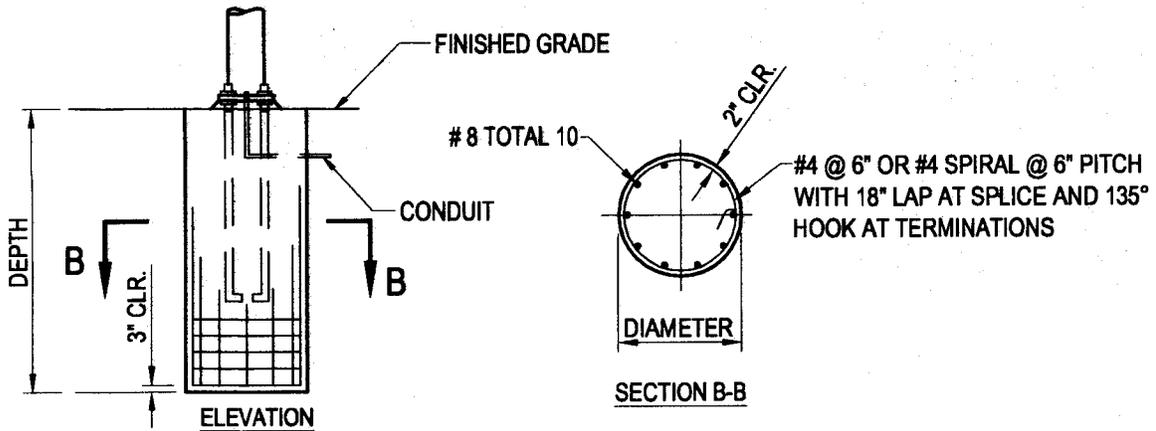


SLITS NOT PERMITTED
WITH DETAIL F

POLE OD + 1/16"

**PLAN
DETAIL A**

ALTERNATIVE BASE PLATE DETAILS



**CAST-IN-DRILLED HOLE PILE FOUNDATION
REINFORCED PILE**



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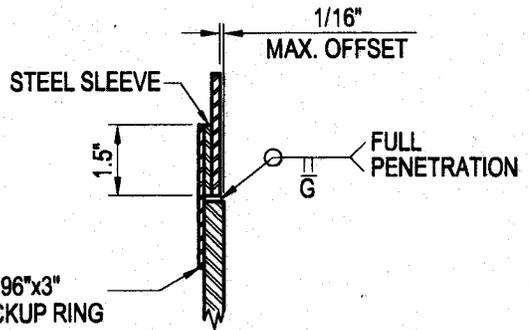
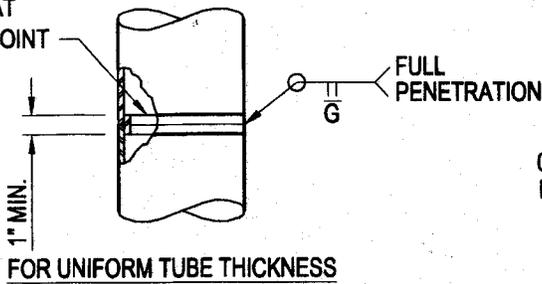
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	SHT. 6 OF 8	

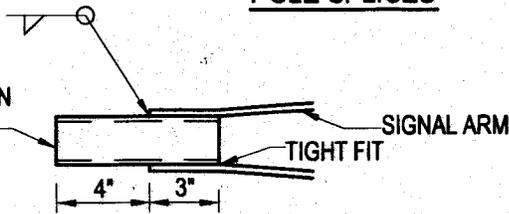
STEEL SLEEVE AT EACH WELDED JOINT



DETAIL T
AT TUBE THICKNESS CHANGE

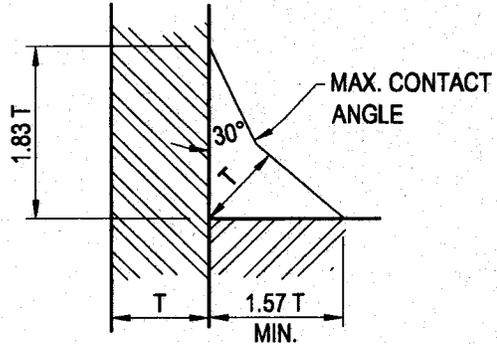
POLE SPLICES

2 NPS PIPE, CHASED FOR WIRE PROTECTION
SEE NOTE 2, SHEET 8



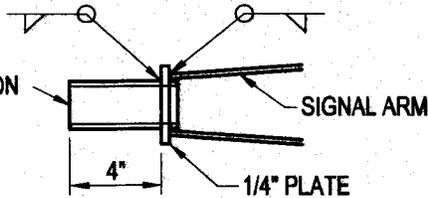
DETAIL TS-TIP TENON

FOR WELD SIZE CALCULATIONS,
T MUST BE 1/4" OR MORE



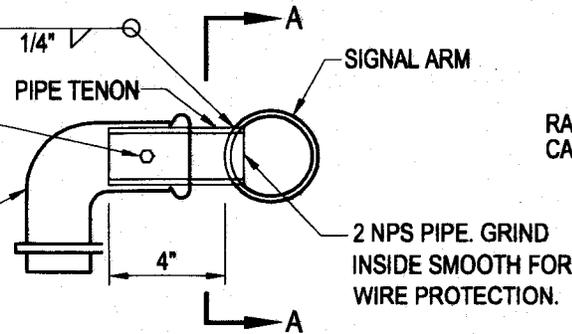
DETAIL F
FATIGUE RESISTANT WELD

2 NPS PIPE, CHASED FOR WIRE PROTECTION



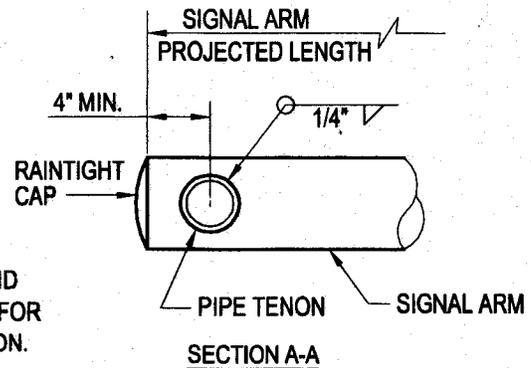
DETAIL TL-TIP TENON
THIS DETAIL SUPERSEDES
DETAIL S WHEN SO DESIGNATED

SLIP FITTER FOR MAT MOUNTING IS SHOWN.
USE MAT OR MAS AS SHOWN ON PLANS.
SEE SPPWC 432.



DETAIL S-SIDE TENON

PIPE TENONS



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SIGNAL STANDARDS

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	SHT. 7 OF 8	

IDENTIFICATION NUMBER

ATTACH A STAMPED METAL TAG WITH EACH POLE'S IDENTIFICATION NUMBER TO SHAFT ABOVE HANDHOLE. NUMBER SHALL BE MINIMUM 1/4" (7 mm) HIGH. ATTACH SIMILAR TAG TO THE TOP OF THE SIGNAL MAST ARM NEAR THE POLE PLATE.

SAMPLE IDENTIFICATION NUMBER:

TYPE LOAD CASE DESIGN WIND VELOCITY
 19A - 3 - 129 - 9.1 - 99 - F
 SIGNAL ARM LENGTH
 MAXIMUM CALTRANS STD PLAN YEAR
 ONLY FOR POLES WITH
 FATIGUE RESISTANT
 WELDS
 USE SL FOR SPECIAL LOAD CASE

SPECIFICATIONS

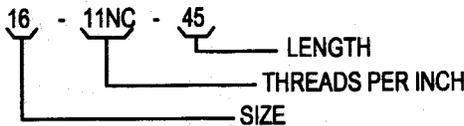
DESIGN: AASHTO SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, DATED 1994.

