

CITY OF FRESNO PUBLIC WORKS DEPARTMENT



STANDARD DRAWINGS

November 2011

Traffic and Engineering Services
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ADDENDUM NO. 2
TO
CITY OF FRESNO
PUBLIC WORKS STANDARD SPECIFICATIONS
ADOPTED MARCH 4, 1970
RESOLUTION NO. 70-36
UPDATED VERSION APPROVED AUGUST 2010

This addendum is attached to and made a part of the above-entitled standard specifications.

The following City Standard Drawings have been amended as indicated below:

- P-9: Updated median island stamped concrete color from Davis Colors Brick Red to Davis Colors San Diego Buff.
- P-48: Revised compaction for backfill soil directly above buried pipe from 95% to 90%.
- P-58: Added note requiring compliance with Chapter 1000 of the Caltrans Highway Design Manual.
- P-59: Added note requiring compliance with Chapter 1000 of the Caltrans Highway Design Manual.
- P-60: Added standard drawing "Trail Details" as P-60. Existing drawing P-60 was combined with P-61.
- P-61: Added the existing standard drawing P-60 details into P-61.
- P-63: Removed unused "See Note 4" annotation.
- P-72: Updated Standard Drawing reference from E-36 to E-35. Removed unnecessary language.
- P-93: Clarified steel reinforcement bars on the wall diagrams.
- P-94: Clarified steel reinforcement bars on the wall diagrams.
- P-95: Clarified steel reinforcement bars on the wall diagrams.
- P-96: Removed "Zone 3" references.
- P-100: Added detail for installation of Type N-1 (CA) and N-2 (CA) object markers onto barricade.
- E-4: Changed 2" cap in pullbox from mortar to concrete.
- E-5: Changed splice location from pullbox to hand hole.
- E-21: Revised Electrical Sealing Compound language and pull box lid requirements.
- E-23: Revised to specify that underground in-line splices are NOT permitted.
- E-26: Changed pole number numeral size from 2" to 1 ½"
- E-34A: Removed "24V" callout from lower input panel diagram.
- E-35: Corrected spelling error.
- ITS-1: Updated Standard Drawing references. Added No. 6 pull box

	requirement.
ITS-2:	Clarified ITS controller location diagram. Revised Note 3 for conduit size and reference.
ITS-3:	Revised notes, references, and added Note 9.
ITS-3A:	Added dimension from hub to back of walk. Added notes 9, 10, and 11. Revised note references.
ITS-11:	Revised fiber optic cable coil length.
ITS-13:	Revised fiber optic cable coil length.
ITS-18:	Revised camera mounting height. Added Note 5 and reference to note 5.
ITS-18A:	Changed coil length requirement in Note 2.
ITS-20:	Revised number of conduits going into communications cabinet and added minimum pipe height callout.
ITS-20A:	Revised number of conduits going into communications cabinet and added minimum pipe height callout.
ITS-21:	Changed cabinet callout in Note 1 from Rittal to Communications cabinet.
ITS-23:	Changed callout from Communications cabinet to Hub cabinet.
ITS-27A:	Removed ethernet extender option.
ITS-27B:	Changed "mesh node" callouts to "access point". Fixed Astro-Brac elbow inconsistency. Added Note 4.

In addition to the standard drawings, changes that have been made to the Standard Specifications are as follows:

Section 7-10.3	Revised language regarding traffic control and road closures. Added language addressing special events and grinding and slurry sealing of existing striping.
Section 13-3	Revised AC type from "Type B" to "Type A".
Section 23-1.11	Revised language, conduit type callout, and Standard Drawing reference.
Section 23-1.12	Revised language regarding lid inscriptions, pull box sizes, and added reference to Section 32 for ITS pull boxes.
Section 23-1.13	Revised language, conductor wire type, and spade terminal type.
Section 23-1.18	Added reference to Std. Drawing E-17.
Section 23-1.19	Revised language regarding signal heads, LED's, and signal faces.
Section 23-1.20	Deleted Section 23-1.20
Section 23-1.24	Revised language regarding Accessible Pedestrian Signal

unit.
Section 23-1.25 Revised language regarding Emergency Vehicle Priority Control System component requirements.
Section 23-1.28 Revised language regarding signal turn on requirements.
Section 23-2 Added Specification for 2070L controller assembly and 332L controller cabinet. Revised conflict monitor to 2010ECL. Revised Detector Loop Test Page.
Section 23-3.4 Revised telephone number for Electrical Superintendent.
Section 23-3.13 Revised language regarding splice insulation.
Section 30-11 Revised language regarding pull box drainage.
Section 30-12 Revised language regarding conductor types and splice types.
Section 30-13 Added "or Equivalent" annotation to callout of fuse holder specific type.
Section 30-14 Revised language regarding conductor type, splice type, and location of electrical grounding.

Reviewed and Approved:



Scott Mozier, P.E.
Assistant Director / City Engineer

11/3/11
Date



Patrick N. Wiemiller
Public Works Director

11/3/2011
Date

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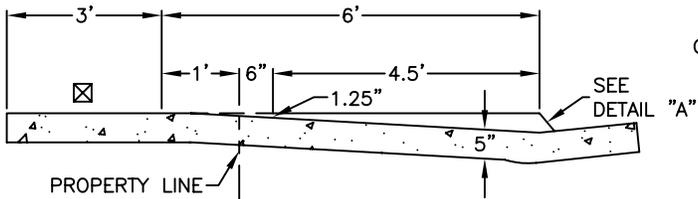
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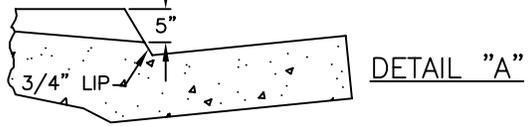
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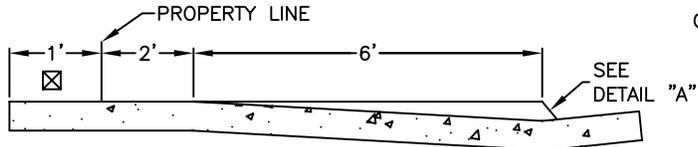
☒ DENOTES UNOBSTRUCTED ONSITE PEDESTRIAN LANDING AREA PER A.D.A. REQUIREMENTS
 PEDESTRIAN EASEMENT REQUIRED



**** 5 FOOT COMBINATION**

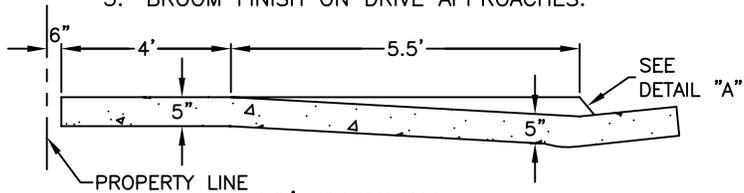


DETAIL "A"



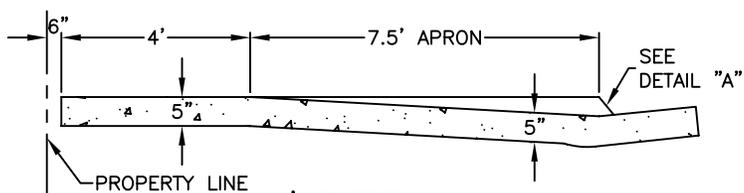
**** 8' PATTERN**

1. FOR CURB AND GUTTER DETAILS SEE DWG. P-6
2. ** 5' AND 8' PATTERNS ARE FOR USE ON RETROFITS AND/OR WITH APPROVAL OF THE CITY ENGINEER.
3. BROOM FINISH ON DRIVE APPROACHES.

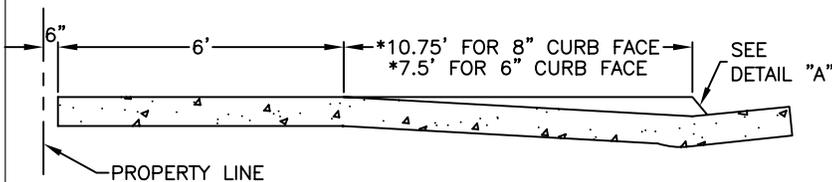


10' PATTERN

NOTE: CONSTRUCT WEAKENED PLANE JOINT ON CENTERLINE WHEN WIDTH IS 10 FEET OR GREATER.



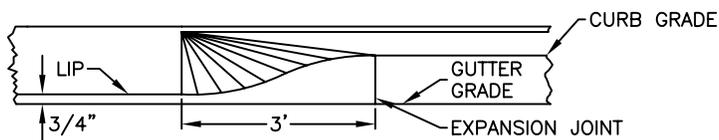
12' PATTERN



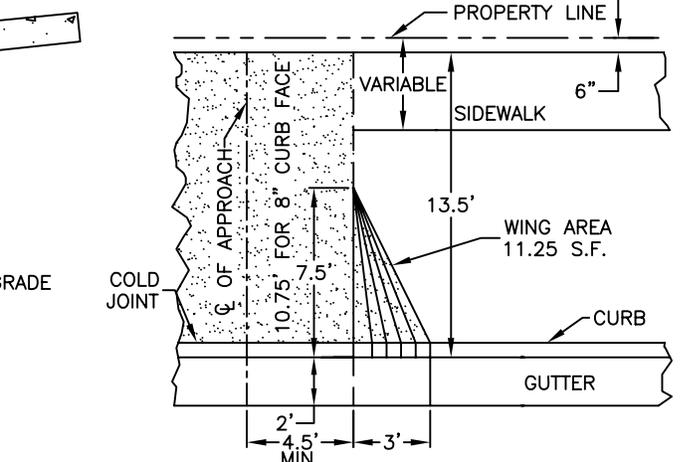
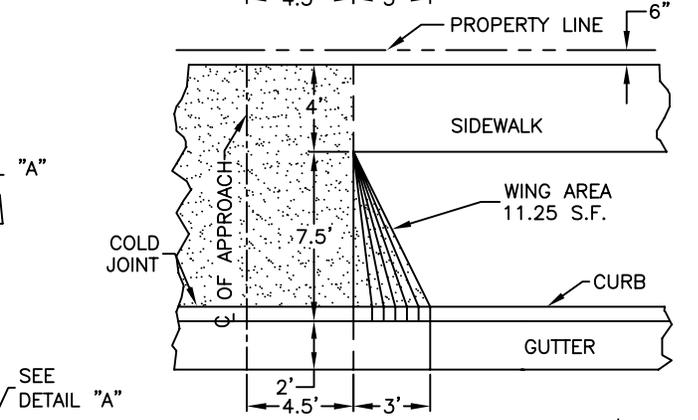
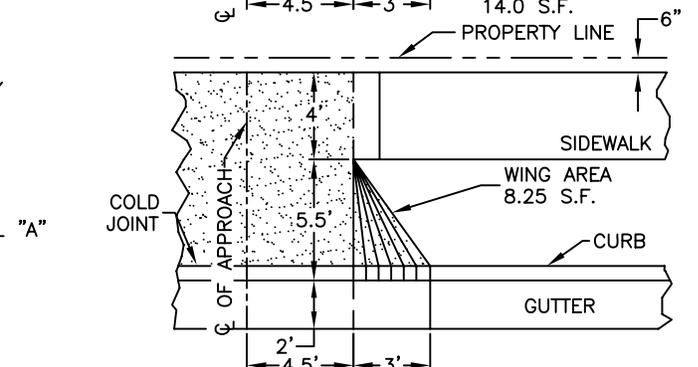
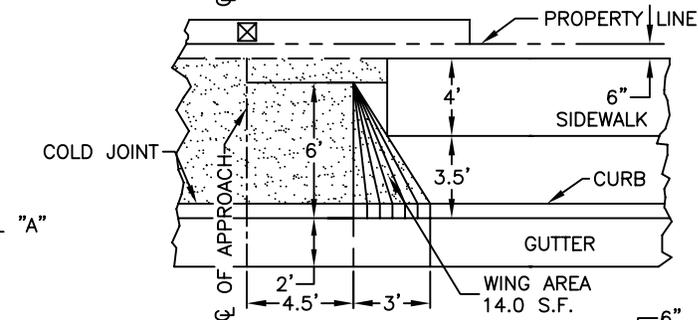
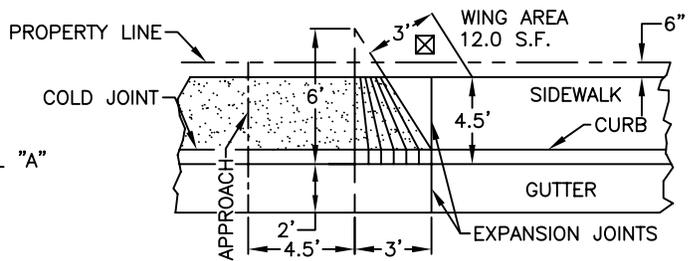
14' PATTERN

NOTE: DRIVEWAY APPROACH THICKNESS SHALL BE 6" WHEN USAGE IS OTHER THAN WITH NORMAL PASSENGER VEHICLES.

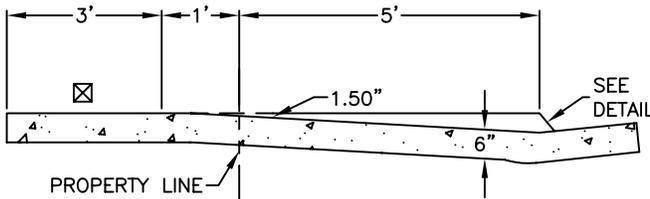
* MINIMUM LENGTH OF APRON



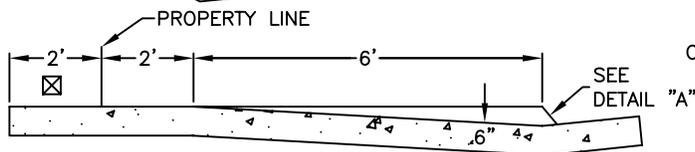
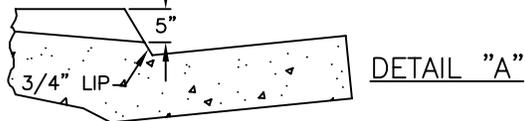
ELEVATION



DENOTES UNOBSTRUCTED ONSITE PEDESTRIAN
 ☒ LANDING AREA PER A.D.A. REQUIREMENTS
 PEDESTRIAN EASEMENT REQUIRED

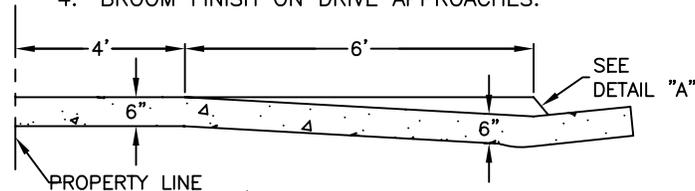


**** 5 FOOT COMBINATION**



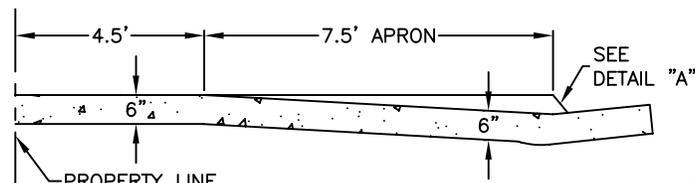
**** 8' PATTERN**

1. FOR CURB AND GUTTER DETAILS SEE DWG. P-5
2. CONCRETE SHALL BE 6 SACK MIX.
3. ** 5' AND 8' PATTERNS ARE FOR USE ON RETROFITS AND/OR WITH APPROVAL OF THE CITY ENGINEER.
4. BROOM FINISH ON DRIVE APPROACHES.

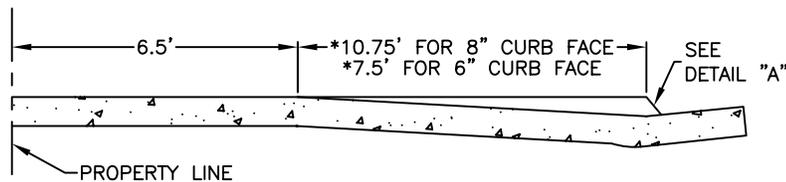


10' PATTERN

NOTE: CONSTRUCT WEAKENED PLANE JOINT ON CENTERLINE WHEN WIDTH IS 10 FEET OR GREATER.



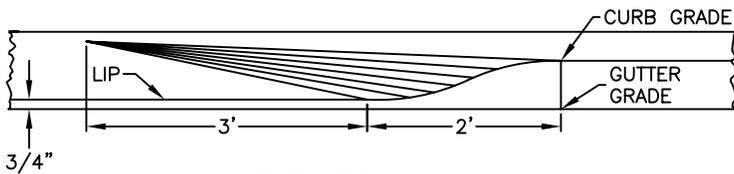
12' PATTERN



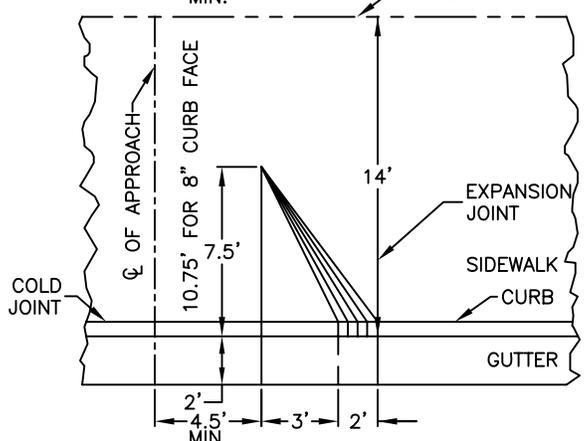
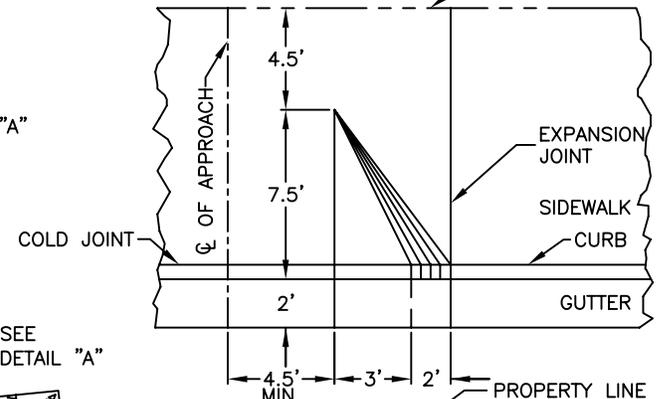
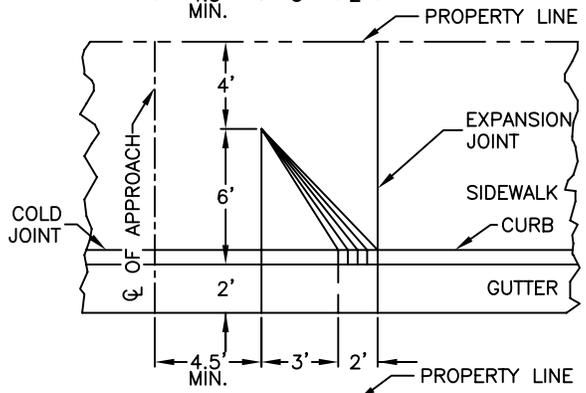
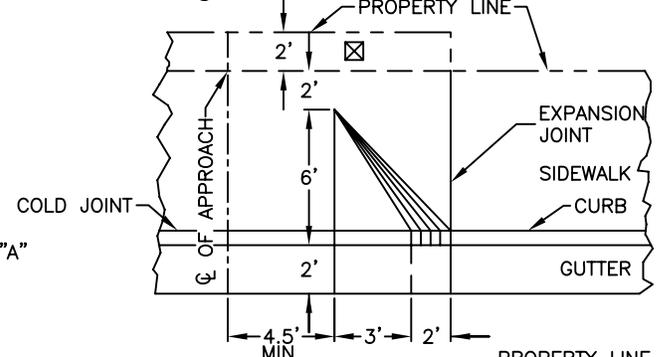
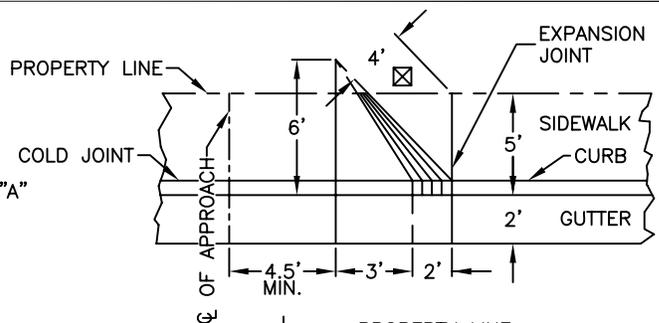
14' PATTERN

NOTE: APRON MAY BE EXTENDED TO THE NEAREST SCORE LINE GREATER THAN THE MINIMUM DISTANCE FROM THE CURB. MAXIMUM APRON SLOPE IS 0.9" PER FOOT.

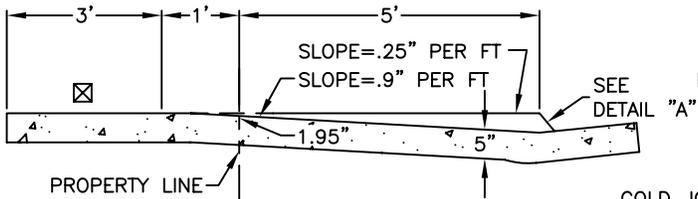
* MINIMUM LENGTH OF APRON



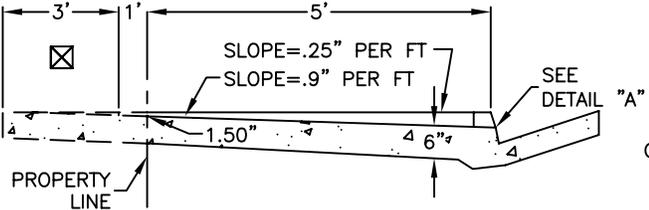
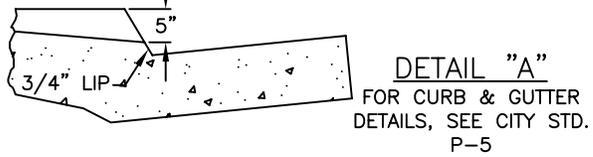
ELEVATION



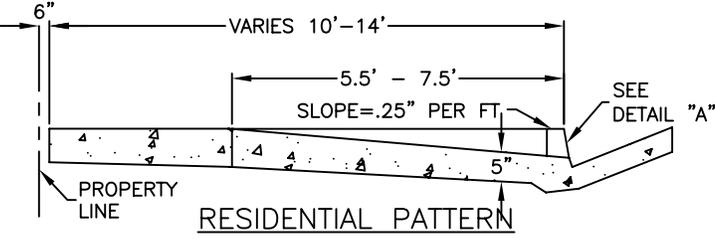
DENOTES UNOBSTRUCTED ONSITE PEDESTRIAN
 ☒ LANDING AREA PER A.D.A. REQUIREMENTS
 PEDESTRIAN EASEMENT REQUIRED



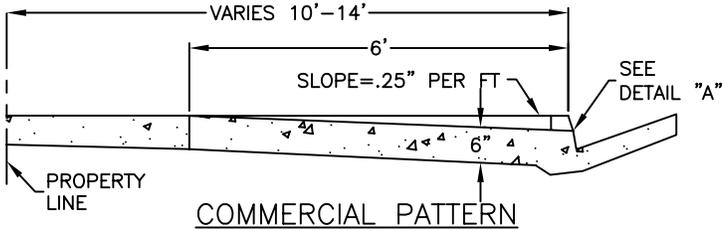
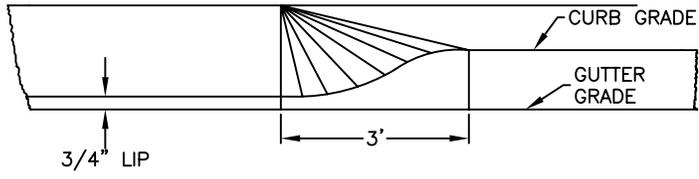
**** RESIDENTIAL 5' COMBINATION**



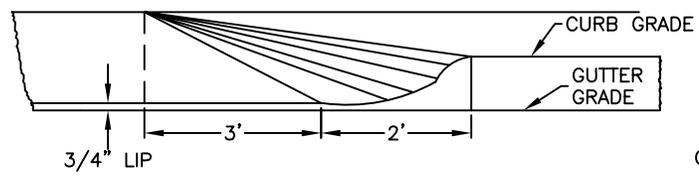
**** COMMERCIAL 5' COMBINATION**



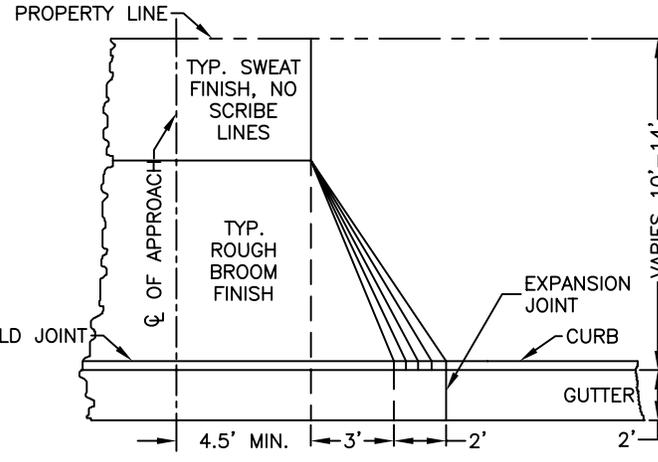
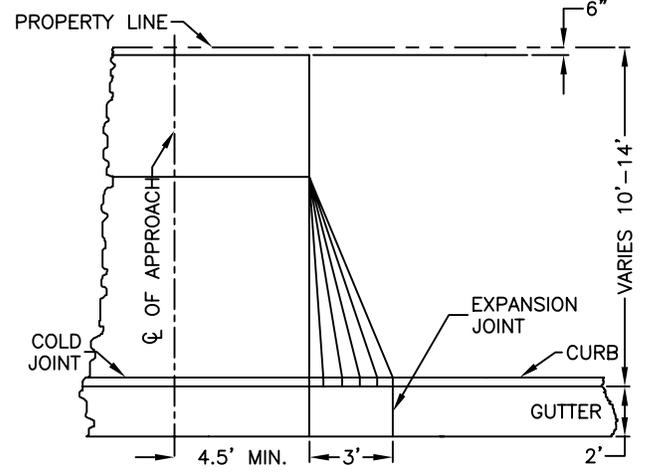
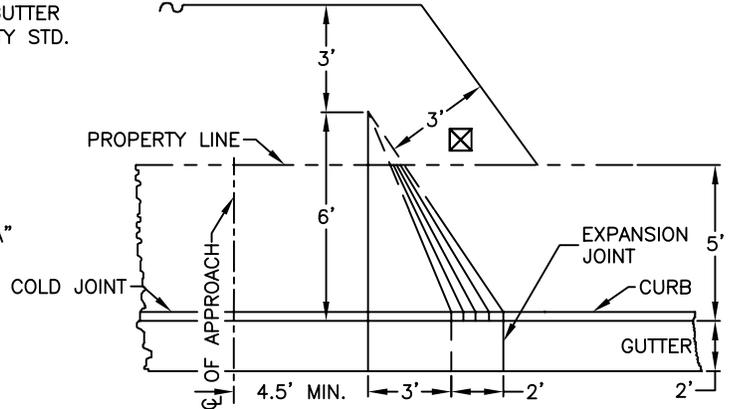
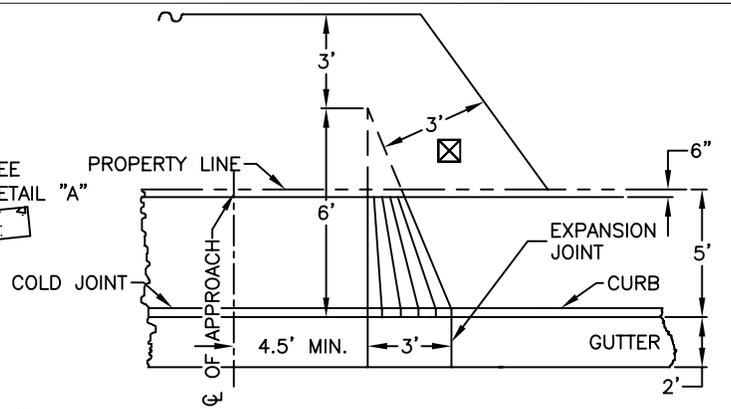
RESIDENTIAL PATTERN



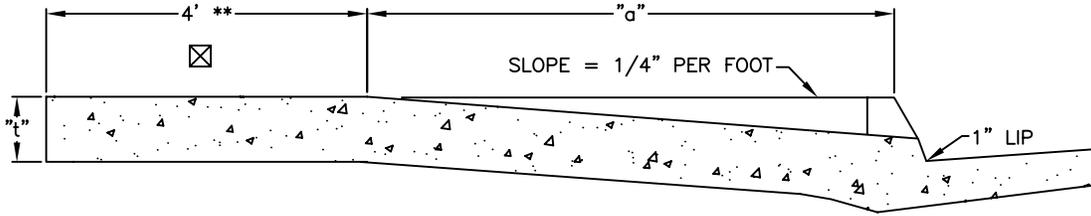
COMMERCIAL PATTERN



NOTE: WHERE STANDARD WALK IS NOT REQUIRED BY
 ORDINANCE OR WHERE WALK HAS BEEN WAIVED.
 ** 5' PATTERNS ARE FOR USE ON RETROFITS AND/OR
 WITH APPROVAL OF THE CITY ENGINEER.

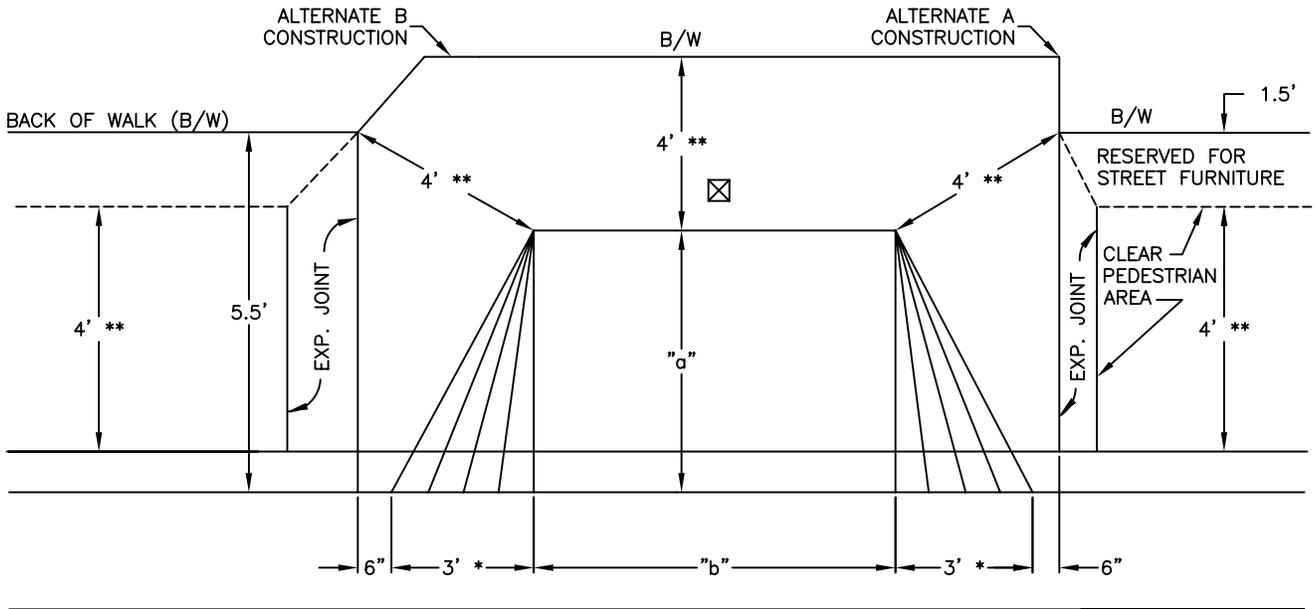


☒ = DENOTES UNOBSTRUCTED ONSITE PEDESTRIAN LANDING AREA REQUIRED IN ACCORDANCE WITH A.D.A. A PUBLIC PEDESTRIAN EASEMENT SHALL BE DEDICATED IF 4' SIDEWALK EXTENDS INTO PRIVATE PROPERTY.



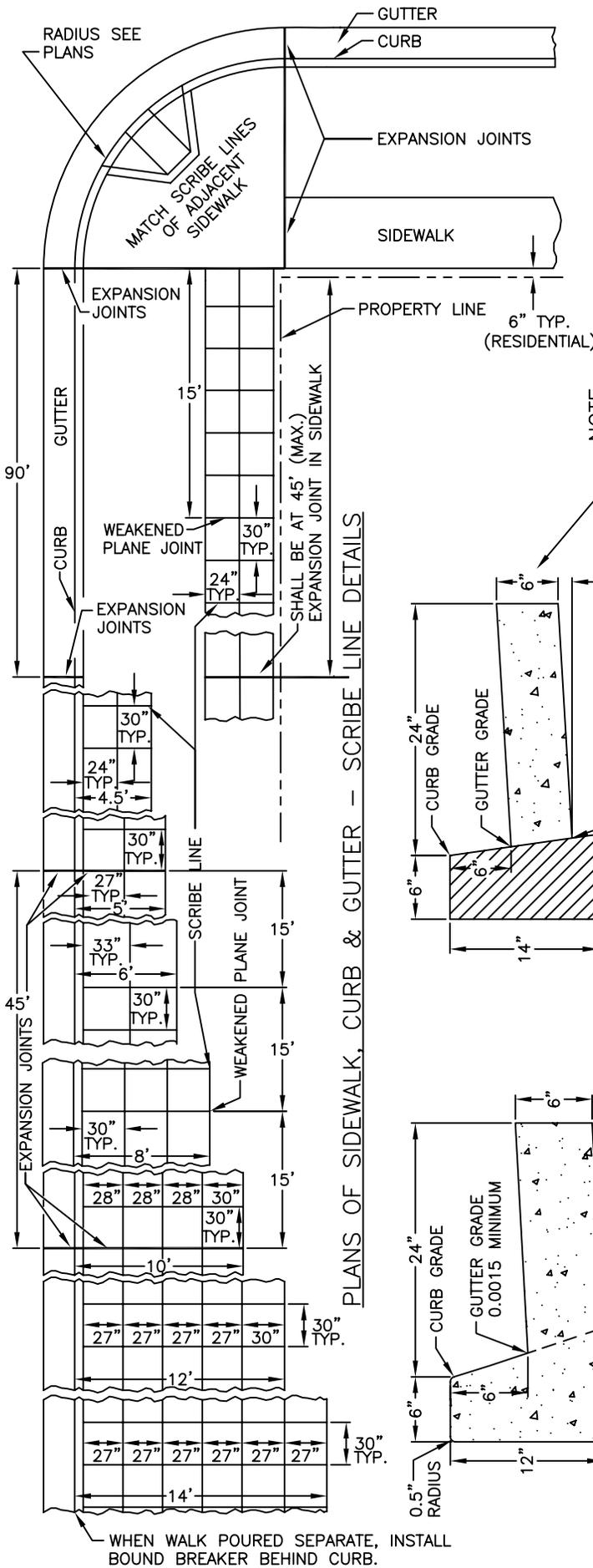
"a" = 3.75' FOR 1 OR 2 DWELLING UNITS
 "a" = 4.75' FOR MULTIFAMILY, OFFICE, AND COMMERCIAL WITH UP TO 10 PARKING SPACES.
 "a" = 5.75' FOR MULTIFAMILY, OFFICE, AND COMMERCIAL WITH MORE THAN 10 PARKING SPACES.
 "t" = RESIDENTIAL EQUALS 5", COMMERCIAL USE EQUALS 6".

"b" = 9', SINGLE FAMILY RESIDENTIAL D.W.
 "b" = 12', ONE WAY EXIT
 "b" = 15', ONE WAY ENTRANCE
 "b" = 22', TWO WAY D.W.



* 5' FLARE IF ON STREET PARKING IS PROHIBITED.

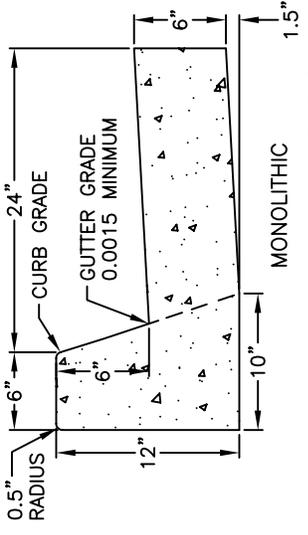
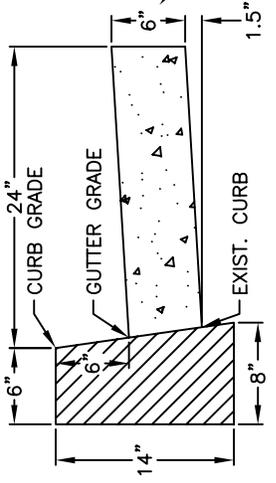
** SIDEWALK WIDTH, 4.0' MINIMUM, FOR ADA REQUIREMENTS, CROSS SLOPE NOT TO EXCEED 2%. SIDEWALK CAN BE CONSTRUCTED IN ACCORDANCE WITH ALTERNATES (A) OR (B) ABOVE OR AS APPROVED BY THE CITY.



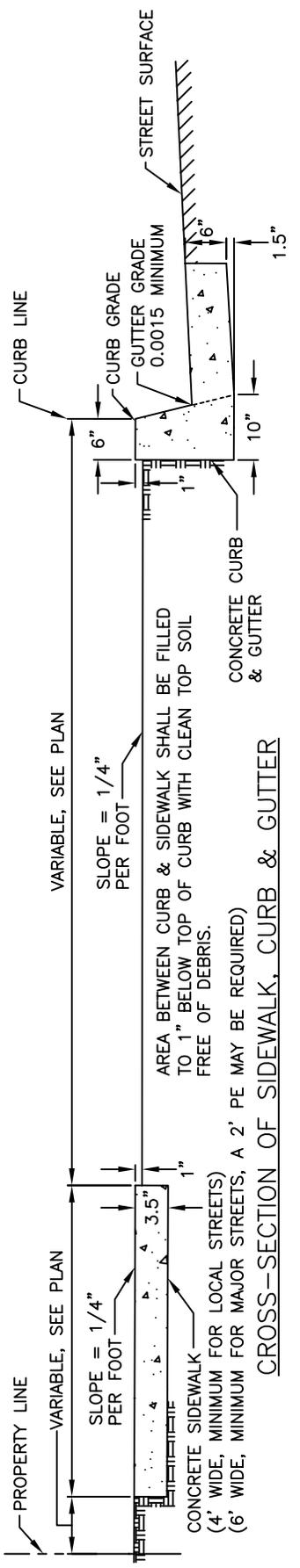
PLANS OF SIDEWALK, CURB & GUTTER - SCRIBE LINE DETAILS

NOTE:
 WHEN REQUIRED BY THE ENGINEER THE CONTRACTOR SHALL FILL AND/OR GRADE AREA BETWEEN NEW GUTTER AND EXISTING STREET SURFACE WITH A.C. SURFACING TO A MIN. DEPTH OF 4" TO MEET EXISTING STREET SURFACING. COMPACTION SHALL BE MADE TO THE SATISFACTION OF THE ENGINEER. CLEAN FACE OF EXIST CURB BEFORE POURING CONCRETE GUTTER.

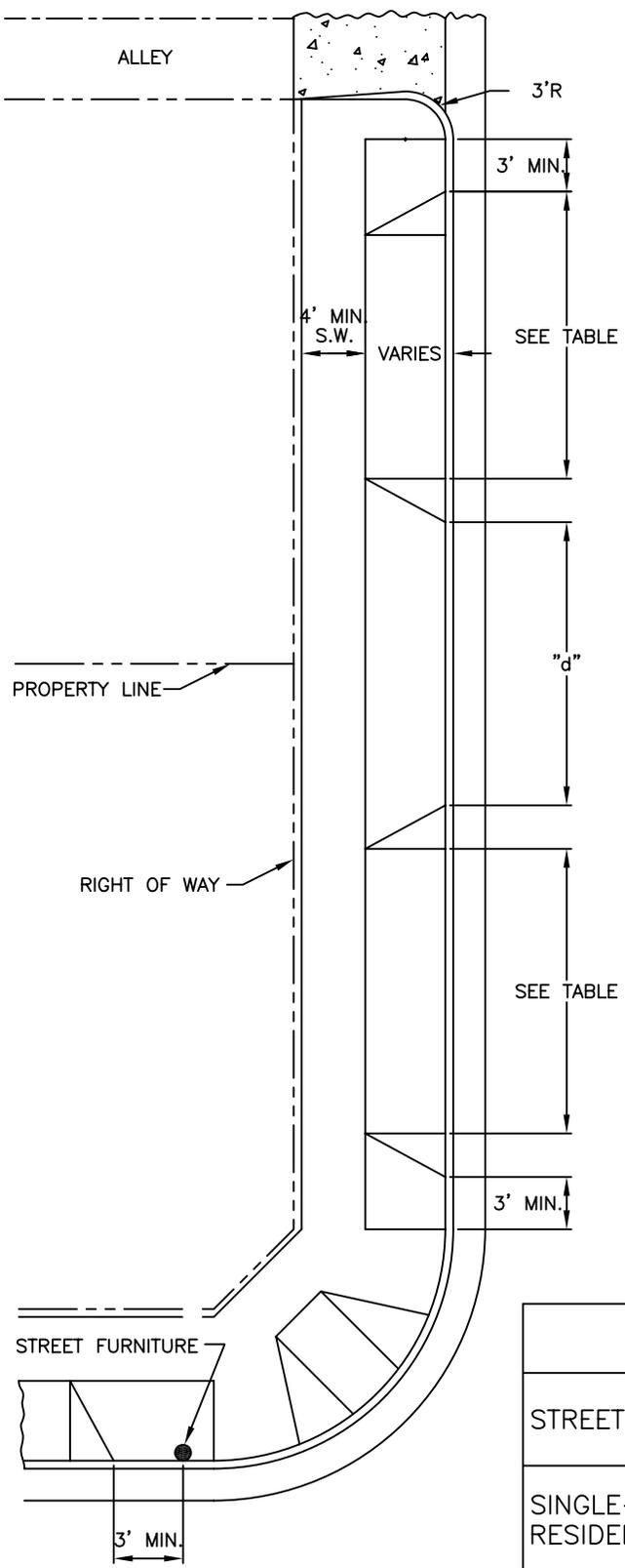
SECTIONS OF CURB & GUTTER



NOTE:
 WHERE SIDEWALK IS NOT CONSTRUCTED, CUT OR FILL FROM 1" BELOW TOP OF CURB TO PROPERTY LINE AT A SLOPE OF 1/4" PER FOOT. A STEEPER SLOPE OF UP TO 10% MAY BE USED IN EXISTING RESIDENTIAL NEIGHBORHOODS WHERE (1) THE CONSTRUCTION OF SIDEWALK IS NOT EXPECTED IN THE FUTURE, (2) THE STEEPER SLOPE IS COMPATIBLE WITH THE ADJACENT PROPERTY, AND (3) THE STEEPER SLOPE WILL ELIMINATE THE NEED FOR A RETAINING WALL. SLOPES IN EXCESS OF 10% MAY BE APPROVED BY THE PUBLIC WORKS DIRECTOR ON A CASE-BY-CASE BASIS. 4' MINIMUM SIDEWALK FOR LOCAL STREETS AND 6' MINIMUM SIDEWALK FOR MAJOR STREETS.



CROSS-SECTION OF SIDEWALK, CURB & GUTTER

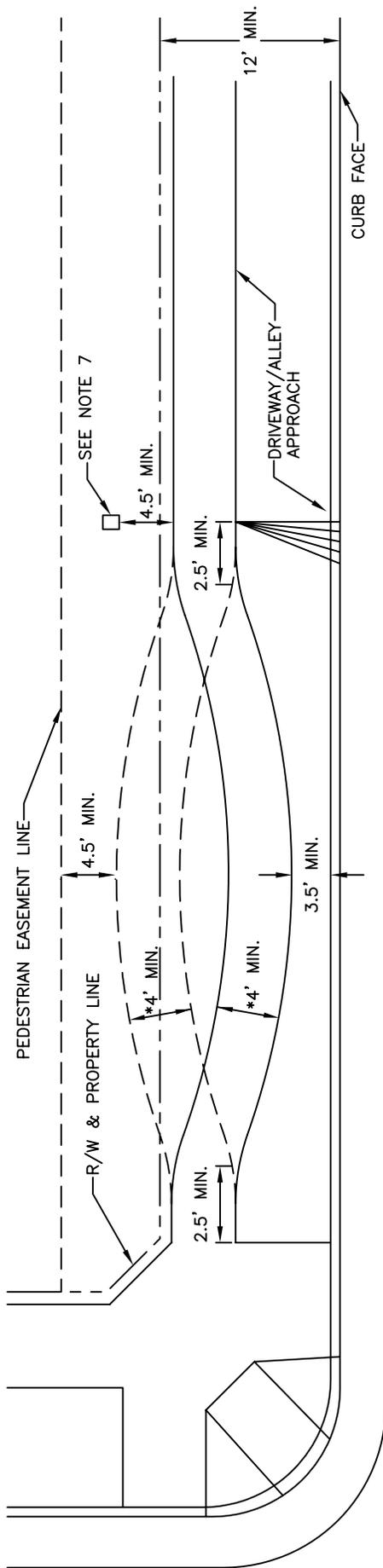


NOTES:

1. NO MORE THAN 60% OF STREET FRONTAGE SHALL BE CONSTRUCTED AS DRIVEWAY OPENINGS.
2. "d" = 6' MINIMUM AND LESS THAN 12' OR GREATER THAN 20'.
3. THE TRAFFIC ENGINEER MAY APPROVE 35' (OVER 35', CITY ENGINEER APPROVAL REQUIRED).
4. IN COMMERCIAL, INDUSTRIAL, AND MULTI-FAMILY DEVELOPMENTS, CITY ENGINEER MAY APPROVE LARGER APPROACHES IF WARRANTED.
5. MAJOR STREETS: PROVIDE 10' OF RED CURBING (3 COATS) ON BOTH SIDES OF DRIVEWAY APPROACHES.
6. IF ONLY ONE ENTRANCE THEN LOCAL ST. MIN. IS 18' NOT 15'.
7. 15' MIN WHEN TRASH ENCLOSURE ON-SITE (REVIEWED ON A CASE BY CASE BASIS).
8. ANY DRIVEWAY APPROACHES ON MAJOR STREET WITHIN 300' OF MAJOR INTERSECTIONS REQUIRE THE APPROVAL OF THE TRAFFIC ENGINEER. THE TRAFFIC ENGINEER MAY APPROVE ONE DRIVEWAY APPROACH WITHIN THAT ENTIRE LENGTH. ADDITIONAL DRIVEWAY APPROACHES REQUIRE THE REVIEW AND APPROVAL OF THE CITY ENGINEER.

DRIVEWAY OPENING

STREET TYPE	MINIMUM		MAXIMUM	
	MAJOR STREET	LOCAL STREET	MAJOR STREET	LOCAL STREET
SINGLE-FAMILY RESIDENTIAL DRIVE	18'	12'	24' ^③	35'
ALL OTHER TWO-WAY	30'	24'	35' ^④	35'
ONE-WAY ENTRANCE	18'	⑦ 15' ^⑥	24'	24'
ONE-WAY EXIT	12' ^⑦	12' ^⑦	24'	24'



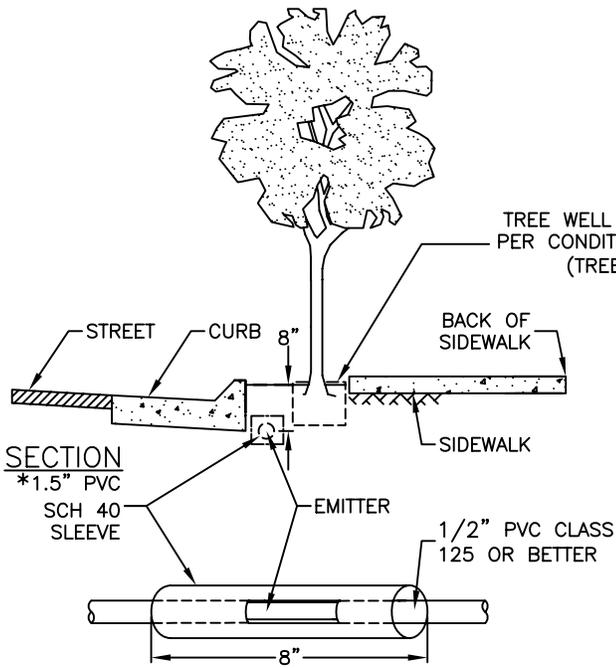
NOTES:

1. PRECISE DATA SHALL BE PROVIDED TO STAKE THE ALIGNMENT AND SET APPROPRIATE GRADES.
2. SIDEWALK CONSTRUCTION SHALL CONFORM TO CITY STANDARD SPECIFICATIONS.
3. SIDEWALK WIDTH SHALL NOT VARY, EXCEPT WHERE APPROVED BY THE CITY ENGINEER; MINIMUM WIDTH SHALL BE 4' (6' ON MAJOR STREETS).
4. LANDINGS AND DIRECT ACCESS TO THE CURVILINEAR SIDEWALK SHALL BE PROVIDED TO EXISTING AND PROPOSED BUS STOP ZONES (INCLUDING SHELTERS AND BENCHES).
5. SIDEWALK LOCATION AT DRIVEWAY AND ALLEY APPROACHES AND AT LANDINGS AT STREET INTERSECTIONS SHALL BE ADJACENT TO THE PROPERTY LINE (STANDARD LOCATION, IN STREET R/W).
6. AT STREET INTERSECTION LANDINGS THE CURVILINEAR PATTERN SHALL COMMENCE AFTER A MINIMUM 2.5' LONG STANDARD SECTION OF SIDEWALK (ALIGNED PERPENDICULAR TO THE STANDARD LANDING AREA); THE WIDTH OF THE 2.5' LONG SECTION SHALL COINCIDE WITH THE ESTABLISHED CURVILINEAR SIDEWALK WIDTH.
7. SIDEWALK SHALL NOT BE CLOSER THAN 3.5' TO THE CURB FACE AND 4.5' TO ON-SITE PARKING LOT, STRUCTURES AND OTHER ITEMS WHICH MAY BE DETRIMENTAL TO PUBLIC SAFETY AND AESTHETIC VALUE.
8. A CURVILINEAR SIDEWALK PATTERN WILL NOT BE ALLOWED IN AREAS HAVING A CURB TO PROPERTY LINE (STANDARD LOCATION, IN STREET R/W) AND PEDESTRIAN EASEMENT WIDTHS OF LESS THAN 12'.
9. ALL SIDEWALKS OUTSIDE THE PUBLIC RIGHT-OF-WAY SHALL BE IN RECORDED PEDESTRIAN EASEMENTS.
10. AT STREET INTERSECTIONS, SIDEWALK LOCATION SHALL BE INCORPORATED INTO THE DESIGN FOR PROPOSED HANDICAP RAMPS.

CURVILINEAR SIDEWALK

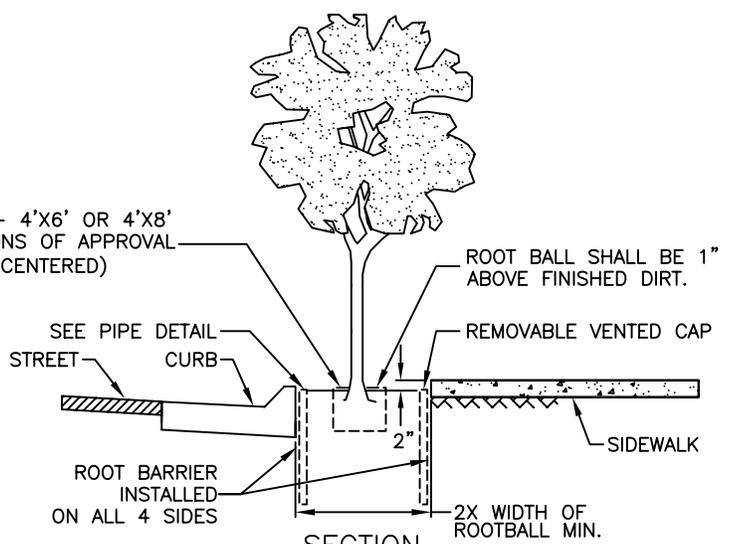
REF. & REV.
AUG., 2010

CITY OF FRESNO

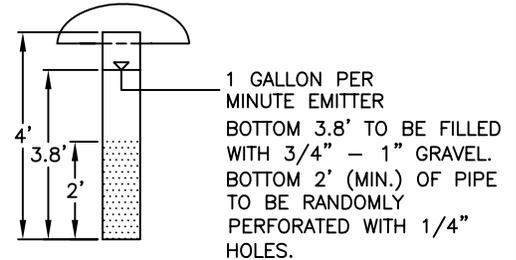


*OPTIONAL:
 DASHED BOX INDICATES 8" AREA OF
 3/4" - 1" GRAVEL AROUND EMITTER IN
 PLACE OF PVC SLEEVE.

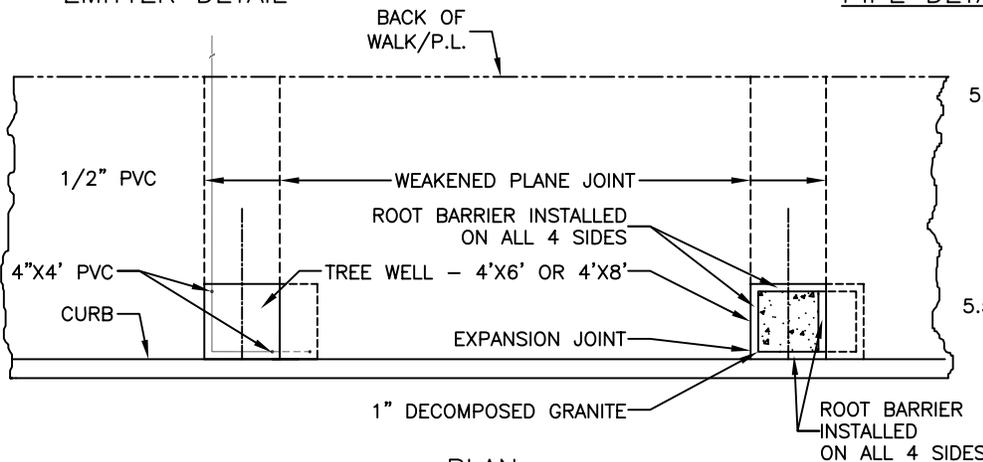
EMITTER DETAIL



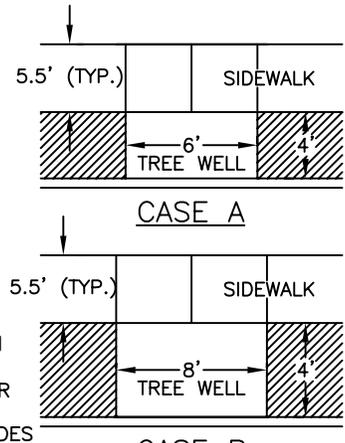
SECTION



PIPE DETAIL



PLAN

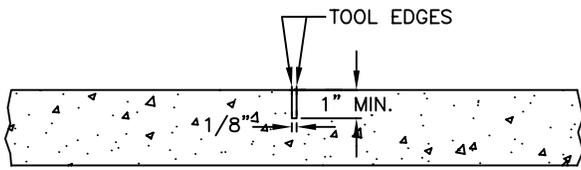


CASE A

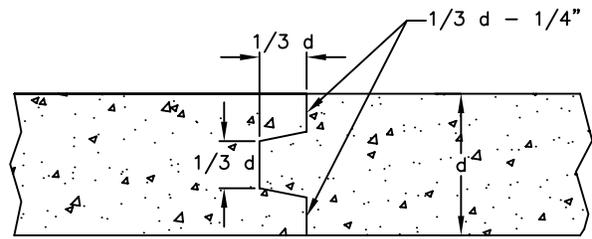
CASE B

NOTES:

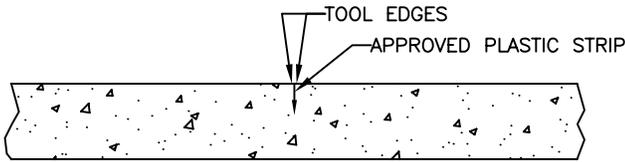
1. FORM LUMBER FOR TREE WELL SHALL BE 2" X 4".
2. NO TREE WILL BE PLANTED UNLESS WATER IS PROVIDED TO PLANTER AREA.
3. 1" DECOMPOSED GRANITE IS REQUIRED WHEN TREE PLANTING IS NOT IN CONJUNCTION WITH PROJECT.
4. ALL DRIP SYSTEMS SHALL BE EQUIPPED WITH 200 MESH FILTER, PRESSURE REGULATOR, AND A CLEAN OUT TO FLUSH THE SYSTEM ANNUALLY.
5. ALL PLASTIC TUBING UNDER CONCRETE SHALL BE 1/2" PVC CLASS 125 OR BETTER AND SLEEVED AT 2.5 TIMES THE DIAMETER OF THE PIPE.
6. TIMECLOCK SHALL HAVE THE CAPACITY TO BE SET TO 40 MINUTES PER IRRIGATION STATION DURING THE MONTHS OF JULY AND AUGUST AND PROPORTIONAL TO CLIMATIC CONDITIONS FOR THE REMAINDER OF THE YEAR.
7. MAINTAIN 4' CLEAR SIDEWALK WIDTH BETWEEN TREE WELL AND BACK OF SIDEWALK.
8. TREE WELL SIZE CAN BE INCREASED DEPENDING ON SIDEWALK WIDTH.



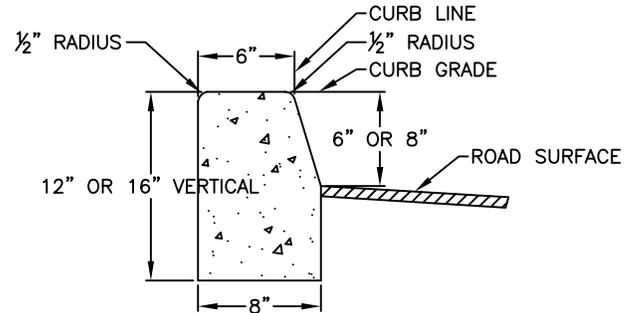
WEAKENED PLANE JOINT
DETAILS



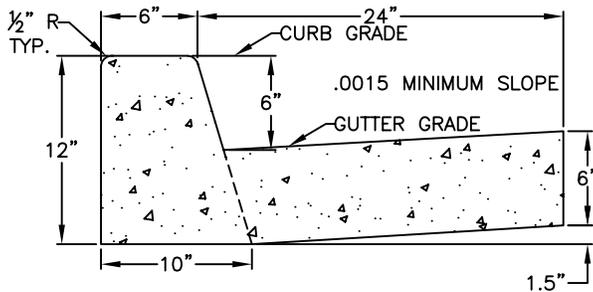
CONSTRUCTION JOINT DETAILS



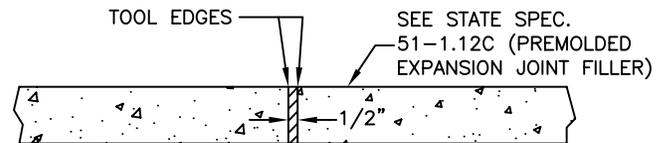
ALTERNATE DESIGN WEAKENED
PLANE JOINT



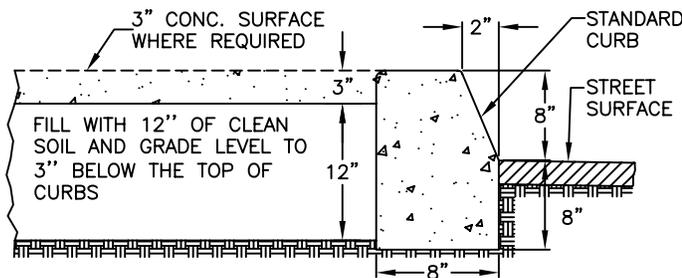
CROSS - SECTION OF CURB



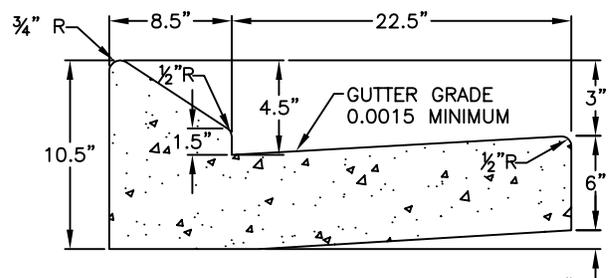
CROSS - SECTION OF
MONOLITHIC CURB AND GUTTER



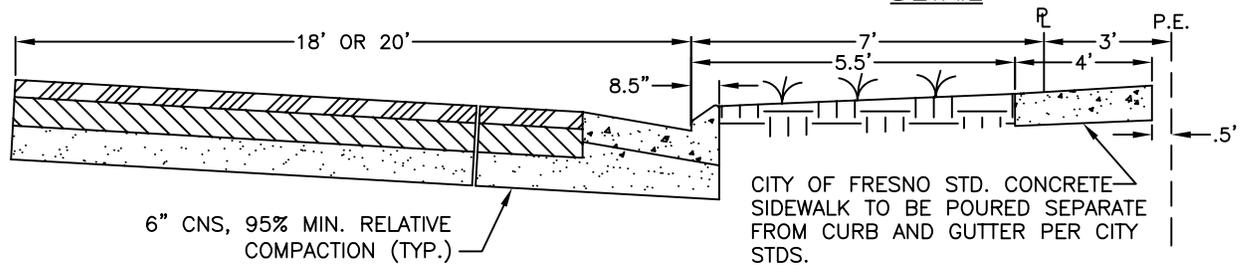
EXPANSION JOINT DETAIL



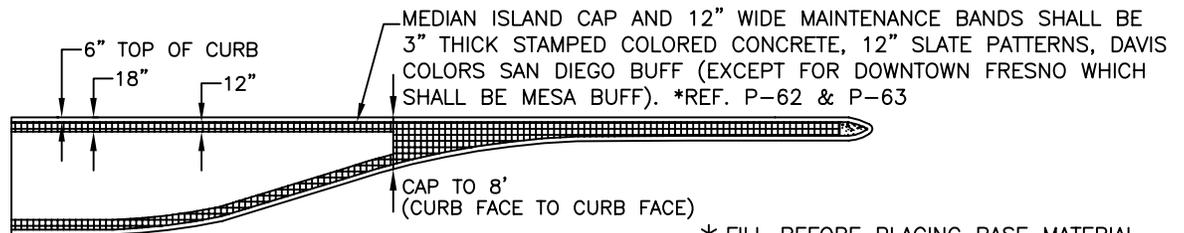
MEDIAN ISLAND CURB DETAIL



WEDGE CURB & GUTTER
DETAIL

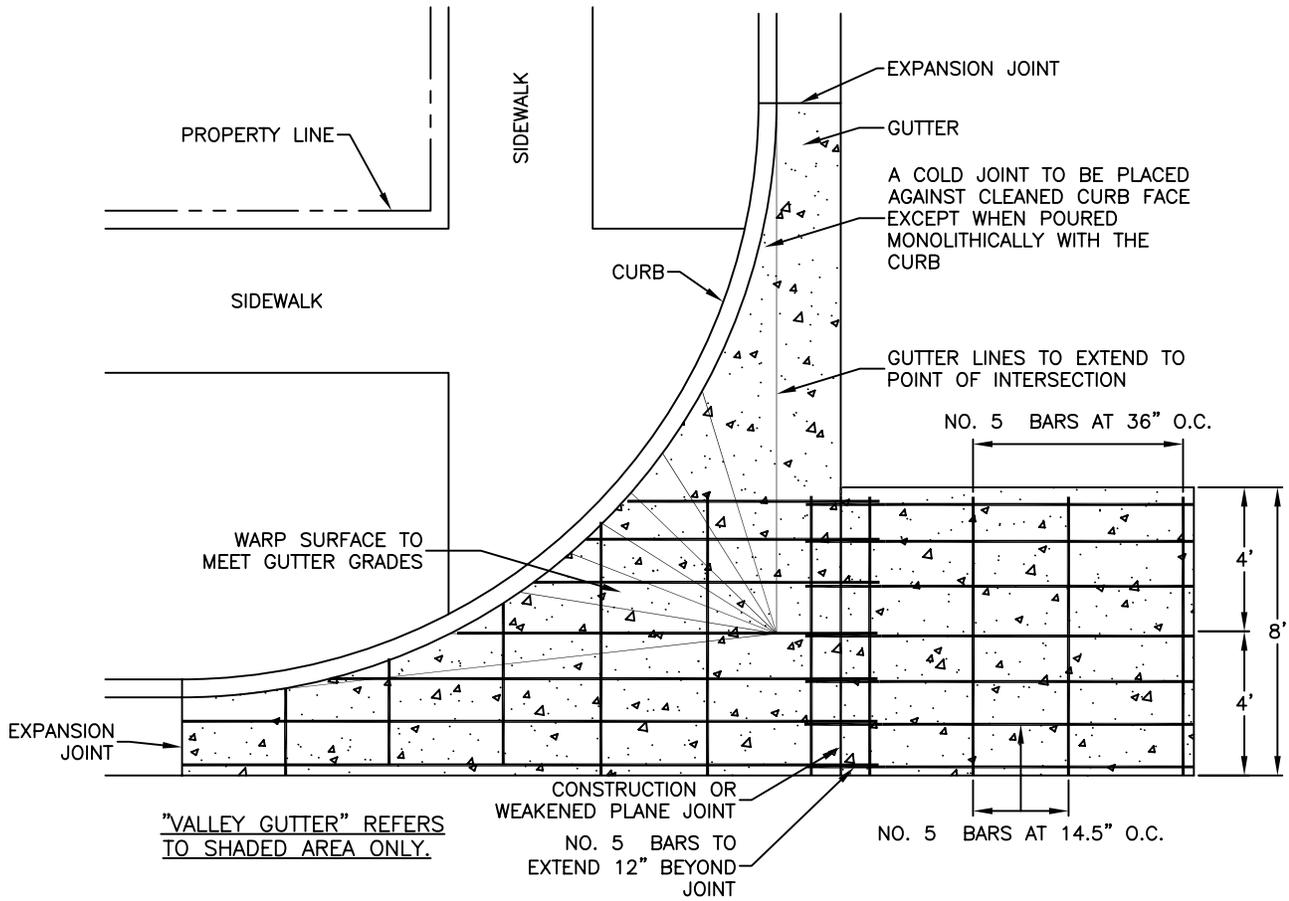


1/2 RESIDENTIAL STREET WITH WEDGE CURBS

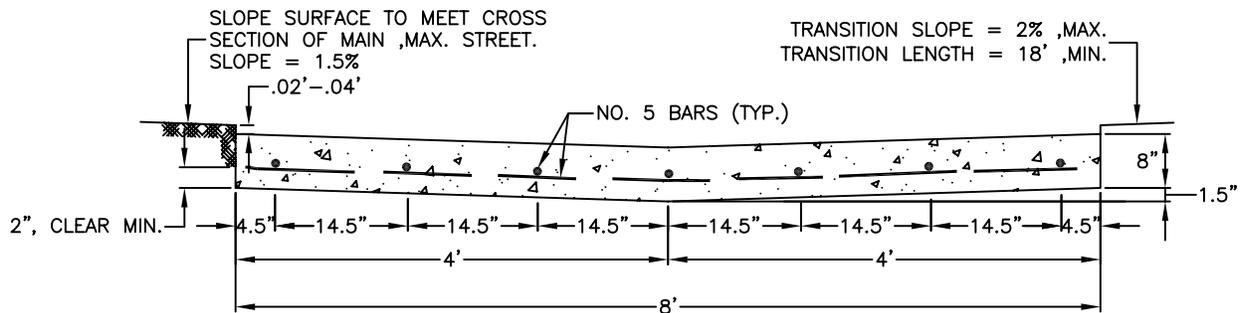


MEDIAN ISLAND PLAN VIEW

* FILL BEFORE PLACING BASE MATERIAL
OR COMPACTING IN THE TRAVELED WAY



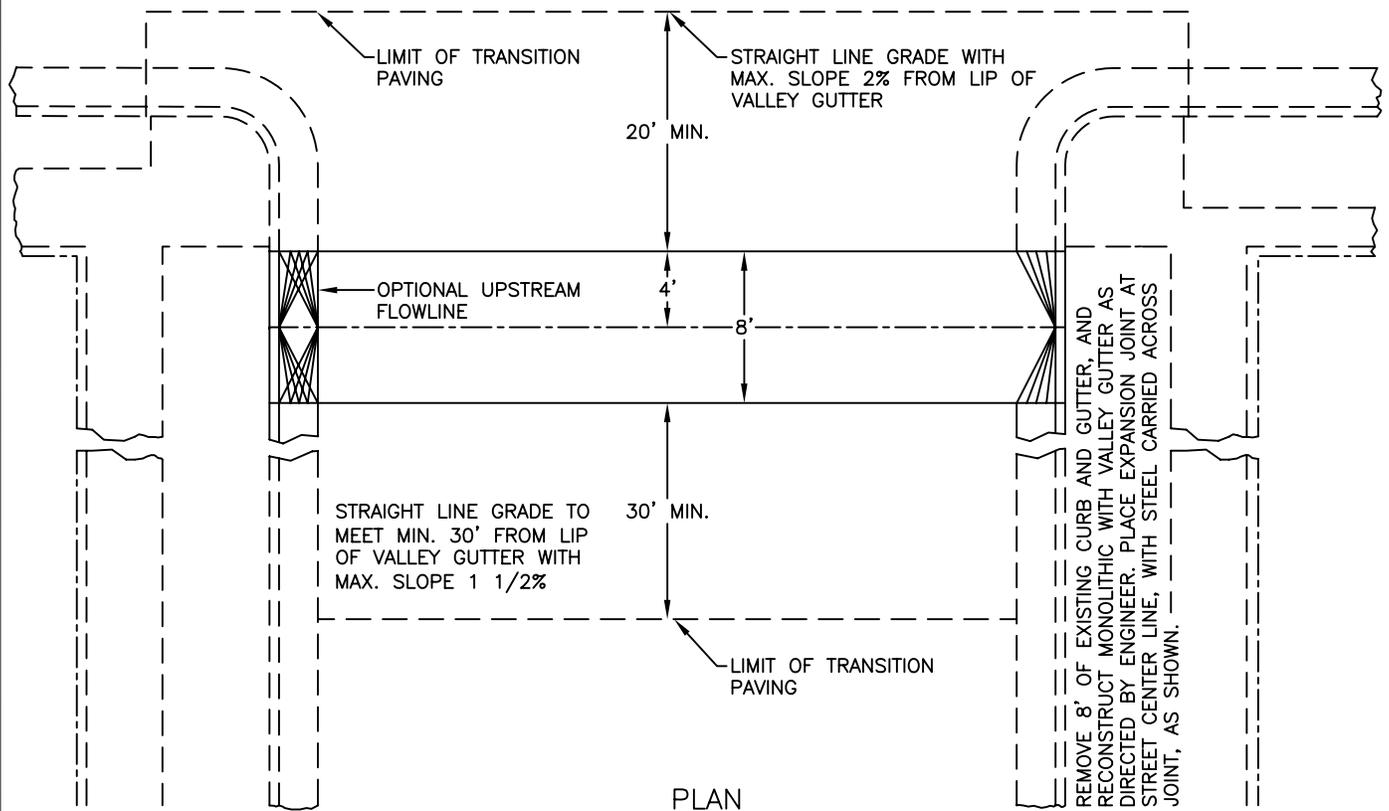
PLAN



NOTES:

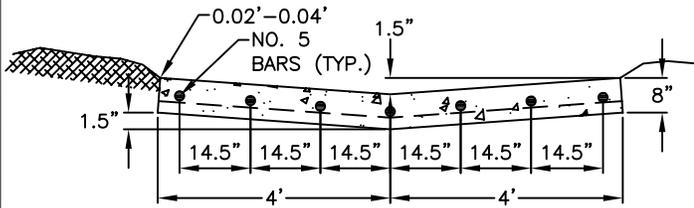
1. IN NEW CONSTRUCTION AREAS, VALLEY GUTTERS SHALL BE DESIGNED TO PROVIDE A MINIMUM DIFFERENCE OF THIRTY-FIVE HUNDREDTHS OF A FOOT (.35') FROM END OF RETURN TO END OF RETURN.
2. ALL VALLEY GUTTERS SHALL BE CONSTRUCTED USING 6 SACK CLASS A CONCRETE PER STD. SPECIFICATIONS 14-2

SECTION OF GUTTER

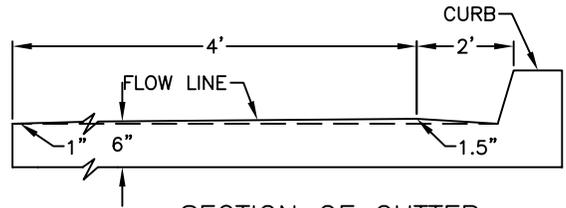


PLAN

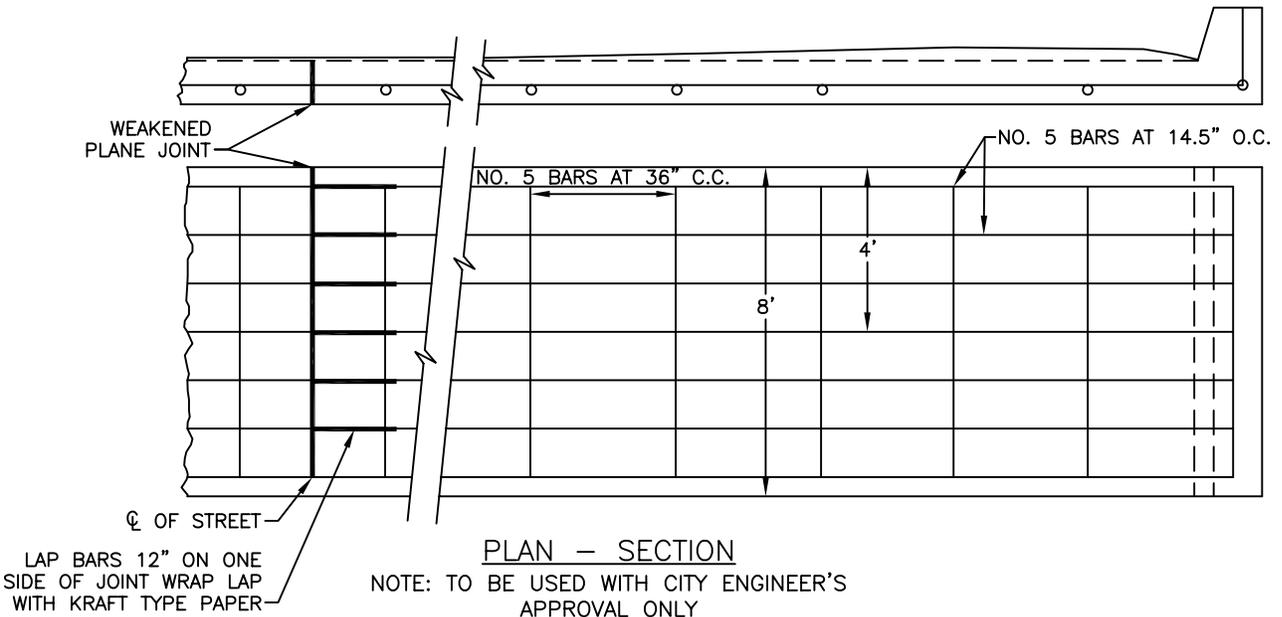
NOTE: CONCRETE SHALL BE 6 SACK MIX. CLASS A PER STANDARD 14-2 SPECIFICATIONS



SECTION OF GUTTER



SECTION OF GUTTER



PLAN - SECTION

NOTE: TO BE USED WITH CITY ENGINEER'S APPROVAL ONLY

**SPECIAL VALLEY GUTTER
(CROSS DRAIN REPLACEMENT)**

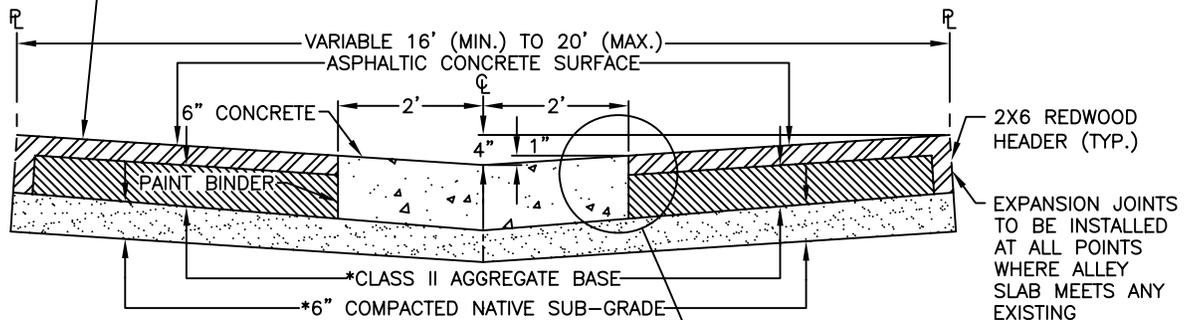
REF. & REV.
AUG., 2010

CITY OF FRESNO

P-11

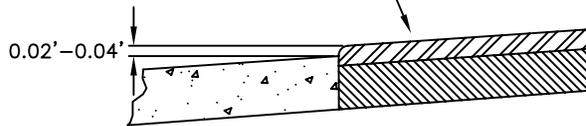
ALTERNATE SECTIONS:

- 2"A.C./4"A.B. W/CONCRETE GUTTER—RESIDENTIAL
- 3"A.C. W/O CONCRETE GUTTER—RESIDENTIAL (LONG. S ≥ 0.0020)
- 4"A.C. W/CONCRETE GUTTER—COMMERCIAL
- 6"A.C. W/O CONCRETE GUTTER—COMMERCIAL (LONG. S ≥ 0.0020)
- 6"P.C.C. COMMERCIAL

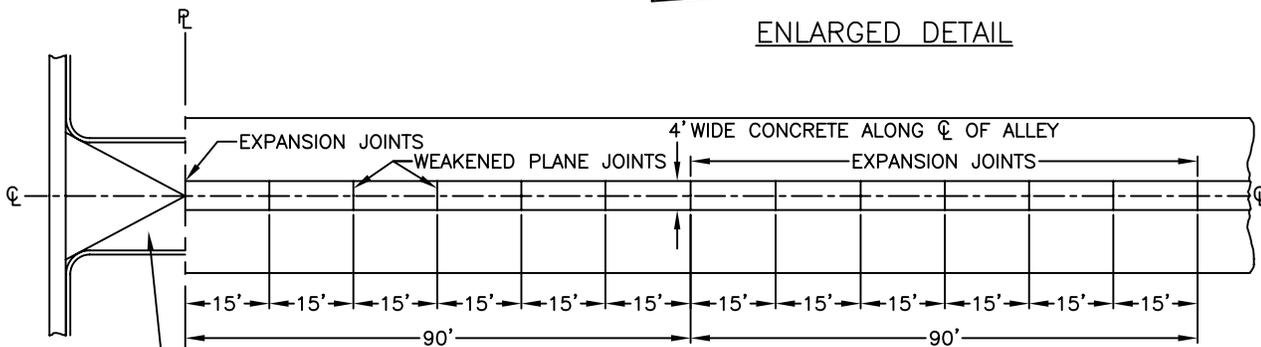


*95% COMPACTION REQUIRED PER CITY STANDARD SPECS.

TYPICAL ALLEY CROSS-SECTION

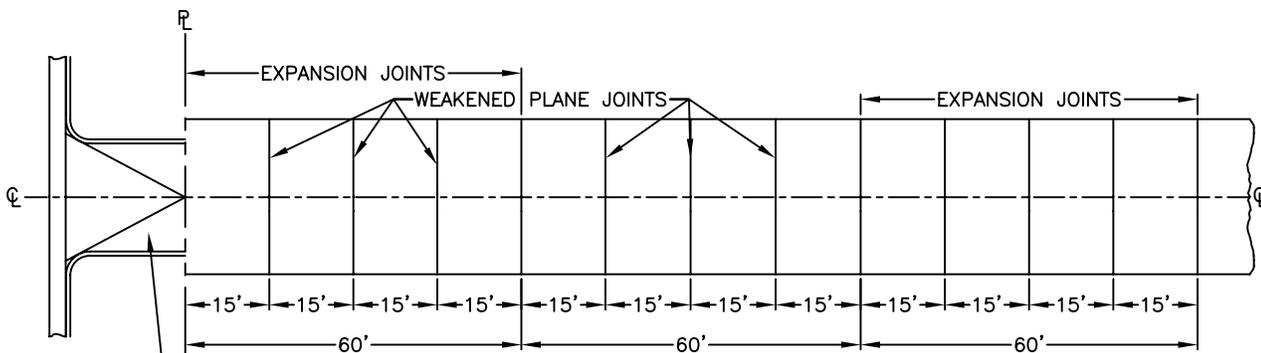


ENLARGED DETAIL



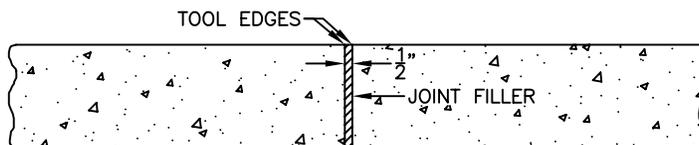
ALLEY APPROACH SEE CITY STD. DWG. P-13

EXPAN. PLAN-CONCRETE GUTTER



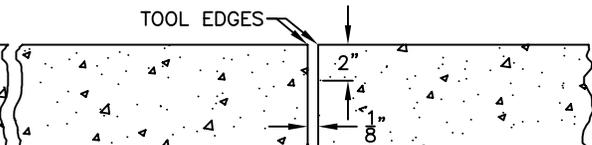
ALLEY APPROACH SEE CITY STD. DWG. P-13

EXPAN. PLAN-6" P.C.C.



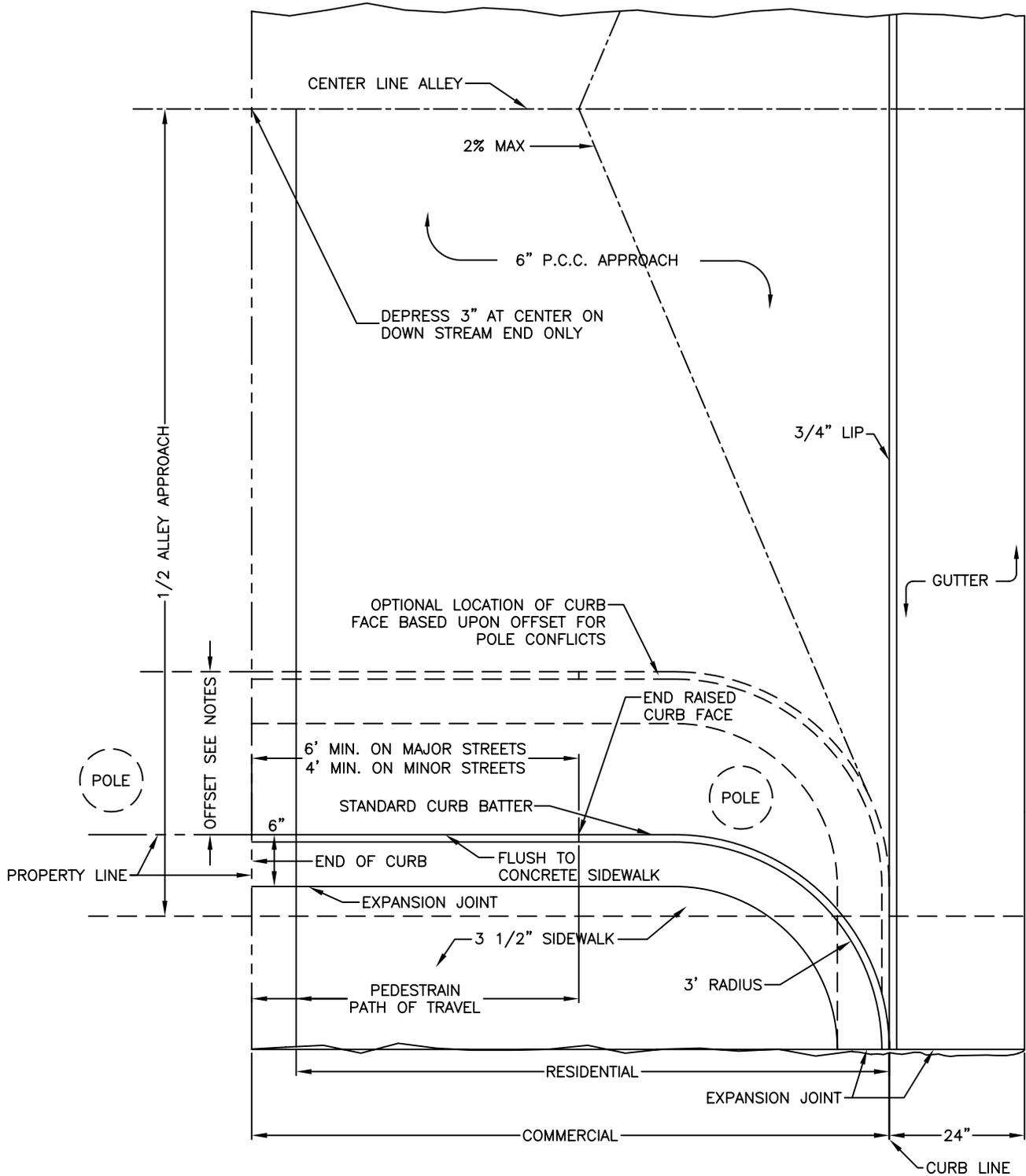
EXPANSION JOINT DETAIL

(REF. STATE STD. SPEC'S SEC. 51-1.12C)



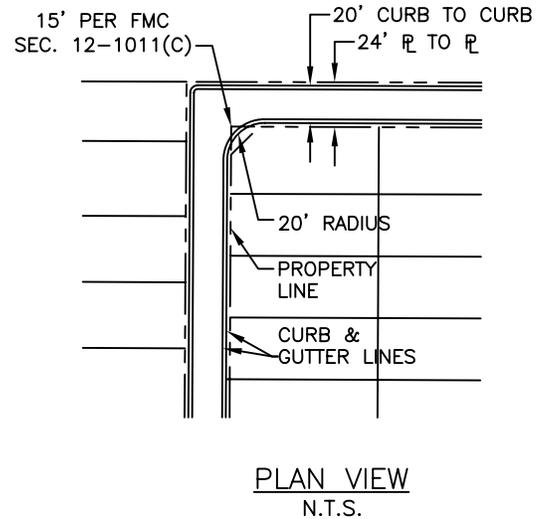
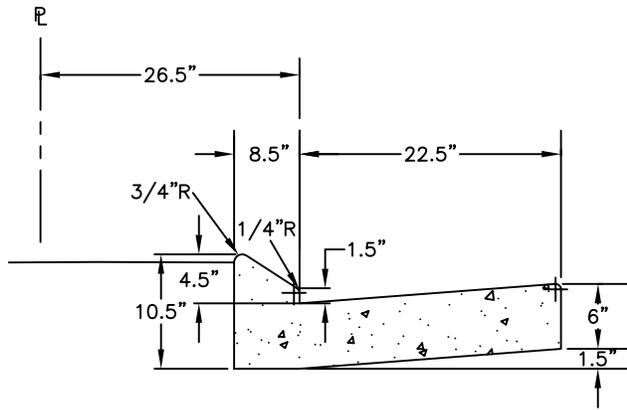
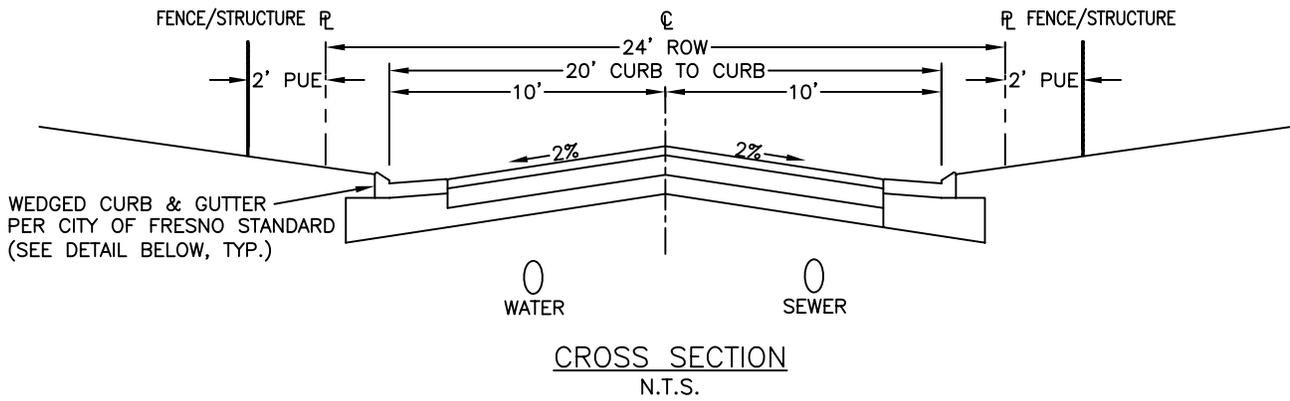
WEAKENED PLANE JOINT DETAIL

(SEE CITY STD. DWG. P-9 FOR ALTERNATE DESIGN)



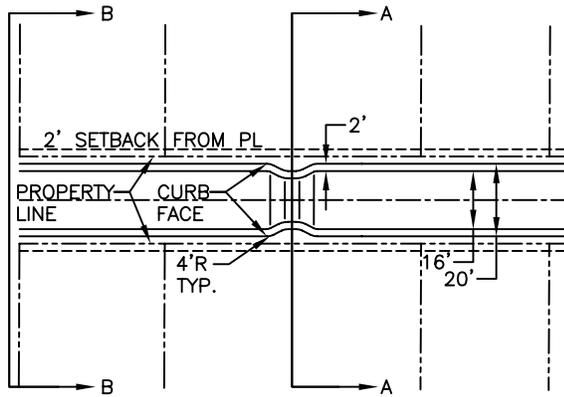
NOTES:

1. A MAXIMUM OFFSET OF 3' SHALL BE ALLOWED ONLY IF POLE EXISTS AT OR NEAR APPROACH IN ALLEY OR CORNER.
2. STANDARD BASED ON 20' ALLEY, ANY OTHER WIDTH TO BE ADJUSTED IN ACCORDANCE WITH ENGINEER.
3. MAXIMUM SLOPE FROM ALLEY TO SIDEWALK SHALL NOT EXCEED 8.33%.
4. THE PEDESTRIAN PATH OF TRAVEL ACROSS THE ALLEY SHALL BE 2% MAXIMUM CROSS SLOPE AND SHALL COMPLY WITH ADA REQUIREMENTS.

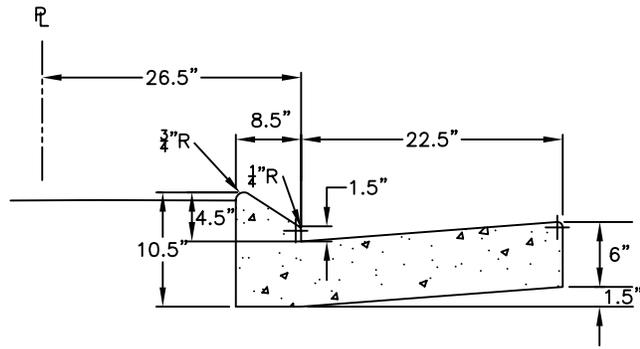


SPECIFICATIONS

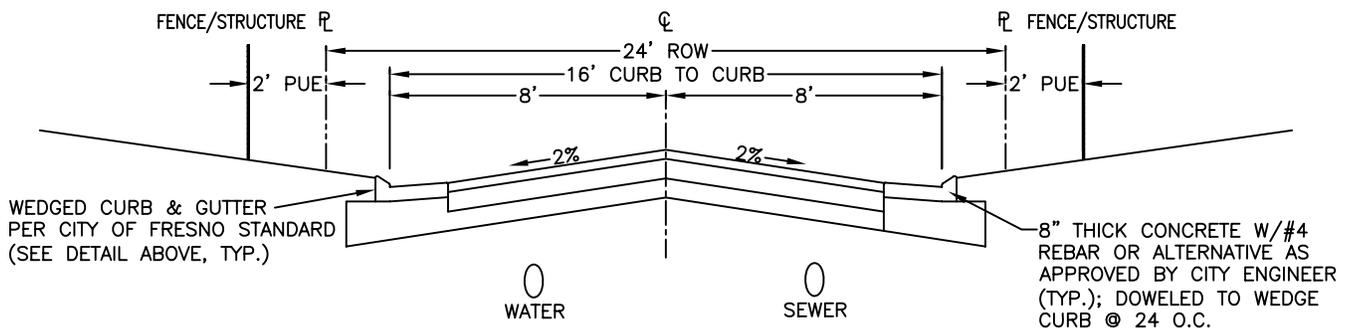
1. 20' FROM FACE OF CURB TO FACE OF CURB.
2. A MAXIMUM OFFSET OF 3' FROM FACE OF CURB SHALL BE ALLOWED ONLY IF STREETLIGHT POLE EXISTS AT OR NEAR APPROACH IN ALLEY OR CORNER.
3. STANDARD BASED ON 20' CURB TO CURB; ANY OTHER WIDTH TO BE ADJUSTED TO THE SATISFACTION OF THE CITY ENGINEER.
4. NO PARKING ALLOWED ON EITHER SIDE AND SHALL BE POSTED AT THE ENTRANCE TO ALLEY.
5. ALLEY TO BE MAINTAINED BY CFD, HOA, OR OTHER MAINTENANCE AGREEMENT.
6. CONNECTION TO LOCAL STREETS TO BE "STREET TYPE" APPROACHES. APPROACHES TO ACCOMMODATE CITY OF FRESNO STANDARD P-29 RAMPs AT MINIMUM.
7. NO UTILITY POLES, RISERS OR ABOVE GROUND APPURTENANCES ALLOWED IN CITY ROW, EXCEPT FOR FIRE HYDRANTS.
8. FIRE HYDRANTS SHALL BE PROTECTED WITH 6" CURB AND THE BOLLARD STANDARD.
9. FIRE HYDRANTS LOCATIONS SHALL BE APPROVED BY THE FIRE DEPARTMENT AND SHALL BE LOCATED A MINIMUM OF ONE LOT FROM ALLEY INTERSECTION.
10. GUTTER SLOPE SHALL BE 0.0015 MINIMUM.



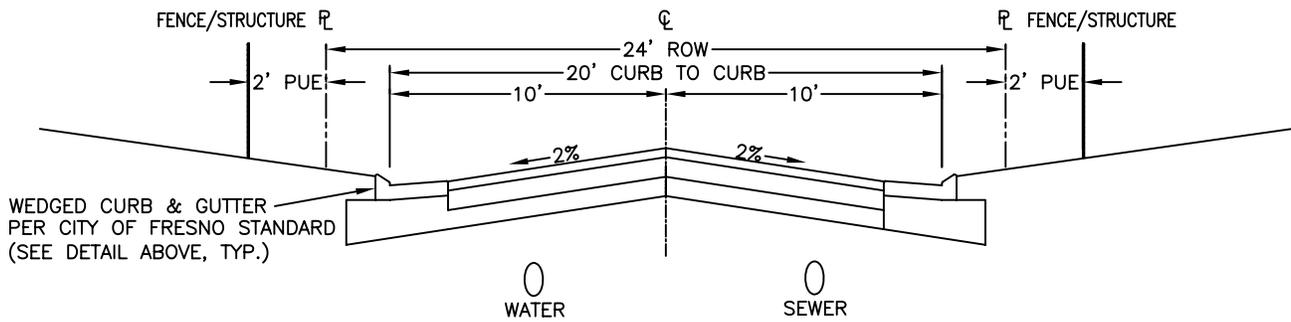
PLAN VIEW
N.T.S.



WEDGED CURB &
GUTTER DETAIL
N.T.S.



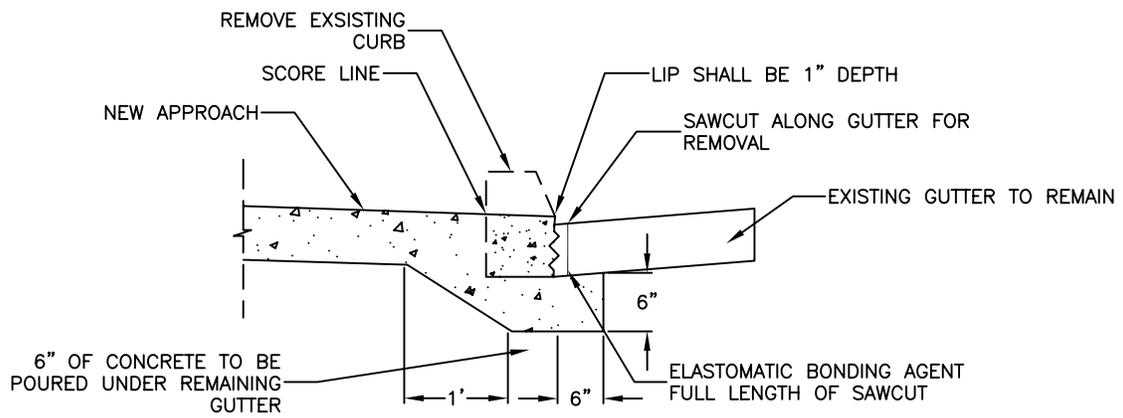
CROSS SECTION A-A
N.T.S.



CROSS SECTION B-B
N.T.S.

SPECIFICATIONS

1. 16' FROM FACE OF CURB TO FACE OF CURB AT PINCH POINT; 20' WIDTH IN ALL OTHER LOCATIONS.
2. A MAXIMUM OFFSET OF 3' FROM FACE OF CURB SHALL BE ALLOWED ONLY IF STREETLIGHT POLE EXISTS AT OR NEAR APPROACH IN ALLEY OR CORNER.
3. NO PARKING ALLOWED ON EITHER SIDE AND SHALL BE POSTED AT THE ENTRANCE TO ALLEY.
4. NO UTILITY POLES, RISERS OR ABOVE GROUND APPURTENANCES ALLOWED IN CITY ROW, EXCEPT FOR FIRE HYDRANTS.
5. NO FIRE HYDRANT SHALL BE ALLOWED AT PINCH POINT.
6. GUTTER SLOPE SHALL BE 0.0015 MINIMUM.

