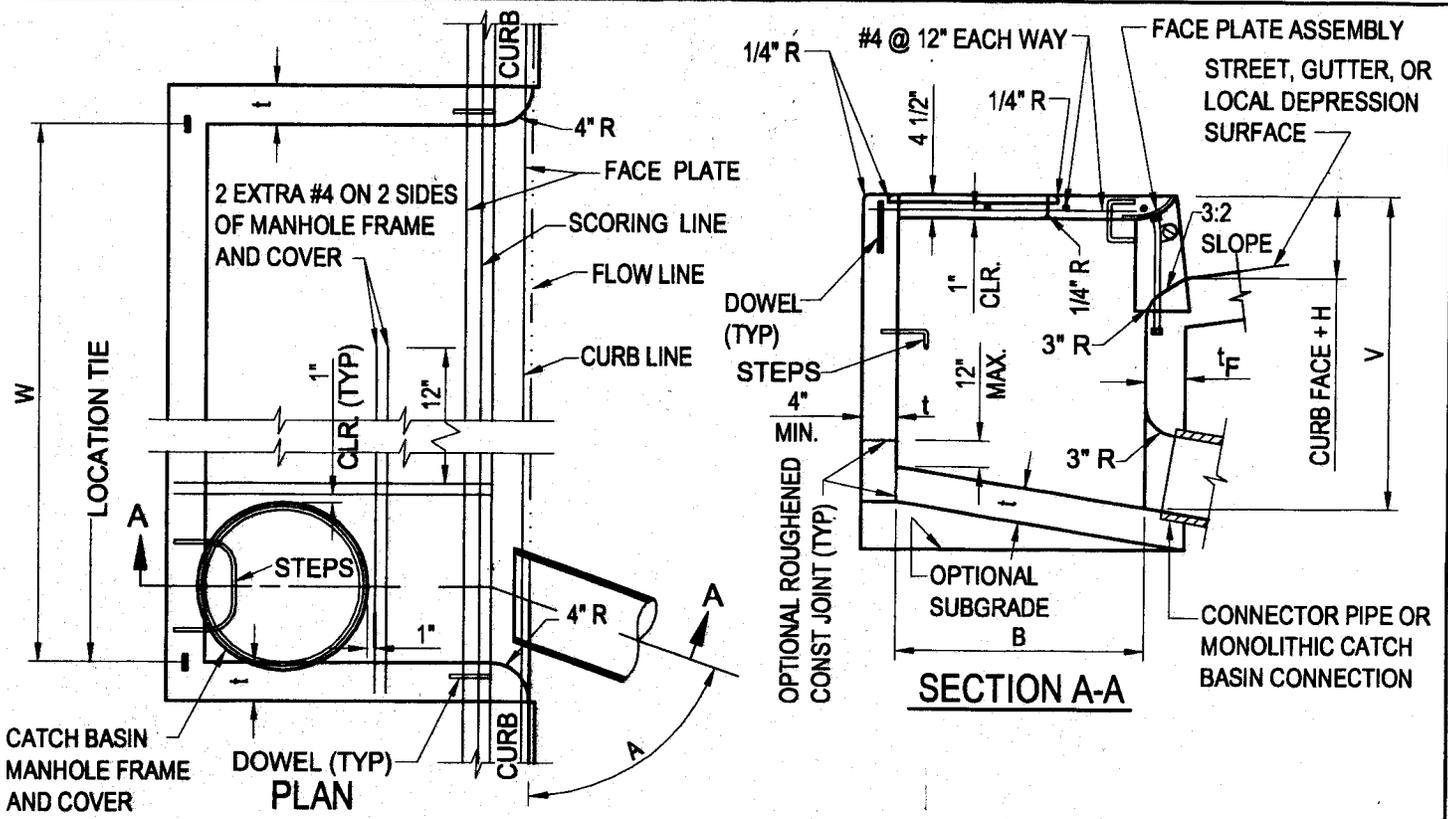


INDEX SHEET

STORM DRAIN INDEX

<u>STANDARD NUMBER</u>	<u>TITLE</u>	<u>EFFECTIVE DATE</u>
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SD-02	GRATING CATCH BASIN - ALLEY (LONGITUDINAL)	8/2014
SD-03	MONOLITHIC CATCH BASIN CONNECTION	8/2014
SD-04	CATCH BASIN REINFORCEMENT	8/2014
SD-05	CATCH BASIN FACE PLATE ASSEMBLY AND PROTECTION BAR	8/2014
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SD-07	LOCAL DEPRESSION (FLOW BY CONDITION)	8/2014
SD-08	STORM DRAIN MANHOLE	8/2014
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SD-10	JUNCTION STRUCTURE-PIPE TO PIPE (INLET \geq 24" OR OD $>$ 1/2 MAIN LINE ID)	8/2014
SD-11	JUNCTION STRUCTURE-PIPE TO PIPE (INLET \leq 24")	8/2014
SD-12	PIPE CONNECTIONS TO EXISTING STORM DRAINS	8/2014
SD-13	DRAINAGE DITCHES	8/2014

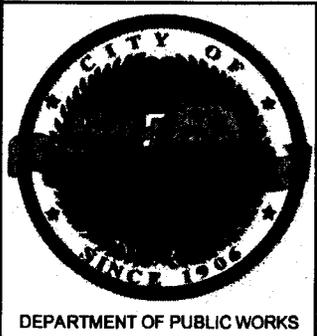
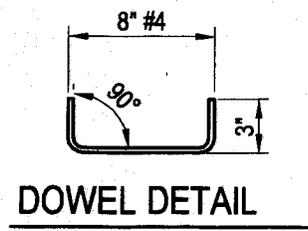


STRUCTURAL DATA

WALL AND SLAB DIMENSIONS AND REINFORCEMENT REQUIREMENTS

MAX W	MAX V	t	t _F	REINFORCEMENT REQUIRED IN			
				FRONT WALL	REAR WALL	BOTTOM SLAB	END WALL
3.5'	8'	6"	6"	NO REINFORCEMENT REQUIRED	NO REINFORCEMENT REQUIRED	NO REINFORCEMENT REQUIRED	NO REINFORCEMENT REQUIRED
3.5'	12'	8"	8"				
7'	6'	6"	6"				
7'	12'	8"	8"				
2' AND 28"	14'	4'	6'	6'	REINFORCEMENT REQUIRED	REINFORCEMENT REQUIRED	REINFORCEMENT REQUIRED
	14'	8'	6"	8"			
	14'	12'	8"	10'			
	4'	6"	6"	6"			
	6'	6"	8"	8"			
	8'	8"	8"				
	10'	8"	10"				
	12'	8"	10"				

FOR W > 28' (9 m), V > 12' (3.5 m) OR B > 4' (1.2 m) SEE PLANS



STANDARD DRAWING:

CURB OPENING CATCH BASIN

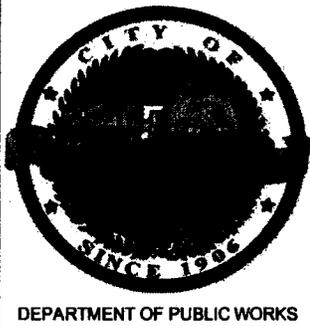
APPROVED: *[Signature]* 12/14/14
 CITY OF LA ENGINEER DATE

[Signature] 43296 8/21/14
 CITY UTILITY ENGINEER RCE No. DATE

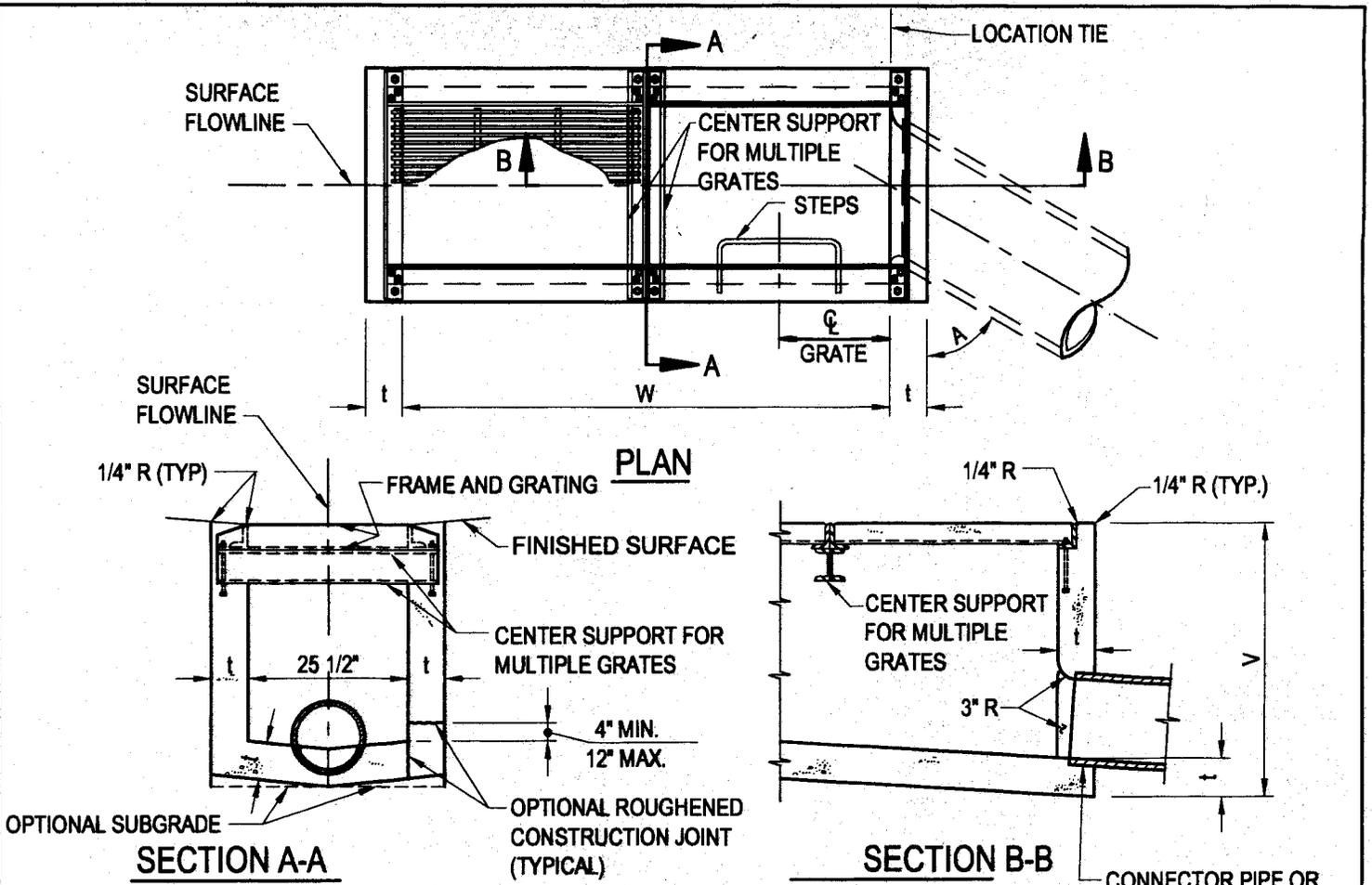
	BY	DATE
DESIGNED	B.A.S.	8/2014
DRAWN	J.M.	8/2014
CHECKED	C.S.H.	8/2014
SCALE:	DWG. No.	
AS SHOWN	SD-01	
DATE OF REVISION:		
8/2014	SHT. 1 OF 2	

NOTES:

1. WHERE THE BASIN IS TO BE CONSTRUCTED WITHIN THE LIMITS OF EXISTING OR PROPOSED SIDEWALK OR IS CONTIGUOUS TO SUCH SIDEWALK, THE TOP SLAB OF THE BASIN MAY BE POURED EITHER MONOLITHIC WITH THE SIDEWALK OR SEPARATELY, USING THE SAME CLASS OF CONCRETE AS IN THE BASIN. WHEN POURED MONOLITHICALLY, THE SIDEWALK SHALL BE PROVIDED WITH A WEAKENED PLANE OR A 1" DEEP SAWCUT CONTINUOUSLY AROUND THE EXTERNAL PERIMETER OF THE CATCH BASIN WALLS, INCLUDING ACROSS THE FULL WIDTH OF THE SIDEWALK. SURFACE OF ALL EXPOSED CONCRETE SHALL CONFORM IN SLOPE, GRADE, COLOR, FINISH, AND SCORING TO EXISTING OR PROPOSED CURB AND WALK ADJACENT TO THE BASIN.
2. ALL CURVED CONCRETE SURFACES SHALL BE FORMED BY CURVED FORMS, AND SHALL NOT BE SHAPED BY PLASTERING.
3. FLOOR OF BASIN SHALL BE GIVEN A STEEL TROWEL FINISH AND SHALL HAVE A LONGITUDINAL AND LATERAL SLOPE OF 1:12 MINIMUM AND 1:3 MAXIMUM, EXCEPT WHERE THE GUTTER GRADE EXCEEDS 8%, IN WHICH CASE THE LONGITUDINAL SLOPE OF THE FLOOR SHALL BE THE SAME AS THE GUTTER GRADE. SLOPE FLOOR FROM ALL DIRECTIONS TO THE OUTLET.
4. DIMENSIONS:
 B = 3'-2"
 V = THE DIFFERENCE IN ELEVATION BETWEEN THE TOP OF THE CURB AND THE INVERT OF THE CATCH BASIN AT THE OUTLET = 4.5'.
 V_U = THE DIFFERENCE IN ELEVATION BETWEEN THE TOP OF THE CURB AND THE INVERT AT THE UPSTREAM END OF THE BASIN, AND SHALL BE DETERMINED BY THE REQUIREMENTS OF NOTE 3, BUT SHALL NOT BE LESS THAN CURB FACE PLUS 12".
 V_F = THE DIFFERENCE IN ELEVATION BETWEEN THE TOP OF THE CURB AND THE INVERT OF THE INLET, NOTED ON THE PLANS.
 H = NOTED ON THE PLANS.
 W = NOTED ON THE PLANS.
 A = THE ANGLE, IN DEGREES, INTERCEPTED BY THE CENTERLINE OF THE CONNECTOR PIPE AND THE CATCH BASIN WALL TO WHICH THE CONNECTOR PIPE IS ATTACHED.
5. PLACE CONNECTOR PIPES AS INDICATED ON THE PLANS. UNLESS OTHERWISE SPECIFIED, THE CONNECTOR PIPE SHALL BE LOCATED AT THE DOWNSTREAM END OF THE BASIN. WHERE THE CONNECTOR PIPE IS SHOWN AT A CORNER, THE CENTERLINE OF THE PIPE SHALL INTERSECT THE INSIDE CORNER OF THE BASIN. THE PIPE MAY BE CUT AND TRIMMED AT A SKEW NECESSARY TO INSURE MINIMUM 3" PIPE EMBEDMENT, ALL AROUND, WITHIN THE CATCH BASIN WALL, AND 3" RADIUS OF ROUNDING OF STRUCTURE CONCRETE, ALL AROUND, ADJACENT TO PIPE ENDS. A MONOLITHIC CATCH BASIN CONNECTION SHALL BE USED TO JOIN THE CONNECTOR PIPE TO THE CATCH BASIN WHENEVER ANGLE "A" IS LESS THAN 70° OR GREATER THAN 110°, OR WHENEVER THE CONNECTOR PIPE IS LOCATED IN A CORNER. THE OPTIONAL USE OF A MONOLITHIC CATCH BASIN CONNECTION IN ANY CASE IS PERMITTED. MONOLITHIC CATCH BASIN CONNECTIONS MAY BE CONSTRUCTED TO AVOID CUTTING STANDARD LENGTHS OF PIPE.
6. STEPS SHALL BE LOCATED AS SHOWN. IF THE CONNECTOR PIPE INTERFERES WITH THE STEPS, THEY SHALL BE LOCATED AT THE CENTERLINE OF THE DOWNSTREAM END WALL. STEPS SHALL BE SPACED 12" APART. THE TOP STEP SHALL BE 7" BELOW THE TOP OF THE MANHOLE AND PROJECT 2-1/2". ALL OTHER STEPS SHALL PROJECT 5".
7. DOWELS ARE REQUIRED AT EACH CORNER AND AT 7' ON CENTER (MAXIMUM) ALONG THE BACKWALL.
8. THE FOLLOWING SPPWC ARE INCORPORATED HEREIN:
 308 MONOLITHIC CATCH BASIN CONNECTION, 309 CATCH BASIN REINFORCEMENT
 310 CATCH BASIN FACE PLATE ASSEMBLY AND PROTECTION BAR, 312 CATCH BASIN MANHOLE FRAME AND COVER.
 635 STEEL STEP AND 636 POLYPROPYLENE PLASTIC STEP.