WIND LOADING: 129 km/h AASHTO

UNIT STRESSES, STRUCTURAL STEEL:
 fy = 48 ksi, TAPERED SHEET STEEL
 fy = 36 ksi, UNLESS OTHERWISE NOTED

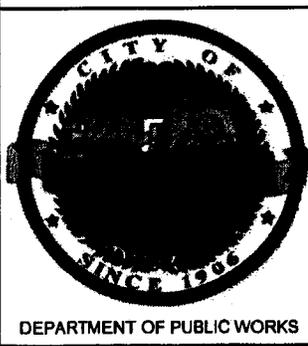
CONSTRUCTION: STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS

HIGH STRENGTH CAP SCREWS:



NOTES

1. PROVIDE FOUR ASTM A-307 ANCHOR BOLTS FOR EACH POLE. PROVIDE A HEX NUT, LEVELLING NUT AND TWO WASHERS FOR EACH BOLT.
2. LUMINAIRE ARMS SHALL BE ROUND, TAPERED STEEL TUBES, TAPER OF 0.137" TO 0.140" PER FT. WITH AN END SECTION 2 3/8" OD FOR MOUNTING HARDWARE. EXTENSIONS OF 2 NPS PIPE 7" LONG MAY BE USED AT THE OPTION OF THE MANUFACTURER. WHEN LOW PRESSURE SODIUM LUMINAIRES ARE REQUIRED, THE EXTENSION SHALL BE 15".
3. SIGNAL ARMS SHALL BE ROUND, TAPERED STEEL TUBES, MAXIMUM TAPER 0.140" PER FT.
4. HANDHOLE REINFORCEMENT RING SHALL BE 1/4"x2" FOR 0.1196" TO 0.2391" THICK POLES ; 3/8"x2" FOR 0.3125" THICK POLES.
5. USE DETAIL F, SHEET 7, FATIGUE RESISTANT WELD, AT SIGNAL ARM PLATE AND POLE BASE PLATE.
6. IN LIEU OF THE TORQUE REQUIREMENTS FOR HS BOLTS, CAP SCREWS SHALL BE TIGHTENED BY THE TURN-OF-NUT METHOD 1/3 TURN FROM A SNUG, TIGHT CONDITION. NO WASHER IS REQUIRED.
7. DURING POLE ERECTION, RAKE THE POST AS NECESSARY WITH THE USE OF LEVELLING NUTS TO PRODUCE A PLUMB POLE AXIS.

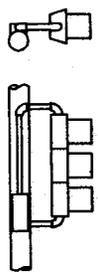


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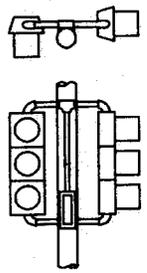
SIGNAL STANDARDS

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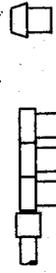
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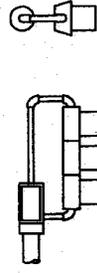
SV-1-T



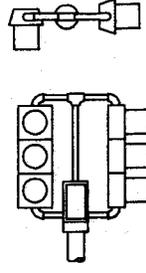
SV-2-TA



TV-1



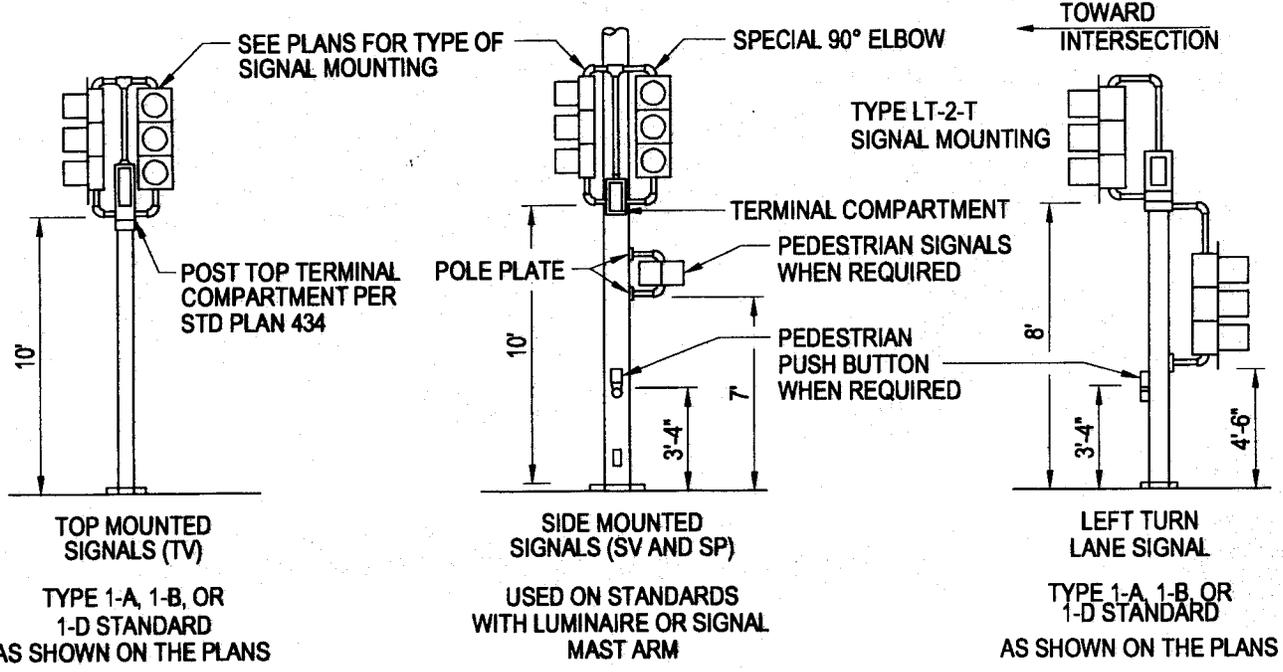
TV-1-T



TV-2-T

SIDE SIGNAL MOUNTINGS

TOP SIGNAL MOUNTINGS



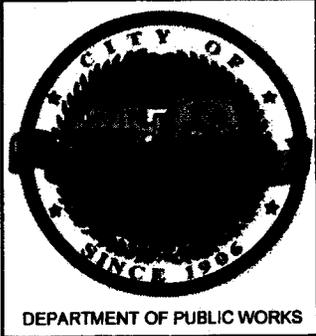
TYPICAL SIGNAL INSTALLATIONS

ABBREVIATIONS

- TV TOP MOUNTED VEHICLE SIGNALS
- SV SIDE MOUNTED VEHICLE SIGNALS
- T TERMINAL COMPARTMENT
- 1,2 NUMBER OF SIGNAL FACES

NOTES

1. MOUNTINGS SHALL BE ORIENTED TO PROVIDE MAXIMUM HORIZONTAL CLEARANCE TO ADJACENT ROADWAY.
2. BRACKET ARMS SHALL BE LONG ENOUGH TO PERMIT PROPER ALIGNMENT OF SIGNALS AND BACKPLATE INSTALLATION.
3. SEE SPPWC 455 FOR ATTACHMENT FITTING DETAILS.
4. ALL ARROW INDICATIONS SHALL BE 12" (300 mm).
5. ALL PROGRAMMED VISIBILITY SIGNAL HEADS SHALL BE PROVIDED WITH BACKPLATES.