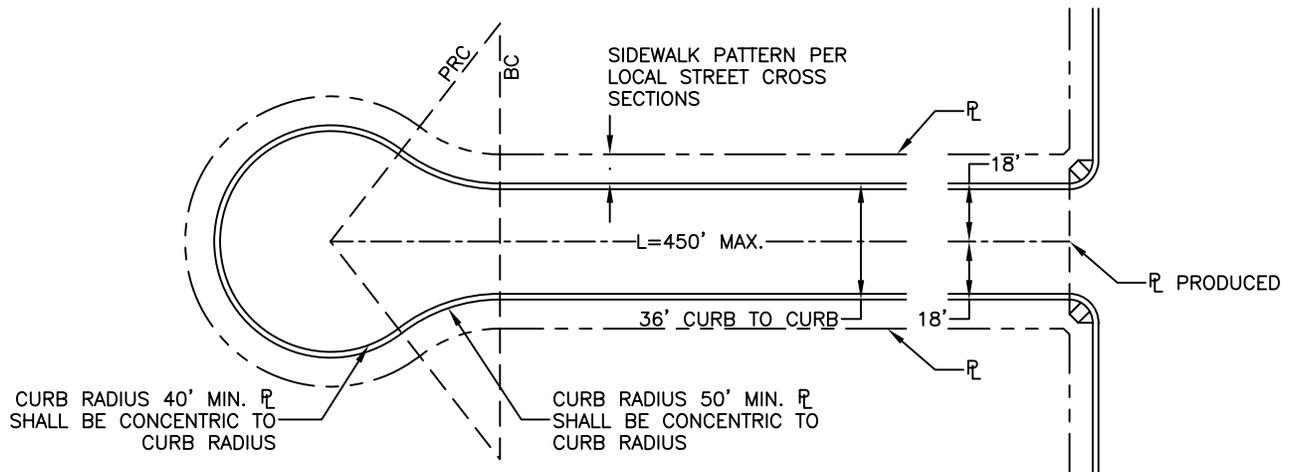


**CURB REMOVAL
FOR NEW APPROACHES**

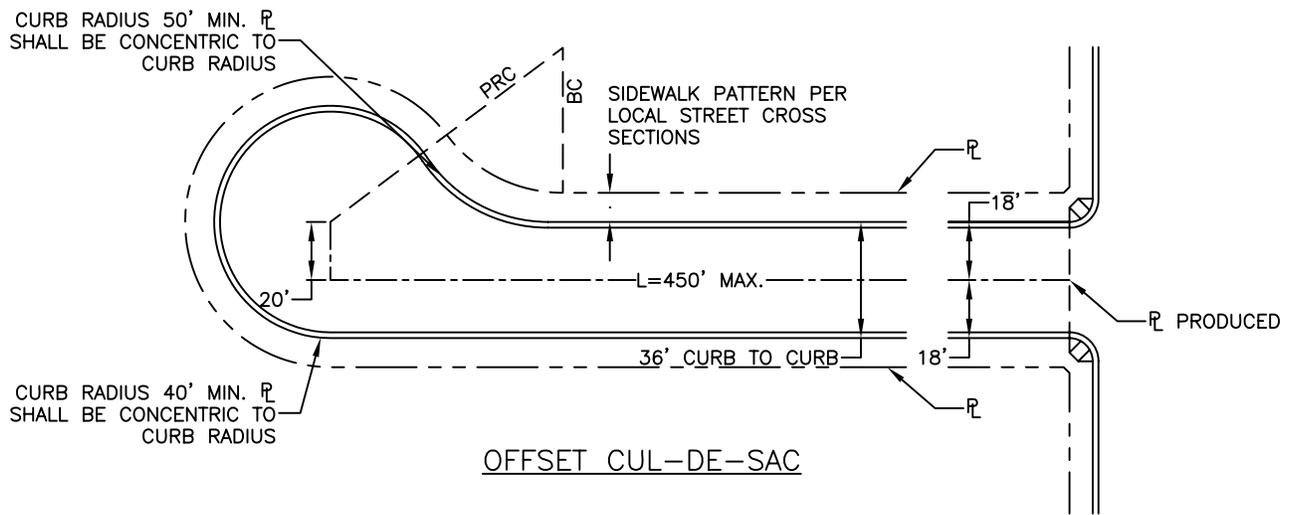
REF. & REV.
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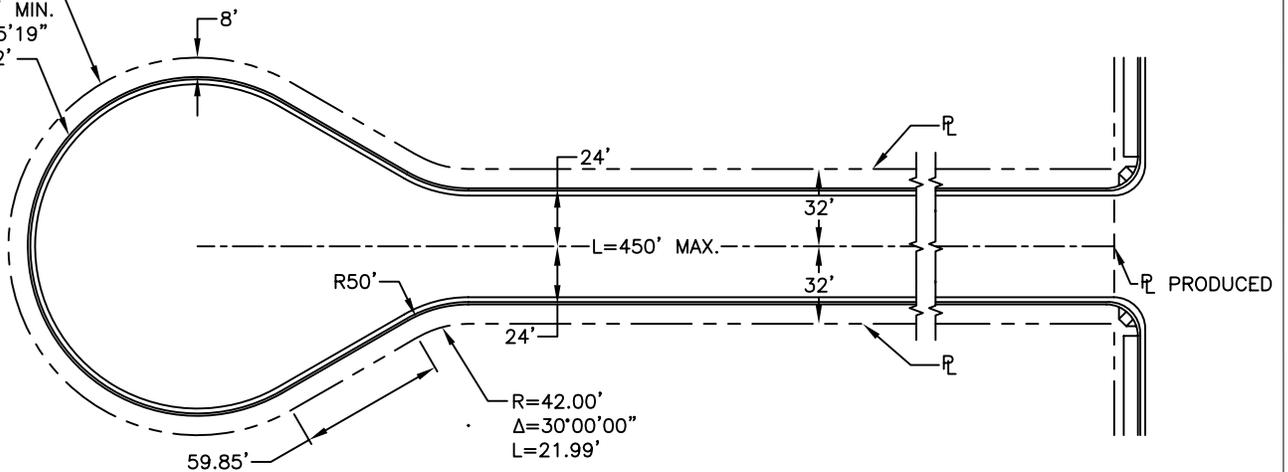
CENTERED CUL-DE-SAC



OFFSET CUL-DE-SAC

R=78.00'
 $\Delta=240^{\circ}00'00''$
 L=326.73'

R=70.00' MIN.
 $\Delta=239^{\circ}55'19''$
 L=293.22'

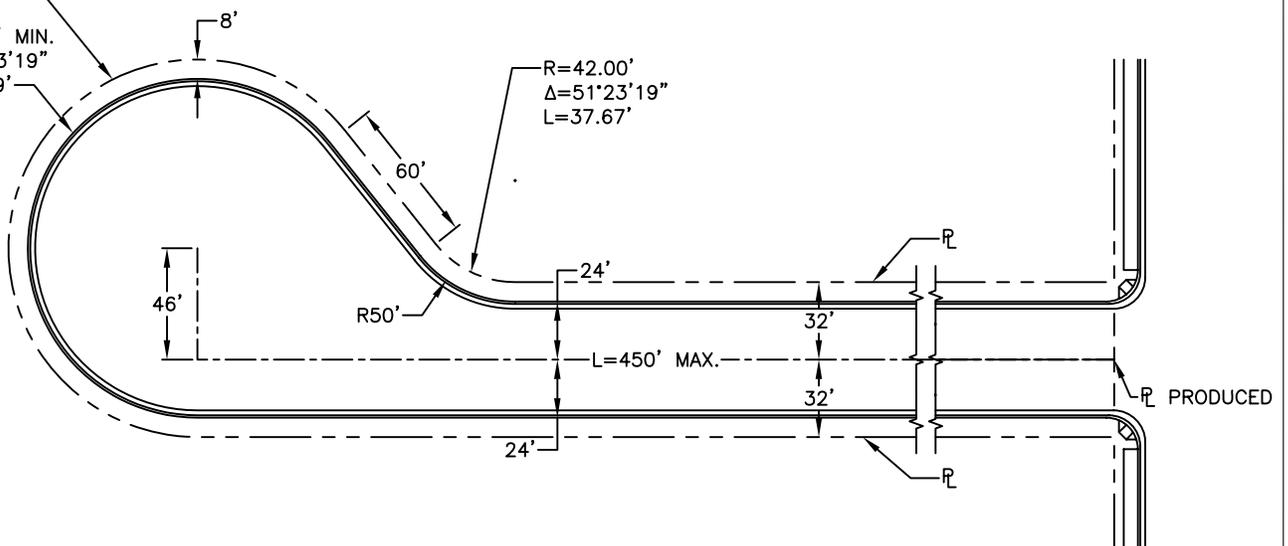


CENTERED CUL-DE-SAC

PAVED AREA=12,578 SQ. FT.
 CURB & GUTTER=379 L.F.
 FOR STRUCTURAL SECTION SEE CITY STD. DWG. P-55

R=78.00'
 $\Delta=231^{\circ}23'19''$
 L=315.00'

R=70.00' MIN.
 $\Delta=231^{\circ}23'19''$
 L=282.69'



OFFSET CUL-DE-SAC

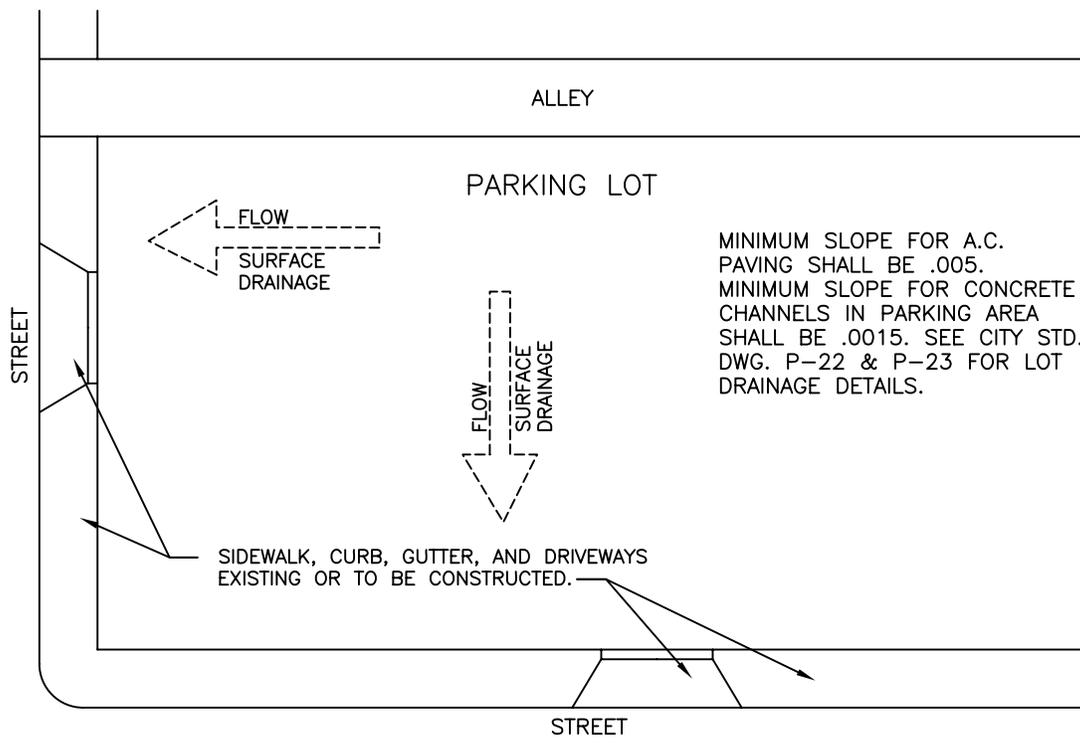
NOT USED

NO LONGER USED

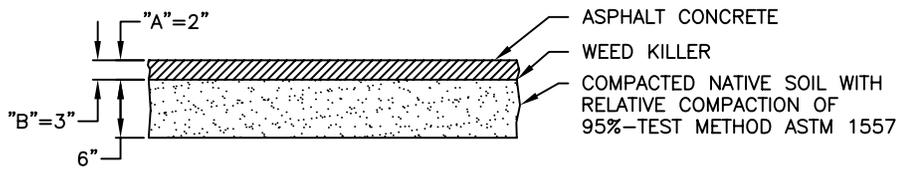
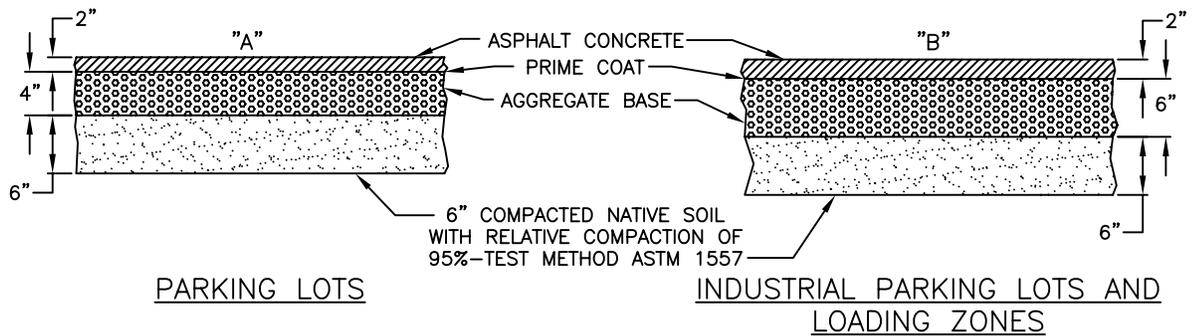
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AUG., 2010

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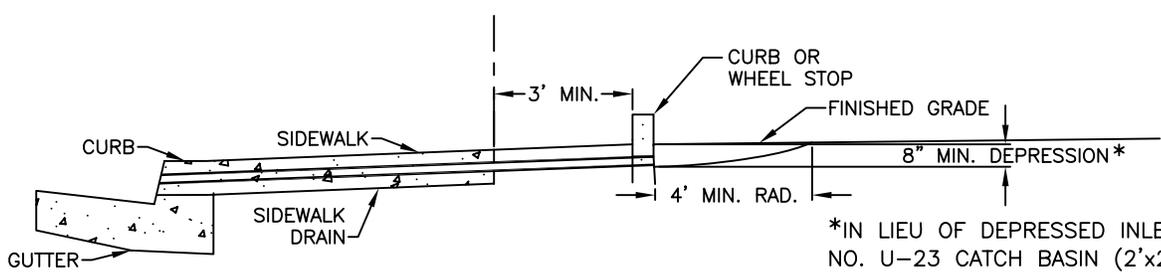
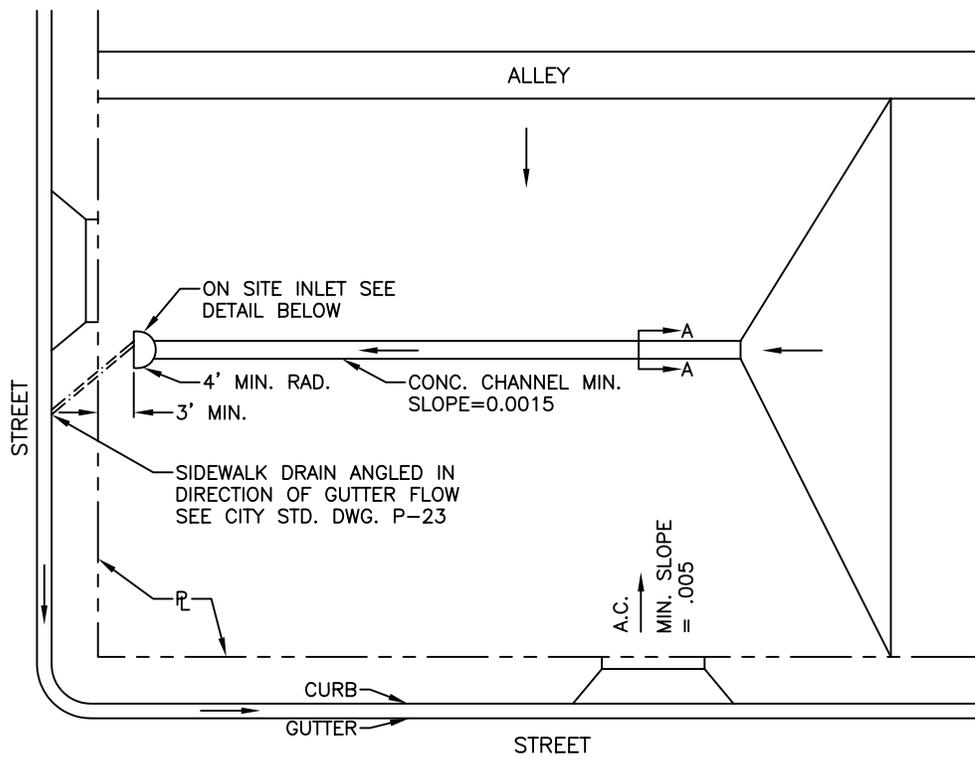
TYPICAL CROSS SECTIONS



NOTES:

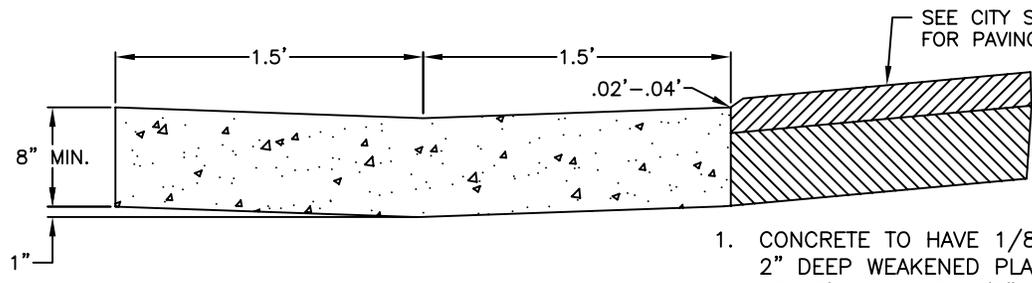
OPTIONAL-WITH APPROVED TEST

1. SURFACE DRAINAGE SHALL BE TO STREET.
2. PARKING BUMPERS TO BE PLACED SO THAT PARKED CARS WILL NOT OVERHANG ON SIDEWALKS OR STREETS.
3. THE OPTIONAL CROSS-SECTION MAY BE USED UPON SUBMISSION OF "R" VALUE TESTS TAKEN BY AN APPROVED LABORATORY SUBSTANTIATING THE USE OF EXISTING SOIL FOR THE BASE. A MINIMUM VALUE OF 65 WILL BE REQUIRED.
4. WHERE ASPHALT CONCRETE IS APPLIED TO THE NATIVE SOIL, SOIL STERILANT AS PER MANUFACTURES SPECIFICATIONS WILL BE REQUIRED BEFORE THE SURFACE MATERIAL IS PLACED. WEED KILLER TO BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.
5. SURFACE DRAINAGE TO ALLEY ONLY BY WRITTEN APPROVAL OF THE CITY ENGINEER.
6. TEMPORARY PARKING LOTS (USE NOT TO EXCEED 60 DAYS) SHALL BE GRADED AND ROLLED SMOOTH. THE TOP 6" OF NATIVE SOIL SHALL BE COMPACTED TO 85% RELATIVE COMPACTION USING TEST METHOD ASTM 1557. A DUST PALLIATIVE PER STATE STANDARD SPECIFICATIONS AT THE RATE OF 1 GAL./SQ. YD. TO OBTAIN A MINIMUM PENETRATION OF 1". THE MIXING RATIO SHALL BE 4:1 PER STATE STANDARD SPECIFICATIONS. THE DEVELOPER SHALL POST A BOND TO GUARANTEE REMOVAL OF ALL IMPROVEMENTS FOR A TEMPORARY PARKING LOT.



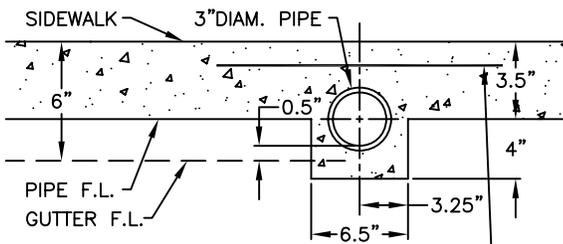
*IN LIEU OF DEPRESSED INLET A CRISTY NO. U-23 CATCH BASIN (2'x2'x2' MIN. DEPTH) WITH HEAVY DUTY TRAFFIC GRATE TO WITHSTAND MAX. TRAFFIC LOADING OR A BROOKS W-100 SERIES 2'x3' UTILITY BOX NO. 100TG TRAFFIC GRATE OR APPROVED EQUAL MAY BE USED.

ON SITE INLET DETAIL



SECTION A-A

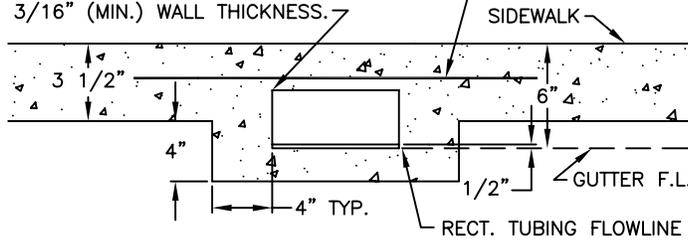
1. CONCRETE TO HAVE 1/8" WIDE BY 2" DEEP WEAKENED PLANE JOINTS AT 15' O.C. AND 1/2" EXPANSION JOINTS AT 90' O.C.
2. SURFACE DRAINAGE TO ALLEY ONLY BY WRITTEN APPROVAL OF THE CITY ENGINEER.
3. SURFACE DRAINAGE OVER DRIVEWAY APPROACHES AND SIDEWALKS IS NOT PERMITTED WHEN THE AREA TO BE DRAINED EXCEEDS 1/4 ACRE.



3" DIAMETER PIPE UNDER WALK

PROVIDE TWO LAYERS OF 6" X 6" WELDED WIRE MESH NO. 10, EXTEND 12" (MIN.) ON EACH SIDE OF TUBE.

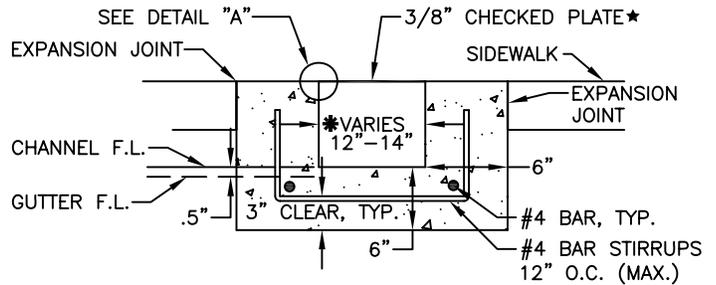
3"X5" OR 3"X6" RECT. TUBING WITH 3/16" (MIN.) WALL THICKNESS.



RECTANGULAR STEEL TUBING UNDER WALK

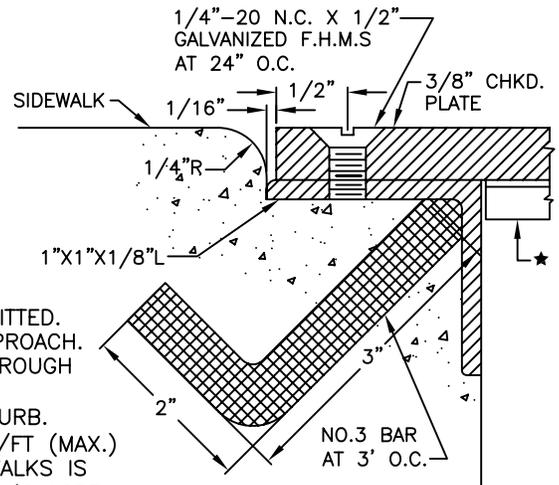
NOTES:

1. FOR 3" OR SMALLER DIAMETER PIPE, SCH. 40 PVC IS PERMITTED.
2. DRAIN SHALL NOT BE CONSTRUCTED UNDER A DRIVEWAY APPROACH.
3. SIDEWALK DRAINS, EXCEPT CHANNELS, SHALL BE ANGLED THROUGH SIDEWALK IN DIRECTION OF GUTTER FLOW.
4. ALL DRAINS AND CHANNELS SHALL BE FLUSH W/FACE OF CURB.
5. DRAIN SLOPES SHALL BE 0.010 FT/FT (MIN.) AND 0.042 FT/FT (MAX.)
6. SURFACE DRAINAGE OVER DRIVEWAY APPROACHES AND SIDEWALKS IS NOT PERMITTED WHEN THE AREA TO BE DRAINED EXCEEDS 1/4 ACRE.



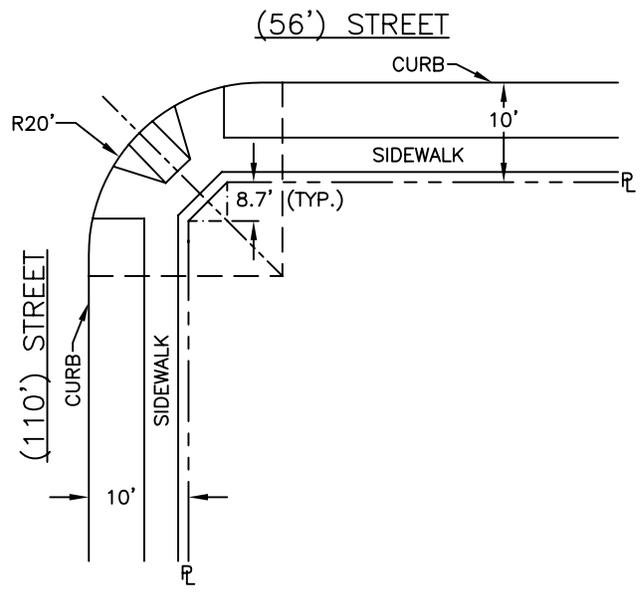
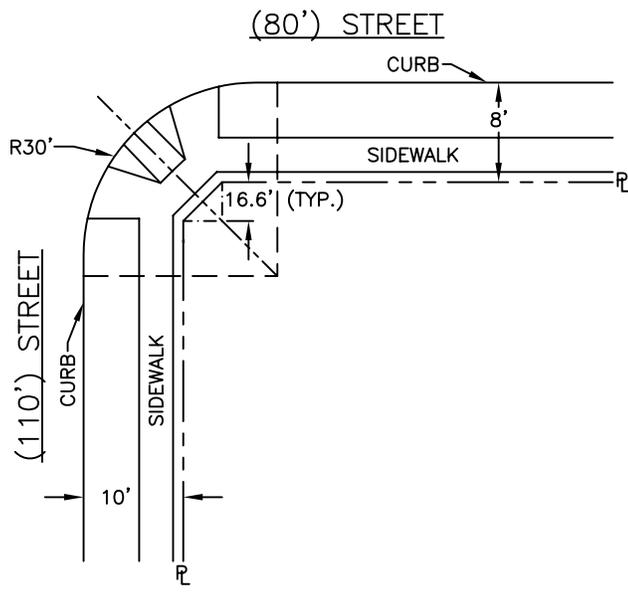
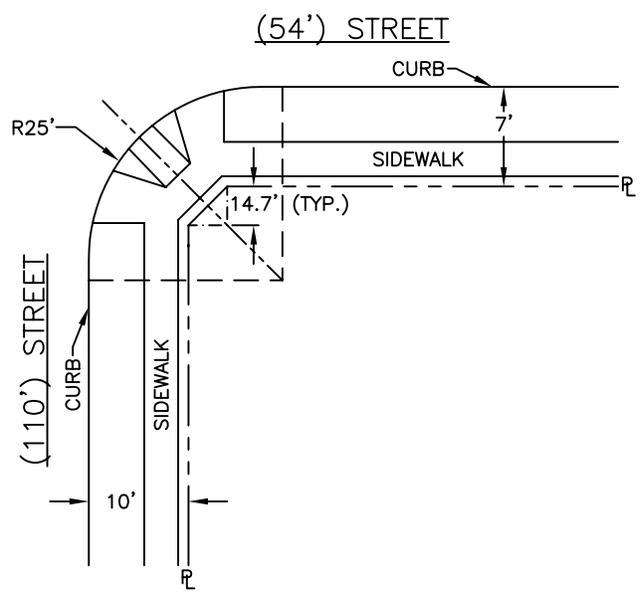
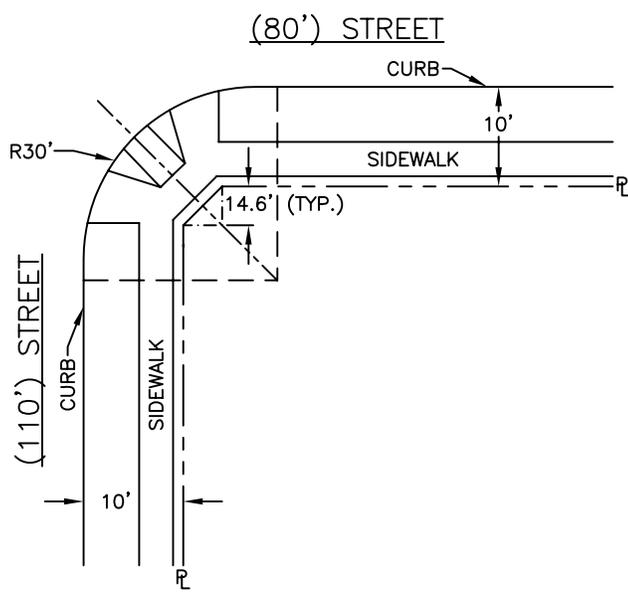
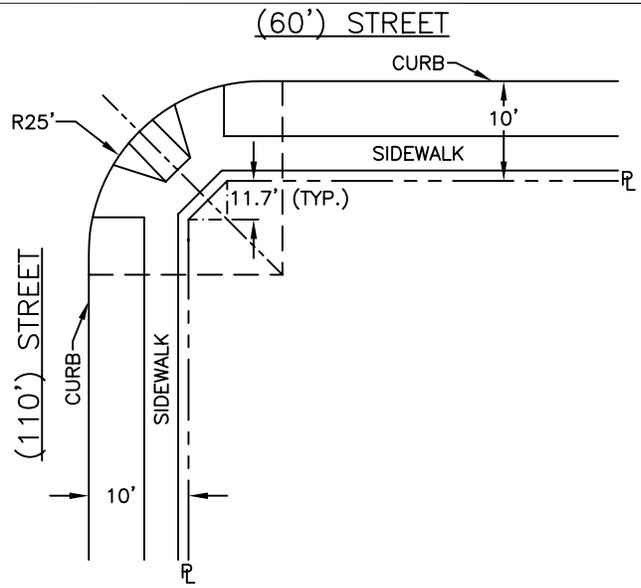
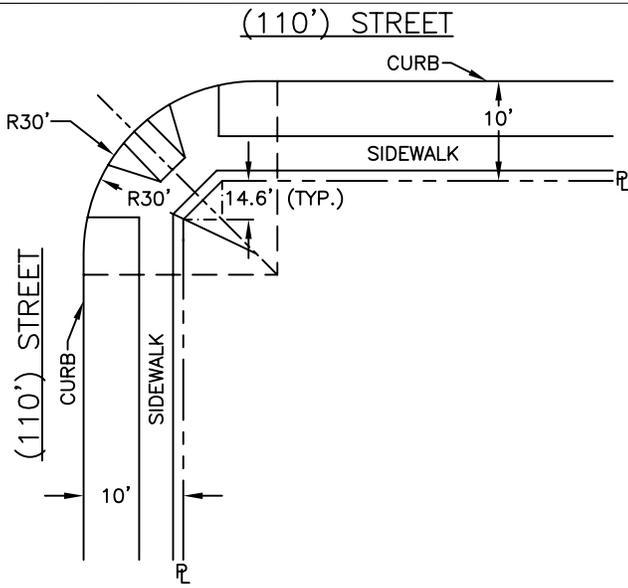
CHANNEL THROUGH WALK

*CHANNELS CAN BE WIDER UPON APPROVAL
 *ONE SECTION OF 3/8" CHECKED PLATE SHALL NOT EXCEED 5 FEET IN LENGTH. FOR CHANNELS WIDER THAN 14" AND UP TO 24", PROVIDE 1"X 1"X 3/16" ANGLE IRON AT 12" O.C. WELDED ON THE UNDERSIDE OF THE CHECKED PLATE.



DETAIL "A"

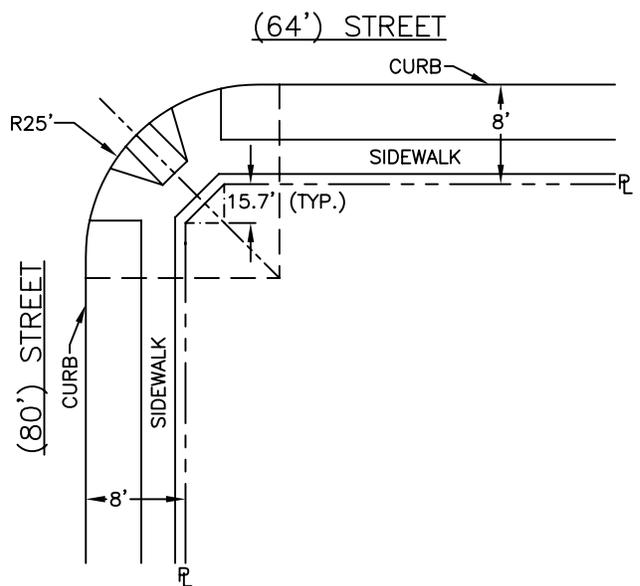
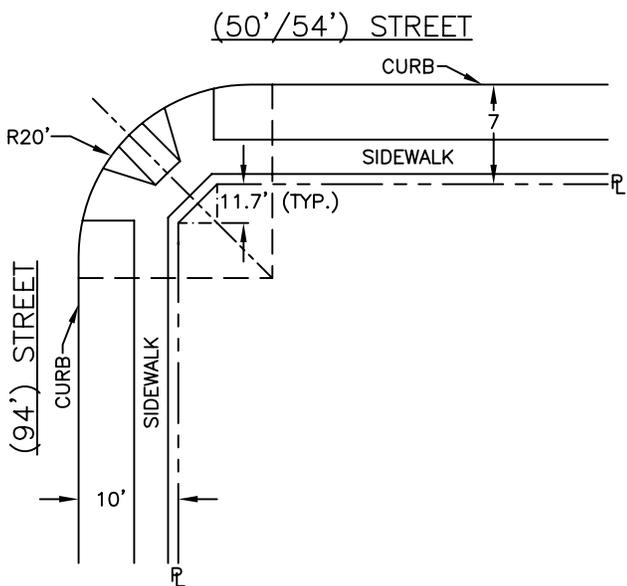
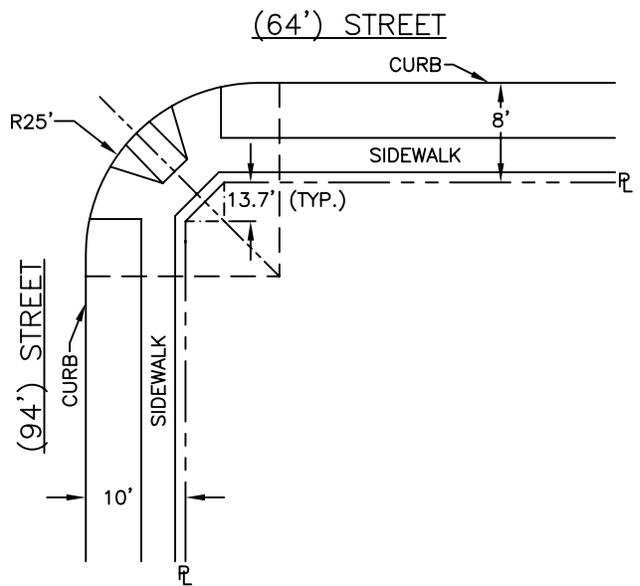
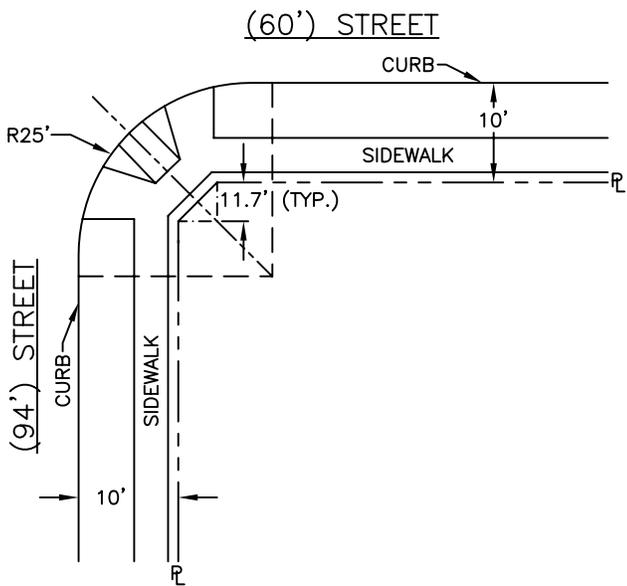
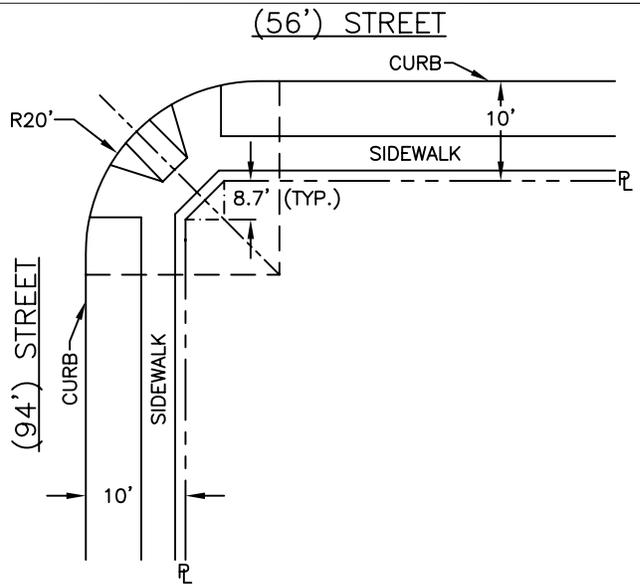
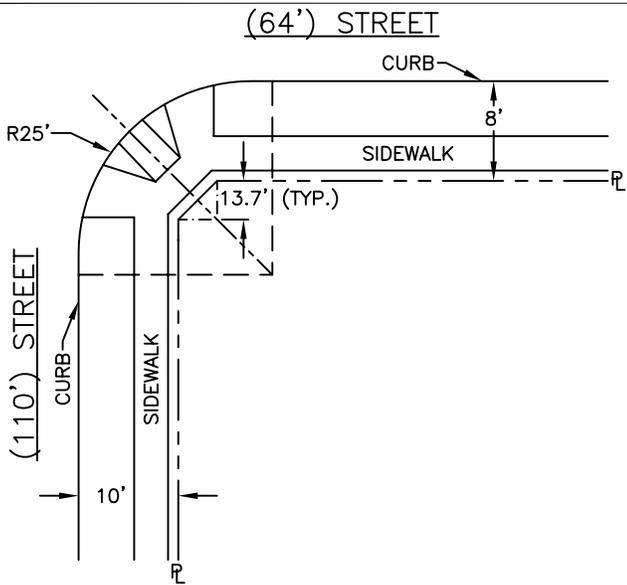
AREAS TO BE DRAINED FROM PRIVATE PROPERTY TO PUBLIC STREETS				
SURFACE AREA	TYPE OF SURFACE	DRAIN AREA REQUIRED	SIZE & NO. OF PIPES OR RECTANGULAR STEEL TUBE	SIZE & NO. OF CHANNELS
2 ACRES 200'X400'	PAVED GRASS	100 SQ. IN. 25 SQ. IN.	2-3"X6" RECT. TUBES	2-4" X14"
1.5 ACRES 200'X300'	PAVED GRASS	75 SQ. IN. 20 SQ. IN.	1-3"PIPE & 1-3"X6" R.T.	2-3" X12"
1 ACRE 200'X200'	PAVED GRASS	50 SQ. IN. 12 SQ. IN.	1-3"X5" RECT. TUBE	1-4" X14"
0.75 ACRE 150'X200'	PAVED GRASS	40 SQ. IN. 10 SQ. IN.	3-3"X6" RECT. TUBE OR 1-3"X5" RECT. TUBE	1-4" X14"
0.5 ACRE 100'X200'	PAVED GRASS	30 SQ. IN. 6 SQ. IN.	2-3"X6" RECT. TUBE OR 1-3"PIPE	1-3" X12"
0.25 ACRE 100'X100'	PAVED GRASS	16 SQ. IN. 3 SQ. IN.	1-3"PIPE & 1-3"X5" R.T. 1-3" PIPE	
USE 1 ACRE = 200'X200' OR 100'X400'				
AREA 3" DIA. PIPE = 7.1 SQ. IN.			AREA 4" X 14" CHANNEL = 56 SQ. IN.	
AREA 3" X 5" RECT. TUBE = 12.3 SQ. IN.			AREA 3" X 12" CHANNEL = 36 SQ. IN.	
AREA 3" X 6" RECT. TUBE = 14.9 SQ. IN.				



STREET INTERSECTIONS
 TYPICAL CURB RETURNS, LANDINGS, & R/W

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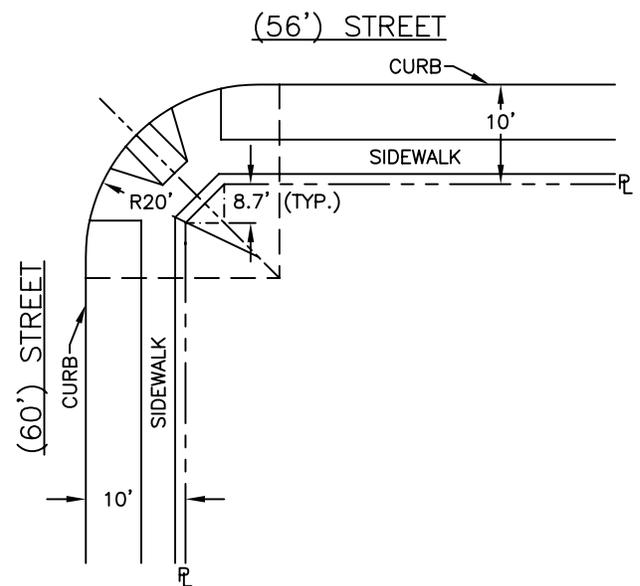
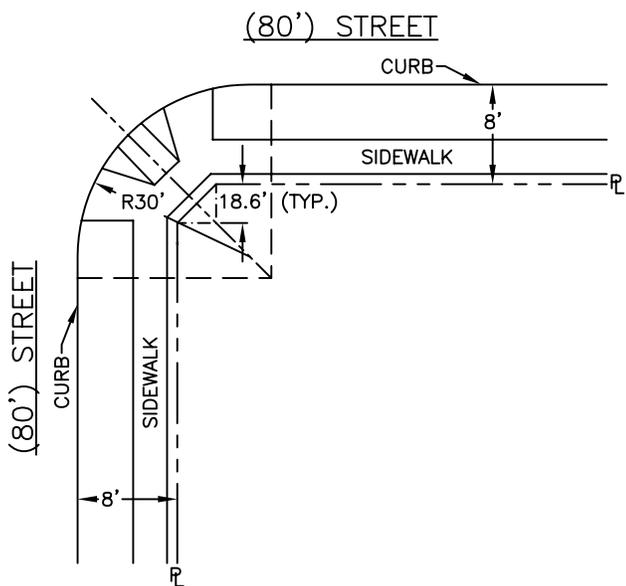
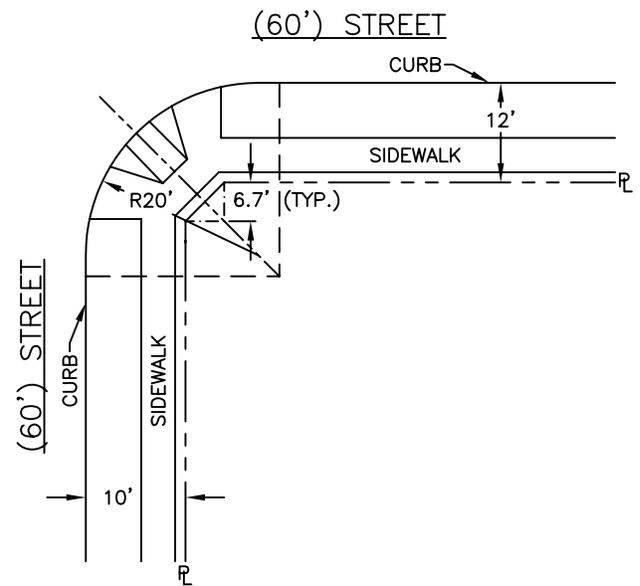
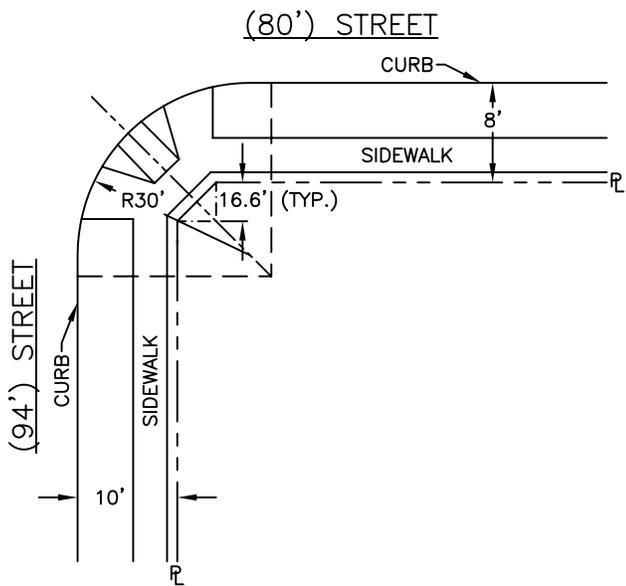
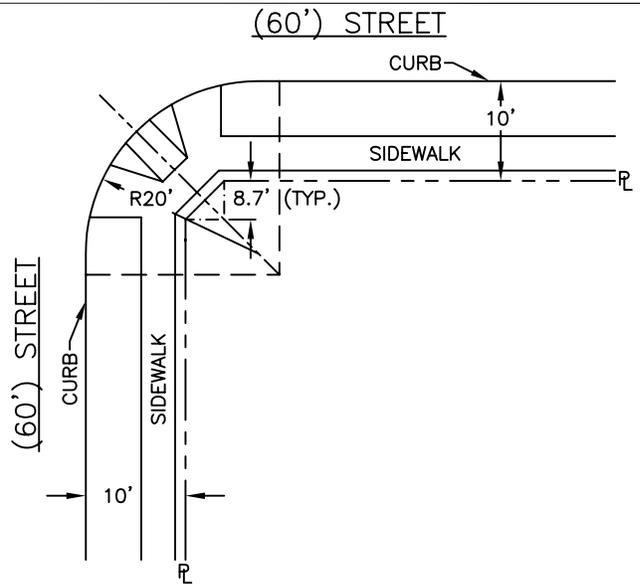
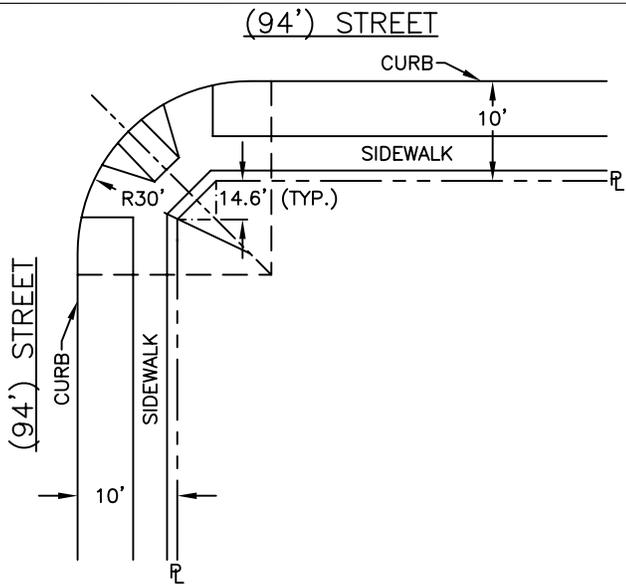
CITY OF FRESNO
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STREET INTERSECTIONS
TYPICAL CURB RETURNS, LANDINGS, & R/W

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AUG., 2010

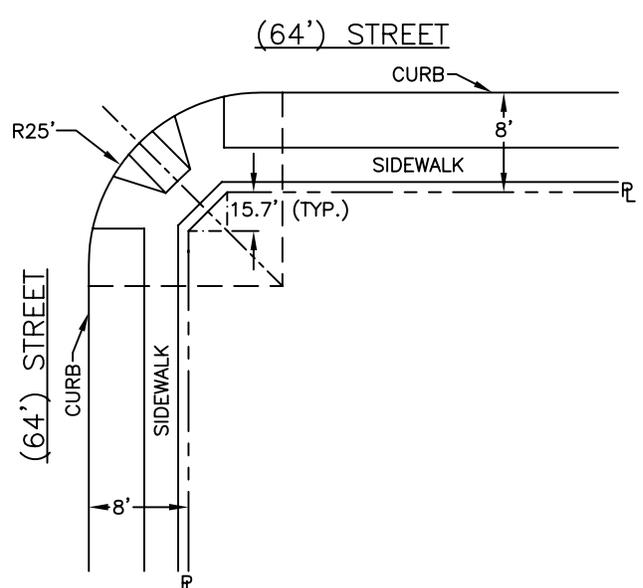
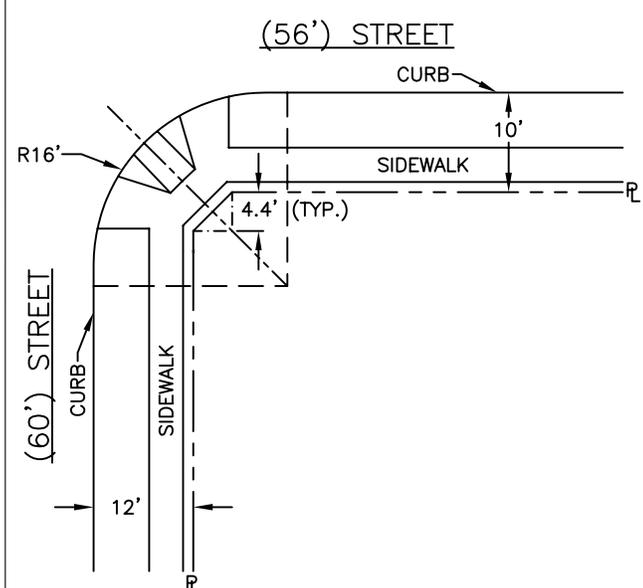
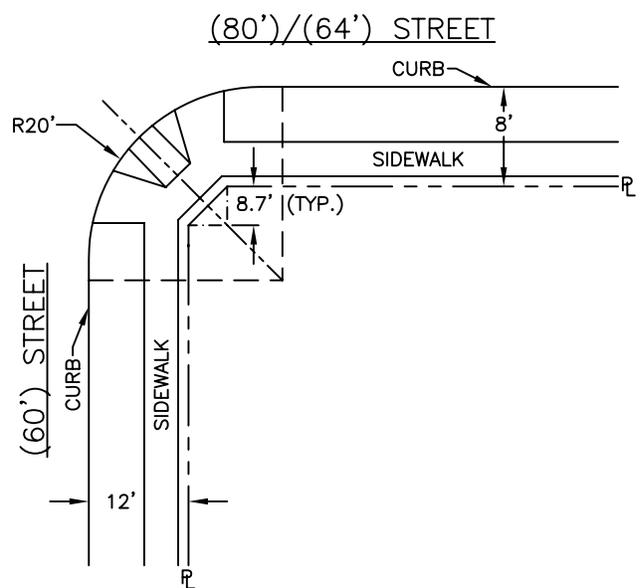
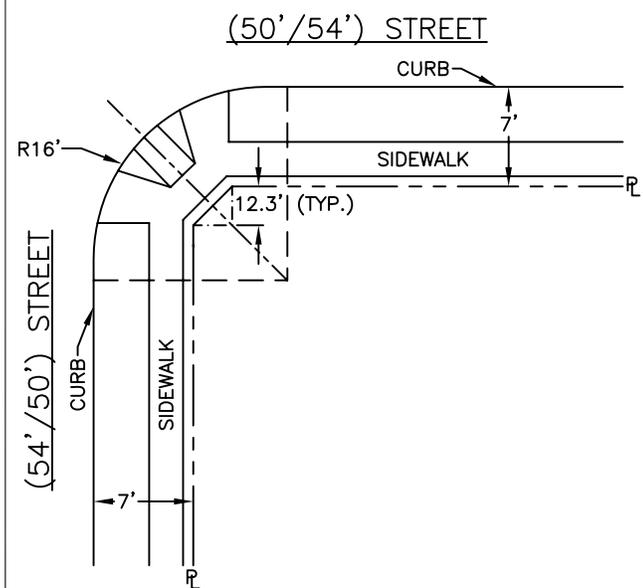
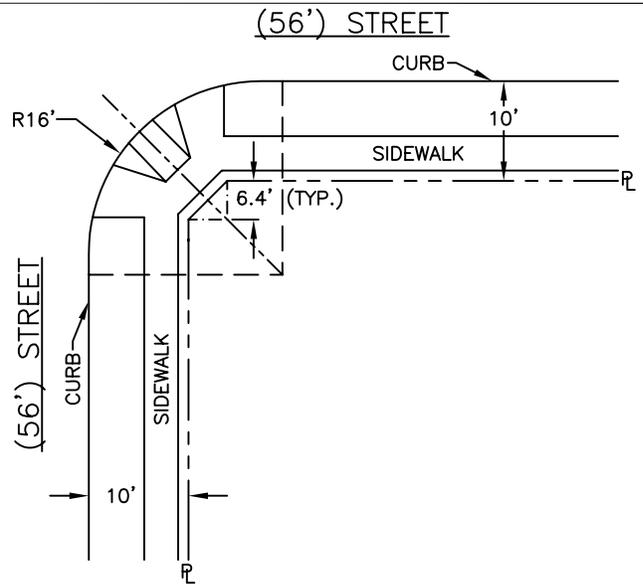
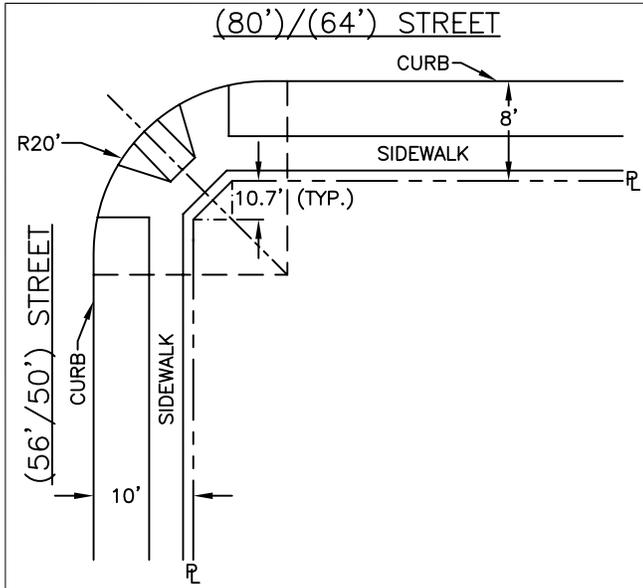
CITY OF FRESNO
P-25



STREET INTERSECTIONS
 TYPICAL CURB RETURNS, LANDINGS, & R/W

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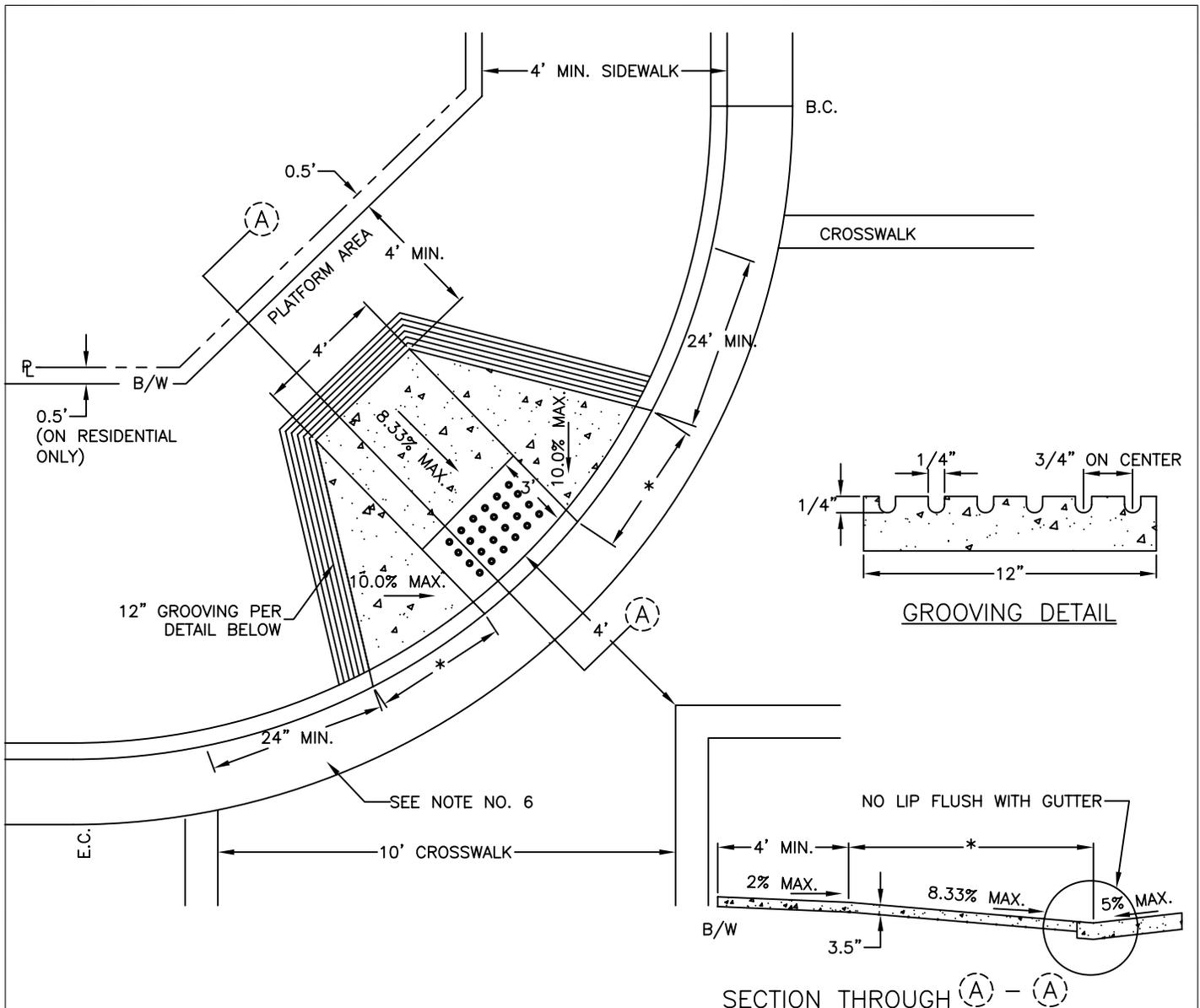
CITY OF FRESNO
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STREET INTERSECTIONS
TYPICAL CURB RETURNS, LANDINGS, & R/W

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AUG., 2010

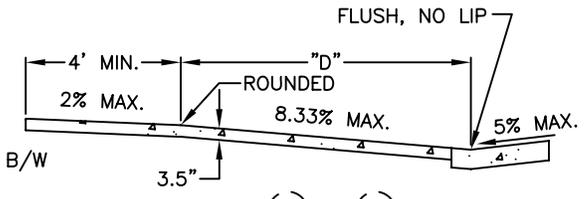
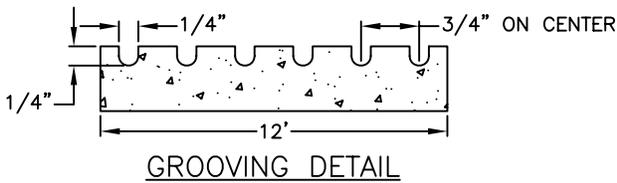
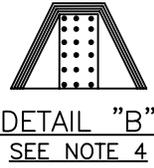
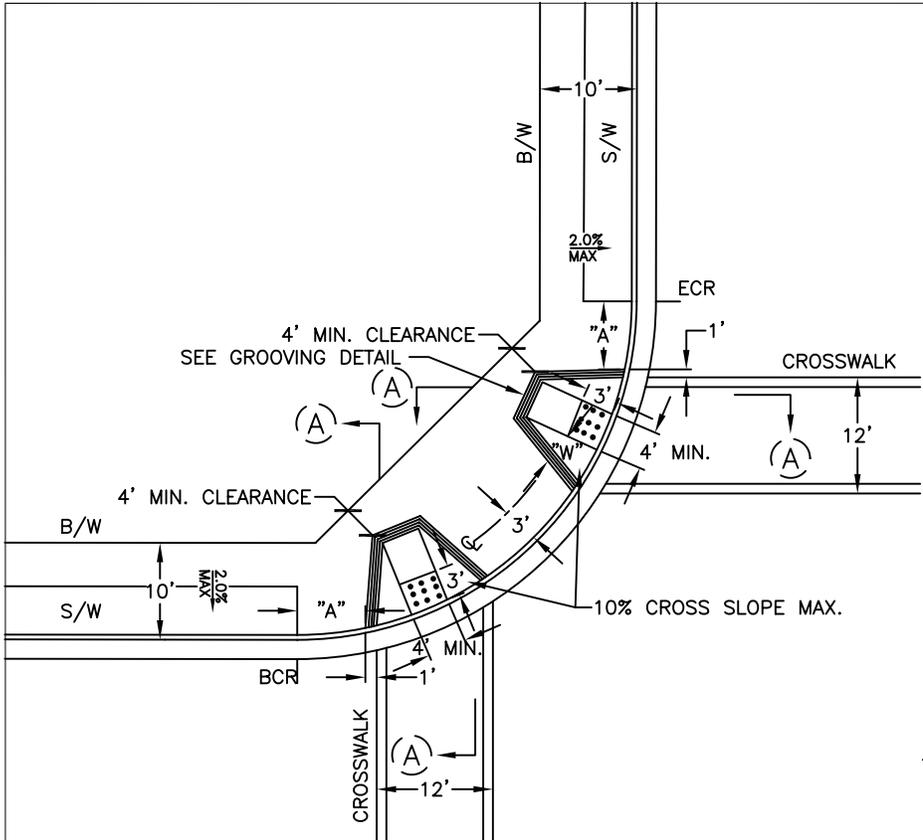
CITY OF FRESNO
P-27



NOTES:

1. TRANSITIONS FROM RAMPS AND LANDING TO WALK, GUTTERS OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES.
2. SURFACE OF CURB RAMP AND FLARED SIDES SHALL HAVE BROOM FINISH TRANSVERSE TO PATH OF TRAVEL AND SHALL BE OF CONTRASTING FINISH TO THAT OF ADJACENT SIDEWALK.
3. RAMP SLOPE SHALL NEVER EXCEED 8.33%.
4. WHEN THE RAMP HAS A SLOPE LESS THAN 1:15 (6.7% SLOPE), DETECTABLE WARNING DEVICES SHALL BE REQUIRED ON THE FULL WIDTH AND DEPTH OF RAMP WITHIN THE GROOVED BORDERS, EXCLUDING THE FLARED SIDES, PER CHAPTER 11B OF THE CALIFORNIA BUILDING CODE. SEE P.W. STD. P-32.
5. THE SLOPE OF ADJOINING GUTTERS, ROAD SURFACE OR ACCESSIBLE ROUTE WITHIN 4' OF THE BOTTOM OF THE RAMP SHALL NOT EXCEED 5% SLOPE.
6. THERE SHALL BE A SEGMENT OF STRAIGHT CURB, AT LEAST 24" LONG ON EACH SIDE OF THE CURB RAMP. THESE CURBS SHALL ALSO BE WITHIN THE MARKED CROSSWALK.
7. PROVIDE GROOVED BORDER 12" WIDE AT THE LEVEL SURFACE OF THE SIDEWALK ALONG THE TOP AND EACH SIDE APPROX. 3/4" ON CENTER, 1/4" DEEP; 1/4" WIDE.
8. PROVIDE LEVEL LANDING OF AT LEAST 48" ON UPPER END AND OVER FULL WIDTH OF RAMP.
9. THE 4' CLEAR SPACE AT BOTTOM OF RAMP SHALL BE WITHIN THE MARKED CROSSINGS.
10. RAMP SHALL BE MINIMUM OF 4' WIDE AND SHALL LIE GENERALLY IN A SINGLE SLOPED PLANE WITH A MINIMUM OF SURFACE WARPING AND CROSS SLOPE.
11. THE FLARED SIDE SHALL NOT EXCEED 10% SLOPE.
12. CURB RAMPS SHALL BE LOCATED OR PROTECTED TO PREVENT THEIR OBSTRUCTION BY PARKED CARS.
13. THE DETECTABLE WARNING SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT. THE MATERIAL USED SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.

CURB RADIUS	"A" DISTANCE
30'	5'
35'	7'
40'	11'
45'	15'
50'	18'



SECTION THROUGH (A) - (A)
 DIMENSIONS "D" AND "W" TO BE DETERMINED BY
 FLARE SLOPE, CURBSFACE HEIGHT AND SLOPE
 AROUND RETURN

NOTES:

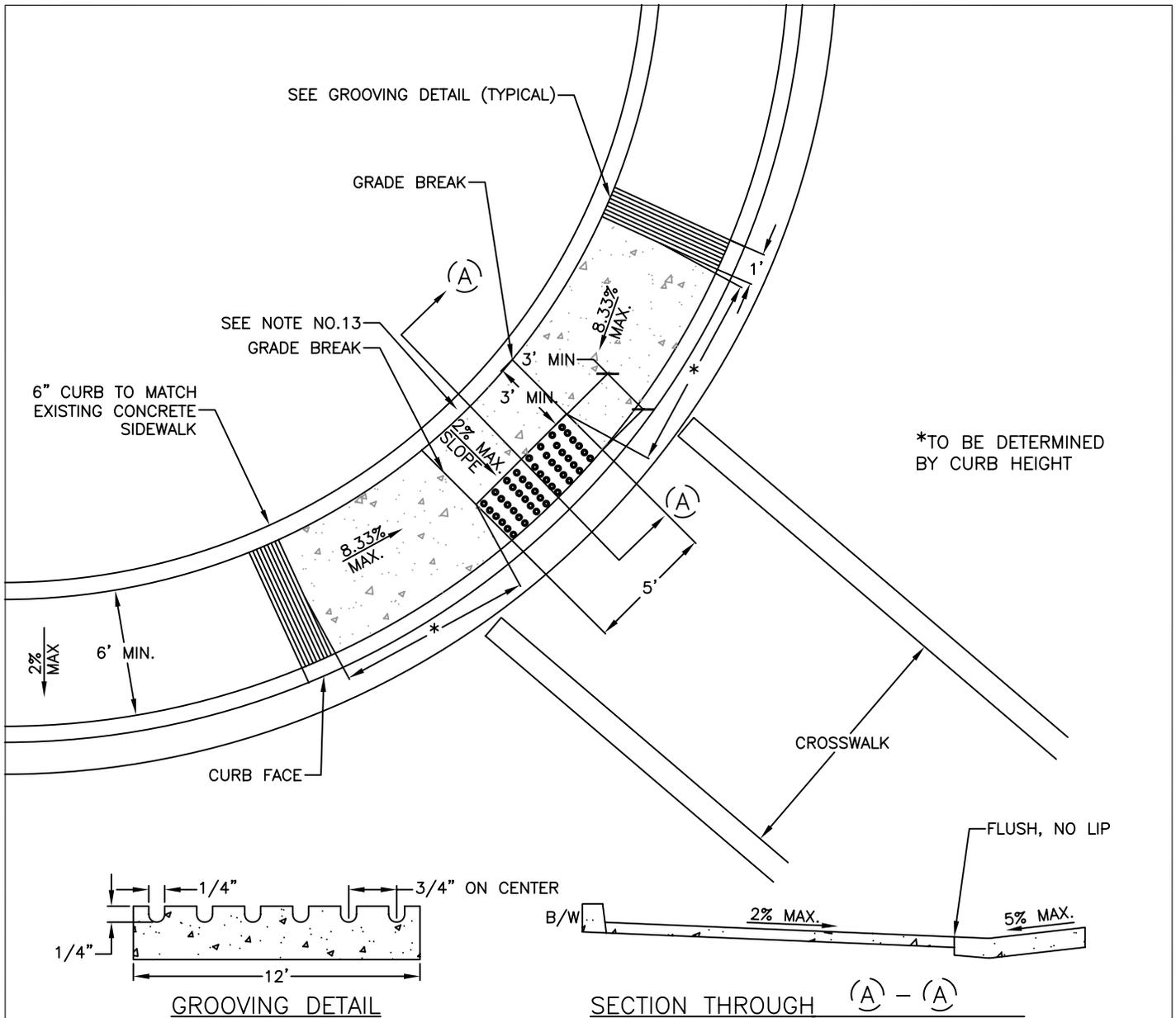
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6. PROVIDE GROOVED BORDER 12" WIDE AT THE LEVEL SURFACE OF THE SIDEWALK ALONG THE TOP AND EACH SIDE APPROX. 3/4" ON CENTER, 1/4" DEEP; 1/4" WIDE.
7. PROVIDE LEVEL LANDING OF AT LEAST 48" ON UPPER END AND OVER FULL WIDTH OF RAMP.
8. THE CLEAR SPACE AT BOTTOM OF RAMP SHALL BE WITHIN THE MARKED CROSSINGS.
9. RAMP SHALL BE MINIMUM OF 4' WIDE AND SHALL LIE GENERALLY IN A SINGLE SLOPED PLANE WITH A MINIMUM OF SURFACE WARPING AND CROSS SLOPE.
10. THE FLARED SIDE SHALL NOT EXCEED 10% SLOPE.
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CITY OF FRESNO

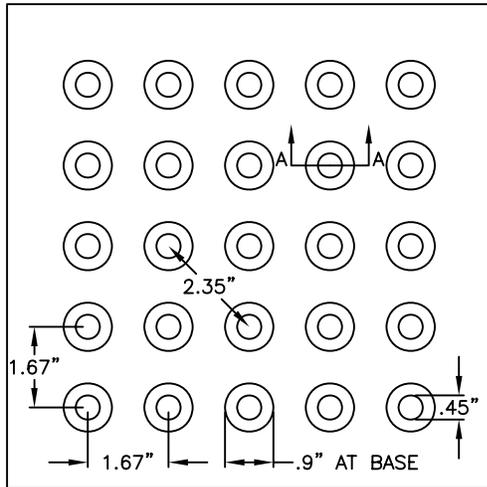
**DUAL CURB RAMPS
 MAJOR STREET INTERSECTION**

P-30

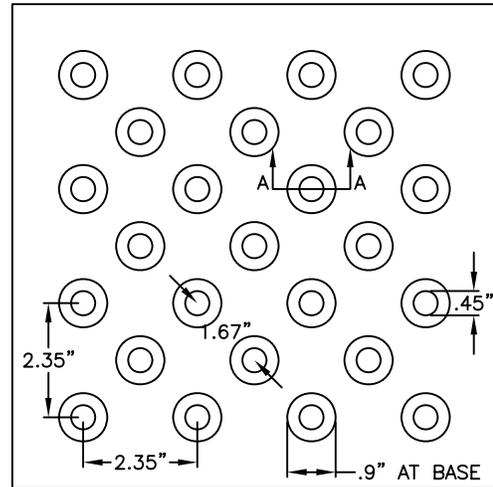


NOTES:

1. TRANSITIONS FROM RAMPS AND LANDING TO WALK, GUTTERS OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES.
2. SURFACE OF CURB RAMP AND FLARED SIDES SHALL HAVE BROOM FINISH TRANSVERSE TO PATH OF TRAVEL AND SHALL BE OF CONTRASTING FINISH TO THAT OF ADJACENT SIDEWALK.
3. RAMP SLOPE SHALL NEVER EXCEED 8.33%.
4. THE SLOPE OF ADJOINING GUTTERS, ROAD SURFACE OR ACCESSIBLE ROUTE WITHIN 4' OF THE BOTTOM OF THE RAMP SHALL NOT EXCEED 5% SLOPE.
5. PROVIDE GROOVED BORDER 12" WIDE AT THE LEVEL SURFACE OF THE SIDEWALK ALONG THE TOP AND EACH SIDE APPROX. 3/4" ON CENTER, 1/4" DEEP; 1/4" WIDE.
6. THE LOWER LANDING AREA LEADING INTO VEHICULAR WAY SHALL TERMINATE WITHIN THE MARKED CROSSING.
7. PROVIDE LEVEL LANDING OF AT LEAST 48" ON UPPER END AND OVER FULL WIDTH OF RAMP.
8. RAMP AND LOWER LANDING SHALL BE MINIMUM OF 4' WIDE AND SHALL LIE GENERALLY IN A SINGLE SLOPED PLANE WITH A MINIMUM OF SURFACE WARPING AND CROSS SLOPE.
9. CURB RAMPS SHALL BE LOCATED OR PROTECTED TO PREVENT THEIR OBSTRUCTION BY PARKED CARS.
10. ON THE BOTTOM LANDING WITH A 2% MAX. SLOPE, WHERE WALK ADJOINS A VEHICULAR WAY, USE A 36" BAND OF TRUNCATED DOMES, IN-LINE PATTERN PER P.W. STD. P-32.
11. THE DETECTABLE WARNING SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT. THE MATERIAL USED SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.
12. THIS RAMP TYPE SHALL ONLY BE USED WHEN NECESSARY DUE TO R/W OR PHYSICAL CONSTRAINTS. IT MAY BE UTILIZED FOR DIAGONAL OR DUAL RAMP APPLICATIONS.
13. MODIFIED RAMPS PLACED ON SIGNALIZED INTERSECTIONS SHALL HAVE A PEDESTRIAN POST FOR BUTTON PLACEMENT AT THE LOWER LANDING AREA FOR ADA REQUIREMENTS.



IN-LINE PATTERN A-A



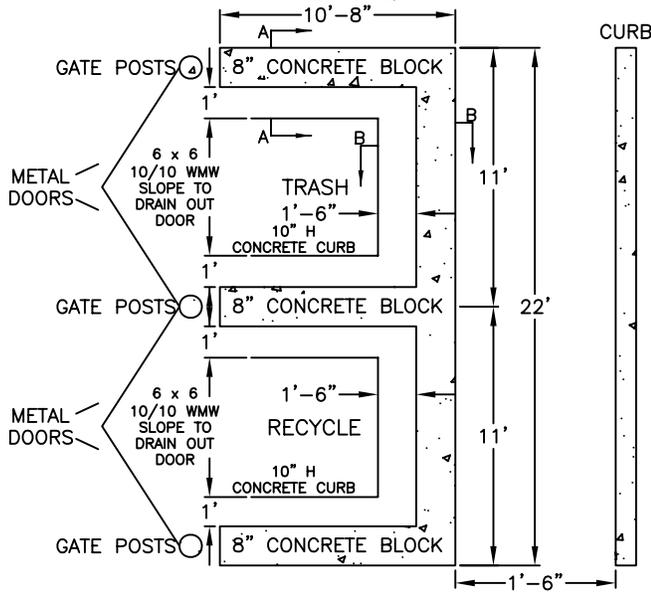
OFFSET PATTERN A-A



NOTES:

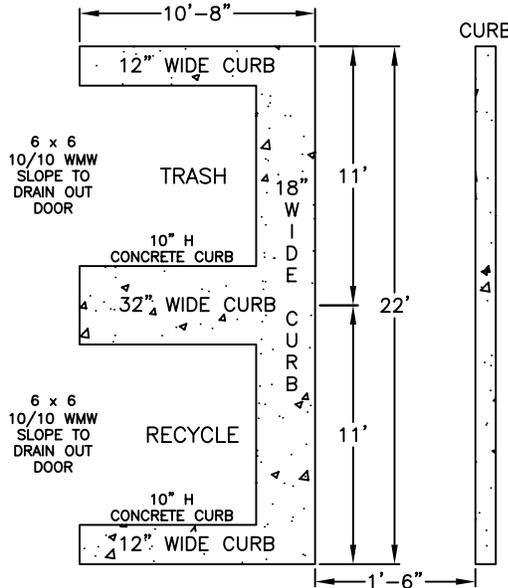
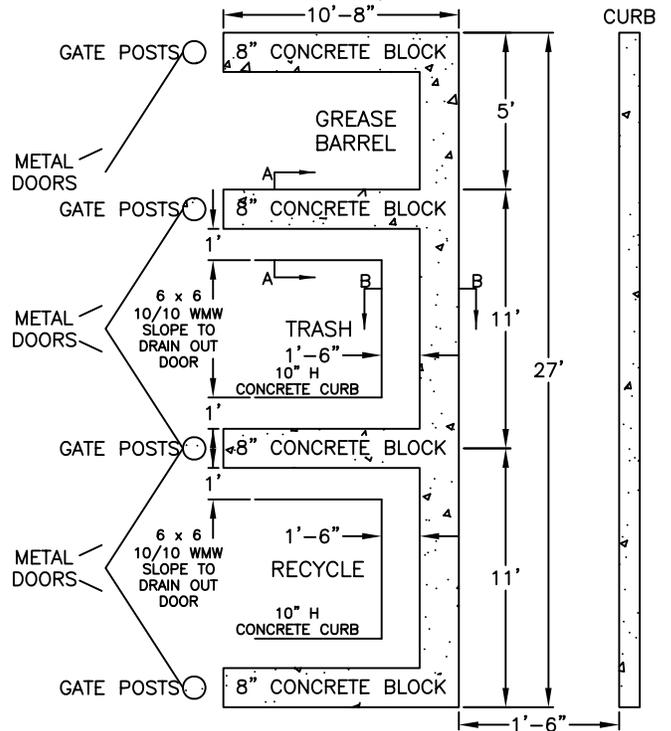
1. THE DETECTABLE WARNING SHALL VISUALLY CONTRAST 70% WITH ADJOINING SURFACES, EITHER LIGHT-ON DARK OR DARK-ON-LIGHT. THE MATERIAL USED SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.
2. THE DOMES MAY BE CONSTRUCTED IN A VARIETY OF METHODS, INCLUDING CAST-IN-PLACE OR STAMPED OR IT MAY BE PART OF A PREFABRICATED SURFACE TREATMENT.
3. ONLY APPROVED DSA/AC DETECTABLE WARNING PRODUCTS AND DIRECTIONAL SURFACES SHALL BE INSTALLED AS PROVIDED IN THE CALIFORNIA CODE OF REGULATIONS (CCR), TITLE 24, PART 1, ARTICLES 2, 3 AND 4. REFER TO CCR TITLE 24, PART 12, CHAPTER 12-11A AND B FOR BUILDING FACILITY ACCESS SPECIFICATIONS FOR PRODUCT APPROVAL FOR DETECTABLE WARNING PRODUCTS AND DIRECTIONAL SURFACES.
4. DETECTABLE WARNING PRODUCTS AND DETECTABLE SURFACES SHALL BE EVALUATED BY AN INDEPENDENT ENTITY, SELECTED BY THE DEPARTMENT OF GENERAL SERVICES, DIVISION OF THE STATE ARCHITECT-ACCESS COMPLIANCE FOR ALL OCCUPANCIES, INCLUDING TRANSPORTATION AND OTHER OUTDOOR ENVIRONMENTS. SEE GOVERNMENT CODE SECTION 4460.

ENCLOSURE SCALE / STANDARD



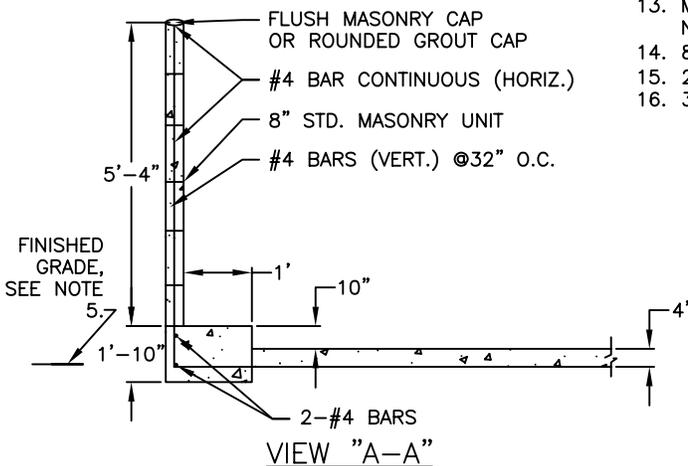
ENCLOSURE SCALE/ CURB ONLY
ZONES-M1,M2,M3, & CM ONLY

ENCLOSURE SCALE / RESTAURANT

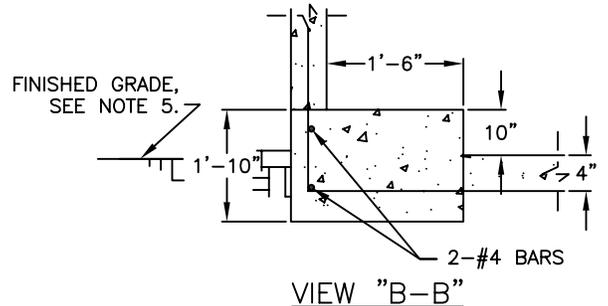


NOTES:

1. ALL CONSTRUCTION SHALL COMPLY WITH THE FRESNO MUNICIPAL CODE.
2. GROUT ALL CELLS.
3. ALL MASONRY UNITS SHALL COMPLY WITH THE LATEST ADOPTED CALIFORNIA BUILDING CODE AND U.B.C. STANDARD 24-4 GRADE N.
4. ALL MASONRY WALLS SHALL BE INSPECTED BY THE CITY OF FRESNO DEVELOPMENT DEPARTMENT.
5. DEPTH OF FOOTINGS ARE INTO NATURAL UNDISTURBED SOIL OR TESTED AND APPROVED COMPACTED FILL.
6. ALL MASONRY UNITS SHALL BE MINIMUM F'M=1500 PSI.
7. REINFORCING STEEL SHALL BE DEFORMED BAR, MIN. GRADE 40.
8. FOOTING CONCRETE SHALL BE A MINIMUM 2000 PSI AT 28 DAYS.
9. MORTAR SHALL BE TYPE-S (MINIMUM 1800 PSI AT 28 DAYS).
ONE (1) PART CEMENT, TYPE-1
ONE-HALF (1/2) PART LIME PUTTY OR HYDRATED LIME.
FOUR AND ONE-HALF (4 1/2) PARTS SAND (MAXIMUM).
10. GROUT SHALL BE A MINIMUM 2000 PSI AT 28 DAYS.
ONE (1) PART CEMENT.
THREE (3) PARTS SAND.
TWO (2) PARTS PEA GRAVEL.
11. FINISH PAD ELEVATION TO BE FLUSH WITH GRADE AT ACCESS PAVEMENT.
12. ANY GATE HINGES SHOULD BE LOCATED ON THE OUTSIDE.
13. METAL DOORS ARE REQUIRED ON ALL ENCLOSURES, CHAIN LINK IS NOT ACCEPTABLE.
14. 8" CONCRETE BLOCK TO BE USED FOR WALLS.
15. 2 CELLS ARE REQUIRED FOR COMMERCIAL/INDUSTRIAL BUILDINGS.
16. 3 CELLS ARE REQUIRED FOR RESTAURANTS.

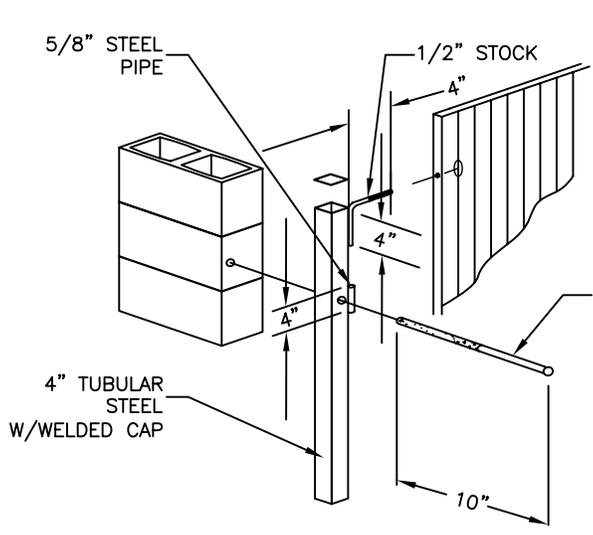


TYPICAL SECTION W/ CONCRETE BLOCK WALL

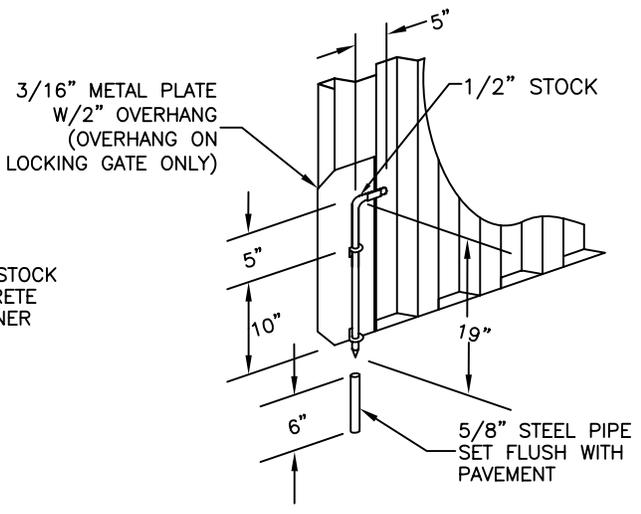


GENERAL NOTES:

1. ALL SITE PLANS SHALL HAVE THE SIGNATURE APPROVAL OF A SOLID WASTE MANAGEMENT DIVISION REPRESENTATIVE.
2. CONTAINERS USED AT ALL PLACES SHALL BE PLACED FOR COLLECTION AT SERVICE LOCATIONS APPROVED BY THE PUBLIC UTILITIES DIRECTOR, OR HIS/HER DESIGNEE, BUT SHALL NOT BE STORED IN THE PUBLIC RIGHT-OF-WAY.
3. THE DESIGN OF ANY NEW, SUBSTANTIALLY REMODELED, OR EXPANDED BUILDING OR OTHER FACILITY SHALL PROVIDE FOR PROPER STORAGE OR HANDLING WHICH WILL ACCOMMODATE THE SOLID WASTE LOADING ANTICIPATED AND WHICH WILL ALLOW FOR SAFE AND EFFICIENT WASTE REMOVAL.
4. THE PUBLIC UTILITIES DIRECTOR, OR HIS/HER DESIGNEE, SHALL PLAN WITH THE PROPERTY OWNER AND/OR THEIR REPRESENTATIVE AS TO PLACEMENT OF STORAGE CONTAINERS TO MINIMIZE TRAFFIC, AESTHETIC AND OTHER PROBLEMS BOTH ON THE PROPERTY, AND FOR THE GENERAL PUBLIC.
5. BELOW IS A CHECKLIST OF REQUIREMENTS REVIEWED FOR A SITE PLAN:
 - a. REFUSE, RECYCLABLES, AND GREASE BARRELS SHALL BE STORED FOR LATER REMOVAL FROM THE PREMISES IN AN AREA THAT IS SCREENED FROM VIEW OF THE PUBLIC STREETS BY A CITY OF FRESNO, PUBLIC UTILITIES APPROVED STANDARD ENCLOSURE (REFER TO P-33, P-34, AND P-95 FOR DETAILS). APPROVED STANDARD ENCLOSURES ARE TO BE BUILT USING EIGHT INCH (8") CONCRETE BLOCK AT A HEIGHT OF SIX FEET (6").
 - b. ENCLOSURES BUILT IN (INDUSTRIAL ZONES) M-1, M-2, M-3, AND CM ZONES REQUIRING DIRECTOR APPROVAL, OR HIS/HER DESIGNEE, MAY ELIMINATE WALLS AS LONG AS IT IS NOT VISIBLE FROM A MAIN STREET. FOR THIS DESIGN, THE CURBING WILL BE TWELVE INCHES (12") WIDE ON BOTH SIDES, EIGHTEEN INCHES (18") DEEP ALONG THE REAR WITH A THIRTY-TWO INCH (32") WIDE CURB SEPARATING THE TWO CELLS. CURBING MUST BE REINFORCED WITH REBAR AT A HEIGHT OF TEN INCHES (10"). ALL ENCLOSURES SHALL BE A MINIMUM OF EIGHTEEN INCHES (18") FROM THE NEAREST CURB. ALL OTHER PUBLIC WORKS DESIGN REQUIREMENTS SHALL BE MET DURING REVIEW.
 - c. THE APPROVED STANDARD ENCLOSURE HAS BEEN DESIGNED TO ACCOMMODATE ALL SIZES OF CONTAINERS TO HANDLE THE ACCUMULATION OF WASTE AND RECYCLABLES GENERATE BETWEEN COLLECTIONS. A STORAGE AREA WITH INNER DIMENSIONS TEN FEET (10') BY TEN FEET (10') IS THE MINIMUM. THERE SHALL BE CURBING TWELVE INCHES (12") FROM SIDE WALLS AND EIGHTEEN INCHES (18") FROM REAR WALL AND AT A HEIGHT OF TEN INCHES (10"). THESE FEATURES ARE INCLUDED IN ORDER TO REDUCE THE POSSIBILITY OF DAMAGE TO THE ENCLOSURE ITSELF.
 - d. SERVICE ACCESS TO ENCLOSURE SHALL BE A MINIMUM UNENCUMBERED OPENING OF EIGHT FEET (8'). THE GATE TO BE USED SHALL BE BUILT OF METAL, CHAIN LINK IS NOT ACCEPTABLE, SO THAT BINS CANNOT BE SEEN WHEN GATES ARE CLOSED AND SHALL BE MOUNTED ON THE OUTER SURFACE OF ENCLOSURE AS TO NOT PROTRUDE INTO SERVICE ACCESS OPENING. HARDWARE LATCHES SHOULD BE A HEAVY GAUGE LOCKING GATE LATCH. TWO GATES ARE REQUIRED ON EACH CELL WITH THE EXCEPTION OF THE GREASE BARREL CELL.
 - e. THE FLOOR OR BOTTOM SURFACE OF THE COLLECTION AREA SHALL BE MADE OF CONCRETE, (SLOPED) ONE PERCENT (1%) TO THE FRONT, AND THERE SHALL NOT BE ANY DRAINAGE GUTTER IN FRONT OF ENTRANCE. THE UNENCUMBERED OPENING OF EIGHT FEET (8') REFERENCED IN D. ABOVE SHALL BE A LEVEL SURFACE. THE FLOOR SHALL NOT SLOPE TO THE BACK OR SIDES OF THE ENCLOSURE TO ALLOW DRAINAGE TO THE REAR OF THE AREA OR CAUSE ANY STANDING WATER WITHIN THE ENCLOSURE. IT SHALL BE CONSTRUCTED SO THE COLLECTION VEHICLE CAN DRIVE DIRECTLY INTO THE POCKETS OF THE CONTAINERS WITHOUT ANY OBSTRUCTIONS.
 - f. INGRESS AND EGRESS SHALL HAVE AN UNOBSTRUCTED OVERHEAD CLEARANCE OF SIXTEEN FEET (16') AND SHALL NOT BE LESS THAN EIGHTEEN FEET (18') WIDE AND CAPABLE OF ACCOMMODATING A TRUCK WITH A TWO HUNDRED FIFTY INCH (250") WHEELBASE, A FORTY-FOUR FOOT (44') (CENTER LINE) TURNING RADIUS AND A SUPPORT WEIGHT OF THIRTY-FIVE (35) TONS. AREA SHALL BE UNOBSTRUCTED AND SO CONFIGURED THAT A TRUCK WILL BE ABLE TO MAKE A ROUND TRIP FROM THE PUBLIC RIGHT-OF-WAY TO THE COLLECTION AREA AND RETURN WITHOUT EXCESSIVE BACKING INTO A TRAFFIC LANE OR A PUBLIC THOROUGHFARE. BACKING AROUND A BUILDING IS NOT ALLOWED. AT NO TIME SHALL A TRUCK BE REQUIRED TO BACK IN EXCESS OF FORTY-FIVE FEET (45').
 - g. BIN ENCLOSURE GATES AND SERVICE AREA SHALL NOT OPEN INTO OR BE A PART OF A PARKING STALL OR LOADING ZONE.
 - h. GATED ENTRANCE/EXIT SERVICE SITES SHALL BE AT LEAST FORTY FEET (40') AWAY FROM ENTRANCES AND EXITS TO PREVENT TRUCKS FROM STICKING OUT INTO THE ROADWAY WHILE WAITING TO ACCESS ENCLOSURE AND ALLOW TRUCKS ENOUGH SPACE TO CLEAR GATE ON EXITING WHILE WAITING TO MERGE WITH TRAFFIC.
 - i. THE ENCLOSURE(S) SHALL ACCOMMODATE REFUSE BINS, RECYCLE BINS, AND GREASE BARRELS WHEN APPLICABLE. NEITHER THE WASTE NOR RECYCLING CONTAINER SHALL BE REQUIRED TO BE MOVED IN ORDER TO SERVICE THE OTHER. GREASE BARRELS SHALL NOT BE PLACED IN THE SAME AREA OF THE ENCLOSURE WITH REFUSE OR RECYCLABLES.
 - j. OWNER/OCCUPANTS SHALL NOT USE ENCLOSURES FOR STORAGE OR PLACE ANY MATERIALS AROUND THE TRASH, RECYCLE, OR GREASE CONTAINERS.
 - k. SIGNAGE IS REQUIRED TO CLEARLY IDENTIFY ALL RECYCLING, SOLID WASTE COLLECTION, AND LOADING AREAS AND THE MATERIALS ACCEPTED THEREIN. THIS SIGNAGE SHALL BE PLACED AT ALL POINTS OF DIRECT ACCESS TO RECYCLING, SOLID WASTE, AND LOADING AREAS ON, OR ADJACENT TO, THE RECYCLABLE AND SOLID WASTE MATERIAL CONTAINERS.
 - l. SITES UTILIZING COMPACTORS AND/OR ROLL-OFFS REQUIRE SIXTY FEET (60') OF CLEARANCE IN FRONT OF THE UNIT, AND A MINIMUM OF THREE FEET (3') ON EACH SIDE, FOR LOADING AND UNLOADING.



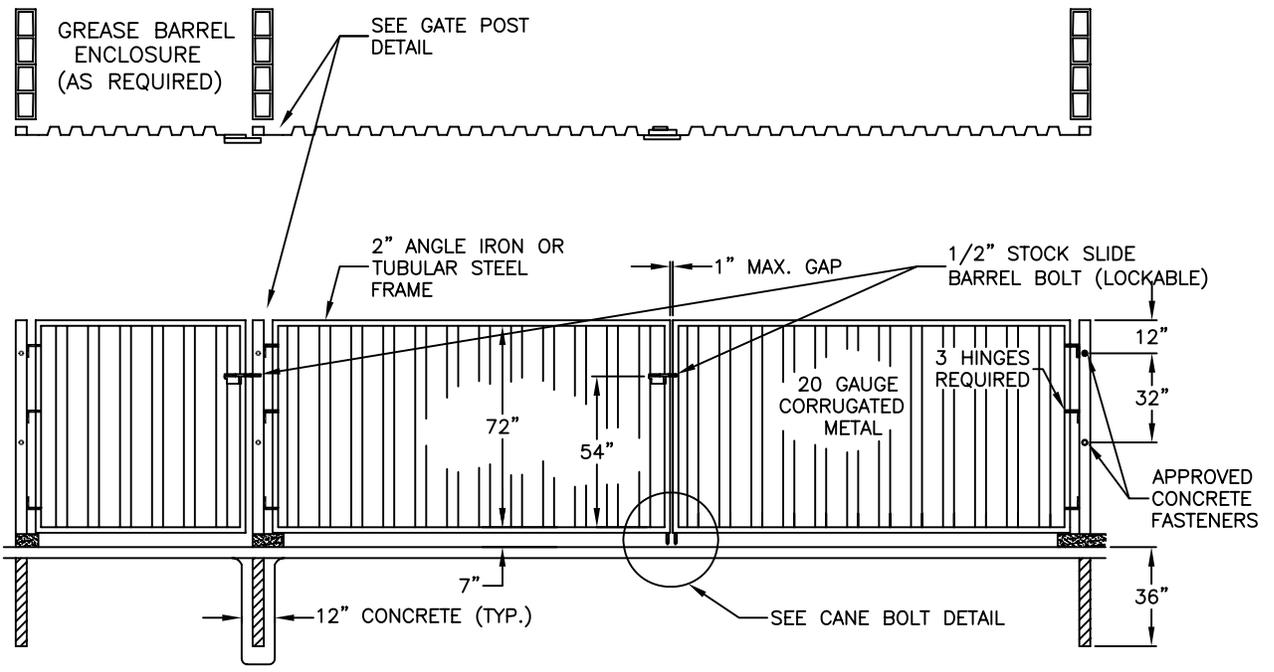
GATE POST DETAIL

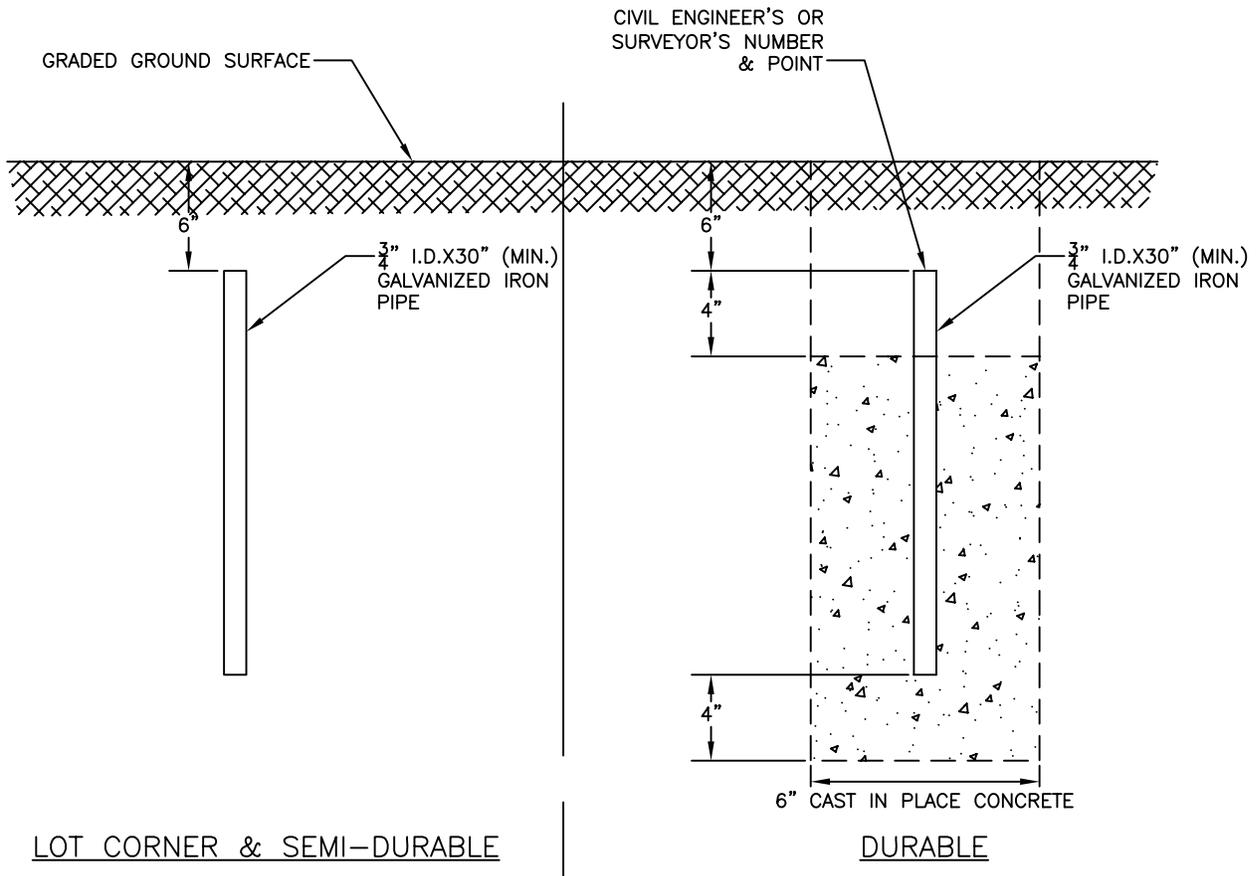


CANE BOLT DETAIL
(BOTH SIDES OF GATE)

NOTES:

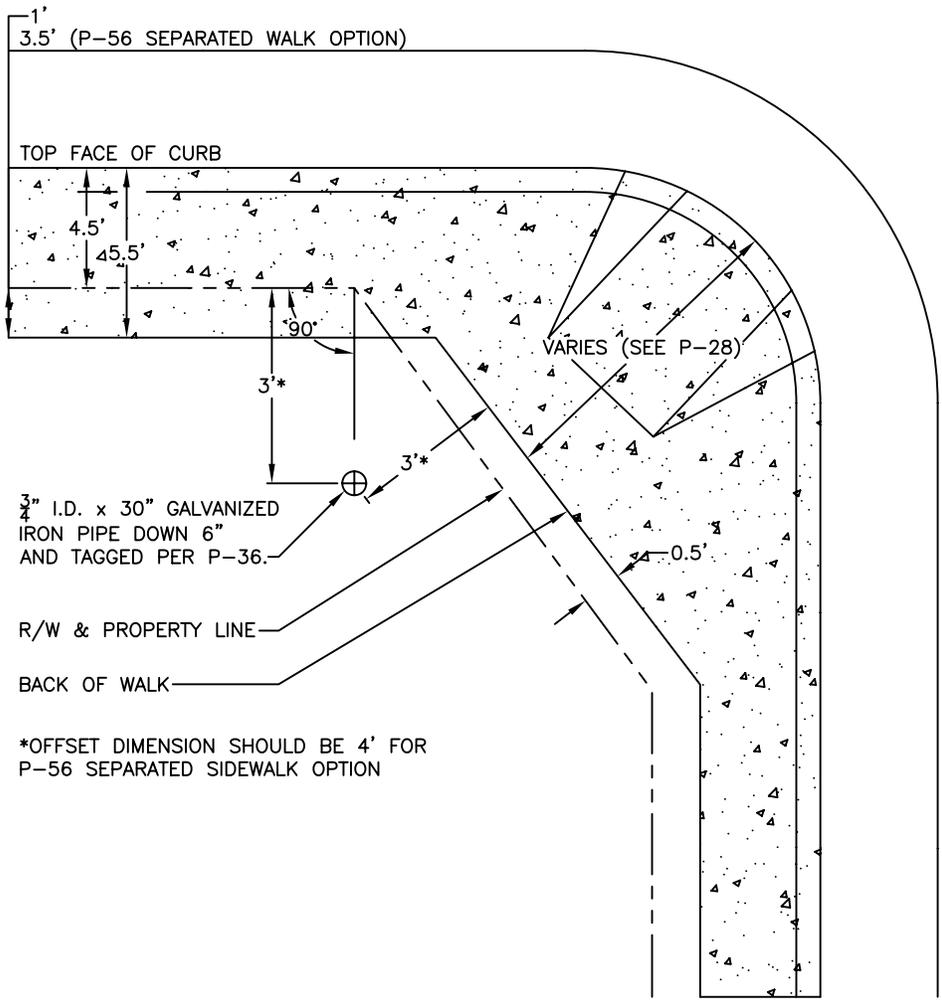
1. GATES TO BE PAINTED TO MATCH BUILDING ACCENT FEATURES.
2. DESIGN, ENGINEERING AND CONSTRUCTION NOT SPECIFICALLY NOTED SHALL BE IN ACCORDANCE WITH ACCEPTED INDUSTRY STANDARDS AND OF FIRST QUALITY.
3. SECONDARY CANE BOLT RETAINER TO BE PLACED FOR EACH GATE SUCH THAT GATE IS HELD IN A POSITION 90 DEGREES TO THE CLOSED POSITION.
4. TWO GATES ARE REQUIRED ON EACH CELL WITH THE EXCEPTION OF THE GREASE BARREL CELL.