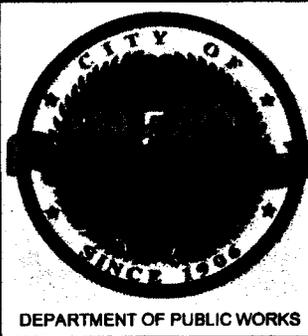
STANDARD DRAWING:		BY	DATE
<h2 style="margin: 0;">CURB OPENING CATCH BASIN</h2>		DESIGNED	B.A.S. 8/2014
		DRAWN	J.M. 8/2014
		CHECKED	C.S.H. 8/2014
APPROVED:	12/14/14	SCALE:	DWG. No.
<i>[Signature]</i>	DATE	AS SHOWN	SD-01
CITY OF LA VERNE	8/21/14	DATE OF REVISION:	
<i>[Signature]</i>	43296	8/2014	SHT. 2 OF 2
CITY UTILITY ENGINEER	RCE No.	DATE	



STRUCTURAL DATA

WALL AND SLAB DIMENSIONS AND REINFORCEMENT REQUIREMENTS

NO. OF GRATES	MAX V	t	REINFORCEMENT FOR WALLS AND SLABS
1-2	4'	6"	NOT REQUIRED
1-2	8'	8"	
1-2	10'	10"	
1-2	12'	10"	REQUIRED
3-4	4'	6"	NOT REQUIRED
3-4	7'	8"	
3-4	8'	8"	REQUIRED
3-4	12'	10"	
5-6	4'	6"	
5-6	6'	8"	
5-6	8'	8"	REQUIRED
5-6	12'	10"	
> 6	4'	6"	
> 6	8'	8"	
> 6	12'	10"	



STANDARD DRAWING:
GRATING CATCH BASIN-ALLEY (LONGITUDINAL)

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 CITY OF LA VERNE
 CITY UTILITY ENGINEER

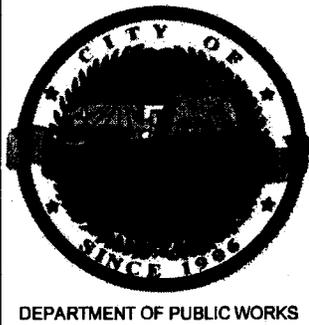
43296
 RCE No.

DATE 8/21/14

	BY	DATE
DESIGNED	B.A.S.	8/2014
DRAWN	J.M.	8/2014
CHECKED	C.S.H.	8/2014
SCALE: AS SHOWN	DWG. No. SD-02	
DATE OF REVISION: 8/2014	SHT. 1 OF 2	

NOTES:

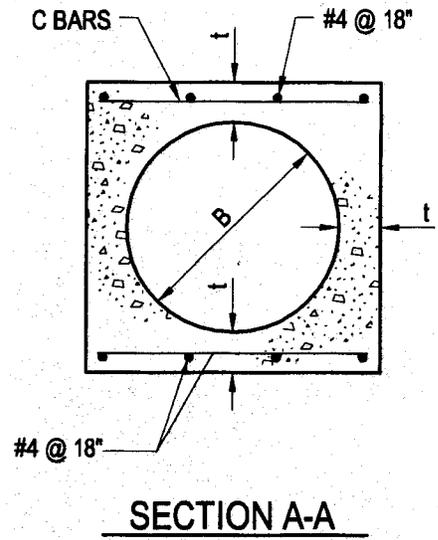
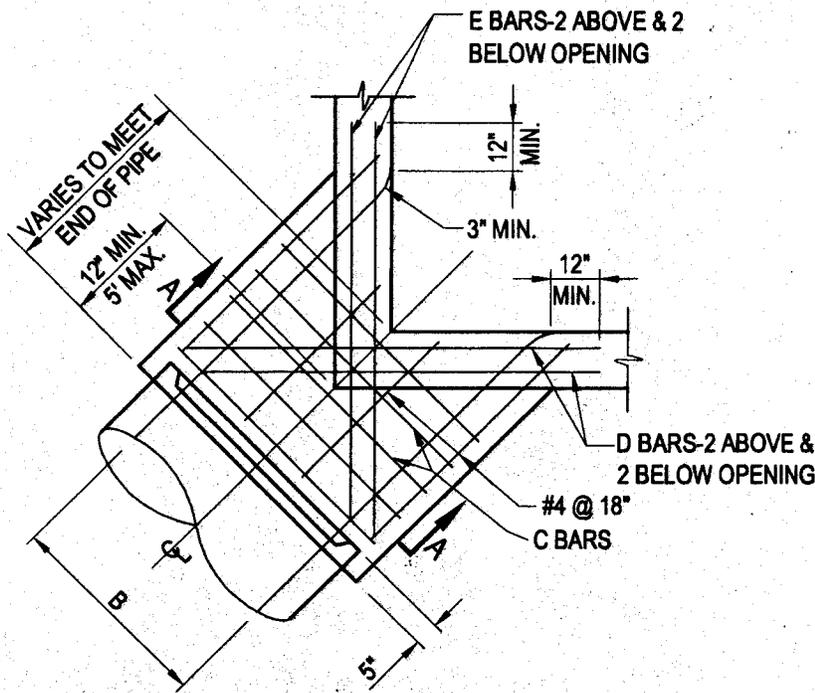
1. ALL CURVED CONCRETE SURFACES SHALL BE FORMED BY CURVED FORMS, AND SHALL NOT BE SHAPED BY PLASTERING.
2. ONE GRATING IS REQUIRED UNLESS OTHERWISE SHOWN ON THE PLANS.
3. FLOOR OF BASIN SHALL BE GIVEN A STEEL TROWEL FINISH AND SHALL HAVE A LONGITUDINAL AND LATERAL SLOPE OF 1:12 MINIMUM AND 1:3 MAXIMUM, EXCEPT WHERE THE SURFACE GRADE EXCEEDS 8%, IN WHICH CASE THE LONGITUDINAL SLOPE OF THE FLOOR SHALL BE THE SAME AS THE SURFACE GRADE, SLOPE FLOOR FROM ALL DIRECTIONS TO THE OUTLET.
4. DIMENSIONS:
 - B = 3'-6"
 - V_U THE DEPTH AT THE UPSTREAM END OF THE BASIN AND SHALL BE DETERMINED BY THE REQUIREMENTS OF NOTE 3, BUT SHALL NOT BE LESS THAN 2.5'.
 - V_F THE DEPTH AT THE INVERT OF THE INLET. NOTED ON THE PLANS.
 - W = 2'-11 3/8" FOR ONE GRATING; ADD 3'-5 3/8" FOR EACH ADDITIONAL GRATING.
 - A = THE ANGLE, IN DEGREES, INTERCEPTED BY THE CENTERLINE OF THE CONNECTOR PIPE AND THE CATCH BASIN WALL TO WHICH THE CONNECTOR PIPE IS ATTACHED.
5. PLACE CONNECTOR PIPES AS INDICATED ON THE PLANS. UNLESS OTHERWISE SPECIFIED, THE CONNECTOR PIPE SHALL BE LOCATED AT THE DOWNSTREAM END OF THE BASIN. WHERE THE CONNECTOR PIPE IS SHOWN AT A CORNER, THE CENTERLINE OF THE PIPE SHALL INTERSECT THE INSIDE CORNER OF THE BASIN. THE PIPE MAY BE CUT AND TRIMMED AT A SKEW NECESSARY TO INSURE MINIMUM 3" (80 mm) PIPE EMBEDMENT, ALL AROUND, WITHIN THE CATCH BASIN WALL, AND 3" RADIUS OF ROUNDING OF STRUCTURE CONCRETE, ALL AROUND, ADJACENT TO PIPE ENDS. A MONOLITHIC CATCH BASIN CONNECTION SHALL BE USED TO JOIN THE CONNECTOR PIPE TO THE CATCH BASIN WHENEVER ANGLE A" IS LESS THAN 70° OR GREATER THAN 110°, OR WHENEVER THE CONNECTOR PIPE IS LOCATED IN A CORNER. THE OPTIONAL USE OF A MONOLITHIC CATCH BASIN CONNECTION IN ANY CASE IS PERMITTED. MONOLITHIC CATCH BASIN CONNECTIONS MAY BE CONSTRUCTED TO AVOID CUTTING STANDARD LENGTHS OF PIPE.
6. STEPS SHALL BE LOCATED AS SHOWN. IF THE CONNECTOR PIPE INTERFERES WITH THE STEPS, THEY SHALL BE LOCATED ON THE OPPOSITE WALL AT THE CENTERLINE OF THE DOWNSTREAM GRATING. STEPS SHALL BE BE SPACED 12" APART. THE TOP STEP SHALL BE 7" BELOW THE TOP OF THE GRATING AND PROJECT 2 1/2". ALL OTHER STEPS SHALL PROJECT 5".
7. THE FOLLOWING SPPWC ARE INCORPORATED HEREIN:
 - 308 MONOLITHIC CATCH BASIN CONNECTION CATCH
 - 309 BASIN REINFORCEMENT
 - 311 FRAME AND GRATING FOR CATCH BASINS
 - 635 STEEL STEP
 - 636 POLYPROPYLENE PLASTIC STEP



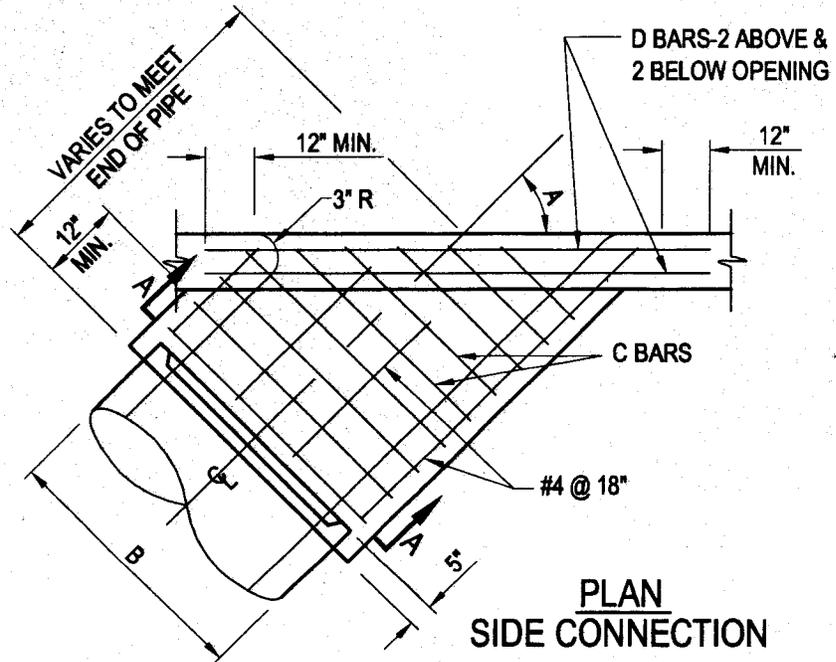
STANDARD DRAWING:
**GRATING CATCH BASIN-ALLEY
 (LONGITUDINAL)**

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 CITY UTILITY ENGINEER RCE No. 43296 DATE 8/21/14

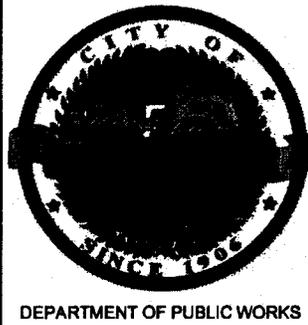
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DESIGNED	B.A.S.	8/2014
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SCALE: AS SHOWN	DWG. No. SD-02	
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**PLAN
CORNER CONNECTION**



**PLAN
SIDE CONNECTION**



STANDARD DRAWING:
**MONOLITHIC CATCH BASIN
CONNECTION**

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DRAWN	J.M.	8/2014
CHECKED	C.S.H.	8/2014

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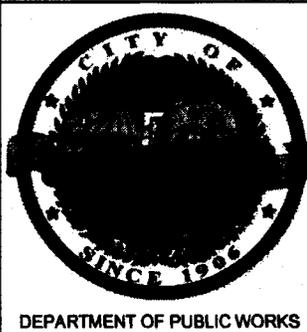
SCALE: AS SHOWN	DWG. No. SD-03
DATE OF REVISION: 8/2014	SHT. 1 OF 2

STRUCTURAL DATA								
B	t	C BARS	D&E BARS	B	t	C BARS	D&E BARS	
12"	4"	#4 @ 6"	#6	42"	7 1/2"	#5 @ 6"	#6	
15"	4 1/4"			45"	7 3/4"			
18"	4-1/2"			48"	8"			
21"	5"			51"	8 1/2"			
24"	5 1/4"			54"	9"			
27"	5 1/2"			57"	9 1/4"			
30"	6"			60"	9 1/2"			
33"	6 1/4"			63"	10"			
36"	6 1/2"			66"	10 1/4"			
39"	7"			69"	10 3/4"			
					72"			11"

FOR B GREATER THAN 72" (1800 mm) SEE PLANS

NOTES

1. REINFORCING STEEL SHALL BE 1-1/2" CLEAR FROM FACE OF CONCRETE UNLESS OTHERWISE SHOWN.
2. REINFORCING STEEL FOR INSIDE FACE OF CATCH BASIN SHALL BE CUT AT CENTER OF OPENING AND BENT INTO WALLS OF MONOLITHIC CATCH BASIN CONNECTION. REINFORCING STEEL FOR OUTSIDE FACE OF CATCH BASIN SHALL BE CUT 2" CLEAR OF OPENING.
3. CONNECTION SHALL BE PLACED MONOLITHIC WITH CATCH BASIN. THE ROUNDED EDGE OF OUTLET SHALL BE CONSTRUCTED BY PLACING CONCRETE WITH THE SAME CLASS OF CONCRETE AS THE CATCH BASIN AGAINST A CURVED FORM WITH A RADIUS OF 3".
4. CONNECTIONS SHALL BE CONSTRUCTED WHEN:
 - (A) PIPES INLET OR OUTLET THROUGH CORNER OF CATCH BASIN
 - (B) ANGLE A FOR PIPES THROUGH 30" IN DIAMETER IS LESS THAN 70° OR GREATER THAN 110°.