STANDARD DRAWING:

SIGNAL HEADS AND FIXTURES

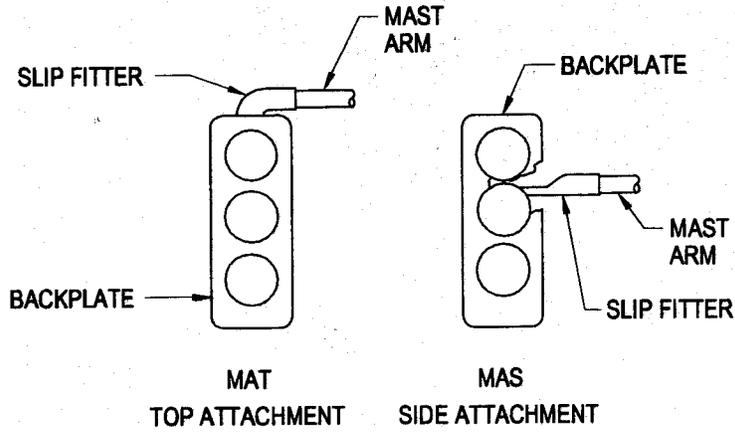
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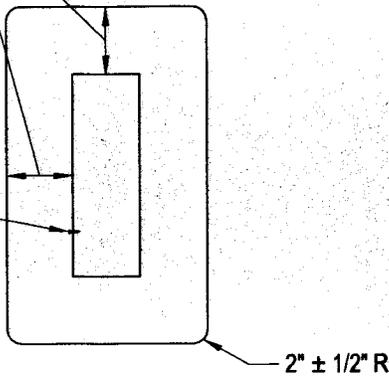
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MAST SIGNAL MOUNTINGS

8" ± 1/2" FOR 8" SECTIONS
 5 1/2" ± 1/2" FOR 12" SECTIONS

DRILL SIGNAL FACE AND ATTACH BACKPLATE
 WITH SIX 10-24 OR 10-32 SELF-TAPPING
 STAINLESS STEEL MACHINE SCREWS AND
 FLAT WASHERS



8" AND 12" SECTIONS

BACKPLATE

1/16" MIN THICKNESS
 3001-14 ALUMINUM, OR PLASTIC
 WHEN SPECIFIED



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SIGNAL HEADS AND FIXTURES

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 CITY OF LAVERNE

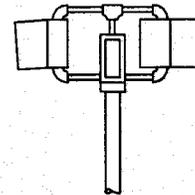
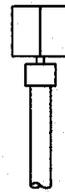
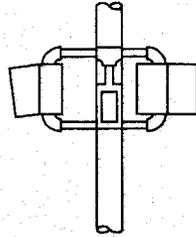
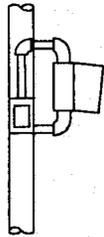
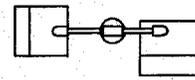
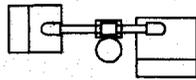
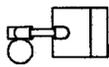
CITY UTILITY ENGINEER

12/14/14
 DATE

43296
 RCE No.

9/5/14
 DATE

	BY	DATE
DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
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SCALE:	DWG. No.	
AS SHOWN	ST-43	
DATE OF REVISION:		
9/2014	SHT. 2 OF 3	



SP-1-T

SP-2-T

TP-1

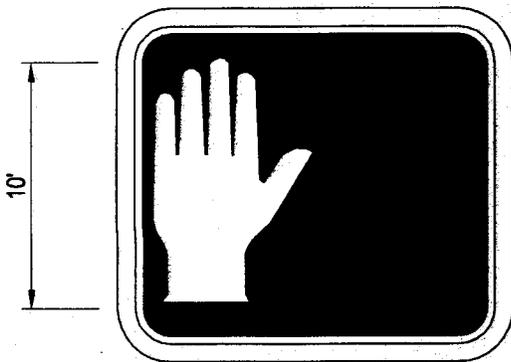
TP-2-T

SIDE MOUNTINGS

TOP MOUNTINGS

PEDESTRIAN SIGNALS AND MOUNTINGS

NOTE: "CLAM SHELL" MOUNTINGS ARE ALSO ACCEPTABLE.



PEDESTRIAN SIGNAL FACE
SYMBOL TYPE



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

SIGNAL HEADS AND FIXTURES

APPROVED:

[Signature]
CITY OF LA VERNE

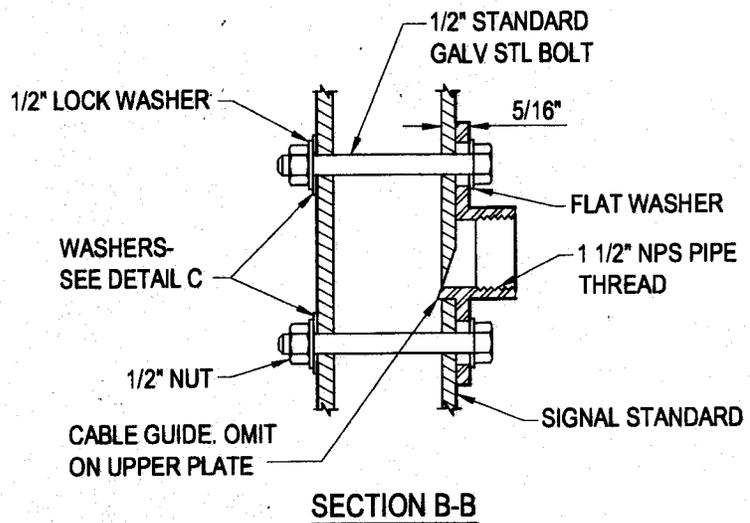
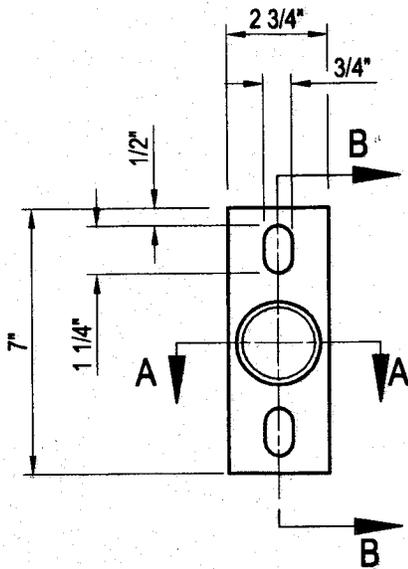
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CITY UTILITY ENGINEER

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RCE No.

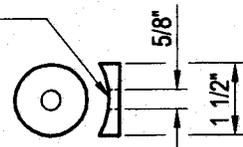
9/5/14
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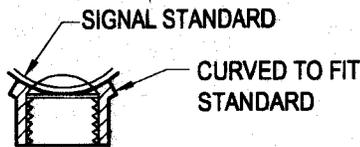


**POLE PLATE
FOR SIDE MOUNTINGS**

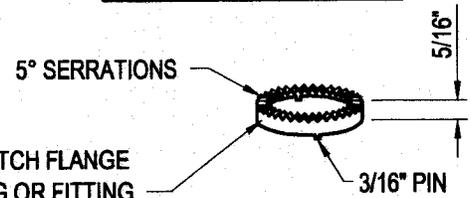
**BRONZE WASHER CURVED
TO FIT STANDARD**



WASHER DETAIL C



SECTION A-A

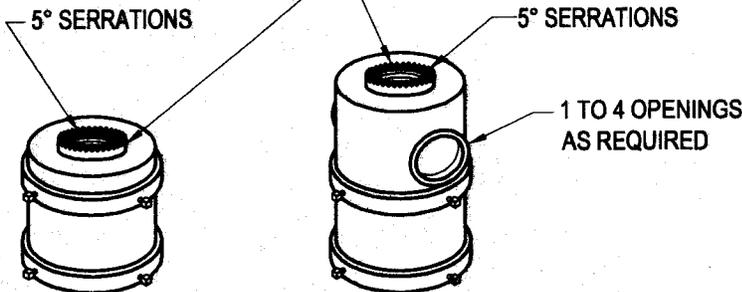


**BRASS RING TO MATCH FLANGE
ON SIGNAL HOUSING OR FITTING**

LOCK RING

USE WHERE LOCKING RING IS NOT INTEGRAL
WITH SIGNAL HOUSING OR FITTING.