NOTES:

1. STATE LAW REQUIRES ALL CORNERS TO BE TAGGED WITH A REGISTERED SURVEYOR'S OR REGISTERED CIVIL ENGINEER'S NUMBER.
2. REGULAR SHAPED SUBDIVISIONS SHALL HAVE EXTERIOR CORNERS MARKED WITH DURABLE MONUMENTS. IRREGULAR SHAPED SUBDIVISIONS SHALL HAVE ALL EXTERIOR ANGLES AND CURVE POINTS MARKED WITH DURABLE MONUMENTS, OR REFERENCED TO AN ADJACENT BLOCK OR LOT CORNER, WHICH IS ALSO MARKED WITH A DURABLE MONUMENT. CONCRETE FOR THE DURABLE MONUMENT SHALL BE CAST IN PLACE.
3. BLOCK CORNERS, UNLESS OTHERWISE MARKED WITH A DURABLE MONUMENT, SHALL BE MARKED WITH A SEMI-DURABLE MONUMENT.
4. ALL LOT CORNERS, ANGLE POINTS, BEGINNING OF CURVES AND THE END OF CURVES SHALL BE MARKED WITH A SEMI-DURABLE MONUMENT.
5. A DEVIATION FROM SETTING STANDARD SEMI-DURABLE AND DURABLE MONUMENTS WILL BE CONSIDERED UPON A WRITTEN REQUEST CITING THE CIRCUMSTANCES FOR THE DEVIATION.

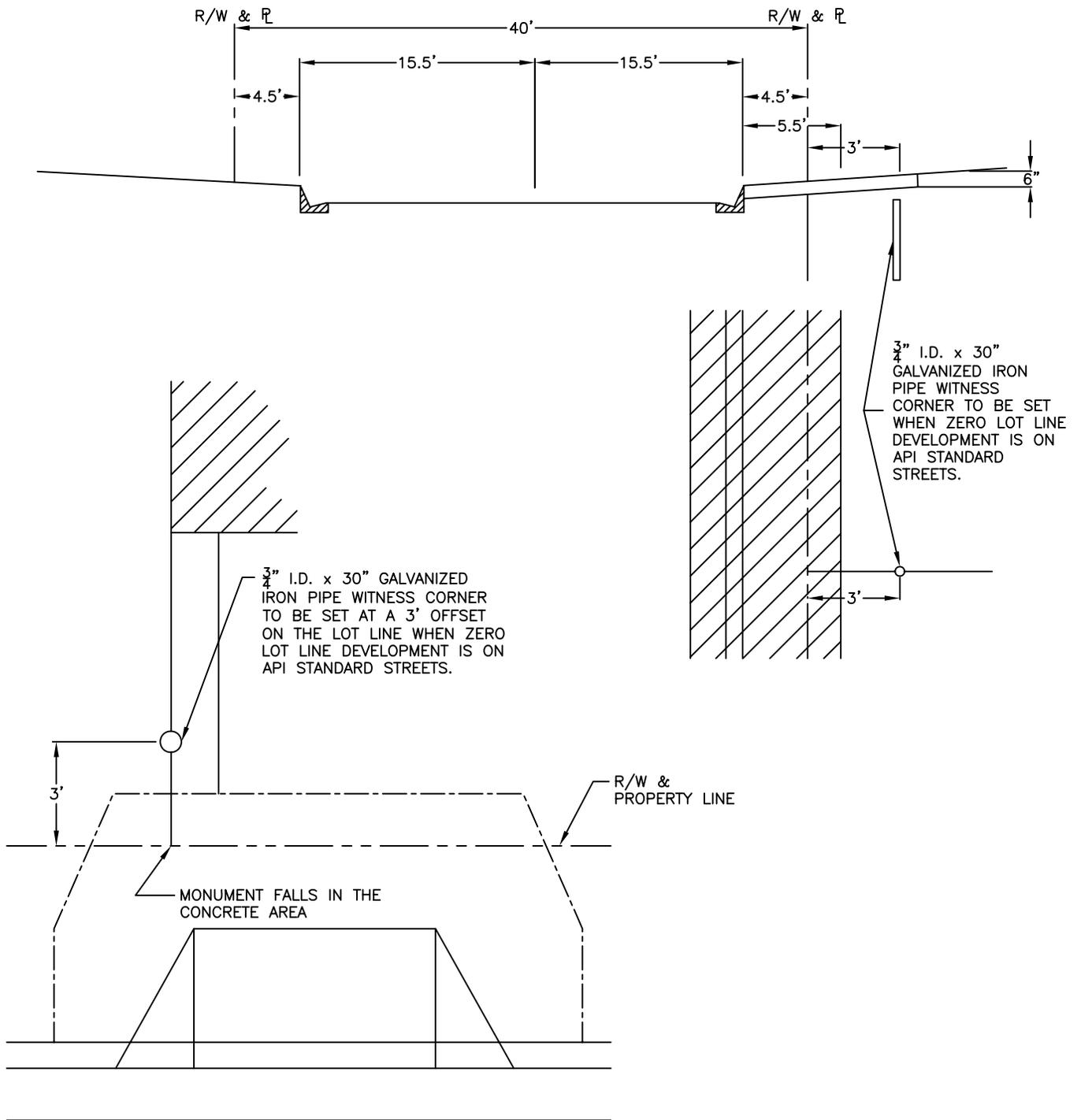


WITNESS CORNER

REF. & REV.
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WITNESS CORNER DETAILS

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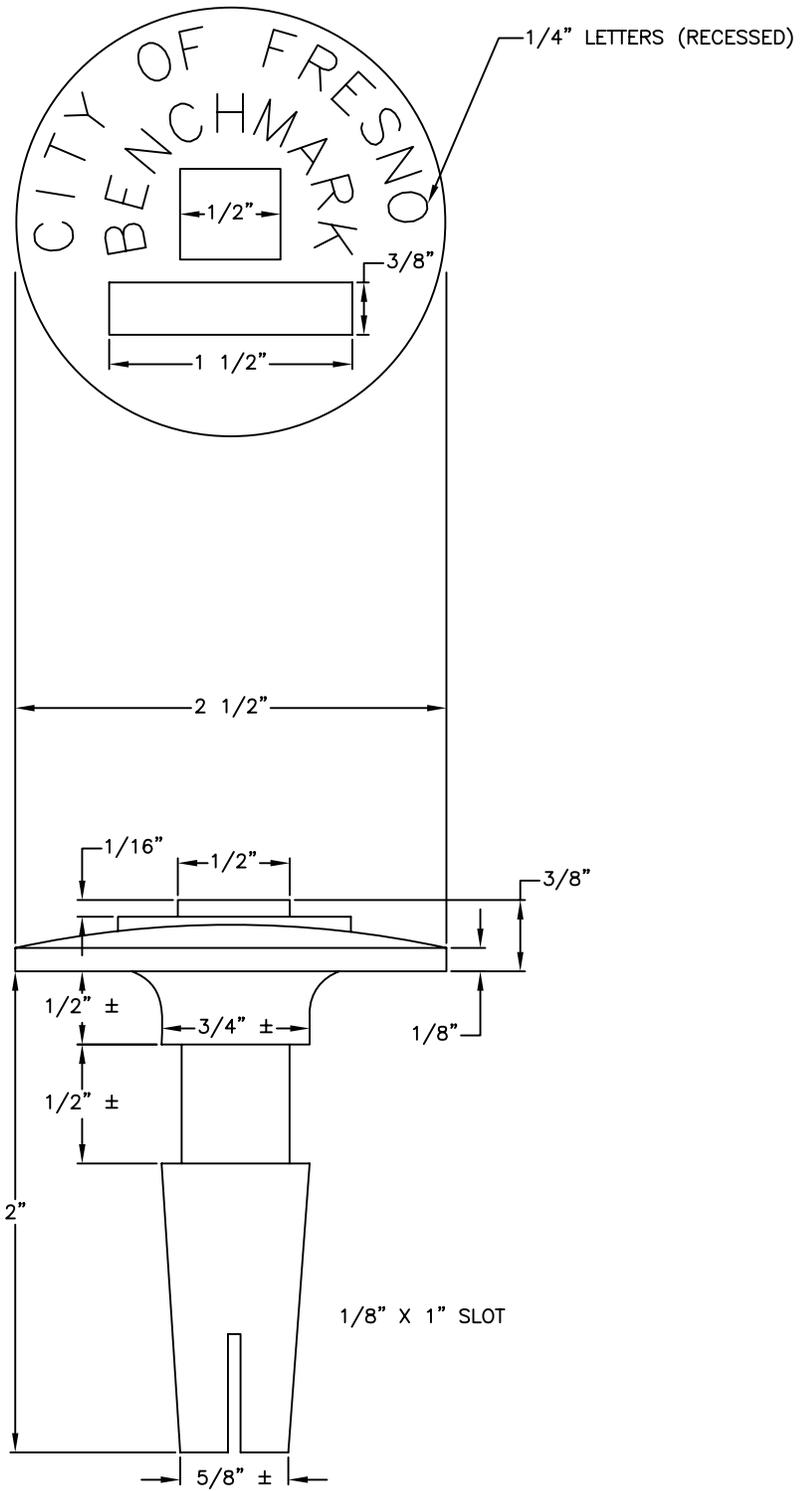
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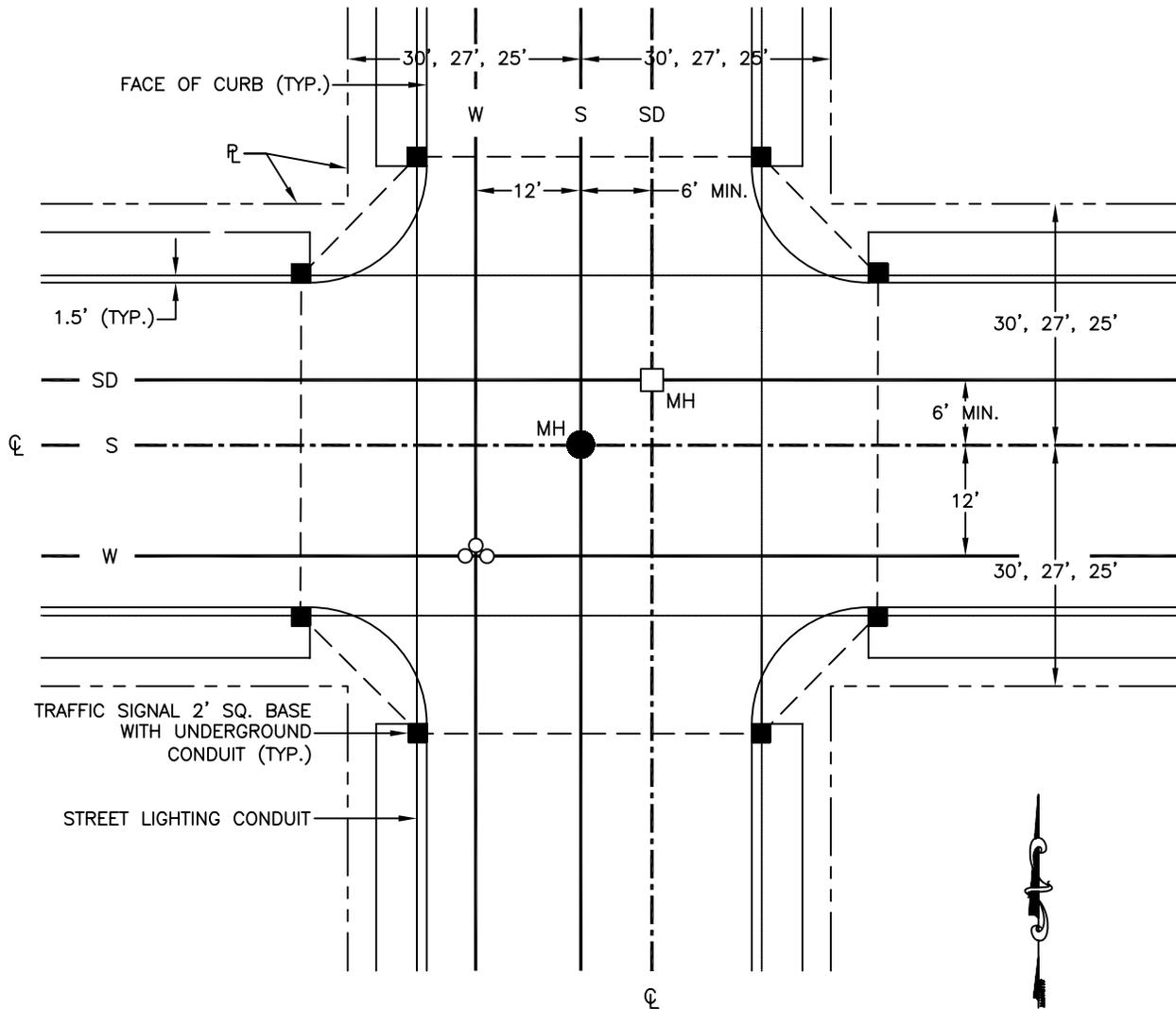
BENCHMARK DETAIL

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AUG., 2002

CITY OF FRESNO
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LEGEND

- S - SANITARY SEWER
- SD - STORM SEWER
- W - WATER MAIN
- MH - MANHOLE
- CL - CENTERLINE OF PROPOSED STREET
- PL - PROPERTY LINE



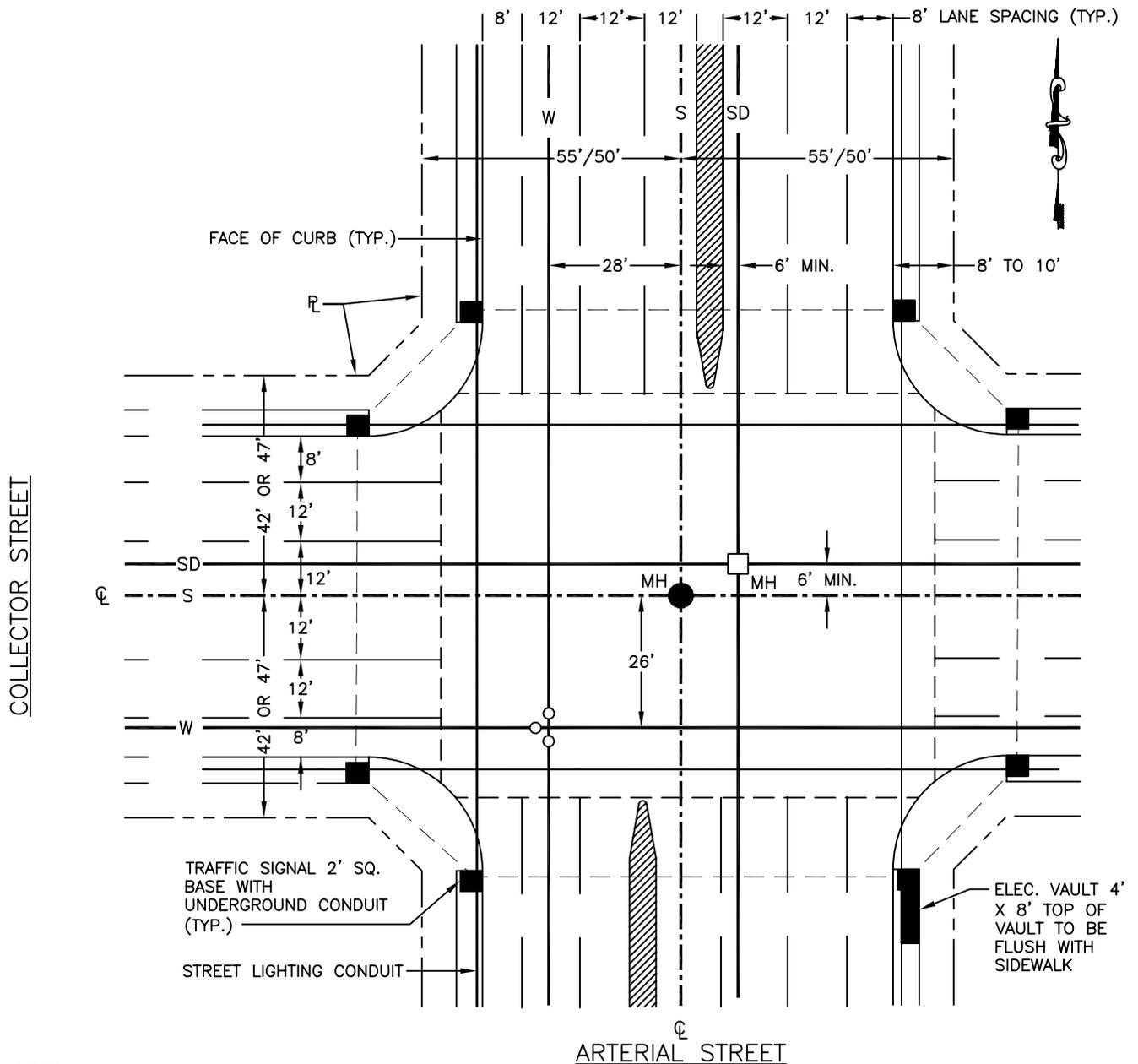
NOTES:

1. THIS "STANDARD" IS A GUIDE ONLY AND DEVIATIONS WILL BE ACCEPTABLE WHERE CONDITIONS DICTATE.
2. DIMENSIONS SHOWN ARE DESIRABLE, BUT DO NOT GOVERN. THE INTENTION IS TO SHOW THE RELATIVE POSITION OF ALL UTILITIES.

APPROVED BY SUBSTRUCTURE COMMITTEE.

LEGEND

- S - SANITARY SEWER
- SD - STORM SEWER
- W - WATER MAIN
- MH - MANHOLE
- CL - CENTERLINE OF PROPOSED OFFICIAL PLAN LINE OR DIRECTOR'S DETERMINATION
- PL - PROPERTY LINE



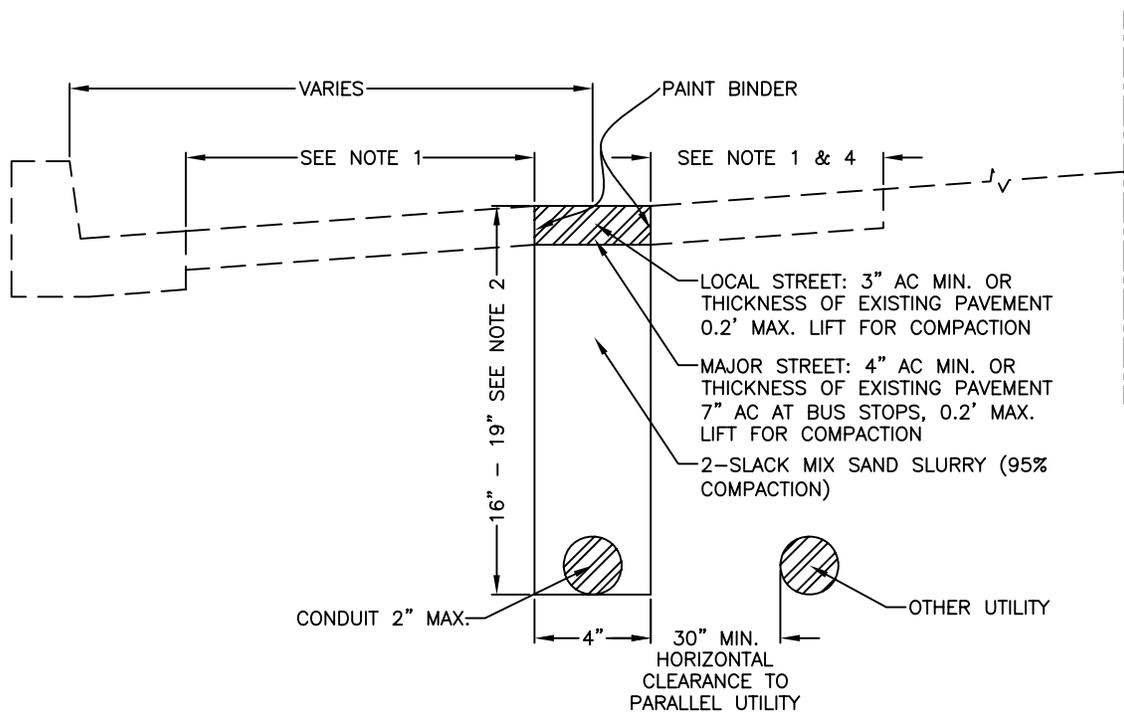
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APPROVED BY SUBSTRUCTURE COMMITTEE.

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NOTES:

1. WHEN THE PAVEMENT IS FRACTURED OR SEPARATED, THE CITY ENGINEER MAY DIRECT ITS REPLACEMENT. AJ TO ELIMINATE ANY FLOATING SECTIONS OF AC PAVING.
2. WHERE PERMANENT STREET IMPROVEMENTS ARE NOT COMPLETE, CATV FACILITIES ARE SUBJECT TO RELOCATION DEPENDENT UPON THE DETERMINATION OF FINAL STREET GRADES. INSTALLATION AT A DEPTH GREATER THAN 18" MAY AVOID RELOCATION OF CATV FACILITIES WHEN THE FUTURE STREET GRADE MAY BE LOWER THAN THE EXISTING STREET.
3. STREET CLEANING IS A CONTINUOUS REQUIREMENT OF THE PROJECT.
4. TO PROVIDE A STRAIGHT AND NEAT TRENCH, IN OIL DIRT STREETS, THE ENGINEER MAY REQUIRE ADDITIONAL PAVEMENT REMOVAL AND REPLACEMENT BEYOND THE LIMITS SHOWN IN THIS STANDARD.
5. WHEN STREET PAVING IS LESS THAN ONE YEAR OLD, FOG SEAL IS REQUIRED.
6. STONE GUARDS ARE REQUIRED. GUARDS TO PREVENT FLYING, OR SCATTERING OF DEBRIS BEYOND THE TRENCH SPOIL ARE REQUIRED.
7. CONSTRUCTION MACHINERY IS SUBJECT TO INSPECTION PRIOR TO APPROVAL OF STREET WORK PERMIT.
8. IF FOR ANY REASON THE TRENCH WIDTH EXCEEDS 6 INCHES (E.G. BELL HOLES, BORE PITS, ETC.) THE PAVING SHALL BE REPLACED PER CITY STD. DWG. P-48.

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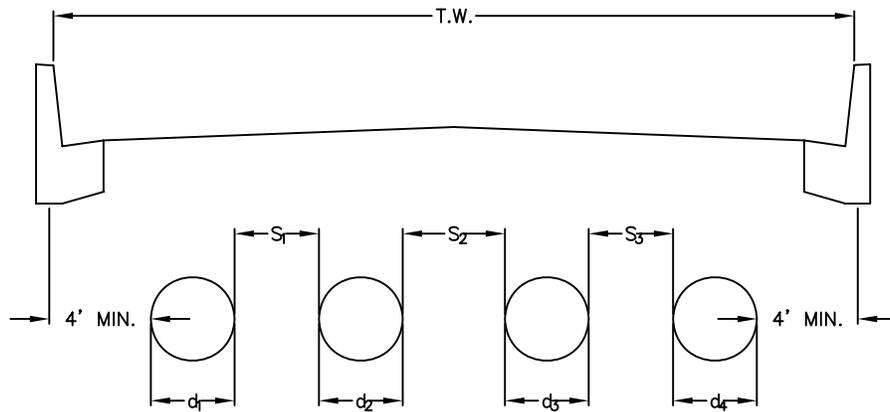
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$$T.W. \geq (8) + (S_1 + S_2 + \dots + S_n) + (d_1 + d_2 + \dots + d_n) + (2)(L)$$

(IN FEET)

d_n = O.D. OF PROPOSED PIPE.

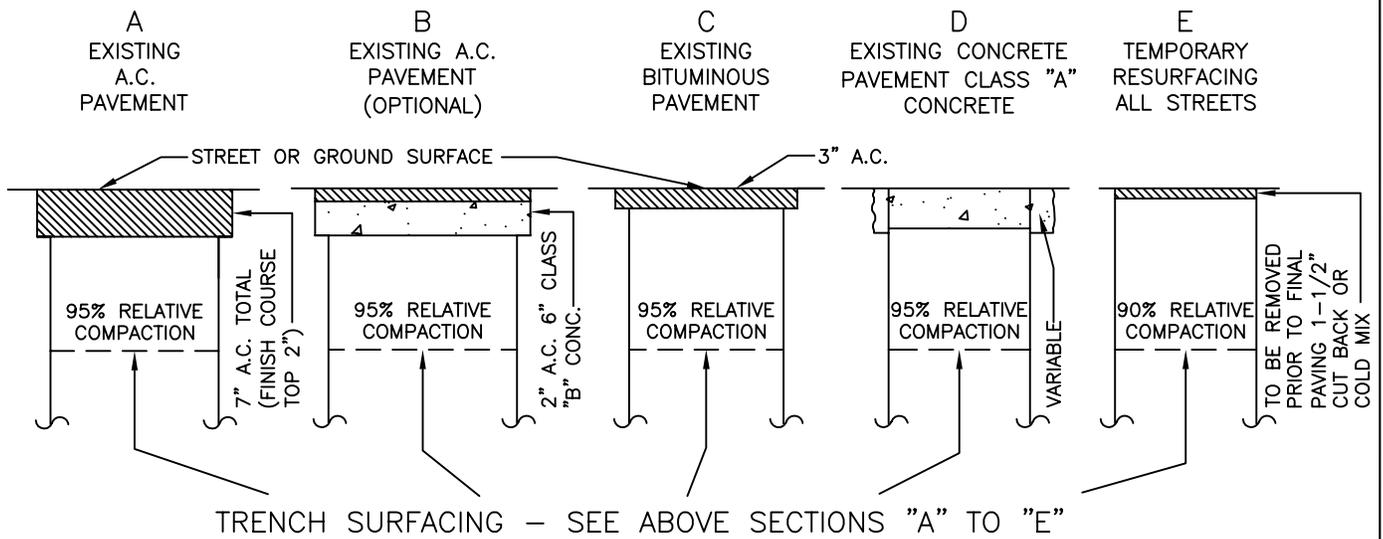
S_n = CLEAR HORIZONTAL DISTANCE BETWEEN PROPOSED PIPES.

L = NUMBER OF PIPES IN TRAVELED WAY EXCEEDING 10" NOMINAL I.D.

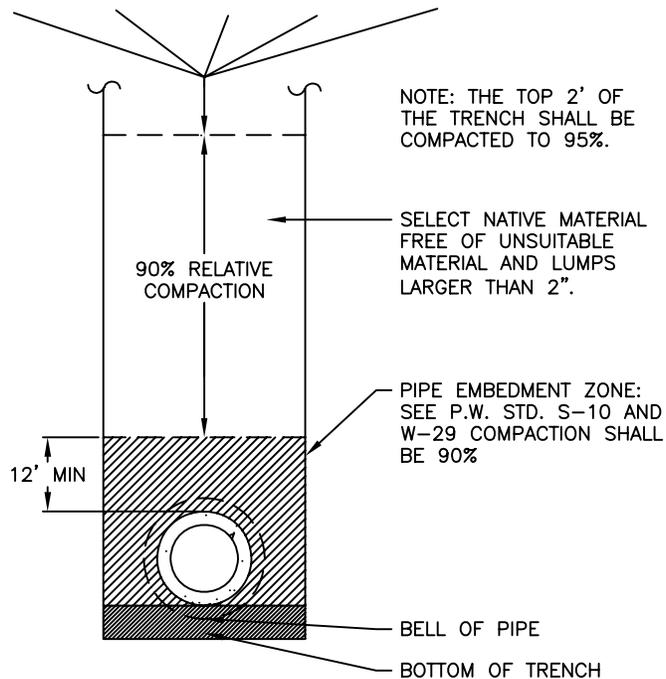
GENERAL:

THE MINIMUM ALLOWABLE TRAVELED WAY MUST BE CALCULATED USING THE FORMULA BELOW. TO DETERMINE THE REQUIRED STANDARD STREET WIDTH CALCULATE T.W. IN THE FORMULA AND ROUND UP TO THE NEAREST TRAVELED WAY SHOWN ON THE ARRAY OF STANDARD STREET SECTIONS.

1. SEWER TO BE MINIMUM 8' FROM CURB FOR CURVILINEAR STREETS.
2. SEWER TO BE WITHIN 2' OF CENTER OF T.W. FOR TANGENTIAL STREETS.
3. WATER TO BE MINIMUM 6' FROM CURB. SPECIAL PIPE CONSTRUCTION MAY ALLOW A REDUCTION WHEN APPROVED BY THE CITY ENGINEER.
4. WATER AND SEWER TO BE SEPARATED BY MINIMUM 10' CLEAR HORIZONTAL DISTANCE.
5. MINIMUM "S" IS 2' OR AS PROVIDED IN CITY STANDARD SPECIFICATIONS.
6. IF THE DEPTH TO FLOWLINE OF A PIPE EXCEEDS 5', THE MINIMUM "S" OF 2' TO ADJACENT PIPES WILL INCREASE BY 6" FOR EACH 1' OF DEPTH GREATER THAN 5'.
7. IF THE ELEVATION OF THE TOP OF A WATER OR SEWER LINE IS WITHIN 6' IN ELEVATION OF THE TOP OF ANOTHER PIPE, (NOT SEWER OR WATER). THE SEPARATION ("S_n") SHALL BE AT LEAST 5'.



TRENCH SURFACING - SEE ABOVE SECTIONS "A" TO "E"



NOTE: THE TOP 2' OF THE TRENCH SHALL BE COMPACTED TO 95%.

SELECT NATIVE MATERIAL FREE OF UNSUITABLE MATERIAL AND LUMPS LARGER THAN 2".

PIPE EMBEDMENT ZONE: SEE P.W. STD. S-10 AND W-29 COMPACTION SHALL BE 90%

NOTE:
SAWCUTTING OF TRENCH EDGES TO A STRAIGHT LINE SHALL BE REQUIRED IN ALL PERMANENTLY PAVED AREAS OR AS REQUIRED BY THE ENGINEER PRIOR TO TRENCH RESURFACING.

NOTES:

1. TEMPORARY RESURFACING AS SHOWN ON SECTION "E," SHALL BE REQUIRED IN ALL STREET INTERSECTIONS, OR AS DIRECTED BY THE ENGINEER.
2. UTILIZE ASTM D1557 TO DETERMINE THE MAXIMUM DRY DENSITY.
3. A.C. = ASPHALT CONCRETE.
4. THE PAVEMENT SECTIONS SHOWN ABOVE ARE MINIMUM, AND IF THE EXISTING STRUCTURAL SECTION IS GREATER, IT SHALL BE MATCHED UNLESS THE ENGINEER APPROVES OTHERWISE.
5. AT THE OPTION OF THE ENGINEER, SAND SLURRY (MIN. 2 SACK MIX) SHALL BE SUBSTITUTED.
6. IF THERE IS LESS THAN 2 FEET BETWEEN THE EDGE OF A TRENCH CUT AND A CONC. IMPROVEMENT, OR EDGE OF PAVING, THEN REMOVE AND REPLACE THE A.C. PAVEMENT FROM THE EDGE OF THE TRENCH CUT TO THE CONCRETE IMPROVEMENT, OR EDGE OF PAVING.
7. MATCH EXISTING STRUCTURAL SECTION WHEN TRENCH WIDTH IS GREATER THAN OR EQUAL TO 4' UNLESS THE ENGINEER APPROVES OTHERWISE.
8. RESURFACING SHALL BE 7 INCHES MINIMUM OF A.C. WHEN TRENCH WIDTH IS LESS THAN 4' UNLESS THE CITY ENGINEER APPROVES OTHERWISE. TRENCHES WIDER THAN 4' SHALL BE CONSTRUCTED WITH BASEROCK STRUCTURAL SECTIONS.

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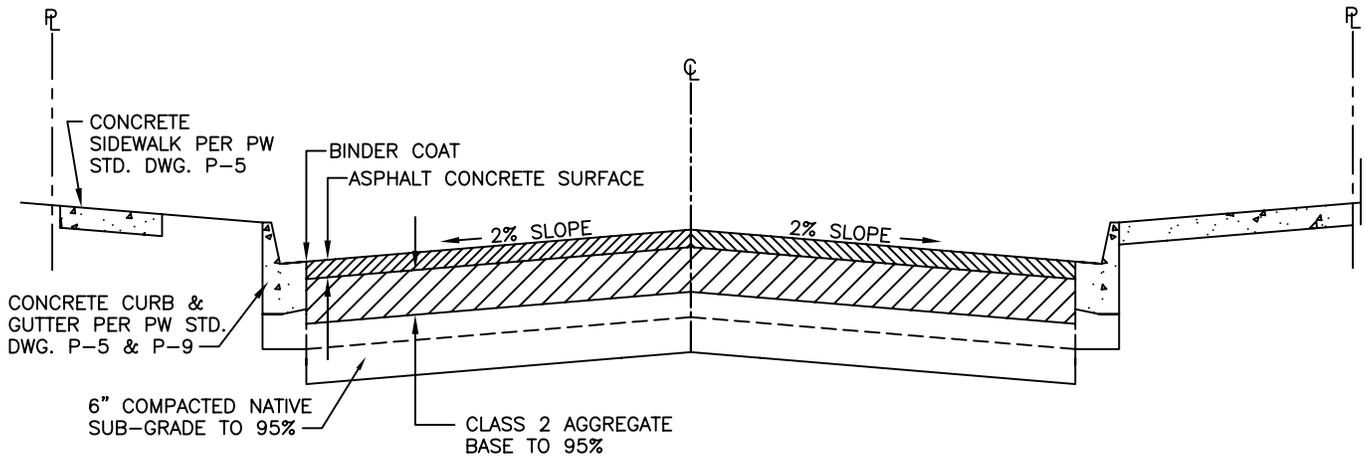
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FOR STREET WIDTHS AND RIGHT-OF-WAY REQUIREMENTS,
REFER TO PW STANDARDS FOR MAJOR AND LOCAL STREETS



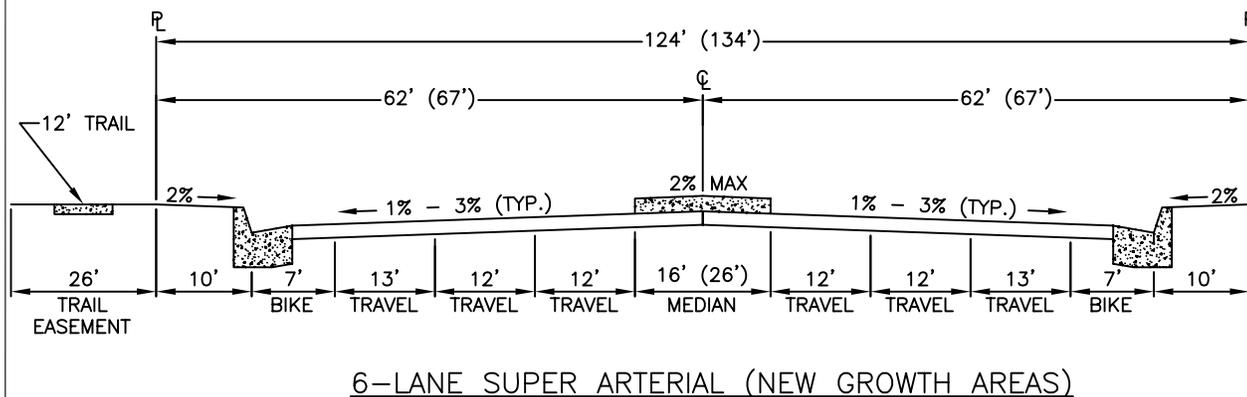
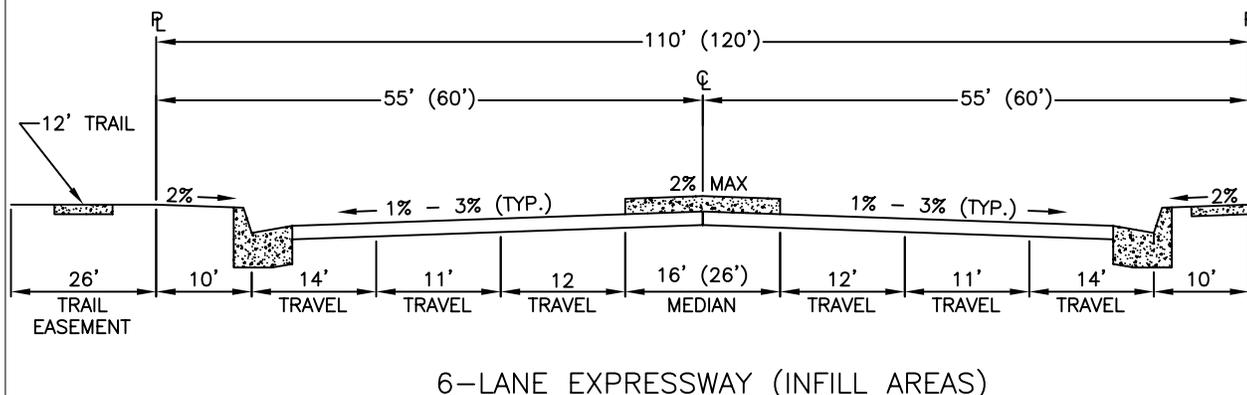
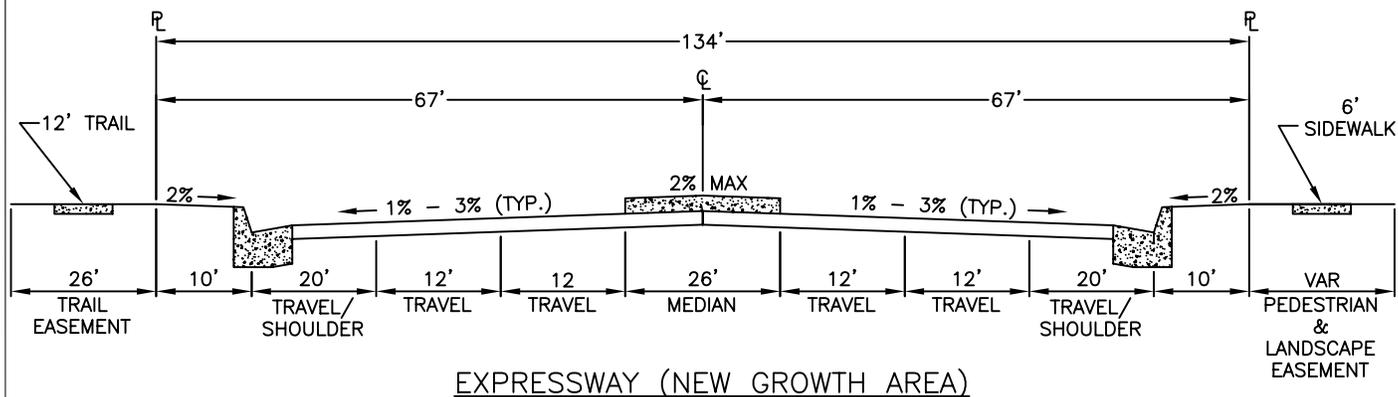
CROSS SECTION OF PUBLIC STREET

TRAFFIC INDICES AND MINIMUM
PAVEMENT SECTIONS

<u>CLASS OF STREET</u>	<u>TRAFFIC INDEX</u>	<u>MIN. AC</u>	<u>MIN. AB</u>
EXPRESSWAY	10.0	6.0"	6"MIN
SUPERARTERIAL	10.0	6.0	6"MIN
INDUSTRIAL ARTERIAL	9.00	5.5"	6"MIN
ARTERIAL	9.00	5.5"	6"MIN
INDUSTRIAL COLLECTOR	8.00	5.0"	6"MIN
COLLECTOR	7.50	4.5"	6"MIN
LOCAL INDUSTRIAL OR COMMERCIAL	6.50	3.0"	6"MIN
LOCAL COLLECTOR/BOULEVARD	6.00	2.5"	6"MIN
LOCAL	5.00	2.5"	4"MIN

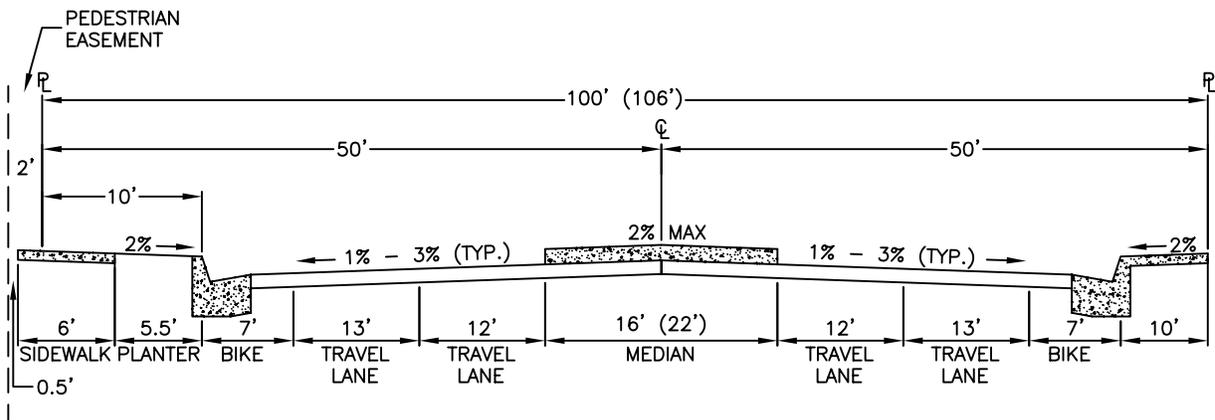
NOTES:

1. TRANSITIONS SHALL BE APPROPRIATE TO THE DESIGN SPEED OF THE STREET BOTH VERTICALLY AND HORIZONTALLY.
2. TRANSITION SLOPE ALONG THE STREET SHALL BE A MAX. 2% GRADE DIFFERENCE. (TEMPORARY)
3. TRANSITION SLOPE ACROSS THE STREET SHALL BE A MAX. SLOPE OF 5%. (TEMPORARY)
4. WHEN SIDEWALK IS NOT REQUIRED, FINISHED GRADE SHALL BE 2% FROM BACK OF CURB TO PROPERTY LINE.
5. THE ASPHALT PAVEMENT SECTION SHALL BE DESIGNED BASED UPON THE CALTRANS METHODOLOGY IN CHAPTER 600 OF THE HIGHWAY DESIGN MANUAL.
6. THE CITY ENGINEER MAY APPROVE A FULL DEPTH A.C. SECTION OR AN A.C./A.B./A.S.B. SECTION WHERE APPROPRIATE.
7. LOCAL INDUSTRIAL STREETS SERVING LAND USES WITH HIGH VOLUMES OF TRUCK TRAFFIC SHALL BE DESIGNED FOR A T.I. OF 7.0 OR 7.5, AS DETERMINED BY THE CITY ENGINEER.

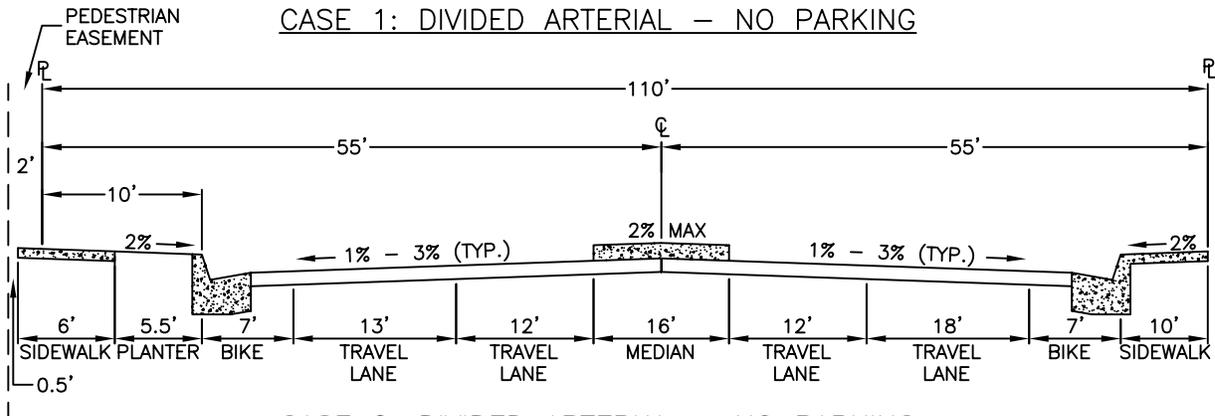


NOTES:

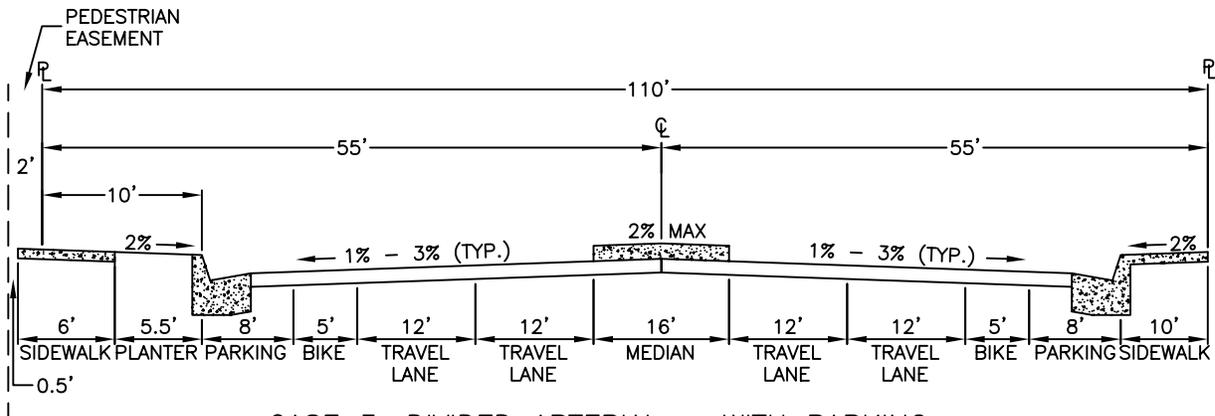
1. FOR DUAL LEFT TURN LANES USE 26' MEDIAN.
2. SEE P-69 AND P-70 FOR ADDITIONAL WIDTH AT MAJOR STREET INTERSECTIONS.
3. OFFSET CROWN REQUIRES APPROVAL OF THE CITY ENGINEER.
4. DEVIATIONS FROM THE STANDARDS REQUIRE APPROVAL OF THE CITY ENGINEER.
5. () PERTAINS TO DIFFERENCE WITH 26' MEDIAN WIDTH WHERE NECESSARY TO ACCOMMODATE DUAL LEFT TURN LANES.
6. SEE P-74 AND P-75 FOR EXPRESSWAY BARRIER FENCE LOCATION AND DETAILS.



CASE 1: DIVIDED ARTERIAL – NO PARKING



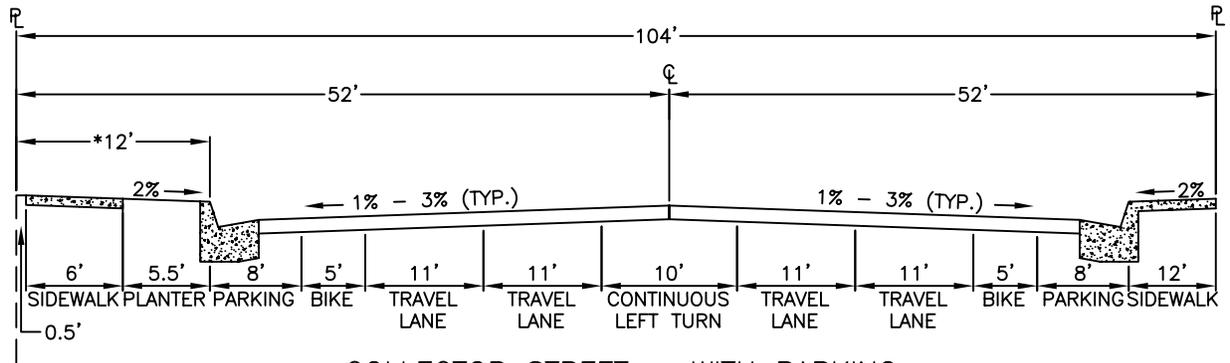
CASE 2: DIVIDED ARTERIAL – NO PARKING AND WIDER OUTSIDE TRAVEL LANE



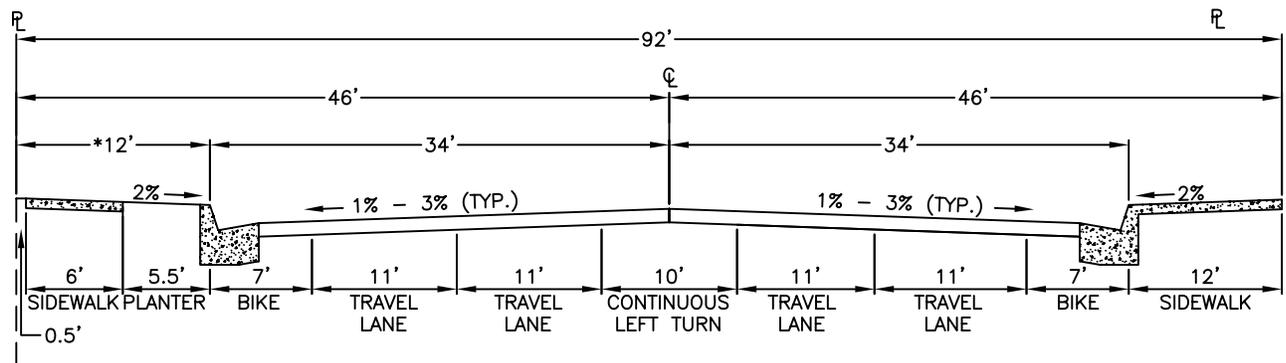
CASE 3: DIVIDED ARTERIAL – WITH PARKING OR SCHOOL DROP OFF ZONES

NOTES:

1. USE 26' MEDIAN WHEN DUAL LEFT TURNS ARE REQUIRED.
2. OFFSET CROWN REQUIRES APPROVAL OF THE ENGINEER
DEVIATIONS FROM STANDARDS REQUIRE APPROVAL OF THE ENGINEER.
3. () INDICATE A 22' MEDIAN WIDTH ONLY WHERE A SPECIFIC ARTERIAL HAS BEEN PLANNED FOR A 22' MEDIAN ISLAND.
4. CASE 2 SHALL ONLY BE USED FOR SHORT GAP FILLING BETWEEN EXISTING CASE 2 ARTERIALS.
5. CASE 3 SHALL NOT BE USED UNLESS APPROVED BY THE CITY TRAFFIC ENGINEER.



COLLECTOR STREET – WITH PARKING
(4 TRAVEL LANES)

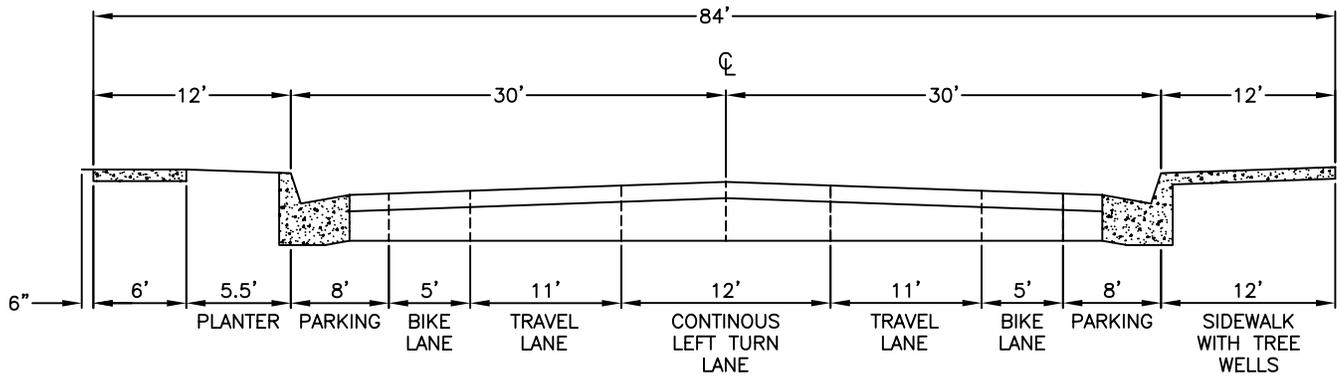


COLLECTOR STREET – NO PARKING
(4 TRAVEL LANES)

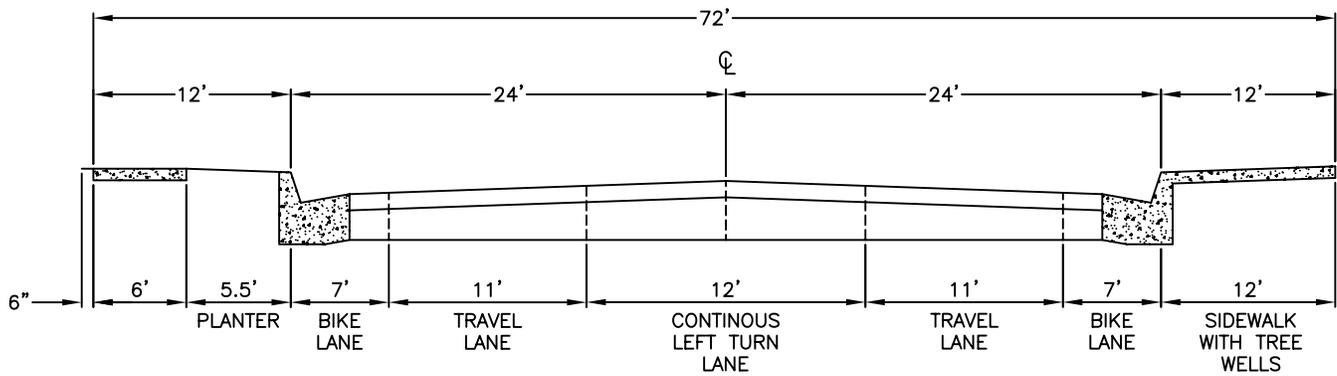
NOTES:

1. OFFSET CROWN REQUIRES APPROVAL OF THE ENGINEER
DEVIATIONS FROM STANDARDS REQUIRE APPROVAL OF THE ENGINEER.

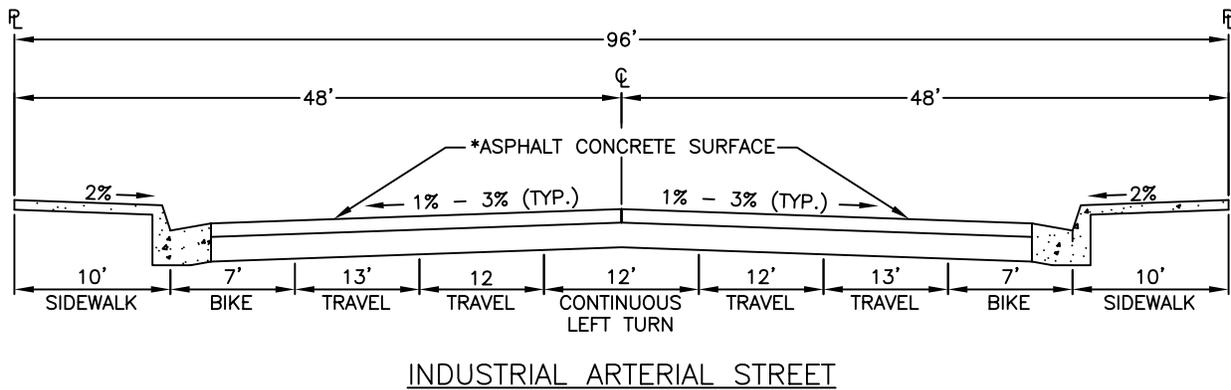
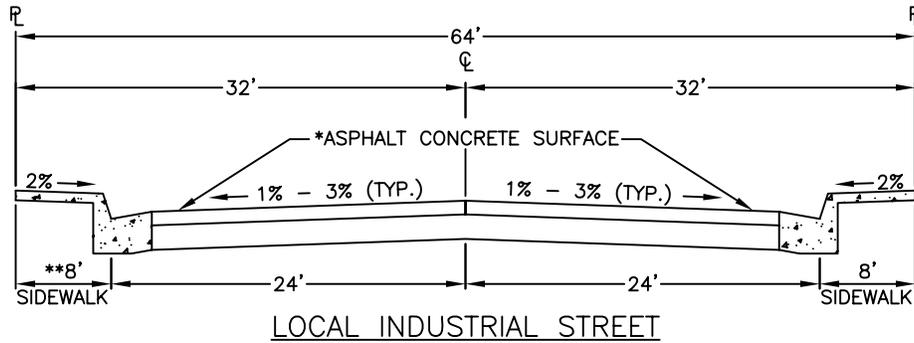
* OR 10' PATTERN WITH A 2' PEDESTRIAN EASEMENT.



COLLECTOR STREET WITH PARKING
(2 TRAVEL LANES) 84' ROW



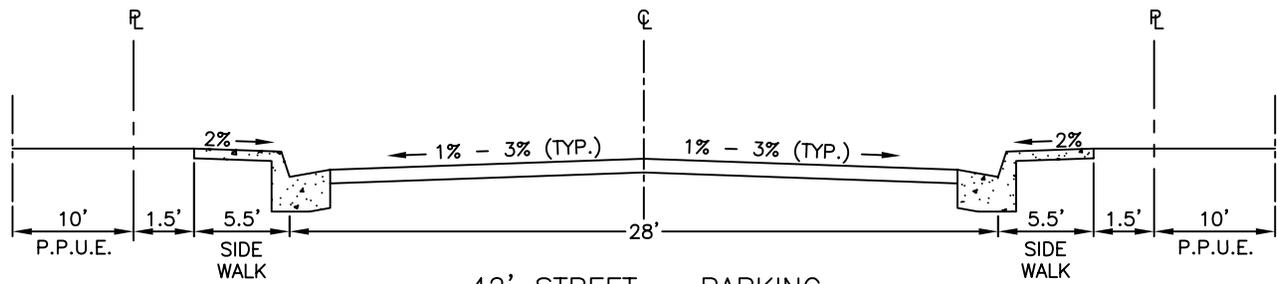
COLLECTOR STREET - NO PARKING
(2 TRAVEL LANES) 72' ROW



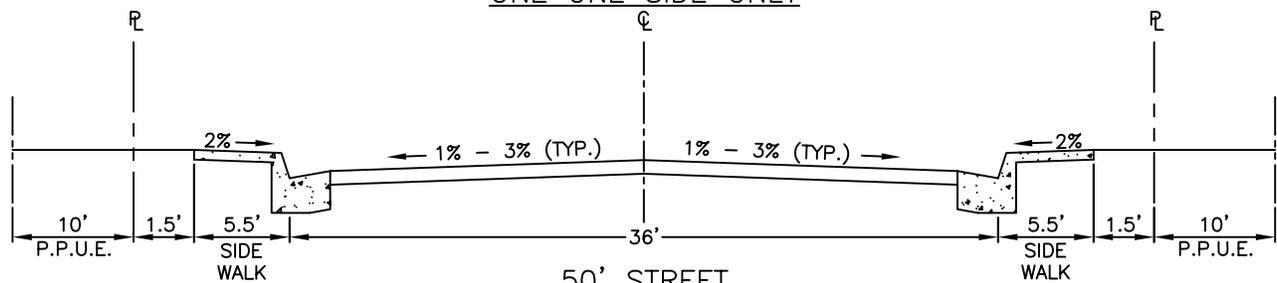
* THICKNESS BASED UPON TRAFFIC INDEX FOR SPECIFIC STREET.
 BASED UPON CALTRANS METHOD FOR FLEXIBLE PAVEMENT DESIGN, SEE P-50.

NOTES:

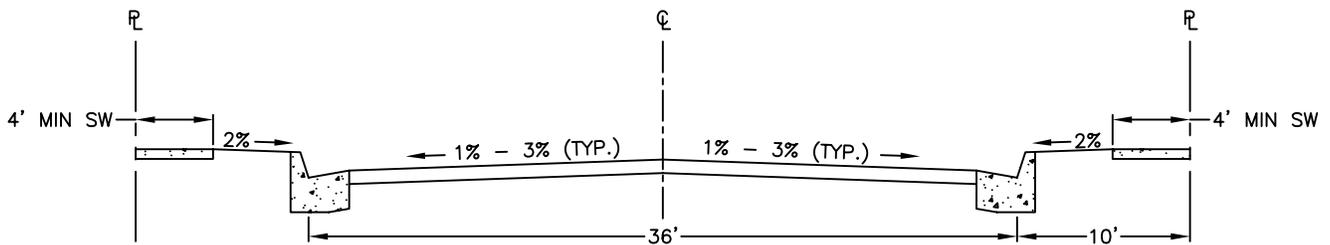
1. ACTUAL SECTION DEPENDS ON TRAFFIC INDEX AND SOIL TESTS.
2. WHERE NO SIDEWALK IS CONSTRUCTED, FINISH GRADE SHALL BE 2% FROM BACK OF CURB TO PROPERTY LINE.
3. ** SIDEWALKS MAY BE WAVED ON LOCAL STREETS IN CM, M-I-P, M1, M2, AND M3 ZONES UPON APPROVAL OF THE PUBLIC WORKS DIRECTOR.



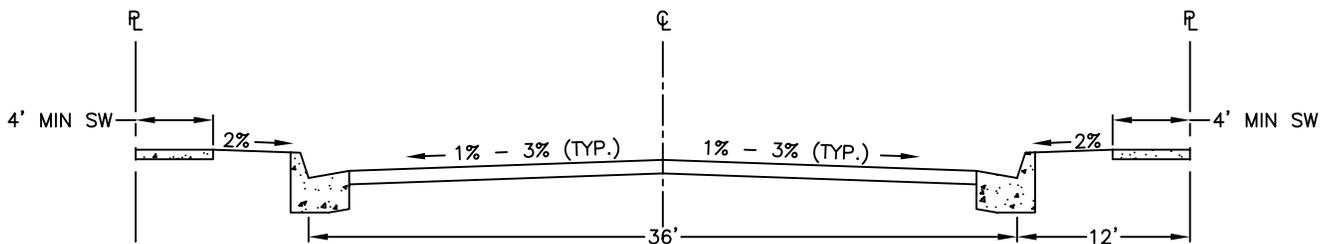
42' STREET - PARKING
ONE ONE SIDE ONLY



50' STREET



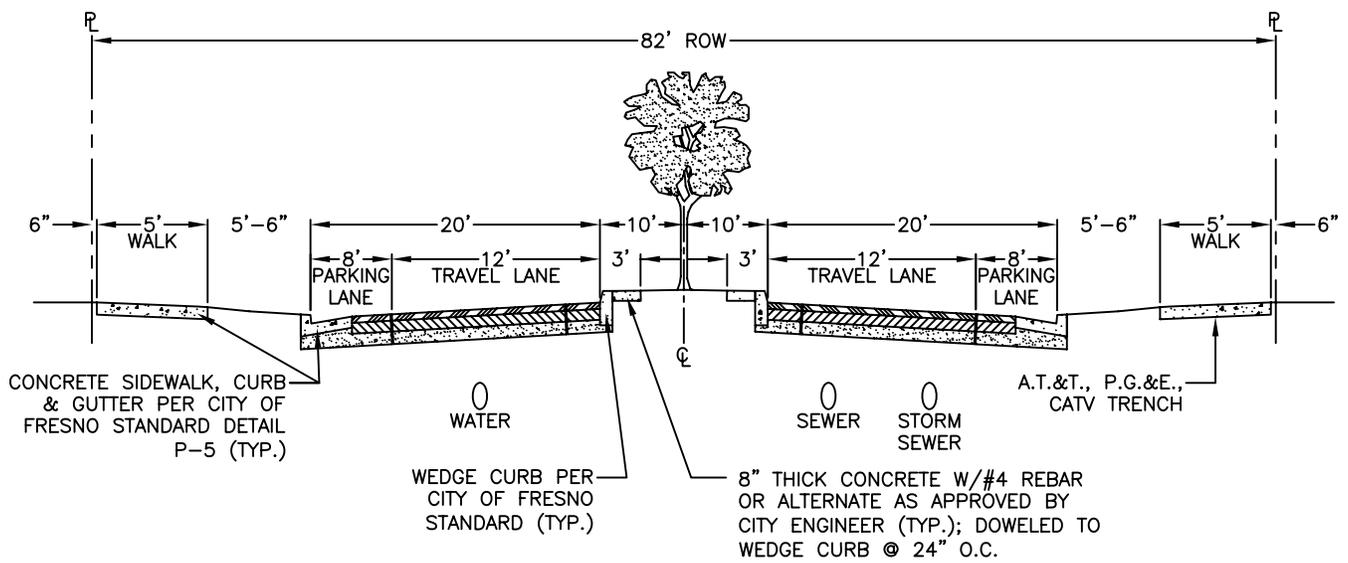
56' STREET



60' STREET

NOTES:

1. FOR DRIVEWAY DETAIL SEE STREET SECTIONS THAT MAY BE USED, SEE P.W. DWGS. P-4.
2. OFFSET CROWN REQUIRES APPROVAL OF THE ENGINEER DEVIATIONS FROM STANDARDS REQUIRE APPROVAL OF THE ENGINEER.
3. () INDICATE AN ALTERNATIVE CROSS-SECTION LAYOUT.
4. SIDEWALKS MAY BE LOCATED PARTIALLY OR FULLY OUTSIDE THE STREET RIGHT-OF-WAY WITH THE DEDICATION OF A PEDESTRIAN EASEMENT, WHEN APPROVED BY THE CITY ENGINEER.



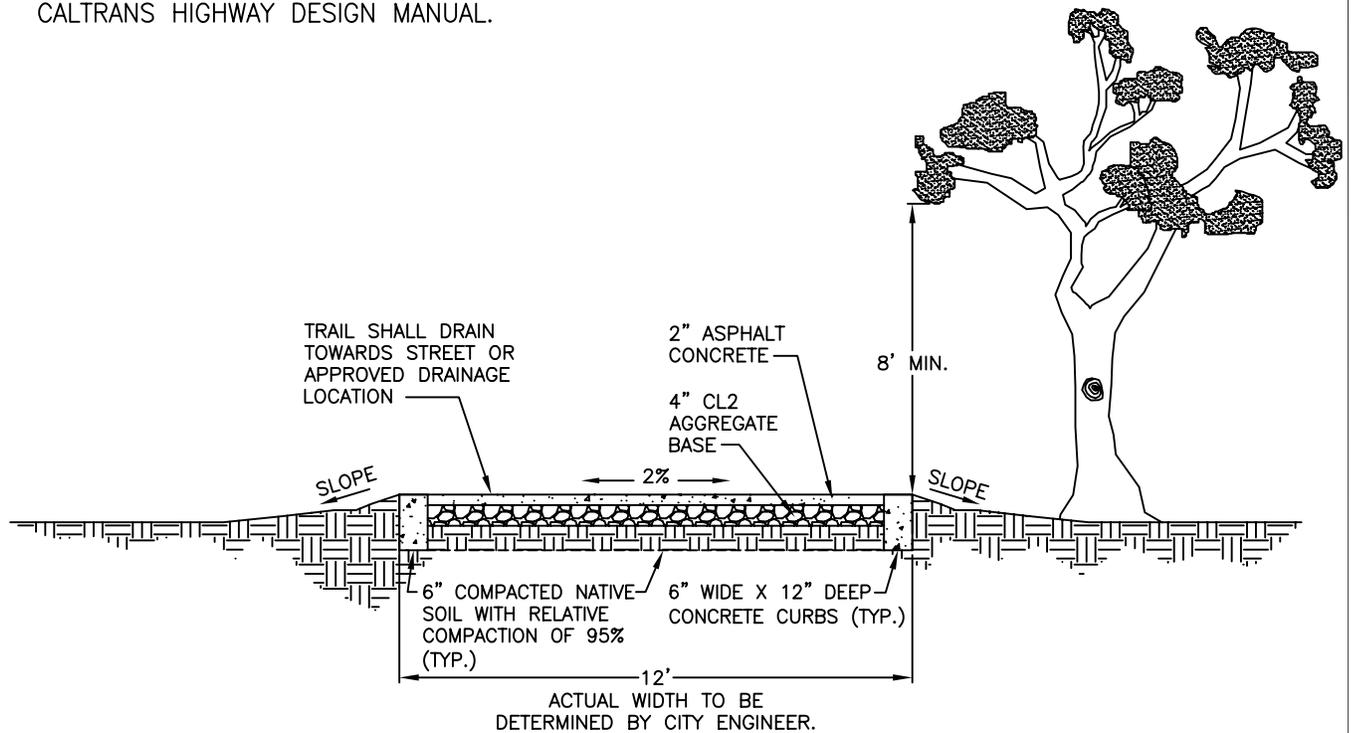
CROSS SECTION
NOT TO SCALE

SPECIFICATIONS

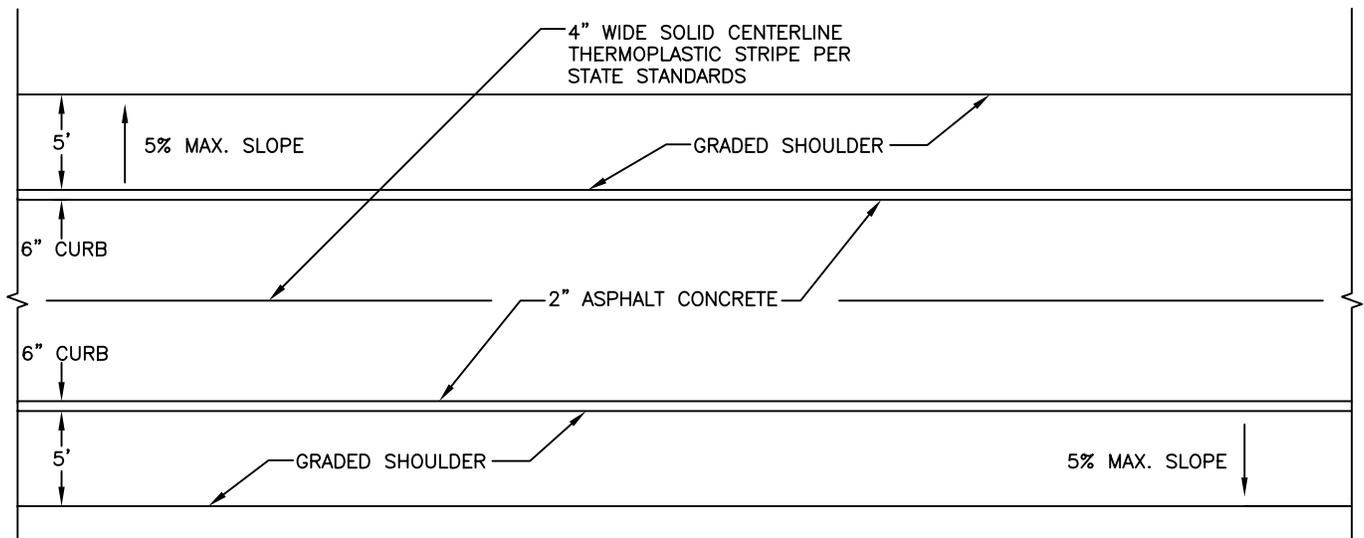
1. SIDEWALK SHALL BE INSTALLED ON BOTH SIDES.
2. GREATER RIGHT-OF-WAY MAY BE APPROVED. IN SUCH CASES, 5' SIDEWALK SHALL BE INSTALLED 6" FROM PROPERTY LINE (EXCEPTION MAY BE APPROVED FOR A MEANDERING SIDEWALK).
3. 600' MAXIMUM BLOCK LENGTH BETWEEN OPENINGS IN MEDIAN.
4. AN 18' MINIMUM SETBACK IS REQUIRED FROM BACK OF WALK TO GARAGE WHEN THE GARAGE DOOR FRONTS ON STREET WITH A ROLL-UP DOOR; LIVING SPACE SETBACK TO BE DETERMINED BY CONDITIONAL USE PERMIT OR PLANNING AND DEVELOPMENT DEPARTMENT. THE SETBACK SHALL NOT BE LESS THAN REQUIRED BY THE ZONING ORDINANCE.
5. THIS STANDARD IS SUBJECT TO THE PIPELINE INSTALLATION REQUIREMENTS FORMULA.
6. F.I.D. FACILITIES SHALL BE LOCATED IN A SEPARATE EASEMENT OUT OF THE RIGHT OF WAY.
7. THIS STANDARD CAN BE USED IN CONVENTIONAL DEVELOPMENT, PLANNED UNIT DEVELOPMENTS, OR OTHER RESIDENTIAL DEVELOPMENTS.
8. ON CORNER LOTS, THE PLANTING AND UTILITY EASEMENT ALONG THE SIDE YARD MAY BE REDUCED TO 8'.
9. CROSS SECTIONS SHALL REMAIN CONSISTENT FOR ENTIRE BLOCK.
10. FIRE HYDRANTS SHALL BE PLACED IN MEDIAN AT 600' INTERVALS MAXIMUM. LOCATION APPROVAL REQUIRED BY CITY FIRE DEPARTMENT.

NOTES:

1. THIS STANDARD SHALL BE USED ONLY UPON APPROVAL BY CITY ENGINEER.
2. THIS STANDARD SHALL NOT BE USED IN AREAS OF INUNDATION.
3. CITY ENGINEER MAY PERMIT A CURVILINEAR DESIGN. PRECISE DATA SHALL BE PROVIDED TO STAKE THE ALIGNMENT AND SET APPROPRIATE GRADES.
4. TRAIL DESIGN SHALL COMPLY WITH CHAPTER 1000 OF THE CALTRANS HIGHWAY DESIGN MANUAL.



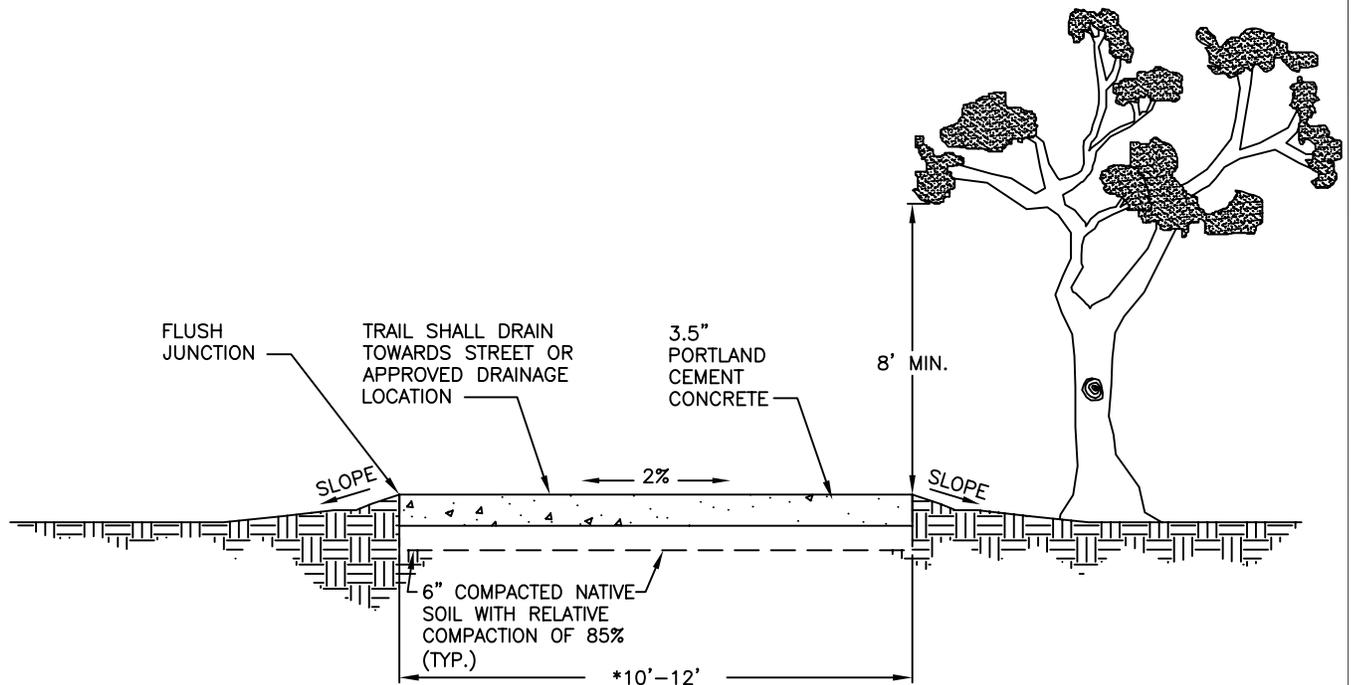
ELEVATION VIEW



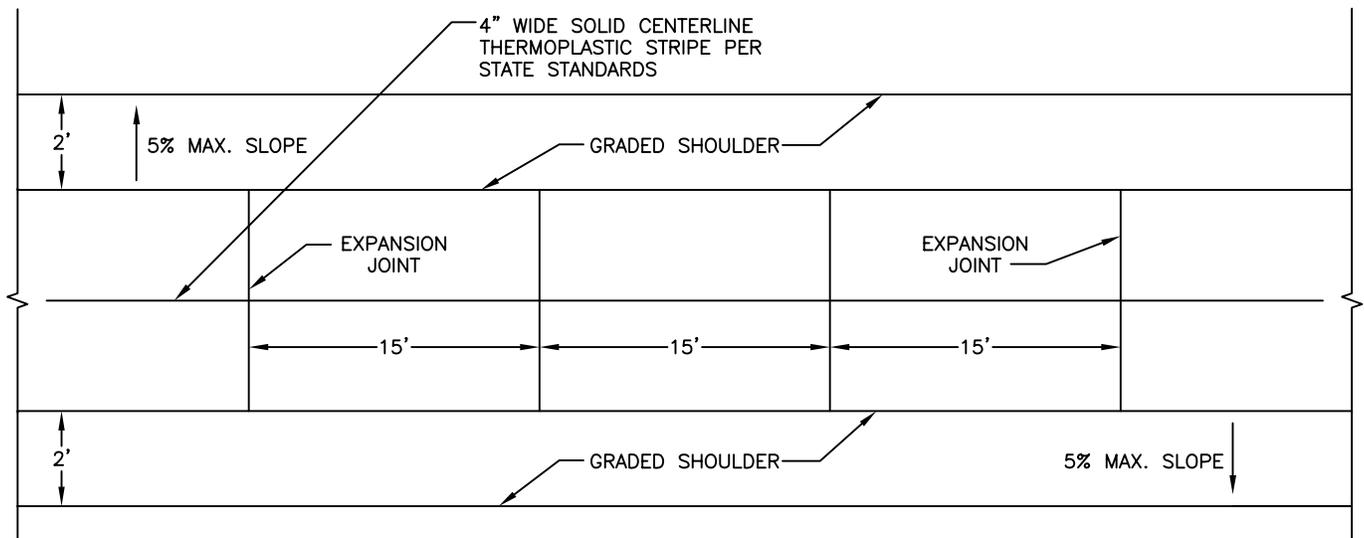
PLAN VIEW

NOTES:

1. *TO BE SPECIFIED BY THE CITY ENGINEER.
2. CITY ENGINEER MAY PERMIT A CURVILINEAR DESIGN. PRECISE DATA SHALL BE PROVIDED TO STAKE THE ALIGNMENT AND SET APPROPRIATE GRADES.
3. TRAIL DESIGN SHALL COMPLY WITH CHAPTER 1000 OF THE CALTRANS HIGHWAY DESIGN MANUAL.



ELEVATION VIEW



PLAN VIEW

GENERAL NOTES:

R=155' MIN (25 mph)
REFERENCE P-60

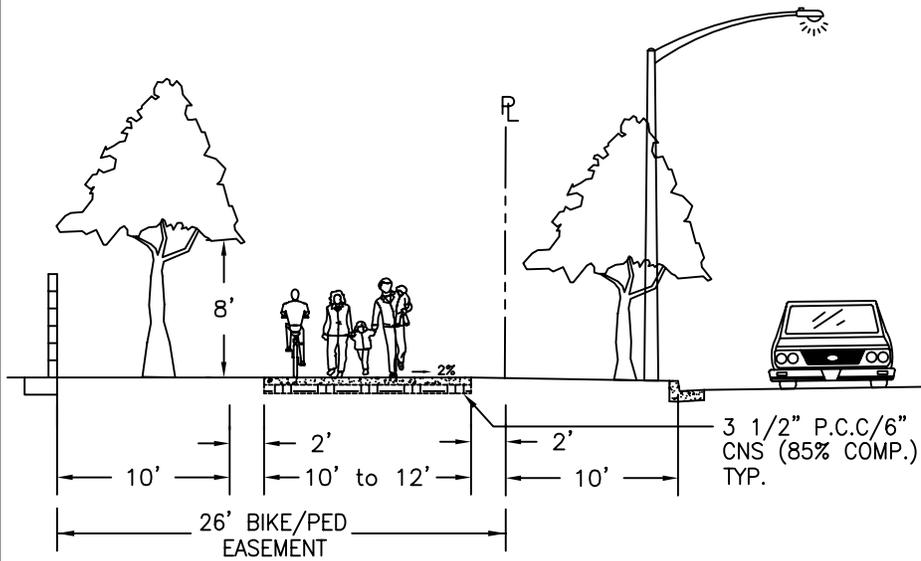
EASEMENTS SHOWN ARE MINIMUMS.
ADDITIONAL WIDTHS MAY BE NEEDED
FOR GRADING AND DRAINAGE PURPOSES.

CROSS SLOPES=2% FOR TRAIL
2' SHOULDER

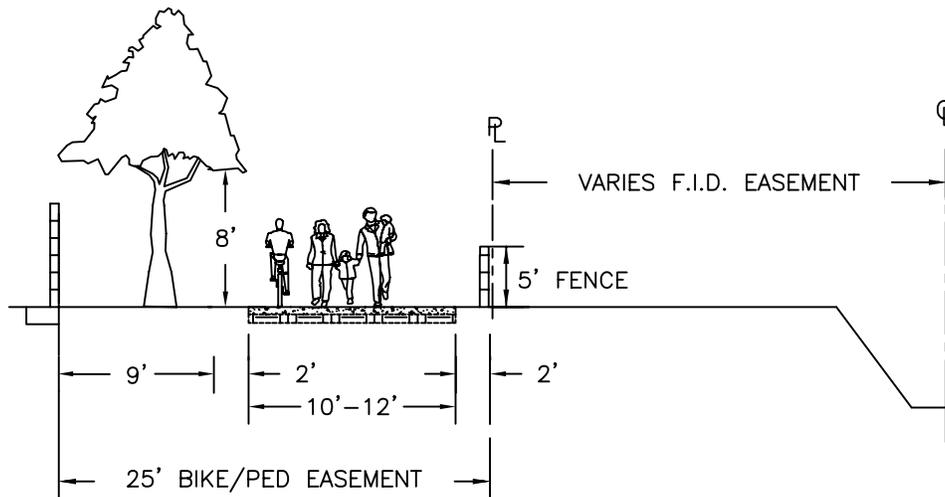
4' FENCE REQUIRED ON EXPRESSWAYS.
SEE STANDARD DRAWINGS P-74 AND
P-75 FOR REFERENCE.

TRAIL DESIGN SHALL COMPLY WITH
CHAPTER 1000 OF THE CALTRANS
HIGHWAY DESIGN MANUAL.

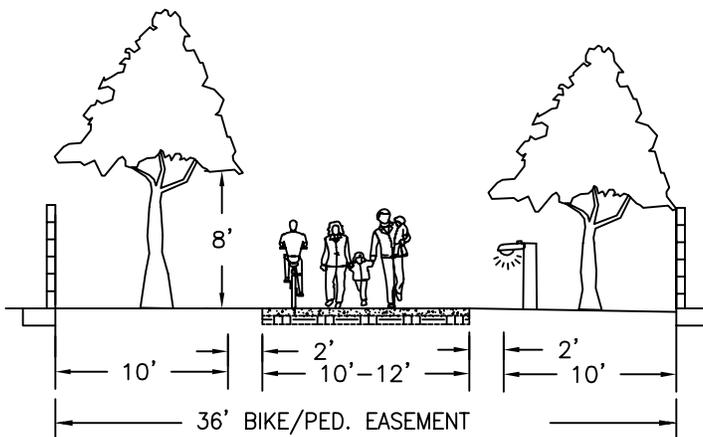
AN ADDITIONAL 12' EASEMENT REQUIRED
FOR EQUESTRIAN PURPOSES.



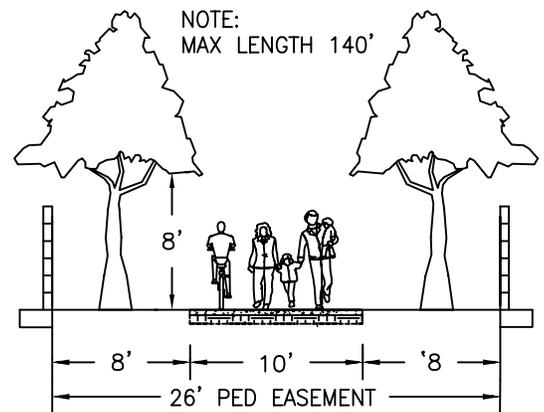
MAJOR STREET TRAIL



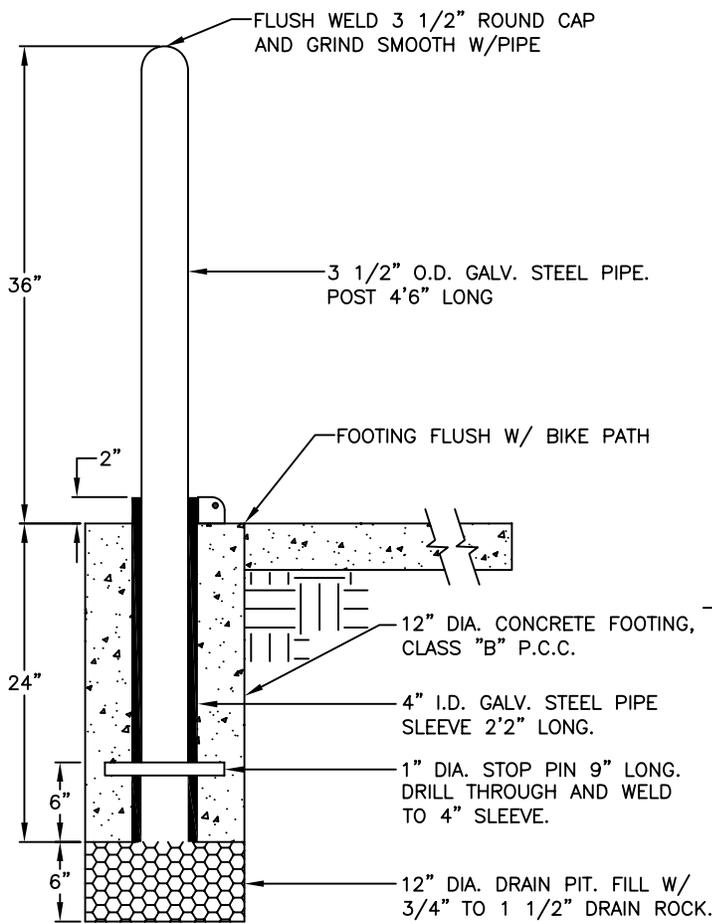
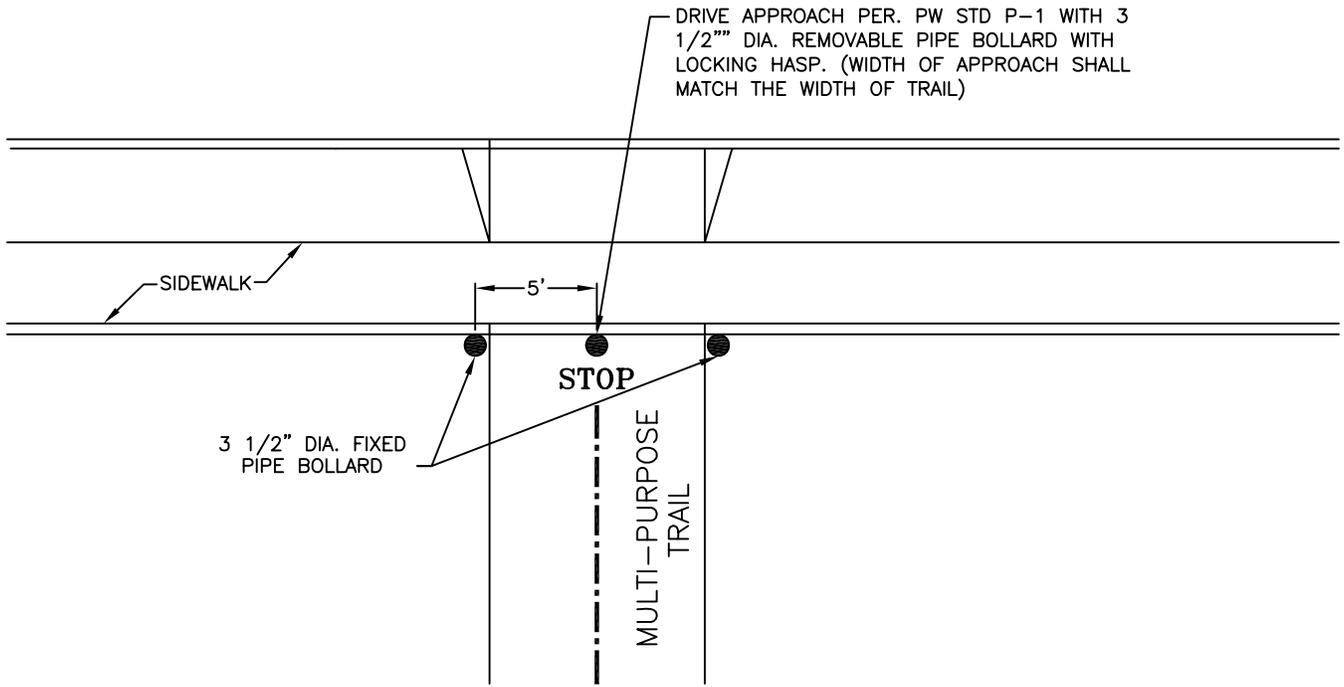
CANAL-SIDE TRAIL



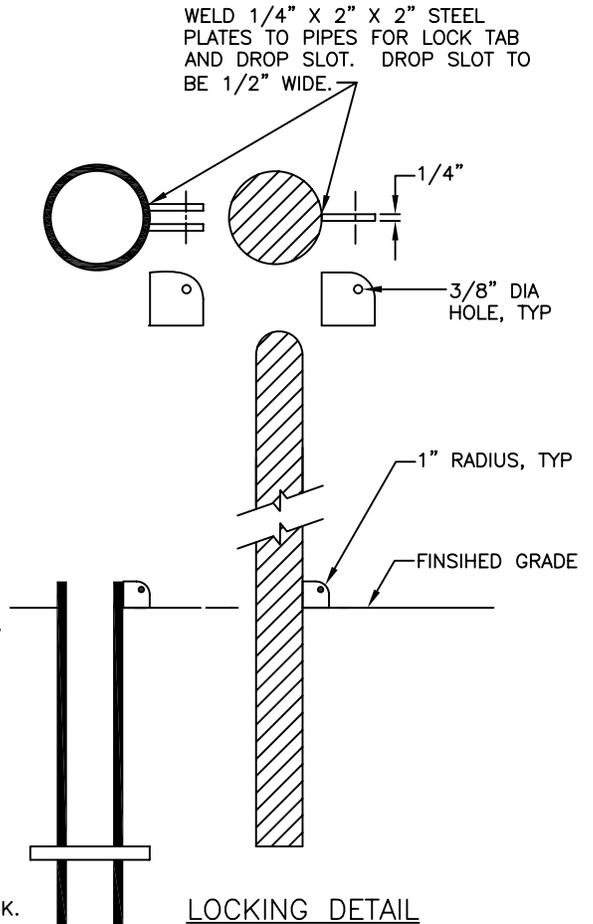
OFF-STREET TRAIL

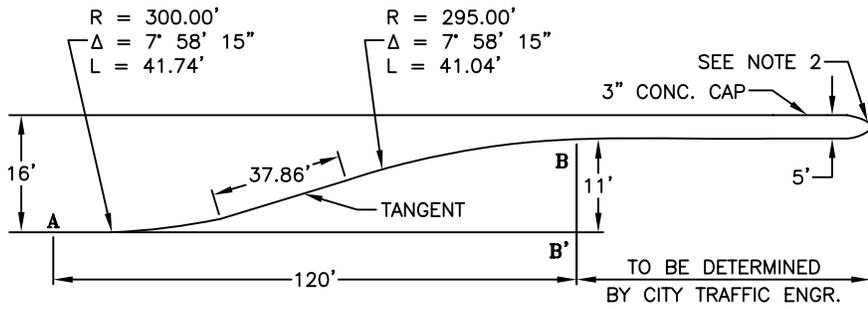


CONNECTOR TRAIL



BOLLARD DETAIL

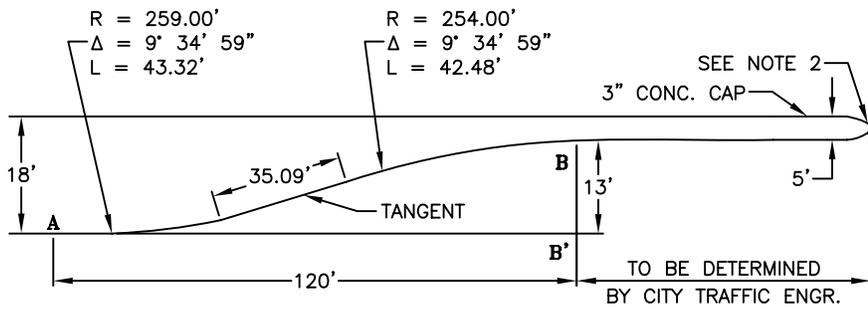




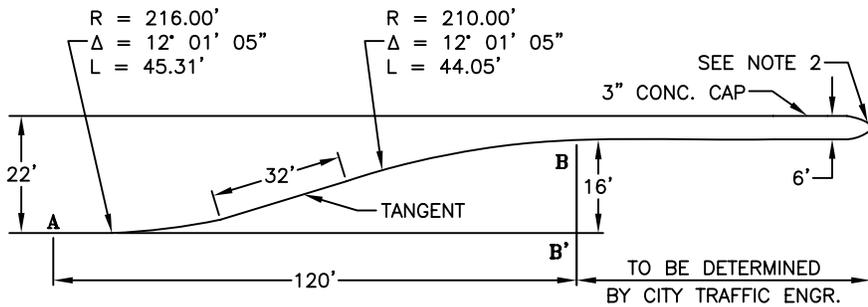
CURVE TABLE	
DIST. FROM POINT "A"	OFFSET B-B' = 11'
0'	0.00'
10'	0.17'
20'	0.67'
30'	1.50'
40'	2.68'
41.60'	2.90'
50'	4.08'
60'	5.48'
70'	6.88'
79.09'	8.15'
80'	8.28'
90'	9.47'
100'	10.32'
110'	10.83'
120'	11.00'

NOTES:

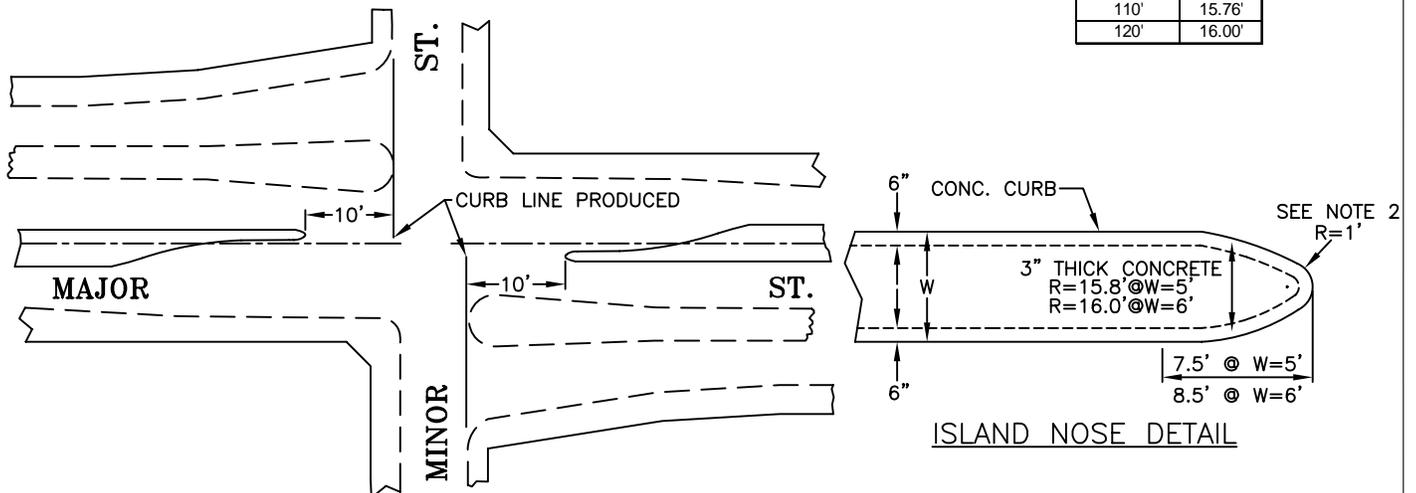
1. END CONCRETE CAP WHERE CURB FACES ARE GREATER THAN 8' APART.
2. NOSE SHALL BE A MINIMUM OF 10' FROM PRODUCTION OF CROSS STREET EXTREME CURB LINE.
3. CONCRETE GUTTER TO BE USED WHERE REQUIRED.