STANDARD DRAWING:

MONOLITHIC CATCH BASIN CONNECTION

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[Signature]

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CITY UTILITY ENGINEER

12/14/14

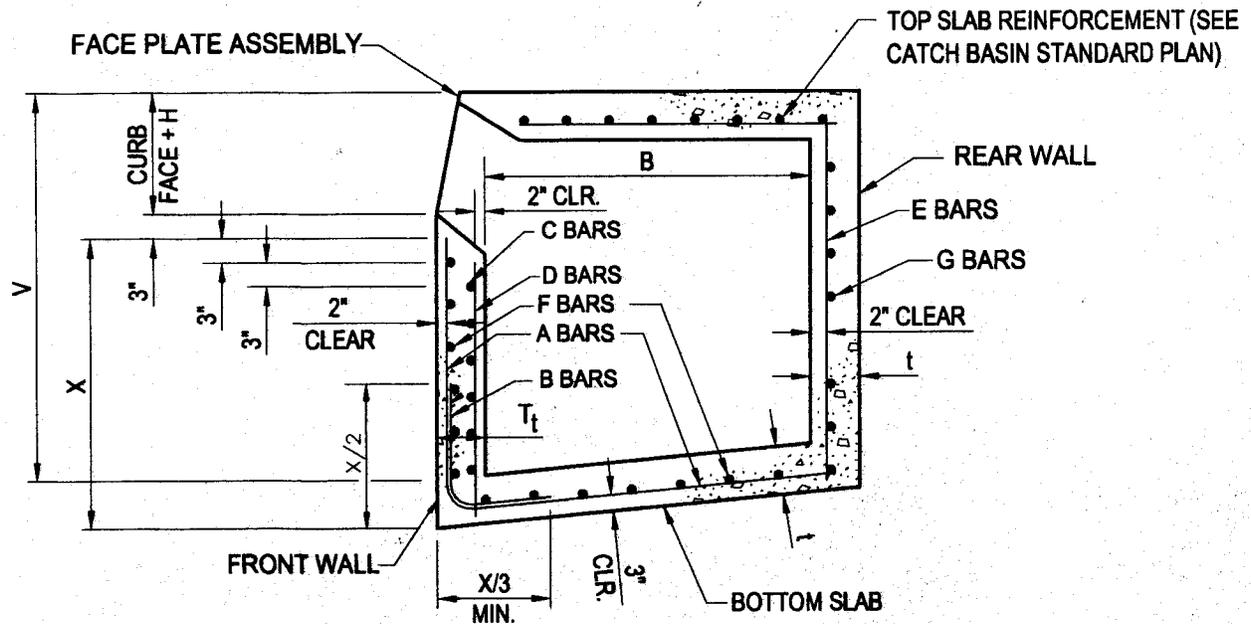
DATE

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AS SHOWN	SD-03	
DATE OF REVISION:	8/2014	
	SHT. 2 OF 2	



TYPICAL REINFORCEMENT DETAILS

MAX. W	MAX. V	t	tf	A & B BARS	C BARS	D BARS	E BARS	F BARS	G BARS
3.5'	8'	6"	6"	---	---	---	---	---	---
3.5'	12'	8"	8"	---	---	---	---	---	---
7'	6'	6"	6"	---	---	---	---	---	---
7'	12'	8"	8"	---	---	---	---	---	---
14'	4'	6"	6"	---	#4 @ 12"	#4 @ 18"	---	---	---
14'	8'	6"	8"	---	#4 @ 12"	#4 @ 18"	---	---	---
14'	12'	8"	10"	---	#4 @ 6"	#4 @ 18"	---	---	---
28'	4'	6"	6"	#4 @ 24"	---	---	---	#4 @ 18"	---
28'	5'	6"	8"	#4 @ 24"	---	---	---	#4 @ 18"	---
28'	6'	6"	8"	#4 @ 18"	---	---	---	#4 @ 18"	---
28'	7'	8"	8"	#4 @ 17"	---	---	---	#4 @ 18"	---
28'	8'	8"	8"	#4 @ 13"	---	---	---	#4 @ 18"	---
28'	9'	8"	10"	#4 @ 15"	---	---	---	#4 @ 18"	---
28'	10'	8"	10"	#4 @ 12"	---	---	---	#4 @ 18"	---
28'	11'	8"	10"	#5 @ 15"	---	---	#4 @ 10"	#4 @ 18"	#4 @ 18"
28'	12'	8"	10"	#4 @ 18"	---	---	#4 @ 10"	#4 @ 18"	#4 @ 18"

FOR W > 28' OR B > 4' SEE PLANS



DEPARTMENT OF PUBLIC WORKS

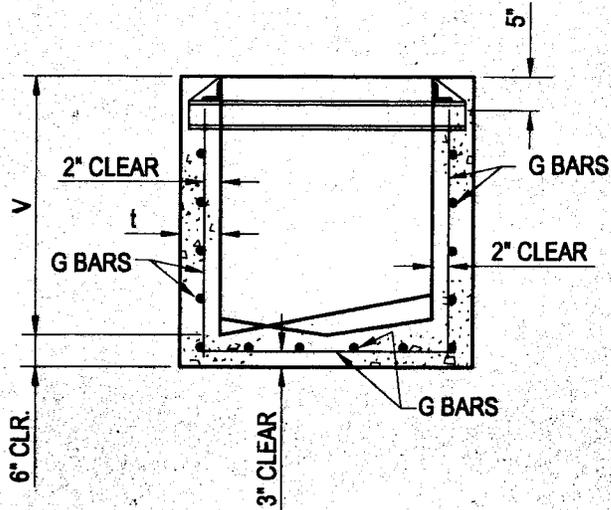
STANDARD DRAWING:

CATCH BASIN REINFORCEMENT

APPROVED: *[Signature]*
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 CITY UTILITY ENGINEER

12/14/14
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 8/21/14
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DESIGNED	B.A.S.	8/2014
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SCALE:	DWG. No.	
AS SHOWN	SD-04	
DATE OF REVISION:	8/2014	
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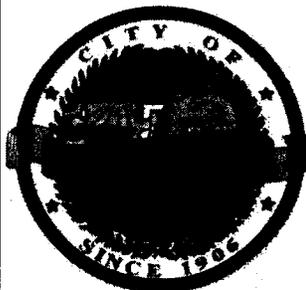
TYPICAL REINFORCEMENT DETAILS

V	t	SIDE AND END WALL STEEL
		G BARS
4'	6"	#4 @ 10"
8'	8"	#4 @ 6"
12'	10"	#5 @ 6"
FOR V > 12' SEE PLANS		

GRATING CATCH BASIN REINFORCEMENT

NOTE

UNLESS OTHERWISE SPECIFIED, REINFORCEMENT FOR CURB OPENINGS AND GRATING CATCH BASINS SHALL TERMINATE 2" FROM FACE OF CONCRETE.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

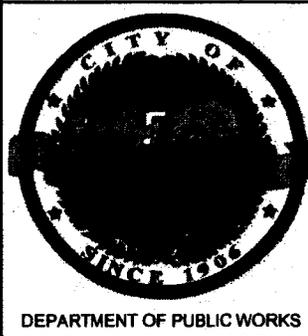
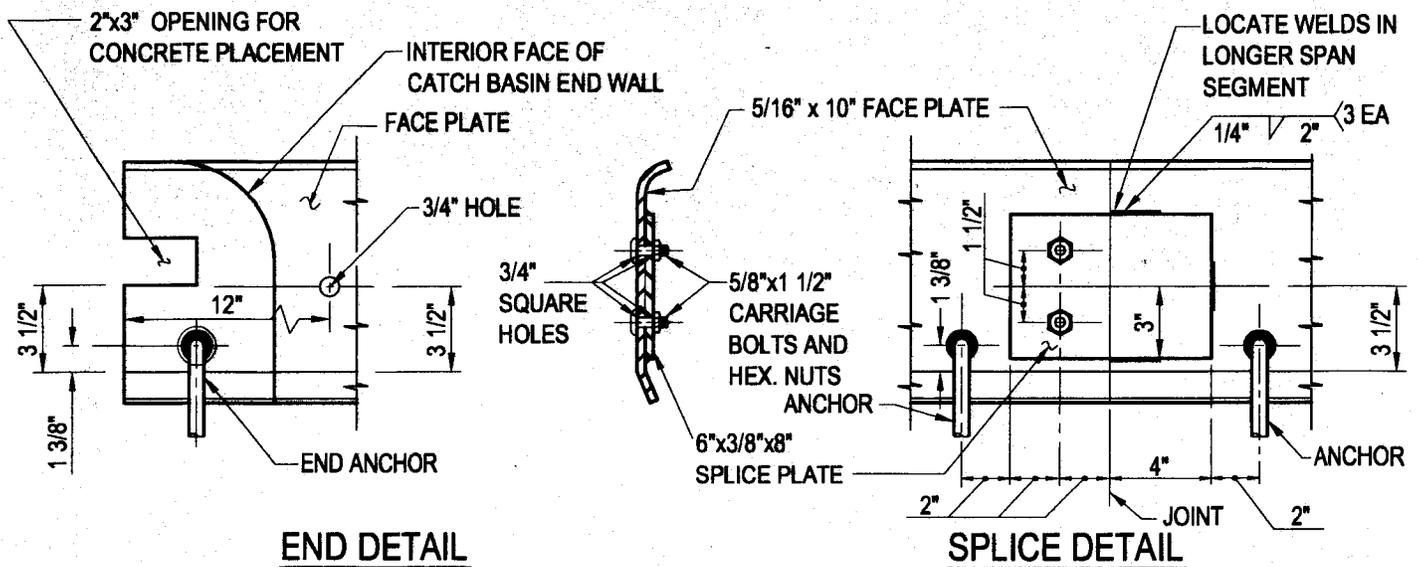
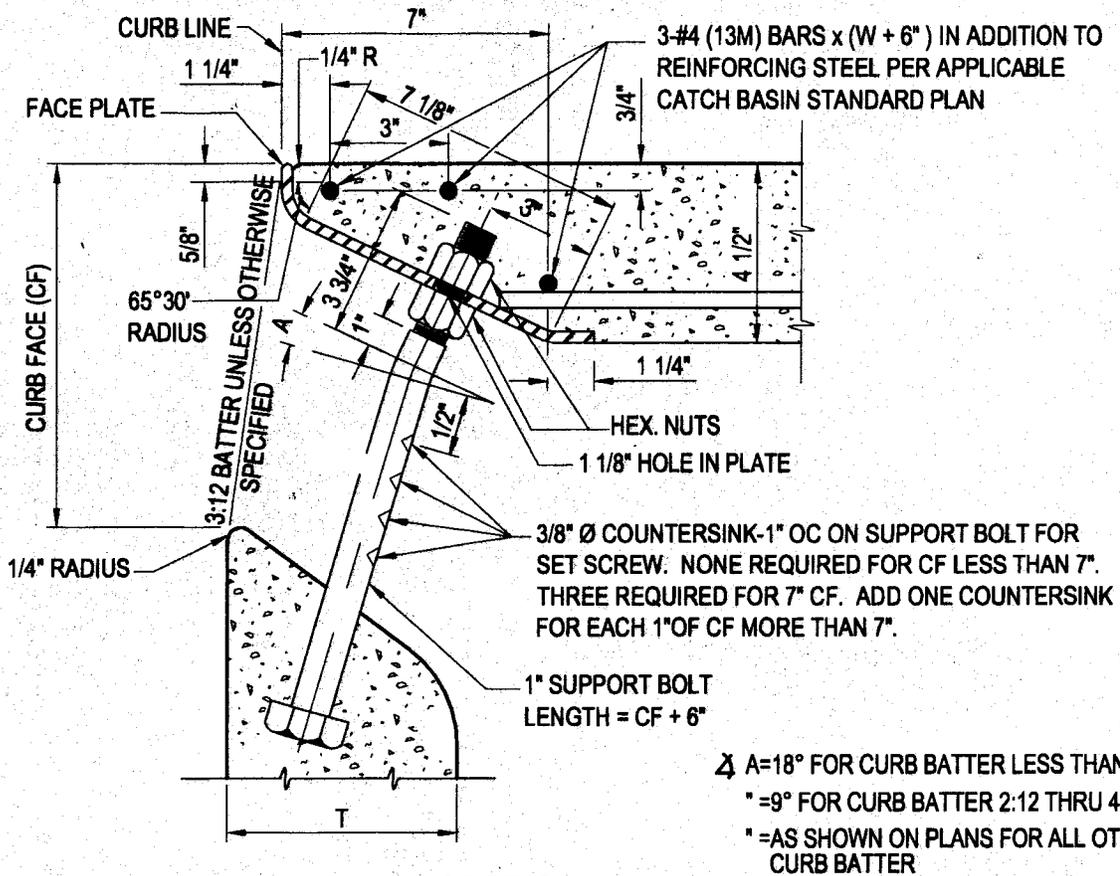
CATCH BASIN REINFORCEMENT

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[Signature] 43296 8/21/14
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AS SHOWN	SD-04	
DATE OF REVISION:	SHT. 2 OF 2	
8/2014		

SUPPORT BOLT AND FACE PLATE 4 1/2" TOP SLAB

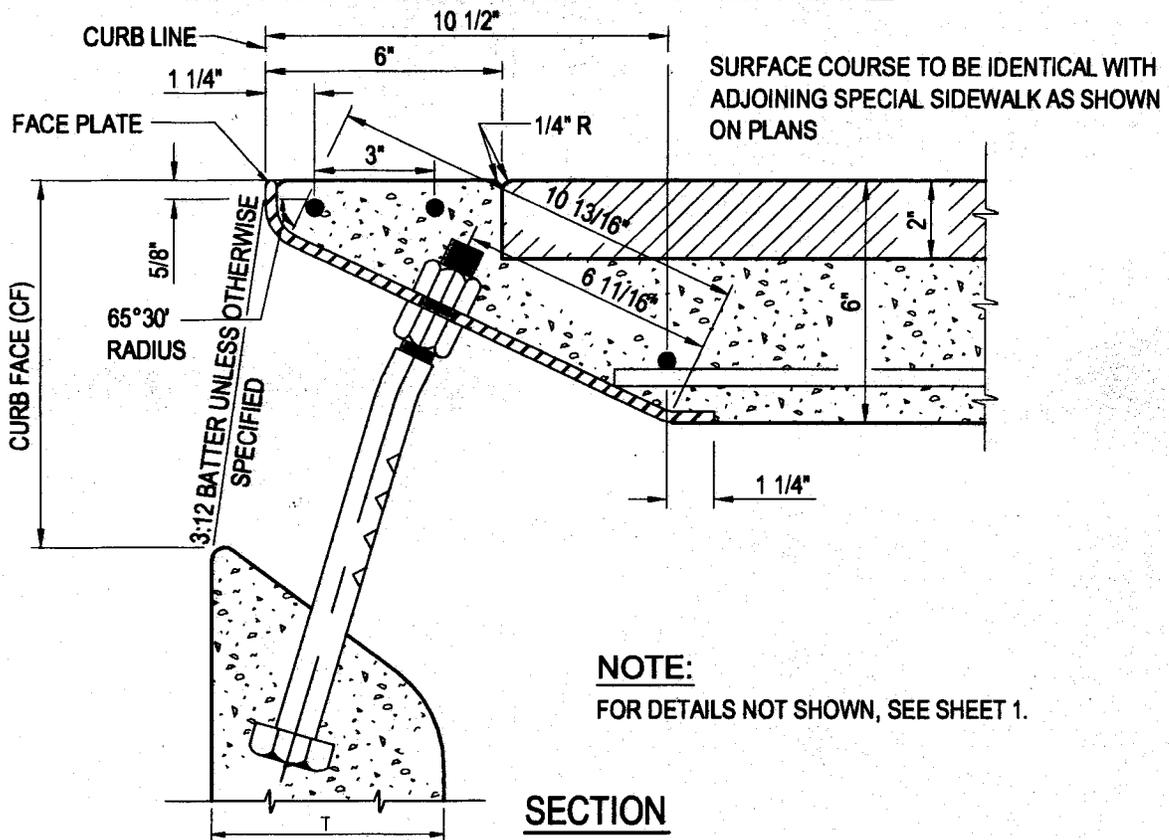


STANDARD DRAWING:
CATCH BASIN FACE PLATE ASSEMBLY AND PROTECTION BAR

APPROVED: *[Signature]* 12/14/14
CITY OF LA VERNE DATE
CITY UTILITY ENGINEER 43296 8/21/14 DATE
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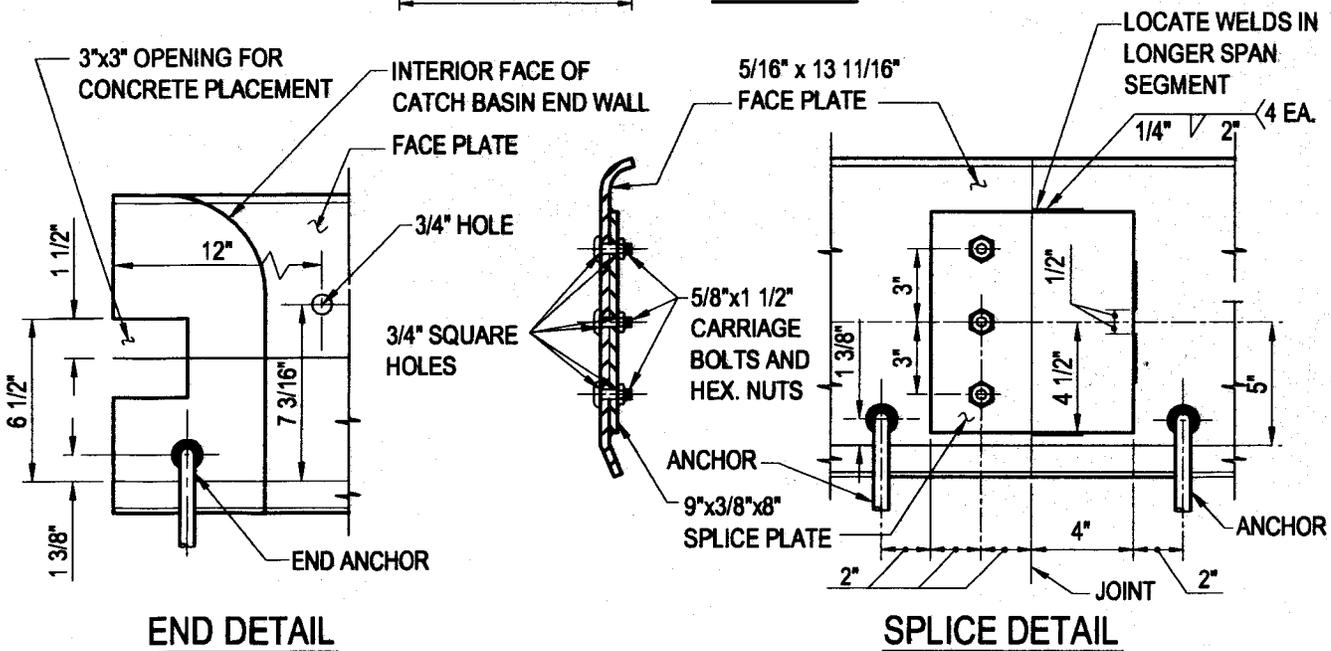
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DRAWN	J.M.	8/2014
CHECKED	C.S.H.	8/2014
SCALE:	DWG. No.	
AS SHOWN	SD-05	
DATE OF REVISION:	8/2014	
	SHT. 1 OF 6	

SUPPORT BOLT AND FACE PLATE (6") TOP SLAB



NOTE:
FOR DETAILS NOT SHOWN, SEE SHEET 1.