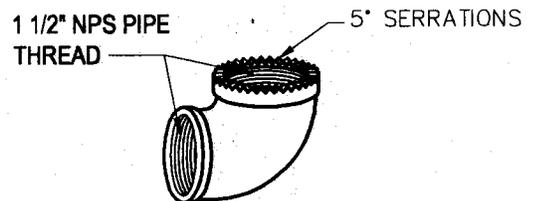
HOLE SHALL BE OFFSET WHEN
BACKPLATE IS REQUIRED



ONE-WAY MOUNTING

MULTIPLE MOUNTINGS

TOP MOUNTINGS



SPECIAL 90° ELBOW

ONE FOR EACH FACE, EXCEPT THOSE WITH
SPECIAL SLIP FITTER MOUNTING



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

SIGNAL FITTINGS

APPROVED:

[Signature]
CITY OF LA VERNE

CITY UTILITY ENGINEER

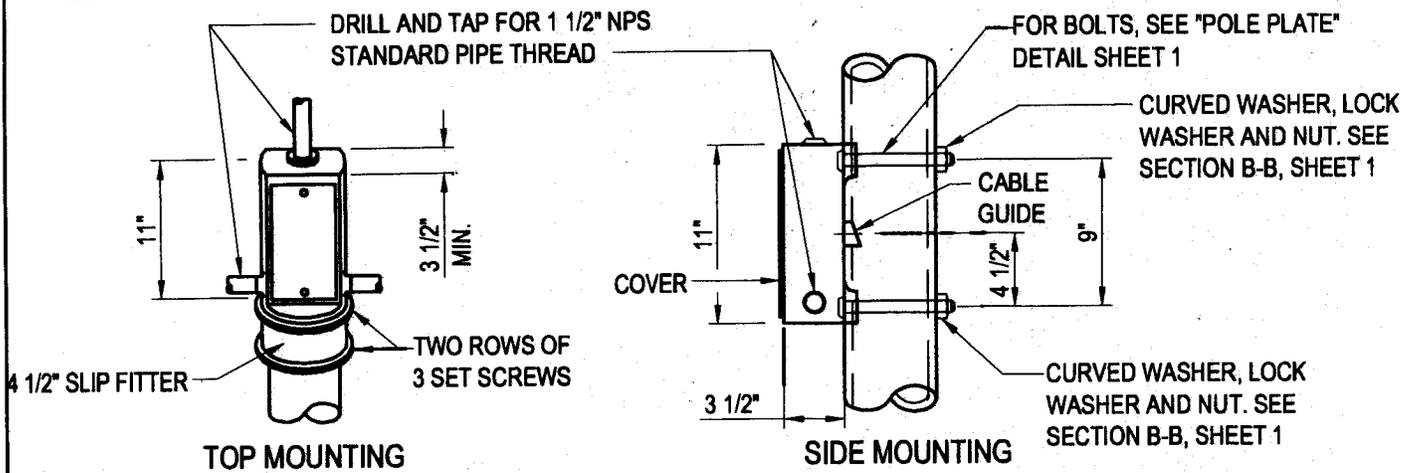
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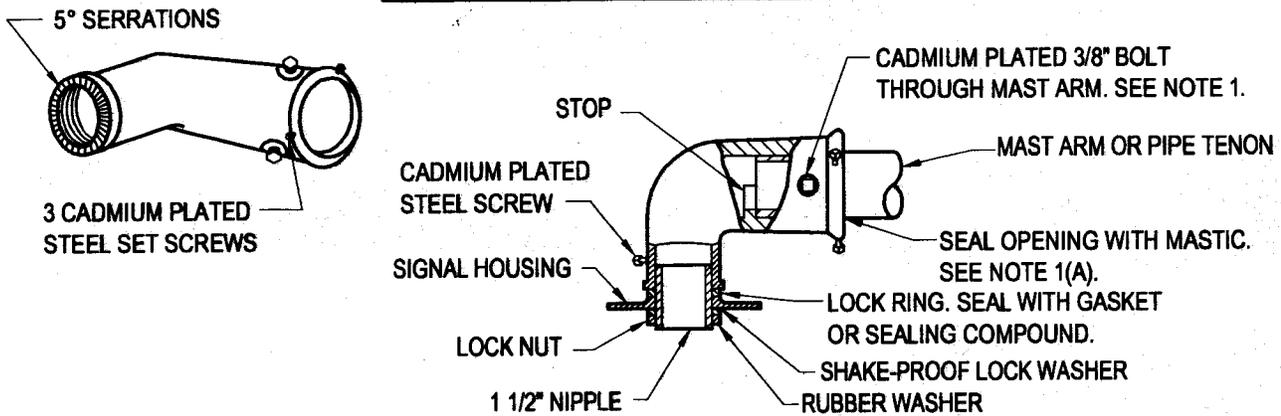
43296

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SCALE:	DWG. No.	
AS SHOWN	ST-44	
DATE OF REVISION:		
9/2014	SHT. 1 OF 2	



TERMINAL COMPARTMENTS

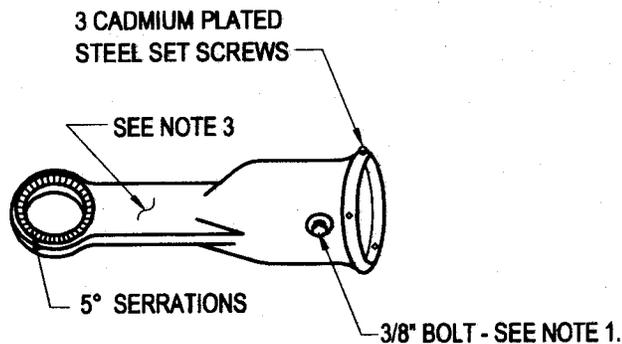


MAST ARM MOUNTING - TYPE "MAT"

FOR 2" NPS PIPE, SEE NOTE 1.

NOTES

- AFTER MAST ARM SIGNAL HAS BEEN PLUMBED AND SECURED, DRILL 7/16" (11 mm) HOLE THROUGH MAST ARM TENON IN LINE WITH SLIP FITTER HOLE. PLACE A 3/8" GALVANIZED BOLT WITH WASHER UNDER BOLT HEAD THROUGH HOLE AND SECURE WITH WASHER, NUT, AND LOCKNUT. SEAL OPENINGS BETWEEN MAS, MAT OR MAS-5 (A) MOUNTINGS AND MAST ARM.
- (A) THREADED TOP-MOUNTED SLIP FITTER OPENINGS SHALL BE 1 1/2" NPS.
(B) SERRATIONS IN FITTINGS SHALL MATCH THOSE ON BOTTOM OF SIGNAL HEADS OR IN LOCK RING.
(C) TOP OPENING SHALL BE OFFSET WHEN BACKPLATE IS USED.
- WIREWAY SHALL HAVE A CROSS SECTION AREA OF 0.95 SQ. IN. MIN, AND MIN WIDTH OF 1/2".



MAST ARM MOUNTING

TYPE "MAS"

FOR 2" NPS PIPE,
SEE NOTE 1.