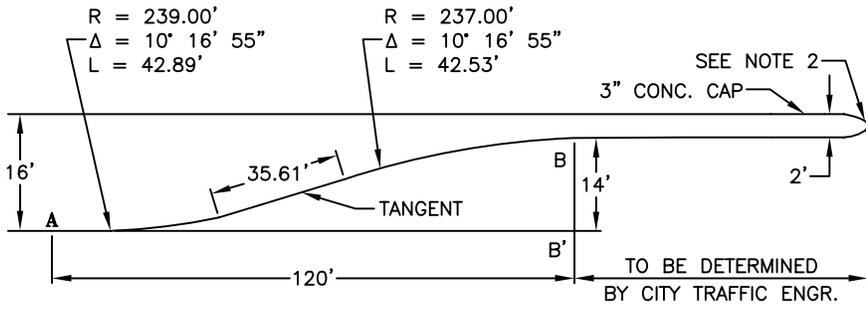


CURVE TABLE	
DIST. FROM POINT "A"	OFFSET B-B' = 13'
0'	0.00'
10'	0.19'
20'	0.77'
30'	1.74'
40'	3.08'
43.12'	3.61'
50'	4.77'
60'	6.46'
70'	8.16'
77.71'	9.46'
80'	9.96'
90'	11.23'
100'	12.21'
110'	12.80'
120'	13.00'



CURVE TABLE	
DIST. FROM POINT "A"	OFFSET B-B' = 16'
0'	0.00'
10'	0.23'
20'	0.93'
30'	2.09'
40'	3.74'
44.97'	4.73'
50'	5.80'
60'	7.93'
70'	10.06'
76.27'	11.40'
80'	12.16'
90'	13.85'
100'	15.05'
110'	15.76'
120'	16.00'

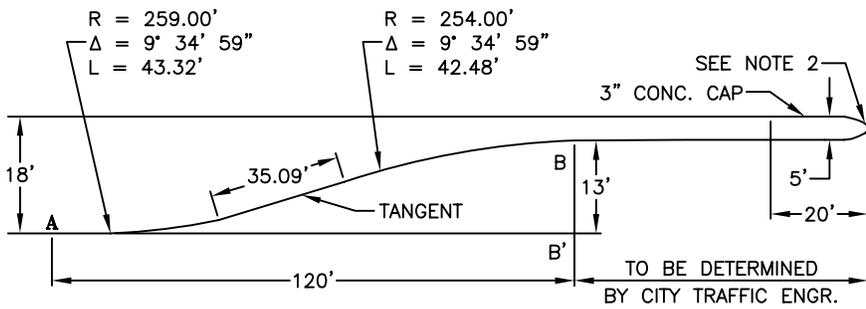




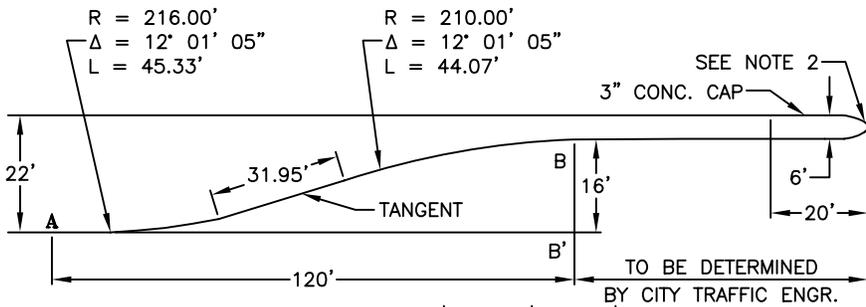
CURVE TABLE	
DIST. FROM POINT "A"	OFFSET
0'	0.00'
10'	0.21'
20'	0.84'
30'	1.89'
40'	3.37'
42.66'	3.84'
50'	5.17'
60'	6.98'
70'	8.80'
77.70'	10.19'
80'	10.60'
90'	12.09'
100'	13.16'
110'	13.79'
120'	14.00'

NOTES:

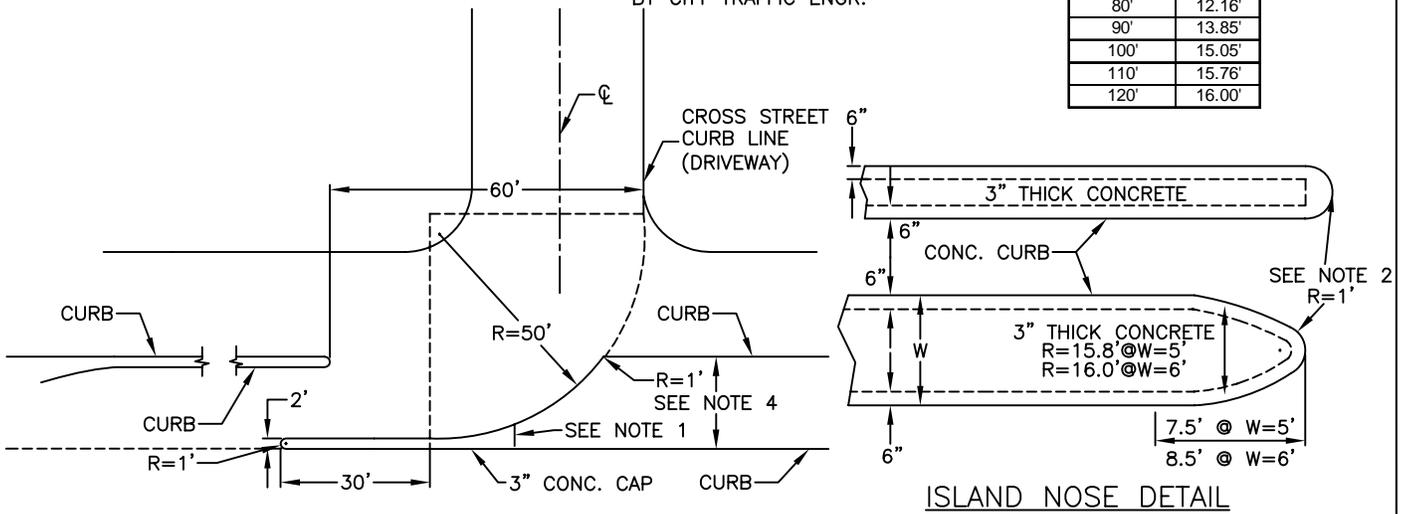
1. END CONCRETE CAP WHERE CURB FACES ARE GREATER THAN 8' APART.
2. NOSE SHALL BE A MINIMUM OF 10' FROM PRODUCTION OF CROSS STREET EXTREME CURB LINE.
3. CONCRETE GUTTER TO BE USED WHERE REQUIRED.



CURVE TABLE	
DIST. FROM POINT "A"	OFFSET
0'	0.00'
10'	0.19'
20'	0.77'
30'	1.74'
40'	3.11'
43.12'	3.61'
50'	4.77'
60'	6.46'
70'	8.16'
77.71'	9.46'
80'	9.83'
90'	11.22'
100'	12.21'
110'	12.80'
120'	13.00'

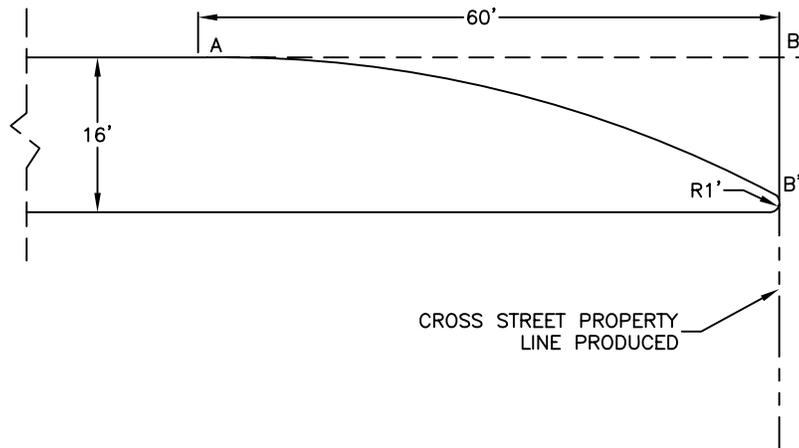


CURVE TABLE	
DIST. FROM POINT "A"	OFFSET
0'	0.00'
10'	0.23'
20'	0.93'
30'	2.09'
40'	3.74'
45.00'	4.74'
50'	5.80'
60'	7.93'
70'	10.06'
76.25'	11.39'
80'	12.16'
90'	13.85'
100'	15.05'
110'	15.76'
120'	16.00'



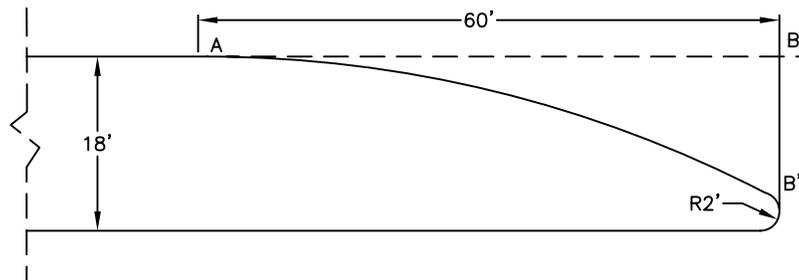
CURVE TABLE	
DIST. FROM POINT "A"	OFFSET B-B'
10'	0.40'
20'	1.58'
30'	3.56'
40'	6.33'
50'	9.99'
55'	11.97'

MEET 1' RAD. AT 60' ±



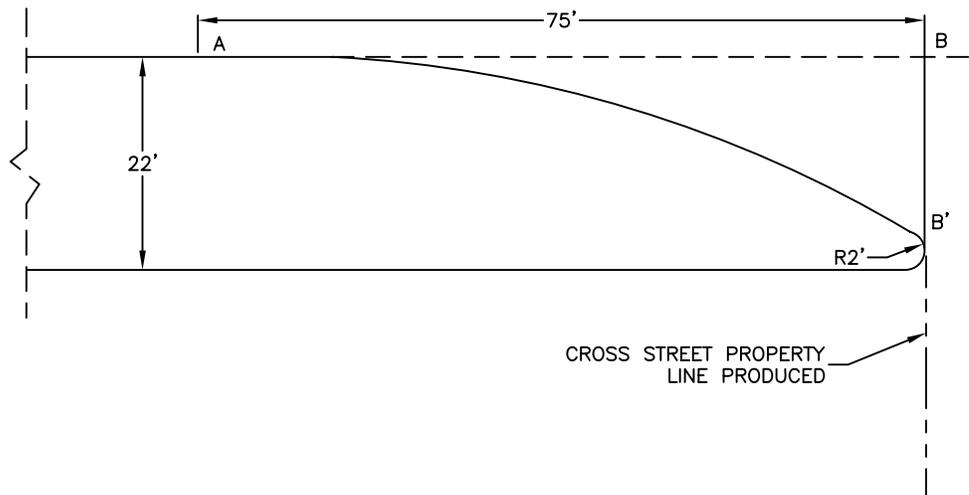
CURVE TABLE	
DIST. FROM POINT "A"	OFFSET B-B'
10'	0.40'
20'	1.58'
30'	3.56'
40'	6.33'
50'	9.99'
55'	11.97'

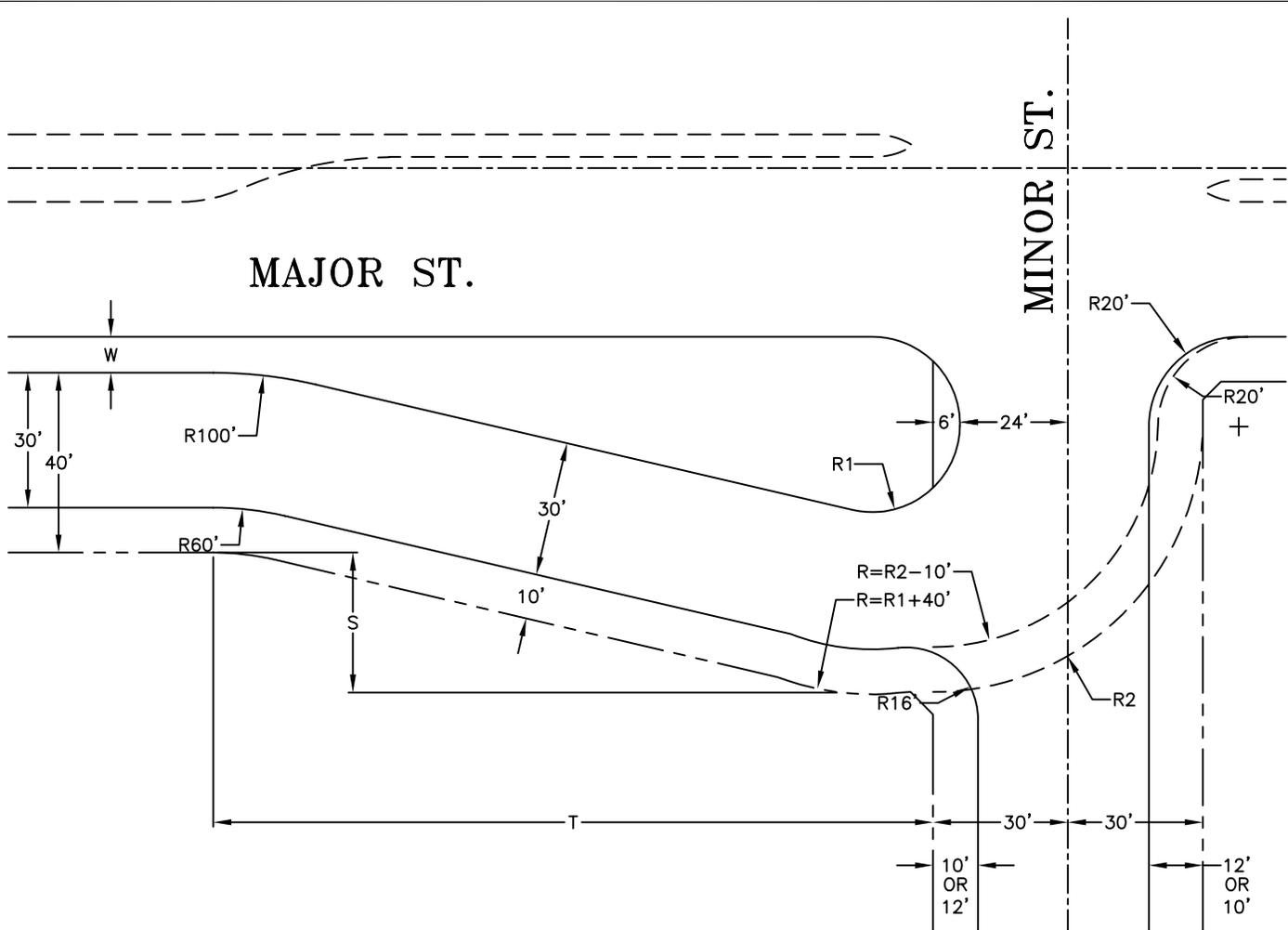
MEET 2' RAD. AT 60' ±



CURVE TABLE	
DIST. FROM POINT "A"	OFFSET B-B'
10'	0.32'
20'	1.30'
30'	2.92'
40'	5.19'
50'	8.11'
60'	11.68'
70'	15.90'

MEET 2' RAD. AT 75' ±

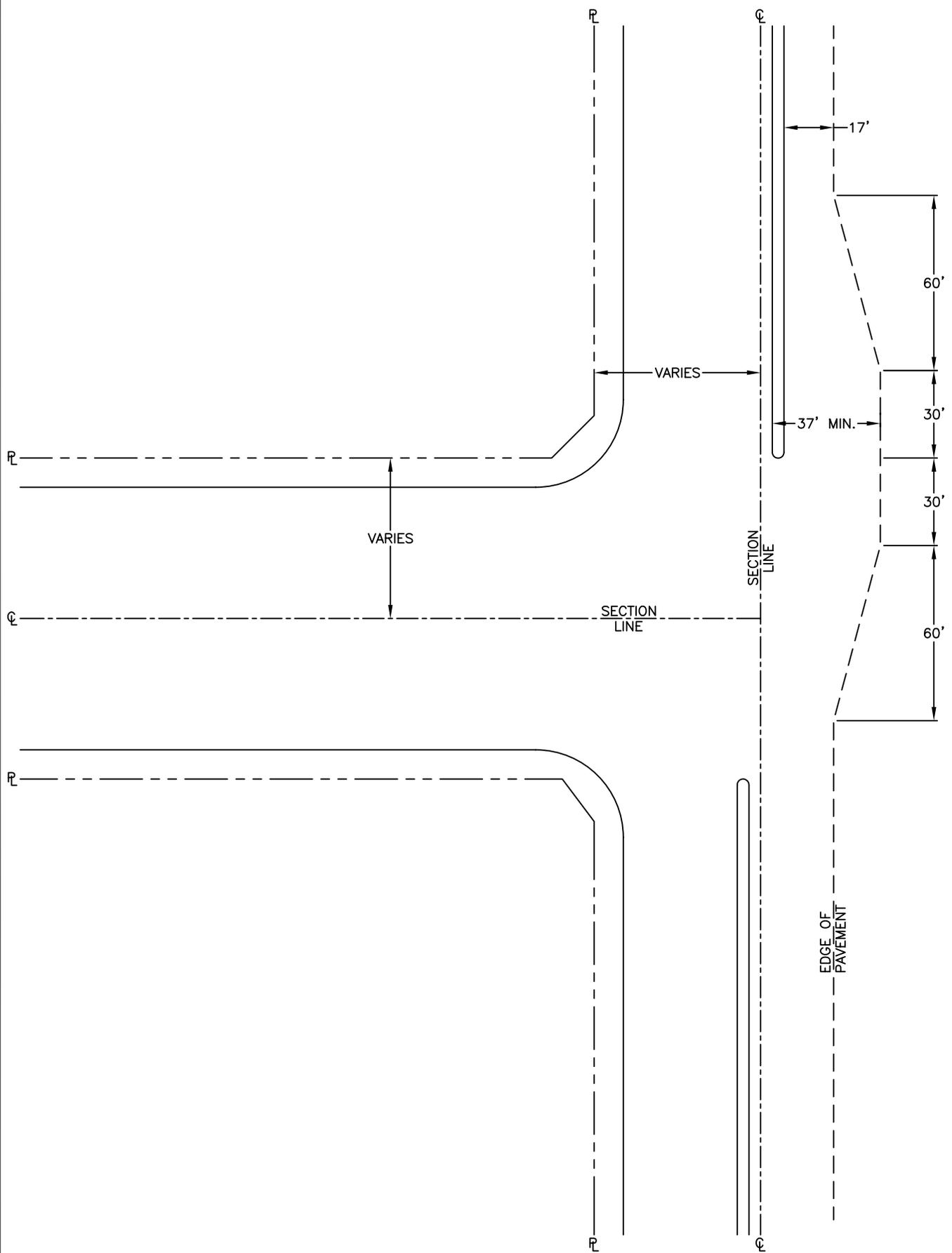




DESIGN TABLE	
R1	(W=8') 19.50'
	(W=10') 20.50'
R2	60.00'
T	160' MIN.
S	31.00'

NOTES:

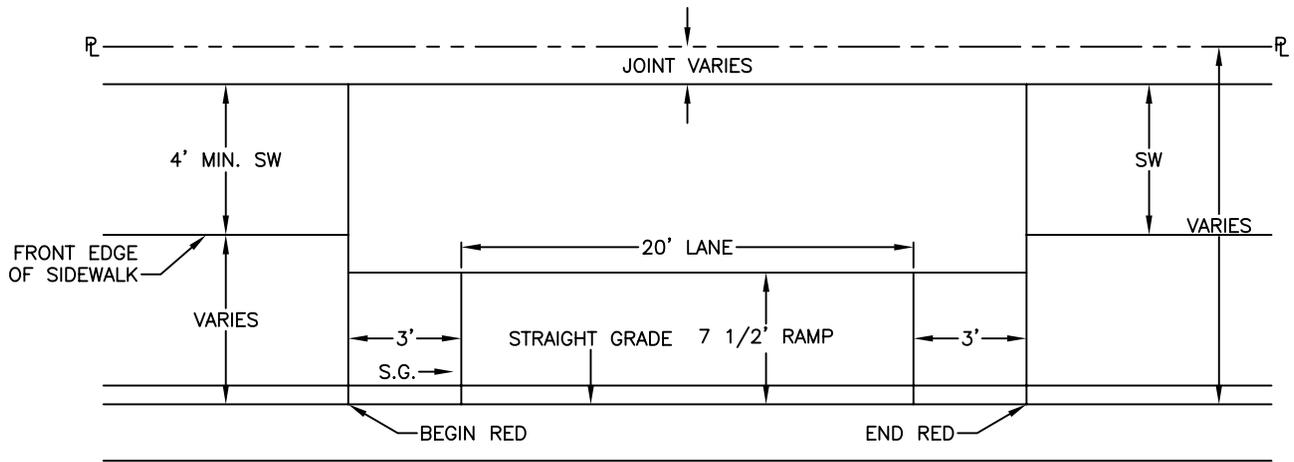
1. SIDEWALK PATTERN SHALL BE IN ACCORDANCE WITH SECTION 14 OF STANDARD SPECIFICATIONS.
2. "W"=8' ON 80' STREETS, 10' ON ALL OTHER MAJOR STREETS.



U-TURN MINIMUM CLEARANCE

REF. & REV.
AUG., 2010

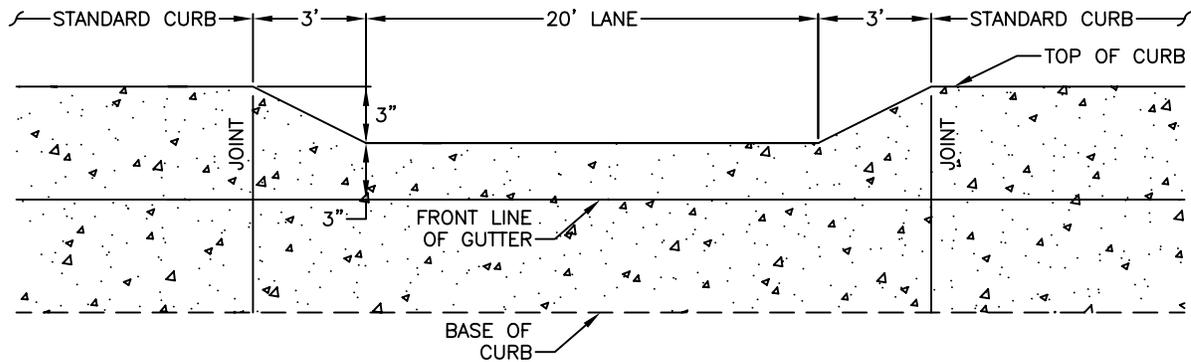
CITY OF FRESNO
P-66



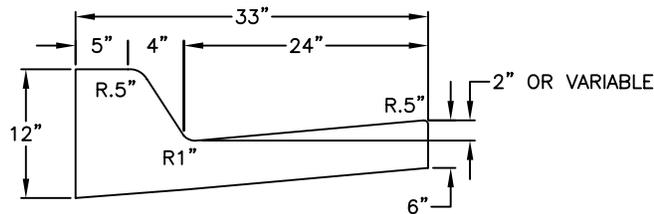
PLAN VIEW

NOTES:

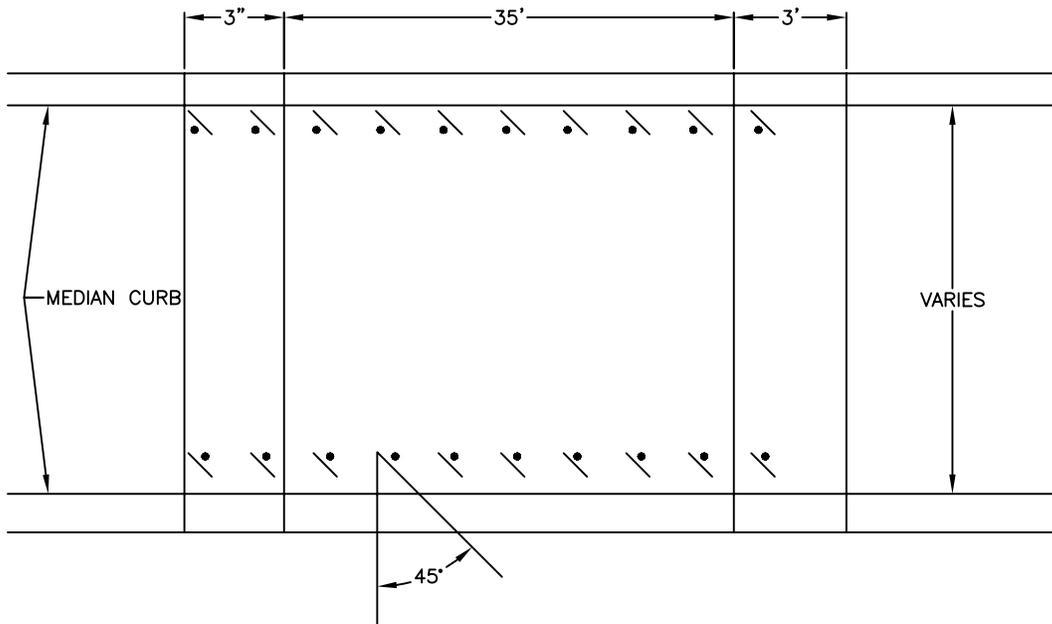
1. RAMP AND SW AREAS SHALL BE 7" PCC/ 6" CNS.
2. A 36" MIN. SIDEWALK AREA BEHIND RAMP SHALL BE MAINTAINED WITH 10' PATTERN OR LESS.
3. CURB TOP AND FACE SHALL BE PAINTED RED.



PROFILE VIEW



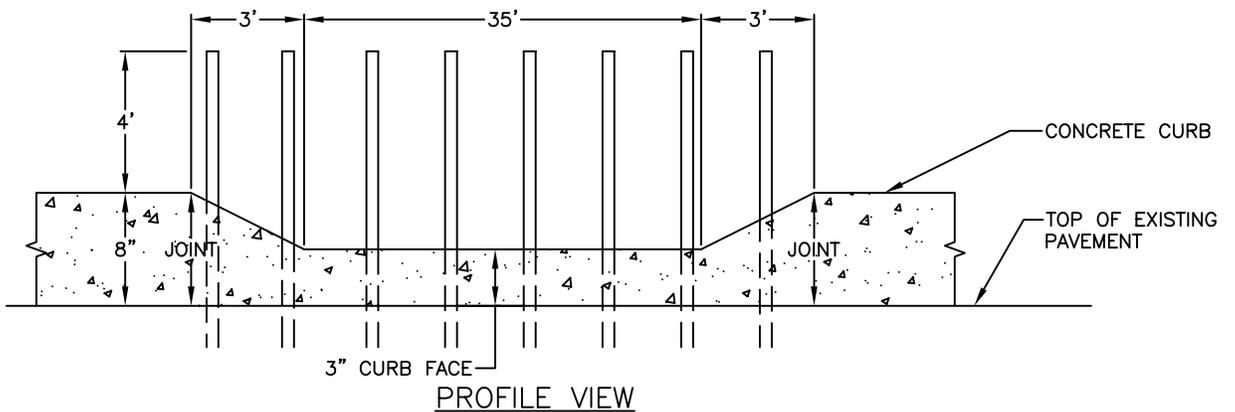
CURB DETAIL



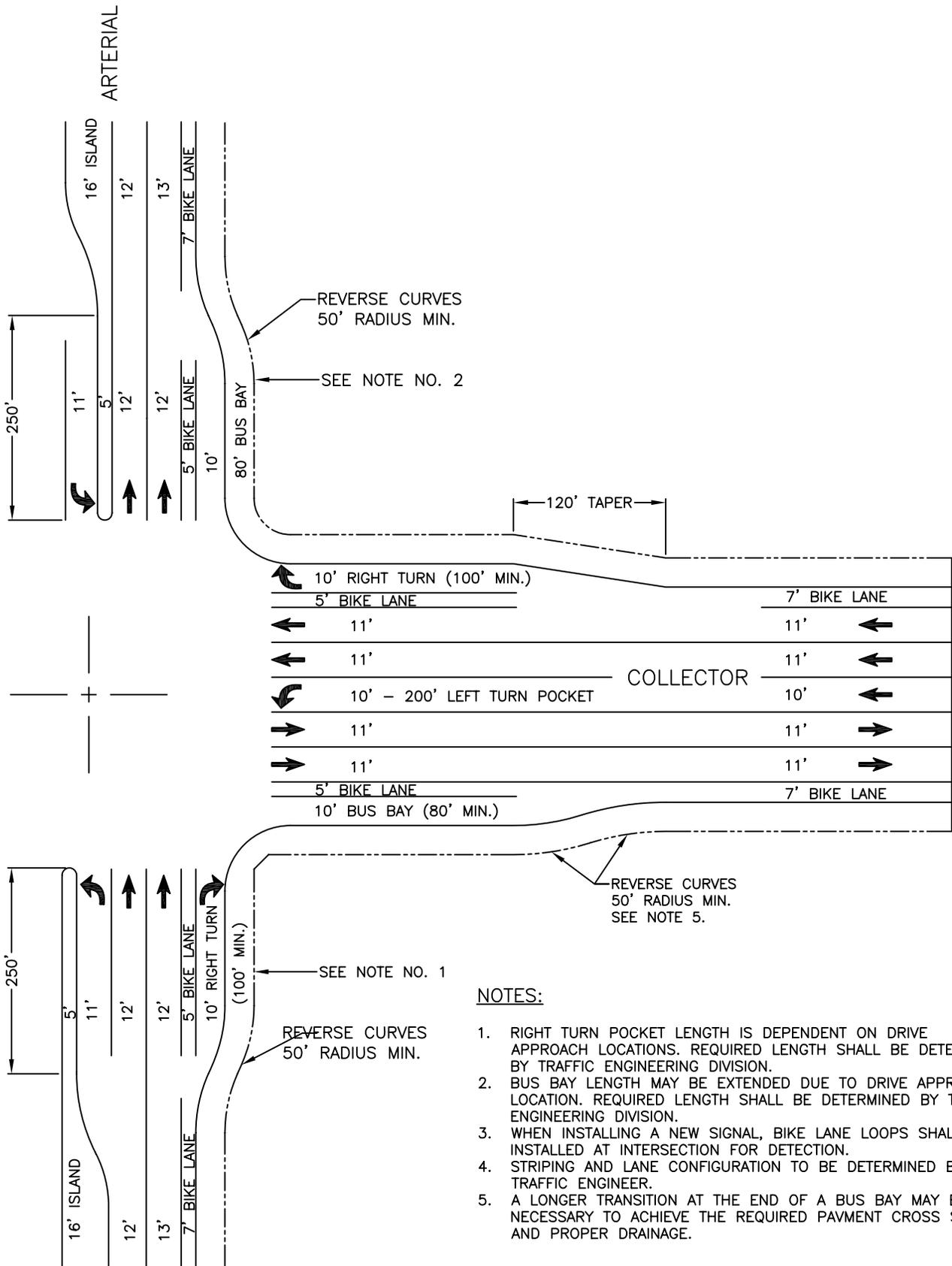
PLAN VIEW

NOTES:

1. MEDIAN CROSSING SHALL BE 7" PCC/6" CNS.
2. FLEXIBLE WHITE REFLECTORIZED PADDLES SHALL BE INSTALLED ON 5' CENTERS. (STATE STD.).

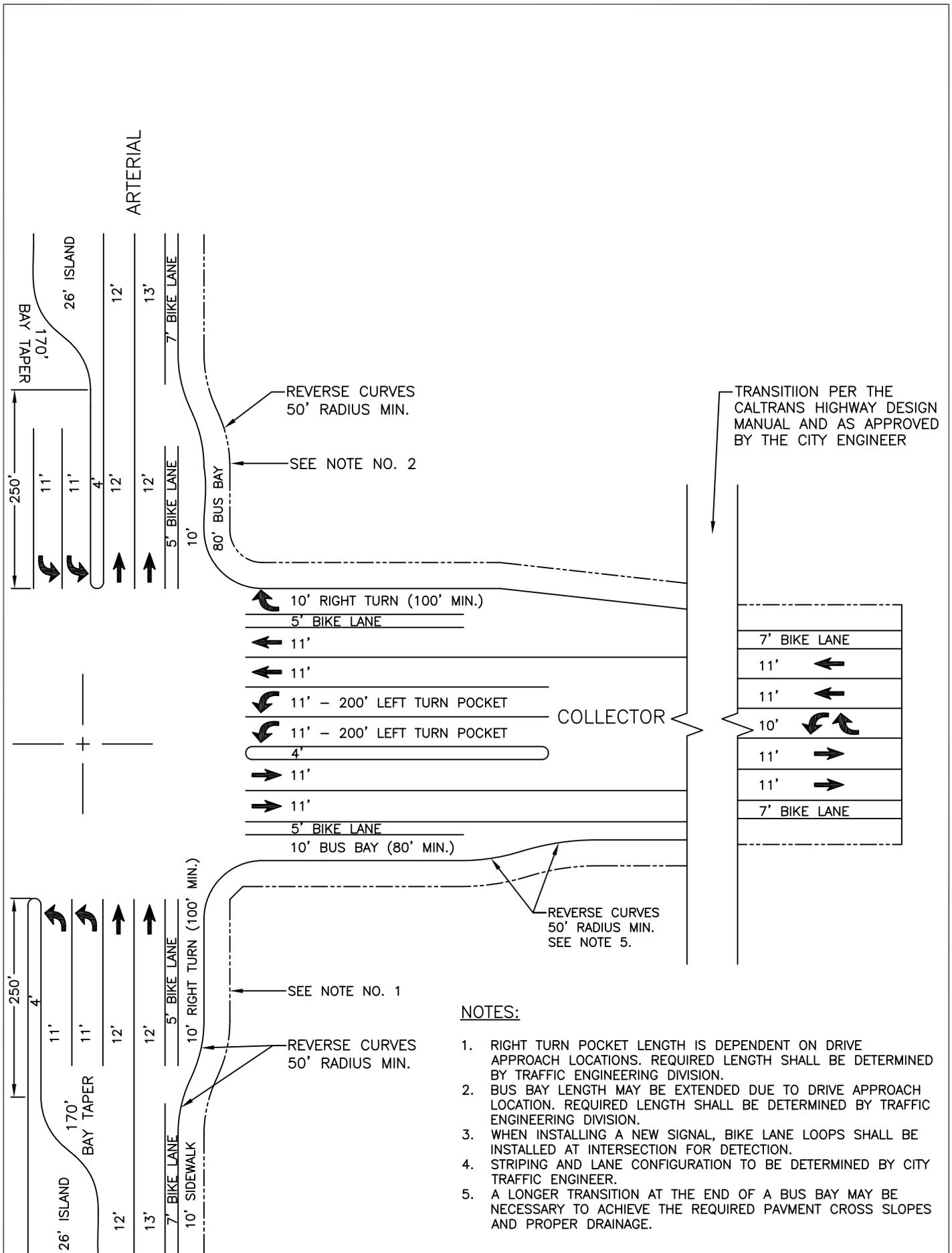


PROFILE VIEW



NOTES:

1. RIGHT TURN POCKET LENGTH IS DEPENDENT ON DRIVE APPROACH LOCATIONS. REQUIRED LENGTH SHALL BE DETERMINED BY TRAFFIC ENGINEERING DIVISION.
2. BUS BAY LENGTH MAY BE EXTENDED DUE TO DRIVE APPROACH LOCATION. REQUIRED LENGTH SHALL BE DETERMINED BY TRAFFIC ENGINEERING DIVISION.
3. WHEN INSTALLING A NEW SIGNAL, BIKE LANE LOOPS SHALL BE INSTALLED AT INTERSECTION FOR DETECTION.
4. STRIPING AND LANE CONFIGURATION TO BE DETERMINED BY CITY TRAFFIC ENGINEER.
5. A LONGER TRANSITION AT THE END OF A BUS BAY MAY BE NECESSARY TO ACHIEVE THE REQUIRED PAVEMENT CROSS SLOPES AND PROPER DRAINAGE.



NOTES:

1. RIGHT TURN POCKET LENGTH IS DEPENDENT ON DRIVE APPROACH LOCATIONS. REQUIRED LENGTH SHALL BE DETERMINED BY TRAFFIC ENGINEERING DIVISION.
2. BUS BAY LENGTH MAY BE EXTENDED DUE TO DRIVE APPROACH LOCATION. REQUIRED LENGTH SHALL BE DETERMINED BY TRAFFIC ENGINEERING DIVISION.
3. WHEN INSTALLING A NEW SIGNAL, BIKE LANE LOOPS SHALL BE INSTALLED AT INTERSECTION FOR DETECTION.
4. STRIPING AND LANE CONFIGURATION TO BE DETERMINED BY CITY TRAFFIC ENGINEER.
5. A LONGER TRANSITION AT THE END OF A BUS BAY MAY BE NECESSARY TO ACHIEVE THE REQUIRED PAVEMENT CROSS SLOPES AND PROPER DRAINAGE.

STREET INTERSECTION DETAIL
WITH DUAL LEFT TURN LANES

REF. & REV.
AUG., 2010

CITY OF FRESNO
P-70

NOT USED

NO LONGER USED

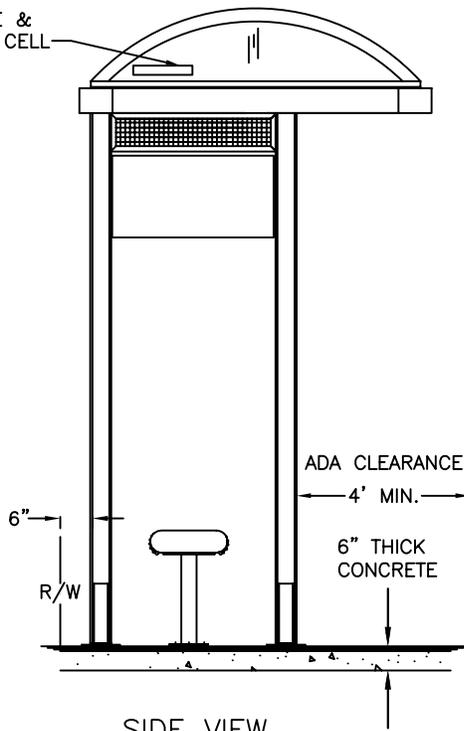
REF. & REV.
AUG., 2010

CITY OF FRESNO

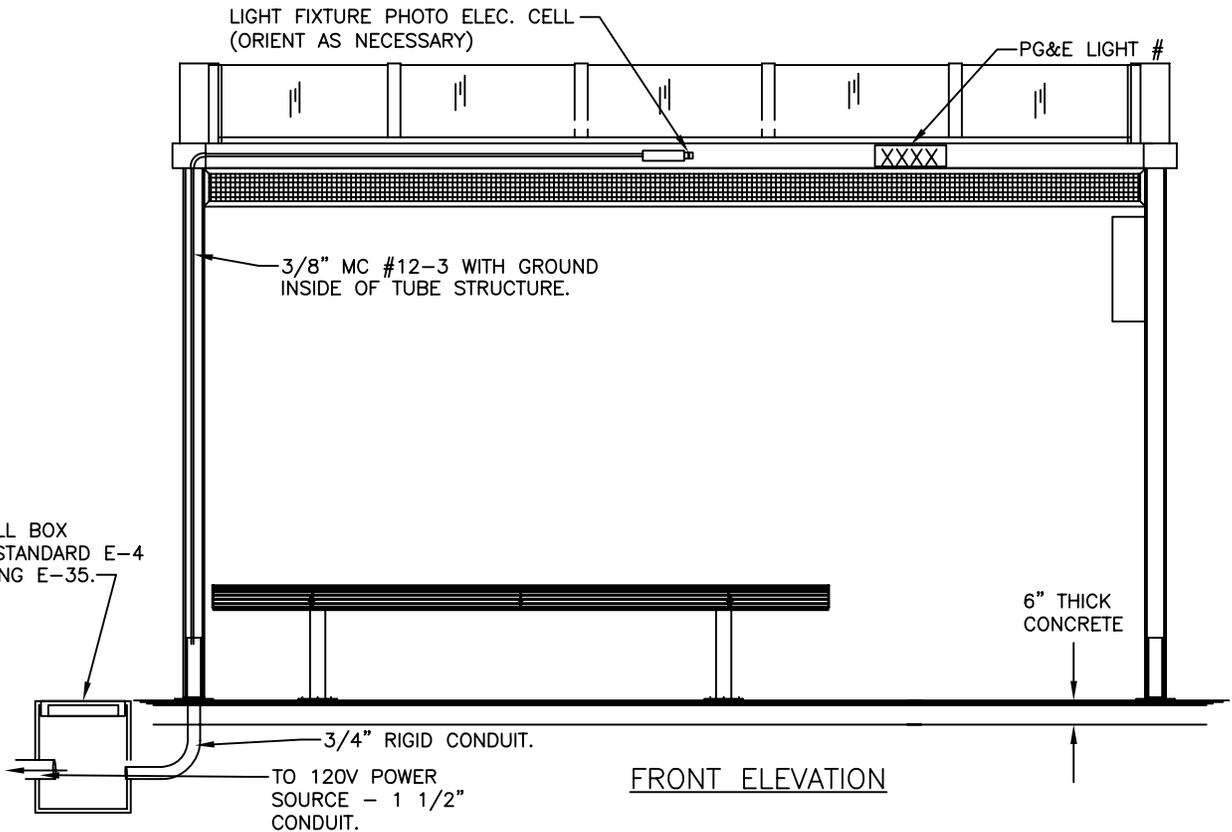
P-71

LIGHT FIXTURE &
PHOTO ELEC. CELL

SEE E-35 FOR FUSE LOCATION
AND ELECTRICAL CONNECTION.



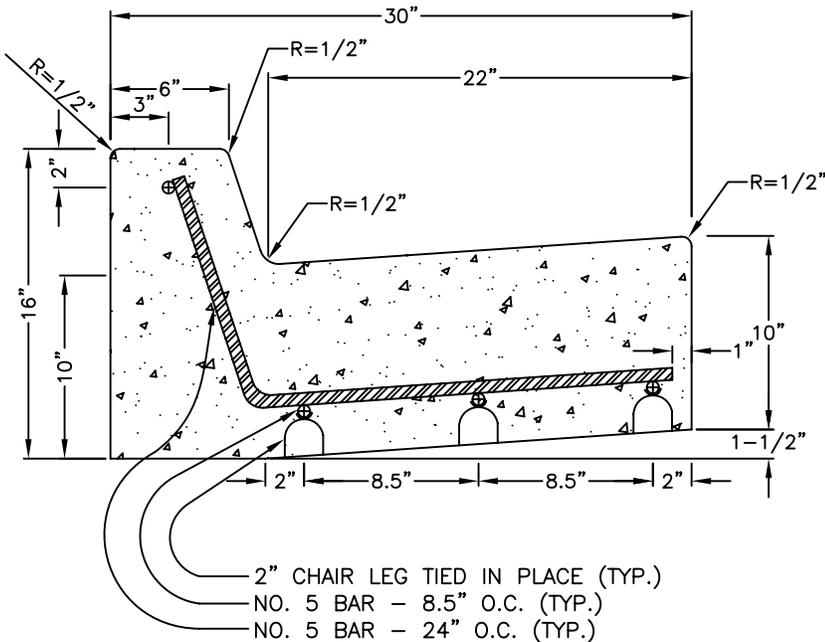
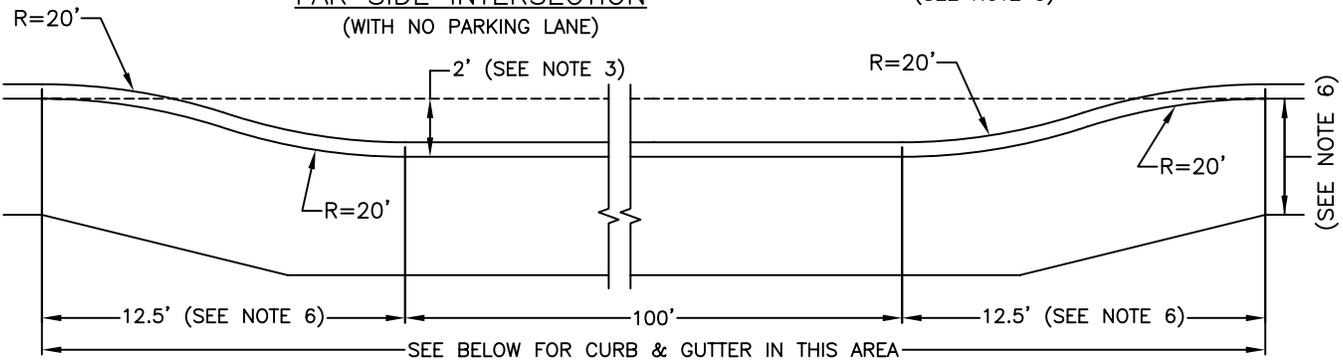
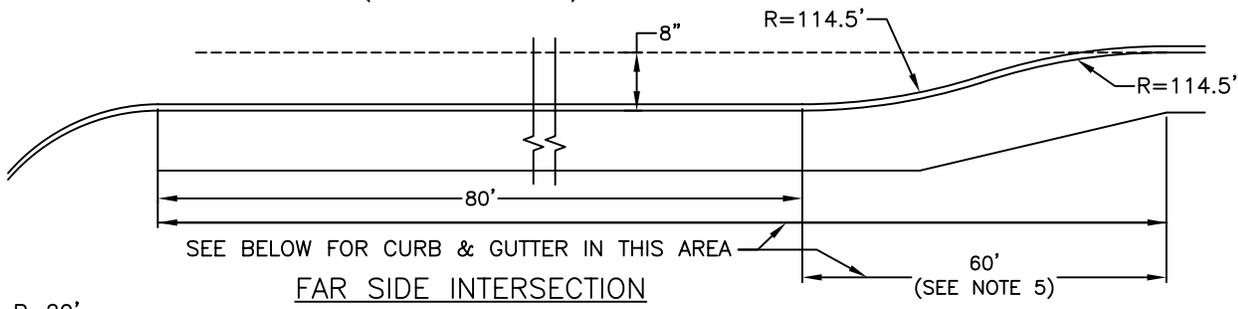
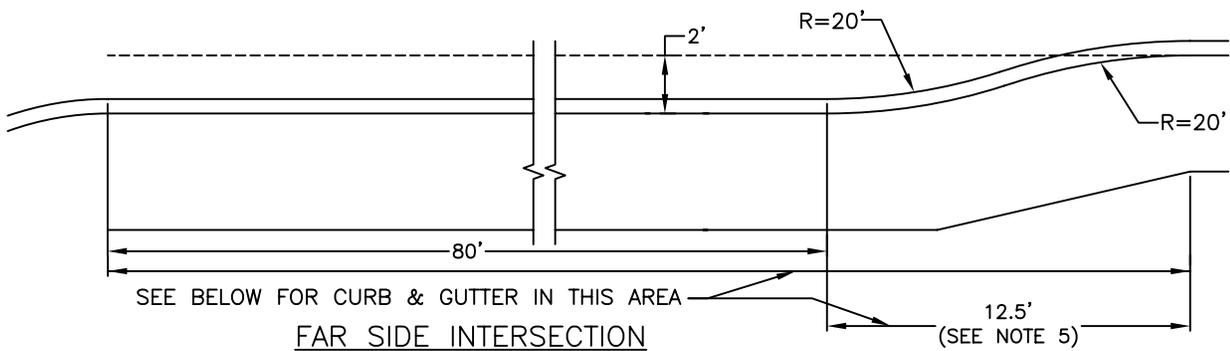
SIDE VIEW



FRONT ELEVATION

NOTES:

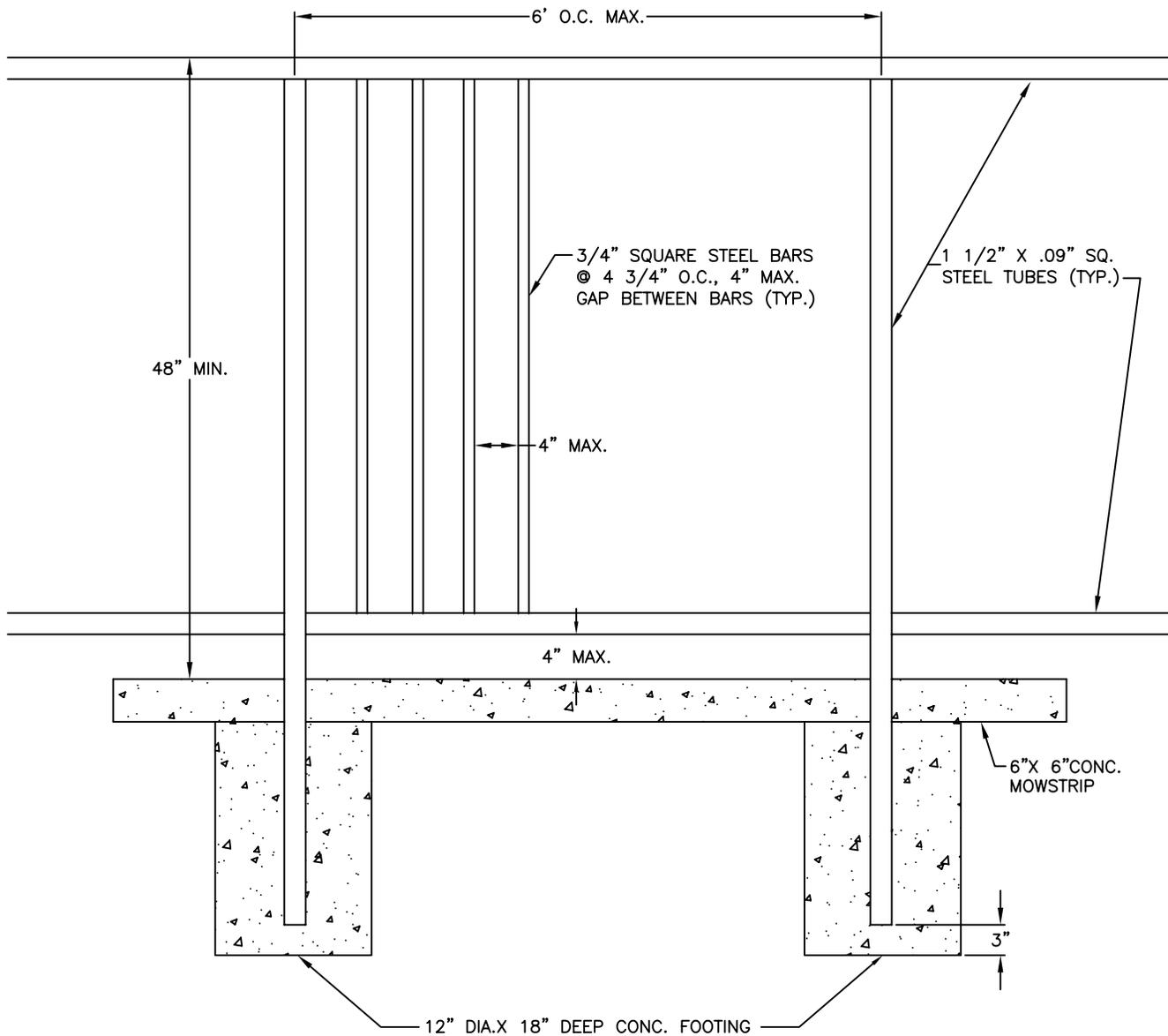
1. BUS SHELTERS SHALL BE PLACED IN CITY OF FRESNO RIGHT OF WAY. CONTACT CITY OF FRESNO TRAFFIC ENGINEERING FOR EASEMENT REQUIREMENTS IF ADA CLEARANCE IS NOT MET.
2. A 6" CONCRETE PAD SHALL BE PLACED UNDER SHELTER. LIMITS OF PAD SHALL ALLOW FOR FUTURE ADDITION TO SHELTER. CONTACT TRAFFIC ENGINEERING FOR REQUIREMENTS.
3. BUS SHELTER LIGHT(S) SHALL BE NUMBERED. NUMERICAL SEQUENCE SHALL BE OBTAINED FROM P.G.&E. NUMBERS TO BE 2 1/2" HIGH AND INSTALLED AS SHOWN ON THIS STANDARD DRAWING.



DETAIL

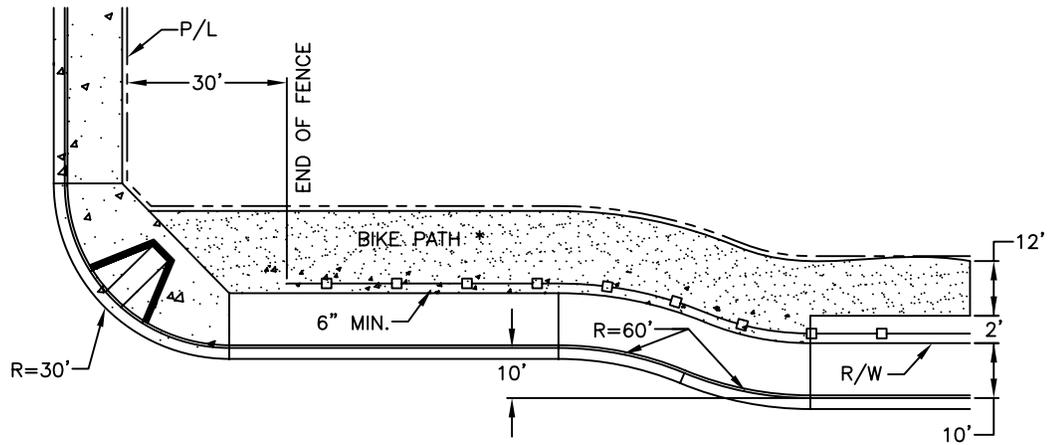
NOTES:

1. 5' MIN. TRANSITION TO STD. CURB & GUTTER.
2. 20" LAP REQ'D ON ALL BAR SPLICES.
3. WHERE PARKING LANE DOES NOT EXIST, 8' BUS BAY WILL BE REQUIRED.
4. USE 6 SACK CONCRETE MIX.
5. ON COLLECTOR STREETS IN NEW GROWTH AREA, USE P-69 CITY STD.
6. IF 8' BUS BAY, USE 114.50' RADIUS AND 60' TRANSITION.



NOTES:

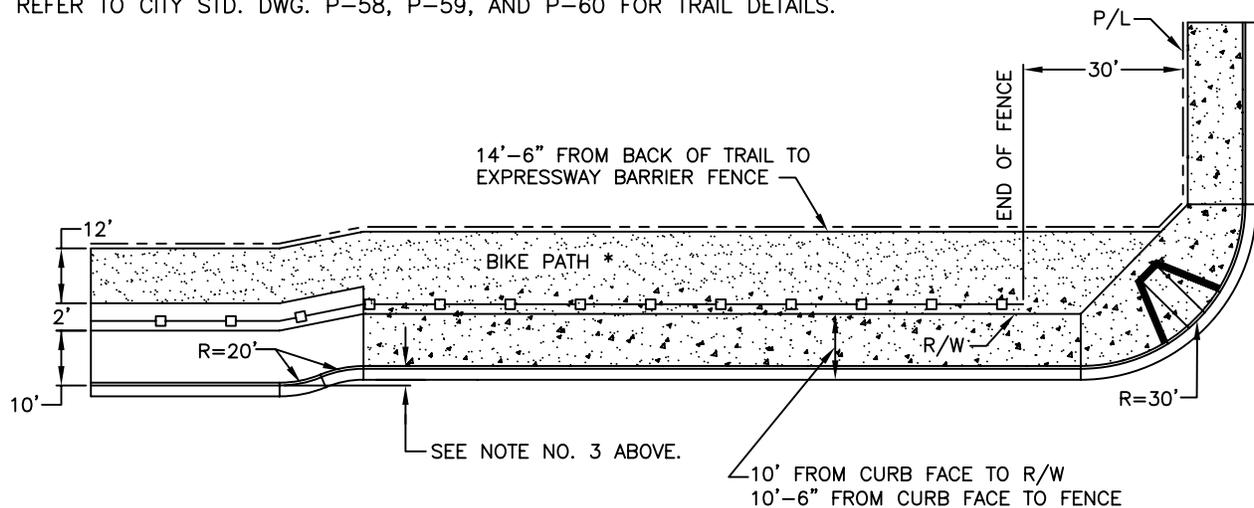
1. FENCE SHALL BE LOCATED 6" OUTSIDE OF STREET RIGHT-OF-WAY.
2. FENCE SHALL HAVE A BLACK POWDER COATING.
3. SEE PUBLIC WORKS STANDARD P-75 FOR REQUIRED LOCATION OF BARRIER FENCING.
4. ALTERNATE DESIGNS MAY BE APPROVED BY THE CITY ENGINEER, PROVIDED THE 4' MINIMUM HEIGHT IS PROVIDED.
5. ALL CONCRETE WORK SHALL BE 5-SACK MIX.



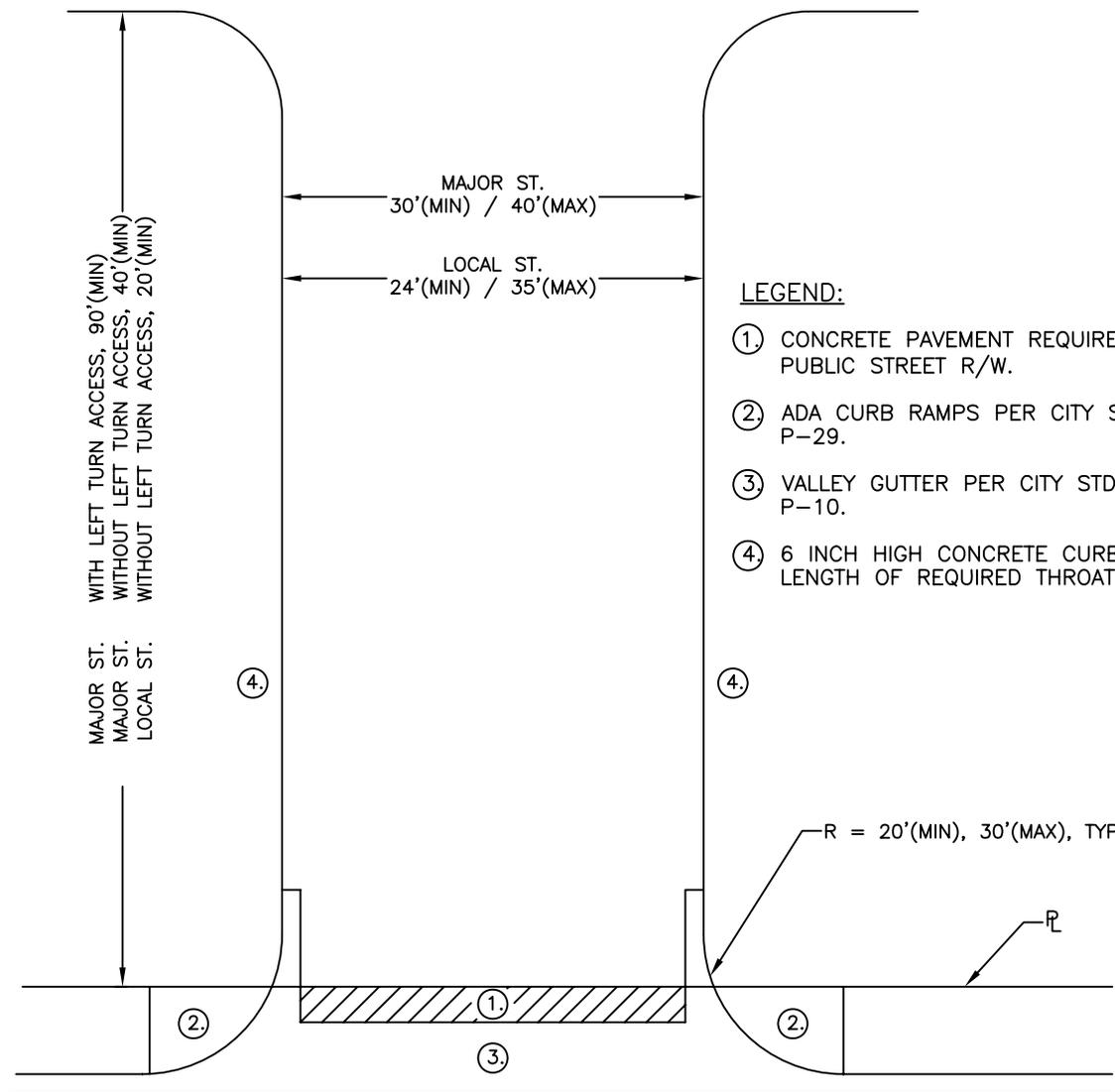
RIGHT TURN LANE LOCATION
 *IF BIKE PATH CONSTRUCTION IS REQUIRED.

NOTES:

1. FENCE SHALL BE LOCATED 6" (MINIMUM) OUTSIDE OF STREET RIGHT-OF-WAY.
2. BIKE PATH MAY MEANDER OUTSIDE OF RIGHT TURN AND BUS BAY AREA.
3. REFER TO CITY STD. DWG. P-58, P-59, AND P-60 FOR TRAIL DETAILS.



BUS BAY LOCATION



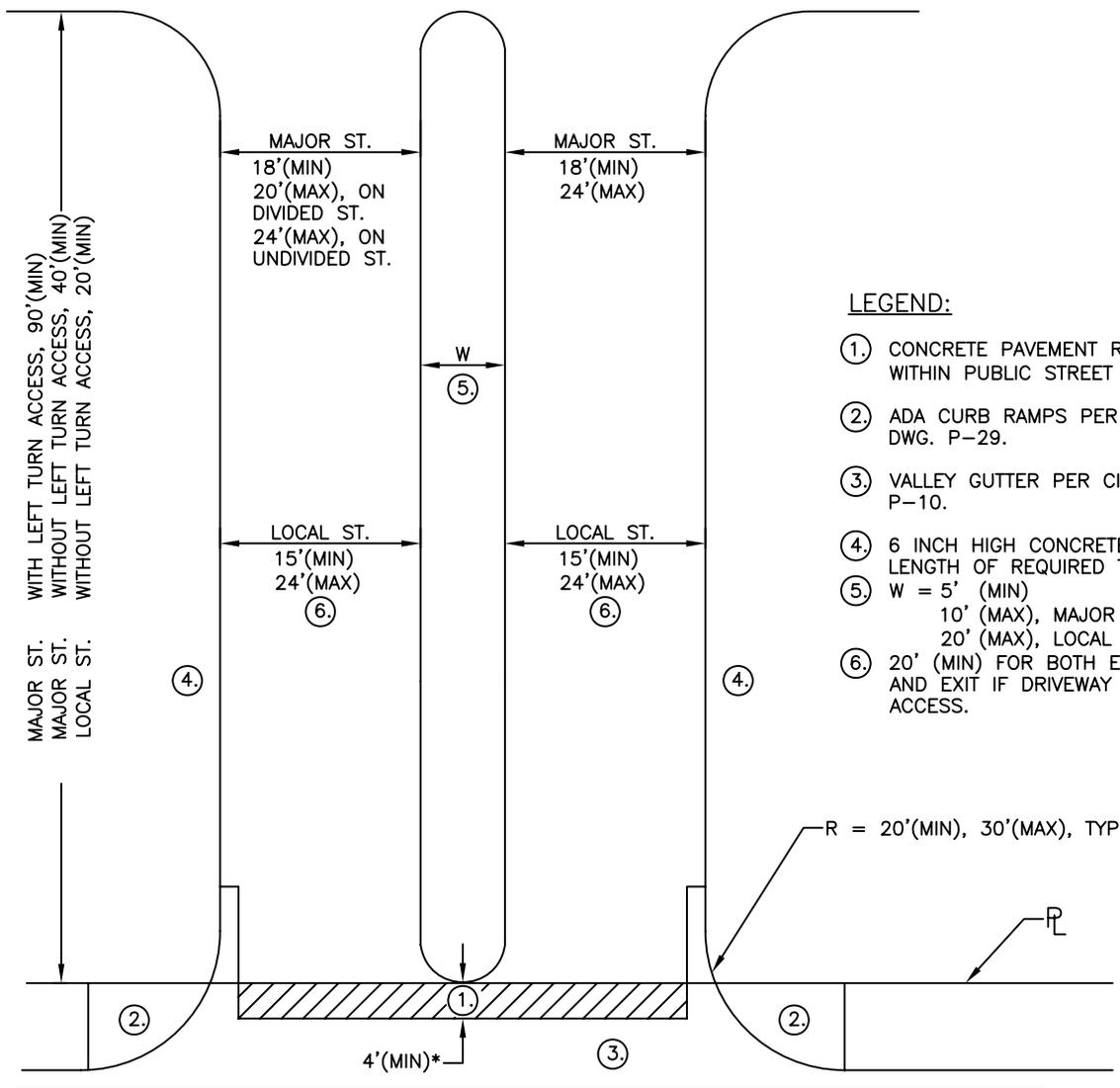
LEGEND:

- ① CONCRETE PAVEMENT REQUIRED WITHIN PUBLIC STREET R/W.
- ② ADA CURB RAMPS PER CITY STD. DWG. P-29.
- ③ VALLEY GUTTER PER CITY STD. DWG. P-10.
- ④ 6 INCH HIGH CONCRETE CURB FOR LENGTH OF REQUIRED THROAT.

MAJOR ST./LOCAL ST.

NOTES:

ON DIVIDED MAJOR STREET, DESIGN ONE-WAY LEFT TURN POCKET PER CITY STD. DWG. P-63, WHERE APPROVED BY CITY TRAFFIC ENGINEER.

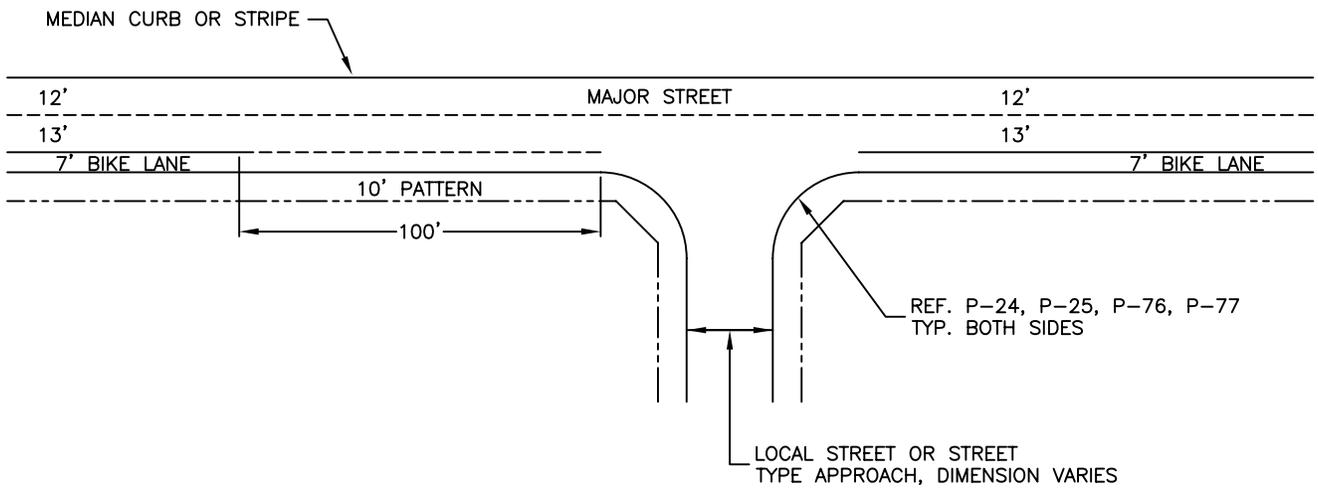


MAJOR ST./LOCAL ST.

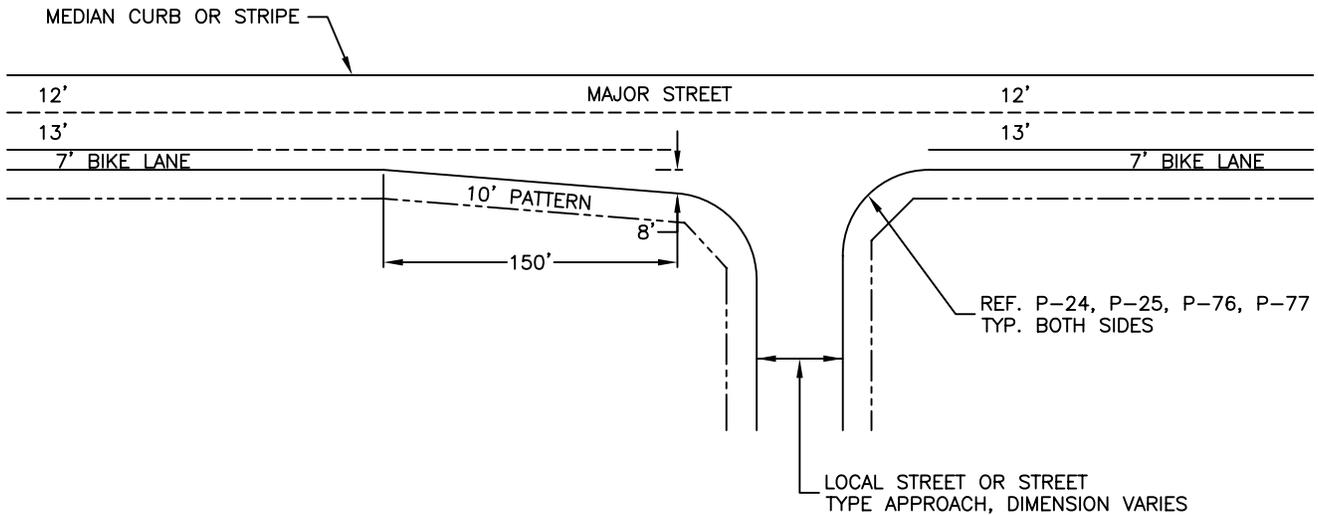
NOTES:

ON DIVIDED MAJOR STREET, DESIGN ONE-WAY LEFT TURN POCKET PER CITY STD. DWG. P-63, WHERE APPROVED BY CITY TRAFFIC ENGINEER.

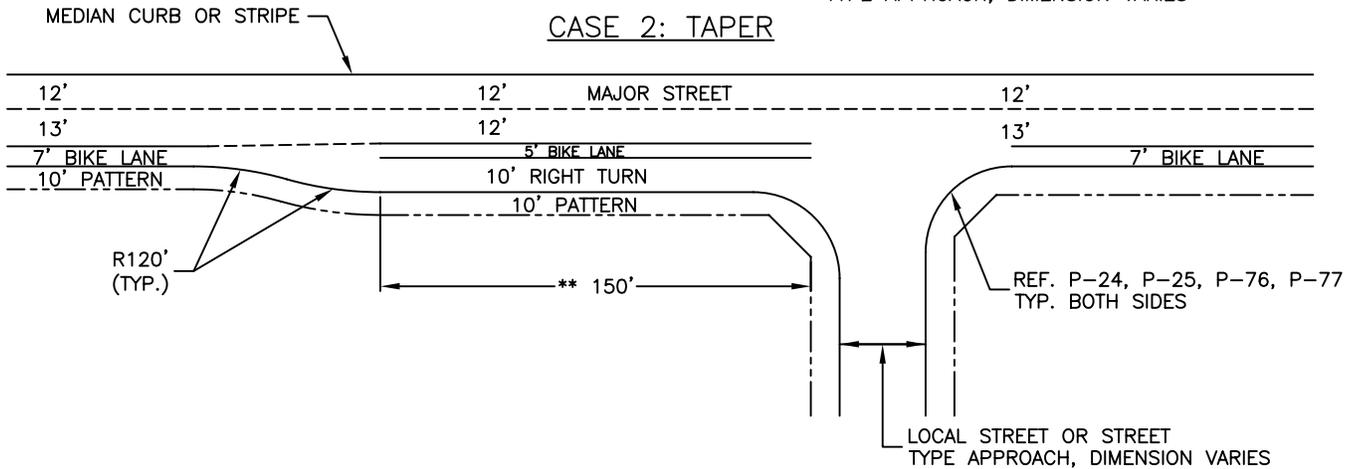
*FOR ADA ACCESSIBILITY ACROSS DRIVEWAY



CASE 1: SHARED LANE



CASE 2: TAPER



CASE 3: RIGHT TURN POCKET

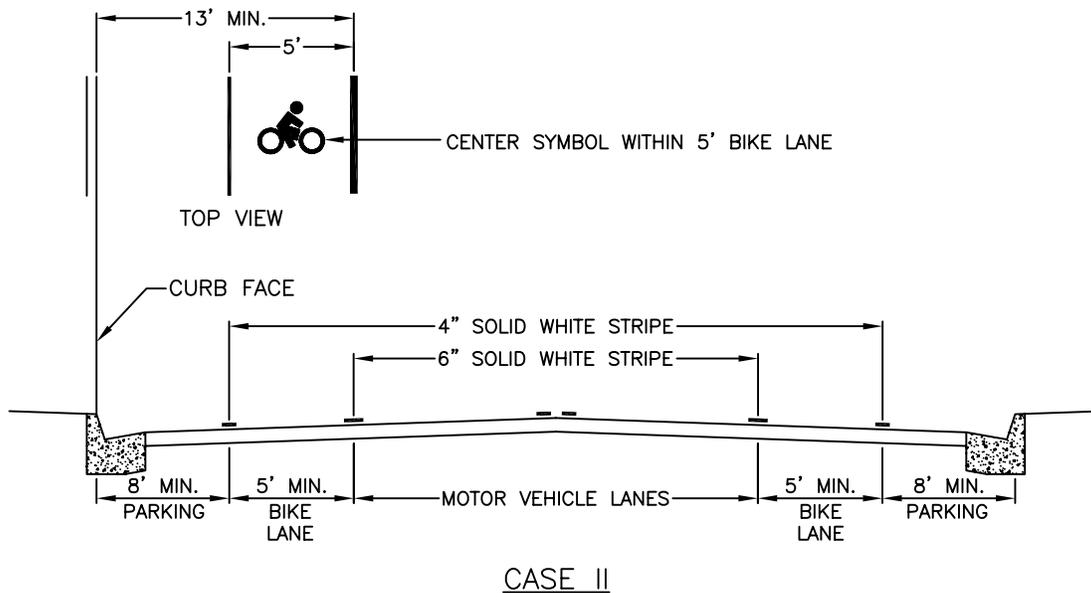
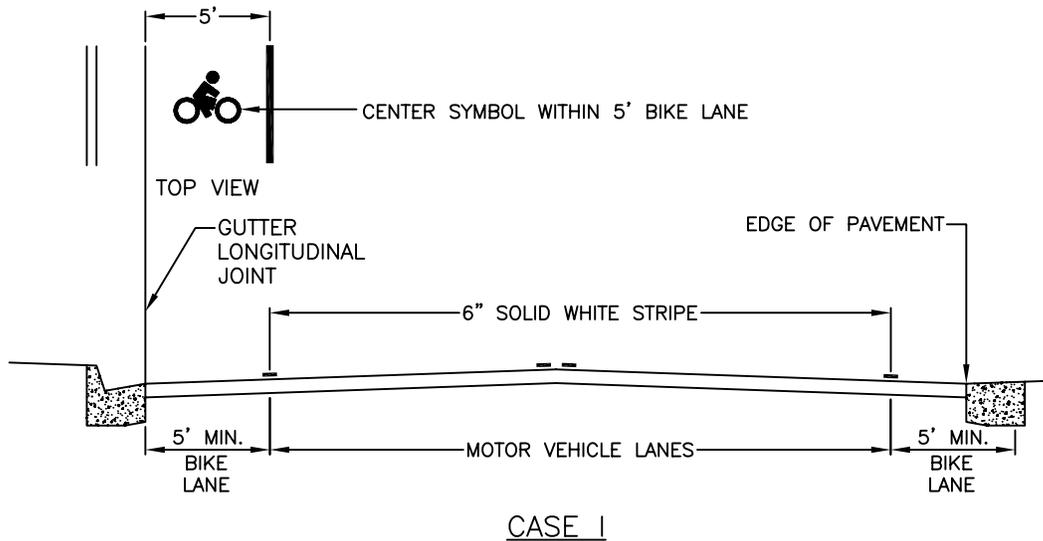
MAJOR STREET: # PEAK HOUR RIGHT TURN VEHICLES

	CASE 1	CASE 2	CASE 3
SPEED (MPH)			
35	< 50	≥ 50 - <100	≥ 100
40	< 40	≥ 40 - <90	≥ 90
45	< 30	≥ 30 - <80	≥ 80
> 50	< 20	≥ 20 - <75	≥ 75

NOTES:

CASE 2: NOT ALLOWED WHEN AT A SIGNALIZED INTERSECTION

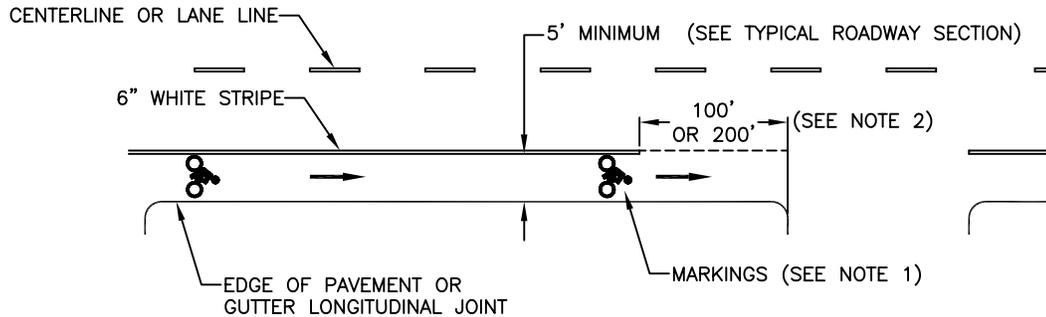
CASE 3: ** EXCEPTIONS NEED TO BE APPROVED BY THE CITY TRAFFIC ENGINEER



NOTES:

TO THE GREATEST EXTENT POSSIBLE, CASE I BIKE LANES WILL BE INSTALLED. CONSIDERATION WILL BE GIVEN TO 5-FOOT BIKE LANES (MEASURED FROM FACE OF CURB), REDUCED LANE WIDTH, AND/OR ELIMINATION OF TRAFFIC LANES. A TRAFFIC STUDY TO INVESTIGATE, BUT NOT LIMITED TO, TRAFFIC SPEED, SPEED LIMITS, TYPE OF CORRIDOR, AND VOLUMES FOR CARS AND TRUCKS, MAY BE DEVELOPED BEFORE TRAVEL LANES ARE ELIMINATED AND/OR REDUCED IN WIDTH.

"NO STOPPING AT ANY TIME" SIGNS WILL BE INSTALLED AT 200 FOOT INTERVALS. (OR AT INTERVALS DETERMINED BY EXISTING STREETLIGHT POLES) WHEN STRIPING A CASE I BIKE LANE.



NOTES:

1. THE BICYCLE SYMBOL PAVEMENT MARKINGS SHALL BE PLACED ON THE FAR SIDE OF EACH INTERSECTION, 25' FROM THE RETURN. 800' MAXIMUM SPACING. THEY MAY BE PLACED AT OTHER LOCATIONS AS DESIRED.
2. WHERE MOTORIST RIGHT TURNS ARE PERMITTED, THE SOLID BIKE LANE LINE SHALL BE DASHED UP TO THE INTERSECTION, AS SHOWN, BEGINNING AT A POINT 100' IN ADVANCE OF THE INTERSECTION. A DISTANCE OF 200' SHALL BE USED ON ARTERIALS AND SUPER ARTERIALS WITH A POSTED SPEED LIMIT OF 45 MPH OR GREATER. WHEN RIGHT TURNS ARE PROHIBITED, THE BIKE LANE LINE SHALL BE SOLID TO THE INTERSECTION.
3. THE "BIKE LANE" SIGN (18" X 24") SHALL BE PLACED AT THE BEGINNING OF ALL BIKE LANES, ON THE FAR SIDE OF EVERY MAJOR STREET INTERSECTION, AT ALL MAJOR CHANGES IN DIRECTION, AND AT MAXIMUM 1/2 MI. (0.8 km) INTERVALS.
4. THE ACTUAL LOCATION OF ALL SIGNS WILL BE DETERMINED BY THE CITY TRAFFIC ENGINEER.

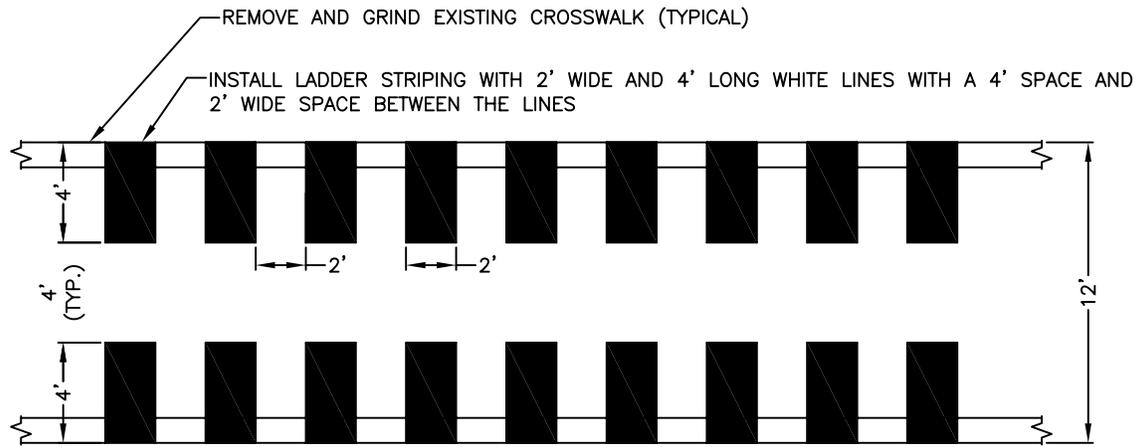
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NO LONGER USED

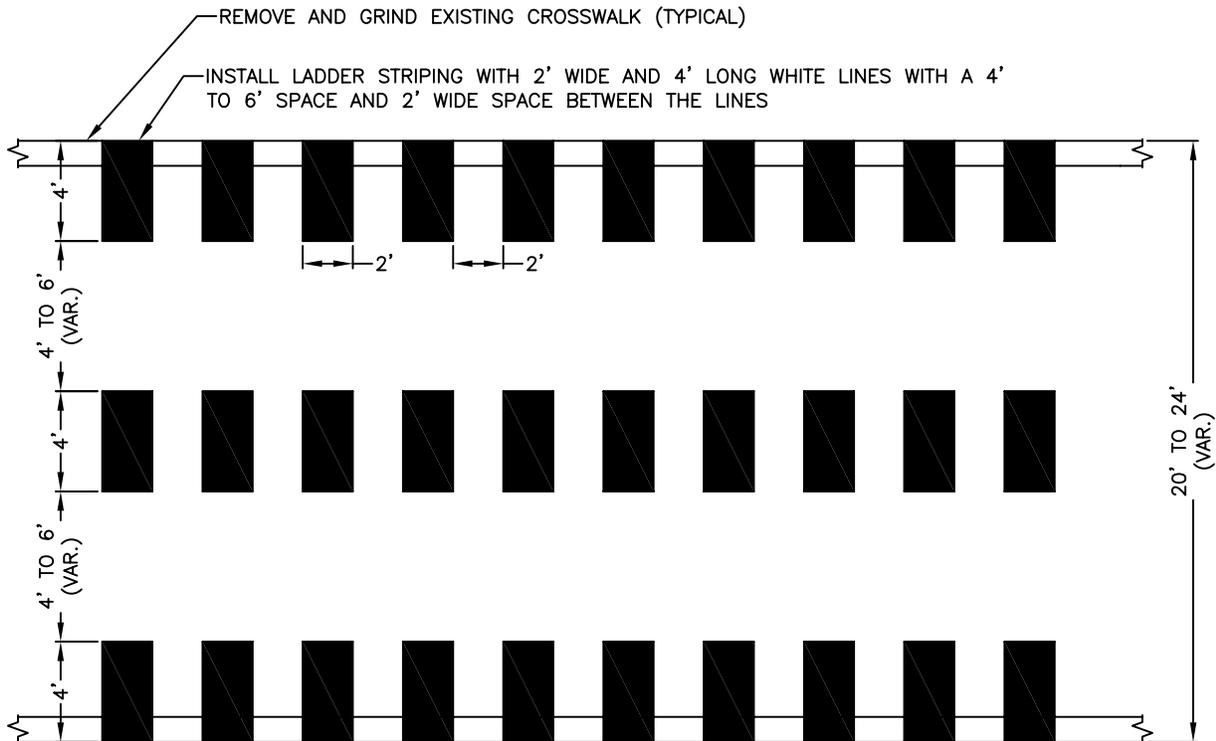
REF. & REV.
AUG., 2010

CITY OF FRESNO

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HIGH VISIBILITY CROSSWALK (TYPICAL 12' LAYOUT)



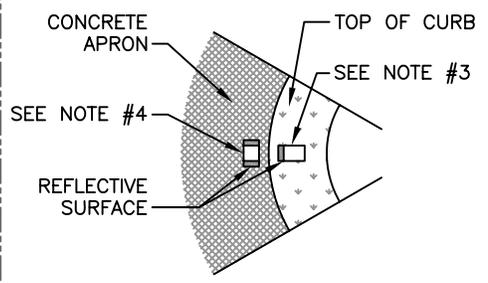
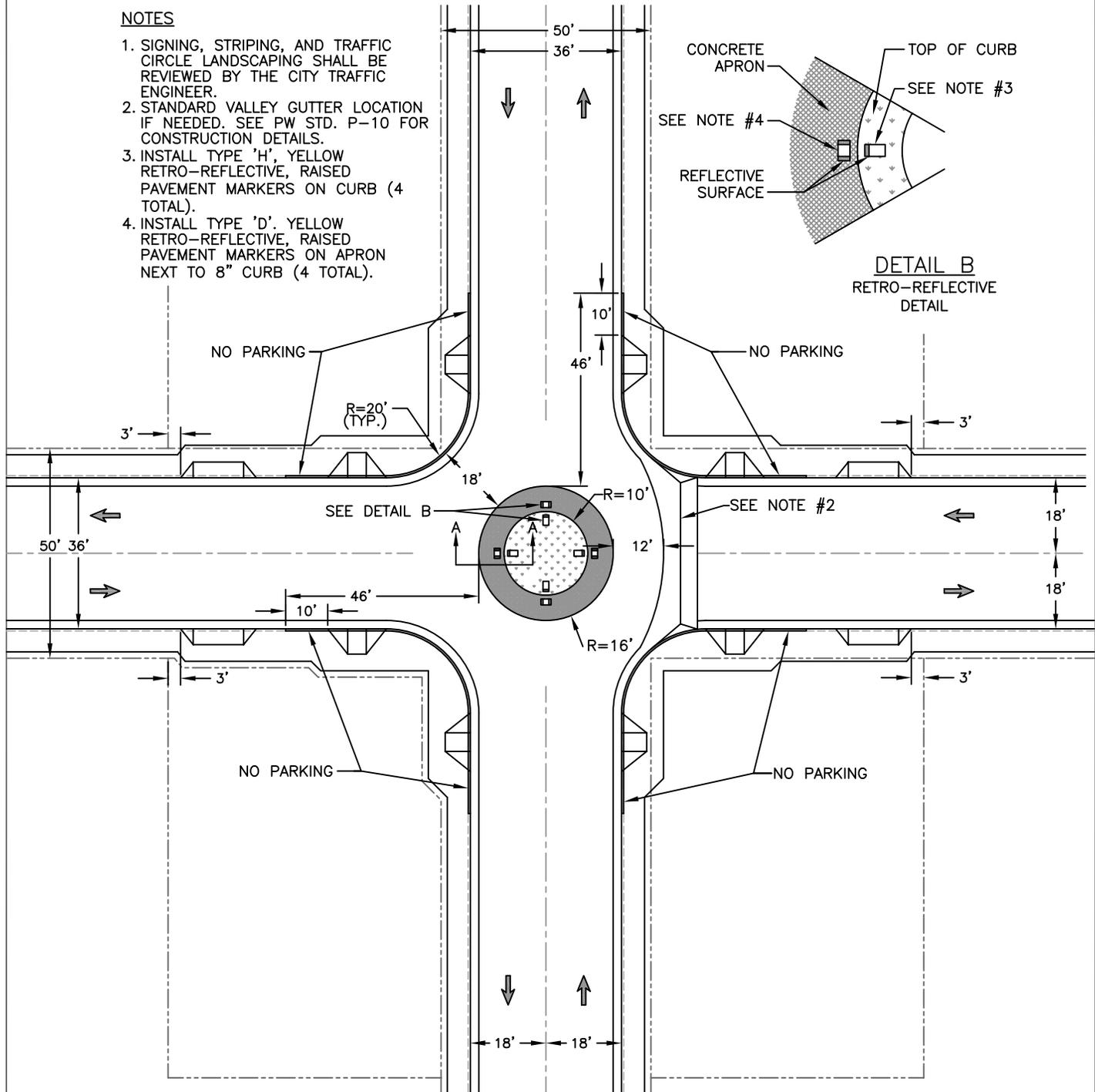
HIGH VISIBILITY CROSSWALK (ENLARGED LAYOUT)

NOTES:

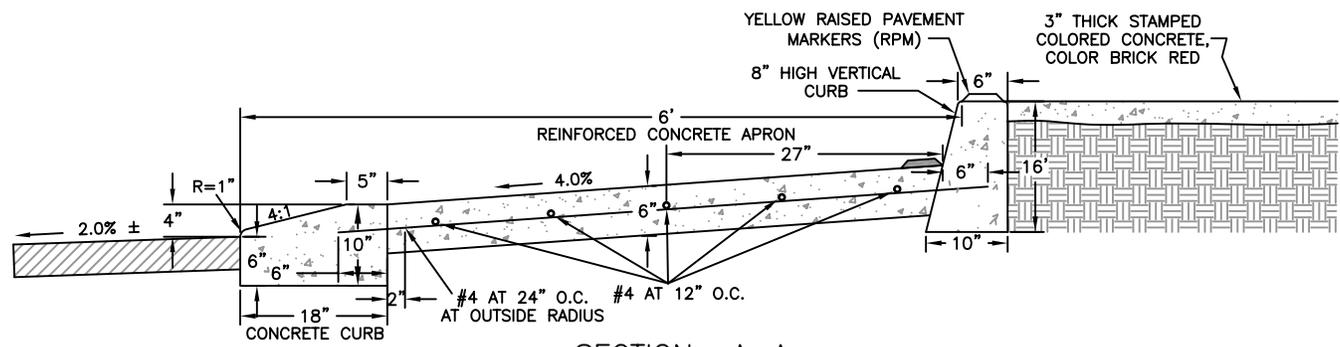
1. INSTALL THREE ROWS OF 2' x 4' LADDER STRIPING WITH VARIABLE SPACING FROM 4' TO 6" ON ENLARGED CROSSWALKS 2.
2. THE VARIABLE SPACING IS TO BE SYMMETRICAL

NOTES

1. SIGNING, STRIPING, AND TRAFFIC CIRCLE LANDSCAPING SHALL BE REVIEWED BY THE CITY TRAFFIC ENGINEER.
2. STANDARD VALLEY GUTTER LOCATION IF NEEDED. SEE PW STD. P-10 FOR CONSTRUCTION DETAILS.
3. INSTALL TYPE 'H', YELLOW RETRO-REFLECTIVE, RAISED PAVEMENT MARKERS ON CURB (4 TOTAL).
4. INSTALL TYPE 'D', YELLOW RETRO-REFLECTIVE, RAISED PAVEMENT MARKERS ON APRON NEXT TO 8" CURB (4 TOTAL).



DETAIL B
RETRO-REFLECTIVE
DETAIL



SECTION A-A
CIRCLE CURB DETAIL

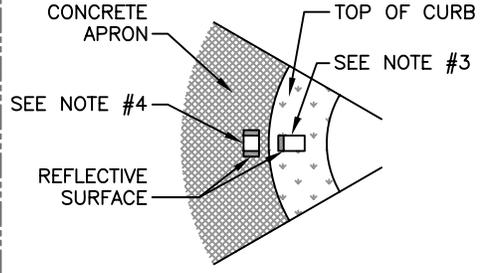
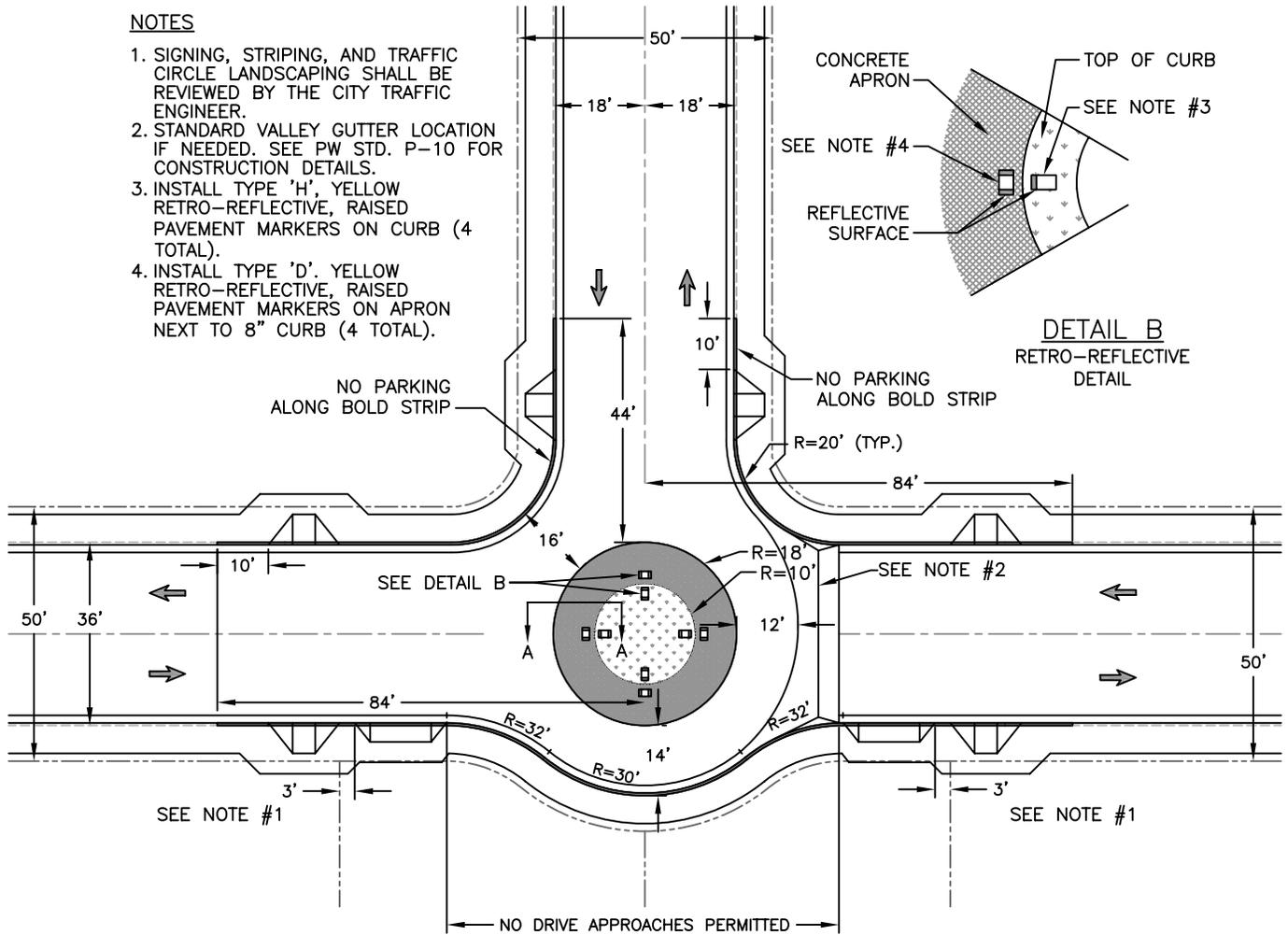
**RESIDENTIAL TRAFFIC CIRCLE
FOR FOUR-WAY INTERSECTION**

REF. & REV.
AUG., 2010

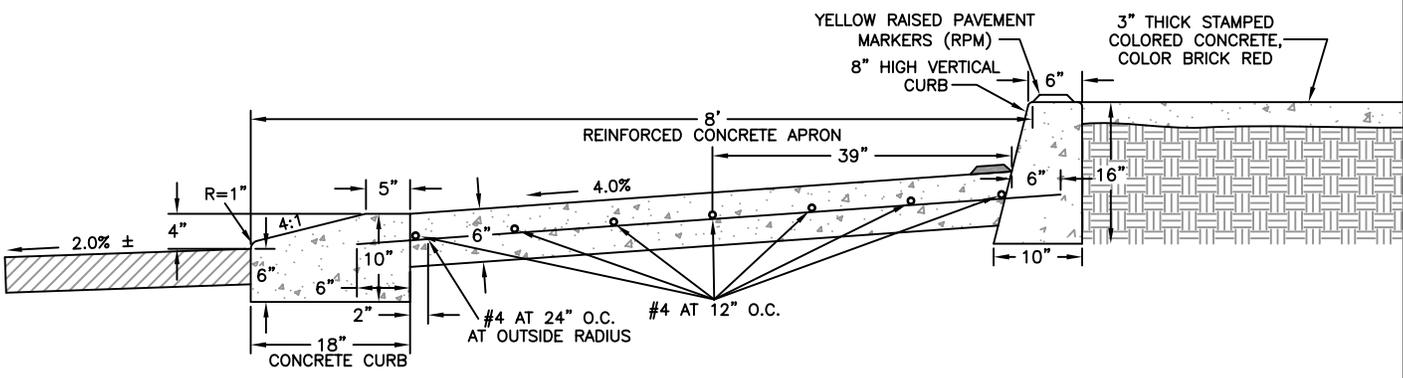
CITY OF FRESNO
P-83

NOTES

1. SIGNING, STRIPING, AND TRAFFIC CIRCLE LANDSCAPING SHALL BE REVIEWED BY THE CITY TRAFFIC ENGINEER.
2. STANDARD VALLEY GUTTER LOCATION IF NEEDED. SEE PW STD. P-10 FOR CONSTRUCTION DETAILS.
3. INSTALL TYPE 'H', YELLOW RETRO-REFLECTIVE, RAISED PAVEMENT MARKERS ON CURB (4 TOTAL).
4. INSTALL TYPE 'D', YELLOW RETRO-REFLECTIVE, RAISED PAVEMENT MARKERS ON APRON NEXT TO 8" CURB (4 TOTAL).