SECTION



END DETAIL

SPLICE DETAIL



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

CATCH BASIN FACE PLATE ASSEMBLY AND PROTECTION BAR

APPROVED:

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12/14/14

DATE

43296

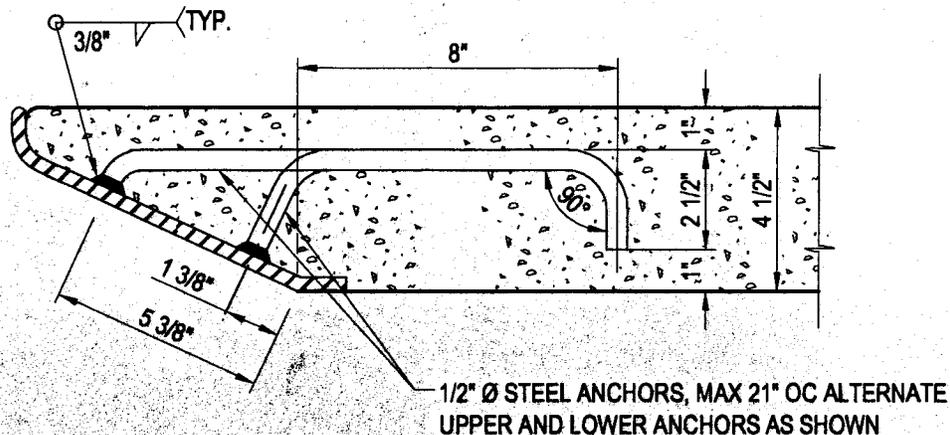
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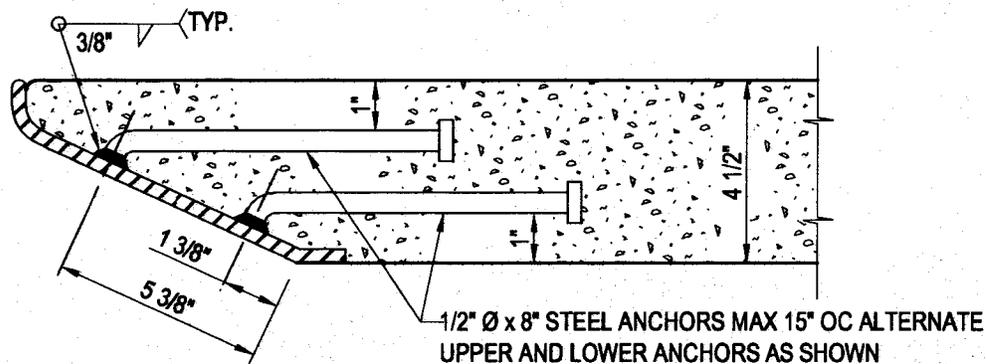
DATE

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DESIGNED	B.A.S.	8/2014
DRAWN	J.M.	8/2014
CHECKED	C.S.H.	8/2014
SCALE:	DWG. No.	
AS SHOWN	SD-05	
DATE OF REVISION:	8/2014	
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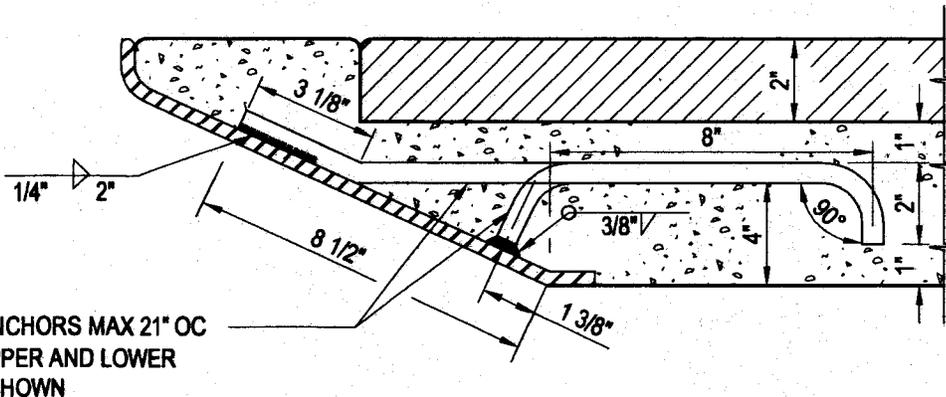
FACE PLATE ANCHORS



HOOK ANCHOR - 4 1/2" TOP SLAB



ROUND HEAD ANCHOR - 4 1/2" TOP SLAB



HOOK ANCHOR - 6" TOP SLAB



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

CATCH BASIN FACE PLATE ASSEMBLY AND PROTECTION BAR

APPROVED:

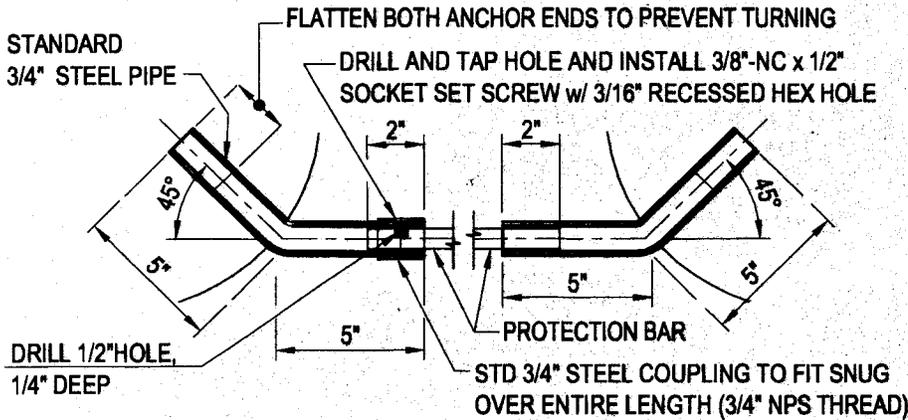
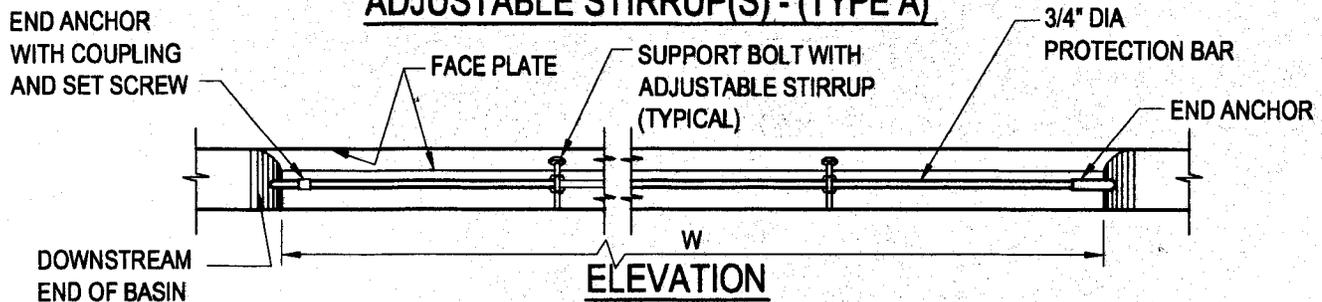
[Signature]
CITY OF LA VENUE
[Signature]
CITY UTILITY ENGINEER

43296
RCE No.

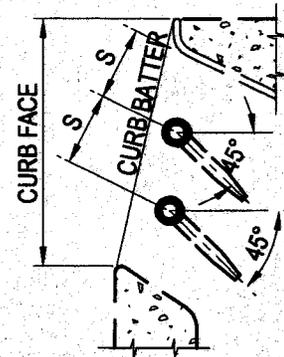
12/14/14
DATE
8/21/14
DATE

	BY	DATE
DESIGNED	B.A.S.	8/2014
DRAWN	J.M.	8/2014
CHECKED	C.S.H.	8/2014
SCALE:	DWG. No.	
AS SHOWN	SD-05	
DATE OF REVISION:		
8/2014	SHT. 3 OF 6	

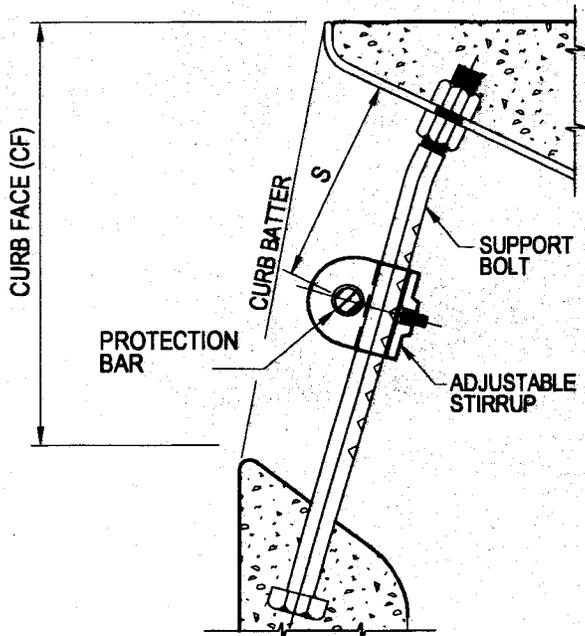
**PROTECTION BAR AND SUPPORT BOLT(S) WITH
ADJUSTABLE STIRRUP(S) - (TYPE A)**



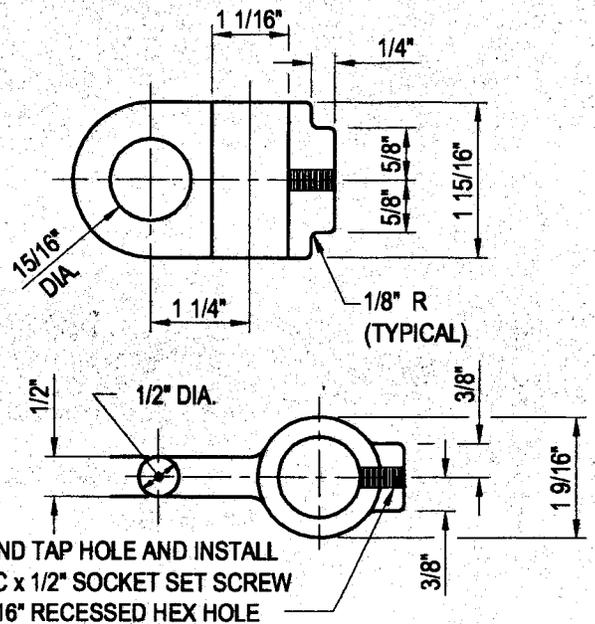
END ANCHOR DETAIL



DOUBLE PROTECTION BAR DETAIL



PROTECTION BAR & STIRRUP LOCATION



DRILL AND TAP HOLE AND INSTALL
3/8" 1-NC x 1/2" SOCKET SET SCREW
WITH 3/16" RECESSED HEX HOLE

STIRRUP DETAIL



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

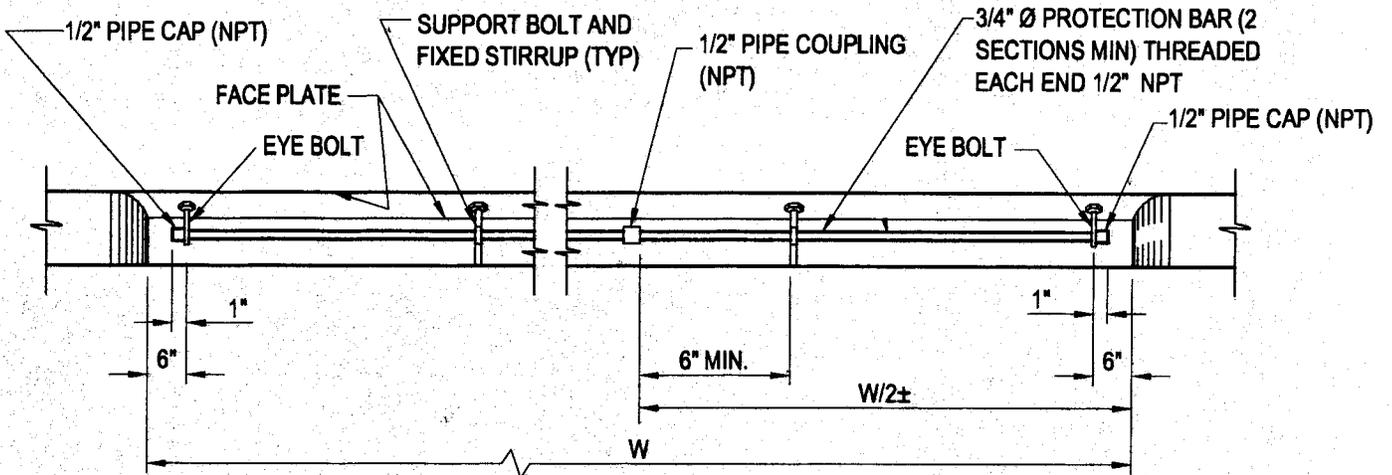
**CATCH BASIN FACE PLATE ASSEMBLY
AND PROTECTION BAR**

APPROVED:

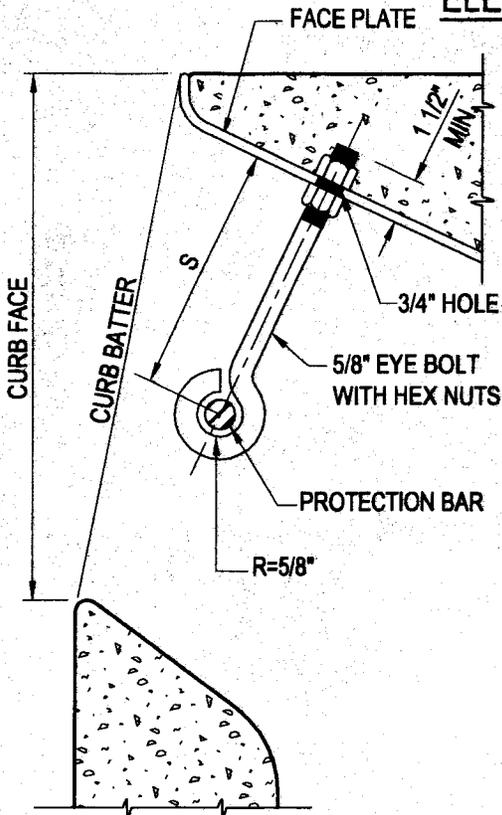
[Signature] **12/14/14**
CITY OF LA VERNE DATE
[Signature] **8/21/14**
CITY UTILITY ENGINEER RCE No. DATE

	BY	DATE
DESIGNED	B.A.S.	8/2014
DRAWN	J.M.	8/2014
CHECKED	C.S.H.	8/2014
SCALE:	DWG. No.	
AS SHOWN	SD-05	
DATE OF REVISION:	8/2014	
	SHT. 4 OF 6	