DEPARTMENT OF PUBLIC WORKS

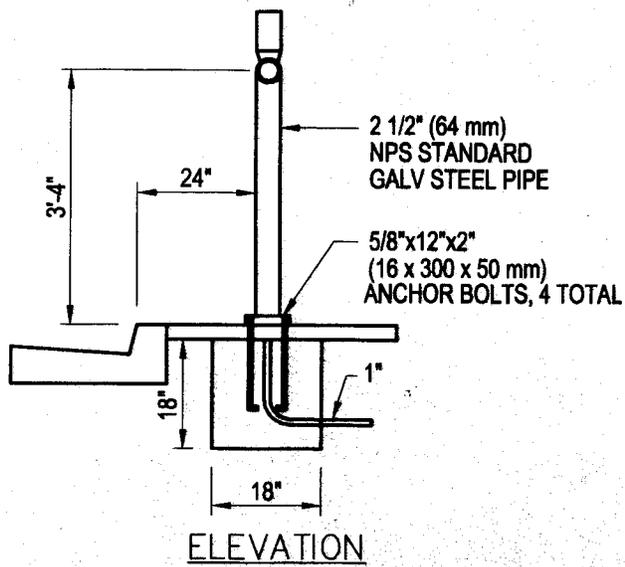
STANDARD DRAWING:

SIGNAL FITTINGS

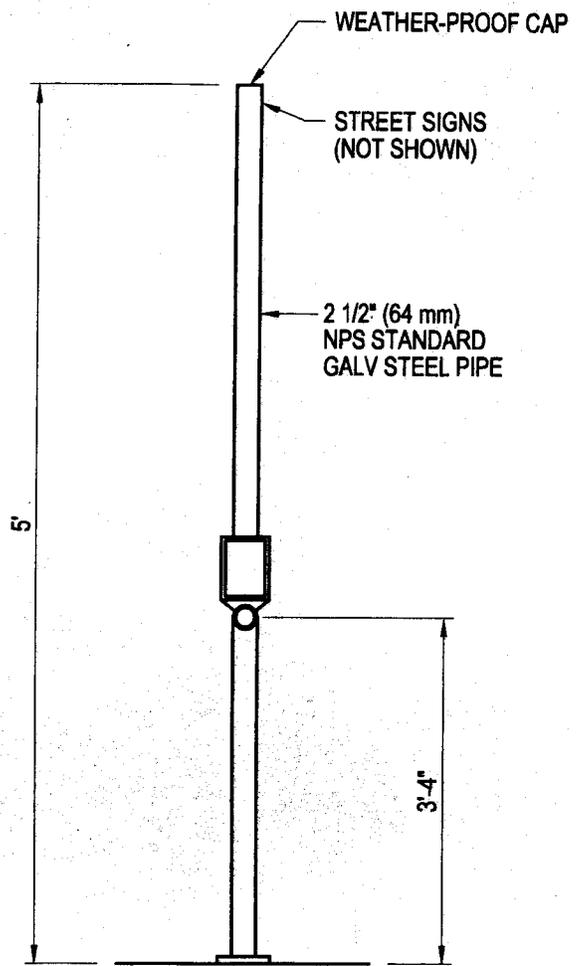
APPROVED:

[Signature] 12/14/14
CITY OF LAVERNE DATE
[Signature] 43296 9/5/14
CITY UTILITY ENGINEER RCE No. DATE

	BY	DATE
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AS SHOWN	ST-44	
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	SHT. 2 OF 2	

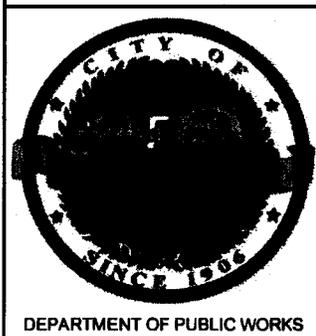
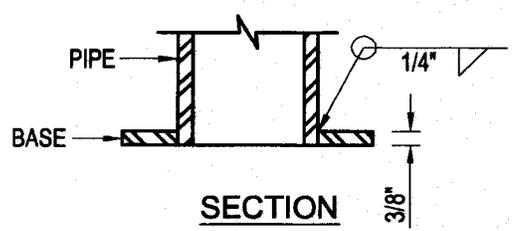
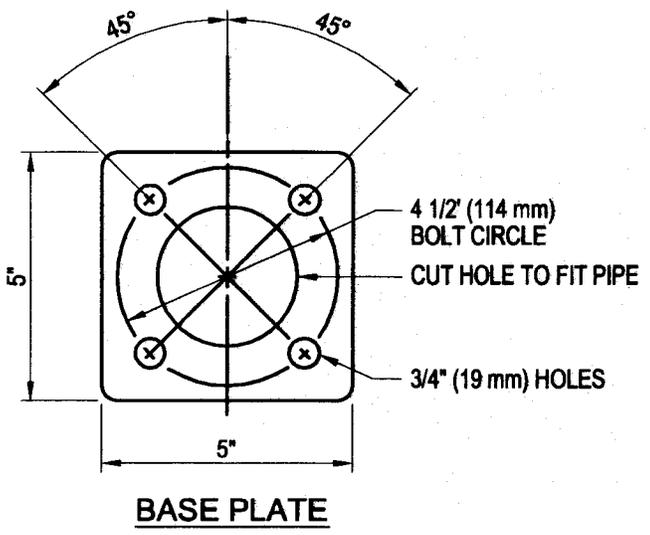


EXTEND CONDUIT 2" (50 mm) MAX ABOVE FINISHED SURFACE OF FOUNDATION. BOND ANCHOR BOLTS TO CONDUIT OR GROUNDING CONDUCTOR.



FOUNDATION AND ANCHOR BOLT DETAILS SAME AS PED PUSH BUTTON POST

COMBINED STREET SIGN AND PEDESTRIAN PUSH BUTTON POST



STANDARD DRAWING:

PEDESTRIAN PUSH BUTTON STAND

APPROVED: *[Signature]* 12/14/14
CITY OF LAVERNE DATE

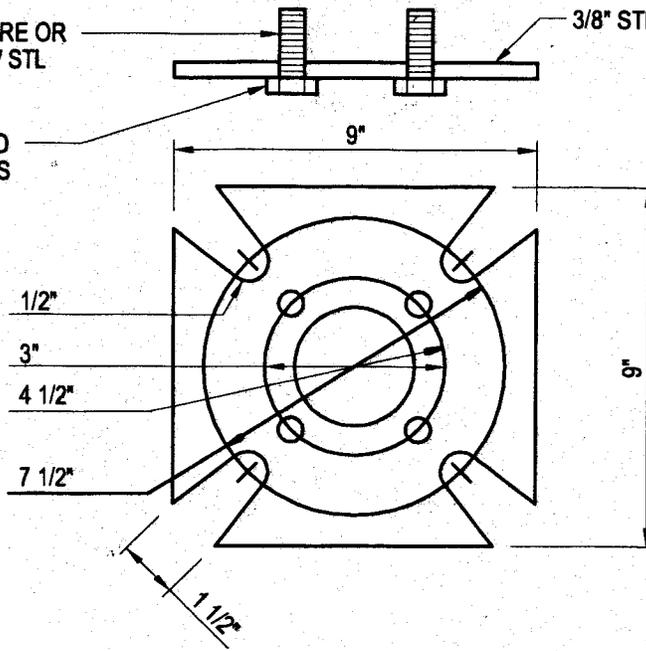
[Signature] 43296 9/5/14
CITY UTILITY ENGINEER RCE No. DATE

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DATE OF REVISION:	9/2014	
	SHT. 1 OF 4	

5/8"x1 3/4" SQUARE OR
HEX HEAD GALV STL
BOLTS

3/8" STL PLATE

TACK WELD TWO
OPPOSITE FLATS
OF EACH BOLT

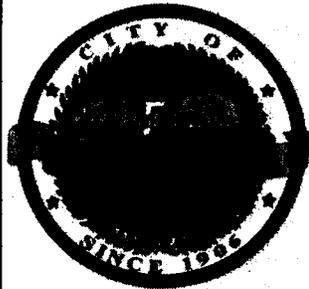
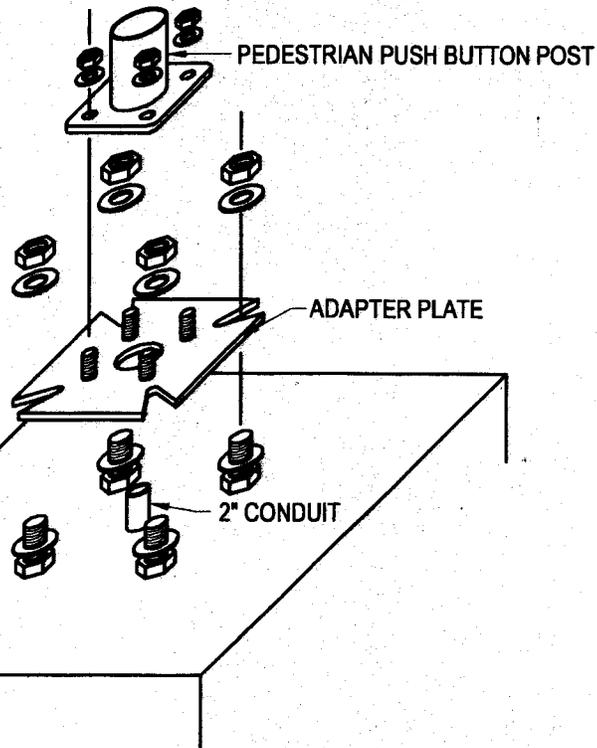


ADAPTER BASE PLATE

ADAPTER BASE PLATE
INSTALLATION DETAIL

INSTALL WHERE SPECIFIED.
CONSTRUCT FOUNDATION AND
ANCHORAGE FOR TYPE 1 SIGNAL
STANDARD PER SPPWC 431.