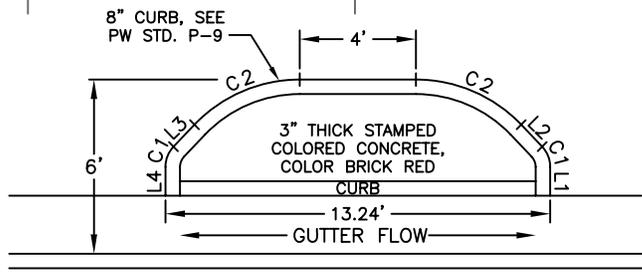
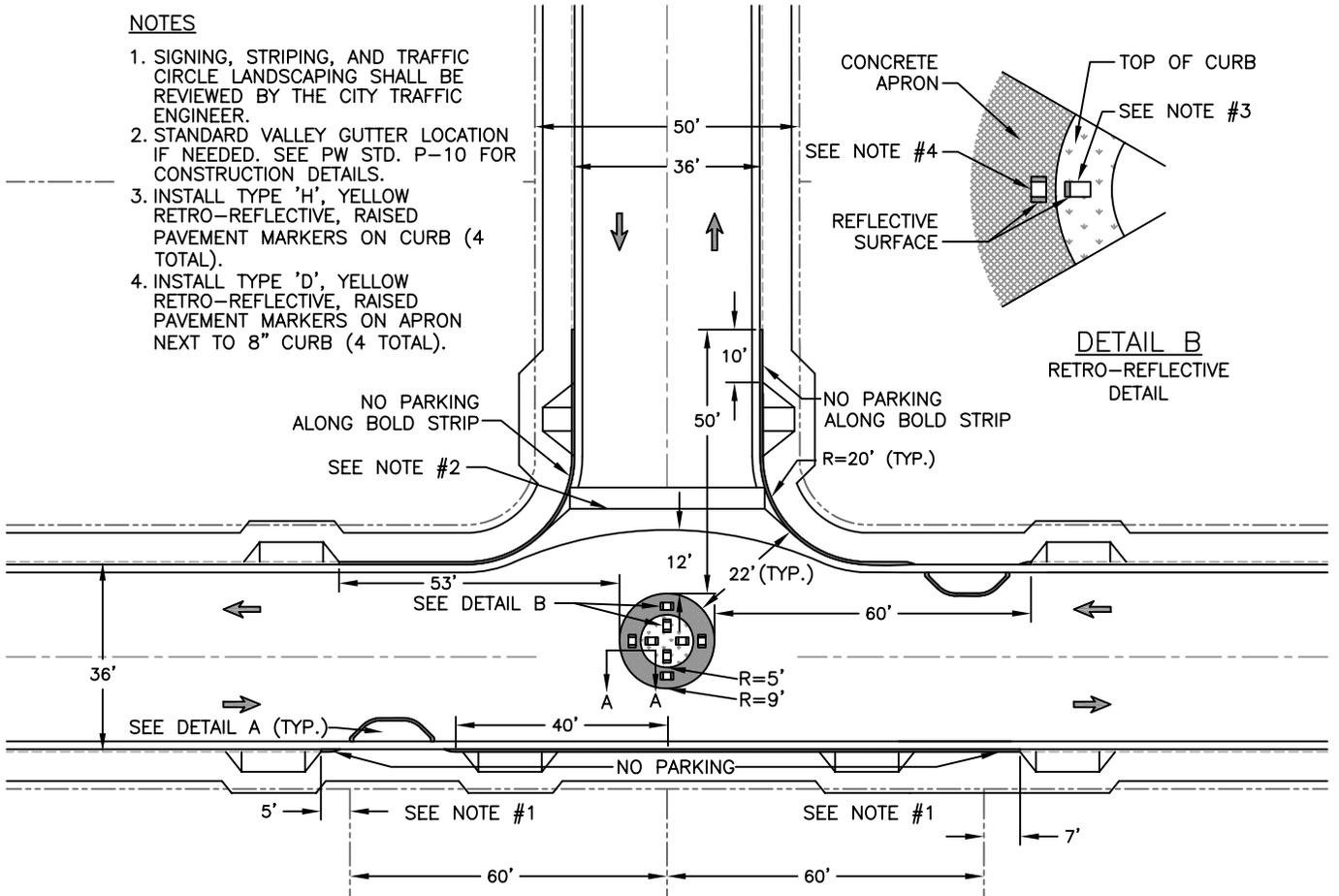
DETAIL B
RETRO-REFLECTIVE
DETAIL



SECTION A-A
CIRCLE CURB DETAIL

NOTES

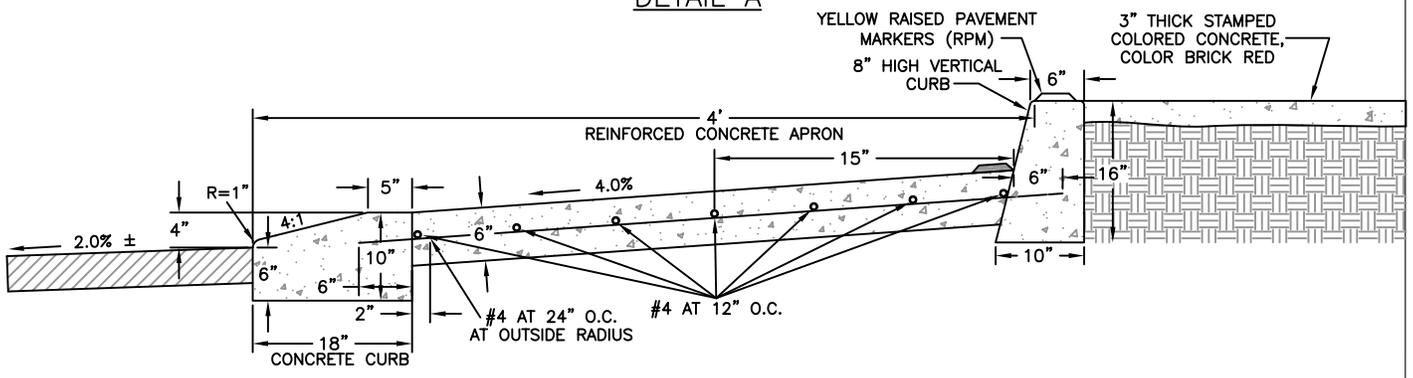
1. SIGNING, STRIPING, AND TRAFFIC CIRCLE LANDSCAPING SHALL BE REVIEWED BY THE CITY TRAFFIC ENGINEER.
2. STANDARD VALLEY GUTTER LOCATION IF NEEDED. SEE PW STD. P-10 FOR CONSTRUCTION DETAILS.
3. INSTALL TYPE 'H', YELLOW RETRO-REFLECTIVE, RAISED PAVEMENT MARKERS ON CURB (4 TOTAL).
4. INSTALL TYPE 'D', YELLOW RETRO-REFLECTIVE, RAISED PAVEMENT MARKERS ON APRON NEXT TO 8" CURB (4 TOTAL).



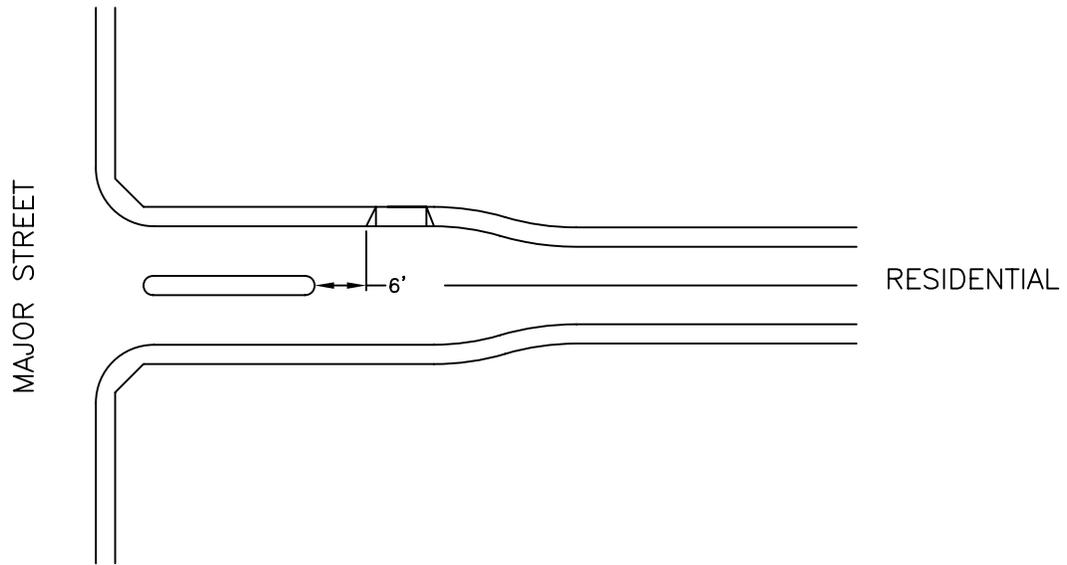
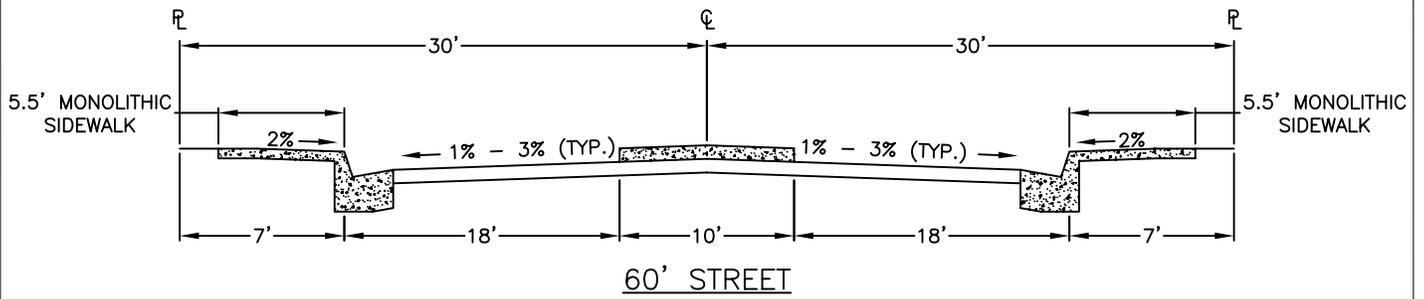
A		LENGTH	RADIUS
C1	43°36'10"	0.76'	1.0'
C2	46°23'50"	4.05'	5.0'

BEARING		LENGTH
L1	N00°00'00"W	1.00'
L2	N43°36'10"W	1.05'
L3	S43°36'10"W	1.05'
L4	S00°00'00"E	1.00'

DETAIL A



SECTION A-A
CIRCLE CURB DETAIL



NOTES:

1. GREATER RIGHT-OF-WAY MAY BE APPROVED. IN SUCH CASES, 5' SIDEWALK SHALL BE INSTALLED 6 INCHES FROM PROPERTY LINE (EXCEPTION MAY BE APPROVED FOR A MEANDERING SIDEWALK).
2. USE ALL CONTACT POINTS WITH MAJOR STREETS, EXCEPT WHERE STANDARD CUL-DE-SACS CONTACT MAJOR STREETS, A 50' RIGHT-OF-WAY STANDARD IS ACCEPTABLE. THE MEDIAN ISLAND SHALL EXTEND FROM THE MAJOR STREET UNTILL THE CLOSEST SIDE OF THE OF THE FIRST DRIVEWAY. MAY BE MINIMUM STANDARD WHEN NEEDED FOR TRAFFIC SAFETY. GENERALLY REQUIRED FOR MULTIPLE-FAMILY DEVELOPMENT.
3. A 20' MINIMUM SETBACK FROM BACK OF SIDEWALK TO GARAGE WHEN THE GARAGE DOOR FRONTS ON THE STREET SHALL BE REQUIRED. THE ACTUAL SETBACK WILL DEPEND ON THE DRIVEWAY APPROACH REQUIRED BY P-1. THE SETBACK SHALL NOT BE LESS THAN REQUIRED BY THE ZONING ORDINANCE.
4. ON CORNER LOTS, THE PLANTING AND PUBLIC UTILITY EASEMENT ALONG THE SIDE YARD MAY BE REDUCED TO 8'.

<p>RESIDENTIAL ENTRY TREATMENT</p>	<p>REF. & REV. AUG., 2010</p>	<p>CITY OF FRESNO P-86</p>
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NOT USED

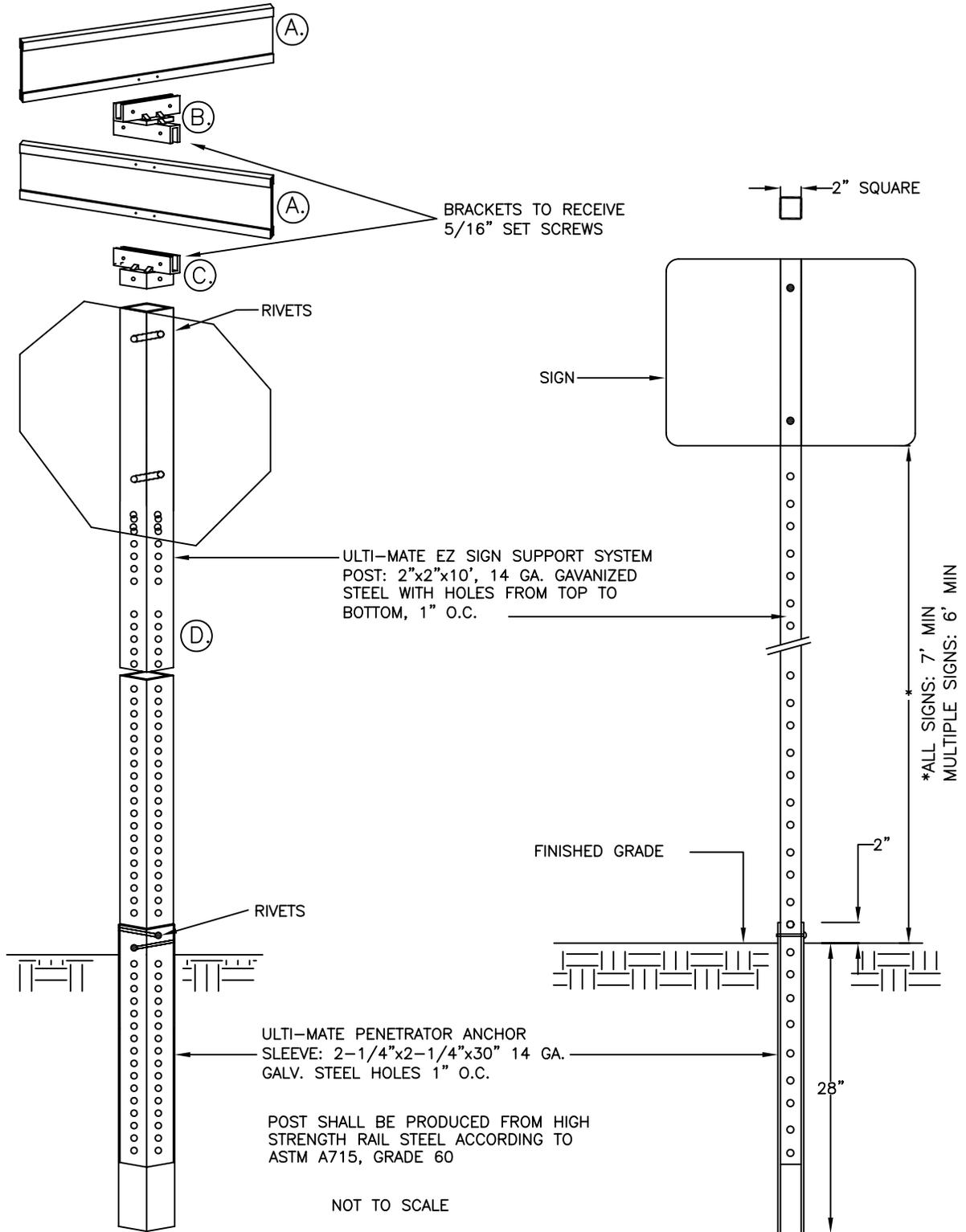
NO LONGER USED

REF. & REV.
AUG., 2010

CITY OF FRESNO

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- (A) 9"x 30" OR 9"x 36" x 0.100 GAUGE FLAT NON-EXTRUDED SIGN BLADE MADE OF ALUMINUM ALLOY. THEY ARE TO BE SINGLE BLADE DOUBLE FACED FINISH WITH WHITE LETTERS AND BORDER ON A GREEN BACKGROUND USING AVERY DENNISON T6500 HIGH INTENSITY GRADE REFLECTIVE SHEETING. SIGNS TO BE COVERED WITH AVERY DENNISON OL 1000 PREMIUM ANTI-GRAFFITI FILM.
- (B) SIGN-TO-SIGN BRACKET, 850F-90 CROSS PIECE THAT WILL ACCOMODATE THE 0.100 GAUGE SIGN BLADE. BRACKETS TO RECEIVE 5/16" SET SCREWS.
- (C) POST-TO-SIGN BRACKET, 850F- 2"x 2" SQUARE SIGN CAP SLOT TO BE 3-3/4" LONG TO ACCOMODATE THE 0.100 GAUGE SIGN BLADE. BRACKETS TO RECEIVE 5/16" SET SCREWS.
- (D) SIGN POST SYSTEM TO BE THE ULTI-MATE EZ INSTALLATION SIGN POST SYSTEM. USING THE ULTI-MATE 2"x 2" 10' 14 GA. GALVANIZED STEEL POSTS WITH HOLES DRILLED FROM TOP TO BOTTOM, 1" ON CENTER. ANCHOR THE POLE TO THE GROUND USING A 2-1/4"x 2-1/4"x 24" GALVANIZED STEEL ULTI-MATE PENETRATOR ANCHOR. 5/16" DRIVE RIVETS ARE TO BE USED TO ATTACH THE SIGN POST TO THE ANCHOR.

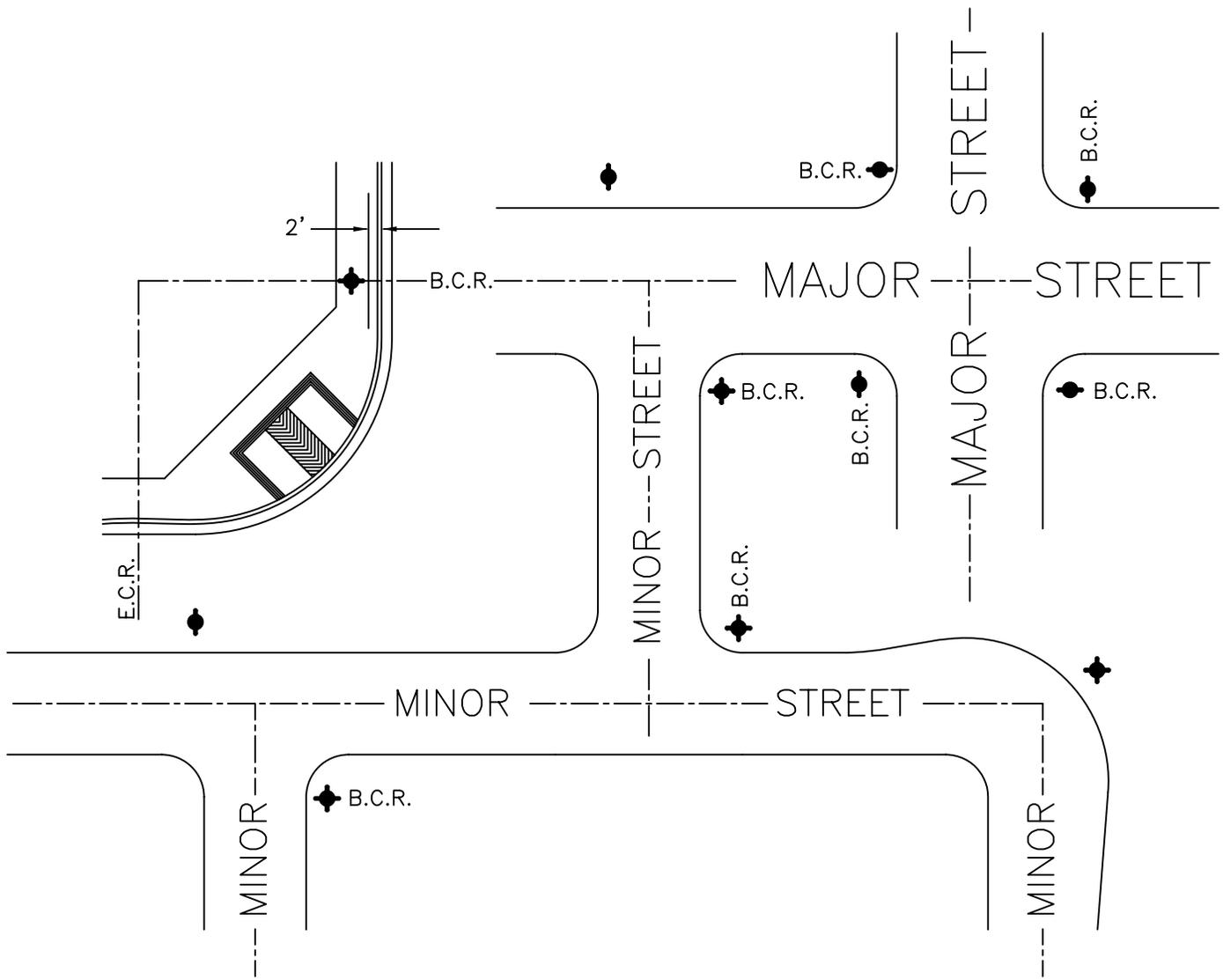


SIGN POST DETAIL

REF. & REV.
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"T" INTERSECTION

"+" INTERSECTION

"L" INTERSECTION

LEGEND:

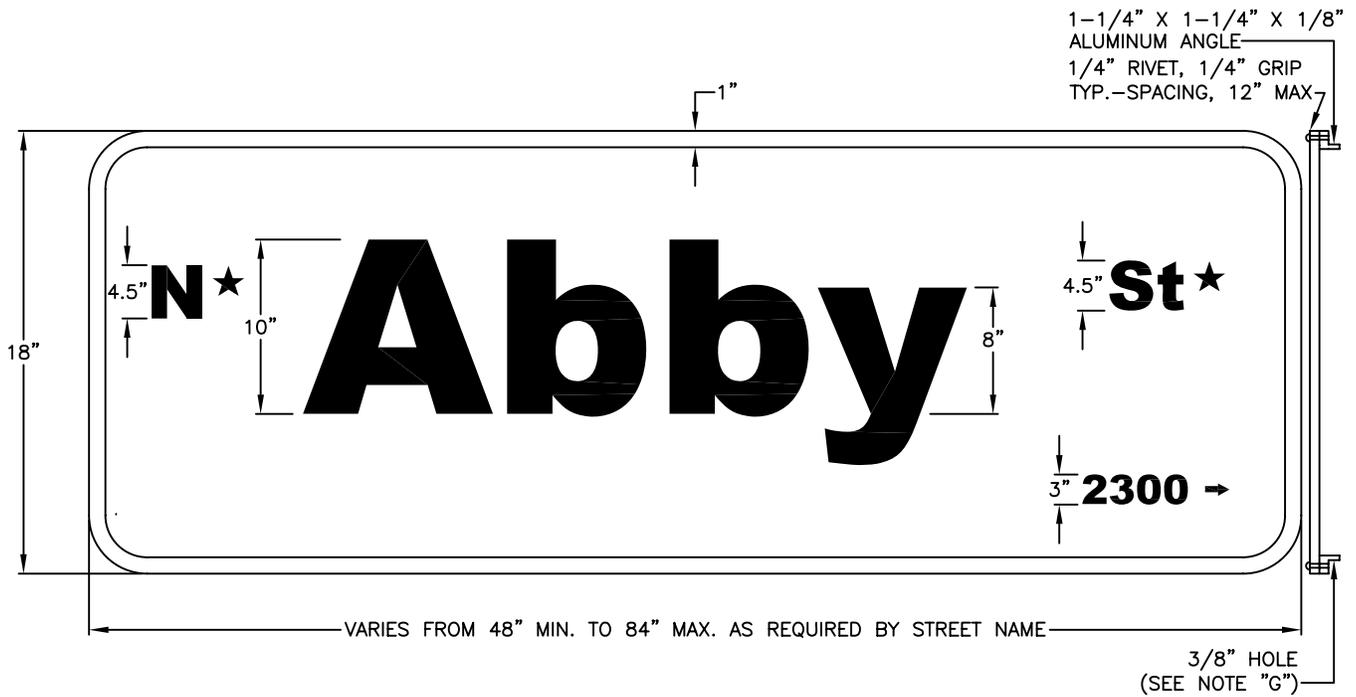
- ◆ DOUBLE SIGNS WITH OR WITHOUT R-1
- SINGLE SIGN WITH OR WITHOUT R-1

NOTES:

LOCATION OF STREET NAME SIGNS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS. ALTERNATE LOCATIONS TO BE APPROVED BY THE ENGINEER. TYPICAL LOCATIONS: ON B.C.R OF N.E. & S.W. CORNER OF INTERSECTIONS. FOR UNNAMED PRIVATE STREETS, THE WORDS "PRIVATE STREET" SHALL BE 4 1/2" HIGH AND CENTERED WITHIN THE SIGN.

MAJOR STREET = ARTERIALS & COLLECTORS

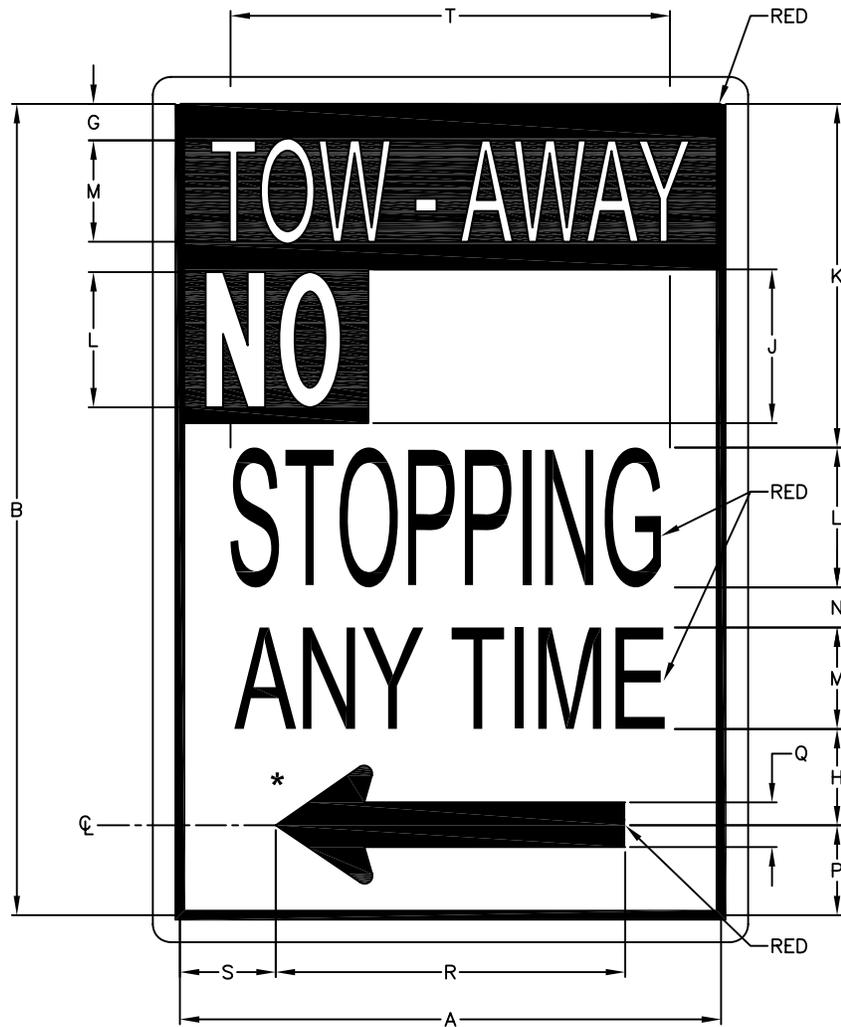
MINOR STREET = LOCALS



NOTES:

1. 0.080 ALUMINUM PLATE
2. 1" WHITE BORDER
3. 10" SERIES 'E' MODIFIED UPPER CASE LETTER - 2" STROKE MINIMUM. ON LONGER STREET NAME SIGNS A NARROWER SERIES IS PERMITTED.
4. 8" SERIES 'E' MODIFIED LOWER CASE LETTERS, - 2" STROKE MINIMUM. ON LONGER STREET NAME SIGNS, A NARROWER SERIES IS PERMITTED.
4. ALL LETTERS, NUMBERS, BORDERS AND SHEETING SHALL BE MADE OF 3M-3930HIP TYPE III & IV SERIES REFLECTIVE SHEETING AND BE COVERED WITH 1160A PREMIUM OVERLAY ANTI-GRAFFITI FILM OR AVERY DENNISON T6500 SERIES REFLECTIVE SHEETING AND SHALL BE COVERED WITH AVERY DENNISON OL1000 ANTI-GRAFFITI OVERLAY FILM.
5. ENTIRE SIGN SHALL BE SILK SCREENED - DIE CUT LETTERS AND NUMBERS WILL NOT BE ALLOWED.
6. DRILL TWO 3/8" HOLES @ 4-7/8" O.C., IN THE CENTER OF THE ANGLES STIFFENERS RIVETED TO THE BACK OF THE SIGN, FOR ZUMAR BRACKET.

★ EXACT DESIGNATION SUCH AS STREET, AVENUE, BOULEVARD, LANE, CIRCLE, COURT, DRIVE, PARKWAY, PLACE, ROAD, TERRACE, TRAIL, NORTH, SOUTH, EAST, WEST ETC. WILL BE NOTED ON THE STREET NAME LIST WITH EACH OTHER.

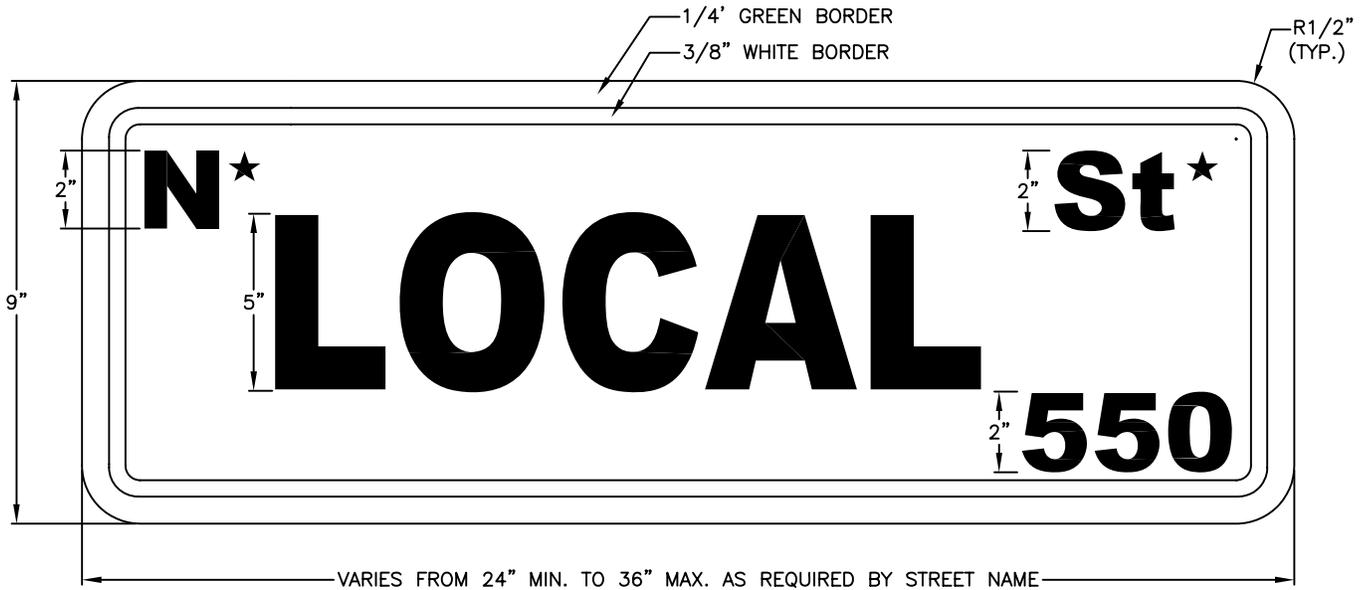


DIMENSIONS (INCHES)																		
SIGN	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
MINIMUM	12	18	1/4	1/4	7/8	3 1/2	4/5	2 5/8	2 1/4	7 5/8	3	2 1/4	2	2	3/4	7 3/4	2 1/8	9 1/2

NOTE:

ALL LETTERS, NUMBERS, BORDERS AND SHEETING SHALL BE MADE OF 3M-3930HIP TYPE III & IV SERIES REFLECTIVE SHEETING AND BE COVERED WITH 1160A PREMIUM OVERLAY ANTI-GRAFFITI FILM OR AVERY DENNISON T6500 SERIES REFLECTIVE SHEETING AND SHALL BE COVERED WITH AVERY DENNISON OL1000 ANTI-GRAFFITI OVERLAY FILM.

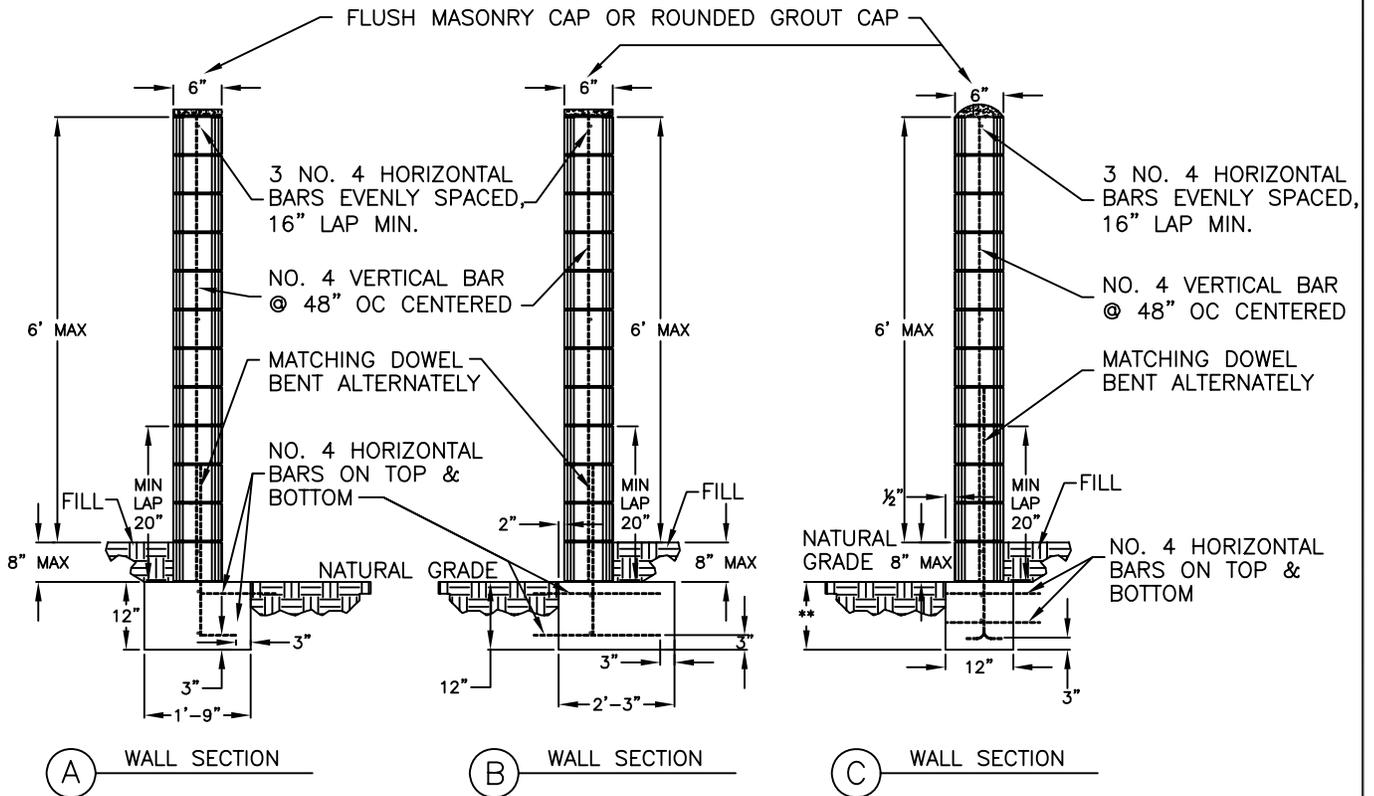
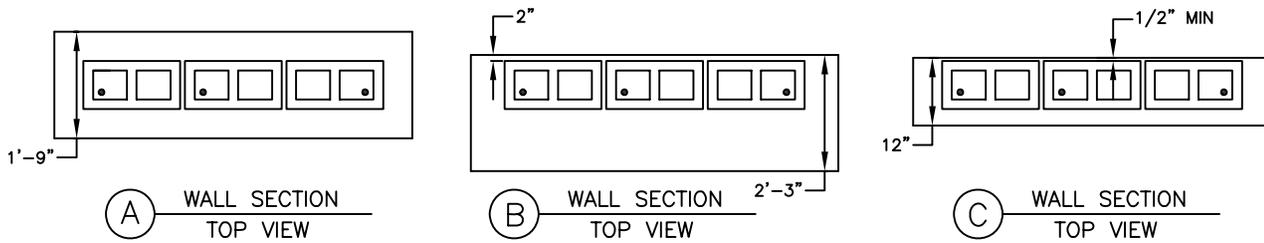
* INDICATES DIRECTION OF STOPPING RESTRICTION CAN BE LEFT (←), RIGHT (→) OR DOUBLE (↔)



NOTES:

1. ALUMINUM SIGNS SHALL BE SINGLE BLADE DOUBLE SIDED AND SHALL BE MADE OF 0.100 THICKNESS ALUMINUM WITH AN ALLOY HARDNESS OF 5052-H38. THEY SHALL BE 24"x 9", 30"x 9" OR 36"x 9" TO ACCOMMODATE THE STREET NAME.
2. COLORS SHALL BE WHITE LETTERS ON A GREEN BACKGROUND UNLESS OTHERWISE SPECIFIED.
3. LETTERS ON STREET NAME SHALL BE A SERIES B, 5" UPPER CASE. THE SECONDARY DIRECTIONAL INDICATOR, STREET TYPE (AVE., BLVD. ETC) AND BLOCK NUMBERS SHALL BE 2" UPPER CASE. SIGN SHALL HAVE A 1/2" RADIUS CORNER WITH A 1/4" OUTSIDE GREEN BORDER AND A 3/8" INSIDE BORDER.
4. ALL LETTERS, NUMBERS, BORDERS AND SHEETING SHALL BE MADE OF 3M-3930HIP TYPE III & IV SERIES REFLECTIVE SHEETING AND BE COVERED WITH 1160A PREMIUM OVERLAY ANTI-GRAFFITI FILM OR AVERY DENNISON T6500 SERIES REFLECTIVE SHEETING AND SHALL BE COVERED WITH AVERY DENNISON OL1000 ANTI-GRAFFITI OVERLAY FILM.
5. SIGNS MAY BE FABRICATED BY MEANS OF SILK SCREENING USING GRAFFITI INKS, BY THE DIE CUT LETTERS OR BY USING AVERY DENNISON TRANSLUCENT OR TRANSPARENT OVERLAY SHEETING ON TOP OF THE T6500 REFLECTIVE SIGN SHEETING.

★ EXACT DESIGNATION SUCH AS STREET, AVENUE, BOULEVARD, LANE, CIRCLE, COURT, DRIVE, PARKWAY, PLACE, ROAD, TERRACE, TRAIL, NORTH, SOUTH, EAST, WEST ETC. WILL BE NOTED ON THE STREET NAME LIST WITH EACH OTHER.



** 3'-2" MIN. AT LANDSCAPED AREA
2'-2" MIN. AT AREA W/PAVEMENT EACH SIDE

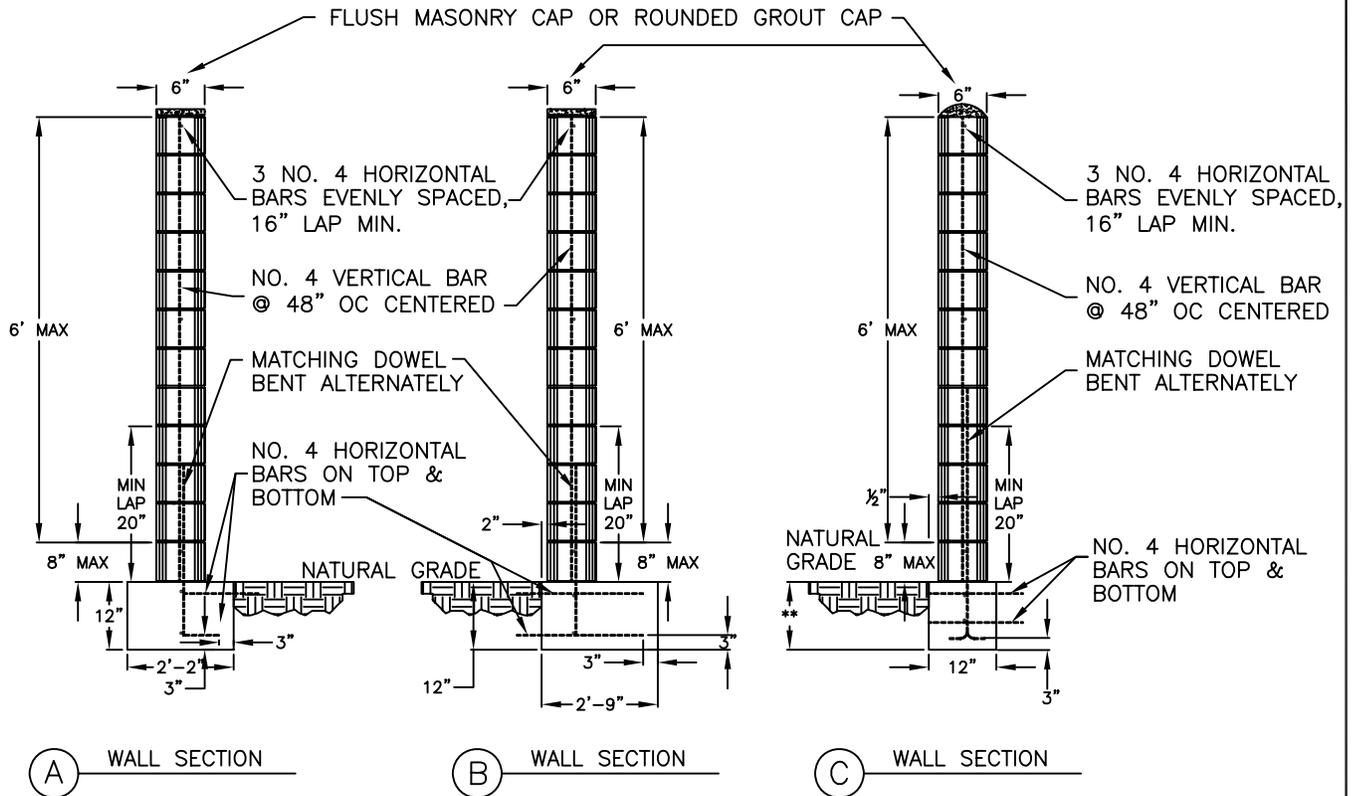
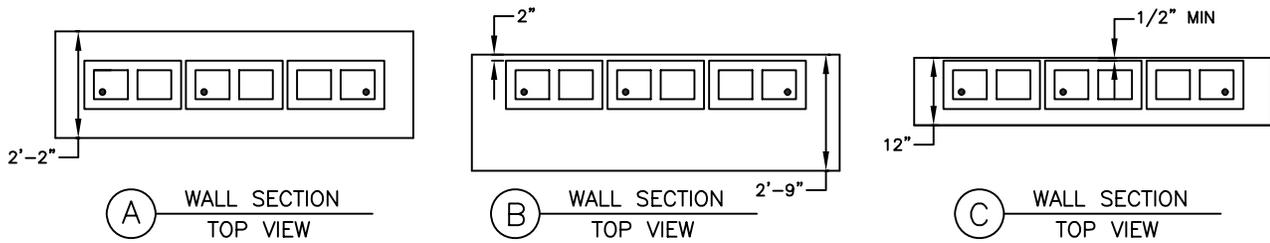
GENERAL NOTES AND SPECIFICATIONS:

1. ALL CONSTRUCTION SHALL COMPLY WITH THE FRESNO MUNICIPAL CODE.
2. GROUT ALL CELLS CONTAINING REINFORCING STEEL.
3. ALL MASONRY UNITS SHALL COMPLY WITH THE LATEST ADOPTED CALIFORNIA BUILDING CODE.
4. DEPTH OF FOOTINGS ARE INTO NATURAL UNDISTURBED SOIL OR TESTED AND APPROVED COMPACTED FILL.
5. ALL MASONRY UNITS SHALL BE MINIMUM F'm = 1500 PSI.
6. REINFORCING BARS SHALL BE DEFORMED BARS MINIMUM GRADE 40.
7. FOOTING CONCRETE SHALL BE A MINIMUM 2000 PSI AT 28 DAYS.
8. ALL CELLS SHALL BE GROUTED SOLID ON CITY OWNED WALLS.
9. MORTAR SHALL BE TYPE-S (MINIMUM 1800 PSI AT 28 DAYS):
ONE(1) PART CEMENT , TYPE-1
ONE-HALF (1/2) PART LIME PUTTY OR HYDRATED LIME
FOUR AND ONE-HALF (4 1/2) PARTS SAND (MAXIMUM)
10. GROUT SHALL BE A MINIMUM 2000 PSI AT 28 DAYS:
ONE (1) PART CEMENT
THREE (3) PARTS SAND
TWO (2) PARTS PEA GRAVEL.
11. PLEASE CONTACT THE DEVELOPMENT DEPARTMENT ENGINEERING DIVISION REGARDING THE APPLICABILITY AND USE OF THIS STANDARD AND ISSUANCE OF REQUIRED PERMITS.

**6" CONCRETE MASONRY WALL
WITH OR WITHOUT 8" SOIL RETENTION**

REF. & REV.
SEPTEMBER
2011

CITY OF FRESNO
P-93



** 3'-2" MIN. AT LANDSCAPED AREA
2'-2" MIN. AT AREA W/PAVEMENT EACH SIDE

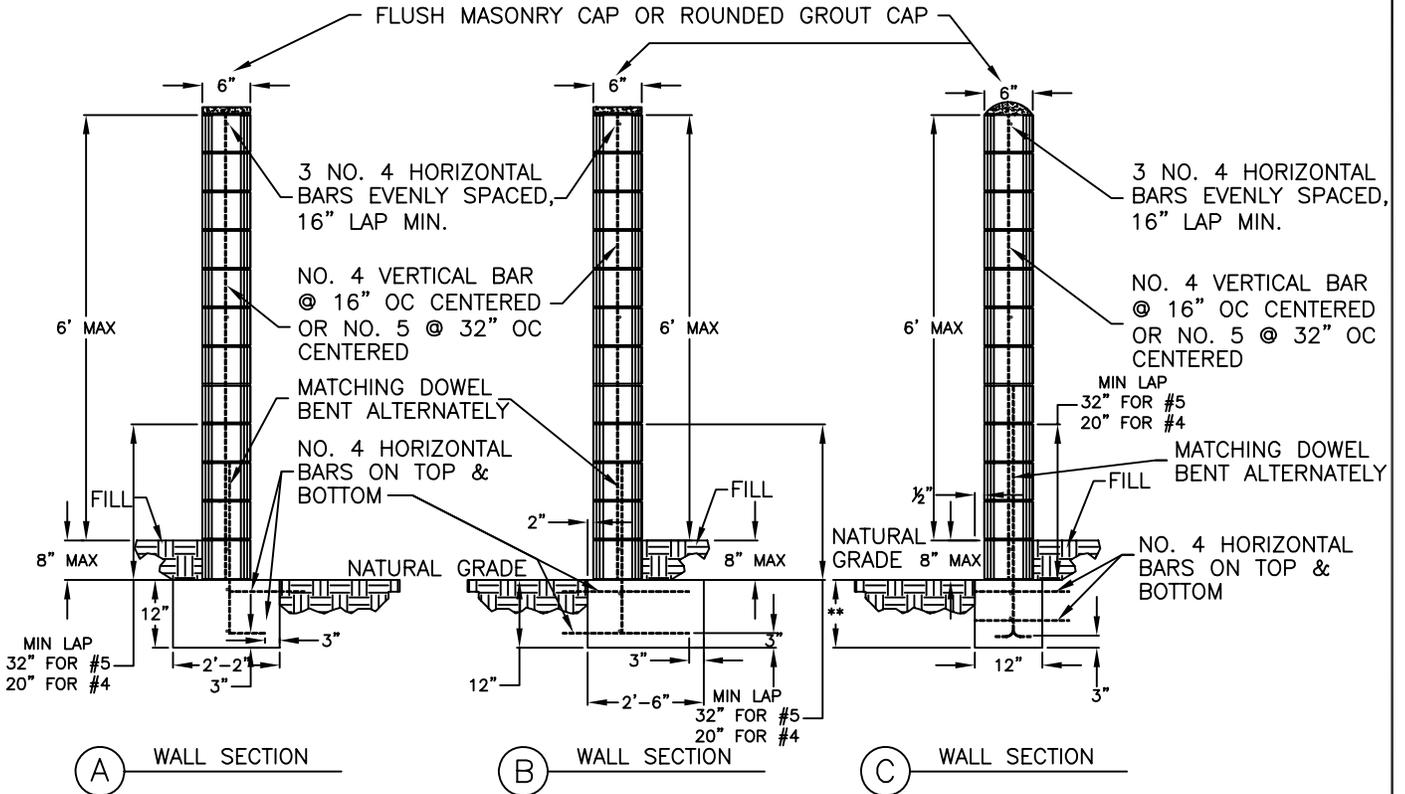
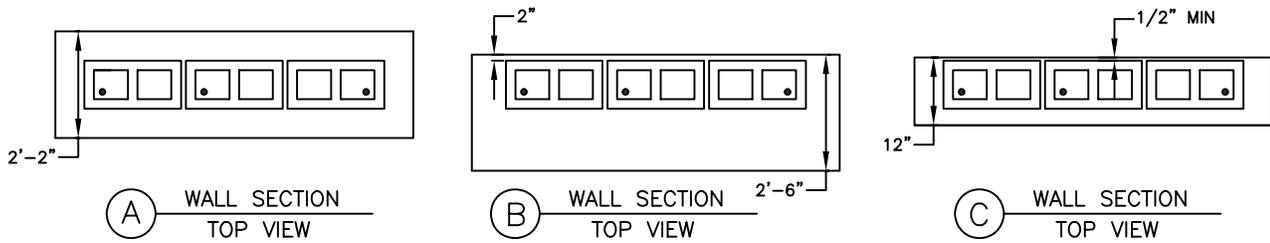
GENERAL NOTES AND SPECIFICATIONS:

1. ALL CONSTRUCTION SHALL COMPLY WITH THE FRESNO MUNICIPAL CODE.
2. GROUT ALL CELLS CONTAINING REINFORCING STEEL.
3. ALL MASONRY UNITS SHALL COMPLY WITH THE LATEST ADOPTED CALIFORNIA BUILDING CODE.
4. DEPTH OF FOOTINGS ARE INTO NATURAL UNDISTURBED SOIL OR TESTED AND APPROVED COMPACTED FILL.
5. ALL MASONRY UNITS SHALL BE MINIMUM F'm = 1500 PSI.
6. REINFORCING BARS SHALL BE DEFORMED BARS MINIMUM GRADE 40.
7. FOOTING CONCRETE SHALL BE A MINIMUM 2000 PSI AT 28 DAYS.
8. ALL CELLS SHALL BE GROUTED SOLID ON CITY OWNED WALLS.
9. MORTAR SHALL BE TYPE-S (MINIMUM 1800 PSI AT 28 DAYS):
ONE(1) PART CEMENT , TYPE-1
ONE-HALF (1/2) PART LIME PUTTY OR HYDRATED LIME
FOUR AND ONE-HALF (4 1/2) PARTS SAND (MAXIMUM)
10. GROUT SHALL BE A MINIMUM 2000 PSI AT 28 DAYS:
ONE (1) PART CEMENT
THREE (3) PARTS SAND
TWO (2) PARTS PEA GRAVEL.
11. PLEASE CONTACT THE DEVELOPMENT DEPARTMENT ENGINEERING DIVISION REGARDING THE APPLICABILITY AND USE OF THIS STANDARD AND ISSUANCE OF REQUIRED PERMITS.

**6" CONCRETE MASONRY WALL
WITHOUT SOIL RETENTION**

REF. & REV.
SEPTEMBER
2011

**CITY OF FRESNO
P-94**



** 3'-3" MIN. AT LANDSCAPED AREA
2'-3" MIN. AT AREA W/PAVEMENT EACH SIDE

GENERAL NOTES AND SPECIFICATIONS:

1. ALL CONSTRUCTION SHALL COMPLY WITH THE FRESNO MUNICIPAL CODE.
2. GROUT ALL CELLS CONTAINING REINFORCING STEEL.
3. ALL MASONRY UNITS SHALL COMPLY WITH THE LATEST ADOPTED CALIFORNIA BUILDING CODE.
4. DEPTH OF FOOTINGS ARE INTO NATURAL UNDISTURBED SOIL OR TESTED AND APPROVED COMPACTED FILL.
5. ALL MASONRY UNITS SHALL BE MINIMUM F'm = 1500 PSI.
6. REINFORCING BARS SHALL BE DEFORMED BARS MINIMUM GRADE 40.
7. FOOTING CONCRETE SHALL BE A MINIMUM 2000 PSI AT 28 DAYS.
8. ALL CELLS SHALL BE GROUTED SOLID ON CITY OWNED WALLS.
9. MORTAR SHALL BE TYPE-S (MINIMUM 1800 PSI AT 28 DAYS):
ONE(1) PART CEMENT , TYPE-1
ONE-HALF (1/2) PART LIME PUTTY OR HYDRATED LIME
FOUR AND ONE-HALF (4 1/2) PARTS SAND (MAXIMUM)
10. GROUT SHALL BE A MINIMUM 2000 PSI AT 28 DAYS:
ONE (1) PART CEMENT
THREE (3) PARTS SAND
TWO (2) PARTS PEA GRAVEL.
11. PLEASE CONTACT THE DEVELOPMENT DEPARTMENT ENGINEERING DIVISION REGARDING THE APPLICABILITY AND USE OF THIS STANDARD AND ISSUANCE OF REQUIRED PERMITS.

**6" CONCRETE MASONRY WALL
WITH 8" MAX SOIL RETENTION**

REF. & REV.
SEPTEMBER
2011

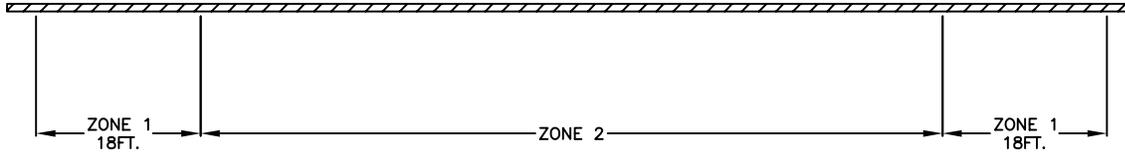
CITY OF FRESNO
P-95

STANDARD DETAILS FOR 6'-0" CONCRETE MASONRY FENCE:
P-93, P-94, P-95

EXPOSURE B: URBAN AND SUBURBAN AREAS, WOODED AREAS OR OTHER TERRAIN WITH NUMEROUS CLOSELY SPACED OBSTRUCTIONS HAVING THE SIZE OF SINGLE FAMILY DWELLING OR LARGER WITHIN 1500FT.

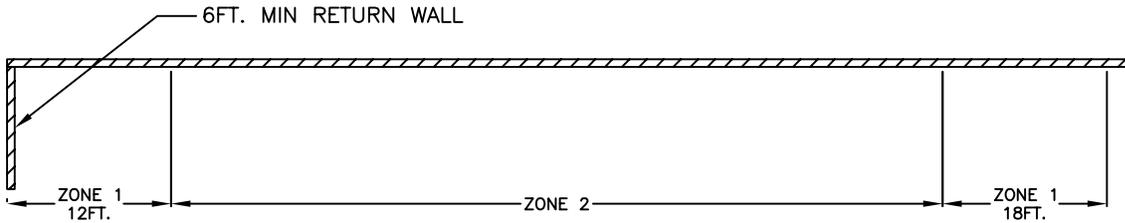
USE WALL TYPE P-93 FOR FULL LENGTH OF WALL

EXPOSURE C: OPEN TERRAIN WITHIN 1500FT.



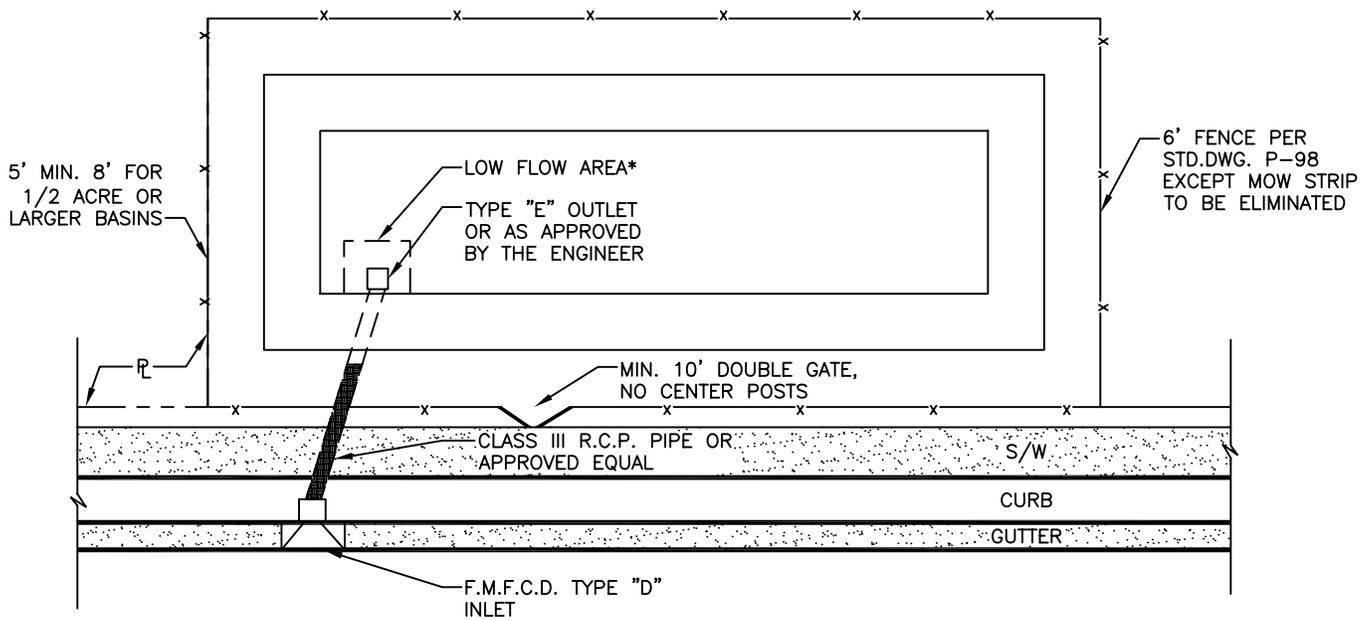
6 INCHES THICK BY 6 FEET HIGH MASONRY FENCE WITHOUT RETURN WALL

WALL LENGTH FEET ZONE	0-20	21-60	OVER 60
	WALL AND FOOTING TYPE		
FULL LENGTH OF FENCE	P-93	P-94,95	
ZONE 1			P-94,95
ZONE 2			P-93

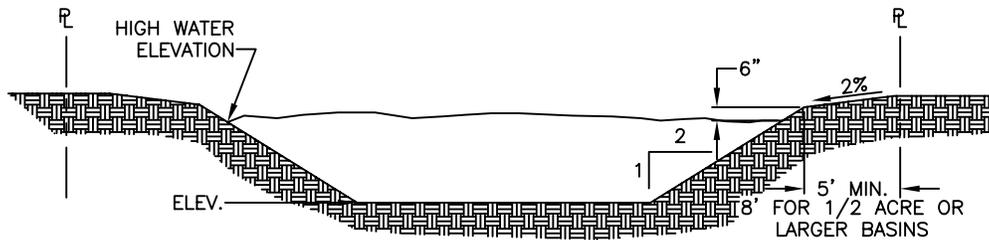


6 INCHES THICK BY 6 FEET HIGH MASONRY FENCE WITH RETURN WALL

WALL LENGTH FEET ZONE	0-20	21-60	OVER 60
	WALL AND FOOTING TYPE		
FULL LENGTH OF FENCE	P-93	P-94,95	
ZONE 1			P-94,95
ZONE 2			P-93



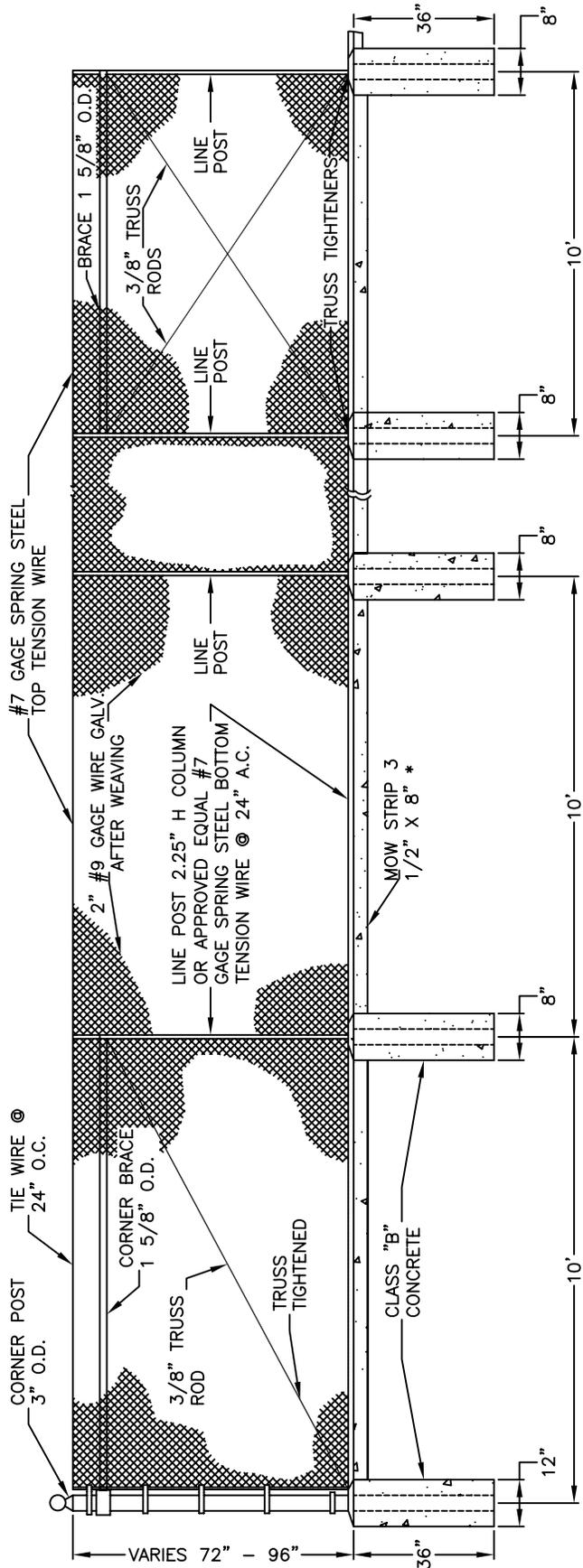
PLAN VIEW OF TYPICAL TEMPORARY PONDING BASIN



SECTION

NOTES: DESIGN MINIMUMS

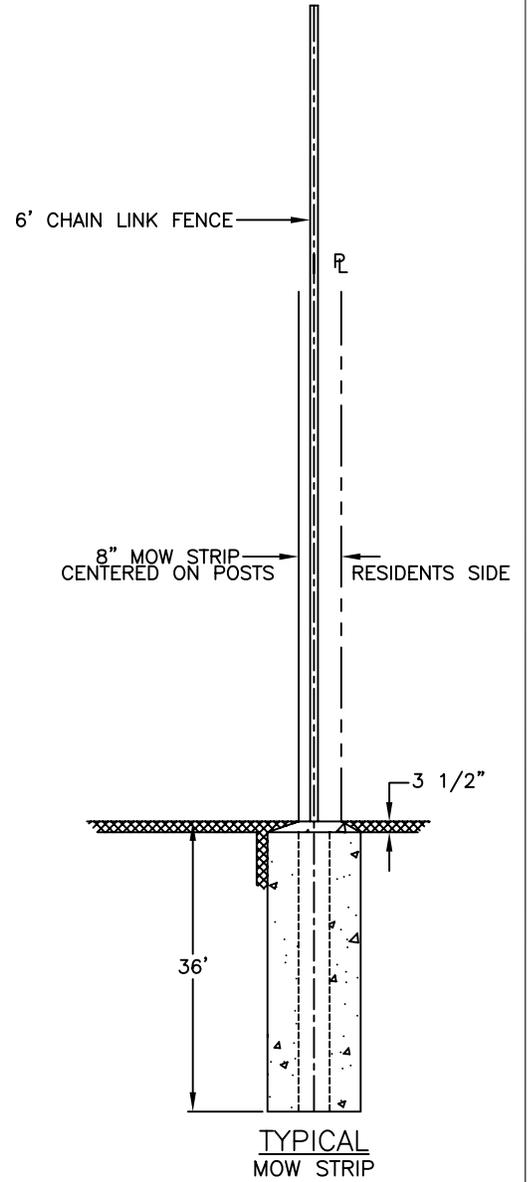
1. OVERFLOW MUST BE TO THE STREET.
 2. DESIGN WATER SURFACE ELEVATION SHALL BE TWO FEET BELOW THE LOWEST INLET FLOW LINE OR POND PERIPHERAL ELEVATION, WHICHEVER IS LOWER.
 3. REQUIRED CAPACITY: $V=CIA$ WHERE V =REQUIRED BASIN CAPACITY IN CUBIC FEET, C =RUNOFF COEFFICIENT, I =RAINFALL FROM A DESIGN STORM (0.35 FEET), AND A =TRIBUTARY AREA IN SQUARE FEET.
 4. PROVIDE COMPOSITE "C" CALCULATIONS.
 5. THE ENGINEER MAY REQUIRE AN 8' WIDE VEHICLE RAMP WITH A MAX. SLOPE OF 15% IN $\frac{1}{2}$ ACRE OR LARGER BASINS.
 6. TEMPORARY PONDING BASINS SHALL BE FENCED WITHIN 7 DAYS TIME AFTER THEY BECOME OPERATIONAL OR WHEN REQUIRED BY THE ENGINEER.
 7. THE CITY ENGINEER MAY CONSIDER OTHER BASIN DESIGN ALTERNATIVES, AS A SUBSTITUTE FOR PROVIDING THE 2 FOOT FREEBOARD, WHEN THE BASIN SIZE IMPACTS PROJECT FEASIBILITY.
 8. LOCKS FOR THE GATE TO BE #5 MASTER LOCKS, NO. 1C95, 3203 OR 0855.
- SIZE AND DEPTH OF LOW FLOW AREA TO BE DETERMINED BY THE ENGINEER.



*MOW STRIP CAN BE OMITTED ON TEMPORARY PONDS

NOTE:

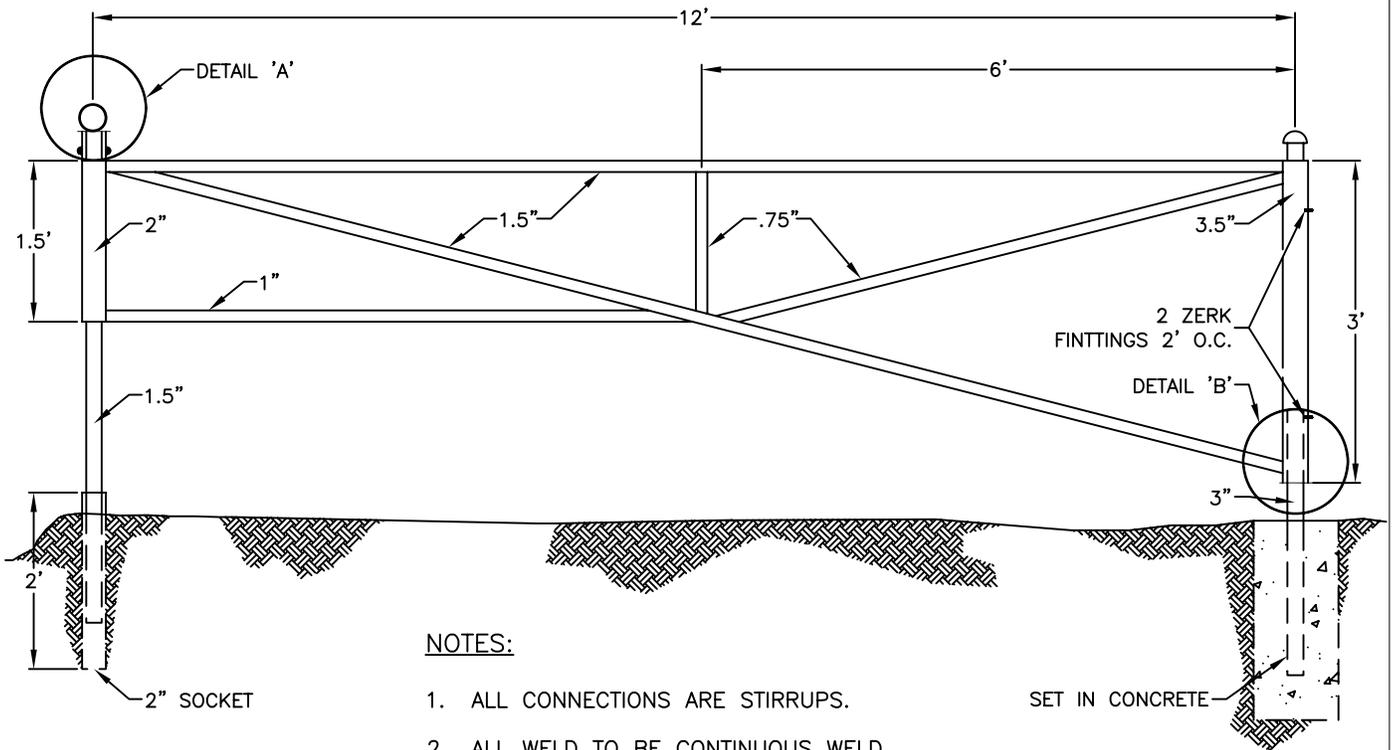
REFER TO STATE SPECIFICATIONS EXCEPT FOR GATES WHICH ARE 9 GAUGE. BRACED & TRUSSED IN BOTH DIRECTIONS LINE POSTS @ 1000' MAX. INTERVALS



CHAIN LINK FENCE CONSTRUCTION DETAILS

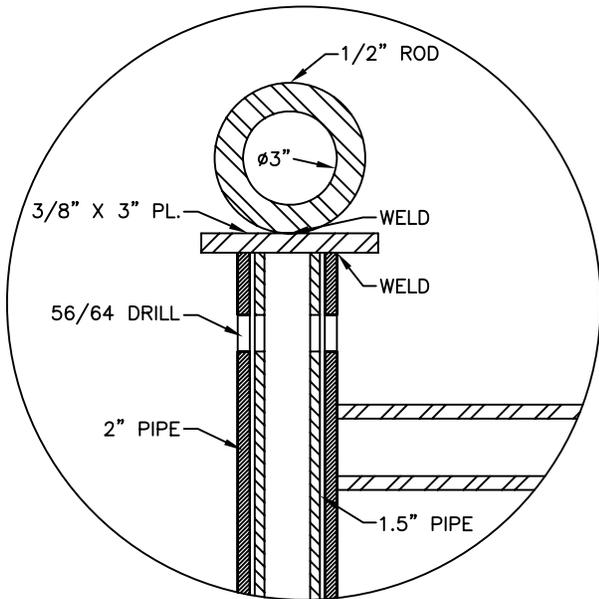
REF. & REV.
AUG., 2010

CITY OF FRESNO
P-98

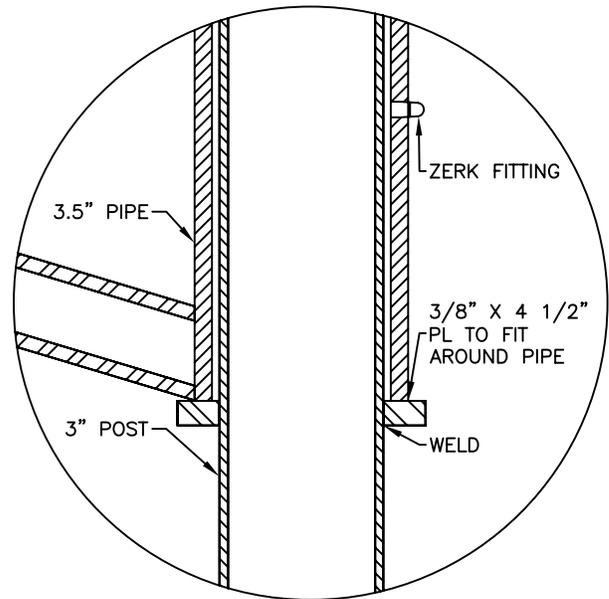


NOTES:

1. ALL CONNECTIONS ARE STIRRUPS.
2. ALL WELD TO BE CONTINUOUS WELD.



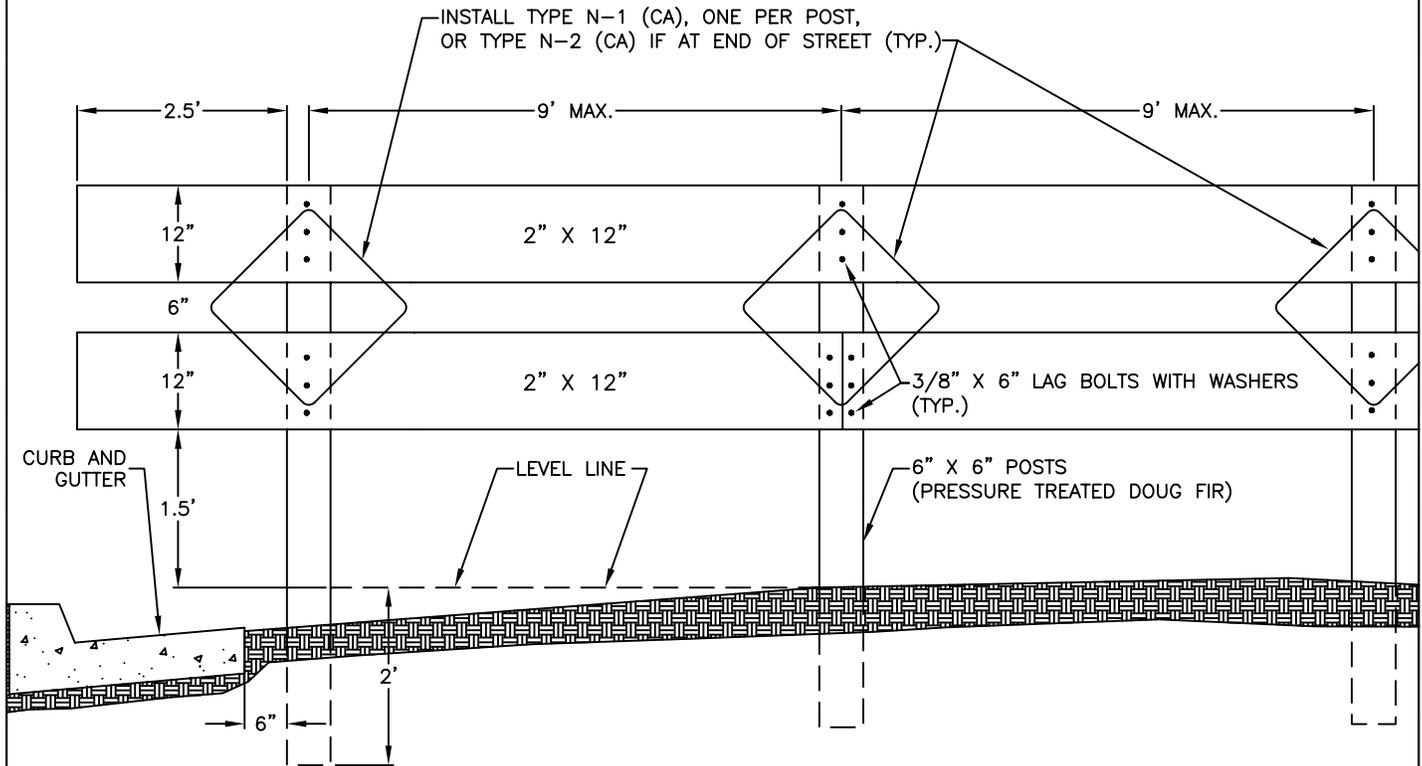
DETAIL 'A'
NOT TO SCALE



DETAIL 'B'
NOT TO SCALE



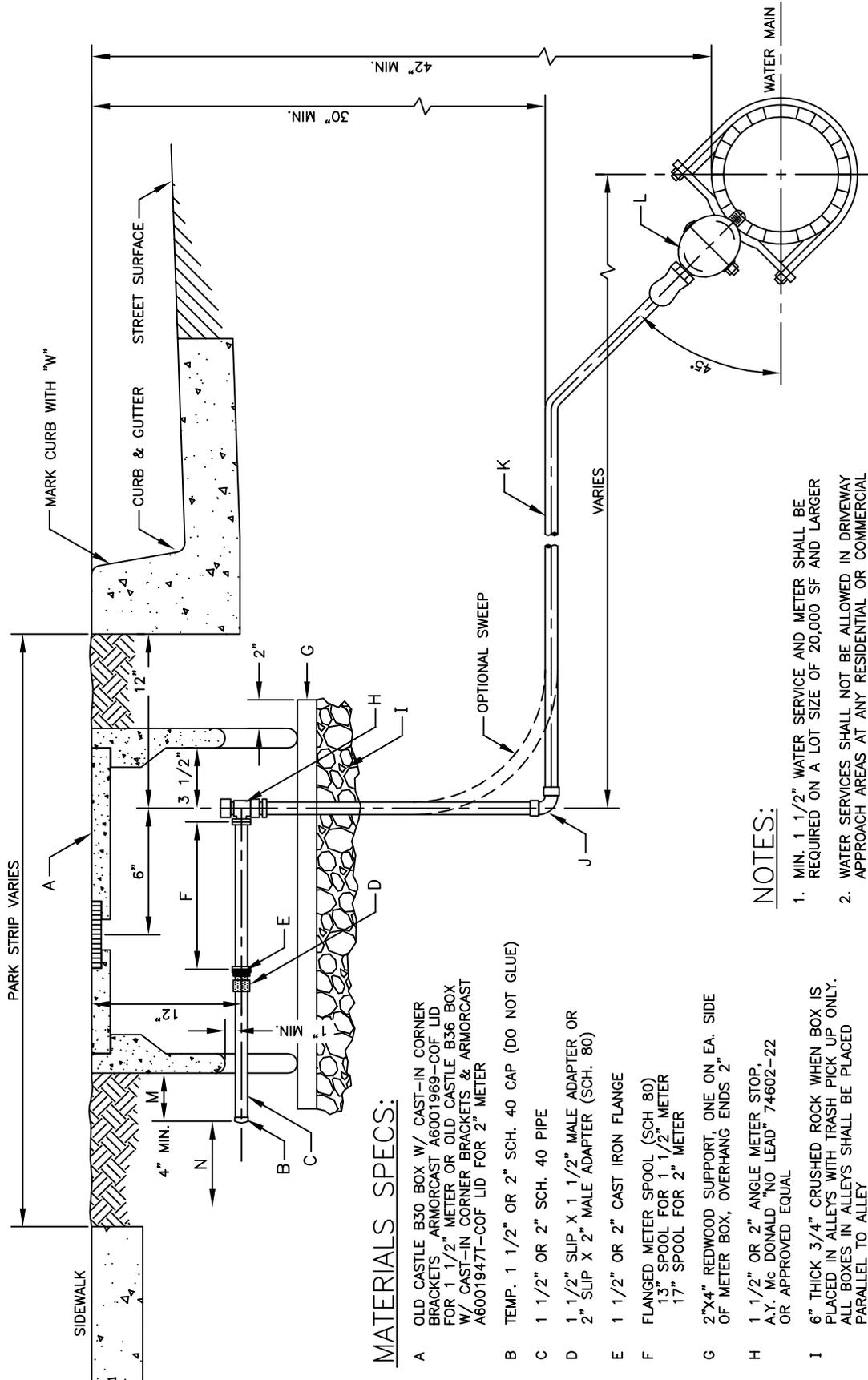
PAINT: TWO COATS OF EXTERIOR GRADE WHITE PAINT SHALL BE APPLIED TO ALL WOOD SURFACES.



TEMPORARY TIMBER BARRICADE

NOTES:

1. BARRICADE MUST BE FULL WIDTH BETWEEN FACES OF CURBS.
2. APPROPRIATE SIGNS AND REFLECTORS TO BE DESIGNATED BY THE DEPT. OF PUBLIC WORKS.
3. BARRICADE TO BE LOCATED INSIDE OF STREET R/W \pm 1'.
4. BARRICADE TO BE INSTALLED WITHIN SEVEN DAYS OF COMPLETION OF STREET CONSTRUCTION.



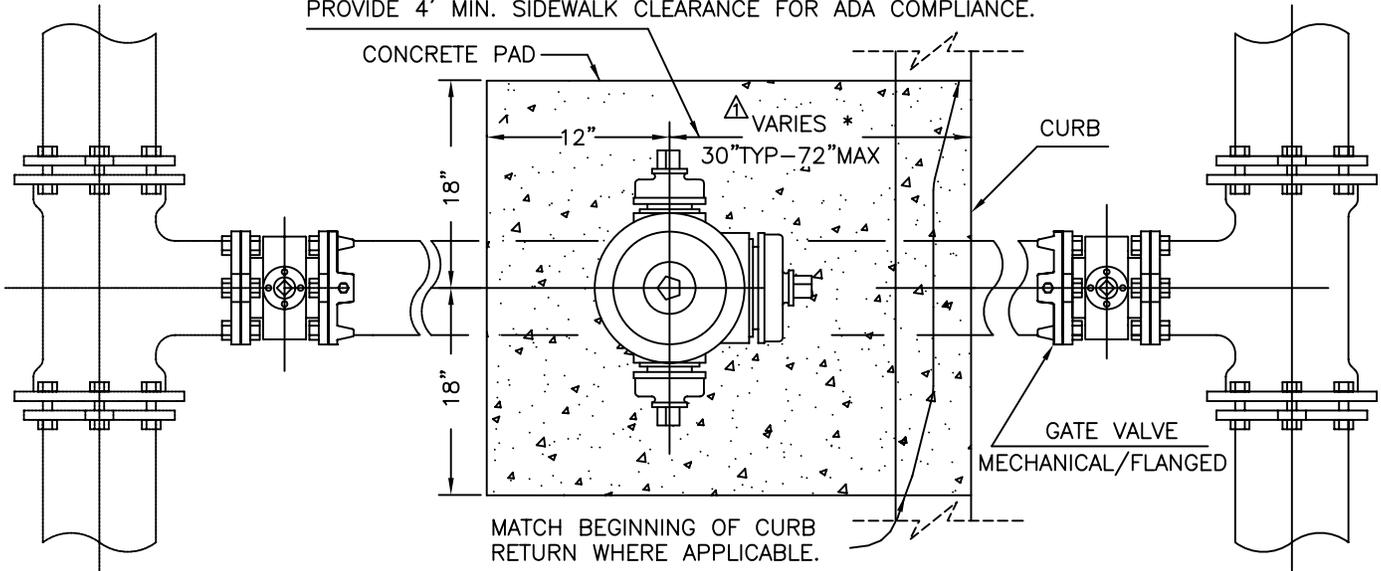
MATERIALS SPECS:

- A OLD CASTLE B30 BOX W/ CAST-IN CORNER BRACKETS, ARMORCAST A6001969-COF LID FOR 1 1/2" METER OR OLD CASTLE B36 BOX W/ CAST-IN CORNER BRACKETS & ARMORCAST A6001947T-COF LID FOR 2" METER
- B TEMP. 1 1/2" OR 2" SCH. 40 CAP (DO NOT GLUE)
- C 1 1/2" OR 2" SCH. 40 PIPE
- D 1 1/2" SLIP X 1 1/2" MALE ADAPTER OR 2" SLIP X 2" MALE ADAPTER (SCH. 80)
- E 1 1/2" OR 2" CAST IRON FLANGE
- F FLANGED METER SPOOL (SCH. 80)
13" SPOOL FOR 1 1/2" METER
17" SPOOL FOR 2" METER
- G 2"x4" REDWOOD SUPPORT, ONE ON EA. SIDE OF METER BOX, OVERHANG ENDS 2"
- H 1 1/2" OR 2" ANGLE METER STOP, A.Y. Mc DONALD "NO LEAD" 74602-22 OR APPROVED EQUAL
- I 6" THICK 3/4" CRUSHED ROCK WHEN BOX IS PLACED IN ALLEYS WITH TRASH PICK UP ONLY. ALL BOXES IN ALLEYS SHALL BE PLACED PARALLEL TO ALLEY
- J COMP X COMP 90° ELL, A.Y. McDONALD OR APPROVED EQUAL "NO LEAD" 74761-22
- K TYPE "K" SOFT DRAWN COPPER TUBING OR POLYETHYLENE CTS SDR-9 PE 3408
- L 1 1/2" OR 2" CORPORATION STOP, A.Y. Mc DONALD "NO LEAD" 74701-22 OR APPROVED EQUAL
- M WATER DIVISION RESPONSIBILITY
- N CUSTOMER RESPONSIBILITY

NOTES:

1. MIN. 1 1/2" WATER SERVICE AND METER SHALL BE REQUIRED ON A LOT SIZE OF 20,000 SF AND LARGER
2. WATER SERVICES SHALL NOT BE ALLOWED IN DRIVEWAY APPROACH AREAS AT ANY RESIDENTIAL OR COMMERCIAL LOCATION.
3. ALL COPPER FITTINGS SHALL BE CAMPAK COMPRESSION-TYPE.
4. POLYETHYLENE PIPE SHALL USE CAMPAK COMPRESSION-TYPE JOINTS WITH STAINLESS STEEL INSERT.
5. FOR PVC WATER MAIN TAPS, SERVICE SADDLES WITH CIRCUMFERENTIAL TYPE BANDS SHAPED TO FIT THE ACTUAL O.D. OF THE PIPE, AND HAVING A MINIMUM BEARING WIDTH OF 3" (1 1/2" PER BAND) SHALL BE USED. FOR DUCTILE AND CAST IRON MAINS, USE BRONZE OR DUCTILE IRON SERVICE SADDLES, WITH BRONZE OR STAINLESS DOUBLE STRAPS.

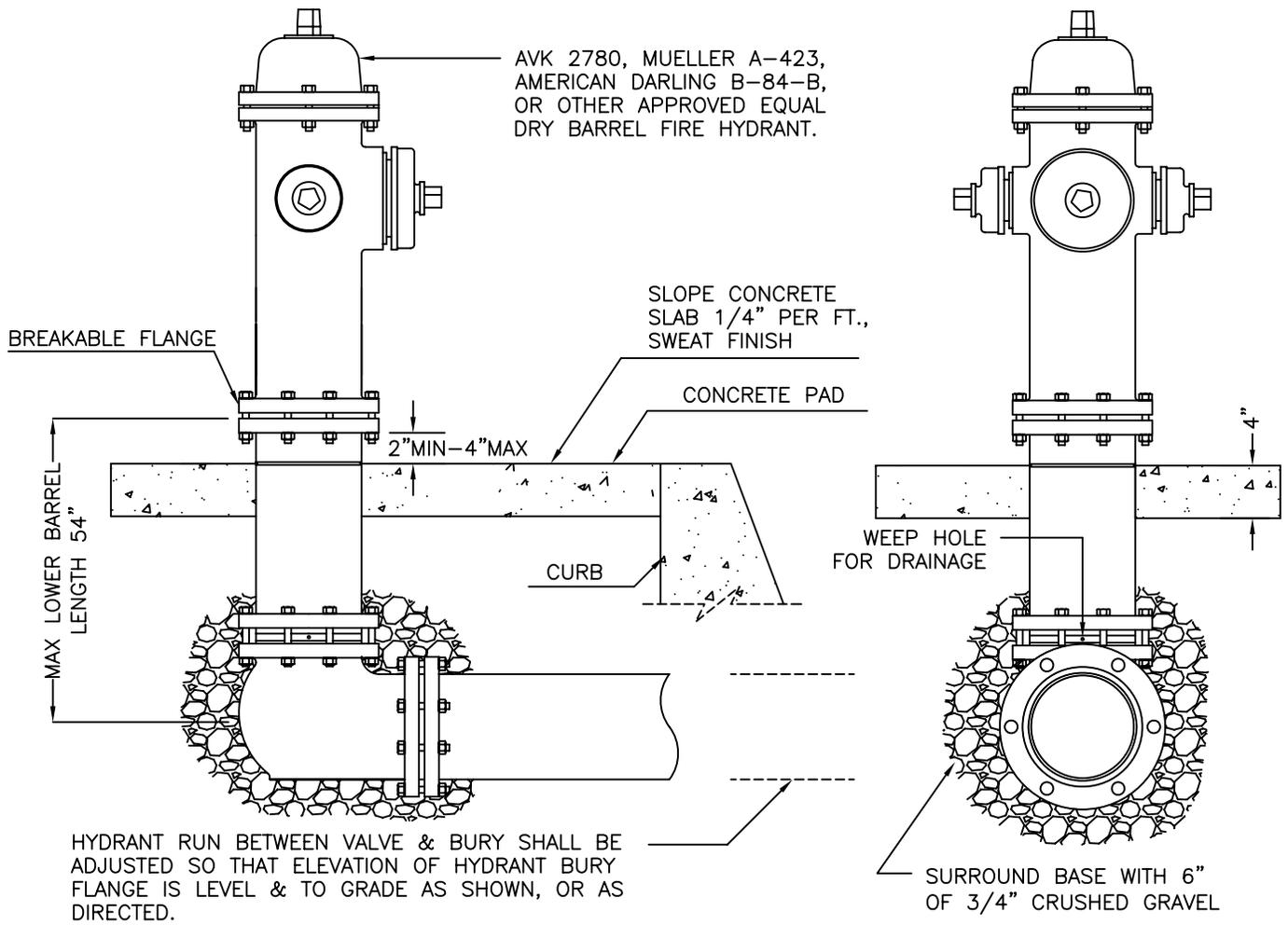
FOR ALL FIRE HYDRANTS INSTALLED, THE SETBACK SHALL TYPICALLY BE 30", BUT SHALL BE MODIFIED AS REQUIRED TO PROVIDE 4' MIN. SIDEWALK CLEARANCE FOR ADA COMPLIANCE.



WHERE MAIN LIES BEHIND CURB, PIPE & VALVE DETAILS SHALL BE REVERSED.

△ * PROVIDE 4' MIN. SIDEWALK CLEARANCE ADJACENT TO FIRE HYDRANT FOR ADA ACCESSIBILITY REQUIREMENTS.

NOTE: GATE VALVE TO BE TIED TO MAIN PER STD DWG W-37
NOTE: CAP AND OPERATING NUTS ARE 1 1/8" PENTAGON.



AVK 2780, MUELLER A-423, AMERICAN DARLING B-84-B, OR OTHER APPROVED EQUAL DRY BARREL FIRE HYDRANT.

SLOPE CONCRETE SLAB 1/4" PER FT., SWEAT FINISH

BREAKABLE FLANGE

MAX LOWER BARREL LENGTH 54"

2" MIN - 4" MAX

WEEP HOLE FOR DRAINAGE

HYDRANT RUN BETWEEN VALVE & BURY SHALL BE ADJUSTED SO THAT ELEVATION OF HYDRANT BURY FLANGE IS LEVEL & TO GRADE AS SHOWN, OR AS DIRECTED.