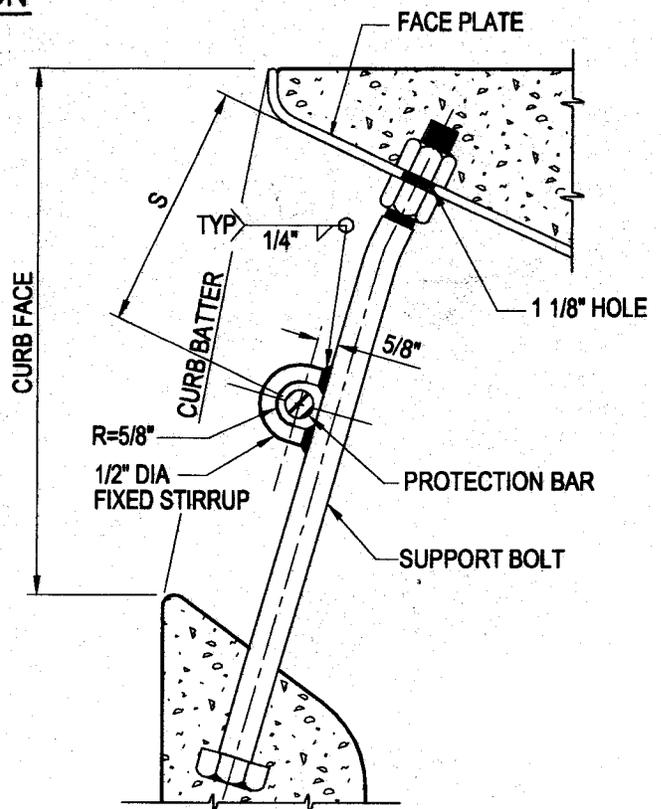
**PROTECTION BAR AND SUPPORT BOLT(S) WITH
FIXED STIRRUP(S) - (TYPE B)**



ELEVATION



EYE BOLT DETAIL



STIRRUP DETAIL



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

**CATCH BASIN FACE PLATE ASSEMBLY
AND PROTECTION BAR**

APPROVED:

[Signature]
CITY OF LAVERNE

CITY UTILITY ENGINEER

12/14/14
DATE

43296
RCE No.

8/21/14
DATE

	BY	DATE
DESIGNED	B.A.S.	8/2014
DRAWN	J.M.	8/2014
CHECKED	C.S.H.	8/2014
SCALE:	DWG. No.	
AS SHOWN	SD-05	
DATE OF REVISION:	8/2014	
	SHT. 5 OF 6	

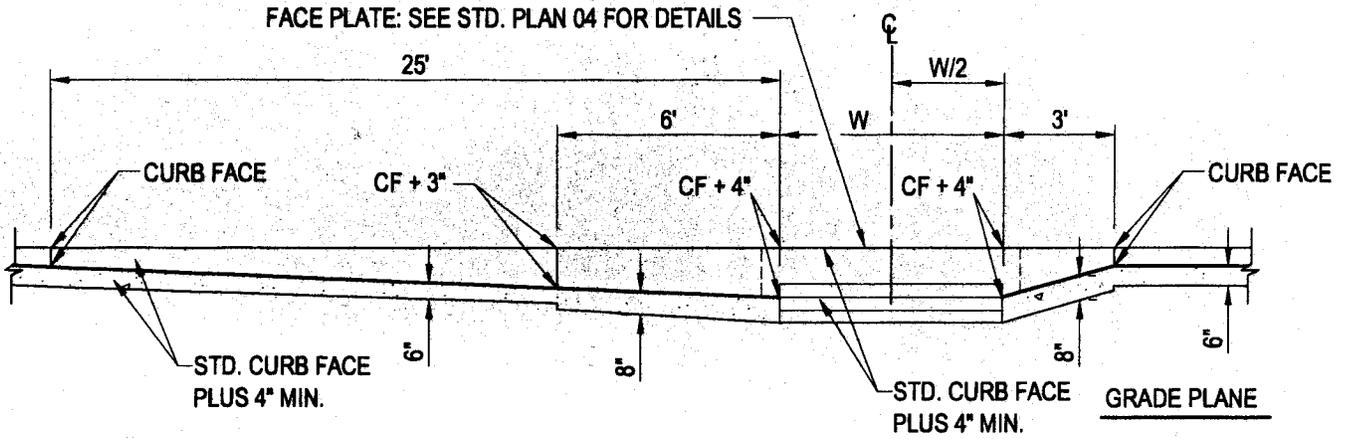
GENERAL NOTES:

1. ALL PARTS SHALL BE STEEL, EXCEPT SET SCREWS, WHICH SHALL BE STAINLESS STEEL OR BRASS.
 2. EXCLUDING SET SCREWS, ALL EXPOSED METAL PARTS SHALL BE GALVANIZED AFTER FABRICATION.
 3. CURB FACE SHALL BE AS NOTED ON THE PLANS.
 4. CURB BATTER SHALL BE 3:12 UNLESS OTHERWISE SPECIFIED.
- FACE PLATE
5. FACE PLATE LENGTHS SHALL BE CATCH BASIN W PLUS 12" EXCEPT AS MODIFIED "FOR A" CURB OPENING CATCH BASIN AT DRIVEWAY".
 6. WHEN THE LENGTH OF THE FACE PLATE IS BETWEEN 22' AND 43', TWO SECTIONS MAY BE USED. WHEN THE LENGTH EXCEEDS 43', THREE SECTIONS MAY BE USED. SECTIONS SHALL BE SPLICED ACCORDING TO THE APPLICABLE SPLICE DETAIL. SPLICE SHALL BE PLACED 1' FROM A SUPPORT BOLT.
 7. WHERE CATCH BASINS ARE TO BE CONSTRUCTED ON CURVES, THE MAXIMUM CHORD LENGTH FOR THE FACE PLATE SHALL BE SUCH THAT THE MAXIMUM PERPENDICULAR DISTANCE TO THE TRUE CURVE SHALL NOT EXCEED 1". WHERE MORE THAN ONE CHORD IS REQUIRED, CHORD LENGTHS SHALL BE EQUAL. CHORD SECTIONS SHALL BE SPLICED ACCORDING TO THE APPLICABLE SPLICE DETAIL (MODIFIED TO FIT THE CHORD DEFLECTION) AND A SUPPORT BOLT SHALL BE PLACED 1' FROM THE SPLICE.
 8. ROUND HEAD ANCHORS FOR THE FACE PLATE SHALL BE NELSON H-4F SHEAR CONNECTOR, KSN WELDING SYSTEMS DIVISION SHEAR CONNECTOR OR EQUAL.
- SUPPORT BOLT
9. SUPPORT BOLTS ARE REQUIRED WHEN THE LENGTH OF THE CATCH BASIN OPENING IS 7' OR GREATER, AND SHALL BE EVENLY SPACED ACROSS THE OPENING. SPACING SHALL NOT BE LESS THAN 3'-6" ON CENTER NOR GREATER THAN 5' ON CENTER.
- STIRRUP
10. FOR TYPE A, MATERIAL SHALL BE CAST STEEL.
- PROTECTION BAR
11. TYPE A SHALL BE USED UNLESS OTHERWISE SPECIFIED.
 12. FOR TYPE A, THE BAR SHALL BE CUT TO FIT IN THE FIELD. WHEN W" IS OVER 21', THE PROTECTION BAR SHALL CONSIST OF 2 OR MORE SECTIONS. A SPECIAL CONNECTOR BETWEEN THE PROTECTION BAR PIECES SHALL CONSIST OF A 5" LENGTH OF STANDARD 3/4" PIPE WITH STANDARD COUPLINGS FULLY THREADED ONTO EACH END DRILLED AND TAPPED FOR A SOCKET SET SCREW AS DETAILED FOR THE DOWNSTREAM END ANCHOR.
 13. FOR TYPE B, THE BAR SHALL BE TWO PIECES. TWO EYE BOLTS AND A WELDED STIRRUP ON EACH SUPPORT BOLT ARE REQUIRED.
 14. NUMBER OF PROTECTION BARS AND LOCATIONS ARE AS FOLLOWS:

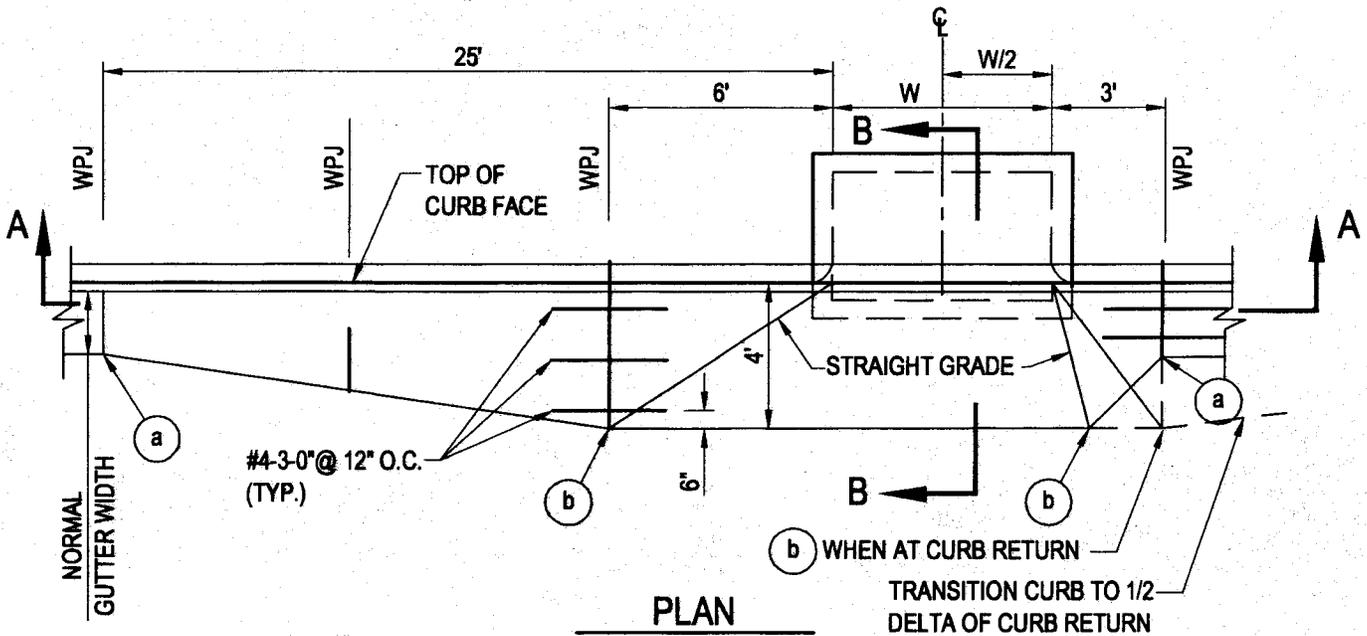
		MAXIMUM CURB FACE, INCHES														S D I M E N S I O N
		6"	7"	8"	9"	10"	11"	12"	13"	14"	15"	16"	17"	18"		
CURB BATTER	0:12	0	0	3.5"	3.5"	4.5"	4.5"	4.5"	5.5"	3.5"	3.5"	4.5"	4.5"	4.5"		
	1:12	0	0	3.5"	3.5"	4.5"	4.5"	4.5"	5.5"	3.5"	3.5"	4.5"	4.5"	5.5"		
	2:12	0	0	3.5"	3.5"	4.5"	4.5"	5.5"	3.5"	3.5"	4.5"	4.5"	5.5"	5.5"		
	3:12	0	0	3.5"	3.5"	4.5"	4.5"	5.5"	3.5"	4.5"	4.5"	5.5"	5.5"	4.5"		
	4:12	0	3.5"	3.5"	4.5"	4.5"	5.5"	3.5"	3.5"	4.5"	4.5"	5.5"	4.5"	4.5"		
		0	1					2*					3*			
NUMBER OF PROTECTION BARS																

FOR OTHER CURB FACE OR BATTER SEE PLANS * TYPE A PROTECTION BAR ONLY

 DEPARTMENT OF PUBLIC WORKS	STANDARD DRAWING: CATCH BASIN FACE PLATE ASSEMBLY AND PROTECTION BAR		BY	DATE
		DESIGNED	B.A.S.	8/2014
		DRAWN	J.M.	8/2014
		CHECKED	C.S.H.	8/2014
	APPROVED:	 CITY OF LA VERMIL CITY UTILITY ENGINEER	12/14/14 DATE 43296 RCE No.	SCALE: AS SHOWN
		DATE OF REVISION: 8/2014	SHT. 6 OF 6	



SECTION A-A



POINT	6" TO 10" CF TRANS. DISTANCE BELOW TC	6" TO 10" CF TRANS. DISTANCE BELOW TC
a	.39'	.51'
b	.35'	.48'



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

**LOCAL DEPRESSION
(FLOW BY CONDITION)**

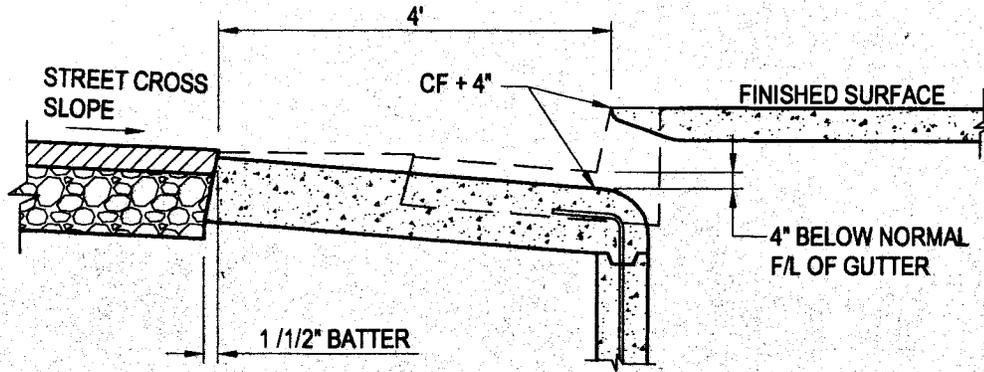
APPROVED:

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CITY OF LA VERNE
[Signature]
CITY UTILITY ENGINEER

43296
RCE No.

12/14/14
DATE
8/21/14
DATE

	BY	DATE
DESIGNED	B.A.S.	8/2014
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CHECKED	C.S.H.	8/2014
SCALE: AS SHOWN	DWG. No. SD-07	
DATE OF REVISION: 8/2014	SHT. 1 OF 2	



SECTION B-B

NOTES:

1. LOCAL DEPRESSION SHALL NOT BE CONSTRUCTED UNTIL CONNECTING CURB AND GUTTER HAS BEEN COMPLETED OR SHALL BE CONSTRUCTED MONOLITHICALLY WITH CONNECTING CURB AND GUTTER, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
2. LOCAL DEPRESSION SHALL CONFORM TO SAME SHAPE WHETHER GRATE INLET OR CURB OPENING, OR BOTH, ARE USED.
3. LENGTH OF OPENING "W" SHALL BE SPECIFIED ON PLAN.
4. SEE STANDARD PLAN SD-05 FOR CURB OPENING DETAILS.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

**LOCAL DEPRESSION
(FLOW BY CONDITION)**

APPROVED:

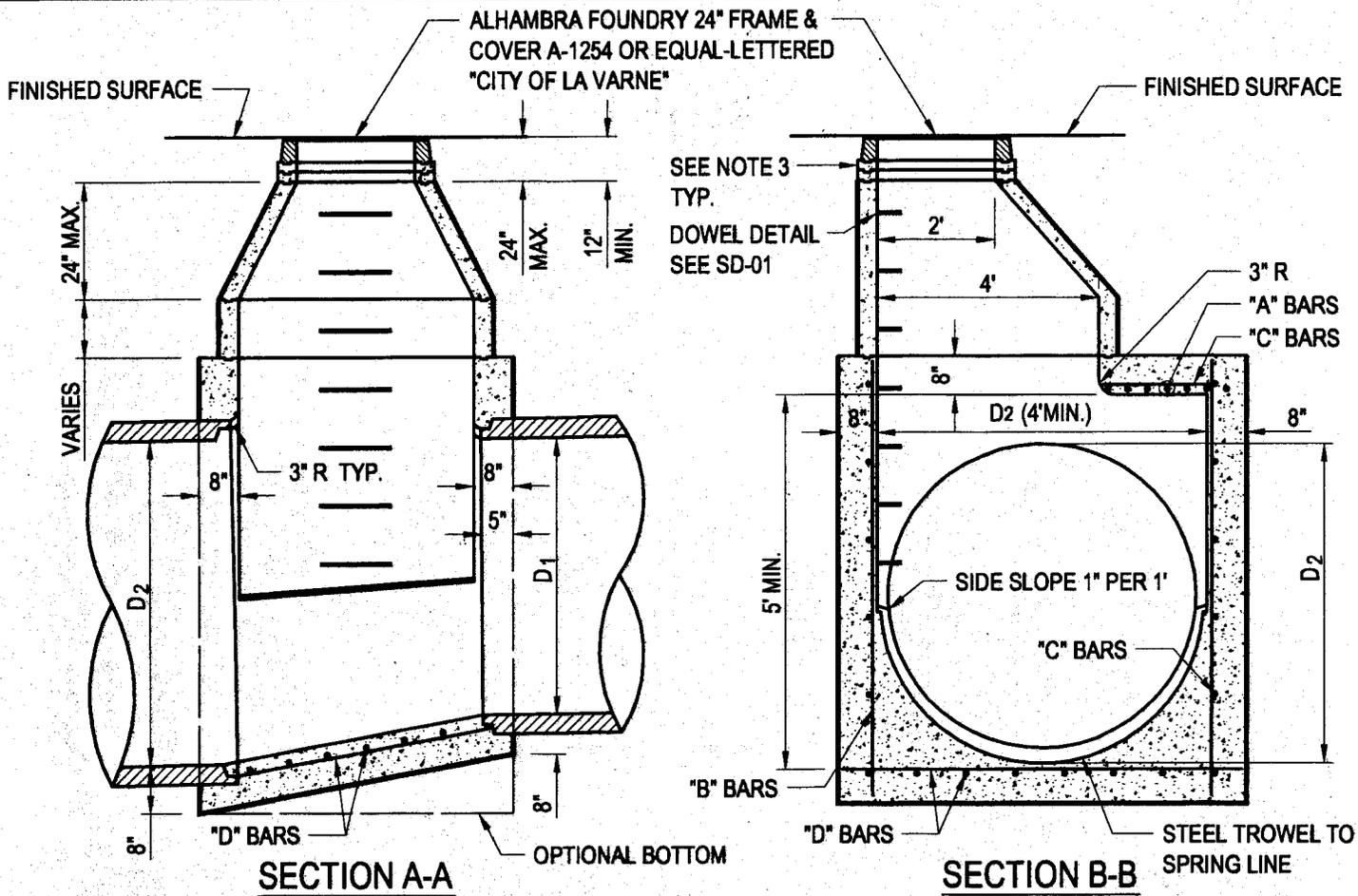
[Signature]
CITY OF LAVERNE

CITY UTILITY ENGINEER

43296
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12/14/14
DATE
8/21/14
DATE

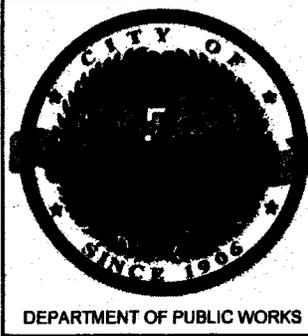
	BY	DATE
DESIGNED	B.A.S.	8/2014
DRAWN	J.M.	8/2014
CHECKED	C.S.H.	8/2014
SCALE:	DWG. No.	
AS SHOWN	SD-07	
DATE OF REVISION:	SHT. 2 OF 2	
8/2014		



REINFORCING SCHEDULE

BARS	D ₂ UP TO 60"	D ₂ 63" UP TO 84"
"A" BARS	#5 @ 4"	#5 @ 4"
"B" BARS	#4 @ 7"	#5 @ 6"
"C" BARS	#4 @ 18"	#4 @ 18"
"D" BARS	#5 @ 8"	#6 @ 6"

- NOTES:**
1. ROUND EDGES OF OUTLET TO 3" RADIUS
 2. ALL REINFORCING STEEL IN BASE STRUCTURE SHALL BE 1-1/2" CLEAR FROM INSIDE FACE OF STRUCTURE.
 3. CONCRETE RINGS FOR ACCESS SHAFT SHALL BE CEMENTED IN PLACE WITH 1:2 MIX CEMENT MORTAR.
 4. CONCRETE SHALL BE CLASS "A" (6 SACK WITH 3/4" AGGREGATE).



STANDARD DRAWING:
STORM DRAIN MANHOLE

APPROVED: *[Signature]*
 CITY OF LA VERNE
 CITY UTILITY ENGINEER

12/14/14
 DATE

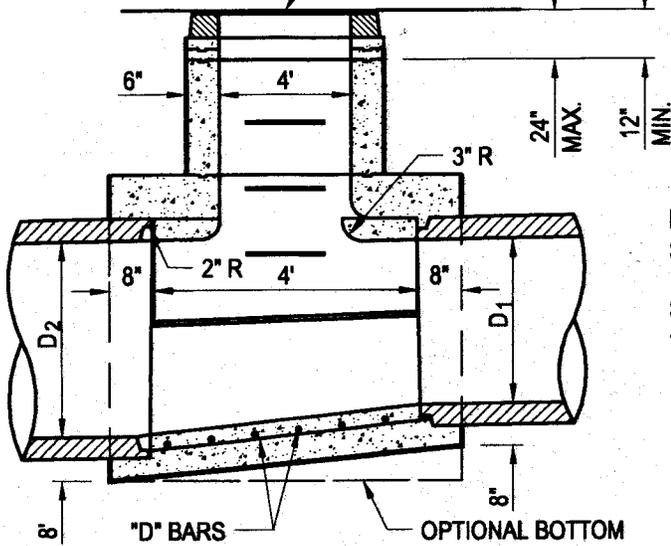
43296
 RCE No.

8/21/14
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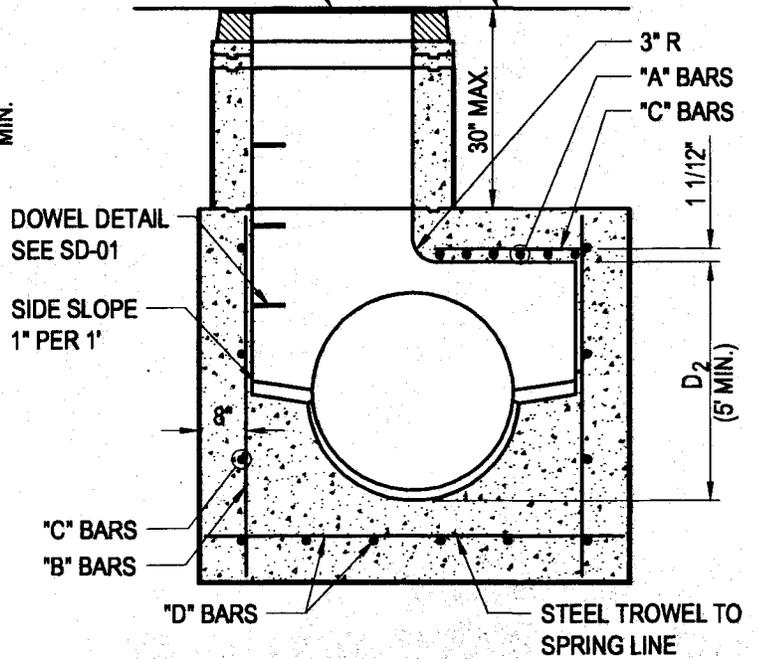
	BY	DATE
DESIGNED	B.A.S.	8/2014
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CHECKED	C.S.H.	8/2014
SCALE: AS SHOWN	DWG. No.	SD-08
DATE OF REVISION: 8/2014		SHT. 1 OF 1

ALHAMBRA FOUNDRY 24" FRAME &
COVER A-1254 OR EQUAL-LETTERED
"CITY OF LA VERNE"

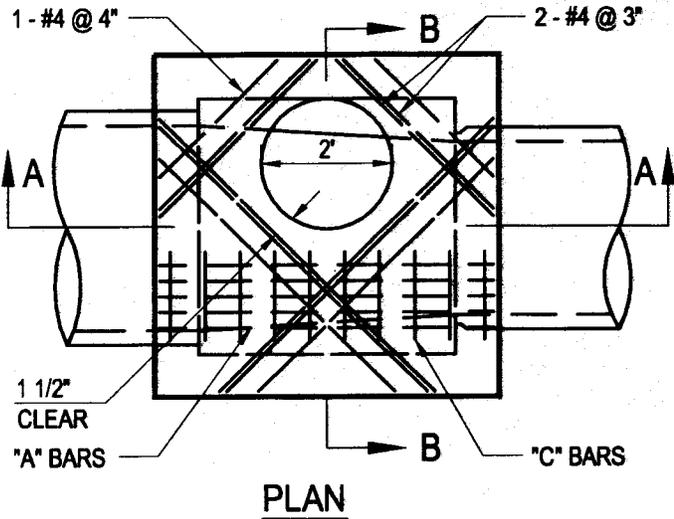
FINISHED SURFACE



SECTION A-A



SECTION B-B



PLAN

REINFORCING SCHEDULE

BARS	D ₂ UP TO 60"	D ₂ 63" UP TO 84"
"A" BARS	#5 @ 4"	#5 @ 4"
"B" BARS	#4 @ 7"	#5 @ 6"
"C" BARS	#4 @ 18"	#4 @ 18"
"D" BARS	#5 @ 8"	#6 @ 6"

NOTES:

1. ROUND EDGES OF OUTLET TO 3" RADIUS
2. ALL REINFORCING STEEL IN BASE STRUCTURE SHALL BE 1-1/2" CLEAR FROM INSIDE FACE OF CONCRETE.
3. CONCRETE RINGS FOR ACCESS SHAFT SHALL BE CEMENTED IN PLACE WITH 1:2 MIX CEMENT MORTAR.
4. CONCRETE SHALL BE CLASS "A" (6 SACK WITH 3/4" AGGREGATE).



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

STORM DRAIN MANHOLE
(SHALLOW DEPTH)

APPROVED:

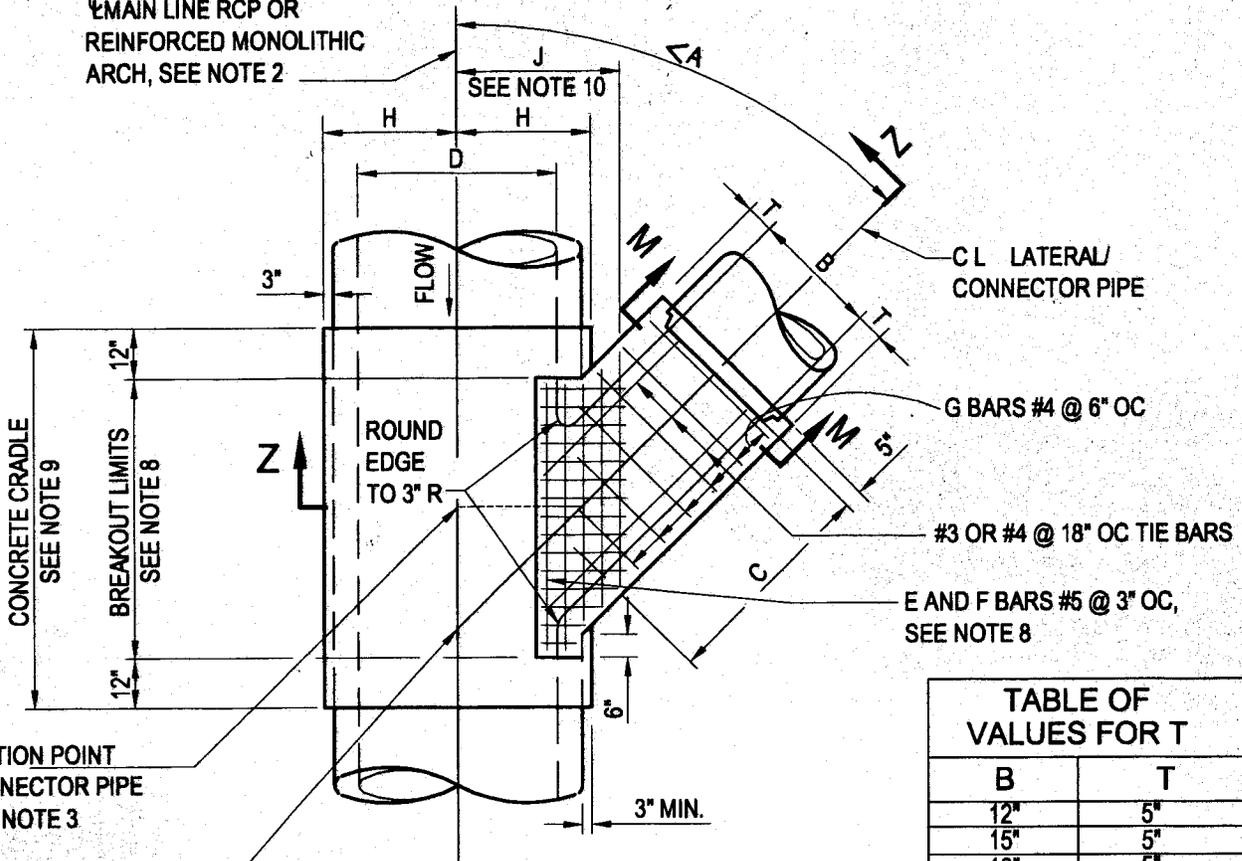
[Signature]
CITY OF LA VERNE
CITY UTILITY ENGINEER

12/14/14
DATE
49296
RCE No.

8/21/14
DATE

	BY	DATE
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AS SHOWN	SD-09	
DATE OF REVISION:	8/2014	
	SHT. 1 OF 1	

MAIN LINE RCP OR REINFORCED MONOLITHIC ARCH, SEE NOTE 2



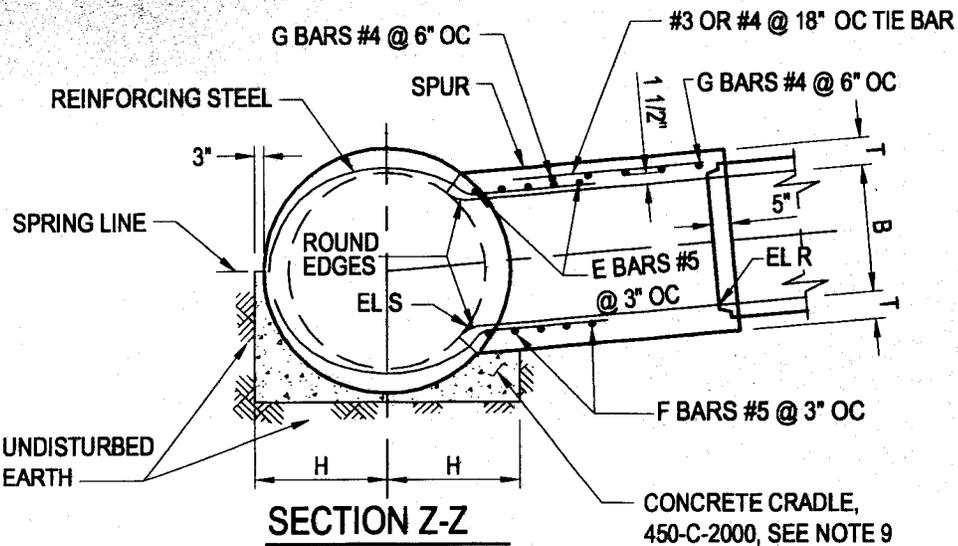
PLAN

TABLE OF VALUES FOR T	
B	T
12"	5"
15"	5"
18"	5"
21"	5"
24"	5 1/2"
27"	5 1/2"
30"	6"
33"	6 1/2"
36"	6 1/2"
39"	7"

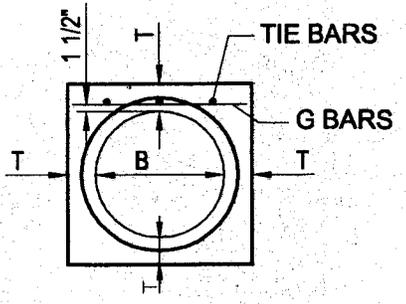
STATION POINT CONNECTOR PIPE SEE NOTE 3

STATION POINT LATERAL SEE NOTE 3

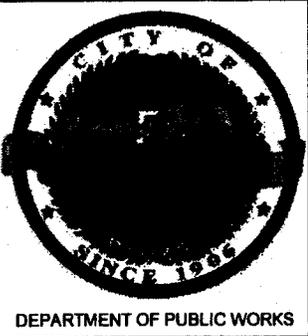
CONCRETE CRADLE SEE NOTE 9
 12"
 BREAKOUT LIMITS SEE NOTE 8
 12"



SECTION Z-Z



SECTION M-M



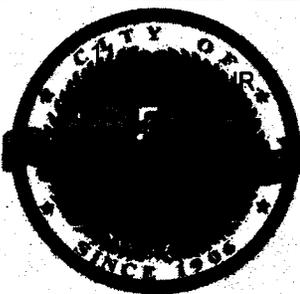
STANDARD DRAWING:
JUNCTION STRUCTURE-PIPE TO PIPE
 INLET ID ≥ 24" OR OD > 1/2 MAIN LINE ID