PCC FOUNDATION



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

PEDESTRIAN PUSH BUTTON STAND

APPROVED:

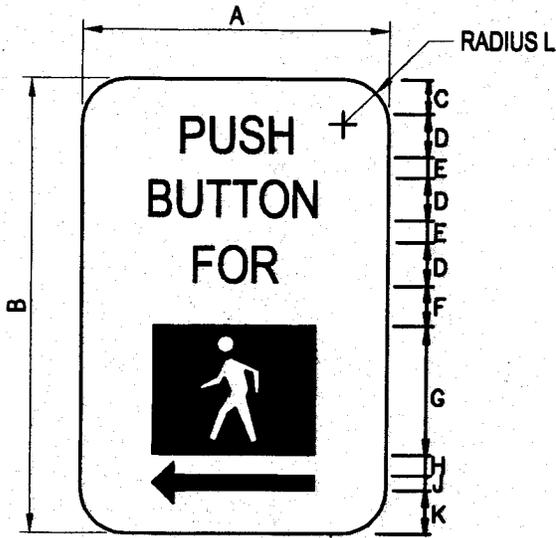
[Signature]
CITY OF LA VERNE
[Signature]
CITY UTILITY ENGINEER

12/14/14

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	SHT. 2 OF 4	



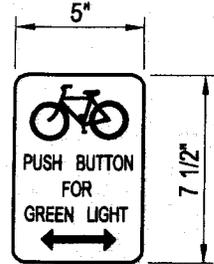
ALTERNATIVE SYMBOL AND ARROW DIRECTIONS:
LEFT, RIGHT OR BOTH



LEFT

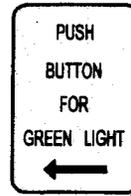


RIGHT

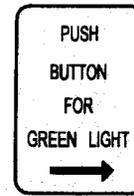


BOTH

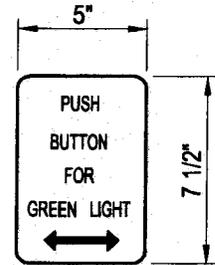
FOR BICYCLE LANES
(USE ONLY WHEN SPECIFIED)
BLACK LEGEND ON WHITE BACKGROUND



LEFT



RIGHT

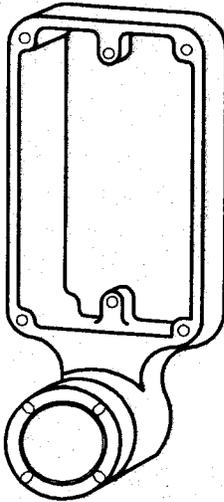


BOTH

FOR 3-LIGHT SIGNALS
(USE ONLY WHEN SPECIFIED)
BLACK LEGEND ON WHITE BACKGROUND

SIGN DIMENSIONS, INCHES										
A	B	C	D	E	F	G	H	J	K	L
5"	7 1/2"	9/16"	3/4"	3/8"	7/16"	2 1/8"	3/8"	1/4"	11/16"	3/4"

PEDESTRIAN PUSH BUTTON SIGNS



NOTES

1. BACK CASTING SHAPE SHALL FIT CURVATURE OF POST.
2. PROVIDE COVER FITTING FOR TOP OF POST, WHEN PPB IS MOUNTED ON PEDESTRIAN PUSH BUTTON POST.
3. INSTALL PUSH BUTTON ON CROSSWALK SIDE OF STANDARD.
4. ACTUATOR SHALL BE 2" (50 mm) MIN DIAMETER.

PEDESTRIAN PUSH BUTTON



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

PEDESTRIAN PUSH BUTTON STAND

APPROVED:

[Signature]
CITY OF LA VERNE

[Signature]
CITY UTILITY ENGINEER

12/14/14
DATE

43296
RCE No.

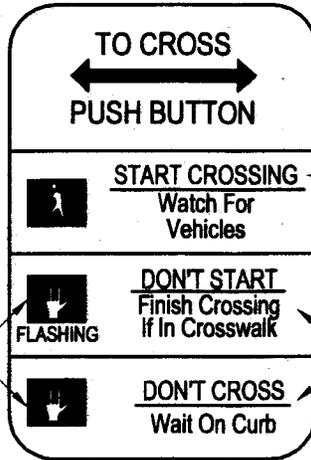
9/5/14
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DESIGNED	B.A.S.	9/2014
DRAWN	J.M.	9/2014
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SCALE:	DWG. No.
AS SHOWN	ST-45
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9/2014	SHT. 3 OF 4

BLACK LETTERS
AND BORDERS ON
WHITE BACKGROUND
EXCEPT AS SHOWN

PORTLAND ORANGE



GREEN

PORTLAND ORANGE

EDUCATIONAL COVER PLATE
(USE ONLY WHEN SPECIFIED)



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

PEDESTRIAN PUSH BUTTON STAND

APPROVED:

[Signature]