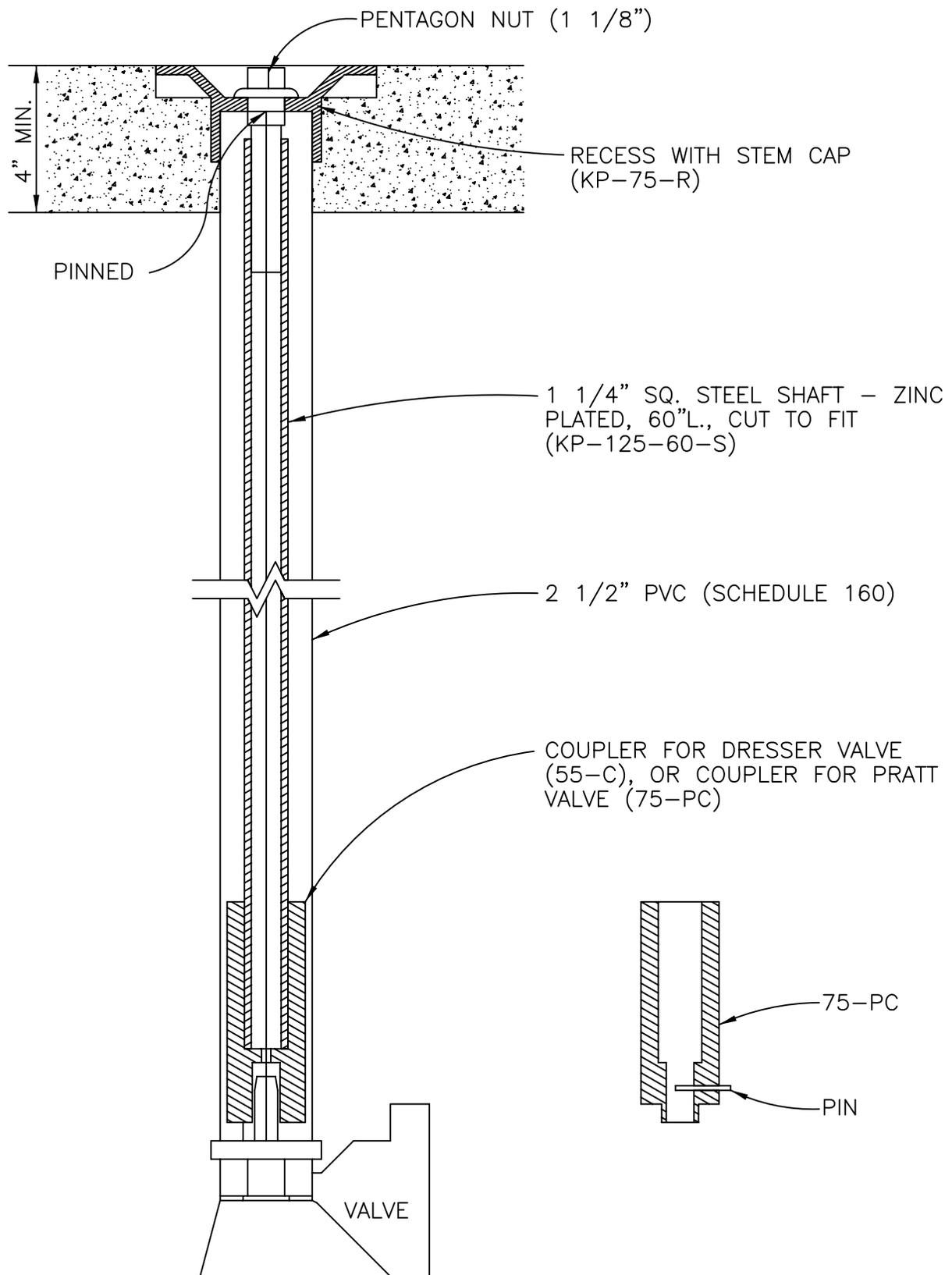
SURROUND BASE WITH 6" OF 3/4" CRUSHED GRAVEL

FIRE HYDRANT INSTALLATION

REF. & REV.
DEC., 2003
△ JAN., 1997

CITY OF FRESNO

W-3

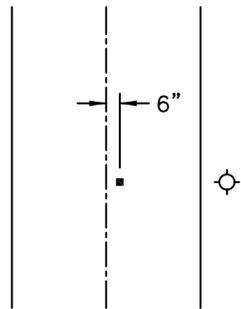


FIRE HYDRANT INSTALLATION VALVE
OPERATOR DETAIL

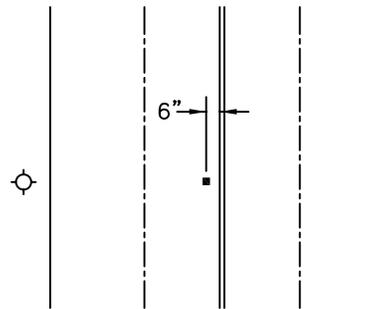
REF. & REV.
AUG., 2002

CITY OF FRESNO

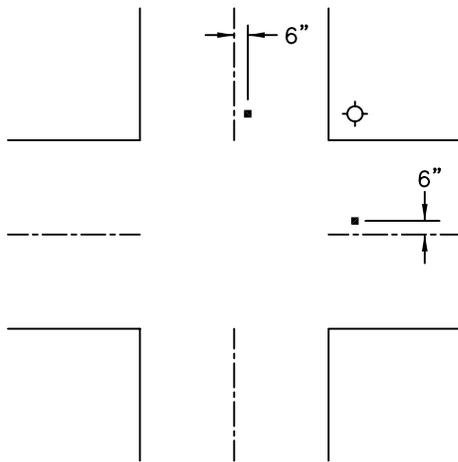
W-4



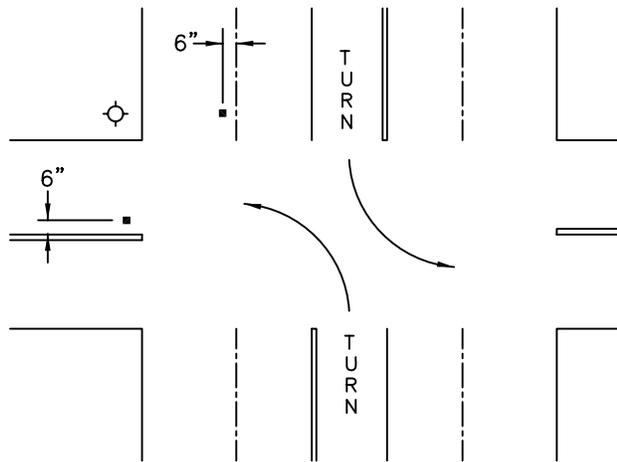
TWO LANE STREET



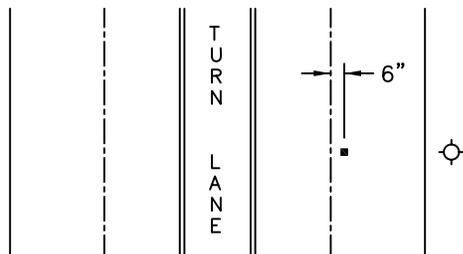
MULTI-LANE STREET



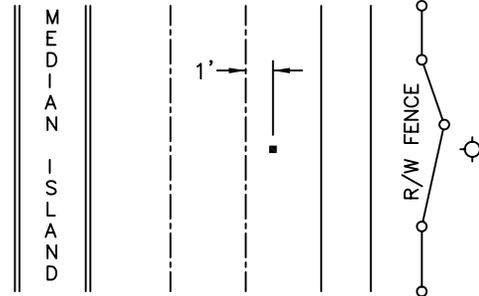
INTERSECTIONS



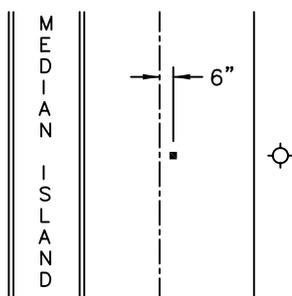
FOUR-LANES W/TURN LANE



FOUR-LANES W/TURN LANE

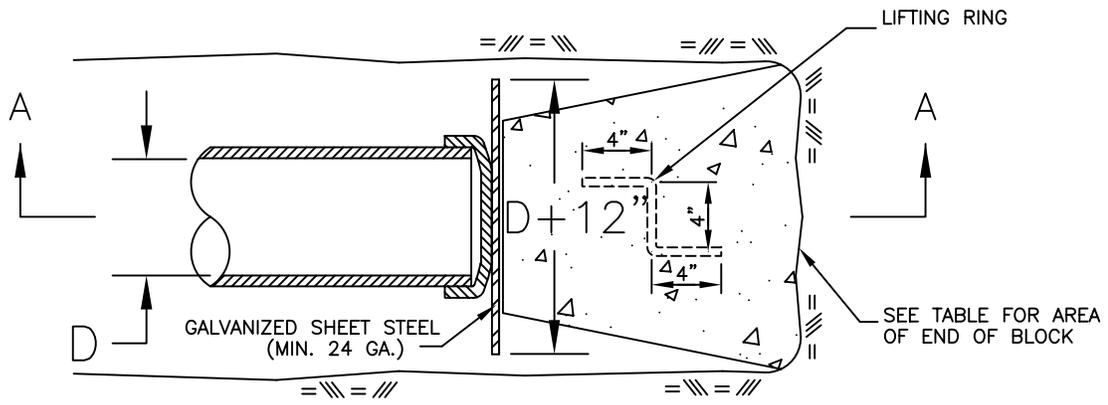


FREEWAYS AND EXPRESSWAYS

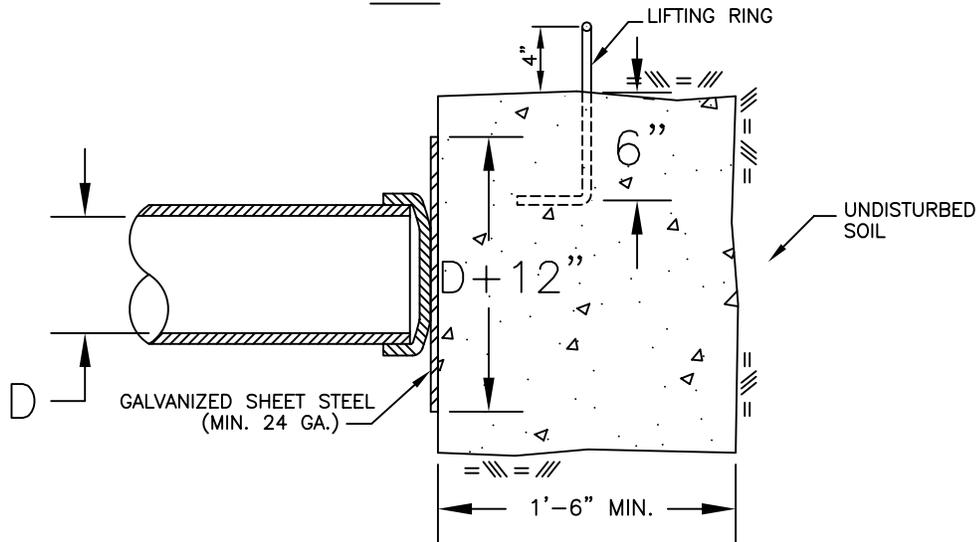


DIVIDED HIGHWAY

- FIRE HYDRANT
- PAVEMENT MARKER EQUAL TO STIMSONITE 810134-88AB "TWO-WAY" BLUE



PLAN



SECTION A-A

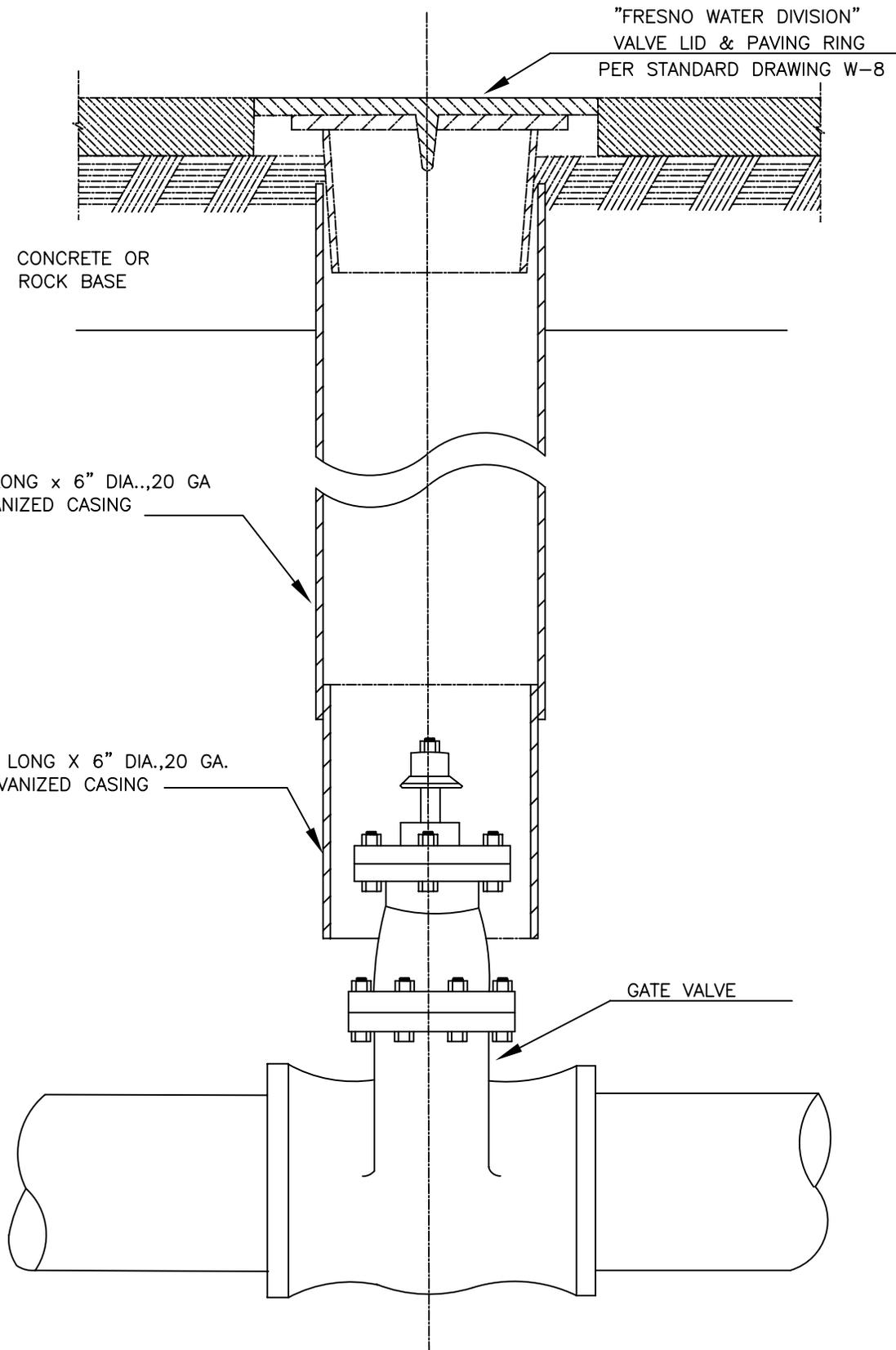
MINIMUM REQUIRED AREA FOR END OF BLOCK

NOMINAL PIPE DIAMETER (INCHES)	4	6	8	10	12	14	16	18	20	24
CONCRETE THRUST BLOCK MIN. AREA (SQ. FT.)	2	4	7	11	15	20	25	31	36	49

BASED ON 200 PSI LINE PRESSURE AND ALLOWABLE SOIL BEARING PRESSURE OF 1500 PSF.

NOTES:

- THRUST BLOCK SHALL BE USED FOR PIPES WITH 4" DIAMETER OR LARGER.
- PORTLAND CEMENT CONCRETE USED FOR THRUST BLOCKS SHALL BE MIN. 5 SACK CLASS B CONCRETE WITH A MAX. SLUMP OF 4 INCHES.
- CONCRETE SHALL BE POURED AGAINST UNDISTURBED EARTH EXCAVATION.
- BLOCKS SHALL HAVE LIFTING RING. USE NO. 5 BAR REINF. ROD TO FABRICATE RING AT CENTER OF BLOCK. FOR PIPES 16" DIAMETER OR LARGER, NO. 8 BAR REINF. ROD IS REQUIRED.
- CONCRETE, STEEL SHEET AND END OF PIPE SHALL BE ALL IN FULL CONTACT. NO CONCRETE SHALL BE PLACED IN CONTACT WITH WATER PIPE.
- TO KEEP THE EXCAVATION WALL SOLID AND UNDISTURBED, OVEREXCAVATION TO ACCOMMODATE THRUST BLOCK SHALL BE HAND EXCAVATED.
- AREA OF THRUST BLOCK MAY BE INCREASED IF WARRANTED BY SITE CONDITIONS.



VALVE LID & PAVING RING
WITH GALVANIZED CASING

REF. & REV.
AUG., 2002

CITY OF FRESNO
W-7

INSTALLATION PROCEDURE

1. CASING SHALL BE CENTERED OVER VALVE STEM.
2. ADJUST CASING TO 3" BELOW FINISHED GRADE.
3. COVER CASING WITH LID OF THE PAVING RING.
4. PAVE OVER CASING (FIG. NO. 1)
5. IMMEDIATELY AFTER MACHINE HAS PAVED OVER CASING, UNCOVER, AND REMOVE LID, THEN INSET PAVING RING INTO CASING AND PUSH EXCESS A.C. UNDER FLANGES OF PAVING RING. (FIG. NO. 2)
6. PRESS PAVING RING DOWN TO LEVEL WITH TOP OF A.C., INSTALL LID INSIDE PAVING RING AND BRUSH OFF EXCESS PAVING MATERIAL ON TOP OF PAVING RING. (FIG. NO. 3)
7. PAVING RING CAN BE ROLLED IN PLACE AT SAME TIME A.C. IS ROLLED.

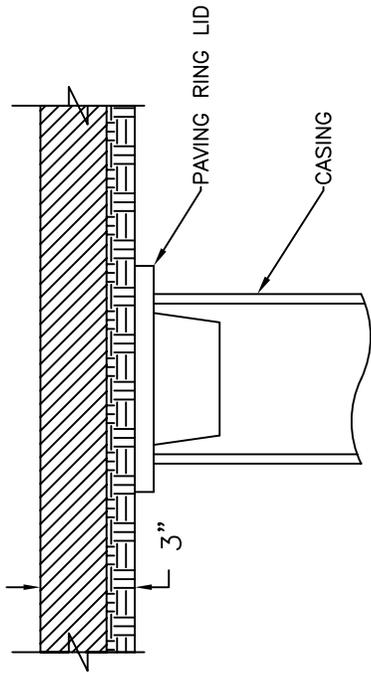


FIG. NO. 1

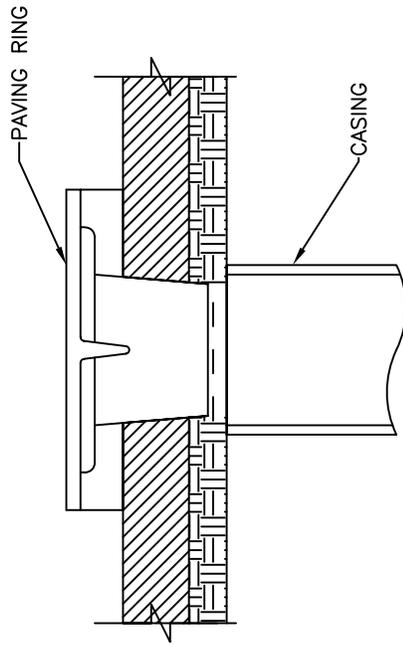


FIG. NO. 2

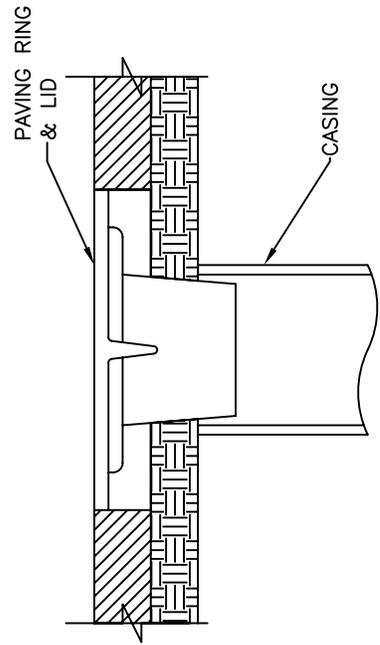
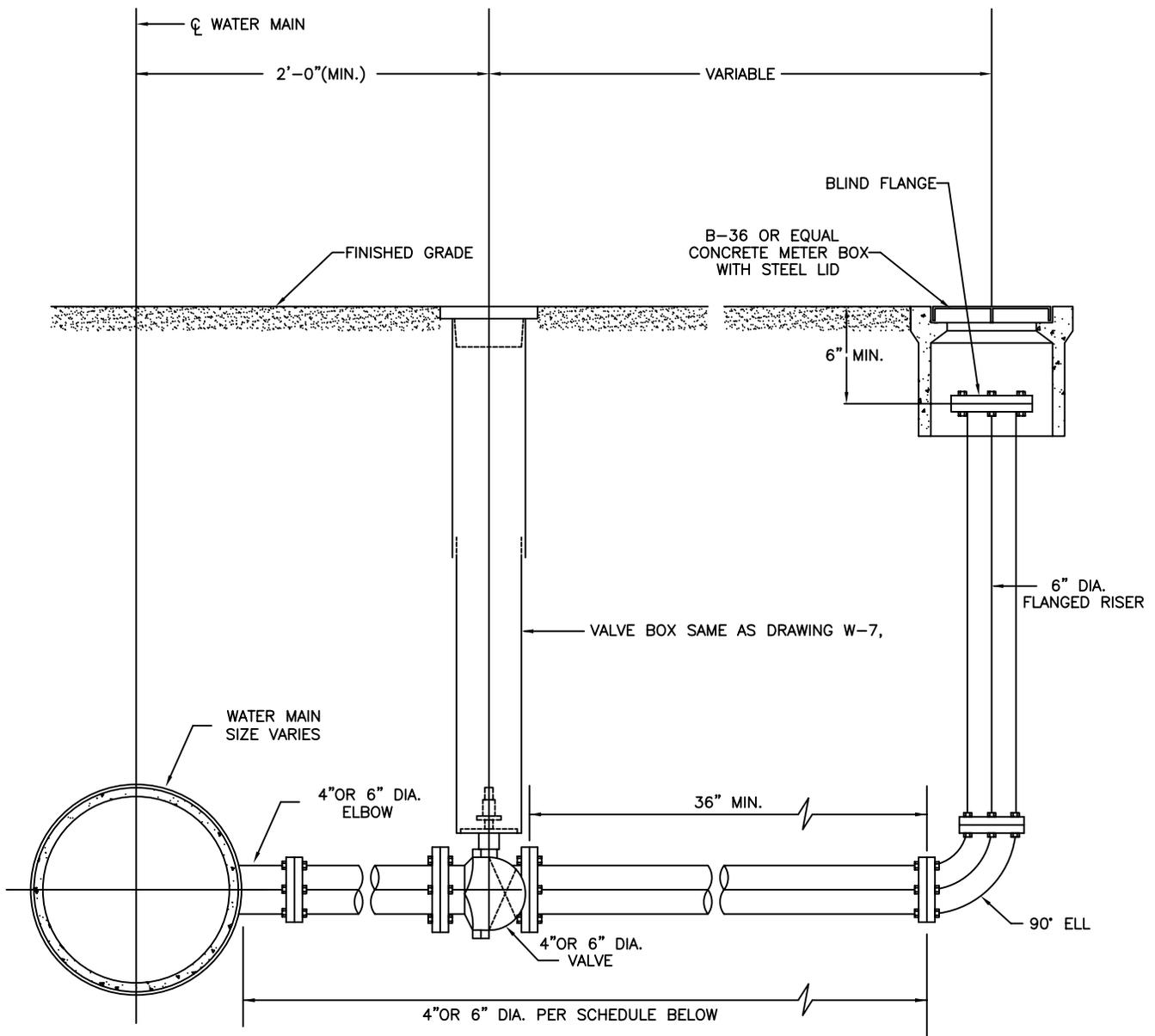


FIG. NO. 3



NOTE:

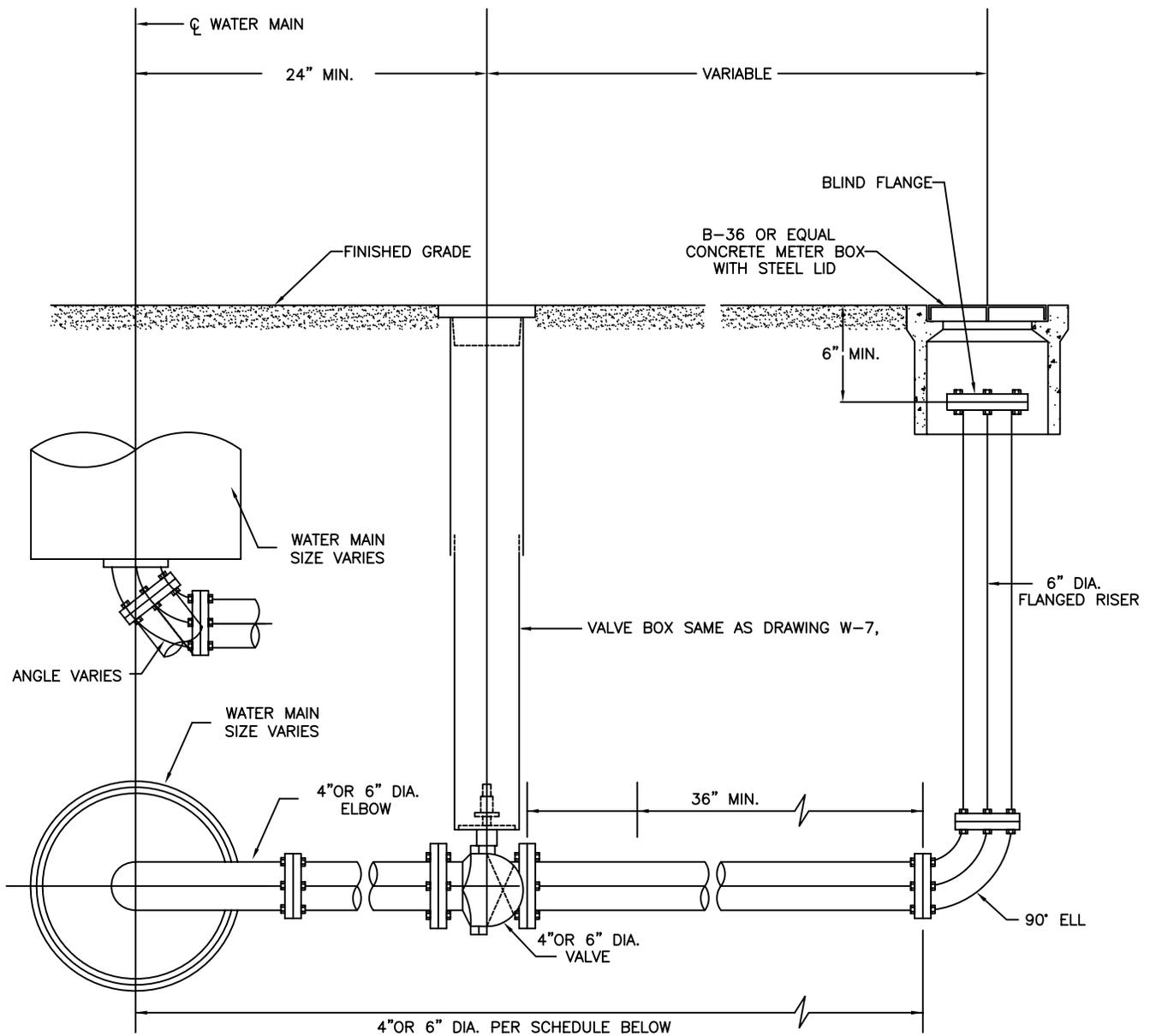
1. ALL FITTINGS SHALL BE SECURED WITH RETAINING GLANDS, HARNESSSES OR TIE-RODS AS APPLICABLE.
2. PLACE VALVES AND BLOW-OFFS OUTSIDE SIDEWALK AND DRIVEWAY AREAS.
3. ALL PUMP DISCHARGES SHALL BE FLANGED STEEL
4. ALL RISERS SHALL BE FLANGED, 6" DIAMETER.

BLOW-OFF SCHEDULE	
PIPE SIZE	
MAIN	BLOW-OFF
6"	4"
8"	4"
10"	4"
12"	6"
14"	6"
16"	6"

BLOW-OFF ASSEMBLY
TYPE A

REF. & REV.
AUG., 2002

CITY OF FRESNO
W-9



NOTE:

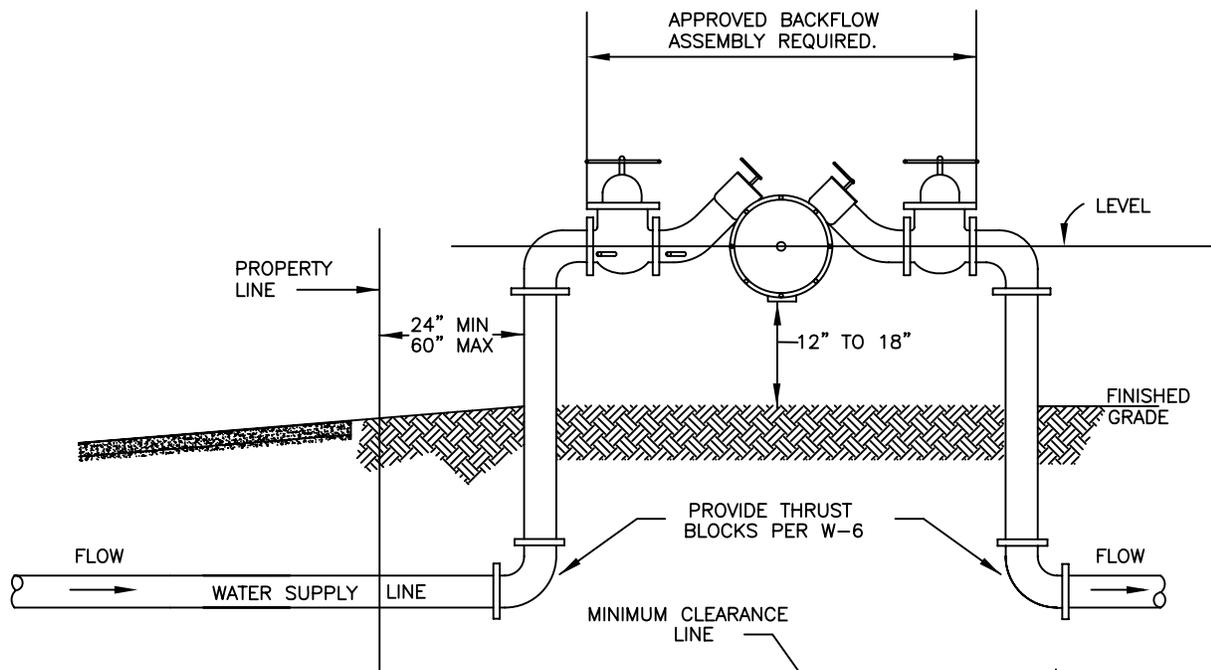
1. ALL FITTINGS SHALL BE SECURED WITH RETAINING GLANDS, HARNESSSES OR TIE-RODS AS APPLICABLE.
2. PLACE VALVES AND BLOW-OFFS OUTSIDE SIDEWALK AND DRIVEWAY AREAS.
3. ALL PUMP DISCHARGES SHALL BE FLANGED STEEL
4. ALL RISERS SHALL BE FLANGED, 6" DIAMETER.

BLOW-OFF SCHEDULE	
PIPE SIZE	
MAIN	BLOW-OFF
6"	4"
8"	4"
10"	4"
12"	6"
14"	6"
16"	6"

BLOW-OFF ASSEMBLY
TYPE B

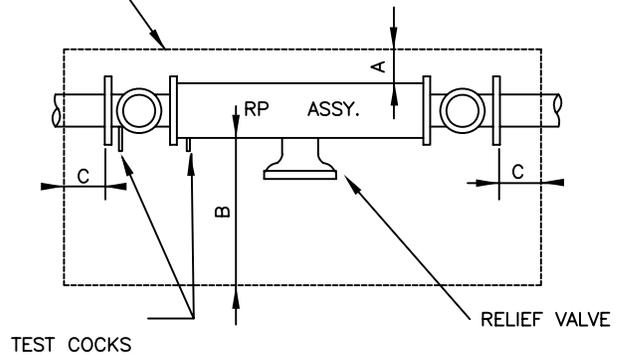
REF. & REV.
AUG., 2002

CITY OF FRESNO
W-10



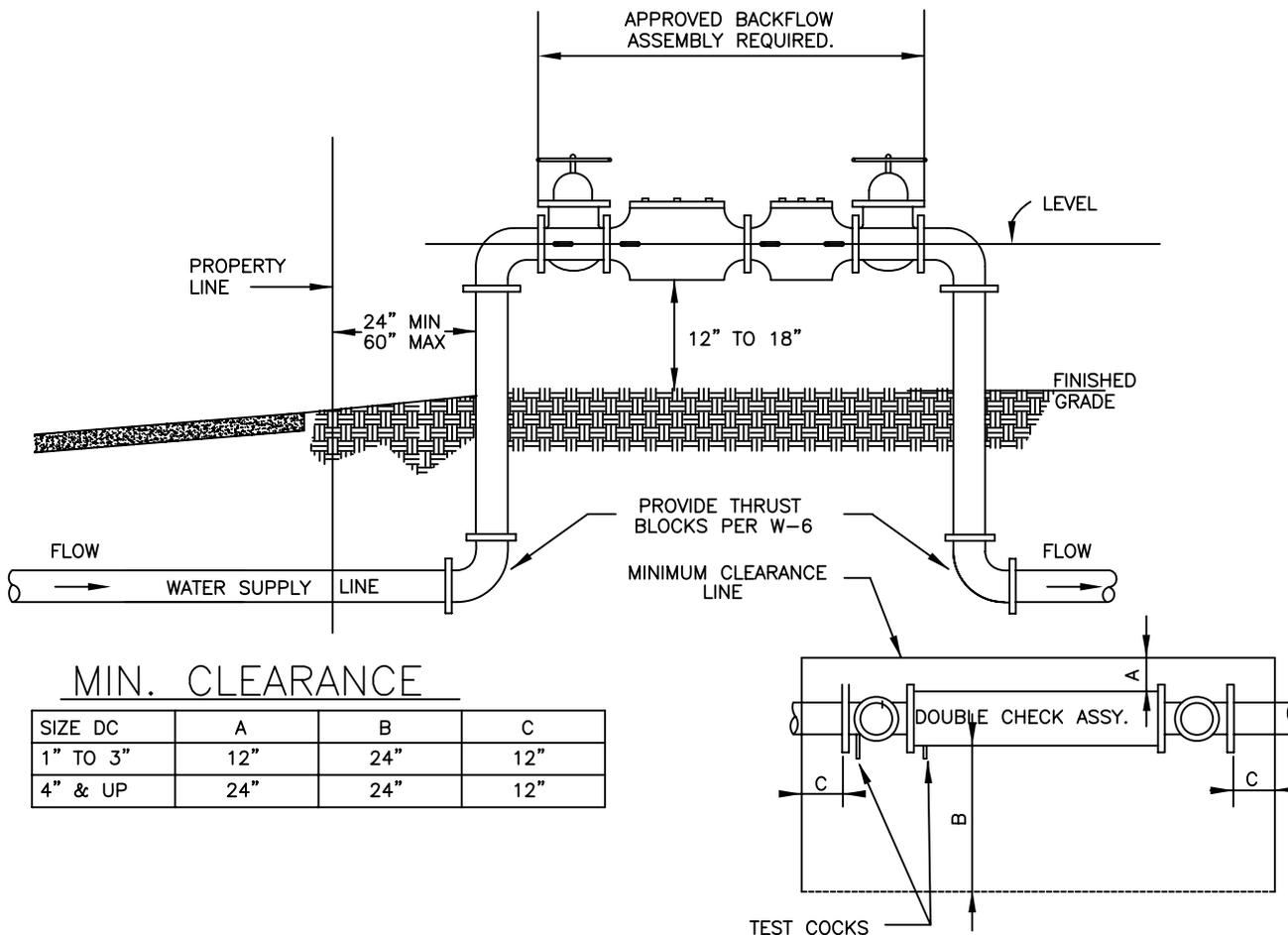
MIN. CLEARANCE

SIZE RP	A	B	C
1" TO 3"	12"	24"	12"
4" & UP	24"	24"	12"



GENERAL NOTES:

1. RESILIENT SEATED SHUT OFF VALVES AND TEST COCKS ARE REQUIRED.
2. NO TAPS, TEES OR CONNECTIONS OF ANY KIND ARE PERMITTED BETWEEN THE WATER METER AND THE BACKFLOW ASSEMBLY.
3. PROTECTION FROM FREEZE DAMAGE MAY BE REQUIRED IN EXPOSED AREAS.
4. ASSEMBLY MUST BE ACCESSIBLE FOR TESTING AND MAINTENANCE PER FRESNO MUNICIPAL CODE.
5. ASSEMBLY TO BE THE SAME SIZE AS THE WATER SUPPLY LINE PER UNIFORM PLUMBING CODE.
6. PRESSURE LOSS THROUGH RP ASSEMBLY MUST BE INCLUDED IN PRESSURE LOSS CALCULATIONS FOR SIZING OF THE WATER SYSTEM PER UNIFORM PLUMBING CODE.
7. MINIMUM CLEARANCES AROUND ASSEMBLY MUST BE MAINTAINED. REFER TO MINIMUM CLEARANCE CHART ON THIS PAGE.
8. INSTALL A MINIMUM OF ONE UNION IN THE PIPING SYSTEM WITHIN 12 INCHES OF THE ASSEMBLY – 3/4 THRU 2" SIZES.
9. DRAINAGE TO EXTERIOR OF THE BUILDING IS REQUIRED WHEN ASSEMBLY IS INSTALLED INSIDE.
10. ANY DEVIATION FROM THESE REQUIREMENTS SHALL BE APPROVED BY THE WATER SYSTEM MANAGER PRIOR TO INSTALLATION.

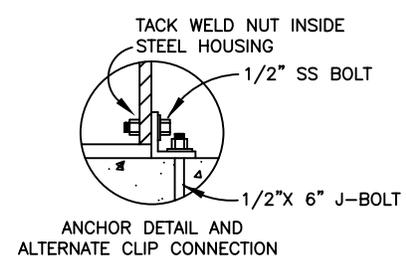
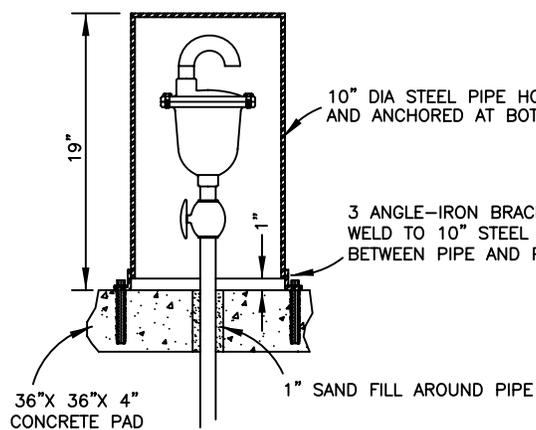
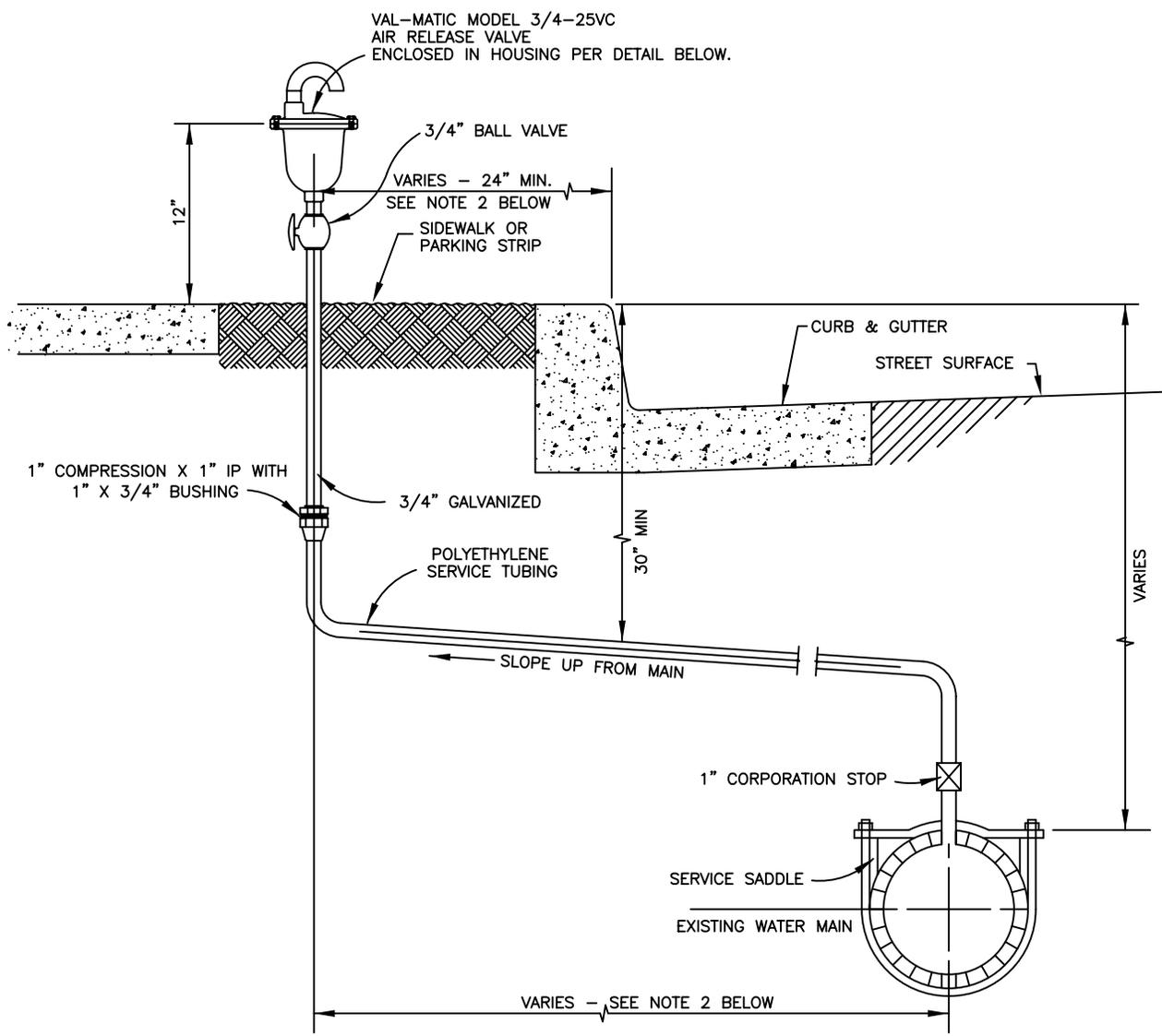


MIN. CLEARANCE

SIZE DC	A	B	C
1" TO 3"	12"	24"	12"
4" & UP	24"	24"	12"

GENERAL NOTES:

1. RESILIENT SEATED SHUT OFF VALVES AND TEST COCKS ARE REQUIRED.
2. NO TAPS, TEES OR CONNECTIONS OF ANY KIND ARE PERMITTED BETWEEN THE WATER METER AND THE BACKFLOW ASSEMBLY.
3. PROTECTION FROM FREEZE DAMAGE MAY BE REQUIRED IN EXPOSED AREAS.
4. ASSEMBLY MUST BE ACCESSIBLE FOR TESTING AND MAINTENANCE PER FRESNO MUNICIPAL CODE.
5. ASSEMBLY TO BE THE SAME SIZE AS THE WATER SUPPLY LINE PER UNIFORM PLUMBING CODE.
6. PRESSURE LOSS THROUGH ASSEMBLY MUST BE INCLUDED IN PRESSURE LOSS CALCULATIONS FOR SIZING OF THE WATER SYSTEM PER UNIFORM PLUMBING CODE.
7. MINIMUM CLEARANCES AROUND ASSEMBLY MUST BE MAINTAINED. REFER TO MINIMUM CLEARANCE CHART ON THIS PAGE.
8. INSTALL A MINIMUM OF ONE UNION IN THE PIPING SYSTEM WITHIN 12 INCHES OF THE ASSEMBLY – 3/4 THRU 2" SIZES.
9. DRAINAGE TO EXTERIOR OF THE BUILDING IS REQUIRED WHEN ASSEMBLY IS INSTALLED INSIDE.
10. ANY DEVIATION FROM THESE REQUIREMENTS SHALL BE APPROVED BY THE WATER SYSTEM MANAGER PRIOR TO INSTALLATION.



- NOTES :
1. METAL HOUSING SHALL BE PRIMED AND PAINTED WITH A LIGHT GREEN, TAN OR GRAY EXTERIOR ENAMEL FINISH.
 2. VALVE ASSEMBLY AND METAL HOUSING SHALL BE LOCATED IN MEDIAN ISLANDS, LANDSCAPE AREAS OR OUTSIDE OF SIDEWALK AREA WHERE POSSIBLE.

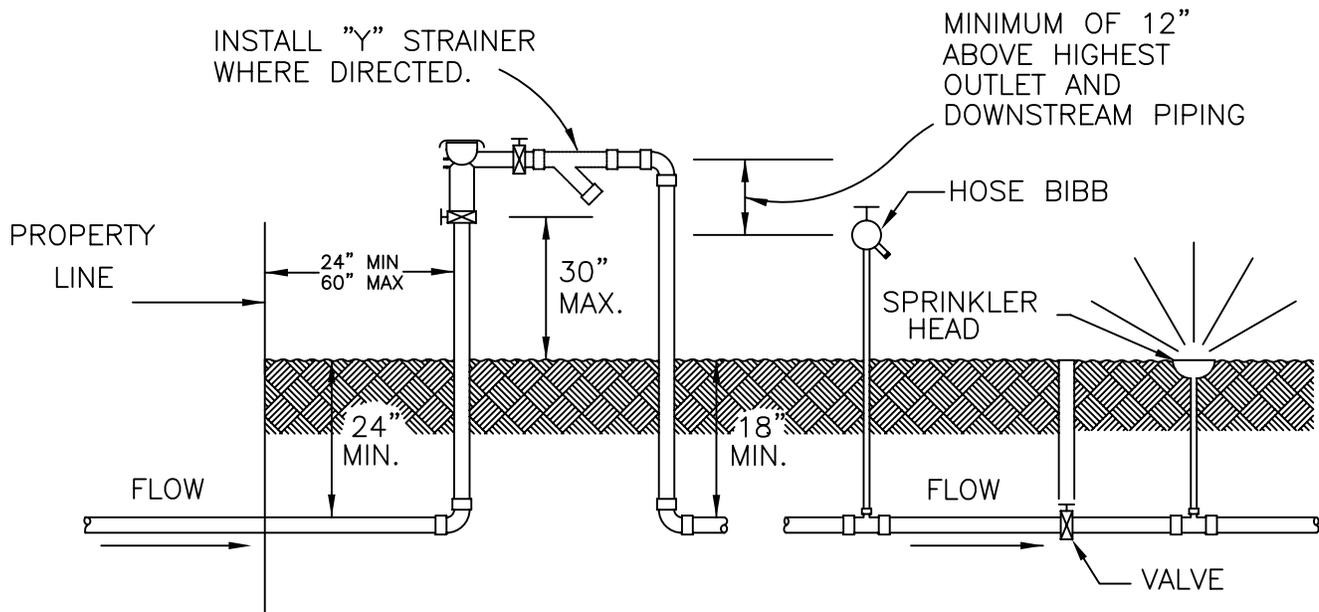
PROVIDE 4' MIN. SIDEWALK CLEARANCE
ADJACENT TO AIR-VAC DEVICE FOR ADA
ACCESSIBILITY REQUIREMENTS.

AUTOMATIC AIR RELEASE AND VACUUM VALVE

REF. & REV.
DEC., 2003

CITY OF FRESNO

W-13

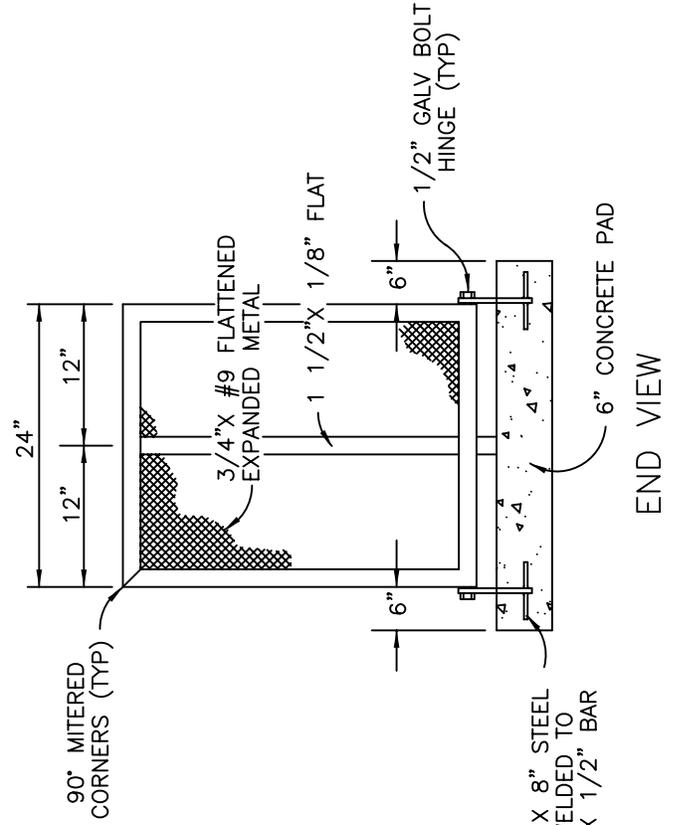
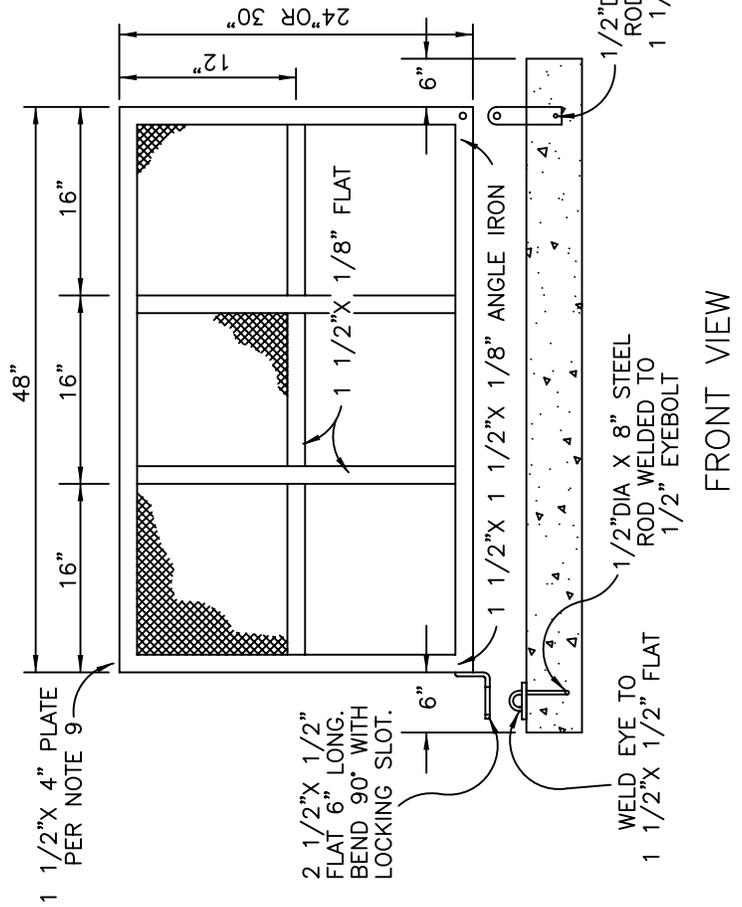
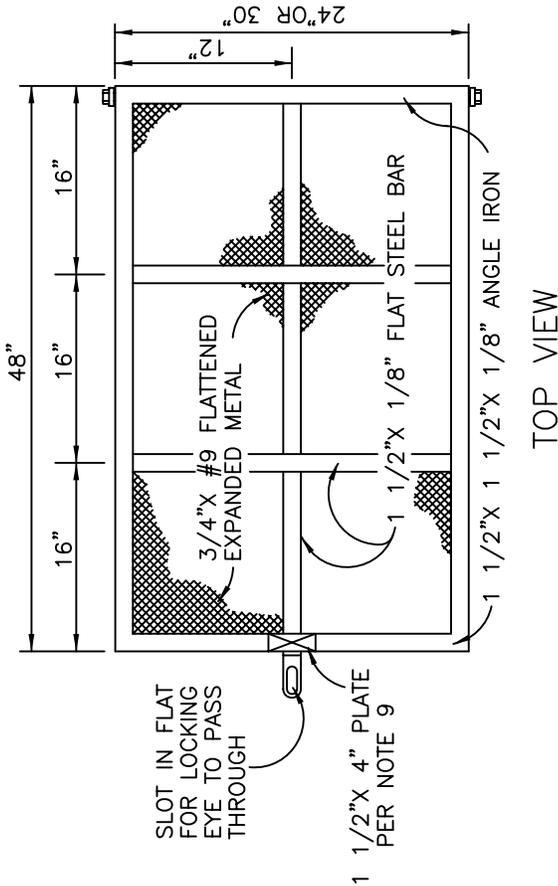


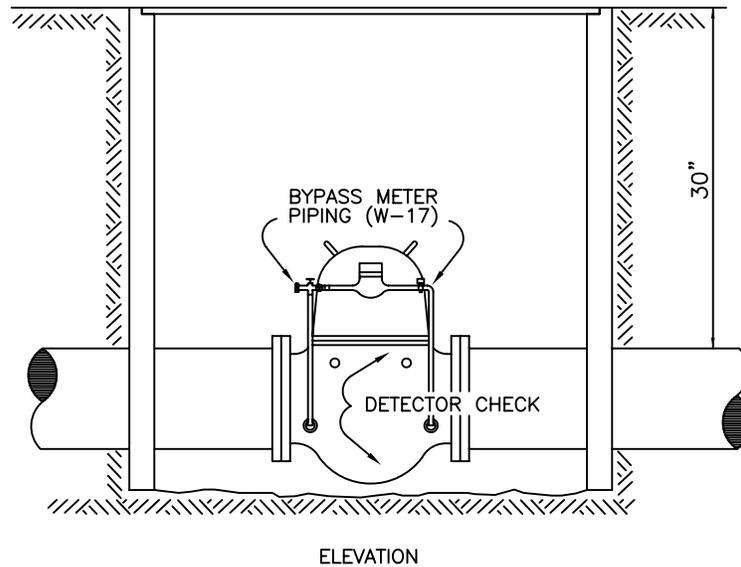
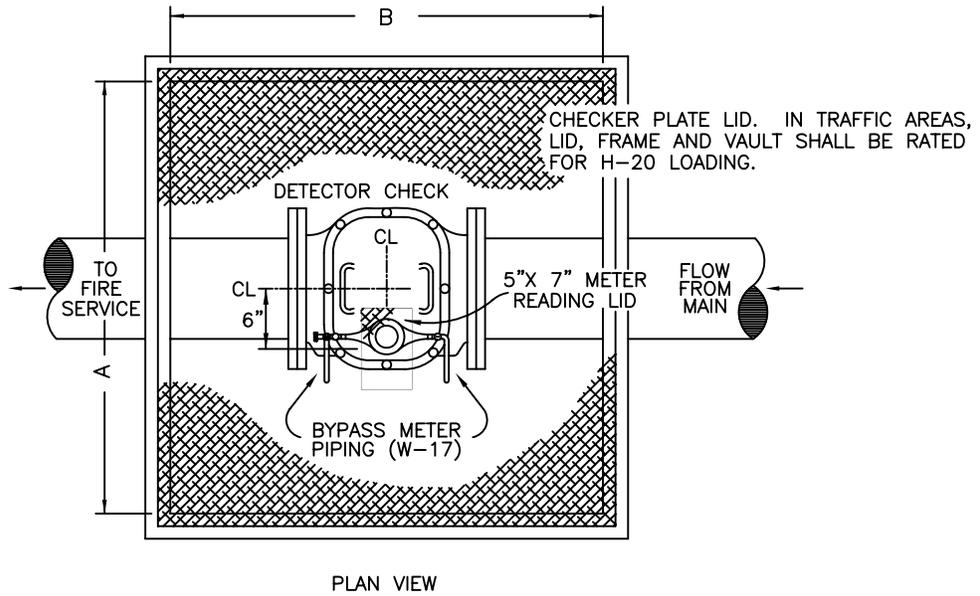
GENERAL NOTES:

1. RESILIENT SEATED SHUT OFF VALVES AND TEST COCKS ARE REQUIRED.
2. NO TAPS, TEES OR CONNECTIONS OF ANY KIND ARE PERMITTED BETWEEN THE WATER METER AND THE P.V.B. ASSEMBLY.
3. PROTECTION FROM FREEZE DAMAGE MAY BE REQUIRED IN EXPOSED AREAS.
4. ASSEMBLY MUST BE ACCESSIBLE FOR TESTING AND MAINTENANCE PER FRESNO MUNICIPAL CODE.
5. ASSEMBLY TO BE THE SAME SIZE AS THE WATER SUPPLY LINE PER UNIFORM PLUMBING CODE.
6. PRESSURE LOSS THROUGH P.V.B. ASSEMBLY MUST BE INCLUDED IN PRESSURE LOSS CALCULATIONS FOR SIZING OF THE WATER SYSTEM PER UNIFORM PLUMBING CODE.
7. DOWNSTREAM PIPING MAY HAVE VALVES IN SYSTEM.
8. INSTALL ONE UNION IN THE PIPING SYSTEM WITHIN 12 INCHES OF THE ASSEMBLY.
9. ASSEMBLY CAN NOT BE SUBJECT TO BACKPRESSURE FROM PUMPS, ELEVATION OR OTHER SOURCES.
10. MAINTAIN A MINIMUM OF 18 INCHES CLEARANCE AROUND ASSEMBLY.
11. ANY DEVIATION FROM THESE REQUIREMENTS SHALL BE APPROVED BY THE WATER SYSTEM MANAGER PRIOR TO INSTALLATION.

GENERAL NOTES

1. EXPANDED METAL GRATING TO BE WELDED INSIDE STRUCTURAL SUPPORTS EVERY 5" MINIMUM.
2. ALL DIAGONAL OR CIRCULAR CUT EXPOSED EDGES SHALL BE Banded WITH BAR STOCK WELDED AT ALL CONTACT POINTS.
3. FABRICATE HINGE FROM 1/2" GALV. BOLTS WITH GALV. WASHERS & DOUBLE NUTS. BURR THREADS TO PREVENT REMOVAL.
4. WELD ALL 1/2" THICK BAR INTERSECTIONS WITH 3/8" FILLET WELDS.
5. CONCRETE SLAB TO BE CLASS "A" CONCRETE - 6" THICK.
6. ALL PIPING THROUGH CONCRETE SHALL BE DOUBLE WRAPPED WITH 20 MIL PLUMBERS TAPE.
7. ALL EXPOSED METAL TO BE PRIMED AND PAINTED WITH RUST PREVENTIVE PAINT.
8. ENCLOSURE DIMENSIONS MAY VARY TO SUIT EQUIPMENT TYPE.
9. ATTACH 1 1/2"X 4" STEEL PLATE FOR SITE ADDRESS.



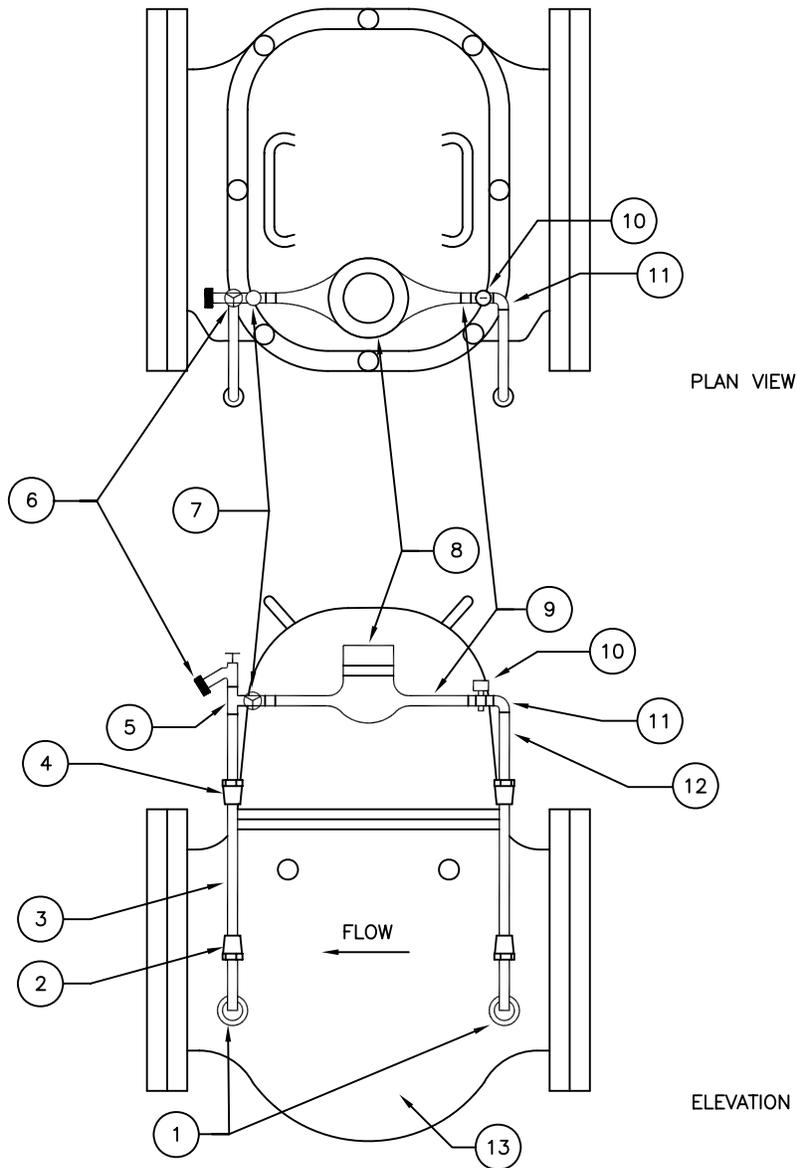


NOTES:

1. CHECK VALVE TO BE HERSEY MODEL E.D.C. OR D.C., GRINNELL MODEL A-2 OR B-2 OR APPROVED EQUAL.
2. CHECK VALVE TO BE TAPPED AND PLUGGED (FOR INSTALLATION OF BYPASS METER PIPING BY CITY FORCES).
3. VAULT OR BOX TO BE CHRISTY, BROOKS OR APPROVED EQUAL.
4. VAULT OR BOX, DETECTOR CHECK VALVE AND COVER TO BE INSTALLED BY DEVELOPER'S CONTRACTOR PER FRESNO MUNICIPAL CODE, SECTION 14, SUBSECTIONS 131-137 INCL. SEE W-17 FOR DETAILS.
5. VAULT OR BOX COVER TO HAVE 5"X 7" HINGED METER READ LID.

NOMINAL INSIDE DIMENSIONS

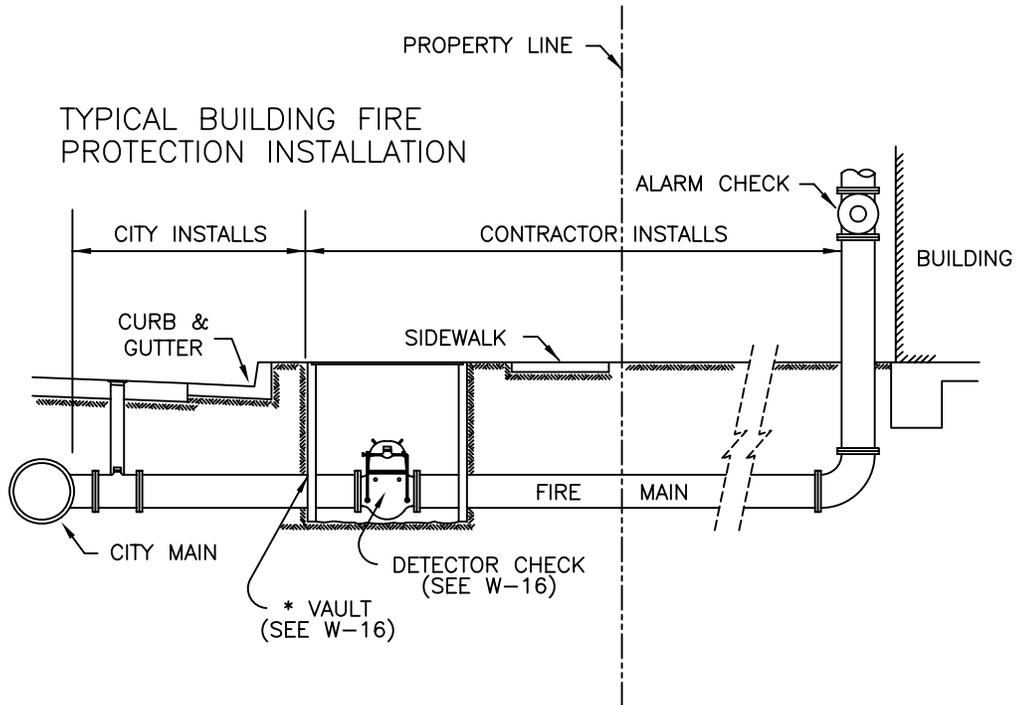
SERVICE	A	B
4" - 8"	30"	48"
10"	48"	48"



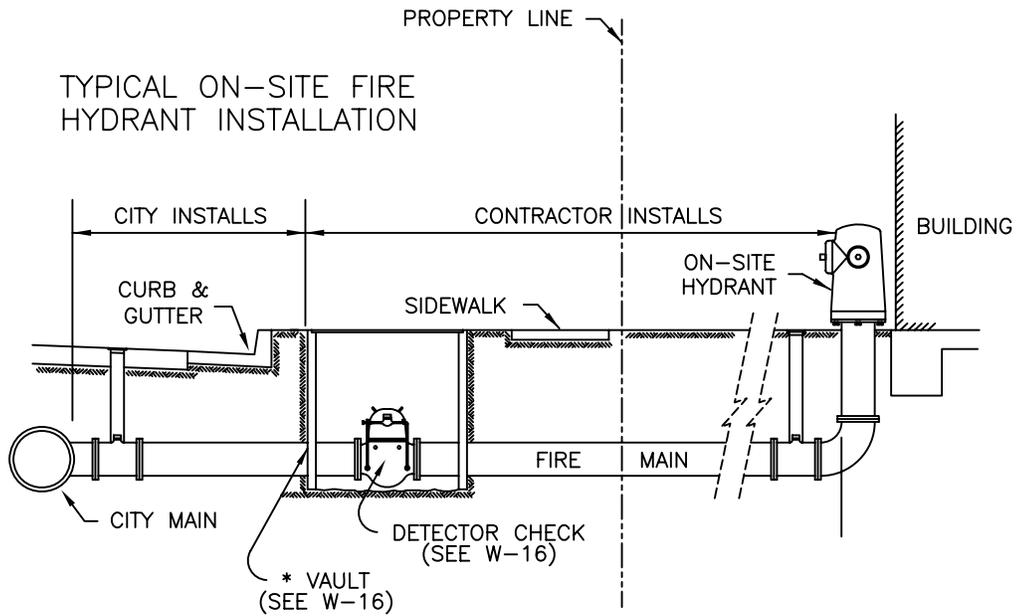
MATERIALS LIST:

- | | |
|--|---|
| 1. 1"X 3/4" BRASS BUSHING - 2 REQ'D. | 8. 5/8" METER - 1 REQ'D. |
| 2. 3/4" J-1550 BRASS COUPLING - 2 REQ'D. | 9. 3/4" METER CONNECTION (TAIL PIECE) - 2 REQ'D. |
| 3. 3/4" COPPER TUBING - 2 REQ'D. | 10. 3/4" J-200 CURB STOP - 1 REQ'D. |
| 4. 3/4" J-1531 BRASS COUPLING - 2 REQ'D. | 11. 3/4" BRASS 90° ELL - 1 REQ'D. |
| 5. 3/4" BRASS TEE - 1 REQ'D. | 12. 3/4" BRASS CLOSE NIPPLE - 4 REQ'D. |
| 6. 3/4" BENT NOSE HOSE BIBB - 1 REQ'D. | 13. WEIGHTED DETECTOR CHECK VALVE - 1 REQ'D. |
| 7. 3/4" CHECK VALVE - 1 REQ'D. | A. TO BE INSTALLED BY DEVELOPER. |
| | B. TO BE TAPPED AND PLUGGED FOR
DETECTOR METER PIPING. SEE W-16. |

TYPICAL BUILDING FIRE PROTECTION INSTALLATION



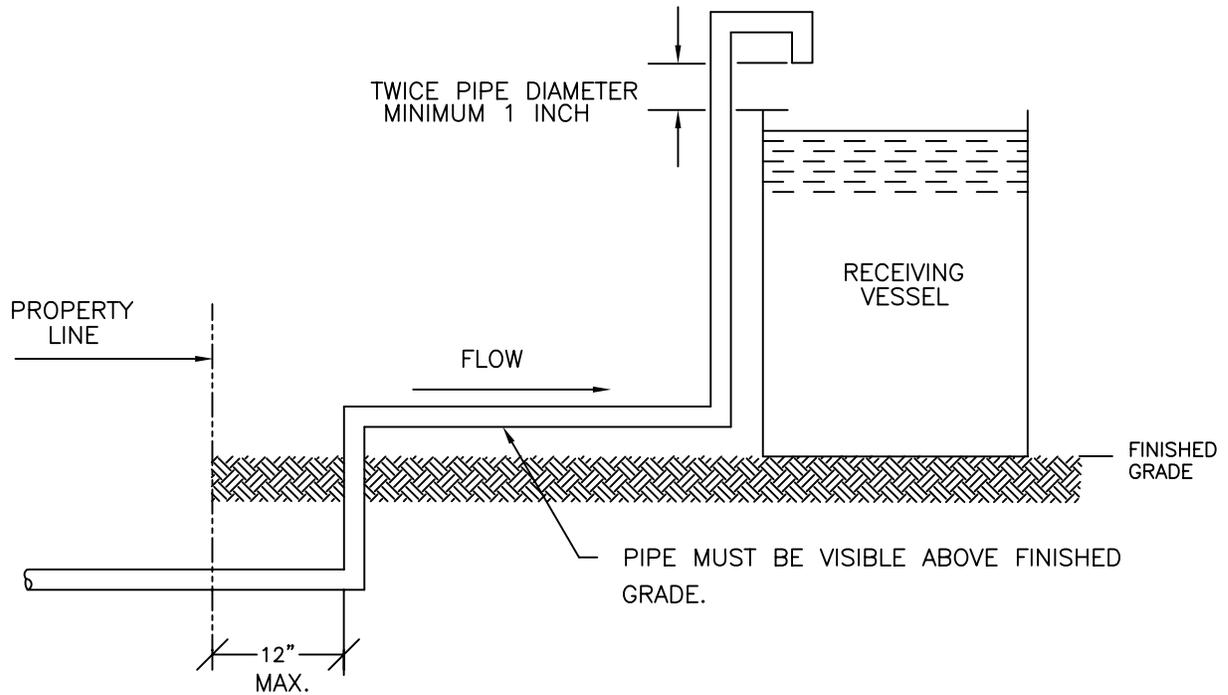
TYPICAL ON-SITE FIRE HYDRANT INSTALLATION



NOTES:

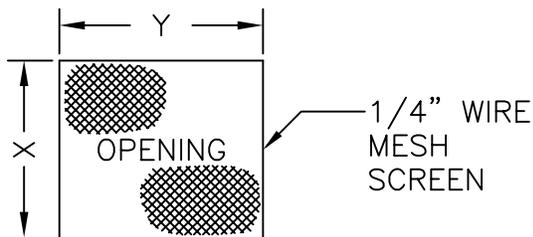
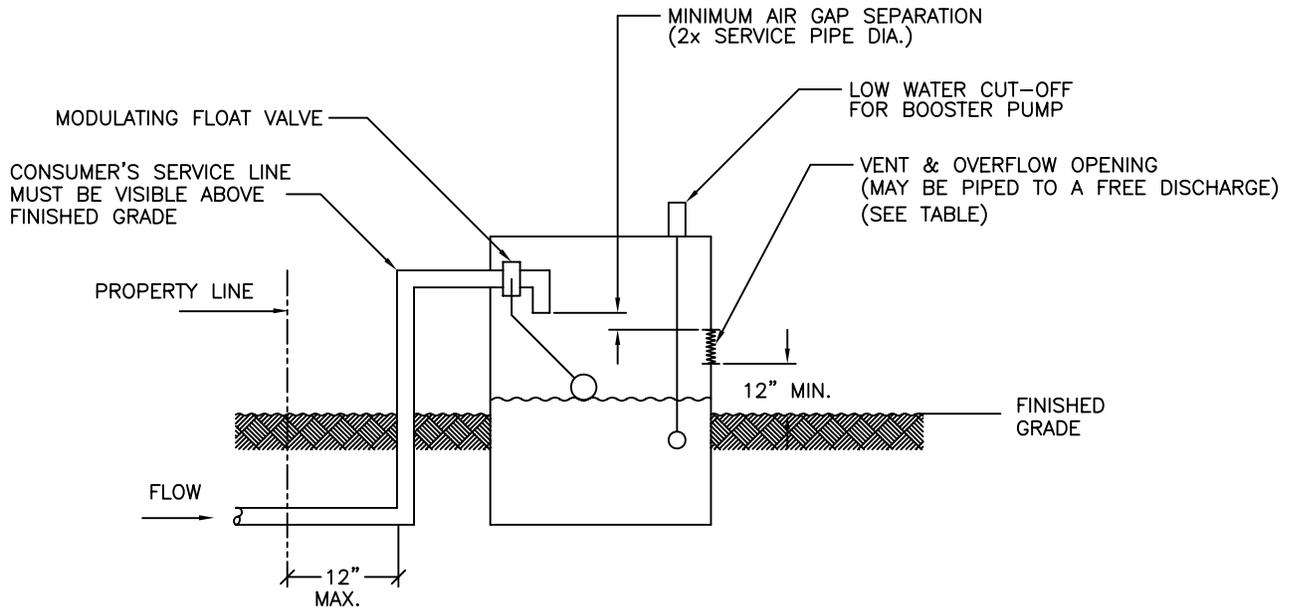
1. THE PERMANENT CONNECTION BETWEEN THE CITY'S INSTALLATION AND THE DEVELOPER'S CONSTRUCTION SHALL BE MADE BY THE DEVELOPER'S CONTRACTOR.
2. CONTRACTOR SHALL INSTALL VAULT AND VAULT COVER AFTER CITY FORCES COMPLETE THEIR WORK.

* VAULT TO BE 1.5' FROM THE CURB FACE OR AS DIRECTED BY THE ENGINEER.



REQUIREMENTS

1. NO TAPS, TEES OR CONNECTIONS OF ANY KIND ARE PERMITTED BETWEEN THE WATER METER AND RECEIVING VESSEL.
2. THE SERVICE PIPE BETWEEN THE WATER METER AND RECEIVING VESSEL MUST BE VISIBLE ABOVE FINISHED GRADE FROM 12 INCHES BEHIND PROPERTY LINE TO THE RECEIVING VESSEL.
3. PROTECTION FROM FREEZE DAMAGE MAY BE NECESSARY IN EXPOSED AREAS.



VENT & OVERFLOW

VENT & OVERFLOW TABLE		
SERVICE PIPE SIZE	DIMENSIONS	
	X	Y
3/4"	4"	3"
1"	4"	4 1/2"
1 1/2"	5"	6"
2"	6"	7"
3"	7"	10"
* 4"	7"	10"
* 6"	7"	15"
* 8"	7"	20"

* 2 OPENINGS REQUIRED

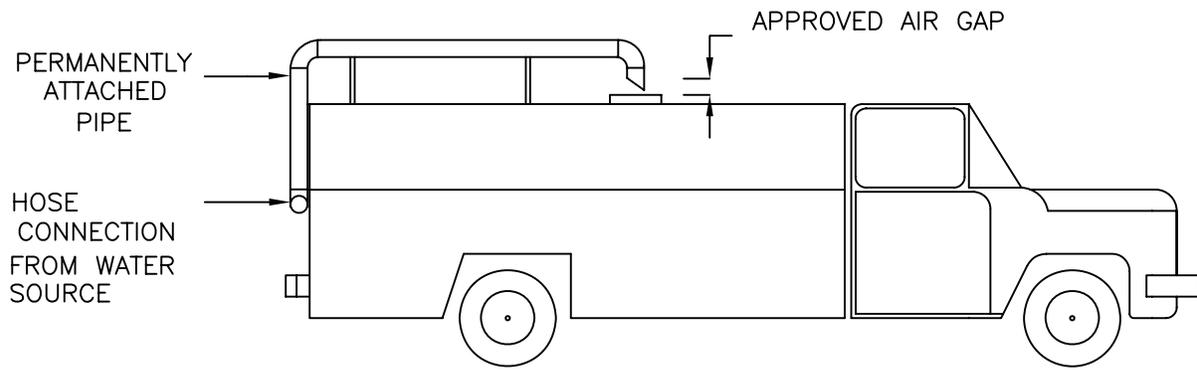
REQUIREMENTS

1. NO TAPS, TEES OR OTHER CONNECTIONS OF ANY KIND ARE PERMITTED BETWEEN THE WATER METER AND RECEIVING VESSEL.
2. THE OVERFLOW OPENING AND SCREEN SIZE SHALL BE AS SHOWN ON THE VENT AND OVERFLOW TABLE OR OF GREATER CAPACITY AS REQUIRED TO MAINTAIN THE SPECIFIED AIR GAP SYSTEM.
3. PROTECTION FROM FREEZE DAMAGE MAY BE NECESSARY IN EXPOSED AREAS.

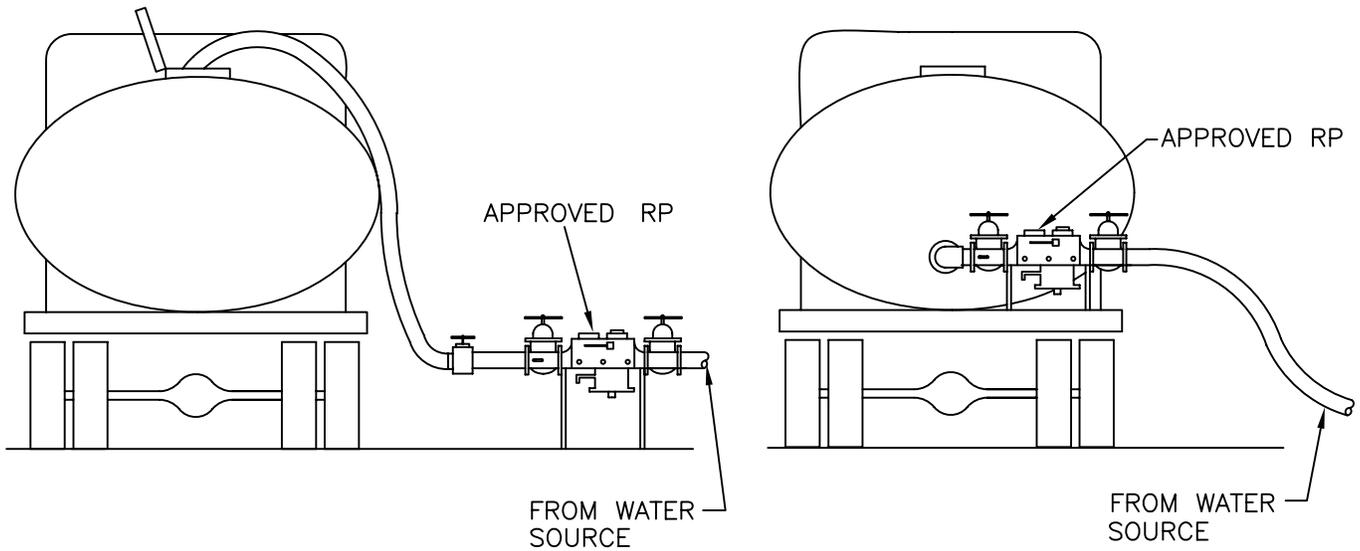
APPROVED ALTERNATIVE
INSTALLATION
FOR AN AIR GAP SYSTEM

REF. & REV.
AUG., 2002

CITY OF FRESNO
W-20



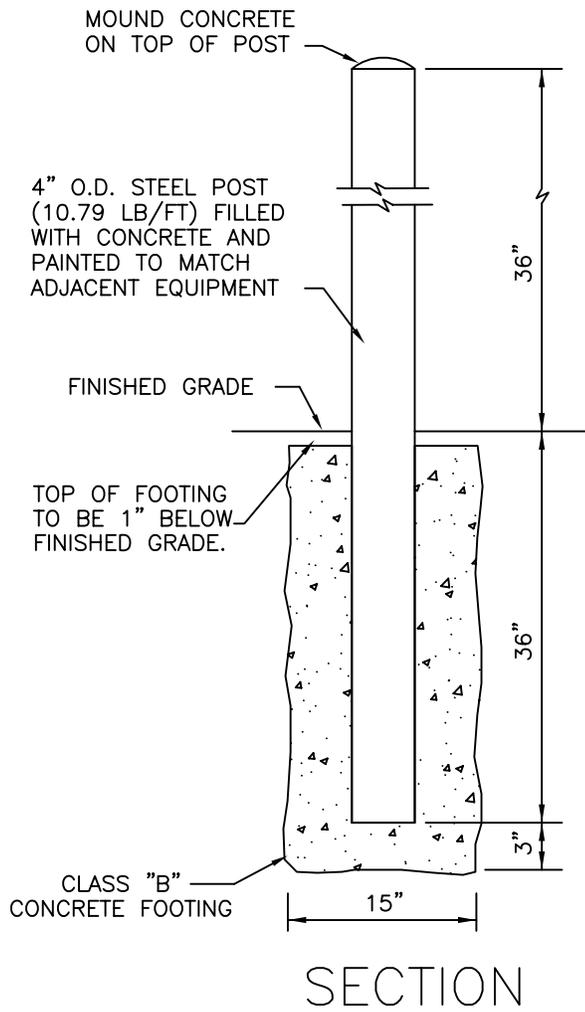
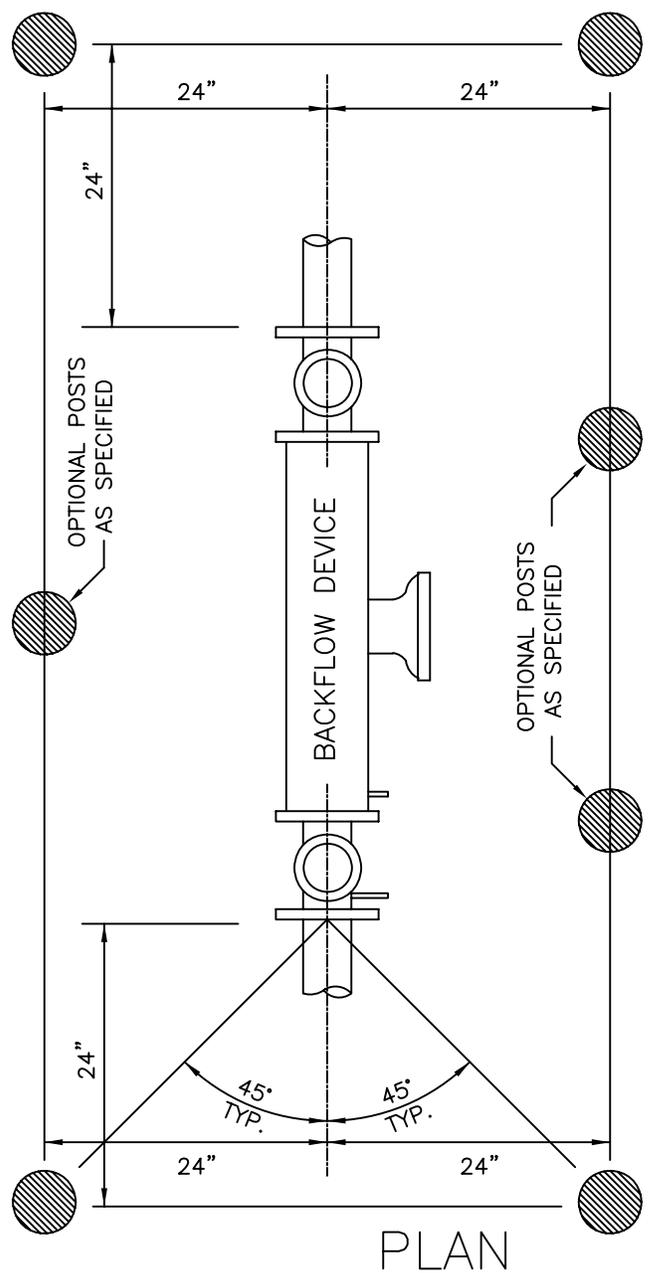
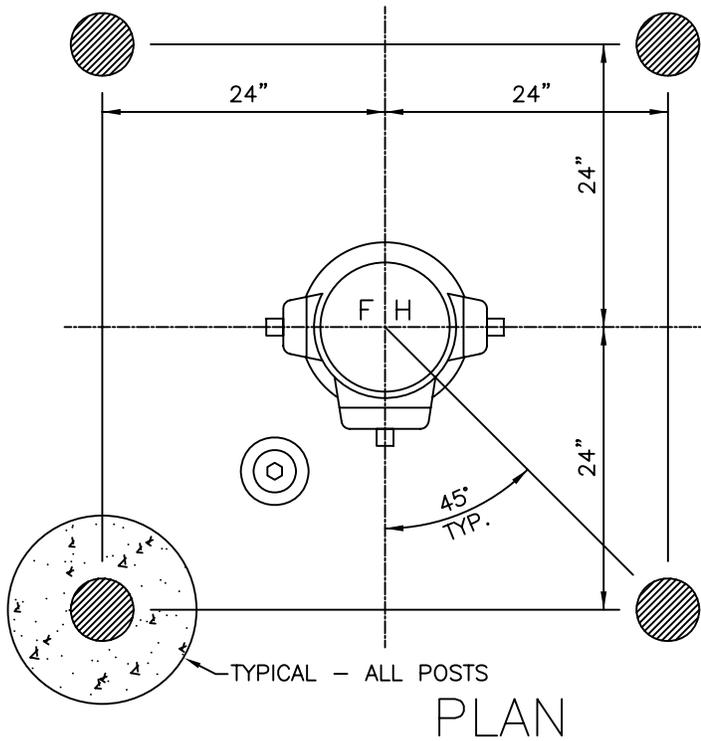
AIR-GAP PROTECTION



MECHANICAL ASS'Y PROTECTION

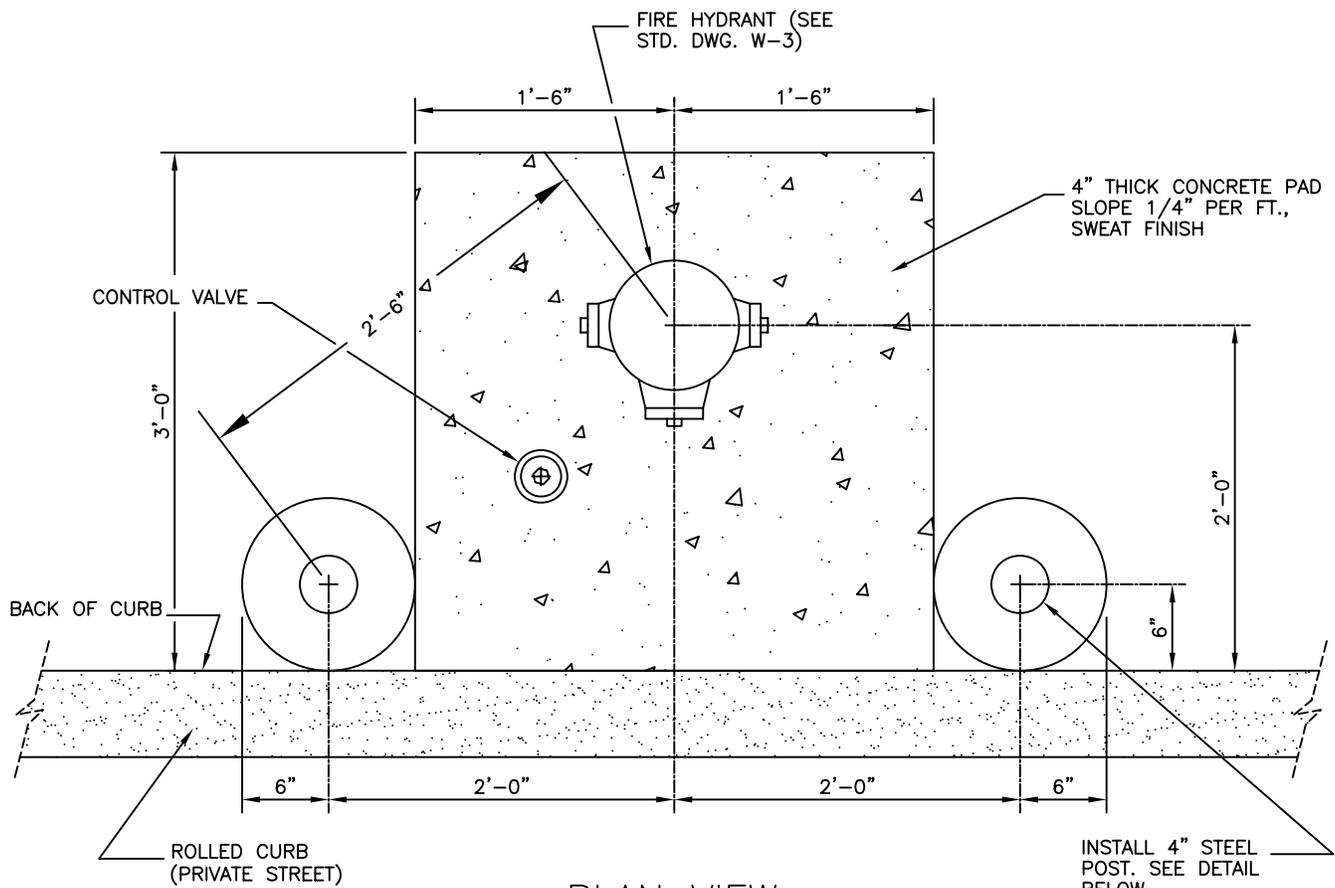
REQUIREMENTS

1. AIR-GAP MUST BE APPROVED "AIR-GAP" SYSTEM.
2. MECHANICAL BACKFLOW PREVENTER MUST BE AN APPROVED REDUCED PRESSURE PRINCIPAL ASSEMBLY.
3. BACKFLOW ASSEMBLY MUST BE TESTED BY A CERTIFIED BACKFLOW PREVENTION DEVICE TESTER, WHO IS REGISTERED WITH THE CITY WATER DIVISION. THE TESTS SHALL BE PERFORMED ONCE A YEAR. THE TEST RESULTS MUST BE PROVIDED TO THE CITY WATER DIVISION.
4. TYPICAL EQUIPMENT: WATER TRUCKS, PEST CONTROL TRUCKS, HYDROSEEDING EQUIPMENT, PORTABLE WASHING AND STEAM CLEANING EQUIPMENT.

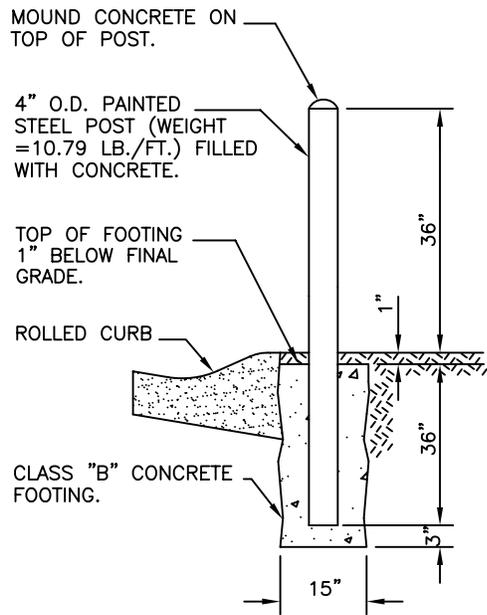


NOTES

1. NUMBER OF POSTS SHALL BE AS SPECIFIED TO FIT VARIOUS FIELD CONDITIONS.
2. POSTS MAY BE USED IN VARIOUS LOCATIONS TO PROTECT FIRE HYDRANTS, BACKFLOW DEVICES AND OTHER ABOVE GROUND EQUIPMENT AS REQUIRED.



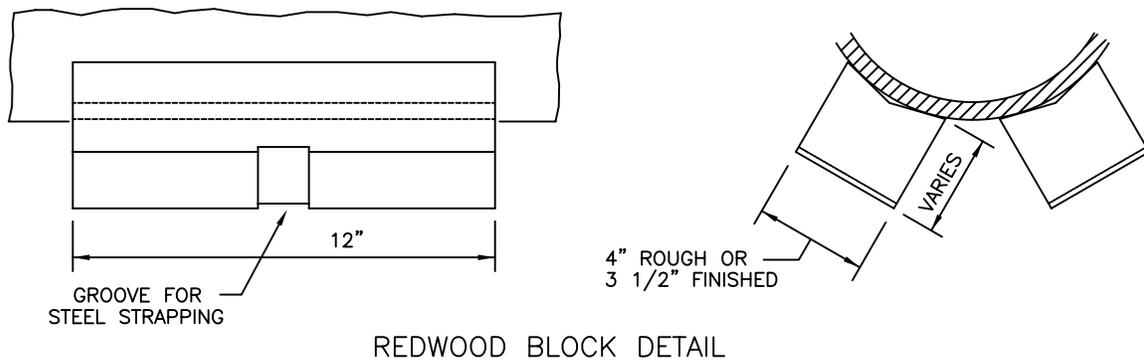
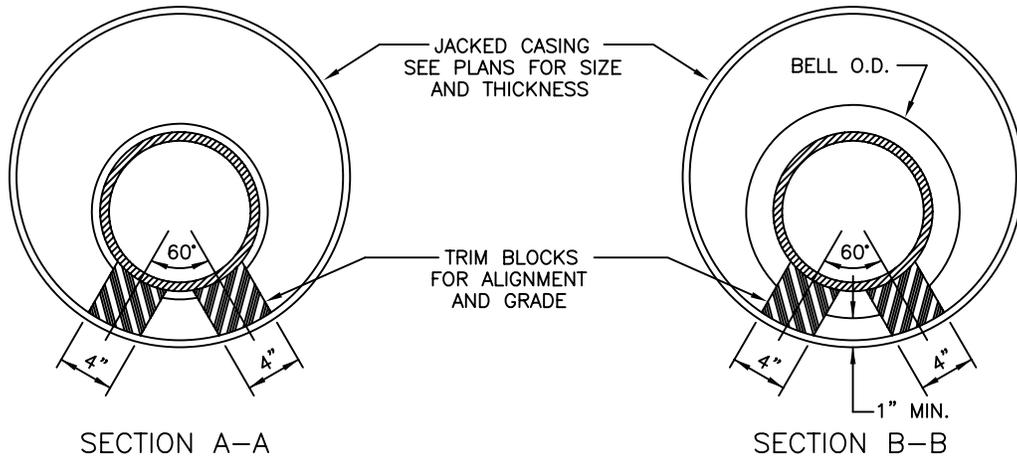
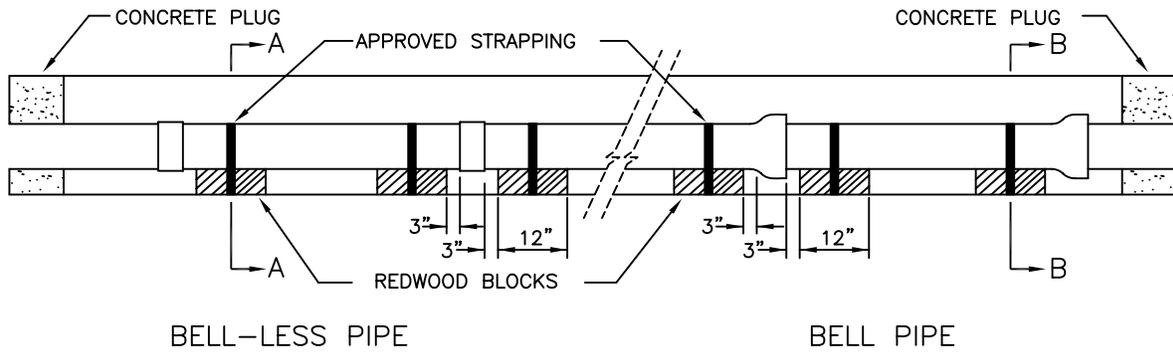
PLAN VIEW



DETAIL OF STEEL GUARD POST

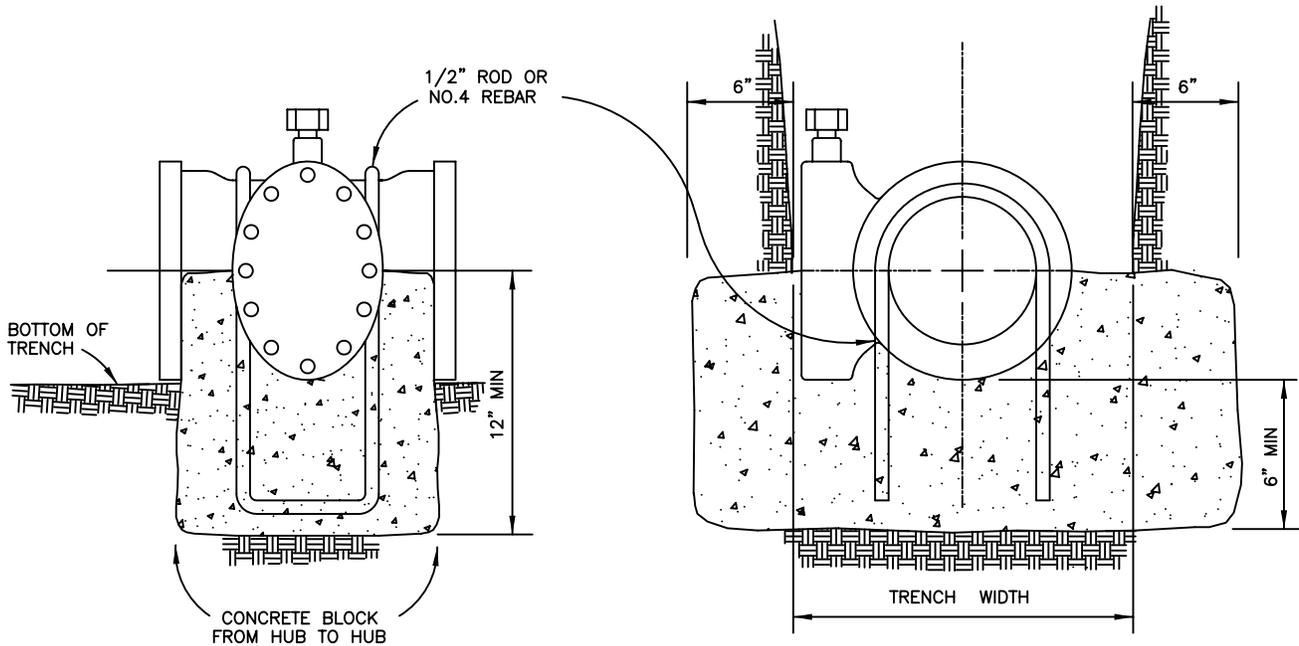
NOTES:

1. THE MAINTENANCE OF THE FIRE HYDRANT PROTECTOR POST SHALL BE THE RESPONSIBILITY OF THE HOMEOWNERS' ASSOCIATION, WITHIN PRIVATE STREETS.
2. IN THE EVENT ANY DAMAGE IS NOTED, THE CITY WILL NOTIFY THE HOMEOWNERS' ASSOCIATION TO PERFORM THE NECESSARY REPAIRS.
3. IF THE DAMAGE IS NOT REPAIRED WITHIN 30 CALENDAR DAYS FROM THE DATE OF THE CITY NOTICE, THE CITY SHALL PERFORM THE NECESSARY REPAIRS AND BILL THE HOMEOWNERS' ASSOCIATION FOR THE ASSOCIATED REPAIR COST.
4. POSTS SHALL BE KEPT IN GOOD REPAIR, AND SHALL BE CLEANED OR REPAINTED AS NECESSARY TO PRESERVE THEIR APPEARANCE.



NOTES:

1. REDWOOD BLOCKS SHALL BE CONSTRUCTION GRADE.
2. REDWOOD BLOCKS SHALL BE VEED TO FIT CONTOUR OF PIPE.
3. WHEN JACKING CASING, GRADE SHALL BE SET SO CENTERLINE OF CASING SHALL COINCIDE WITH CENTERLINE OF WATER MAIN.
4. REDWOOD BLOCKS SHALL BE STRAPPED TO THE PIPE WITH STEEL STRAPPING OR APPROVED WIRE BANDS.
5. PLUG ENDS OF CASING WITH 12 INCHES MINIMUM OF CONCRETE.
6. CONCRETE SHALL BE CLASS B.

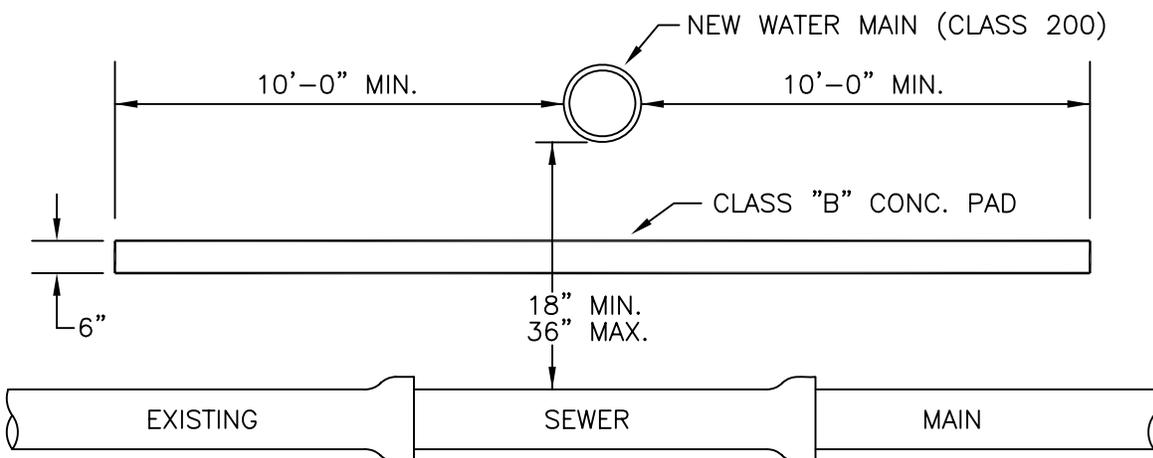
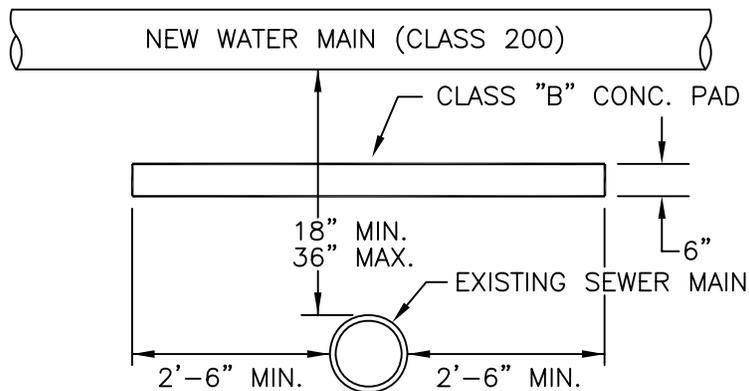


NOTE:
 OPERATING NUT OF BUTTERFLY VALVE SHALL BE PLACED ON
 SOUTH OR WEST SIDE DEPENDING ON LINE LOCATION.