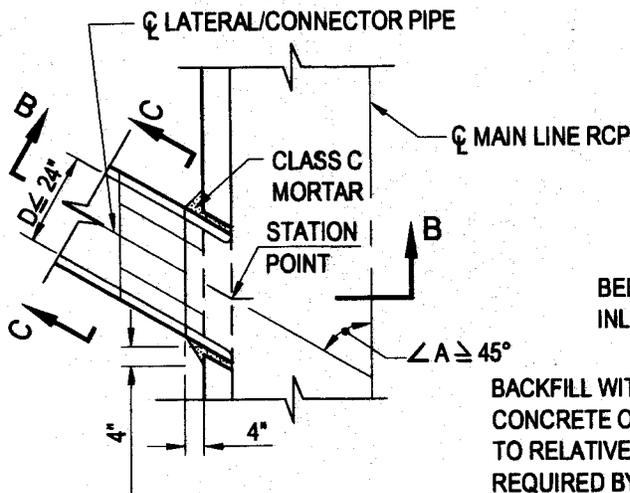
APPROVED: *[Signature]* 12/14/14
 CITY OF LA VERNE DATE
[Signature] 43296 8/21/14
 CITY UTILITY ENGINEER RCE No. DATE

	BY	DATE
DESIGNED	B.A.S.	8/2014
DRAWN	J.M.	8/2014
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SCALE:	DWG. No.	
AS SHOWN	SD-10	
DATE OF REVISION:	8/2014	
	SHT. 1 OF 2	

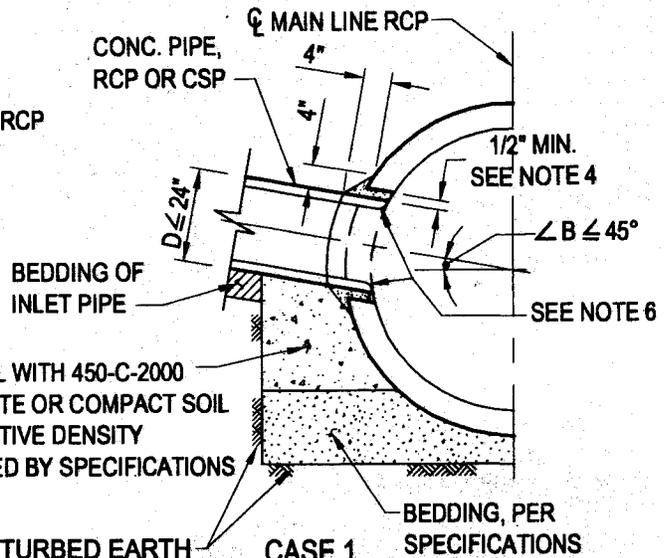
NOTES:

1. THIS JUNCTION STRUCTURE SHALL BE USED WHEN THE OUTSIDE DIAMETER OF THE LATERAL IS GREATER THAN 1/2 THE INSIDE DIAMETER D OF THE MAIN LINE; OR WHEN THE INSIDE DIAMETER B OF THE LATERAL IS GREATER THAN 24". B SHALL NOT EXCEED 0.75 D OR 39".
2. IF THE MAIN LINE IS A REINFORCED MONOLITHIC ARCH STORM DRAIN, D SHALL REFER TO THE CLEAR SPAN OF THE ARCH. REINFORCING STEEL SHALL BE CUT AND BENT INTO THE JUNCTION STRUCTURE IN THE SAME MANNER AS FOR A PIPE. A CONCRETE CRADLE IS NOT REQUIRED FOR A REINFORCED MONOLITHIC ARCH.
3. STATIONS SHOWN ON THE PLANS FOR LATERALS APPLY AT THE INTERSECTION OF CENTERLINES OF MAIN LINE AND LATERAL. STATIONS SHOWN ON THE PLANS FOR CATCH BASIN CONNECTOR PIPES APPLY AT THE INTERSECTION OF THE INSIDE WALL OF THE MAIN LINE WITH THE CONNECTOR PIPE CENTERLINE.
4. VALUES FOR A, B, C AND D SHALL BE SHOWN ON THE PLANS. ELEVATION R AND ELEVATION S SHALL BE SHOWN ONLY WHEN REQUIRED PER NOTE 5.
5.
 - a. ELEVATIONS R AND S NEED NOT BE SHOWN ON THE PLANS IF THE INLET PIPE IS TO ENTER THE MAIN LINE RADIALLY.
 - b. ELEVATION R SHALL BE SHOWN ON THE PLANS ONLY IF A STUB IS TO BE PROVIDED IN THE MAIN LINE FOR FUTURE CONNECTION OF AN INLET PIPE.
 - c. ELEVATION S SHALL BE SHOWN ON THE PLANS IF AN INLET PIPE IS TO ENTER THE MAIN LINE OTHER THAN RADIALLY. INLET PIPE SHALL BE LAID ON A STRAIGHT GRADE FROM ELEVATION S TO THE CATCH BASIN OR GRADE BREAK IN LINE.
6. THE INLET PIPE SHALL ENTER THE MAIN LINE RADIALLY UNLESS OTHERWISE INDICATED. THE INLET PIPE MAY ENTER THE MAIN LINE OTHER THAN RADIALLY IF ANGLE A IS GREATER THAN 45°, B IS LESS THAN OR EQUAL TO 24° AND THE OUTSIDE DIAMETER OF THE INLET PIPE IS LESS THAN 0.5 D; OTHERWISE, SPPWC 340 SHALL BE USED.
7. NO MORE THAN ONE OPENING SHALL BE MADE IN ANY ONE SECTION OF PIPE.
8. THE OPENING FOR THE BREAKOUT SHALL BE RECTANGULAR AND CUT NORMAL TO THE PIPE SURFACE WITHOUT DAMAGING THE REINFORCING STEEL. THE TRANSVERSE REINFORCEMENT OF THE MAIN LINE SHALL BE CUT AT THE CENTER OF THE OPENING AND BENT INTO THE TOP AND BOTTOM SLABS OF THE SPUR.
9. THE MAIN LINE SHALL BE REINFORCED WITH A CONCRETE CRADLE AND ENCASMENT (AS APPLICABLE). A CONCRETE ENCASMENT IS REQUIRED IF A JOINT IN THE MAIN LINE FALLS WITHIN THE LIMITS OF THE CRADLE. THE CONCRETE ENCASMENT SHALL EXTEND 12" ABOVE THE TOP OF THE MAIN LINE AND TO THE LIMITS OF THE CRADLE. IF CONNECTING TO AN EXISTING STORM DRAIN, PORTION OF CRADLE OPPOSITE INLET MAY BE OMITTED.
10. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 40, (ASTM A 615M, AND BE PLACED 1 1/2" CLEAR FROM CONCRETE SURFACES, UNLESS OTHERWISE SHOWN F BARS SHALL BE CARRIED TO A POINT NOT LESS THAN J DISTANCE FROM CENTER LINE WITH $J=7D/12 + 6"$.
11. FLOOR OF THE SPUR SHALL BE STEEL-TROWELED TO THE SPRING LINE OF THE SPUR.

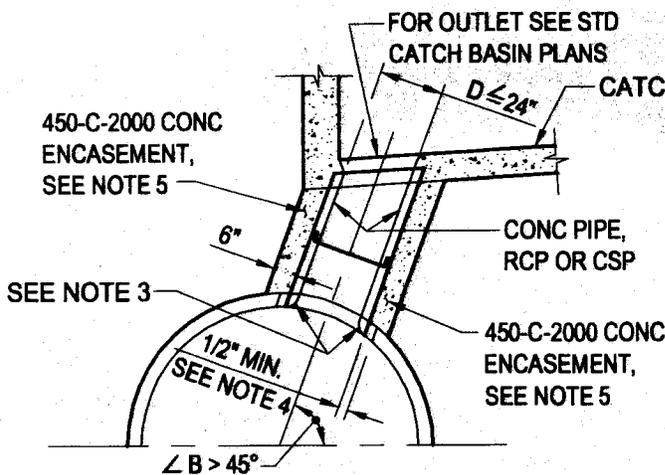
 DEPARTMENT OF PUBLIC WORKS	STANDARD DRAWING: JUNCTION STRUCTURE-PIPE TO PIPE INLET ID ≥ 24" OR OD > 1/2 MAIN LINE ID		BY	DATE
		DESIGNED	B.A.S.	8/2014
		DRAWN	J.M.	8/2014
		CHECKED	C.S.H.	8/2014
APPROVED:  CITY OF LAVERNE	DATE 12/14/14	SCALE:	DWG. No.	
 CITY UTILITY ENGINEER	RCE No. 43296 DATE 8/21/14	AS SHOWN	SD-10	
		DATE OF REVISION:		
		8/2014	SHT. 2 OF 2	



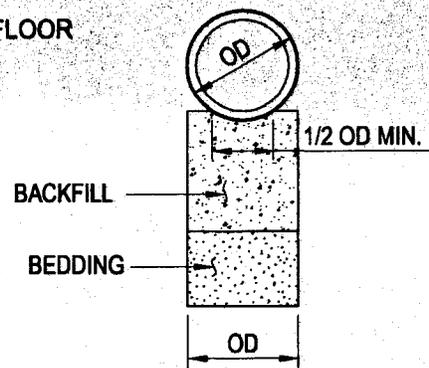
CASE 1
PLAN



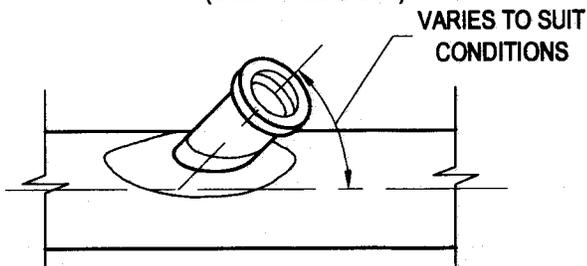
CASE 1
SECTION B-B



CASE 2
(SEE NOTES 9 & 10)

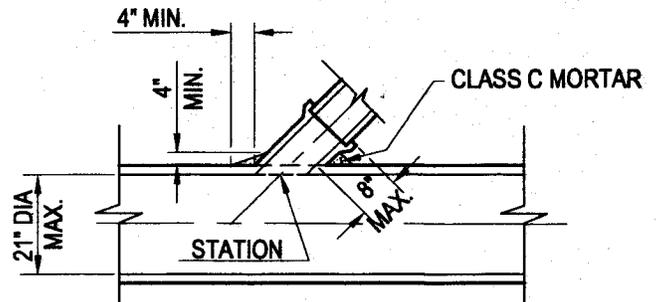


CASE 1
SECTION C-C

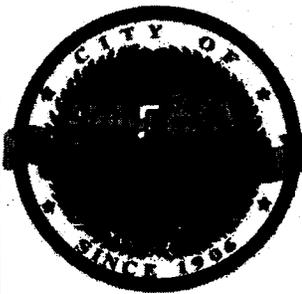


SADDLE
PLAN

CASE 3
SADDLE CONNECTION



SADDLE
SECTION



STANDARD DRAWING:
JUNCTION STRUCTURE-PIPE TO PIPE
(ID $\le 24''$)

APPROVED: *[Signature]* 12/14/14
CITY OF LAVERNE
[Signature] 43296 8/21/14
CITY UTILITY ENGINEER RCE No. DATE

	BY	DATE
DESIGNED	B.A.S.	8/2014
DRAWN	J.M.	8/2014
CHECKED	C.S.H.	8/2014
SCALE:	DWG. No.	
AS SHOWN	SD-11	
DATE OF REVISION:	8/2014	
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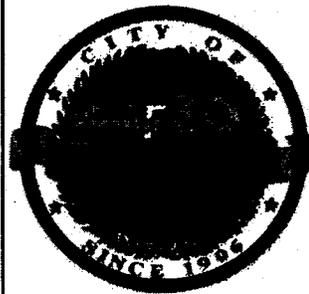
NOTES

CASE 1 AND CASE 2

1. IF ANGLE A IS LESS THAN 45 OR IF 'D' IS LARGER THAN 24", THEN ANOTHER STANDARD STRUCTURE SHALL BE SPECIFIED.
2. THE OUTSIDE DIAMETER OF THE INLET PIPE SHALL NOT EXCEED 1/2 THE INSIDE DIAMETER OF THE MAIN LINE.
3. THE INLET PIPE SHALL ENTER THE MAIN LINE RADially. IF THE INLET PIPE CANNOT ENTER RADially, THEN ANOTHER STANDARD STRUCTURE SHALL BE SPECIFIED.
4. THE SIZE OF THE OPENING INTO THE MAIN LINE SHALL BE THE OUTSIDE DIAMETER OF THE INLET PIPE PLUS 1" MINIMUM TO 3" MAXIMUM.
5. ALL CONNECTOR PIPES FOR CASE 2 SHALL BE ENCASED IN CONCRETE IF LAID WITHIN THE MAIN LINE EXCAVATED TRENCH OR IF LAID ON FILL WHICH HAS NOT BEEN DENSIFIED.
6. BURN OR CHIP END OF CONNECTOR PIPE FLUSH WITH INNER SURFACE OF MAIN LINE. ROUND EDGE OF CONCRETE PIPE OR RCP.
7. ALL CSP AND FITTINGS SHALL BE GALVANIZED.
8. STATION SPECIFIED ON THE PLANS APPLIES AT THE INTERSECTION OF THE INSIDE WALL OF MAIN LINE AND THE CENTERLINE OF INLET PIPE.
9. CASE 2 SHALL NOT BE USED TO CONNECT TO THE FLOOR OF A GRATING CATCH BASIN WHERE THE GRATE WILL BE SUBJECT TO VEHICLE TRAFFIC.
10. FOR CASE 2, NOT MORE THAN 12' OF INLET PIPE SHALL BE LOCATED WITHIN THE MAIN LINE EXCAVATED TRENCH.

CASE 3

11. CONNECTIONS TO PIPES 21" OR LESS IN DIAMETER WITHOUT JUNCTION STRUCTURES OR PRECAST Y BRANCHES SHALL BE MADE WITH SADDLES.
12. THE OUTSIDE DIAMETER OF THE INLET PIPE SHALL NOT EXCEED ONE-HALF THE INSIDE DIAMETER OF THE MAIN LINE.
13. TRIM OR CUT SADDLE TO FIT SNUGLY OVER THE OUTSIDE OF THE MAIN LINE SO ITS AXIS WILL BE ON THE LINE AND GRADE OF THE CONNECTOR PIPE.
14. THE OPENING INTO THE PIPE SHALL BE CUT AND TRIMMED TO FIT THE SADDLE SO THAT NO PART WILL PROJECT WITHIN THE BORE OF THE SADDLE PIPE.
15. THE CONNECTOR PIPE SHALL BE SUPPORTED AS SHOWN IN CASES 1 AND 2.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

JUNCTION STRUCTURE-PIPE TO PIPE (ID ≤ 24")

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CITY OF LA VERNE

CITY UTILITY ENGINEER

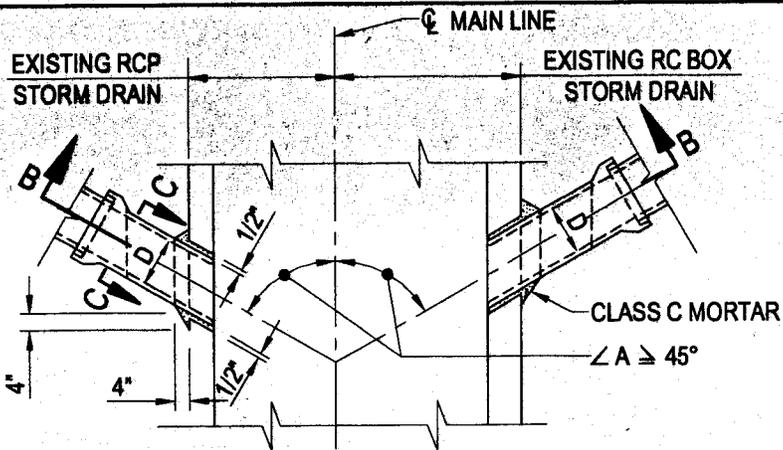
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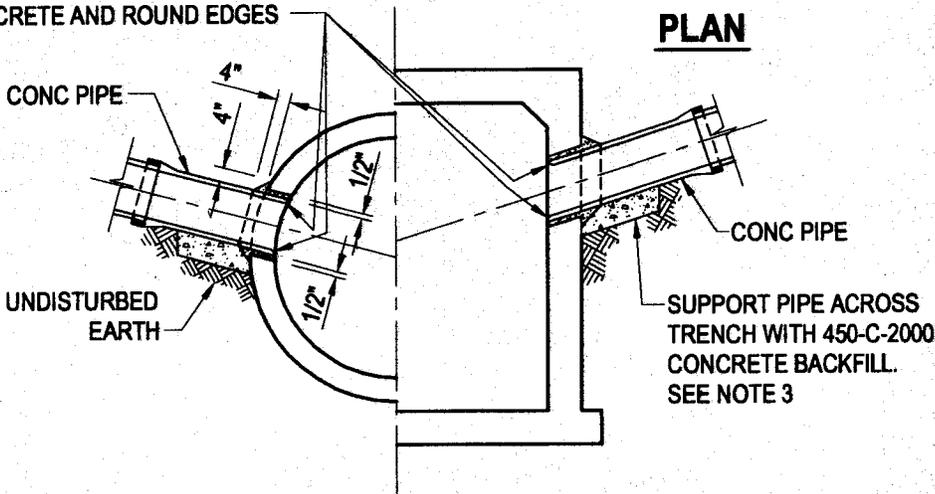
8/21/14
DATE