CITY OF LA VERNE

CITY UTILITY ENGINEER

12/14/14

DATE

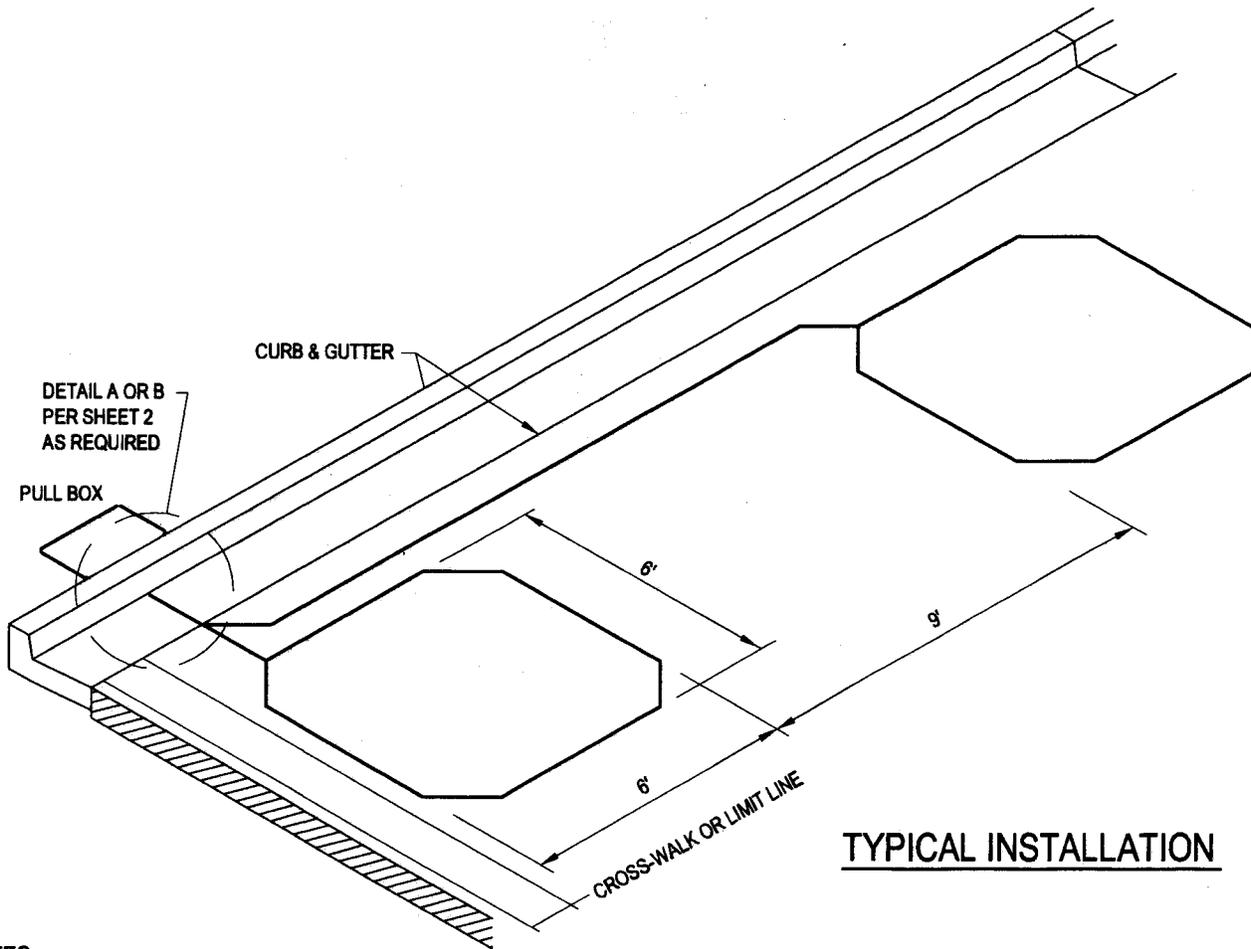
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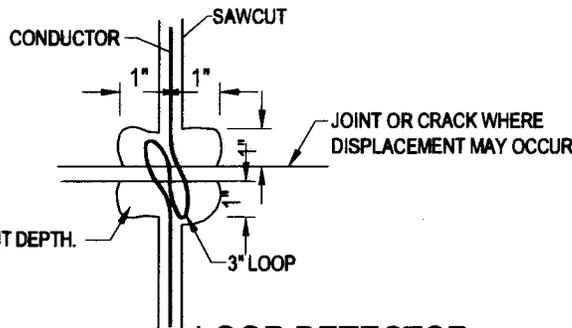
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	SHT. 4 OF 4	



TYPICAL INSTALLATION

NOTES:

1. LOOPS MAY BE OCTAGONAL AS SHOWN, OR CIRCULAR.
2. CONSTRUCT OCTAGONAL LOOPS WITH 12" CORNER CUTOFFS.
3. INSTALL WEDGES EACH 6" TO MAINTAIN MINIMUM EPOXY COVER.
4. INSTALL LOOPS ALTERNATING CLOCKWISE AND COUNTERCLOCKWISE.
5. IN PAVEMENT RESURFACING AREAS, INSTALL LOOPS IN UNDERLYING PAVEMENT BEFORE RESURFACING.



CHIP OUT TO AT LEAST SAWCUT DEPTH.
COVER CABLE WITH SAND.
FILL WITH AT LEAST 1" THICK
EPOXY TO FINISHED SURFACE.

**LOOP DETECTOR
EXPANSION JOINT**



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

LOOP DETECTORS

APPROVED:

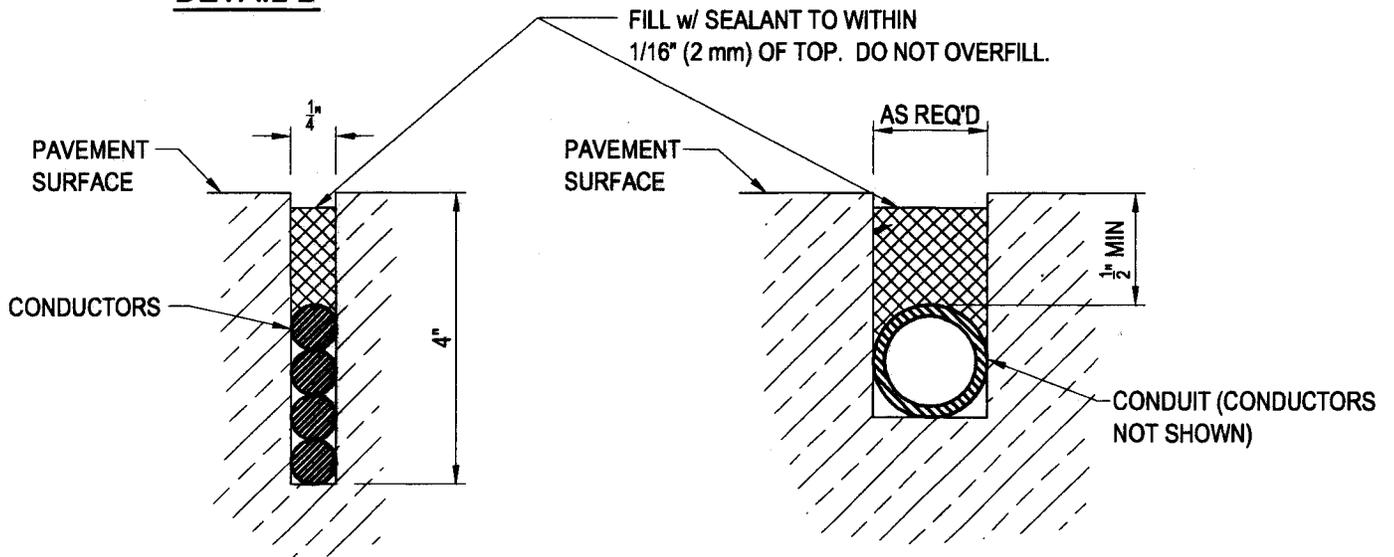
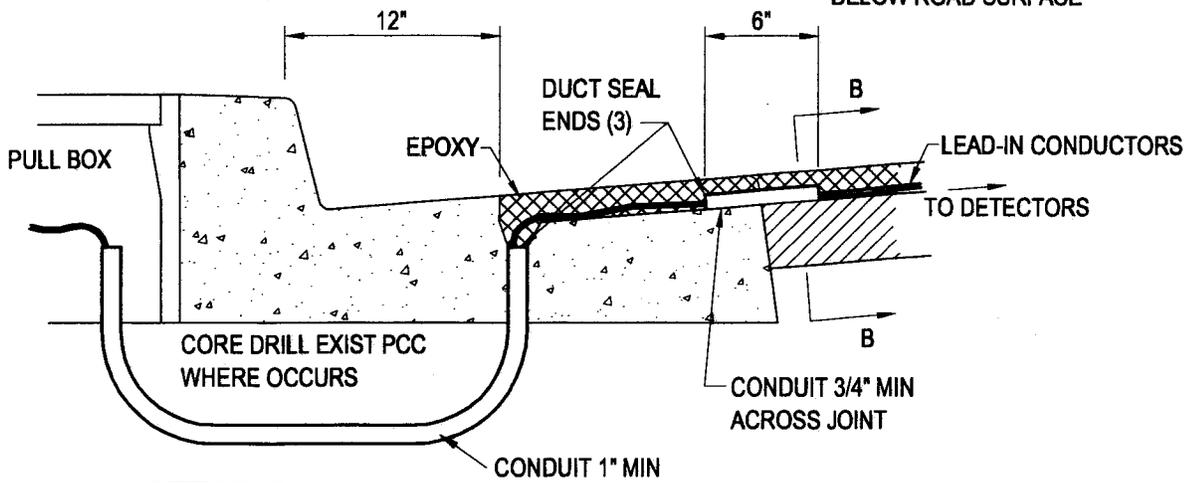
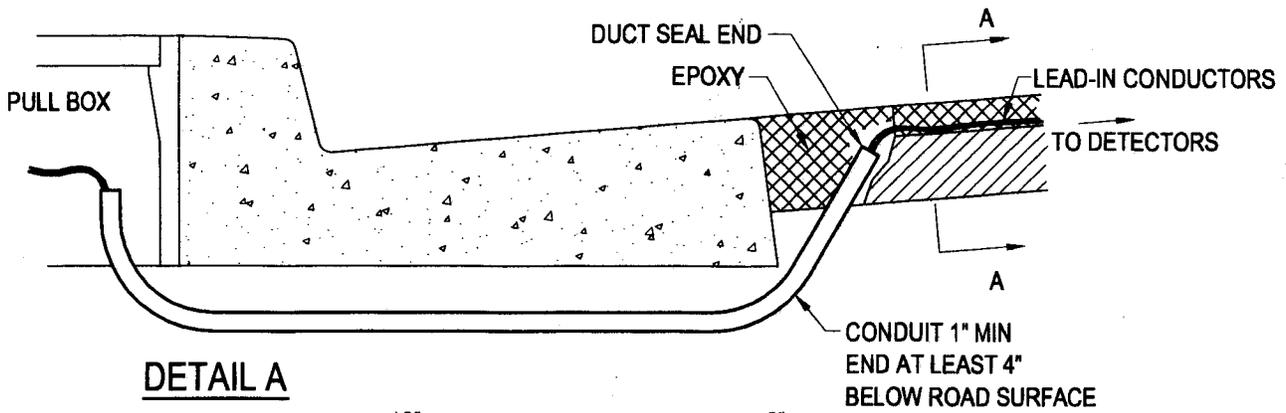
[Signature]
CITY OF LAVERNE