VALVE ANCHOR
 FOR LINE VALVE

REF. & REV.
 AUG., 2002

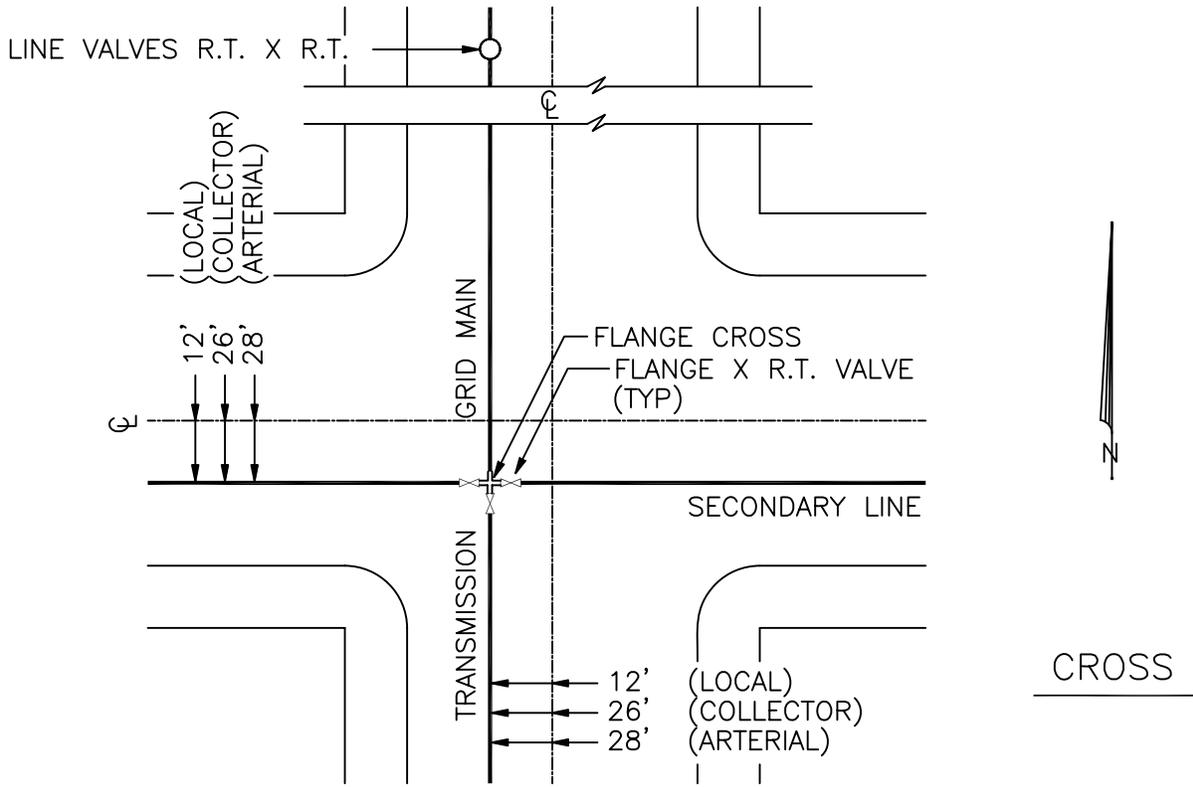
CITY OF FRESNO
 W-25



ALTERNATIVE TO FULL CONCRETE
ENCASEMENT
(NEW WATER MAIN CROSSING EXISTING SEWER MAIN ZONE D)

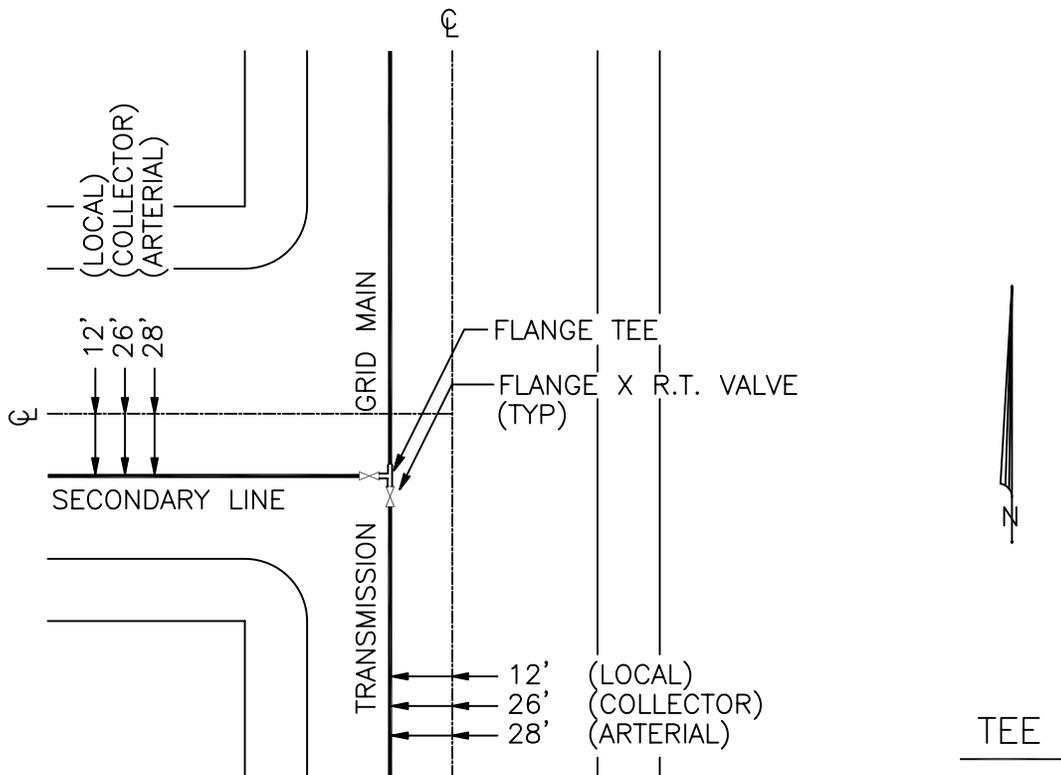
REF. & REV.
AUG., 2002

CITY OF FRESNO
W-26



NOTES:

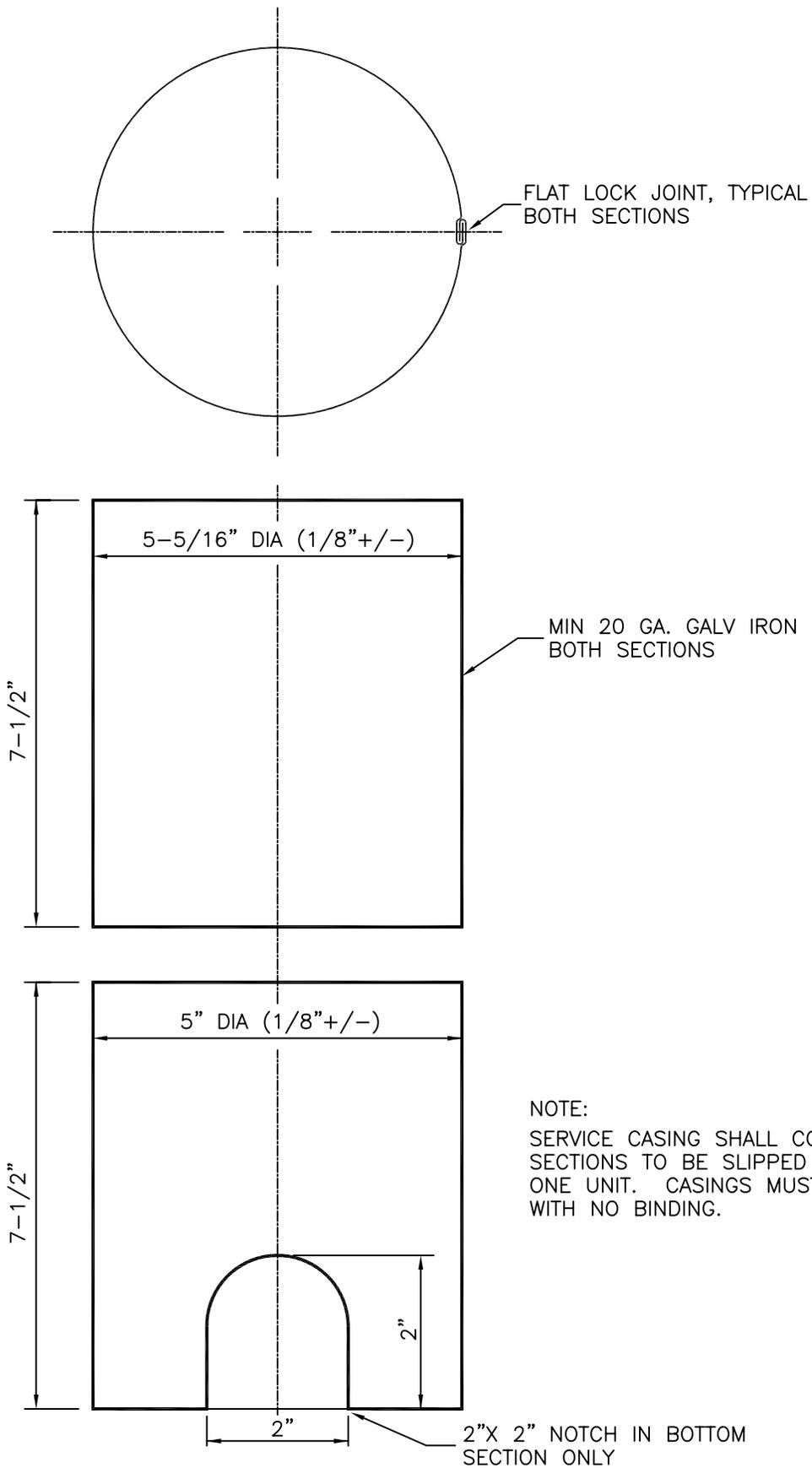
1. DISTANCE BETWEEN VALVES SHALL NOT EXCEED 600' WITHOUT APPROVAL OF ENGINEER.
2. RINGTITE JOINTS SHALL MEAN TYTON JOINT WHERE CAST IRON OR DUCTILE IRON PIPE IS USED.



TYPICAL INTERSECTION CONNECTIONS

REF. & REV.
AUG., 2002

CITY OF FRESNO
W-27

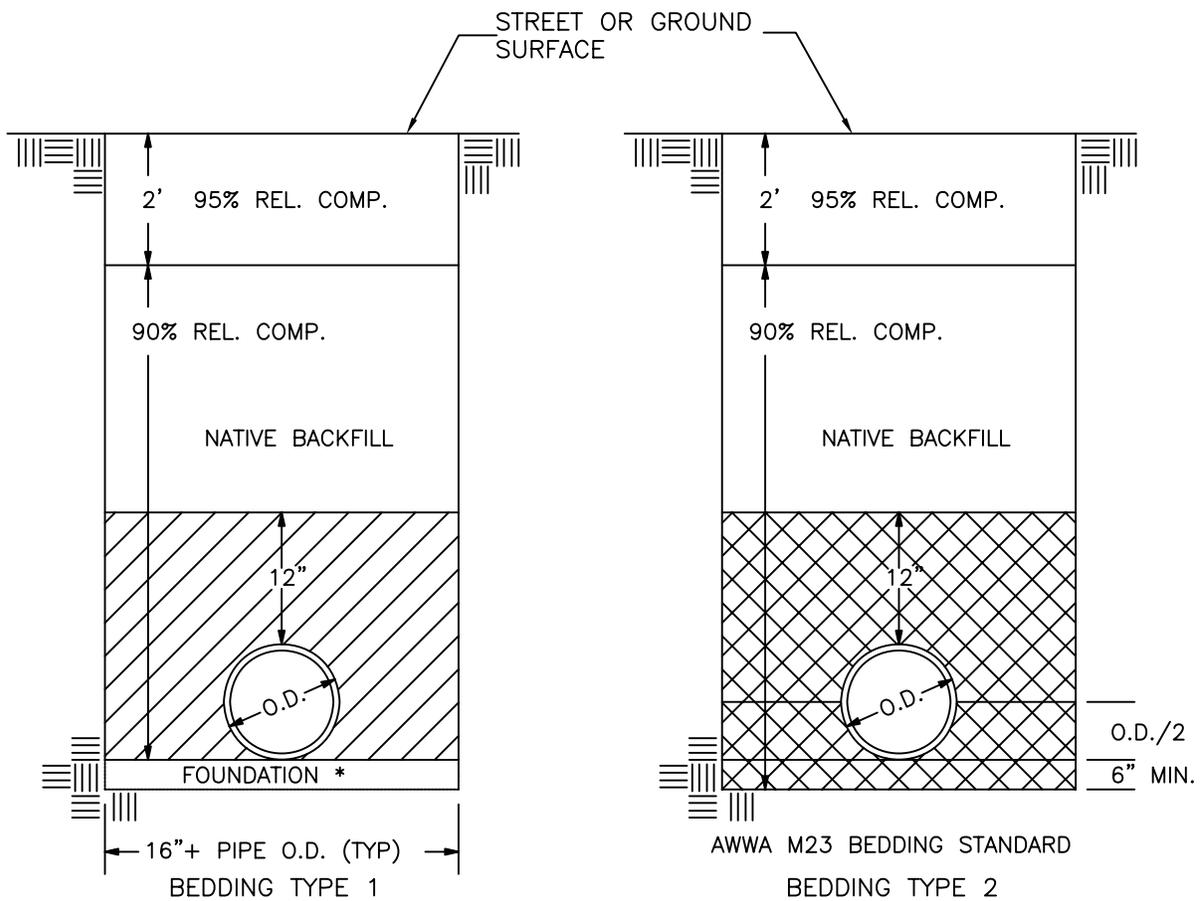


SERVICE CASING

REF. & REV.
AUG., 2002

CITY OF FRESNO

W-28



SIZE OF WATER MAIN	PIPE MATERIAL		
	DUCTILE IRON**	PVC CL.150	PVC CL.235
6" - 12"	TYPE 1	TYPE 2	N.A.
14" AND LARGER	TYPE 1	N.A.	TYPE 1



SELECT MATERIAL - 2" DIAMETER OR SMALLER



SELECT MATERIAL - 3/4" DIAMETER OR SMALLER

BELL HOLES ARE REQUIRED FOR PUSH ON AND MECHANICAL JOINT PIPE.

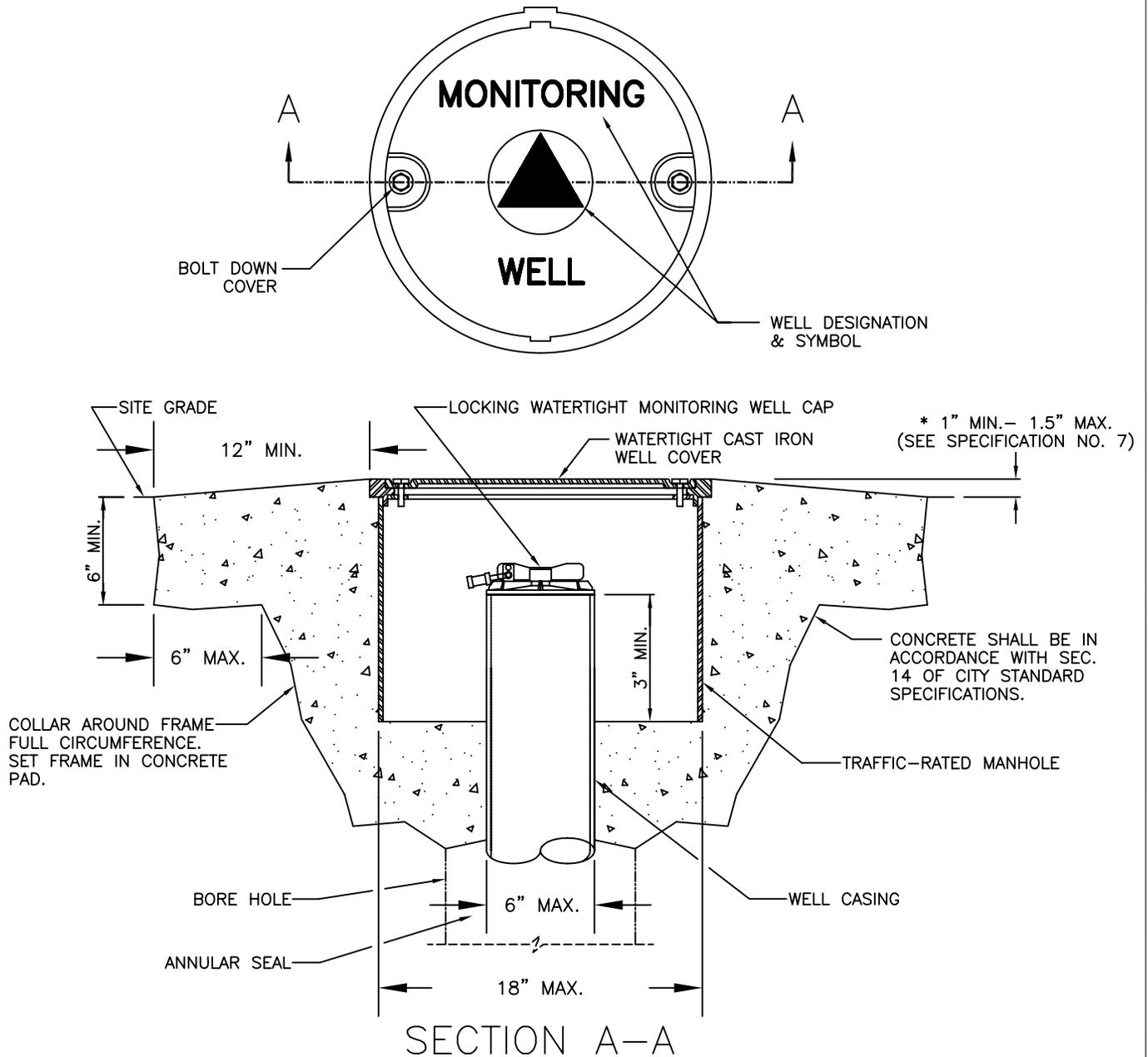
NO JETTING ALLOWED FOR PVC WATER PIPE.

* IF HARDPAN EXISTS, EXCAVATE 4" AND BACKFILL WITH SELECT MATERIAL.

** CLASS 250 (14" TO 20") OR 350 (UP TO AND INC. 12")

SPECIFICATIONS

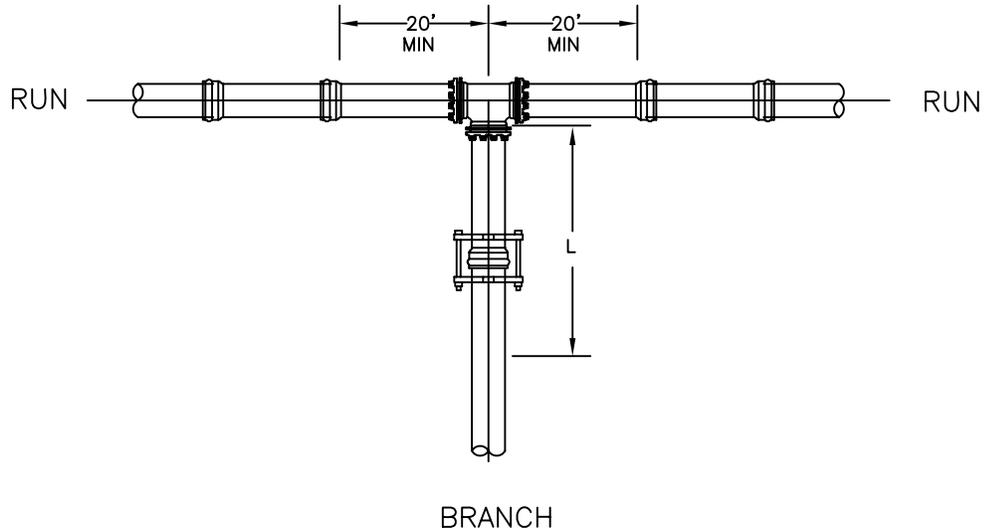
1. THIS STANDARD IS NOT ALLOWED WITHIN THE TRAVELED WAY AND ANY PAVED AREAS OF A PUBLIC STREET.
2. NO LESS THAN 12 FEET OF HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN THE MONITORING WELL AND ANY EXISTING UNDERGROUND UTILITY.
3. THE WELL BOX SHALL BE STRUCTURALLY SOUND AND STRONG ENOUGH TO SUPPORT VEHICULAR TRAFFIC. IT SHALL BE TRAFFIC-RATED AS TESTED BY AN OFFICIAL TESTING LABORATORY TO MEET AASHTO STANDARD FOR "H-20" TRUCK LOADINGS.
4. THE TOP OF THE WELL SHALL BE PERMANENTLY MARKED WITH LARGE LETTERS "MONITORING WELL."
5. THE WELL COVER SHALL BE BOLT DOWN OR EQUIVALENT TO PROVIDE PROTECTION AGAINST UNAUTHORIZED ACCESS.
6. THE WELL COVER SHALL BE WATERTIGHT TO PROTECT AGAINST ENTRY OF SURFACE WATER.
7. THE TOP OF THE WELL SHALL BE SET 1.0 TO 1.5 INCHES ABOVE SURROUNDING GRADE TO PROVIDE FOR DRAINAGE AWAY FROM THE COVER, EXCEPT FOR WELLS INSTALLED IN SIDEWALK OR PAVED AREAS WHERE TOP OF THE CONCRETE PAD SHALL BE INSTALLED FLUSH AND MATCH EXISTING CONDITIONS.
8. A CONCRETE PAD WITH A MINIMUM THICKNESS OF 6 INCHES SHALL BE CONSTRUCTED AROUND THE WELL BOX. THE PAD SHALL EXTEND LATERALLY A MINIMUM OF 12 INCHES FROM OUTSIDE OF THE WELL BOX. THE PAD SHALL BE CONSTRUCTED TO BE FREE OF CRACKS OR OTHER DEFECTS LIKELY TO AFFECT WATER TIGHTNESS.
9. A LOCKING WATERTIGHT WELL CAP SHALL BE INSTALLED AT THE TOP OF THE WELL CASING SO THAT SURFACE WATER THAT MAY ENTER THE VAULT WILL NOT ENTER THE WELL.
10. MONITORING WELLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CALIFORNIA WELL STANDARDS.



MONITORING WELL MANHOLE
CONSTRUCTION DETAIL

REF. & REV.
AUG., 2002

CITY OF FRESNO
W-30



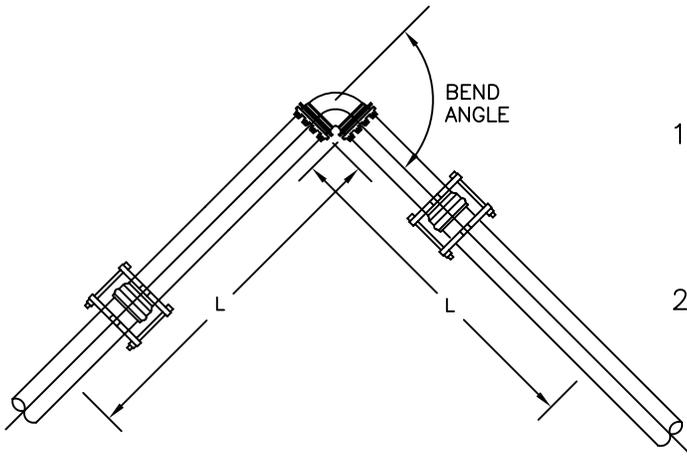
		RUN SIZE									
		4	6	8	10	12	14	16	18	20	24
BRANCH SIZE	4	*	*	*	*	*	*	*	*	*	*
	6		*	*	*	*	*	*	*	*	*
	8			*	*	*	*	*	*	*	*
	10				*	*	*	*	*	*	*
	12					13	*	*	*	*	*
	14						24	13	*	*	*
	16							36	25	14	*
	18								47	37	16
	20									58	39
	24										79

* -FOR THIS CONDITION
NEED ONLY RESTRAIN THE
BRANCH OUTLET OF THE TEE.

RESTRAINED LENGTHS, "L" (IN FEET)

1. RESTRAIN THE TWO MECHANICAL JOINTS ON THE RUN SIDES OF THE TEE. WHEN LESS THAN A FULL 20' LENGTH OF PIPE IS INSTALLED ON EACH SIDE OF THE RUN.
2. ALL JOINTS WITHIN THE LENGTH "L" ON THE BRANCH MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS ON PUSH-ON PIPE PER CITY SPECIFICATION.
3. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION 22 OF GENERAL CONDITIONS.

HORIZONTAL BEND

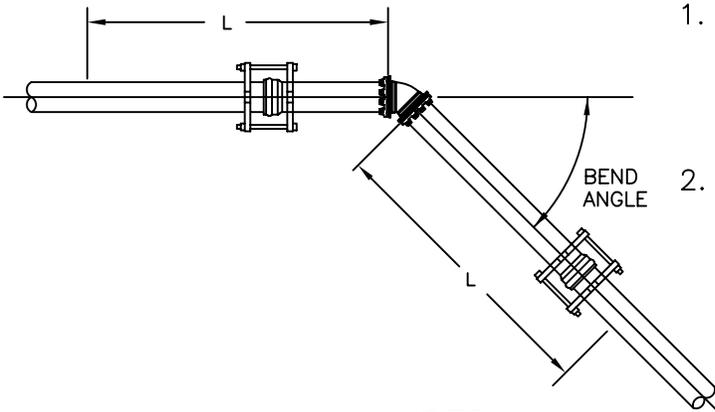


1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH-ON PIPE PER CITY STD. SPECIFICATIONS.
2. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION 22 OF GENERAL CONDITIONS.

		SIZE						
		4	6	8	10	12	14	16
BEND ANGLE	11.25	3	3	3	4	4	5	5
	22.5	3	5	7	7	9	10	11
	45	7	11	13	15	18	20	23
	90	17	24	31	37	43	49	55

RESTRAINED LENGTHS, "L" (IN FEET)

VERTICAL BEND

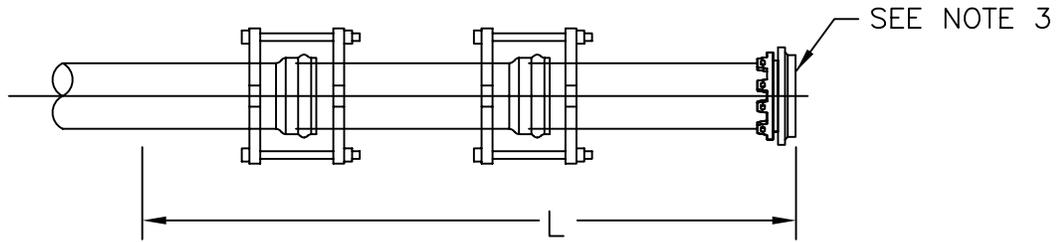


1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH-ON PIPE PER CITY STD. SPECIFICATIONS.
2. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION 22 OF GENERAL CONDITIONS.

		SIZE						
		4	6	8	10	12	14	16
BEND ANGLE	11.25	5	7	9	11	13	15	17
	22.5	11	15	19	23	27	31	35
	45	23	31	40	48	56	64	72

RESTRAINED LENGTHS, "L" (IN FEET)

DEAD END FOR PVC PIPE



1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH-ON PIPE PER CITY STANDARD SPECIFICATIONS.
2. FOR TEST PRESSURES AND LAYING CONDITIONS, SEE SECTION 22 OF GENERAL CONDITIONS.
3. WHEN APPROVED, CONCRETE THRUST BLOCK MAY BE USED AS SHOWN ON STANDARD DRAWING W-6.

PIPE SIZE						
4	6	8	10	12	14	16
52	73	96	115	136	155	174

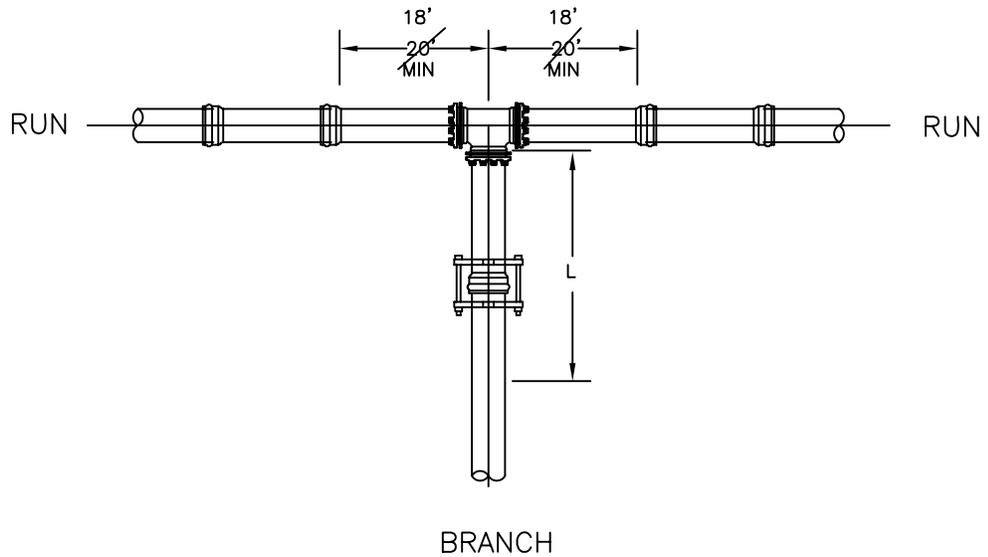
RESTRAINED LENGTHS, "L" (IN FEET)

GENERAL NOTES ON USE OF RESTRAINED JOINT LENGTHS

THESE RESTRAINED LENGTH CALCULATIONS ARE BASED ON THE FOLLOWING DESIGN CRITERIA

1. THREE (3) FEET MINIMUM DEPTH OF COVER
2. A SAFETY FACTOR OF 1.5
3. SOIL TYPE OF SM--SILTY GRAVEL AND SILTY SANDS AS DEFINED BY ASTM D-2487
4. TRENCH COMPACTION OF TYPE 5 - PIPE BEDDED IN COMPACTED GRANULAR MATERIAL TO THE CENTER LINE OF PIPE, 4 INCHES MINIMUM UNDER PIPE. COMPACTED GRANULAR MATERIAL OR SELECT MATERIAL TO TOP OF THE PIPE. (APPROXIMATELY 90 PERCENT STANDARD PROCTOR DENSITY, AASHTO T-99)
5. TEST PRESSURES OF 200 PSI FOR THE 4 THROUGH 16 INCH SIZES

IF ACTUAL CONDITIONS DIFFER FROM THOSE LISTED ABOVE OR THE REQUIRED RESTRAINED LENGTH CANNOT BE MET, CONSULT THE DESIGN ENGINEER FOR MODIFICATIONS TO THE RESTRAINED LENGTHS OR DESIGN.



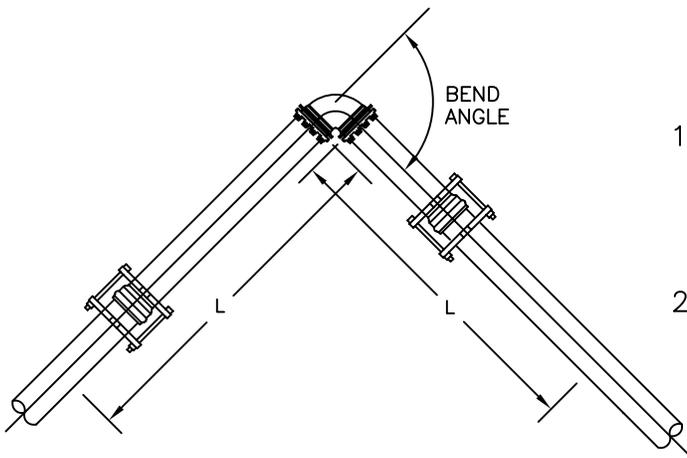
		RUN SIZE									
		4	6	8	10	12	14	16	18	20	24
BRANCH SIZE	4	*	*	*	*	*	*	*	*	*	*
	6		*	*	*	*	*	*	*	*	*
	8			*	*	*	*	*	*	*	*
	10				*	*	*	*	*	*	*
	12					13	*	*	*	*	*
	14						24	13	*	*	*
	16							36	25	14	*
	18								47	37	16
	20									58	39
	24										79

* -FOR THIS CONDITION
 NEED ONLY RESTRAIN THE
 BRANCH OUTLET OF THE TEE.

RESTRAINED LENGTHS, "L" (IN FEET)

1. RESTRAIN THE TWO MECHANICAL JOINTS ON THE RUN SIDES OF THE TEE WHEN LESS THAN A FULL 18' LENGTH OF PIPE IS INSTALLED ON EACH SIDE OF THE RUN.
2. ALL JOINTS WITHIN THE LENGTH "L" ON THE BRANCH MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS ON PUSH-ON PIPE PER CITY SPECIFICATION.
3. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION 22 OF GENERAL CONDITIONS.

HORIZONTAL BEND

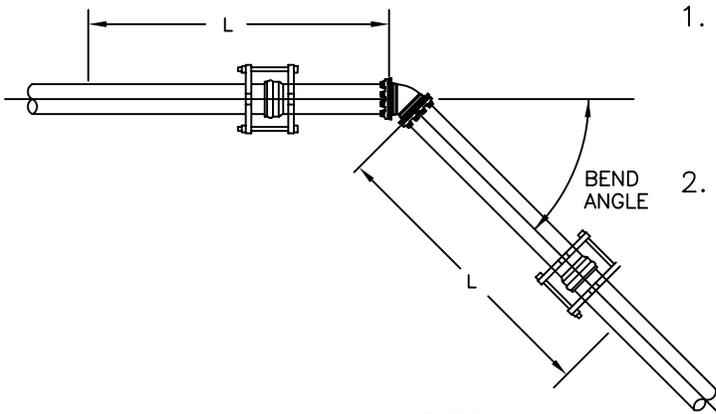


1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH-ON PIPE PER CITY STD. SPECIFICATIONS.
2. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION 22 OF GERNERAL CONDITIONS.

		SIZE						
		4	6	8	10	12	14	16
BEND ANGLE	11.25	3	3	3	4	4	4	5
	22.5	3	4	7	7	8	9	10
	45	7	9	12	15	17	19	21
	90	16	23	29	35	40	45	51

RESTRAINED LENGTHS, "L" (IN FEET)

VERTICAL BEND

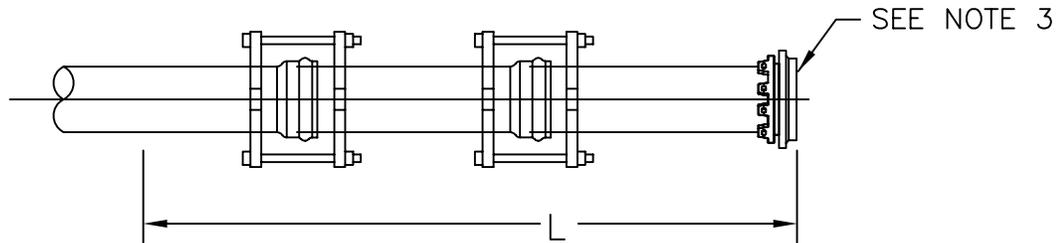


1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH-ON PIPE PER CITY STD. SPECIFICATIONS.
2. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION 22 OF GENERAL CONDITIONS.

		SIZE						
		4	6	8	10	12	14	16
BEND ANGLE	11.25	3	5	7	8	8	10	11
	22.5	7	11	12	15	17	20	22
	45	15	19	25	31	36	41	46

RESTRAINED LENGTHS, "L" (IN FEET)

DEAD END FOR DUCTILE IRON PIPE



1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH-ON PIPE PER CITY STANDARD SPECIFICATIONS.
2. FOR TEST PRESSURES AND LAYING CONDITIONS, SEE SECTION 22 OF GENERAL CONDITIONS.
3. WHEN APPROVED, CONCRETE THRUST BLOCK MAY BE USED AS SHOWN ON STANDARD DRAWING W-6.

PIPE SIZE						
4	6	8	10	12	14	16
33	47	61	73	86	98	111

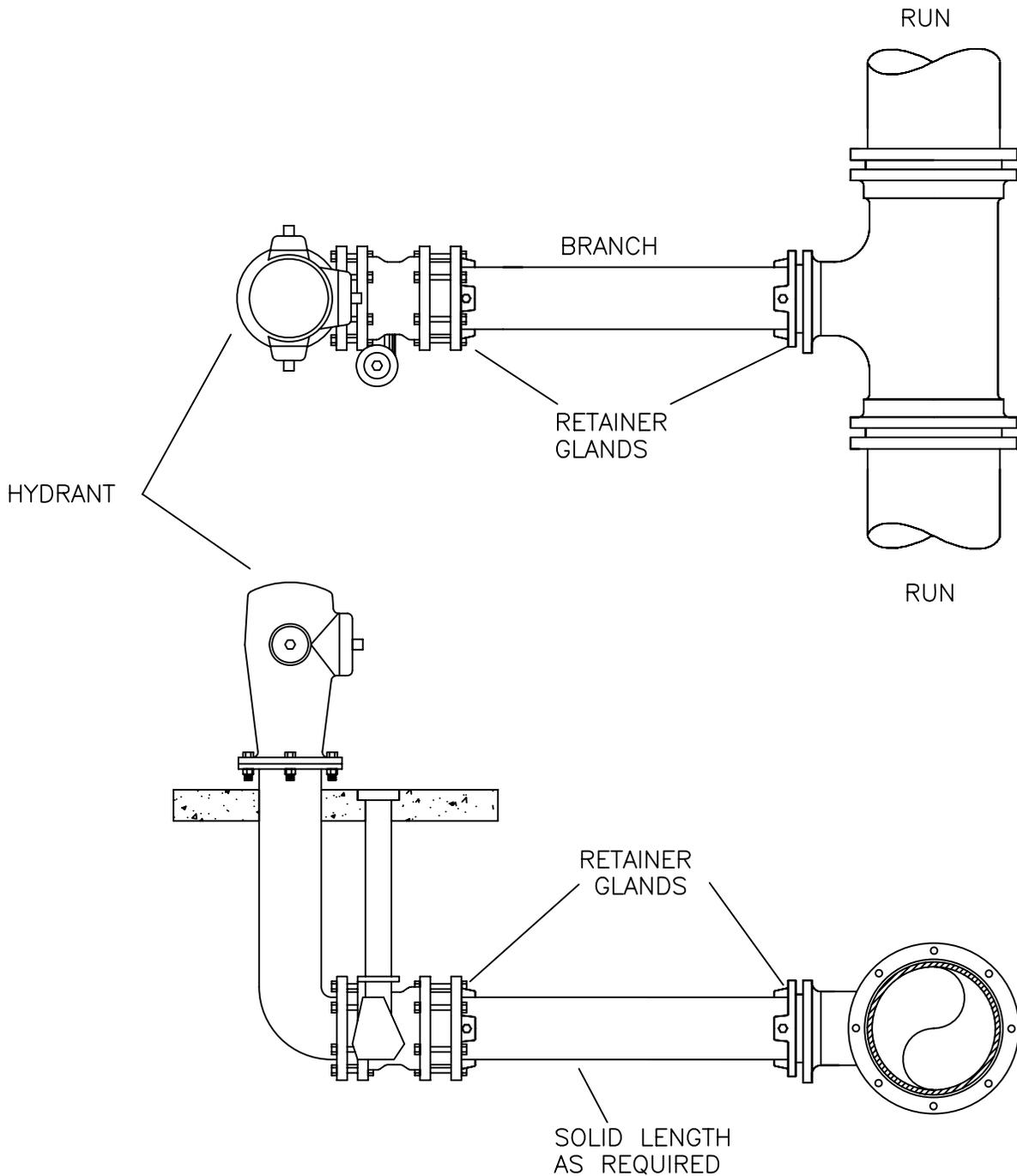
RESTRAINED LENGTHS, "L" (IN FEET)

GENERAL NOTES ON USE OF RESTRAINED JOINT LENGTHS

THESE RESTRAINED LENGTH CALCULATIONS ARE BASED ON THE FOLLOWING DESIGN CRITERIA

1. THREE (3) FEET MINIMUM DEPTH OF COVER
2. A SAFETY FACTOR OF 1.5
3. SOIL TYPE OF SM--SILTY GRAVEL AND SILTY SANDS AS DEFINED BY ASTM D-2487
4. TRENCH COMPACTION OF TYPE 5 - PIPE BEDDED IN COMPACTED GRANULAR MATERIAL TO THE CENTER LINE OF PIPE, 4 INCHES MINIMUM UNDER PIPE. COMPACTED GRANULAR MATERIAL OR SELECT MATERIAL TO TOP OF THE PIPE. (APPROXIMATELY 90 PERCENT STANDARD PROCTOR DENSITY, AASHTO T-99)
5. TEST PRESSURES OF 200 PSI FOR THE 4 THROUGH 16 INCH SIZES

IF ACTUAL CONDITIONS DIFFER FROM THOSE LISTED ABOVE OR THE REQUIRED RESTRAINED LENGTH CANNOT BE MET, CONSULT THE DESIGN ENGINEER FOR MODIFICATIONS TO THE RESTRAINED LENGTHS OR DESIGN.

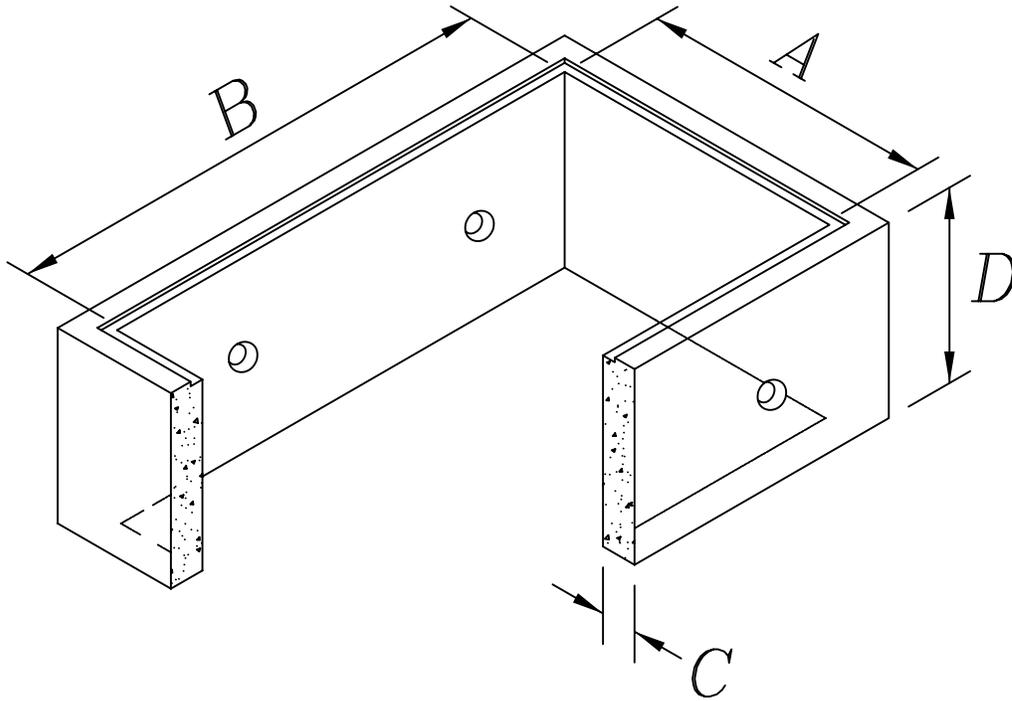


1. HYDRANT MUST BE FULLY RESTRAINED FROM TEE TO HYDRANT. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS ON PUSH ON PIPE PER CITY SPECIFICATION.
2. JOINT RESTRAINT IS NOT REQUIRED ON THE RUN OF THE TEE UNLESS THE TEE FALLS WITHIN THE RESTRAINED LENGTH REQUIREMENT OF ANOTHER FITTING.
3. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION ON GENERAL NOTES FOR USE OF RESTRAINED JOINT LENGTHS.

HYDRANT RUN TEE RESTRAINT
FOR PVC OR DUCTILE IRON PIPE

REF. & REV.
DEC., 2003

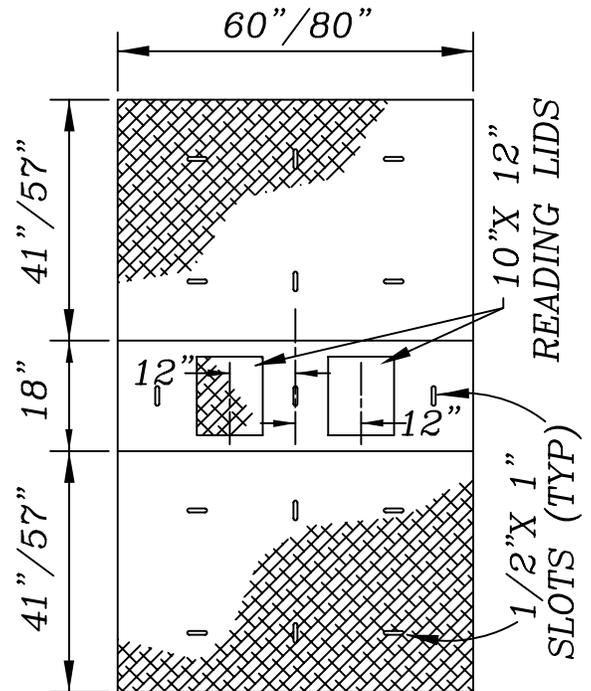
CITY OF FRESNO
W-37



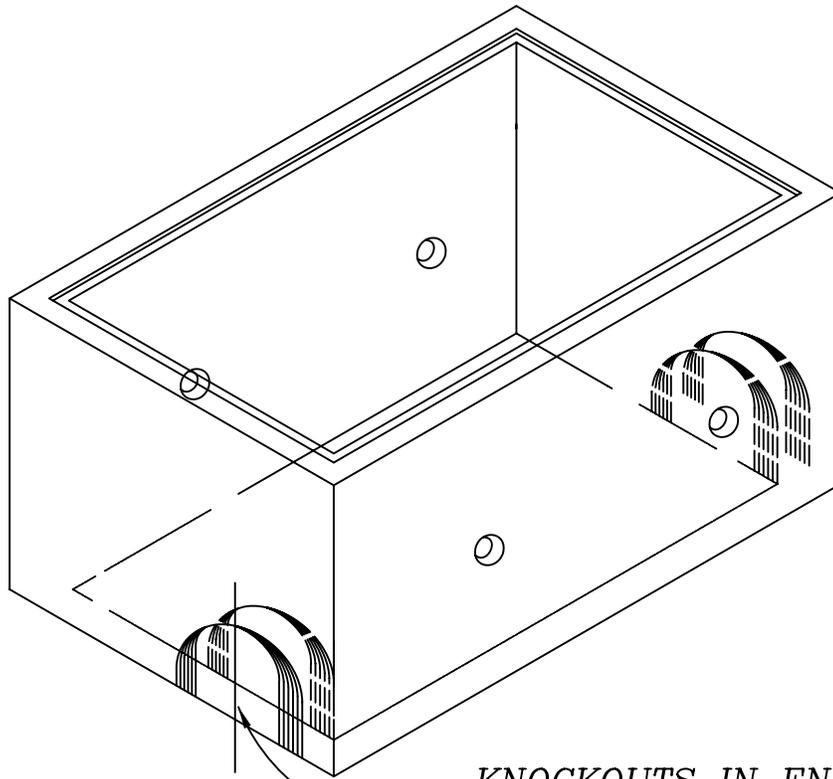
VAULT	A	B	C	D
TYPE I	60"	100"	6"	42"
TYPE II	80"	132"	6"	42"

MANUFACTURER SHALL PROVIDE:

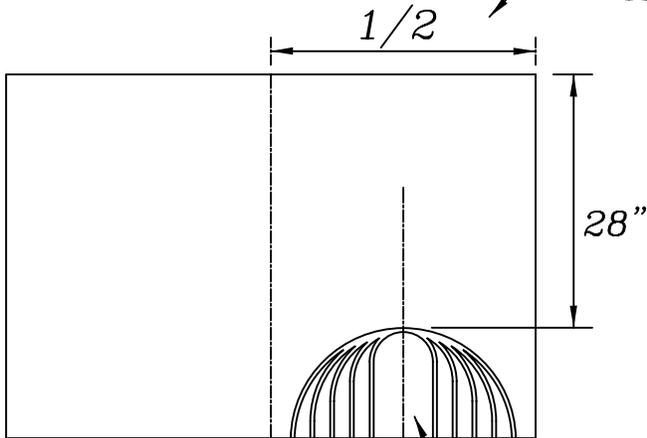
1. SHOP DRAWINGS OF VAULTS WITH WEIGHTS AND PROPOSED LIFTING LUG DETAILS.
2. SHOP DRAWINGS OF DIAMOND PLATE PARKWAY COVERS WITH REQUIRED REINFORCEMENT DETAILS.
3. SHOP DRAWINGS OF READING LIDS INDICATING METHOD OF HINGING OR RETAINING LID IN THE HOLE.



THREE PIECE
DIAMOND PLATE COVER
WITH READING LID

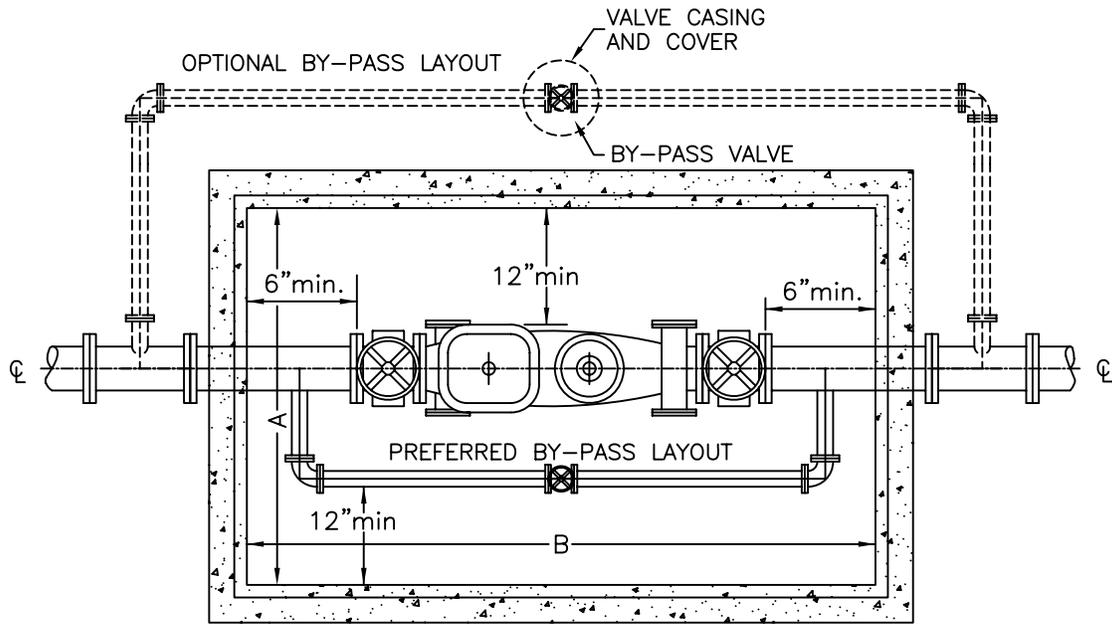


KNOCKOUTS IN ENDS OF VAULT SHALL BE CENTERED IN ONE-HALF THE WIDTH.

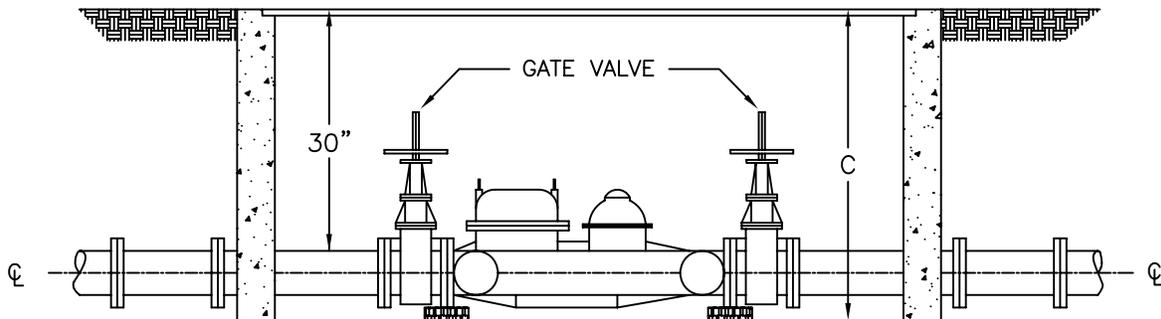


END VIEW

SLEDGE HAMMER KNOCKOUTS



PLAN VIEW



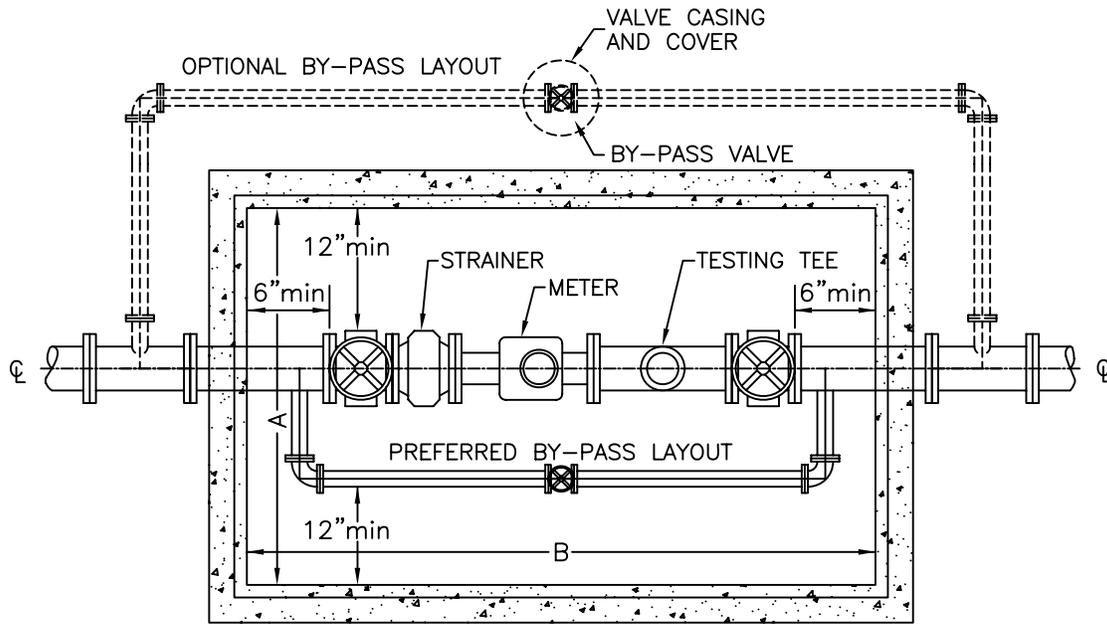
ELEVATION

NOTES:

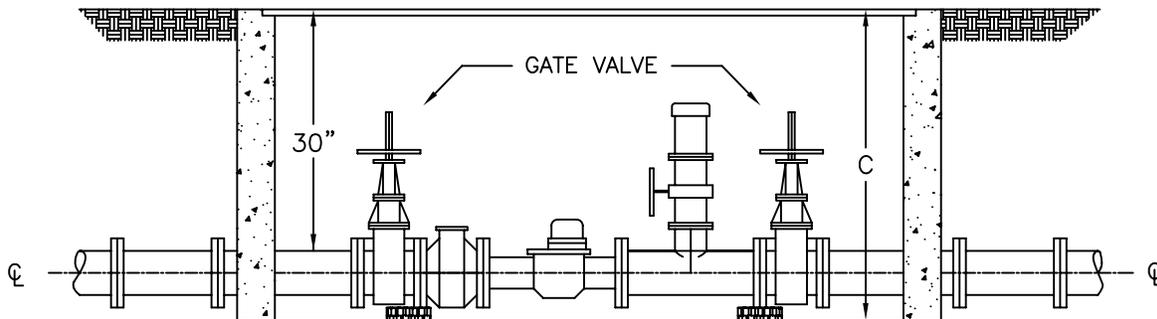
1. BY-PASS MAY BE INSIDE METER BOX OR OUTSIDE METER BOX. IF INSTALLED OUTSIDE METER BOX A CASING AND COVER WILL BE REQUIRED OVER BY-PASS VALVE.
2. 1-1/2 INCH AND 2 INCH BY-PASS VALVES MUST BE BALL VALVES. THREE INCH AND LARGER TO BE RESILIENT SEATING SHUT-OFF VALVES.
3. METERS DEEPER THAN 30 INCHES TO TOP OF PIPE MUST BE RAISED TO 30 INCHES.
4. INLET AND OUTLET VALVES TO BE INSTALLED AT EACH END OF METER.

MINIMUM VAULT SIZE

	A	B	C
3", 4" & 6"	40"	72"	42"



PLAN VIEW



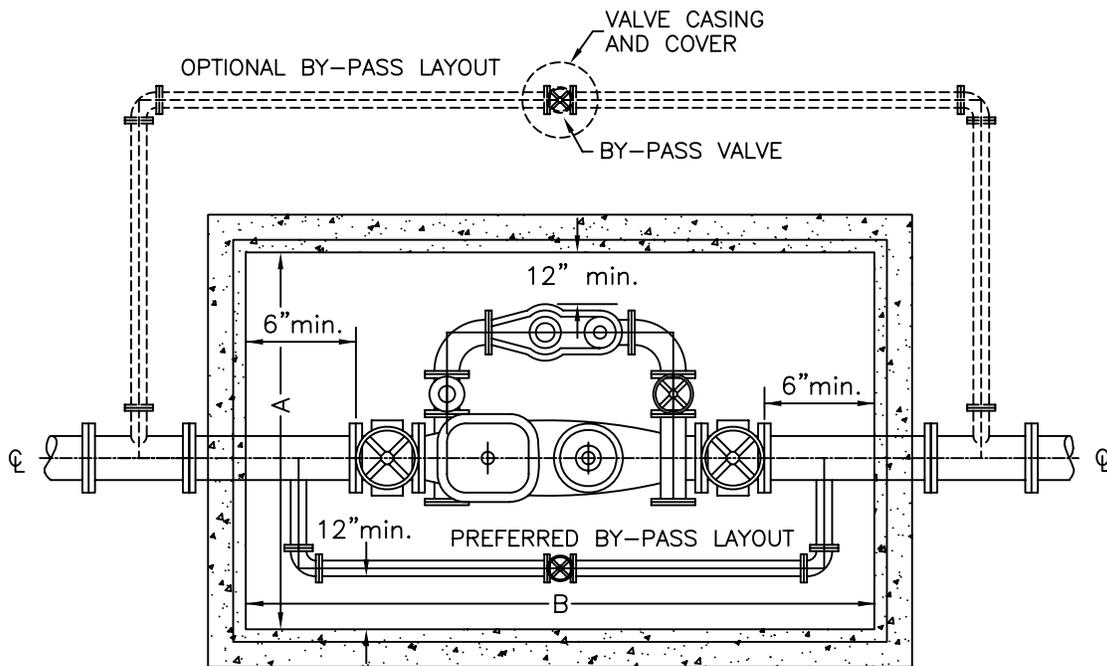
ELEVATION

NOTES:

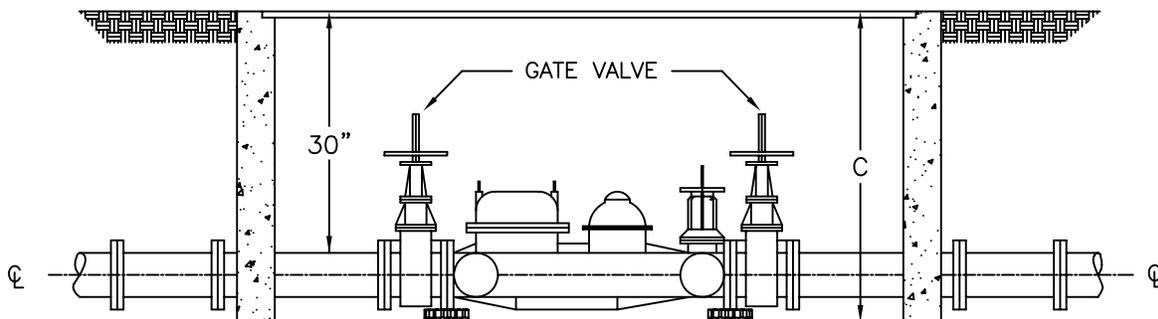
1. BY-PASS MAY BE INSIDE METER BOX OR OUTSIDE METER BOX. IF INSTALLED OUTSIDE METER BOX A CASING AND COVER WILL BE REQUIRED OVER BY-PASS VALVE.
2. 1-1/2 INCH AND 2 INCH BY-PASS VALVES MUST BE BALL VALVES. THREE INCH AND LARGER TO BE RESILIENT SEATING SHUT-OFF VALVES.
3. METERS DEEPER THAN 30 INCHES TO TOP OF PIPE MUST BE RAISED TO 30 INCHES.
4. INLET AND OUTLET VALVES TO BE INSTALLED AT EACH END OF METER.
5. TEST TEE TO BE 3 PIPE DIAMETERS DOWNSTREAM OF METER.
6. WHEN CHARGING METER WITH WATER - OPEN INLET VALVE VERY SLOWLY, THEN SLOWLY OPEN OUTLET VALVE.

MINIMUM VAULT SIZE

	A	B	C
2", 3" & 4"	20"	48"	42"
4", 6" & 8"	40"	72"	42"
10"	60"	100"	42"



PLAN VIEW



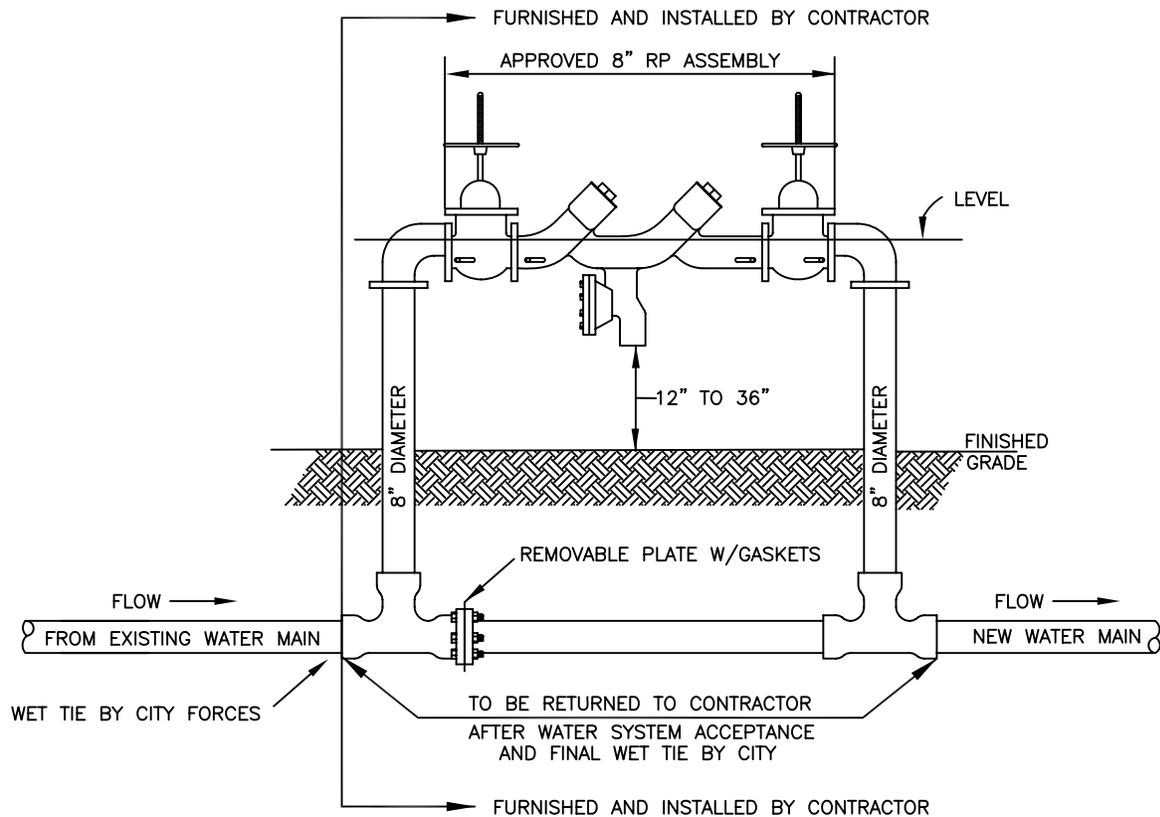
ELEVATION

NOTES:

1. BY-PASS MAY BE INSIDE METER BOX OR OUTSIDE METER BOX. IF INSTALLED OUTSIDE METER BOX A CASING AND COVER WILL BE REQUIRED OVER BY-PASS VALVE.
2. 1-1/2 INCH AND 2 INCH BY-PASS VALVES MUST BE BALL VALVES. THREE INCH AND LARGER TO BE RESILIENT SEATING SHUT-OFF VALVES.
3. METERS DEEPER THAN 30 INCHES TO TOP OF PIPE MUST BE RAISED TO 30 INCHES.
4. INLET AND OUTLET VALVES TO BE INSTALLED AT EACH END OF METER.

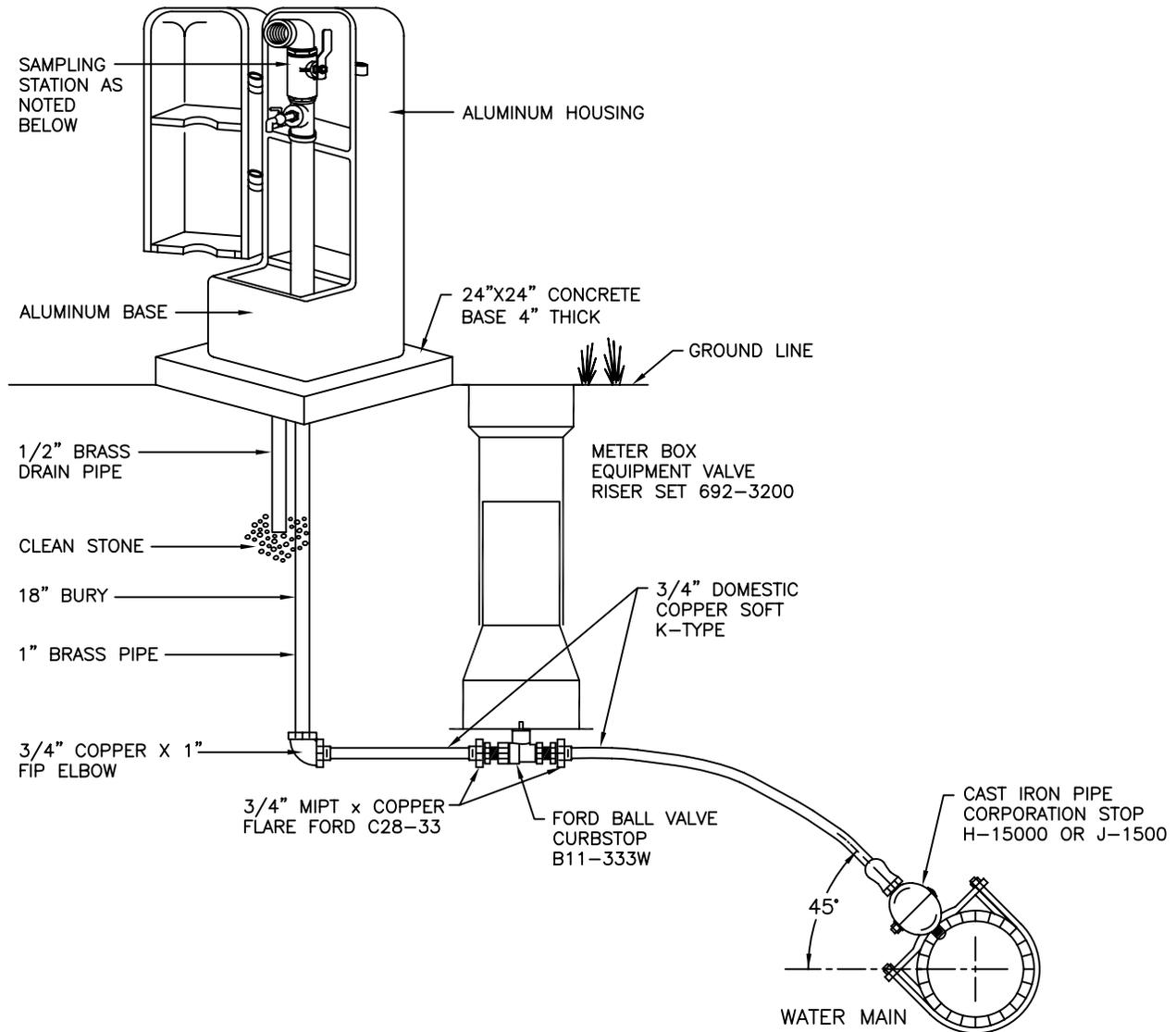
MINIMUM VAULT SIZE

	A	B	C
4" & 6"	60"	100"	42"
8" & 10"	80"	132"	42"



GENERAL NOTES:

- VALVES SHALL BE "ULFM INDICATING OS&Y" TYPE.
- CURRENTLY APPROVED RP DEVICES ARE:
AMES MAXIM 400
WILKINS 3750SY
FEBCO 860
- RESILIENT SEATED SHUT OFF VALVES AND TEST COCKS ARE REQUIRED.
- ASSEMBLY MUST BE ACCESSIBLE FOR TESTING AND MAINTENANCE BY FRESNO CITY WATER DIVISION.
- ANY DEVIATION FROM THESE REQUIREMENTS SHALL BE APPROVED BY THE WATER SYSTEM MANAGER PRIOR TO INSTALLATION.
- RP DEVICE WITH ASSOCIATED PIPING, VALVES, TEES AND FITTINGS SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR.
- NEW SYSTEM OF MAINS, HYDRANTS AND SERVICES SHALL BE PRESSURE TESTED AND SHALL PASS STANDARD BACTERIAL TESTING PRIOR TO CONNECTION TO EXISTING CITY WATER SYSTEM.
- WET TIE TO EXISTING SYSTEM WILL BE PERFORMED BY CITY FORCES.
- AFTER INSTALLATION AND PRIOR TO PLACING IN SERVICE, THE RP DEVICE SHALL BE TESTED BY THE CITY.
- PRIOR TO FINAL ACCEPTANCE OF THE WATER SYSTEM, A FINAL SET OF PRESSURE TESTS AND BACTERIAL TESTS SHALL BE PERFORMED.
- UPON PUBLIC WORKS ACCEPTANCE OF THE COMPLETE WATER SYSTEM, CITY FORCES WILL REMOVE THE RP DEVICE AND ASSOCIATED PIPING, VALVES, TEES AND FITTINGS, AND WILL CALL FOR PICKUP BY THE CONTRACTOR.

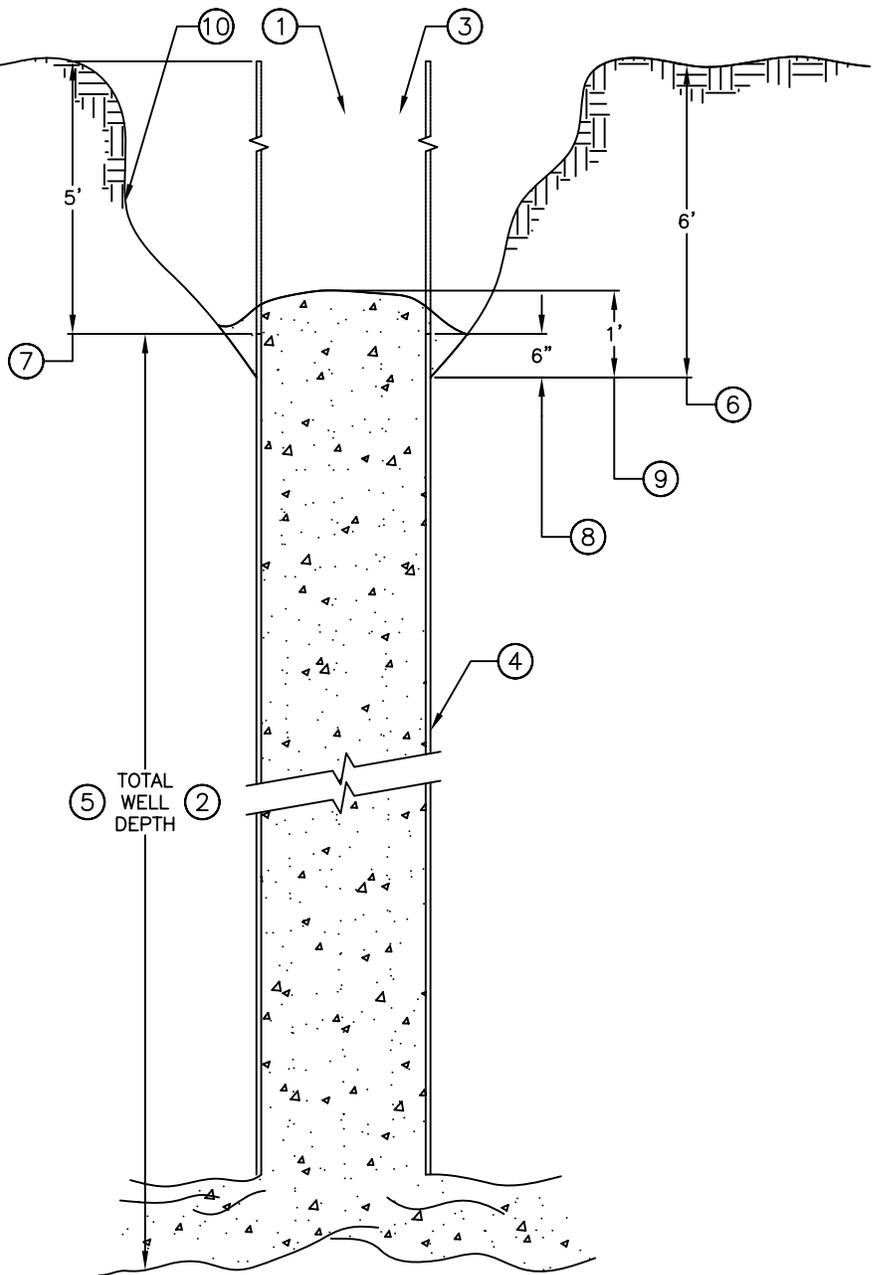


NOTES:

1. SAMPLING STATIONS SHALL BE ECLIPSE 88WC OR SAFETY GUARD BSS02 OR EQUAL AS APPROVED BY THE WATER DIVISION.
2. SAMPLING STATIONS SHALL BE 18" BURY, WITH A 1" MIP INLET AND A 1" FIP DISCHARGE. A 1/4" BENT-NOSE SAMPLING BIBB SHALL BE LOCATED BEFORE THE DISCHARGE.
3. ALL STATIONS SHALL BE ENCLOSED IN A LOCKABLE, NONREMOVABLE, ALUMINUM-CAST HOUSING.
4. WHEN OPENED, THE STATION SHALL REQUIRE NO KEY FOR OPERATION AND THE WATER WILL FLOW IN ALL BRASS WATERWAY.
5. ALL WORKING PARTS SHALL BE OF BRASS AND SERVICEABLE FROM ABOVE GROUND WITH NO DIGGING. (OPTIONAL: IF DESIRED, PROVIDE A DRAINAGE HOLE WITHIN THE LOCKING COVER TO PREVENT WATER FROM ACCUMULATING INSIDE THE UNIT.)
6. A 1" BALL VALVE SHALL CONTROL THE WATER FLOW, AND SHALL BE LOCATED BEFORE (OR AFTER) THE SAMPLING BIBB, AS MANUFACTURED BY KUPFERLE FOUNDRY, ST. LOUIS, MO 63102.

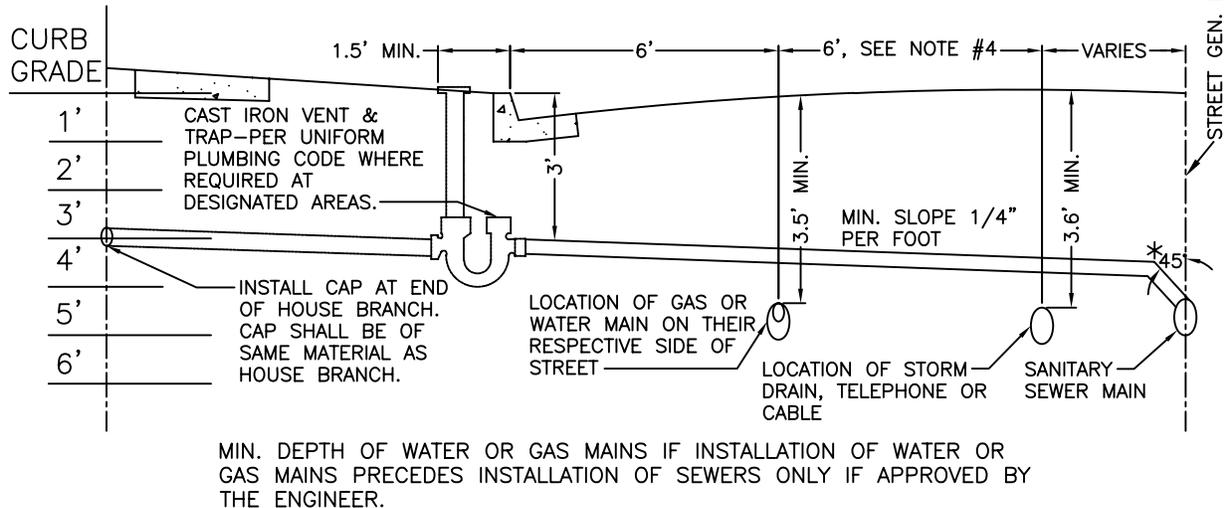
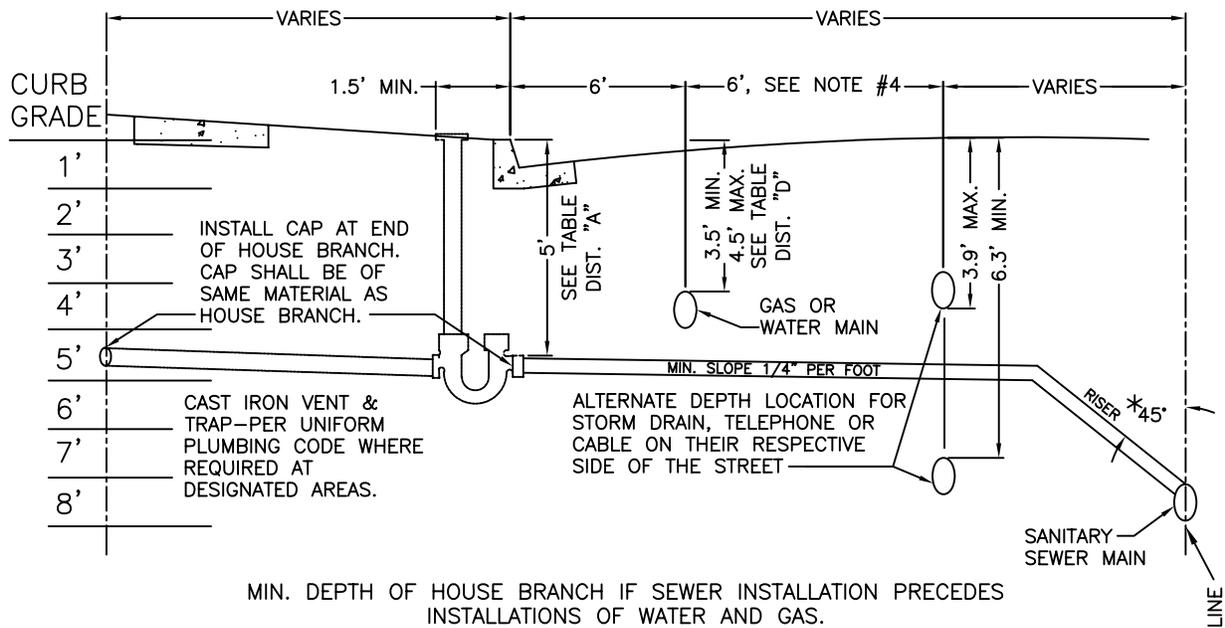
LEGEND:

- 1 REMOVE ALL PUMPING EQUIPMENT AND DEBRIS FROM THE WELL PRIOR TO THE PLACEMENT OF ANY SEALING MATERIAL INTO THE WELL.
- 2 A VIDEO OF THE ENTIRE DEPTH OF THE WELL SHALL BE SUBMITTED TO THE WATER DIVISION FOR REVIEW.
- 3 A TREMIE PIPE SHALL BE USED FOR THE PLACEMENT OF SEALING IN WELLS, WHEN ONE OR MORE OF THE FOLLOWING CONDITIONS EXIST:
 - THE TOTAL WELL DEPTH IS GREATER THAN 30'
 - THE STATIC WATER LEVEL IS MORE THAN 5'
 - THE WELL'S DIAMETER IS 4" OR LESS
- 4 WHEN THE EXISTING WELL CASING IS FOUND TO BE PERFORATED, SLOTTED, CRACKED, SEPARATED, OR TO HAVE HOLES. THE WELL SHALL BE FILLED TO THE TOP WITH A SEALING MATERIAL APPROVED BY THE CITY OF FRESNO WATER DIVISION AND PRESSURIZED PER DWR BULLETIN 74-81 AND 74-90.
- 5 THE TOTAL DEPTH OF THE WELL SHALL BE FILLED WITH AN IMPERVIOUS MATERIAL, CEMENT GROUT OR PER SECTION 33 OF CITY OF FRESNO'S WELL DESTRUCTION STANDARDS.
- 6 EXCAVATE A HOLE AROUND THE WELL CASING TO A DEPTH OF NOT LESS THAN 6', OR SUBMIT FOR REVIEW AND APPROVAL METHODS OF PREP TO REMOVE 5' OF WELL CASING.
- 7 REMOVE A MINIMUM OF FIVE LINEAL FEET OF EXISTING WELL CASING.
- 8 REMAINING CASING TO EXTEND SIX INCHES ABOVE THE BOTTOM OF THE EXCAVATED HOLE.
- 9 ALLOW SPILL OVER TO FORM A ONE FOOT THICK CAP.
- 10 AFTER THE WELL HAS BEEN PROPERLY FILLED, AND THE SEALING MATERIAL HAS SET, BACKFILL AND COMPACT THE EXCAVATION WITH NATIVE SOIL.



NOTES:

- A THE DESTRUCTION OF ALL WATER WELLS WITHIN THE JURISDICTION OF THE CITY OF FRESNO SHALL CONFORM TO THE STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES STANDARDS: BULLETINS 74-81 & 74-90, AND AS DIRECTED BY THE CITY OF FRESNO WATER DIVISION.
- B AUTHORIZATION FROM THE CAL EPA DEPARTMENT OF TOXIC SUBSTANCES CONTROL (DTSC) OR CALIFORNIA DEPARTMENT OF WATER RESOURCES (DWR) IS REQUIRED TO DESTROY DECOMMISSIONED MONITORING WELLS, SUBMIT A COPY OF THE AUTHORIZATION DOCUMENTATION WITH WELL DESTRUCTION PERMIT APPLICATION.
- C THERE ARE THREE TYPES OF SEALING GROUT MIXTURES USED IN DESTROYING WELLS WITHIN THE CITY OF FRESNO (SEE TABLE FOR BATCH SPECIFICATIONS)
- | | | water cement sand bentonite | | | |
|---|------------------------|-----------------------------|------|-----|------|
| | | gal | sack | lbs | lbs |
| 1 | CEMENT AND SAND GROUT | = 6 | 1 | 85 | n/a |
| 2 | NEAT CEMENT GROUT | = 6 | 1 | n/a | n/a |
| 3 | BENTONITE CEMENT GROUT | = 8 | 1 | n/a | 1.88 |
- D BEFORE WELL DESTRUCTION OPERATIONS BEGIN, A COMPLETE WELL PERMIT APPLICATION PACKAGE FOR DESTRUCTION INCLUDING THE FOLLOWING CALCULATIONS ARE TO BE SUBMITTED FOR APPROVAL:
- A MIX DESIGN OF THE SEALING MATERIAL PREPARED BY THE GROUT SUPPLIER.
 - A MIX DESIGN OF THE SEALING MATERIAL PREPARED BY THE PROJECT ENGINEER, OUTLINING FIELD MIXING PROCESS.
 - A VOLUME CALCULATION OF THE SEALING MATERIAL, PREPARED BY THE PROJECT ENGINEER.
 - A VOLUME CALCULATION FOR THE WELL PREPARED BY A PROJECT ENGINEER SHOWING THE FOLLOWING:
 - a VOLUME OF THE WELL CASING & VOLUME OF THE FILTER PACK TO BE FILLED (FOR GRAVEL PACKED WELLS)
 - b VOLUME OF THE WELL (FOR OPEN BOTTOM WELLS)
- E ONLY COMPLETE PERMIT APPLICATION PACKAGES WILL BE PROCESSED
- F ONLY CALIFORNIA C57 LICENSED CONTRACTORS ARE AUTHORIZED TO DESTROY ANY WELLS WITHIN THE CITY OF FRESNO.



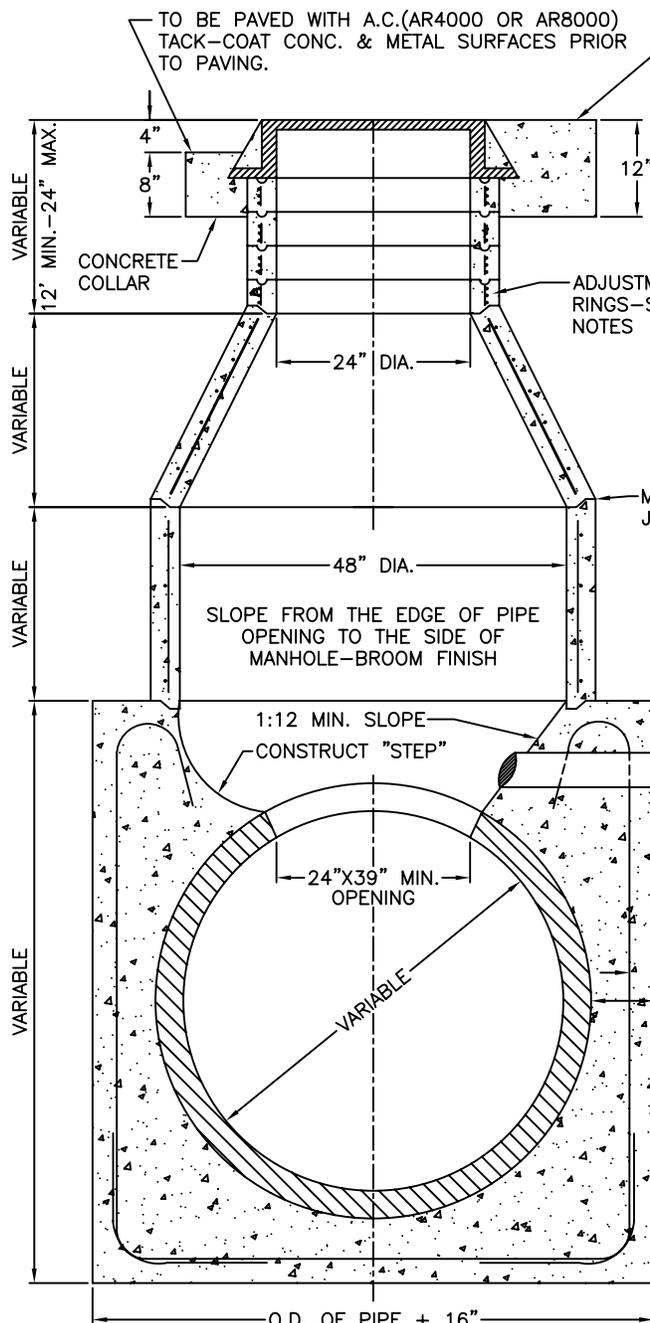
DEPTH SCHEDULE		
DISTANCE	"A"	"D"
6" WATER OR GAS MAIN	4.5'	3.5'
8" WATER OR GAS MAIN	4.8'	3.8'
10" WATER OR GAS MAIN	5.2'	4.2'
12" WATER OR GAS MAIN	5.5'	4.5'

"A" & "D" DIMENSIONS ARE SET TO ALLOW 1.0' CLEARANCE BETWEEN SEWER AND GAS OR WATER LINES.

*SPECIAL APPROVAL REQUIRED FOR DEVIATION FROM 45 DEGREE STANDARD ANGLE.

NOTES:

1. WATER MAINS AND TELEPHONE DUCTS SHALL OCCUPY ONE SIDE OF STREET; GAS MAINS AND STORM SEWERS TO OCCUPY OTHER SIDE.
2. IN NEW SUBDIVISIONS, EXTEND HOUSE BRANCHES ABOUT 1' BEYOND PROPERTY LINE.
3. IN ALL OTHER CASES, EXTEND HOUSE BRANCHES ABOUT 1' BEYOND PROPERTY LINE OR AS DIRECTED BY CITY ENGINEER.
4. REFER TO DWG. P-47 FOR LOCATION OF UNDERGROUND FACILITIES IN ARTERIAL AND COLLECTOR STREETS.
5. MINIMUM VERTICAL CLEARANCE BETWEEN THE HOUSE BRANCH AND WATER MAIN SHALL BE 1'.
6. FOR TRENCH BACKFILL SEE DWG. P-48, S-10 AND W-29.

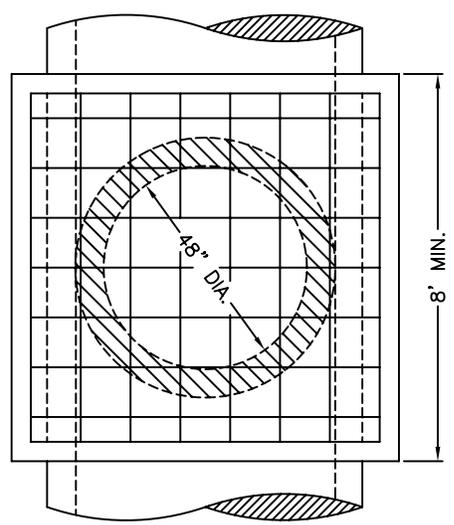


TO BE PAVED WITH A.C.(AR4000 OR AR8000) TACK-COAT CONC. & METAL SURFACES PRIOR TO PAVING.

CLASS "A" P.C.C. COLLAR AROUND C.I. FRAME - AS SHOWN. SET FRAME IN CONC. BED FOR CONC. STREET ONLY.

GENERAL NOTES:

1. PRECAST PIPE, ADJUSTMENT RINGS & TAPERED SECTIONS SHALL BE CLASS 2 R.C.P. IN ACCORDANCE WITH ASTM C-478. ELLIPTICAL SINGLE LINE REINFORCEMENT WILL NOT BE PERMITTED.
2. MANHOLE COATINGS ARE REQUIRED BY THE CITY. APPROVED PRODUCTS SHALL BE APPLIED PER MANUFACTURERS SPECS.
3. THIS STANDARD DRAWING SHALL BE USED FOR SEWER PIPES WITH DIAMETERS GREATER THAN 42" OR IN SITUATIONS WHERE THE MANHOLE SUB-STRUCTURE IS REQUIRED AS DIRECTED BY THE CITY ENGINEER.



MANHOLE COVER & FRAME
SEE DRAWING S-5

NOTES FOR MANHOLE SUB-STRUCTURE:

1. ALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 3000 P.S.I. AT 28 DAYS.
2. ALL REINFORCING STEEL TO BE NO.4 BARS GRADE 60 STEEL, SPACED 12" O.C. BOTH WAYS IN TOP, BOTTOM & WALLS.
3. MINIMUM WALL THICKNESS IS 8".
4. SEE PLAN FOR FLOW LINE ELEVATION & PIPE SIZE.

SPECIAL SEWER MANHOLE
FOR SEWER PIPES WITH DIAMETER GREATER THAN
42"

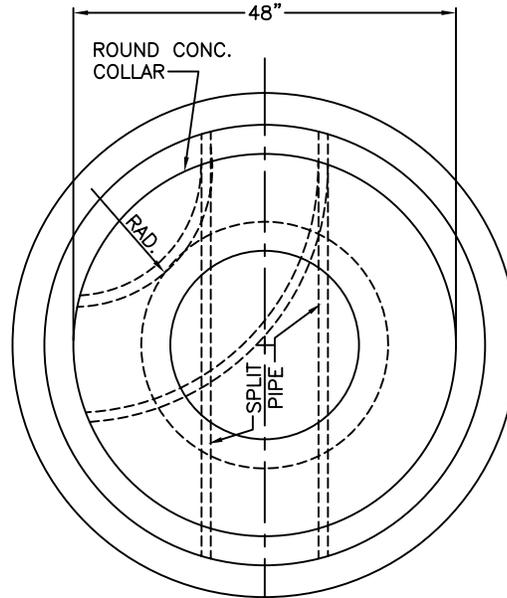
REF. & REV.
OCT., 2009

CITY OF FRESNO
S-2

PLAN VIEW SHOWING QUARTER BEND TO BE USED WHEN MAKING A TURN.

QUARTER TURNS TO BE CONSTRUCTED TO FORM A SMOOTH FLOW LINE OF SAME SHAPE AND PATTERN AS BOTTOM WALL OF PIPE.

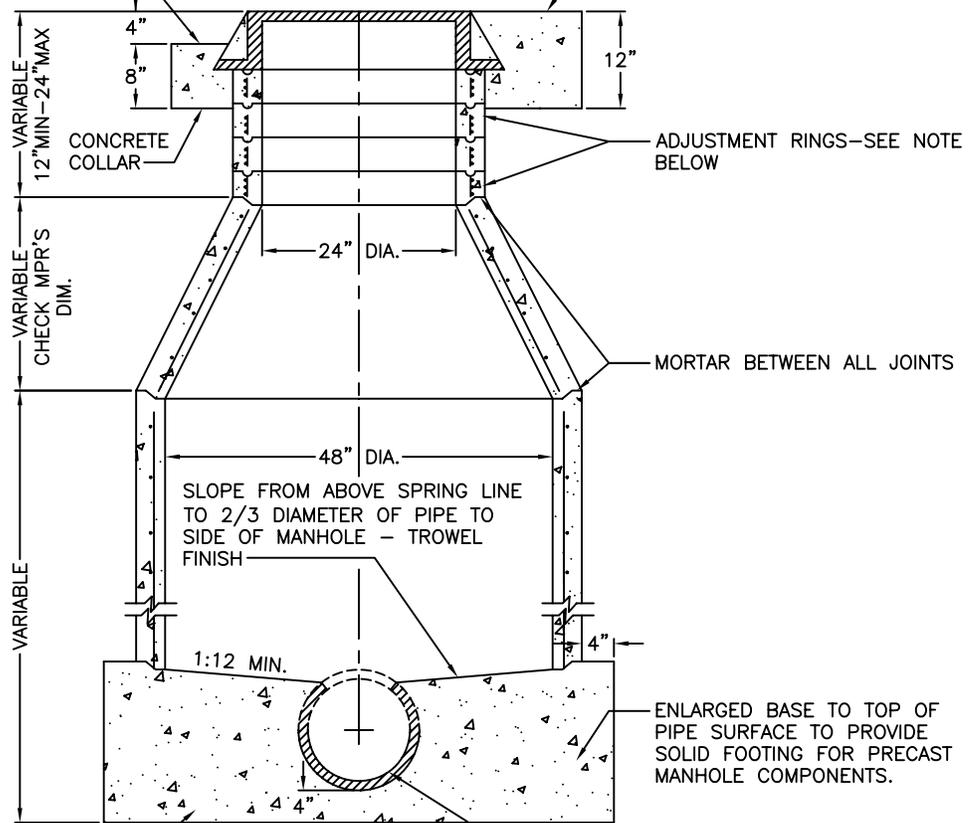
ALL STRAIGHT PIPE TO BE LAID THROUGH MANHOLES WITH TOP HALF REMOVED TO PROVIDE AT LEAST A 44" OPENING. ROUGH BROKEN EDGES SHALL BE MORTARED SMOOTH. THIS ALSO INCLUDES UPPER ENDS OF LINE MANHOLE.



TO BE PAVED WITH A.C. (AR4000 OR AR8000) TACK-COAT CONCRETE. & METAL SURFACES PRIOR TO PAVING.

MANHOLE COVER & FRAME
SEE DRAWING S-5

CLASS "A" P.C.C. COLLAR AROUND C.I. FRAME - AS SHOWN. SET FRAME IN CONC. BED FOR CONC. STREET ONLY. COLLAR TO BE FLUSH.



PRECAST MANHOLE PIPE TO SET ON CLASS "A" CONCRETE POURED IN PLACE.

SEE PLAN FOR FLOW LINE ELEVATION AND SIZE OF PIPE.

MANHOLE DETAILS

NOTES:

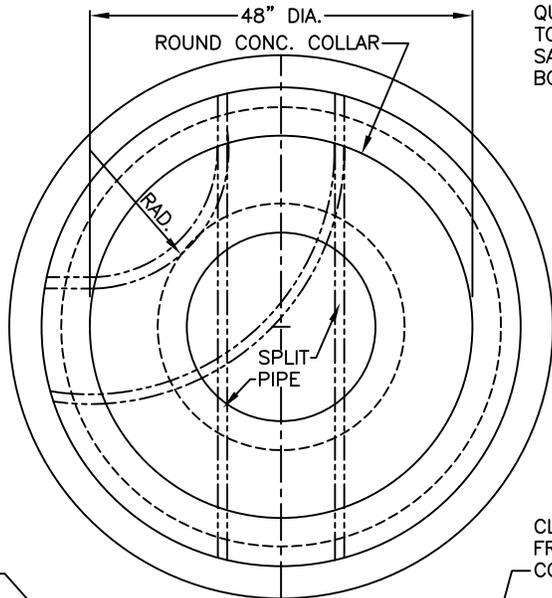
1. PRECAST PIPE, ADJUSTMENT RINGS AND TAPERED SECTIONS SHALL BE CLASS II R.C.P. IN ACCORDANCE WITH ASTM C-478. ELLIPTICAL SINGLE LINE REINFORCEMENT WILL NOT BE PERMITTED.
2. THIS STANDARD DRAWING SHALL BE USED FOR SEWER PIPES WITH DIAMETERS OF UP TO 27".