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DRAWN	J.M.	8/2014
CHECKED	C.S.H.	8/2014
SCALE: AS SHOWN	DWG. No. SD-11	
DATE OF REVISION: 8/2014	SHT. 2 OF 2	



CHIP PIPE TO SURFACE OF CONCRETE AND ROUND EDGES

PLAN



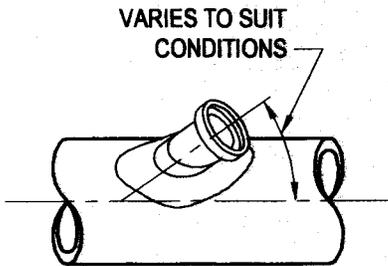
SECTION B-B



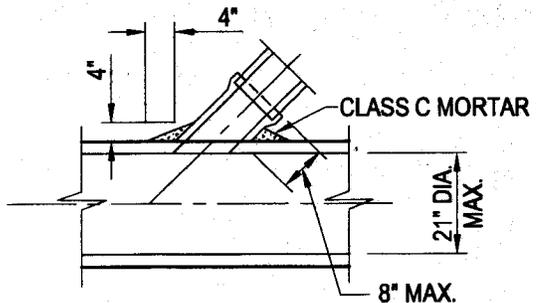
SECTION C-C

**CASE 1
PLAIN CONCRETE PIPE**

D = 24" MAX



**SADDLE
PLAN**



**SADDLE
SECTION**

**CASE 2
SADDLE CONNECTION**



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

**PIPE CONNECTIONS TO
EXISTING STORM DRAINS**

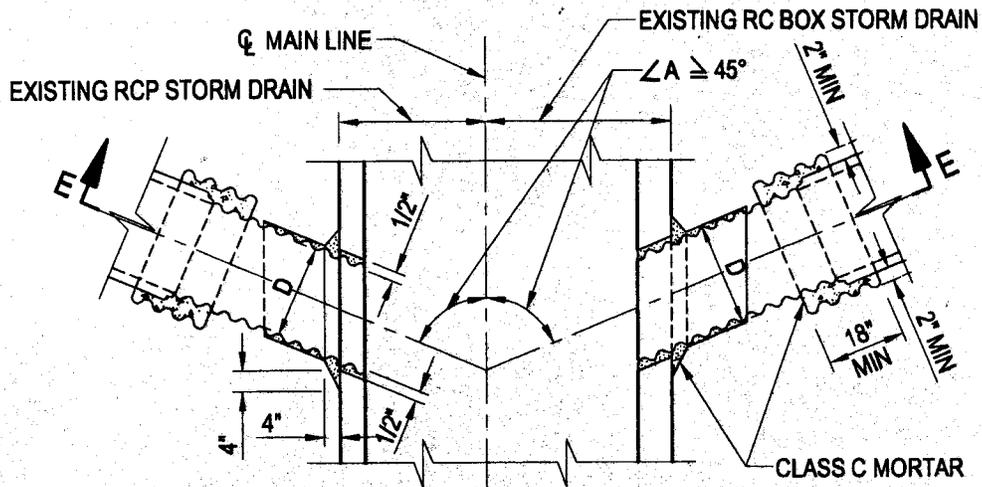
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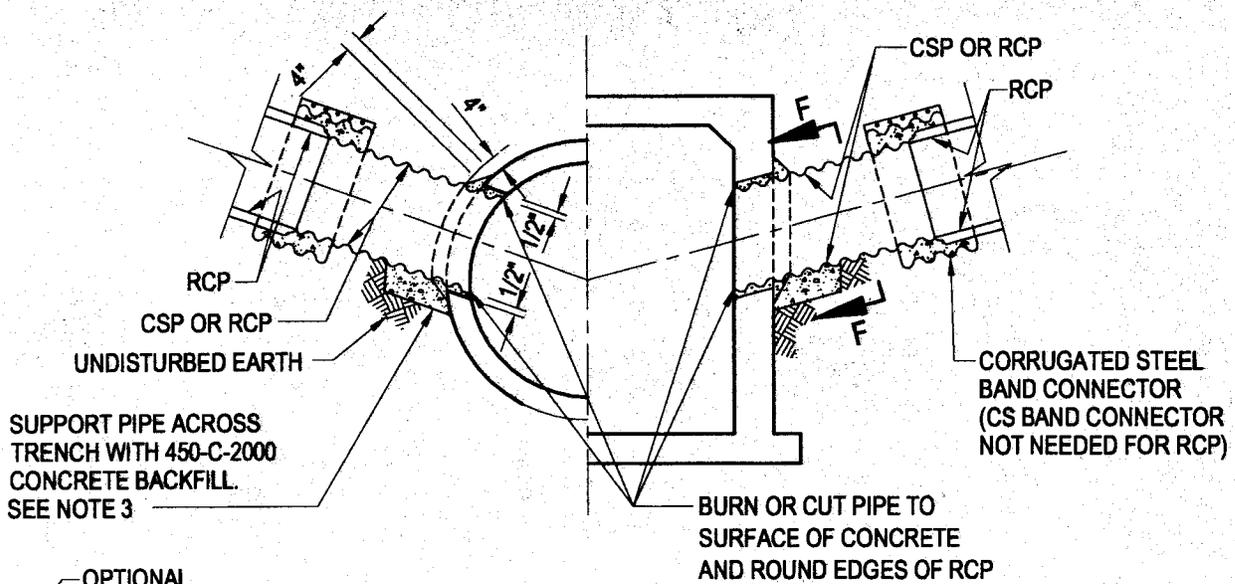
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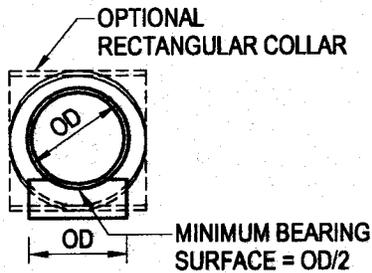
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SCALE:	DWG. No.	
AS SHOWN	SD-12	
DATE OF REVISION:	8/2014	
	SHT. 1 OF 3	



PLAN



SECTION E-E



SECTION F-F

DIAMETER OF CSP	MIN GAGE
15" - 21"	16
24"	14

CASE 3
RCP OR CSP
D = 24" MAX



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

PIPE CONNECTIONS TO EXISTING STORM DRAINS

APPROVED:

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CITY UTILITY ENGINEER

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AS SHOWN	SD-12	
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	SHT. 2 OF 3	

NOTES

CASE 1 AND CASE 3

1. OUTSIDE DIAMETER OF THE CONNECTOR PIPE SHALL NOT BE GREATER THAN 1/2 THE INSIDE DIAMETER OF THE RCP MAIN LINE.
2. INSIDE DIAMETER D OF THE CONNECTOR PIPE SHALL NOT BE GREATER THAN 24".
3. THE MINIMUM OPENING INTO THE EXISTING STORM DRAIN SHALL BE THE OUTSIDE DIAMETER OF THE CONNECTING PIPE PLUS 1". THE CONCRETE BACKFILL SUPPORTING THE CONNECTING PIPE MAY BE OMITTED IF THE PIPE IS LAID ON UNDISTURBED EARTH TO STORM DRAIN WALL.
4. ALL CSP AND FITTINGS SHALL BE GALVANIZED. BAND CONNECTORS MAY BE 2 GAGES LIGHTER THAN THAN THE PIPE, BUT WITH A MINIMUM GAGE OF 16. THEY SHALL BE CONNECTED AT THE ENDS BY ANGLES HAVING MINIMUM DIMENSIONS OF 2"x2"x3/16" AND 5 1/2" BOLTS.
5. WHEN JOINING A RCP CONNECTOR PIPE TO A CSP CONNECTOR PIPE, THE INSIDE DIAMETER D OF THE CSP SHALL BE AT LEAST EQUAL TO BUT NOT MORE THAN 3" GREATER THAN THAT OF THE RCP.
6. CONNECTOR PIPES SHALL BE NOT MORE THAN 5' ABOVE THE INVERT.
7. CONNECTOR PIPES SHALL ENTER MAIN LINE RCP RADIALLY.
8. WHEN CONNECTING TO A RCB, SPPWC 333 SHALL BE USED IF THE TOP OF THE CONNECTOR PIPE IS LESS THAN 12" BELOW THE SOFFIT OF THE RCB OR THE FLOW LINE OF THE PIPE IS LESS THAN 13" ABOVE THE FLOOR OF THE RCB AT THE INSIDE FACE.

CASE 2

9. SADDLE CONNECTIONS SHALL BE USED WHEN CONNECTING TO PIPES 21" OR LESS IN DIAMETER WITHOUT THE USE OF JUNCTION STRUCTURES OR PRECAST Y BRANCHES.
10. TRIM OR CUT SADDLE TO FIT SNUGLY OVER THE OUTSIDE OF THE MAIN PIPE SO ITS AXIS WILL BE ON THE LINE AND GRADE OF THE CONNECTING PIPE.
11. THE OPENING INTO THE PIPE SHALL BE CUT AND TRIMMED TO FIT THE SADDLE SO THAT NO PART WILL PROJECT WITHIN THE BORE OF THE SADDLE PIPE.
12. THE CONNECTOR PIPE SHALL BE SUPPORTED AS SHOWN IN CASE 1 AND CASE 3.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

PIPE CONNECTIONS TO EXISTING STORM DRAINS

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CITY OF LA VERNE

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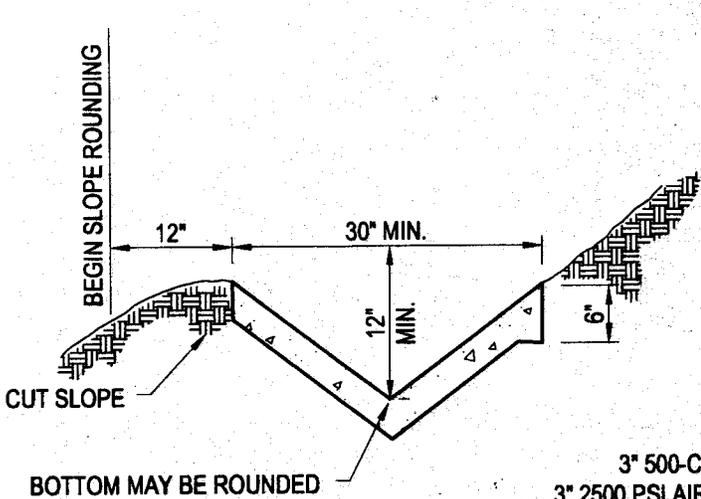
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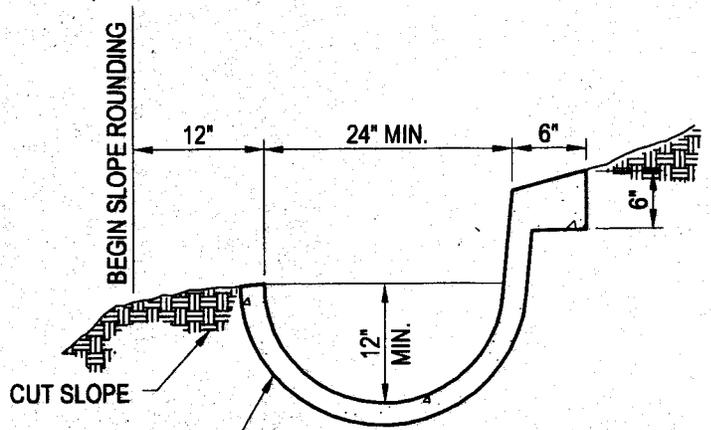
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SHT. 3 OF 3		

BROW DITCHES



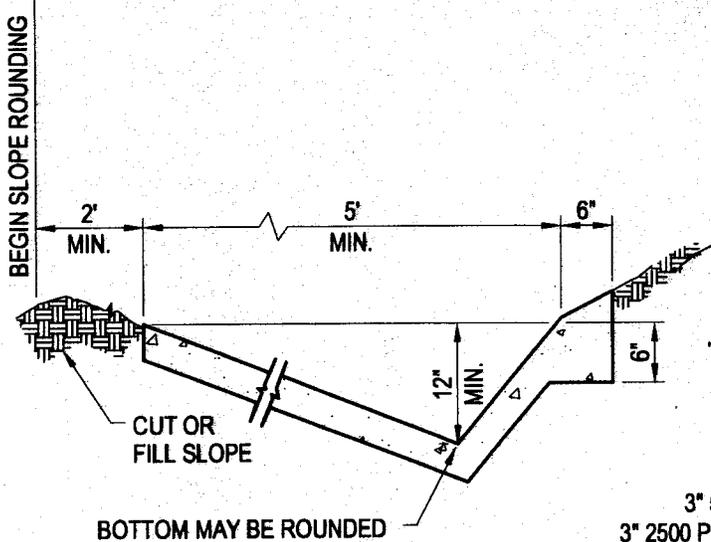
TYPE A



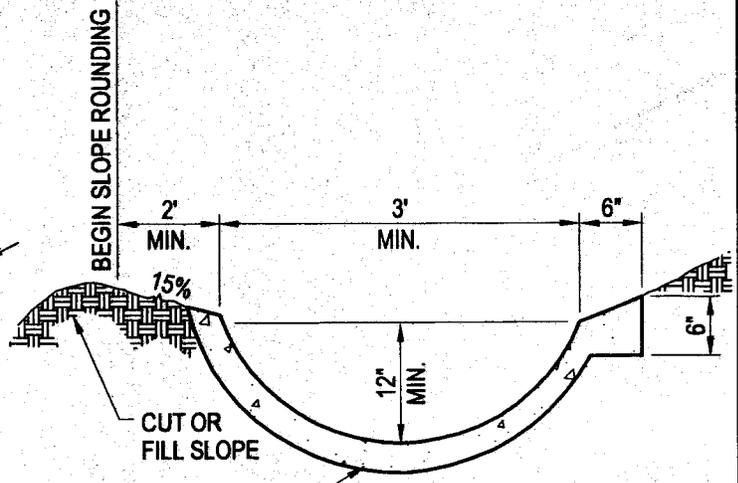
TYPE B

3" 500-C-2500 CONCRETE OR
3" 2500 PSI AIR PLACED CONCRETE
W/ 1 1/2" x 1/2" 17 GAGE STUCCO NETTING

TERRACE DITCHES



TYPE C



TYPE D

3" 500-C-2500 CONCRETE OR
3" 2500 PSI AIR PLACED CONCRETE
W/ 1 1/2" x 1/2" 17 GAGE STUCCO NETTING

NOTES:

1. LONGITUDINAL SLOPE OF LINED DITCH SHALL BE 2% MIN.
2. DITCHES OVER SLOPS SHALL EMPLOY 6" THICKENED EDGE SECTION AT BOTH SIDES OF DITCH.



DEPARTMENT OF PUBLIC WORKS

STANDARD DRAWING:

DRAINAGE DITCHES

APPROVED:

CITY OF LAVERNE

CITY UTILITY ENGINEER

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12/14/14
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CHECKED	C.S.H.	8/2014
SCALE:	<u>DWG. No.</u>	
AS SHOWN	SD-13	
DATE OF REVISION:		
8/2014		
	SHT. 1 OF 1	