[Signature]
CITY UTILITY ENGINEER

12/14/14

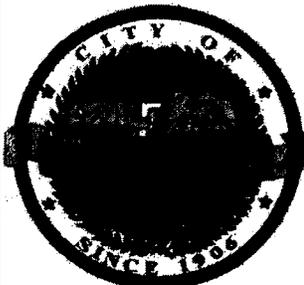
43296 9/5/14
RCE No. DATE

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DESIGNED	B.A.S.	9/2014
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SCALE:	DWG. No.	
AS SHOWN	ST-46	
DATE OF REVISION:	9/2014	
	SHT. 1 OF 2	



SECTION A-A

SECTION B-B



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

LOOP DETECTORS

APPROVED:

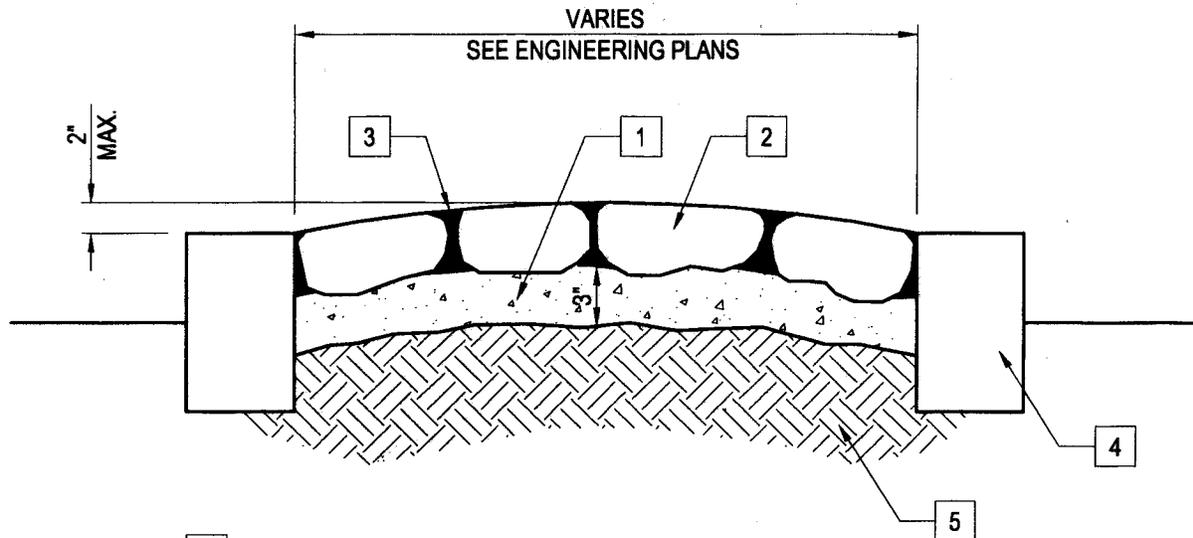
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CITY OF LAVERNE
[Signature]
CITY UTILITY ENGINEER

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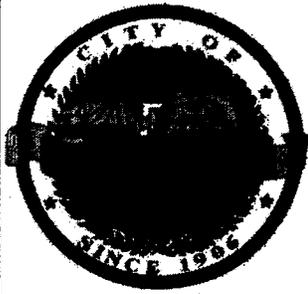
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SCALE: AS SHOWN	DWG. No. ST-46	
DATE OF REVISION: 9/2014	SHT. 2 OF 2	



- 1 PORTLAND CEMENT CONCRETE BED
- 2 ALLUVIAL STONE, SIZE PER NOTE
- 3 MORTAR BETWEEN STONE
- 4 MEDIAN CURB PER CIVIL ENGINEER PLANS
- 5 COMPACTED SUBGRADE

NOTES

1. ROCK SIZES, UNLESS OTHERWISE SPECIFIED, SHALL BE COBBLESTONE. MAX. 12" TO MIN. 6" WITH ONE FLAT SIDE.
2. MINIMUM OF 1/2 OF THE COBBLE THICKNESS SHALL BE EMBEDDED IN 4" PEA GRAVEL CONCRETE BED.
3. ALL SPACES BETWEEN STONES SHALL BE FILLED WITH CLASS "D" MORTAR, 1 PART CEMENT TO 2 1/2 PARTS SAND, 2000 PSI PORTLAND CEMENT CONCRETE, NO DRY PACK IS ALLOWED. FILL TO 2/3 HEIGHT OF ROCK. THE SURROUNDING CURB, SIDEWALK AND ASPHALT PAVEMENT SHALL BE PROTECTED FROM SPILLAGE.
4. A SAMPLE AREA, MIN. 10 SQ. FT., SHALL BE APPROVED BY THE CITY INSPECTOR PRIOR TO PROCEEDING WITH THE REMAINING ROCK WORK.
5. FINAL RESTING POSITION OF ALL ROCKS SHALL BE APPROVED BY THE CITY INSPECTOR.
6. ROCKS SHALL BE SMOOTH, ROUNDED, FREE OF OBJECTIONABLE DISFIGURATIONS AND IRON CONTENT, AS APPROVED BY THE CITY INSPECTOR.
7. CONCRETE SHALL BE CLASS 320-D-2600.
8. AFTER CONCRETE MORTAR HAS SET, HYDRO BLAST OR ACID ETCH, AS DIRECTED BY THE CITY INSPECTOR. BRUSH ROCKS TO REMOVE CEMENT COATING.

 <p>DEPARTMENT OF PUBLIC WORKS</p>	STANDARD DRAWING:		BY	DATE
	COBBLESTONE MEDIANS		DESIGNED	B.A.S. 9/2014
	APPROVED: 	12/14/14	DRAWN	J.M. 9/2014
	CITY OF LA VERNE	DATE	CHECKED	C.S.H. 9/2014
	43296	SCALE:	DWG. No.	
CITY UTILITY ENGINEER	RCE No.	AS SHOWN	ST-47	
		DATE OF REVISION:	SHT. 1 OF 1	
		9/2014		