REF. & REV.
OCT., 2009

CITY OF FRESNO

48" SEWER MANHOLE
SEWER PIPES W/DIA. UP TO AND INCLUDING 27"
WITH PRECAST SECTIONS & CAST IRON FRAME & COVER

S-3

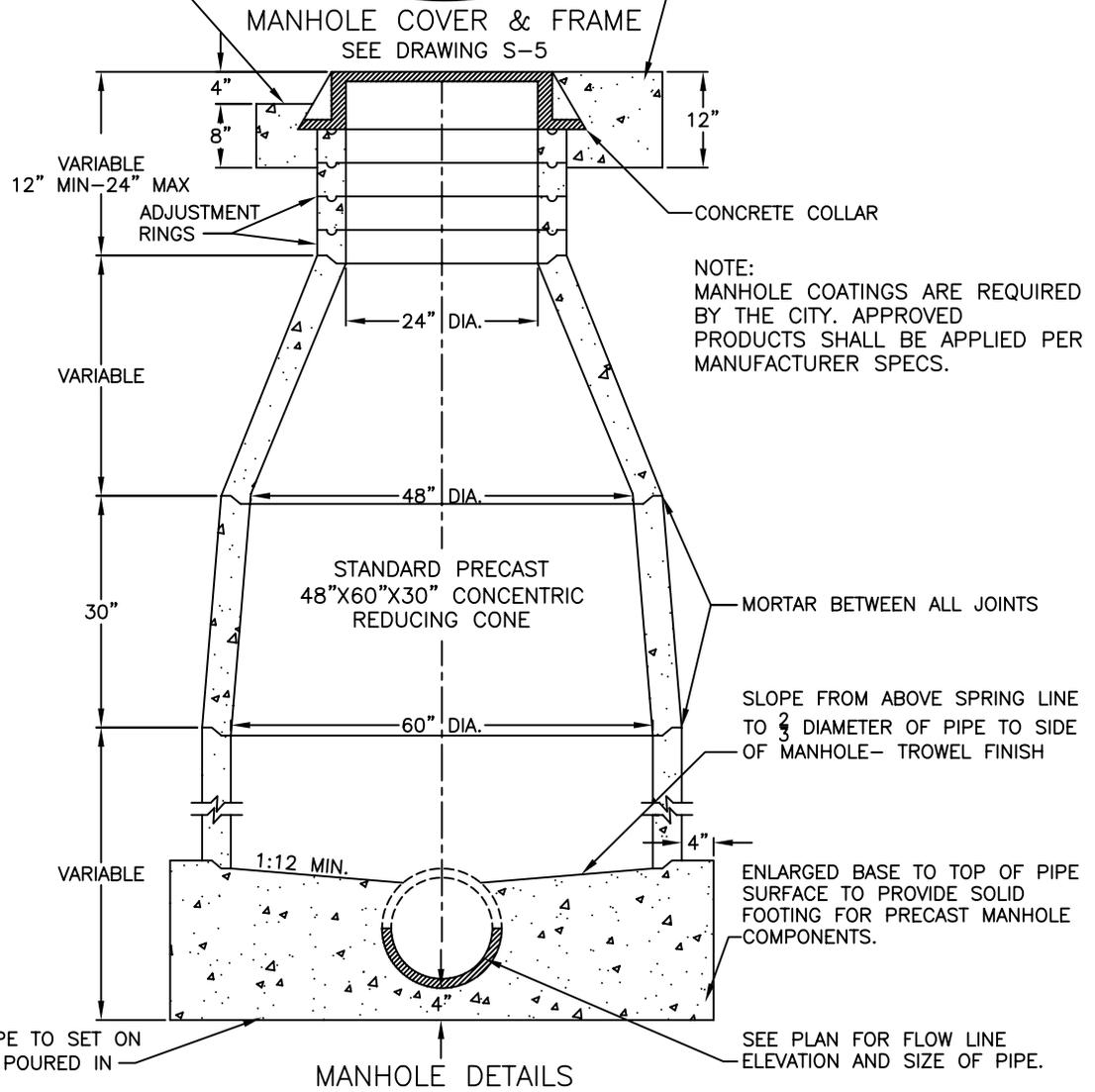


QUARTER TURNS TO BE CONSTRUCTED TO FORM A SMOOTH FLOW LINE OF SAME SHAPE AND PATTERN AS BOTTOM WALL OF PIPE.

NOTE:
WHEN PIPE IS CUT, ALL EXPOSED REINFORCING STEEL TO BE COATED WITH 2" OF CONCRETE.

TO BE PAVED WITH A.C. (AR4000 OR AR8000) TACK-COAT CONC. & METAL SURFACES PRIOR TO PAVING.

CLASS "A" P.C.C. COLLAR AROUND C.I. FRAME - AS SHOWN. SET FRAME IN CONC. BED FOR CONCRETE STREETS.



NOTE:
MANHOLE COATINGS ARE REQUIRED BY THE CITY. APPROVED PRODUCTS SHALL BE APPLIED PER MANUFACTURER SPECS.

SLOPE FROM ABOVE SPRING LINE TO $\frac{2}{3}$ DIAMETER OF PIPE TO SIDE OF MANHOLE - TROWEL FINISH

ENLARGED BASE TO TOP OF PIPE SURFACE TO PROVIDE SOLID FOOTING FOR PRECAST MANHOLE COMPONENTS.

SEE PLAN FOR FLOW LINE ELEVATION AND SIZE OF PIPE.

MANHOLE DETAILS

PRECAST MANHOLE PIPE TO SET ON CLASS "A" CONCRETE POURED IN PLACE.

GENERAL NOTES:

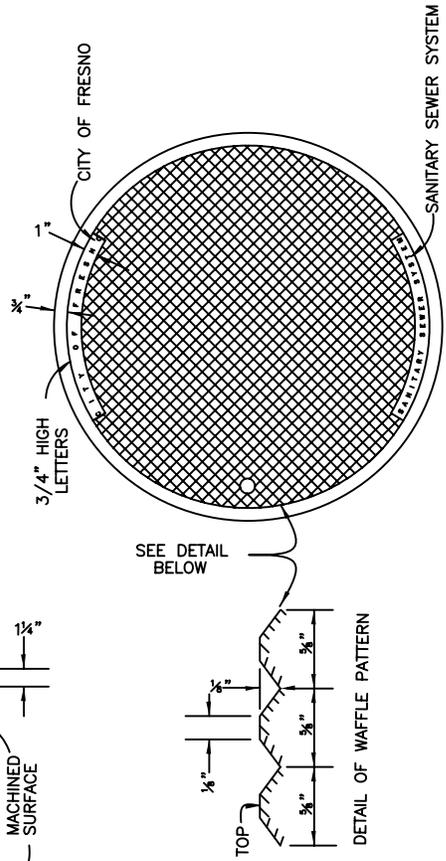
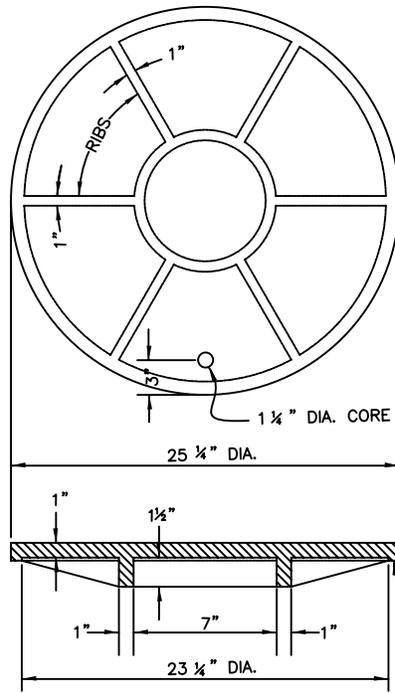
1. PRECAST PIPE, ADJUSTMENT RINGS AND TAPERED SECTIONS SHALL BE CLASS II R.C.P. IN ACCORDANCE WITH ASTM C-478.
2. ALL REINFORCING STEEL TO BE NO.4 BARS GRADE 60 STEEL, SPACED 12" O.C. BOTH WAYS IN TOP, BOTTOM & WALLS.
3. THIS STANDARD DRAWING SHALL BE USED FOR SEWER PIPES WITH DIAMETERS OF 30" THROUGH 42".

REF. & REV.
OCT., 2009

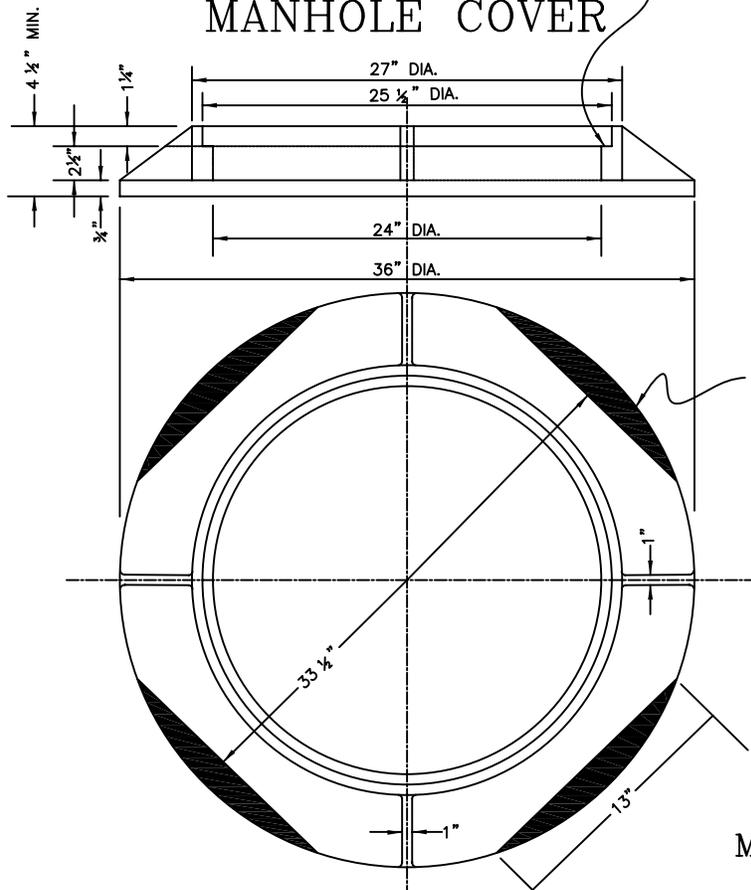
CITY OF FRESNO

60" SEWER MANHOLE
SEWER PIPES W/DIA. OF 30" THRU & INCLUDING 42"
WITH PRECAST SECTIONS & CAST IRON FRAME & COVER

S-4



MANHOLE COVER



MANHOLE FRAME

SCALE: 1" = 1'-0"

MINIMUM WEIGHTS

FRAME - 191 lbs.

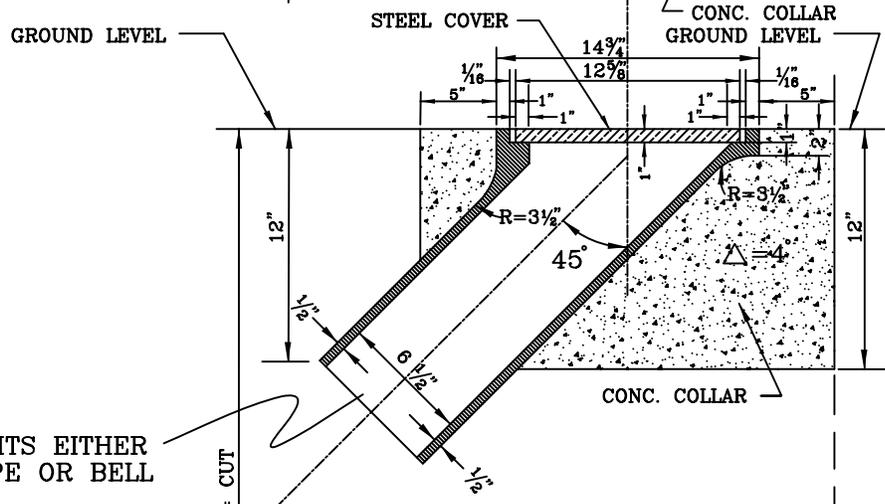
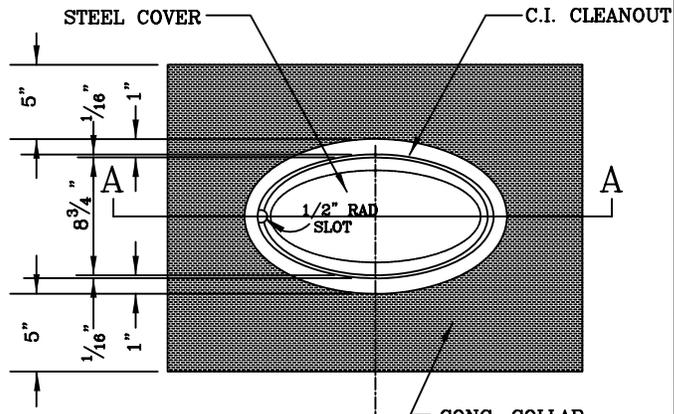
COVER - 147 lbs.

CAST IRON MANHOLE
FRAME & COVER

REF. & REV.
AUG., 2002

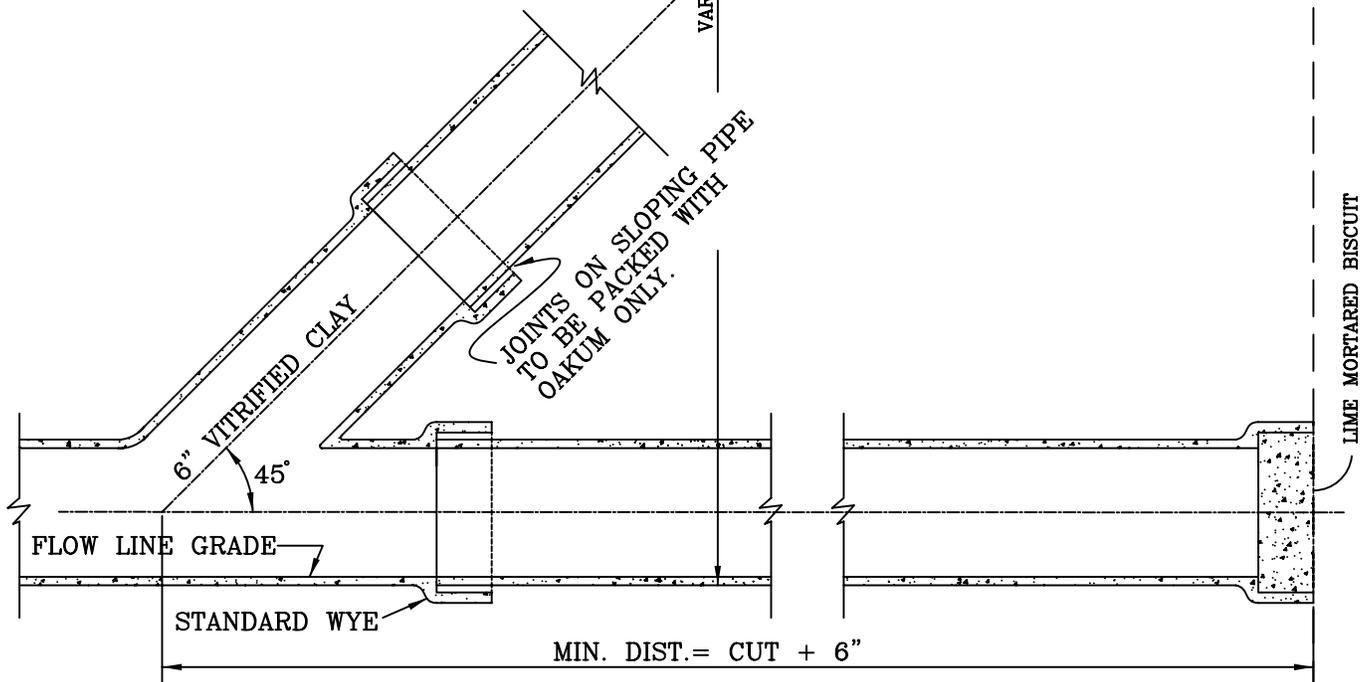
CITY OF FRESNO

S-5



C.I. SEWER CLEANOUT FITS EITHER 8" I.D. CONC SEWER PIPE OR BELL END OF 6" V.C. PIPE.

VARIABLE = CUT



SCALE: 1" = 1'-0"

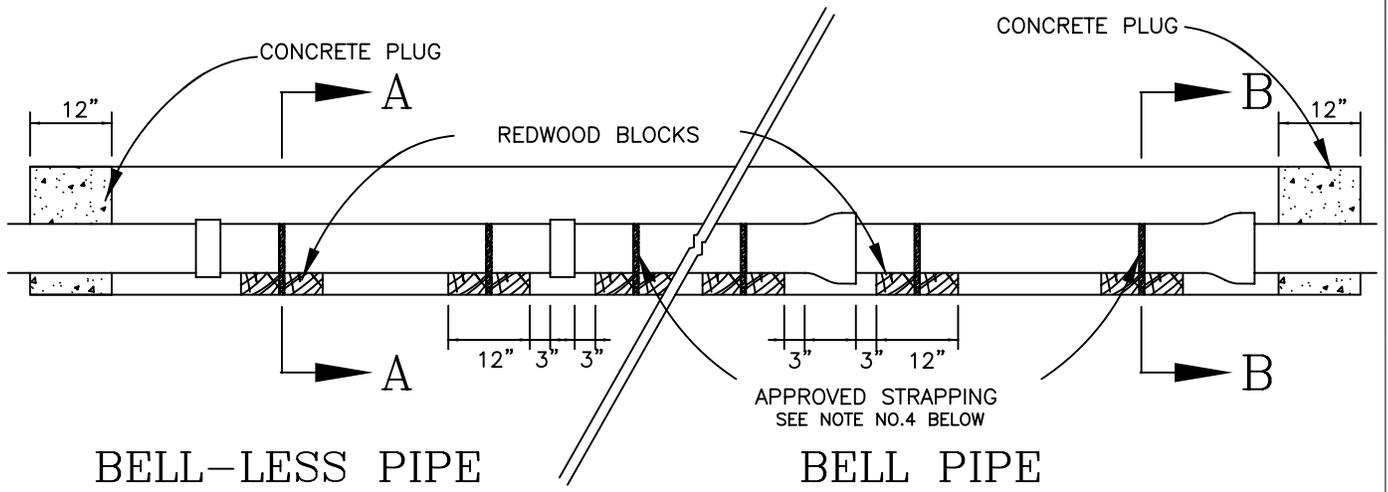
NOTE:
LAMPHOLES NO LONGER CONSTRUCTED IN CITY OF FRESNO. THIS DRAWING IS RETAINED FOR INFORMATIONAL PURPOSES TO SHOW CONSTRUCTION OF EXISTING LAMPHOLES.

SLOPING LAMPHOLE
WITH C.I. CLEANOUT & COVER

REF. & REV.
AUG., 2002

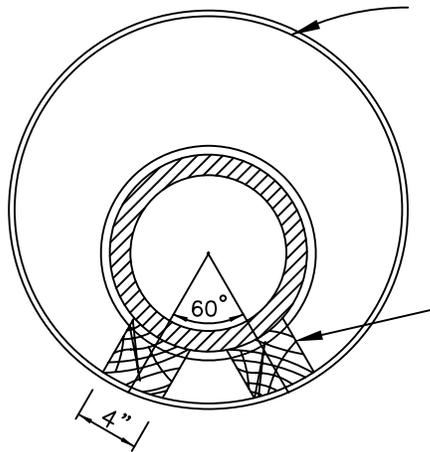
CITY OF FRESNO

S-6



BELL-LESS PIPE

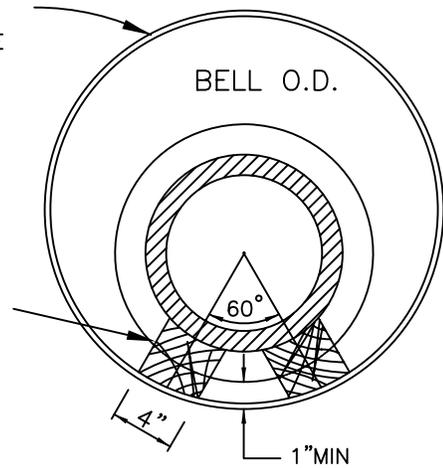
BELL PIPE



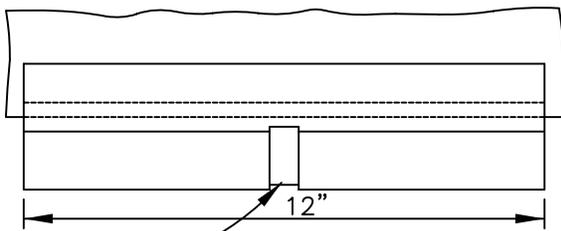
SECTION A-A

JACKED CASING
SEE PLANS FOR SIZE
AND THICKNESS

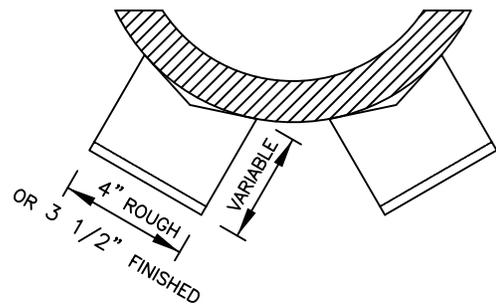
TRIM BLOCKS
FOR ALIGNMENT
AND GRADE



SECTION B-B



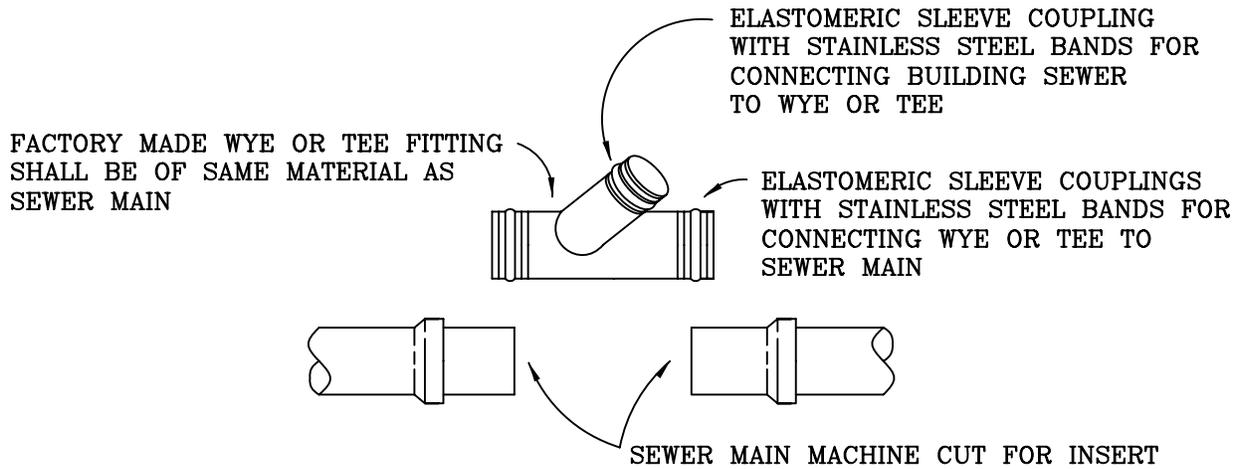
GROOVE
FOR STEEL STRAPPING



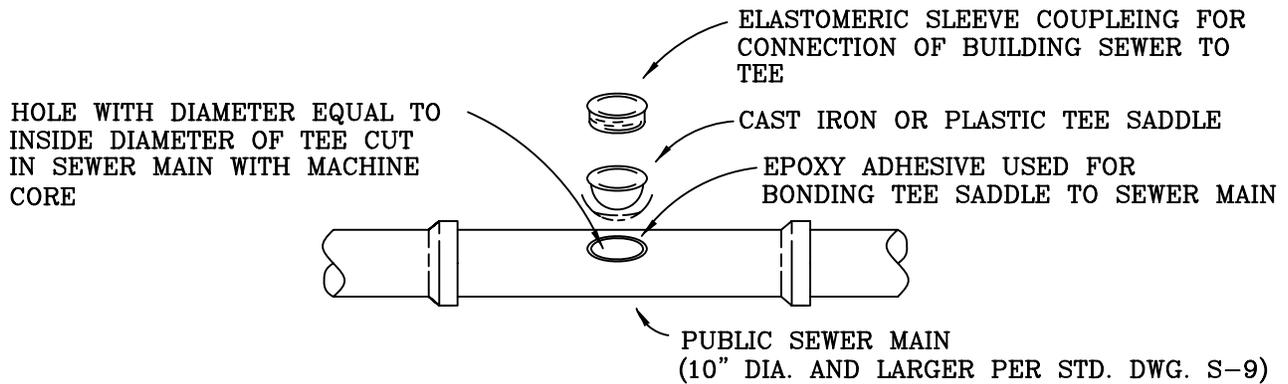
REDWOOD BLOCK DETAIL

NOTES:

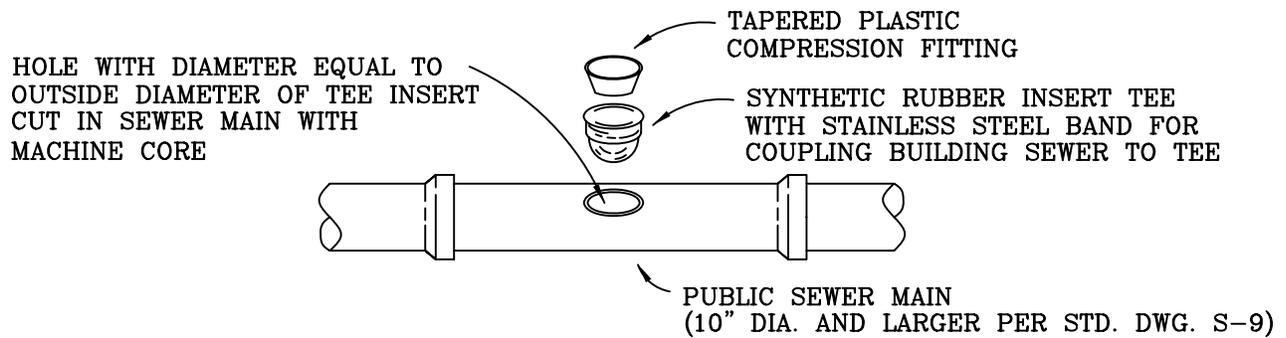
1. REDWOOD BLOCKS SHALL BE CONSTRUCTION GRADE.
2. REDWOOD BLOCKS SHALL BE VEED TO FIT CONTOUR OF PIPE.
3. WHEN JACKING, CASING GRADE SHALL BE SET SO CENTER LINE OF CASING SHALL COINCIDE WITH CENTER LINE OF SEWER PIPE.
4. REDWOOD BLOCKS SHALL BE STRAPPED TO THE PIPE WITH STEEL STRAPPING OR APPROVED WIRE BANDS.
5. PLUG ENDS OF CASING WITH 12 INCHES MINIMUM OF CONCRETE.
6. CONCRETE SHALL BE CLASS "B" P.C.C..



METHOD 1: INSERTION OF FACTORY MADE WYE OR TEE



METHOD 2: EPOXY BONDED SADDLE TEE



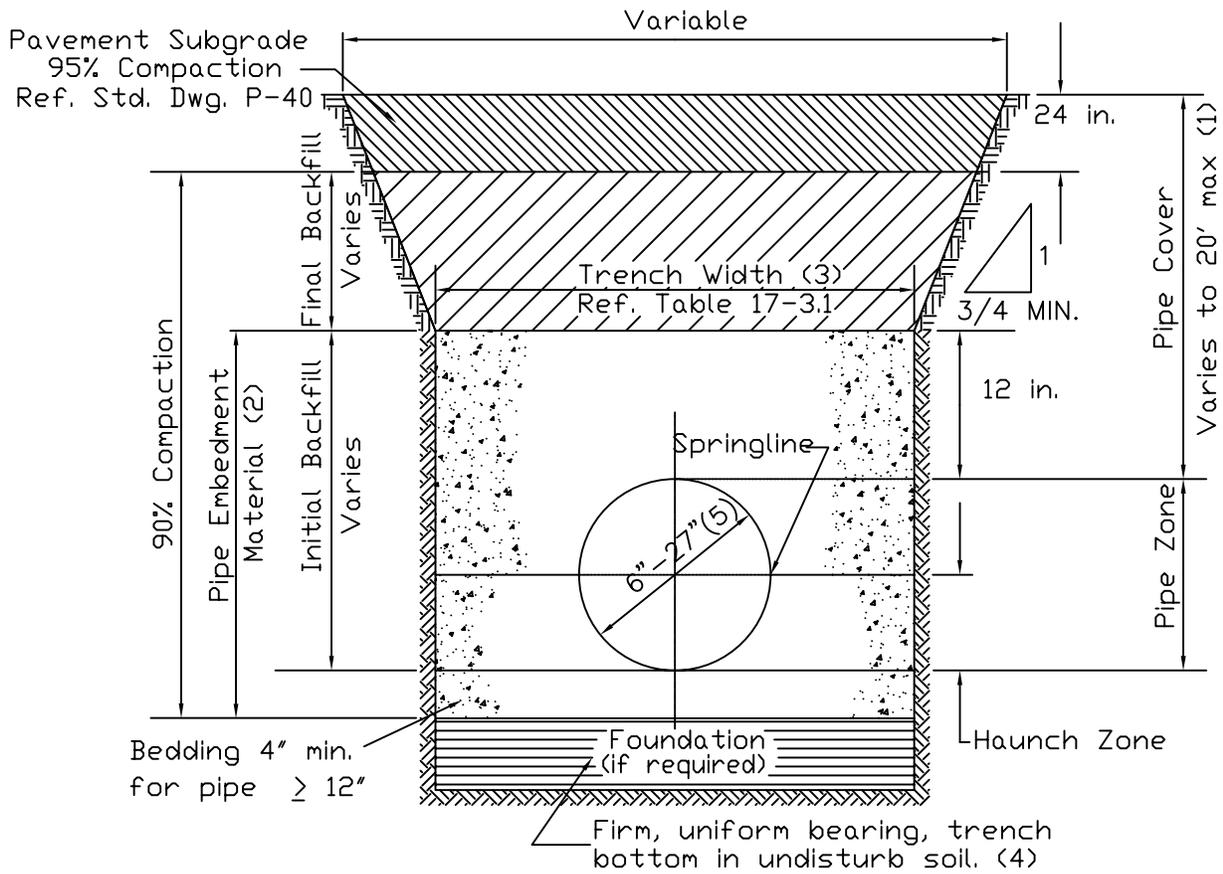
METHOD 3: COMPRESSION TEE

HOUSE BRANCH SIZE—APPROVED CONNECTION METHOD

SEWER MAIN SIZE

H.B. SIZE	6"	8"	10"	12"	15"
4"	MTHD.1	MTHD.1	MTHD.1,2,3	MTHD.1,2,3	MTHD.1,2,3
6"	MTHD.1	MTHD.1	MTHD.1,2,3	MTHD.1,2,3	MTHD.1,2,3

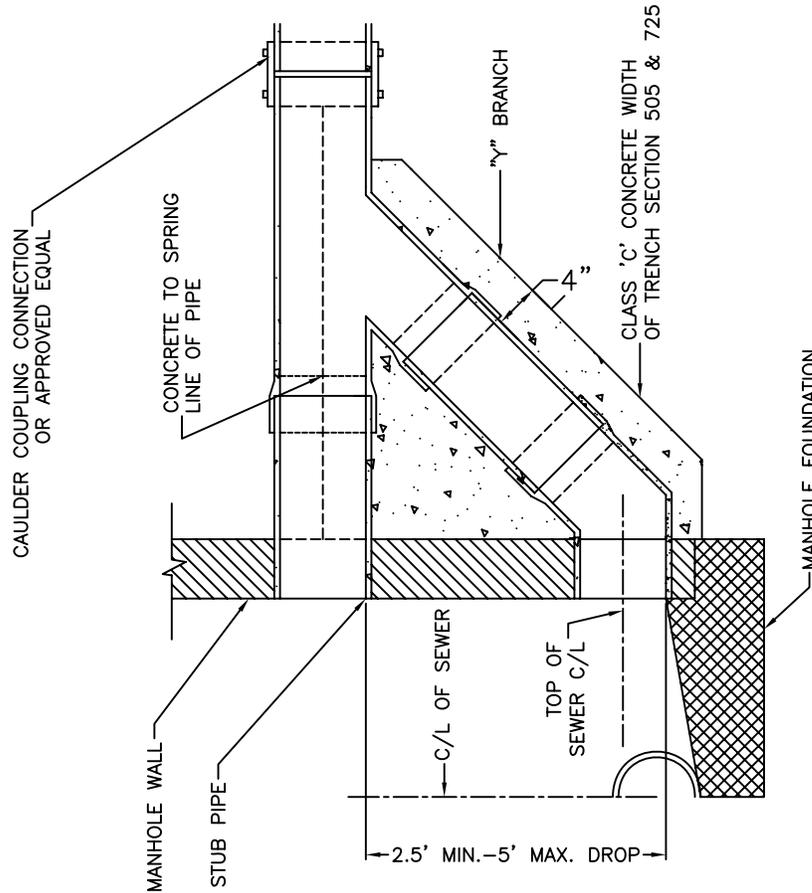
1. ALL WYES AND TEES SHALL BE OF SAME MATERIALS AS THAT OF THE SEWER MAIN OR APPROVED EQUAL.
2. 8 INCH DIAMETER AND LARGER HOUSE BRANCHES REQUIRE A MANHOLE AT POINT OF CONNECTION.
3. HOUSE BRANCH CONNECTIONS WITH AN APPROVED SADDLE TO EXISTING SEWER MAINS 10 INCHES AND LARGER. BY OTHER THAN A MACHINE CORE SHALL NOT BE ALLOWED.
4. SADDLES SHALL BE OF SAME MATERIAL AS SEWER MAIN OR APPROVED EQUAL AND SHALL NOT EXTEND BEYOND THE INSIDE DIAMETER OF THE SEWER.
5. SEWER HOUSE BRANCHES SHALL BE INSTALLED IN CON-FORMANCE WITH DRAWING S-1 OF THE CITY STANDARD SPECIFICATIONS AND THE UNIFORM PLUMBING CODE.



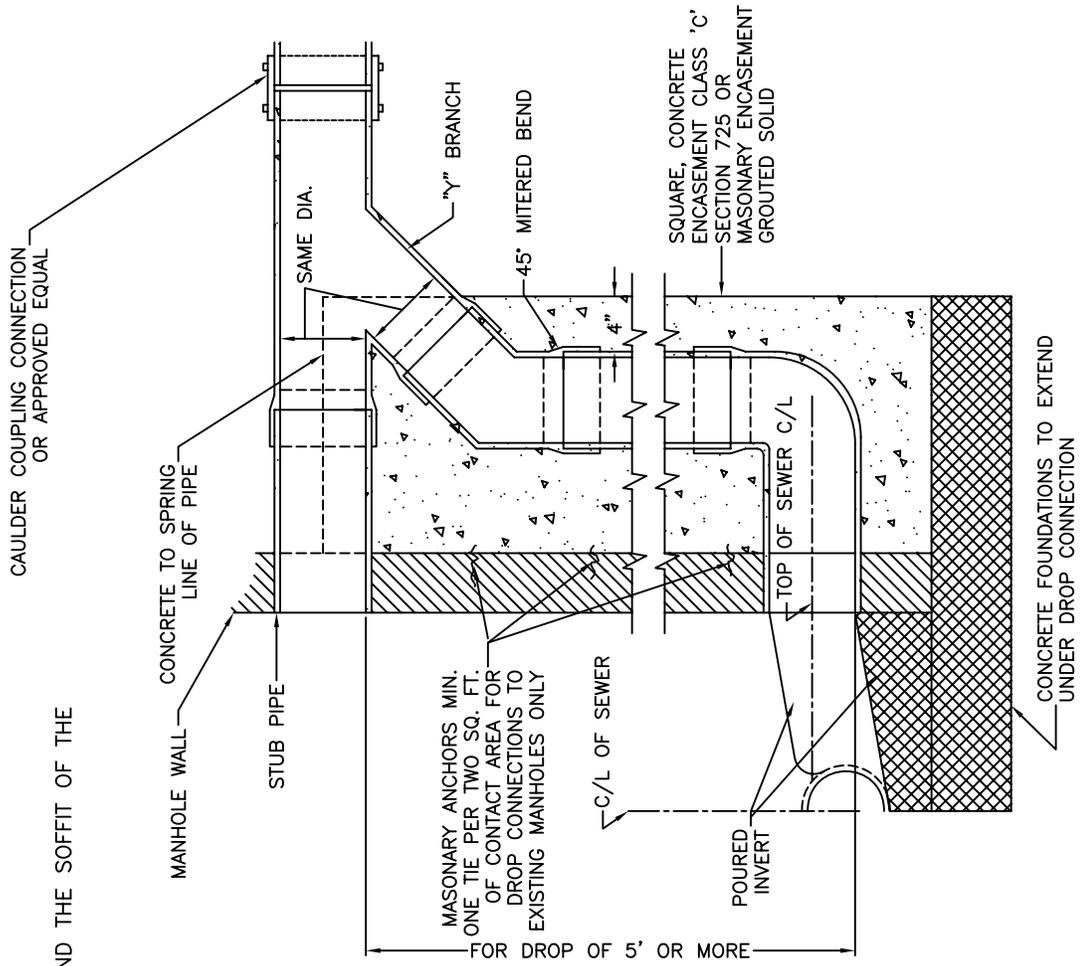
- (1) Pipe installations where cover over pipe exceeds 20' shall be designed by a Civil Engineer and specified in the Project Plans and Special Provisions.
- (2) Pipe Embedment material shall consist of Class II or Class III select natural material or processed product as defined in Subsection 17-5.2, "Pipe Embedment Zone" of Standard Specifications and initial backfill placed in accordance with Subsection 17-5.3, "Initial Backfill", of the Standard Specifications.
- (3) Minimum and maximum trench width allowed shall be maintained as specified in TABLE 17-3.1, Subsection 17-3.2.1, "Trench Widths", of the Standard Specifications.
- (4) Bottom of trench shall be in firm, uniform-bearing soil surfaces. When unsuitable or disturbed, the contractor shall remove and refill with suitable material as specified in Subsection 17-5.1, "Foundation and Bedding", of the Standard Specifications.
- (5) Standard detail S-10 shall be applicable to all sewer pipe installations with diameters of 6 to 27 inches. Construction procedures for pipes larger than 30 inches shall be provided by the City Engineer.

NOTES:

1. MANHOLE SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY STANDARD DRAWING S-3 & S-4.
2. USE OF DROP MANHOLES SHALL BE DISCOURAGED AND ALLOWED ONLY UPON SPECIAL AUTHORIZATION OF DEPT. OF PUBLIC UTILITIES BASED UPON THE FOLLOWING CRITERIA:
 - A. USED FOR 6" AND 8" DIA. LATERAL LINES ONLY
 - B. WHEN DESIGN VELOCITIES WILL EXCEED 7.5 FPS
 - C. WHENEVER THE DIFFERENCE BETWEEN THE SOFFIT OF THE MAIN LINE AND THE SOFFIT OF THE LATERAL LINE IS 2' OR GREATER



TYPE A
2.5' TO 5' DROP

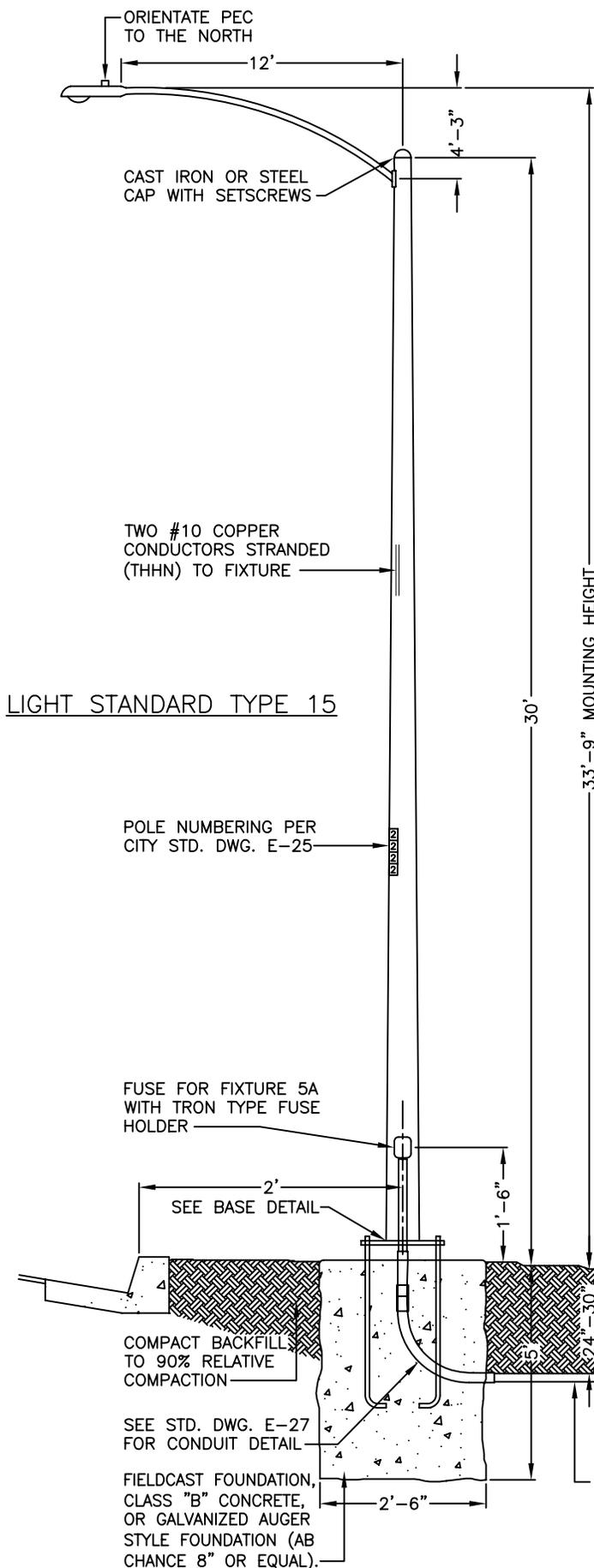


TYPE B
5' OR MORE

DROP SEWER MAIN CONNECTIONS
(6" AND 8" ONLY)

REF. & REV.
OCT., 2009

CITY OF FRESNO
S-11

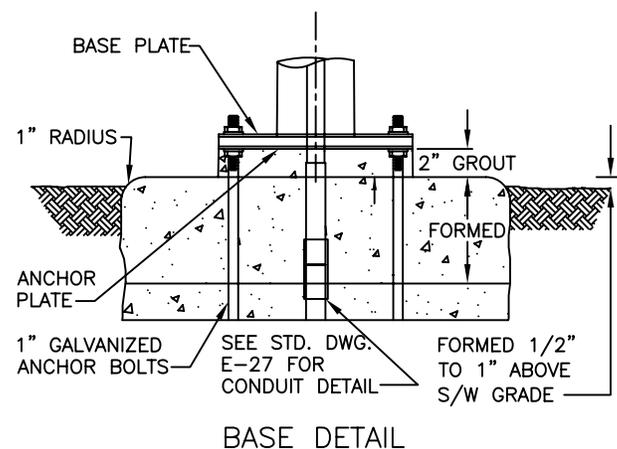


NOTES:

ALL WORK SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE SPECIFICATIONS ENTITLED "STANDARD SPECIFICATIONS, STATE OF CALIFORNIA, BUSINESS AND TRANSPORTATION AGENCY, DEPARTMENT OF TRANSPORTATION" AND THE NATIONAL ELECTRICAL CODE.

LUMINAIRE SHALL BE COBRA HEAD TYPE, 120V HIGH PRESSURE SODIUM-VAPOR WITH TYPE IV QUICK ACTING PHOTOELECTRIC CELL AND HAVE A HIGH POWER FACTOR REACTOR BALLAST. LENS SHALL BE POLYCARBONATE PLASTIC. BULB SHALL BE 150 WATT OR 70 WATT.

ALL STREET LIGHTS SHALL BE NUMBERED. NUMERICAL SEQUENCE TO BE OBTAINED FROM P.G.&E. NUMBERS TO BE 2-1/2" HIGH AND INSTALLED 10'-6" ABOVE FINISHED GRADE.



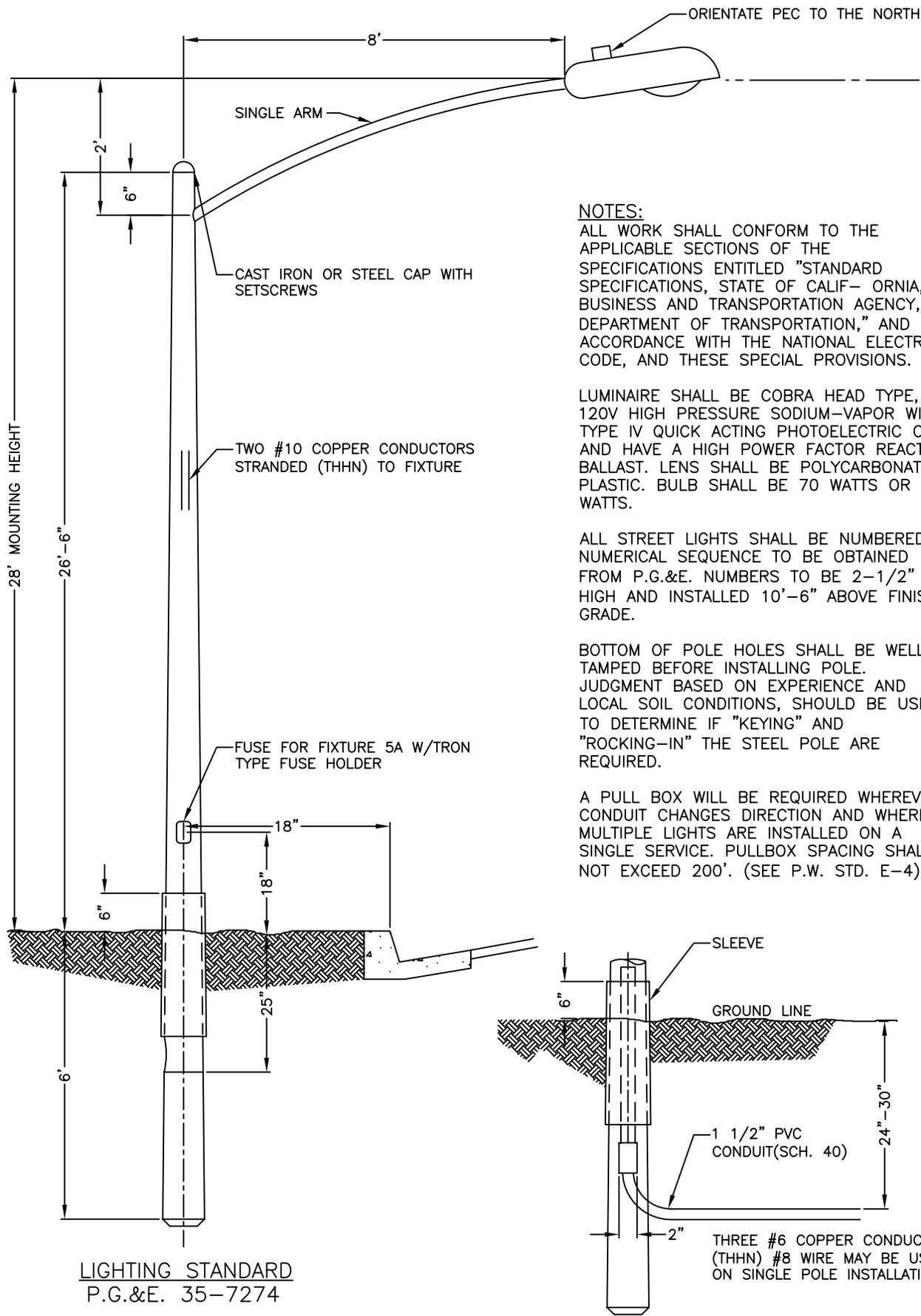
BASE DETAIL

**STREETLIGHT-MAJOR STREET
WITH BASE, PULL BOX & PVC CONDUIT**

REF. & REV.
AUG., 2010

CITY OF FRESNO

E-1



NOTES:
 ALL WORK SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE SPECIFICATIONS ENTITLED "STANDARD SPECIFICATIONS, STATE OF CALIF- ORNIA, BUSINESS AND TRANSPORTATION AGENCY, DEPARTMENT OF TRANSPORTATION," AND IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, AND THESE SPECIAL PROVISIONS.

LUMINAIRE SHALL BE COBRA HEAD TYPE, 120V HIGH PRESSURE SODIUM-VAPOR WITH TYPE IV QUICK ACTING PHOTOELECTRIC CELL AND HAVE A HIGH POWER FACTOR REACTOR BALLAST. LENS SHALL BE POLYCARBONATE PLASTIC. BULB SHALL BE 70 WATTS OR 150 WATTS.

ALL STREET LIGHTS SHALL BE NUMBERED. NUMERICAL SEQUENCE TO BE OBTAINED FROM P.G.&E. NUMBERS TO BE 2-1/2" HIGH AND INSTALLED 10'-6" ABOVE FINISHED GRADE.

BOTTOM OF POLE HOLES SHALL BE WELL TAMPED BEFORE INSTALLING POLE. JUDGMENT BASED ON EXPERIENCE AND LOCAL SOIL CONDITIONS, SHOULD BE USED TO DETERMINE IF "KEYING" AND "ROCKING-IN" THE STEEL POLE ARE REQUIRED.

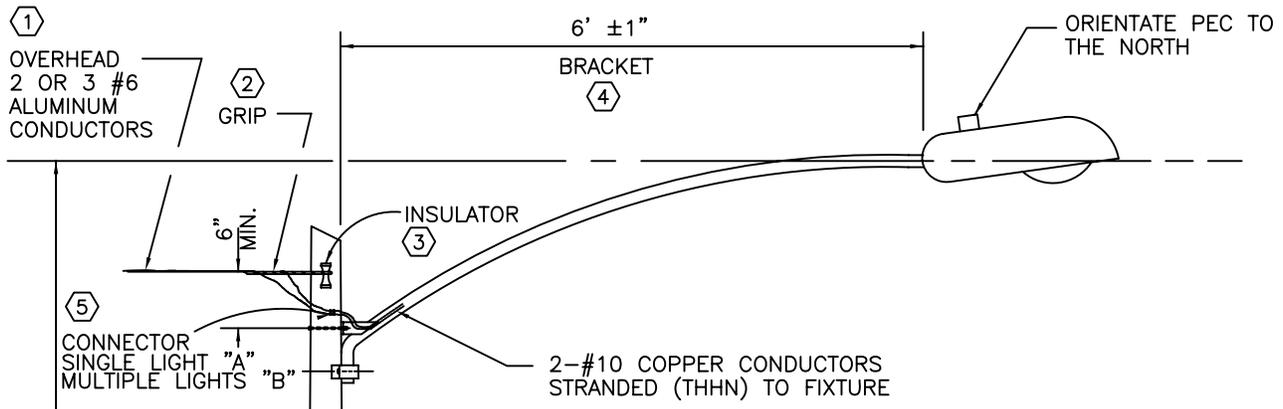
A PULL BOX WILL BE REQUIRED WHEREVER CONDUIT CHANGES DIRECTION AND WHERE MULTIPLE LIGHTS ARE INSTALLED ON A SINGLE SERVICE. PULLBOX SPACING SHALL NOT EXCEED 200'. (SEE P.W. STD. E-4)

LIGHTING STANDARD
 P.G.&E. 35-7274

STREETLIGHT-LOCAL STREET
 WITH NO BASE, NO PULL BOX & PVC CONDUIT

REF. & REV.
 AUG., 2010

CITY OF FRESNO



DOUGLAS FIR, CLASS 5 STREET LIGHT POLE

GENERAL NOTES

ALL WORK SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE SPECIFICATIONS ENTITLED "STANDARD SPECIFICATIONS, STATE OF CALIFORNIA BUSINESS AND TRANSPORTATION AGENCY, DEPARTMENT OF TRANSPORTATION" AND IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THESE SPECIAL PROVISIONS.

LUMINAIRE SHALL BE COBRA HEAD TYPE, 120V HIGH PRESSURE SODIUM-VAPOR WITH TYPE IV QUICK ACTING PHOTOELECTRIC CELL AND HAVE A HIGH POWER FACTOR REACTOR BALLAST. LENS SHALL BE POLYCARBONATE PLASTIC. BULB SHALL BE 70 WATTS OR 150 WATTS.

ALL STREET LIGHTS SHALL BE NUMBERED. NUMERICAL SEQUENCE TO BE OBTAINED FROM P.G.&E. NUMBERS TO BE 2-1/2" HIGH AND INSTALLED NINE FEET ABOVE FINISHED GRADE.

POLES TO BE PRESSURE TREATED, BY OIL-PENTA PROCESS.

POLES SHALL BE P.G. & E. INSPECTED & APPROVED.

INSTALLATION NOTES

- ① N-SD SERVICE DROP / SECONDARY CABLE (SINGLE LIGHT - DUPLEX)
(MULTIPLE LIGHTS - TRIPLEX)
(SEE SPECIAL PROVISIONS)

STREET LIGHT DROP SAGS

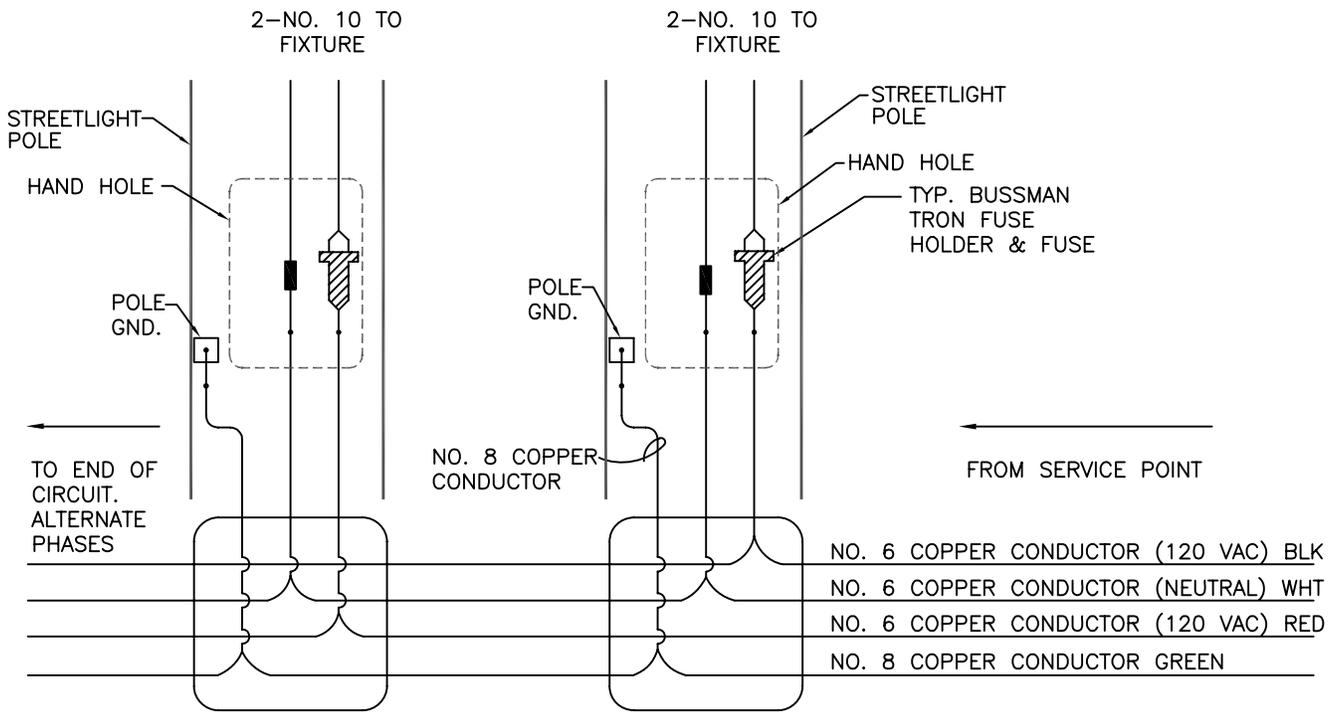
SPAN LENGTH	40'	60'	80'	100'	120'	140'	150'	175'	200'	225'
SAG	2"	5"	9"	1'-2"	1'-9"	2'-4"	3'-2"	4'-4"	5'-7"	7'-1"

OVERHEAD CONDUCTORS NOT TO SPAN MORE THAN 225'

- ② CHANCE : DEADEND - 10AWCG
LINE TIE - 10AWTY-56
- ③ JOSLYN J101/J1398 (SPOOL & CLEVIS)
- ④ JOSLYN JP40482 (BRACKET)
- ⑤ CONNECTOR (SEE SPECIAL PROVISIONS)

30' MOUNTING HEIGHT

6' MINIMUM



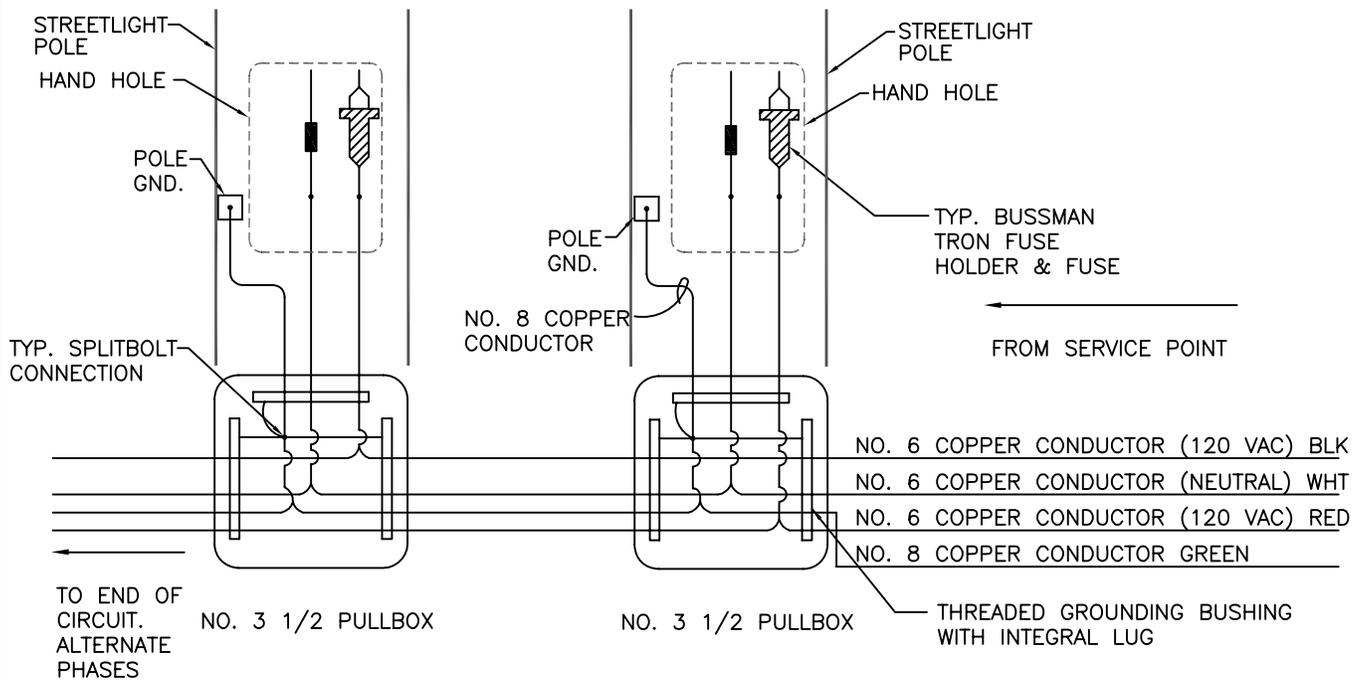
NO. 3 1/2 PULLBOX

NO. 3 1/2 PULLBOX

PHASE A

PHASE B

PVC



NO. 3 1/2 PULLBOX

NO. 3 1/2 PULLBOX

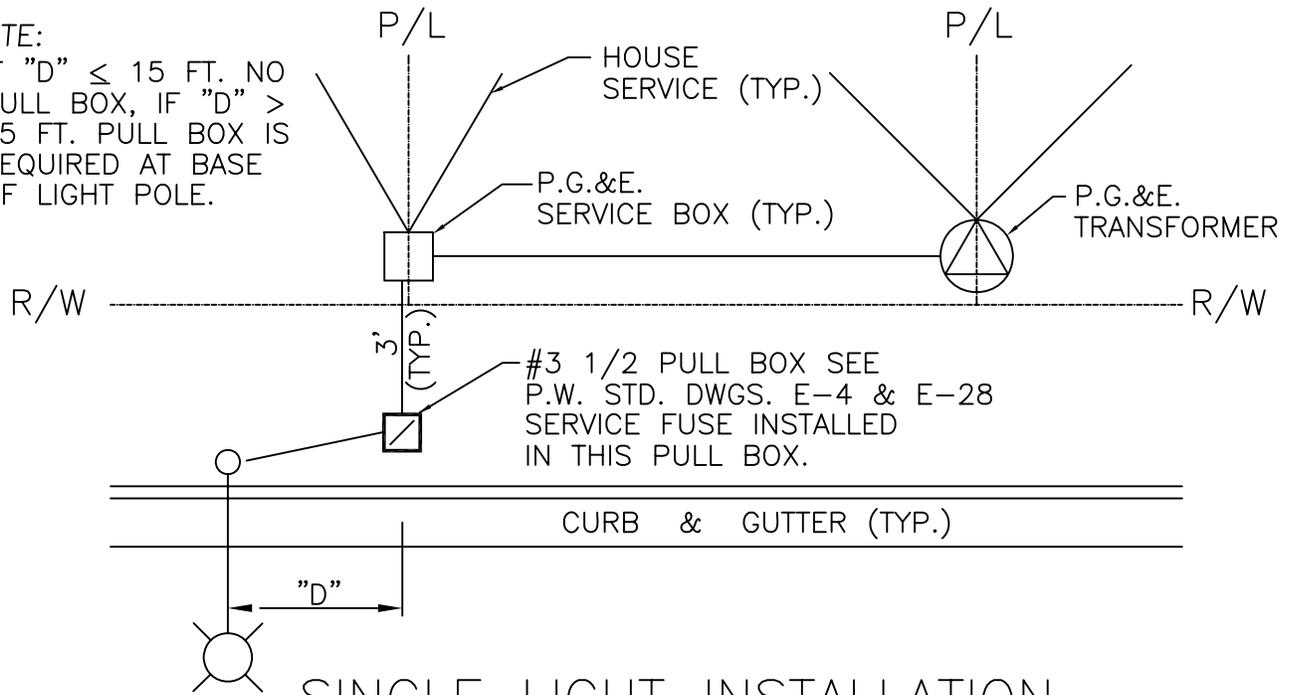
PHASE A

PHASE B

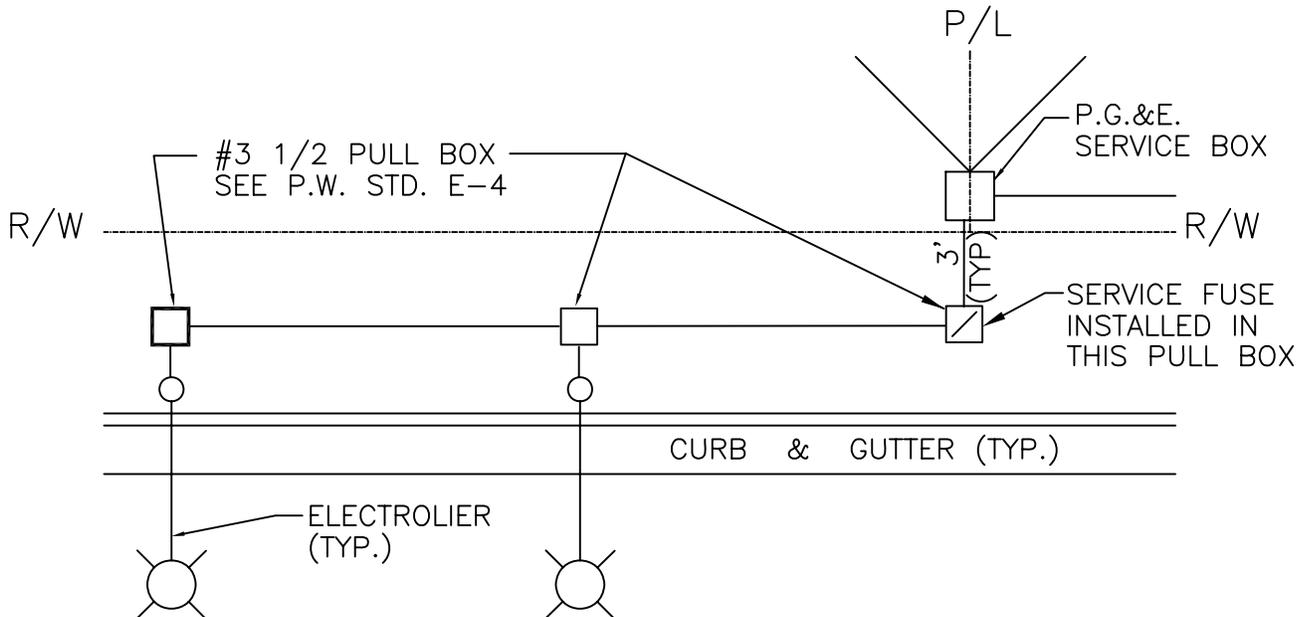
GRC

NOTE:

IF "D" ≤ 15 FT. NO PULL BOX, IF "D" > 15 FT. PULL BOX IS REQUIRED AT BASE OF LIGHT POLE.

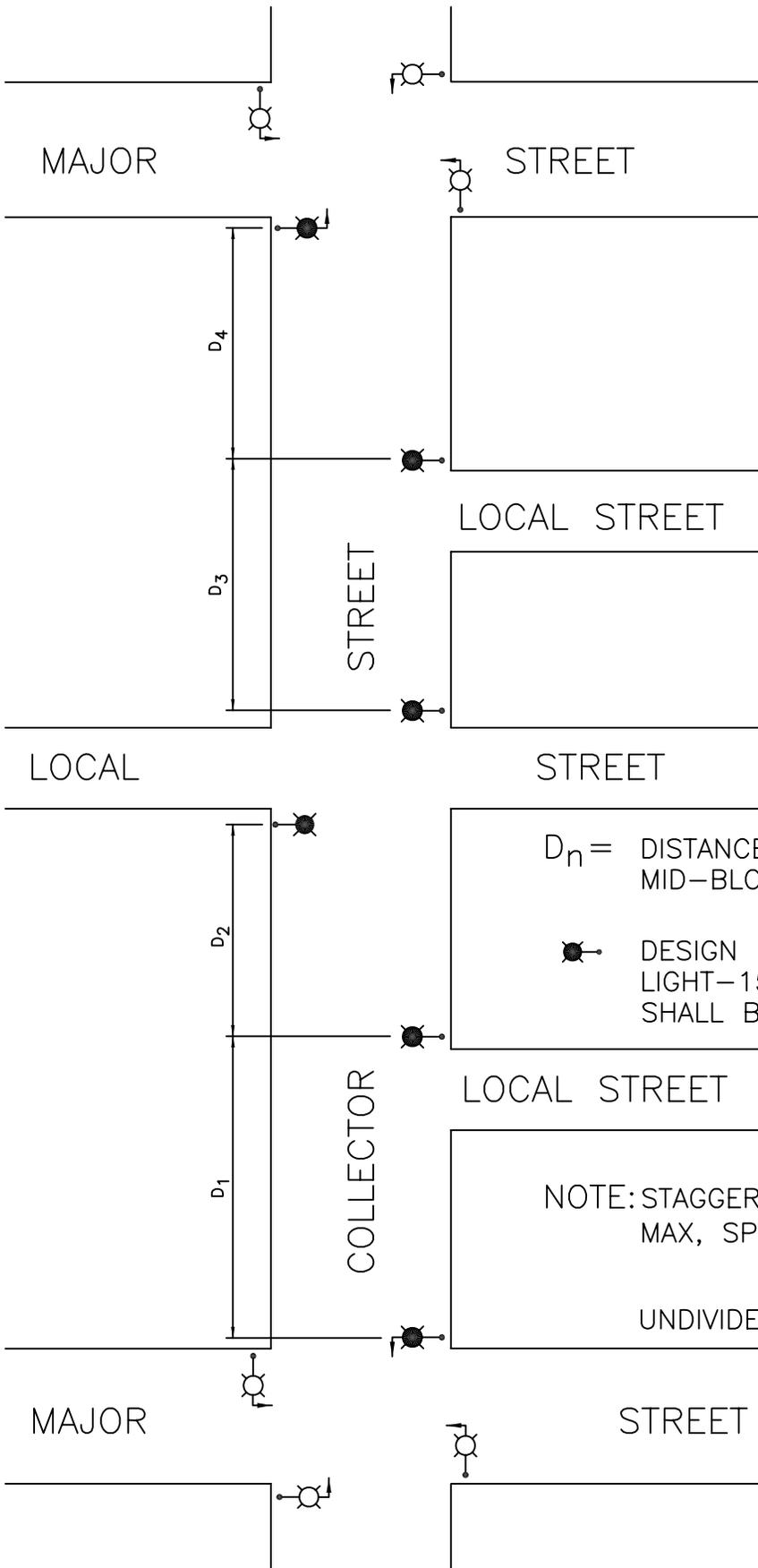


SINGLE LIGHT INSTALLATION



MULTIPLE LIGHT INSTALLATION

1. CONDUIT SHALL BE SCHEDULE 40 PVC ON LOCAL STREETS AND SCHEDULE 80 PVC ON MAJOR STREETS. LOCAL STREET CROSSINGS SHALL BE SCHEDULE 80 PVC, AND MAJOR STREETS CROSSINGS SHALL BE GALVANIZED RIGID CONDUIT.
2. LOCATE STREET LIGHTS ON THE SAME SIDE OF THE STREET AS THE P.G.&E. SERVICE WHEN POSSIBLE.
3. DO NOT LOCATE THE PULL BOXES ABOVE THE JOINT TRENCH.
4. PULL BOX SPACING SHALL NOT EXCEED 200' AND SHALL BE REQUIRED IN ALL CONDUIT CHANGE OF DIRECTION.



$D_n =$ DISTANCE TO BE DIVIDED FOR MID-BLOCK LIGHTING.

● DESIGN CONTROL STREET LIGHT—150W MID-BLOCK LIGHTS SHALL BE 70W

NOTE: STAGGER OR ALL ON ONE SIDE
MAX, SPACING UNIT TO UNIT 150'

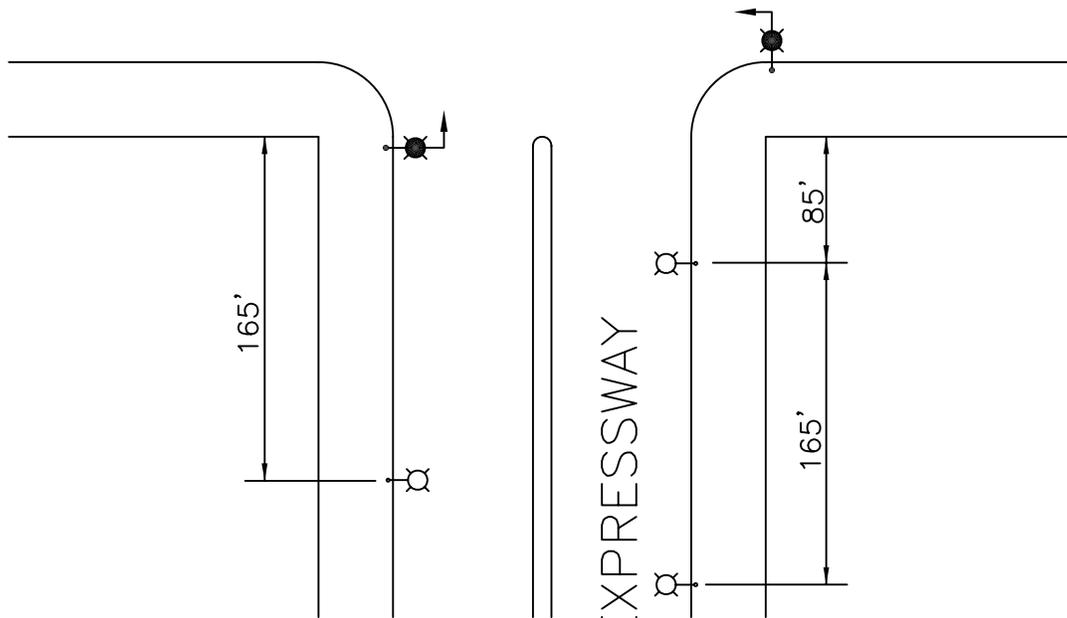
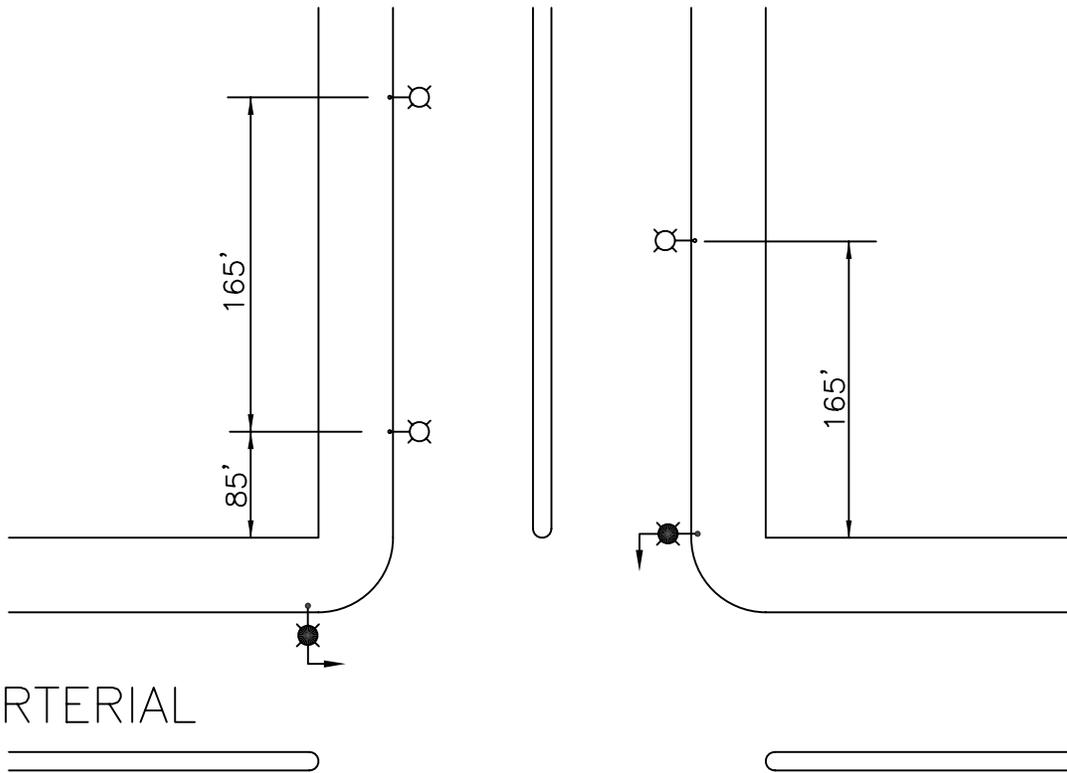
UNDIVIDED ROADWAY 50-90'

STREETLIGHT-PLACEMENT
COLLECTOR STREET

REF. & REV.
AUG., 2002

CITY OF FRESNO

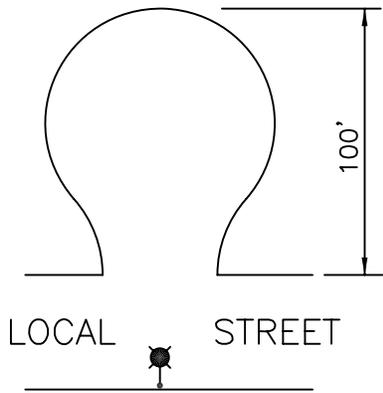
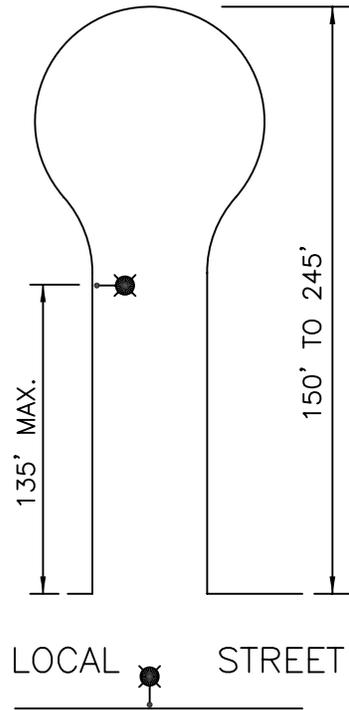
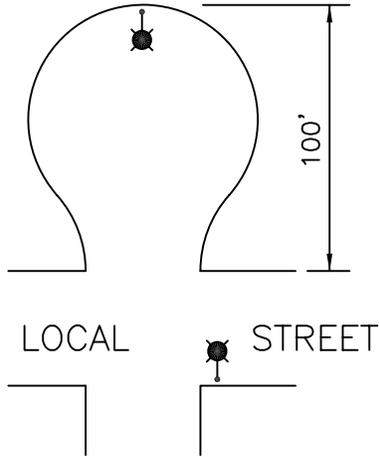
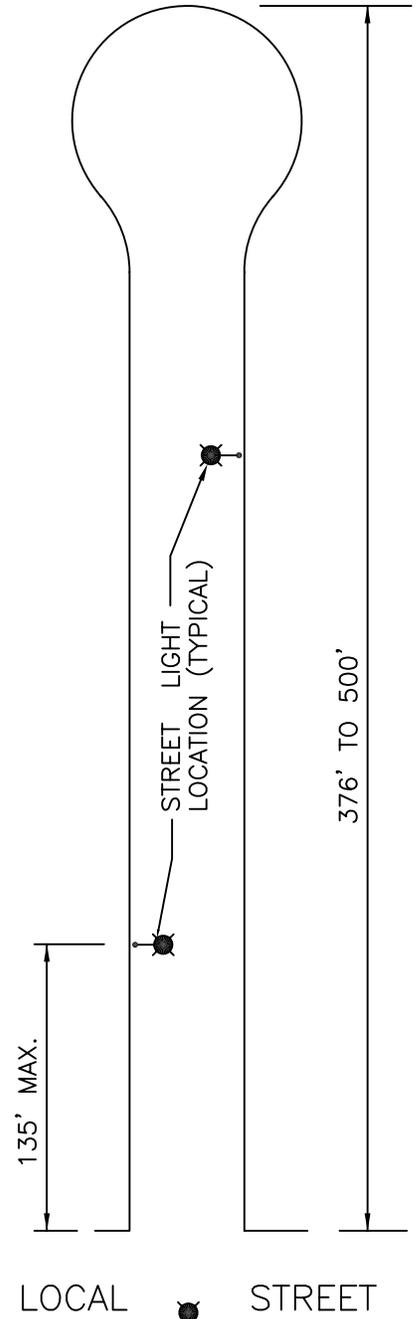
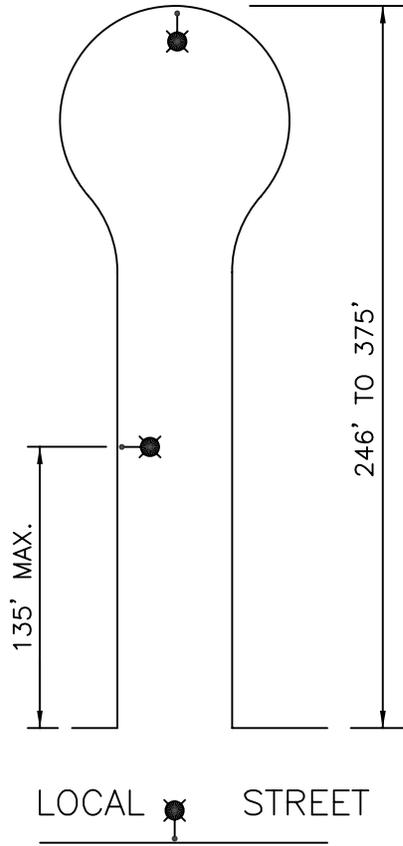
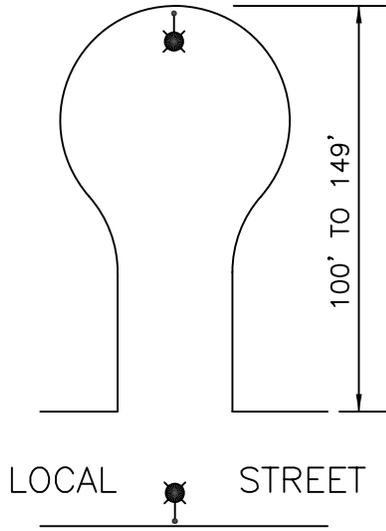
ARTERIAL



● = SAFETY LIGHTING (200W)

⊗ = ENTRANCE AND EXIT LIGHTS (70W)

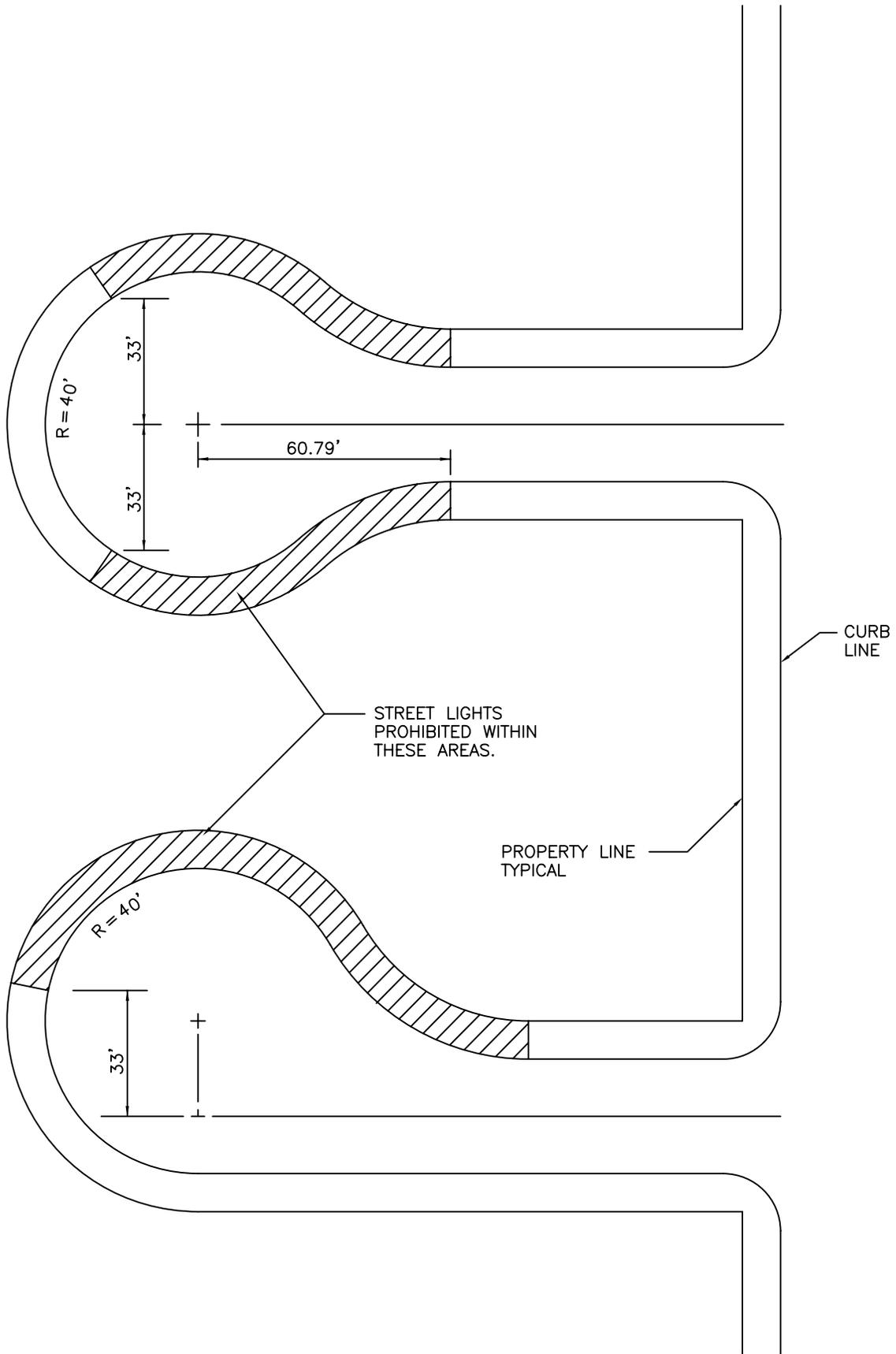
NOTE: SAFETY LIGHTS & APPROACH LIGHTS (ENTRANCE & EXIT) TO BE ON SEPARATE BREAKERS OF SAME CONTACTOR.



STREETLIGHT-PLACEMENT
CUL-DE-SAC STREETS

REF. & REV.
 AUG., 2002

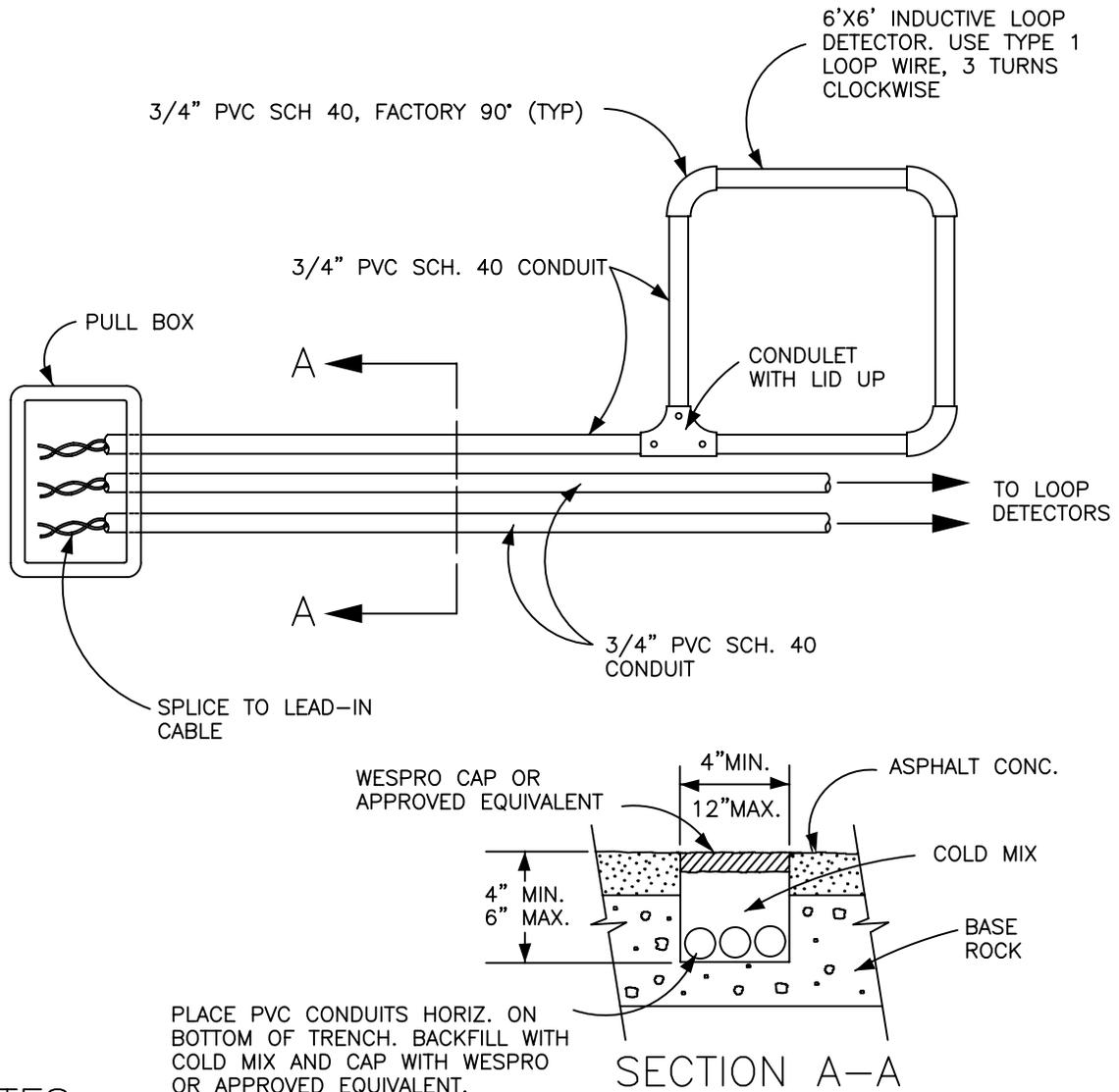
CITY OF FRESNO
E-11



STREETLIGHT-RESTRICTIONS
CUL-DE-SAC DESIGNS

REF. & REV.
 AUG., 2002

CITY OF FRESNO
E-12

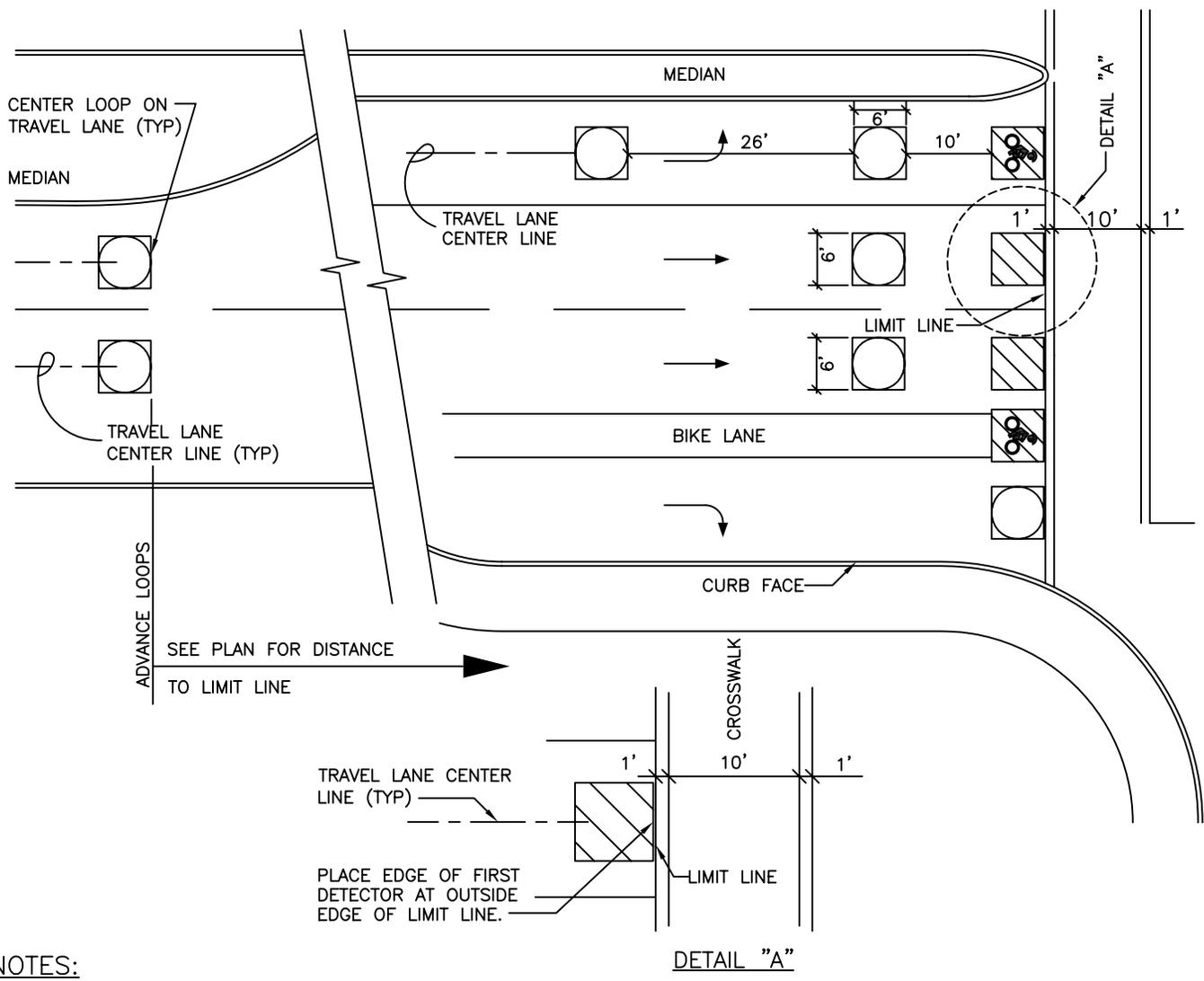
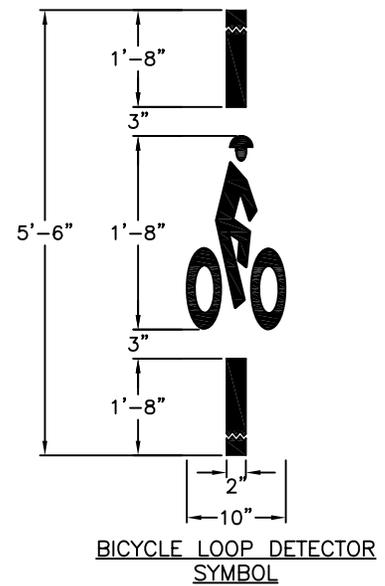


NOTES

1. INSTALLATION SHALL BE PER CURRENT CALTRANS STD. PLANS PLAN No. ES-5A DELETING NOTES 1,2,3,4,7 AND 10.
2. ASPHALTIC EMULSION OIL SHALL BE SPRAYED ON ALL VERTICAL SURFACES OF TRENCH.
3. MAKE INITIAL BACKFILL WITH COLD MIX AND COMPACT TO 95%. OPEN TO TRAFFIC FOR A PERIOD OF 2 WEEKS ±. CAP WITH 2" OF WESPRO OR APPROVED EQUIVALENT.
4. ALL BACKFILL MATERIALS SHALL BE COMPACTED WITH A VIBRATORY PLATE TAMPER.
5. FINISHED SURFACE OF CAP MATERIAL SHALL BE ABOVE EXISTING PAVEMENT.

LEGEND:

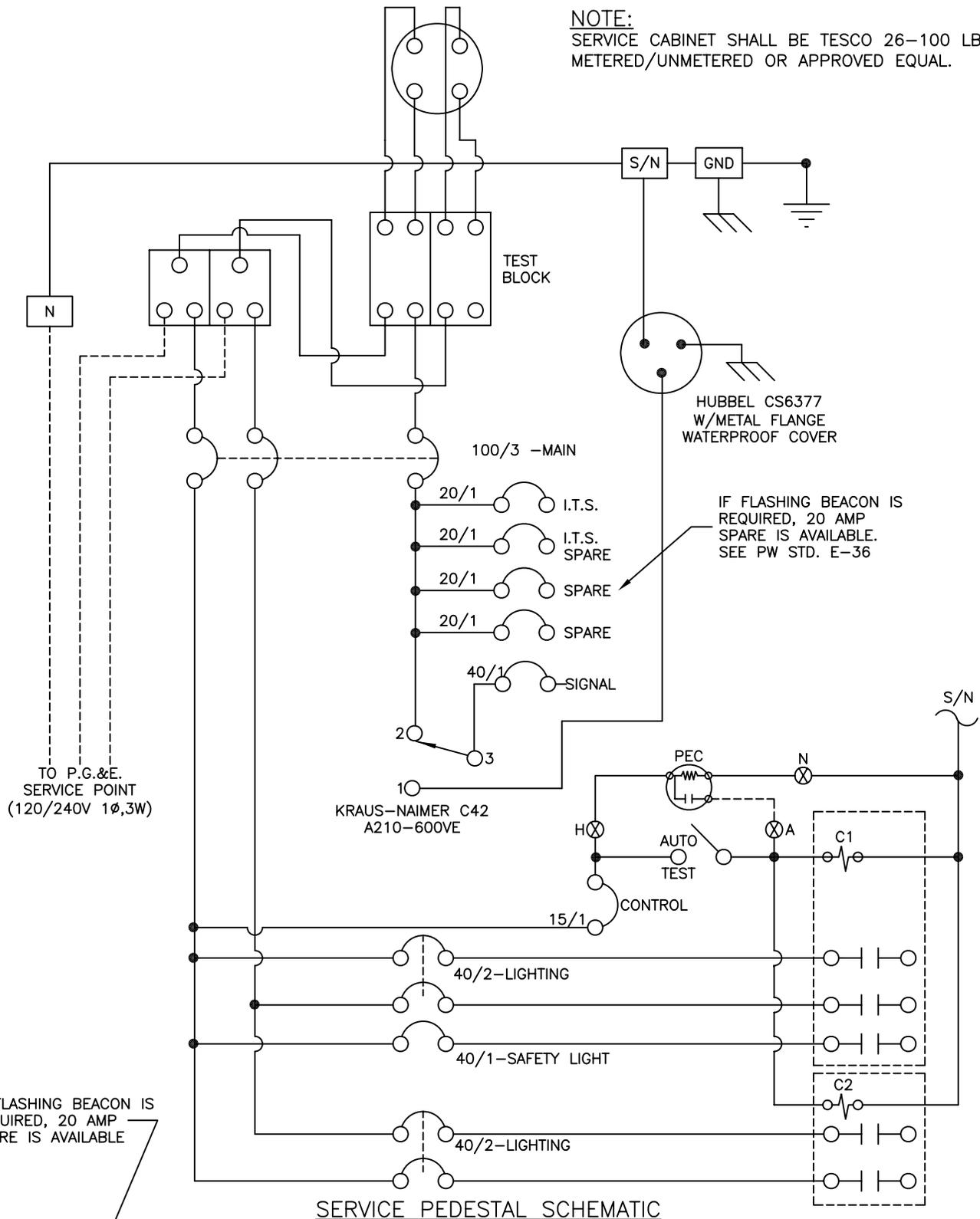
-  CITY OF FRESNO OR CALTRANS DETECTOR TYPE.
-  CITY OF FRESNO – PVC ENCASED LOOP DETECTOR – "TYPE 1" LOOP WIRE (P.W. STD. E-13).
-  CALTRANS TYPE 'E' – SAWCUT CIRCULAR LOOP DETECTOR – "TYPE 2" LOOP WIRE (ES-5B).
-  CALTRANS TYPE 'D' – SAW CUT DIAGONAL LOOP DETECTOR "TYPE 2" LOOP WIRE (ES-5B).
-  CALTRANS TYPE 'D' W/BIKE DETECTOR SYMBOL (ON STATE STD. PLANS A24C & FIG. 9C-7 (CA) CA-MUTCD) CENTERED ON LOOP.



NOTES:

1. CIRCULAR DETECTION SHALL BE DETERMINED BY THE CONDITION OF EXISTING PAVEMENT AND SHALL HAVE THE APPROVAL OF THE CITY TRAFFIC ENGINEER. CIRCULAR LOOP SAWCUTS SHALL BE PER CALTRANS ES-5B, LOOP SEALANT SHALL BE CALTRANS APPROVED ELASTOMERIC SEALANT OR HOT MELT RUBBERIZED ASPHALT SEALANT.
2. ALL NEW LOOPS SHALL BE TESTED AND DOCUMENTED ON SHEET PROVIDED IN THE SECTION 23-2, TESTING SHALL BE TO CALTRANS STATE STANDARD PLANS.

NOTE:
 SERVICE CABINET SHALL BE TESCO 26-100 LBS
 METERED/UNMETERED OR APPROVED EQUAL.



TO P.G.&E.
 SERVICE POINT
 (120/240V 1Ø,3W)

IF FLASHING BEACON IS
 REQUIRED, 20 AMP
 SPARE IS AVAILABLE.
 SEE PW STD. E-36

IF FLASHING BEACON IS
 REQUIRED, 20 AMP
 SPARE IS AVAILABLE

SERVICE PEDESTAL SCHEMATIC

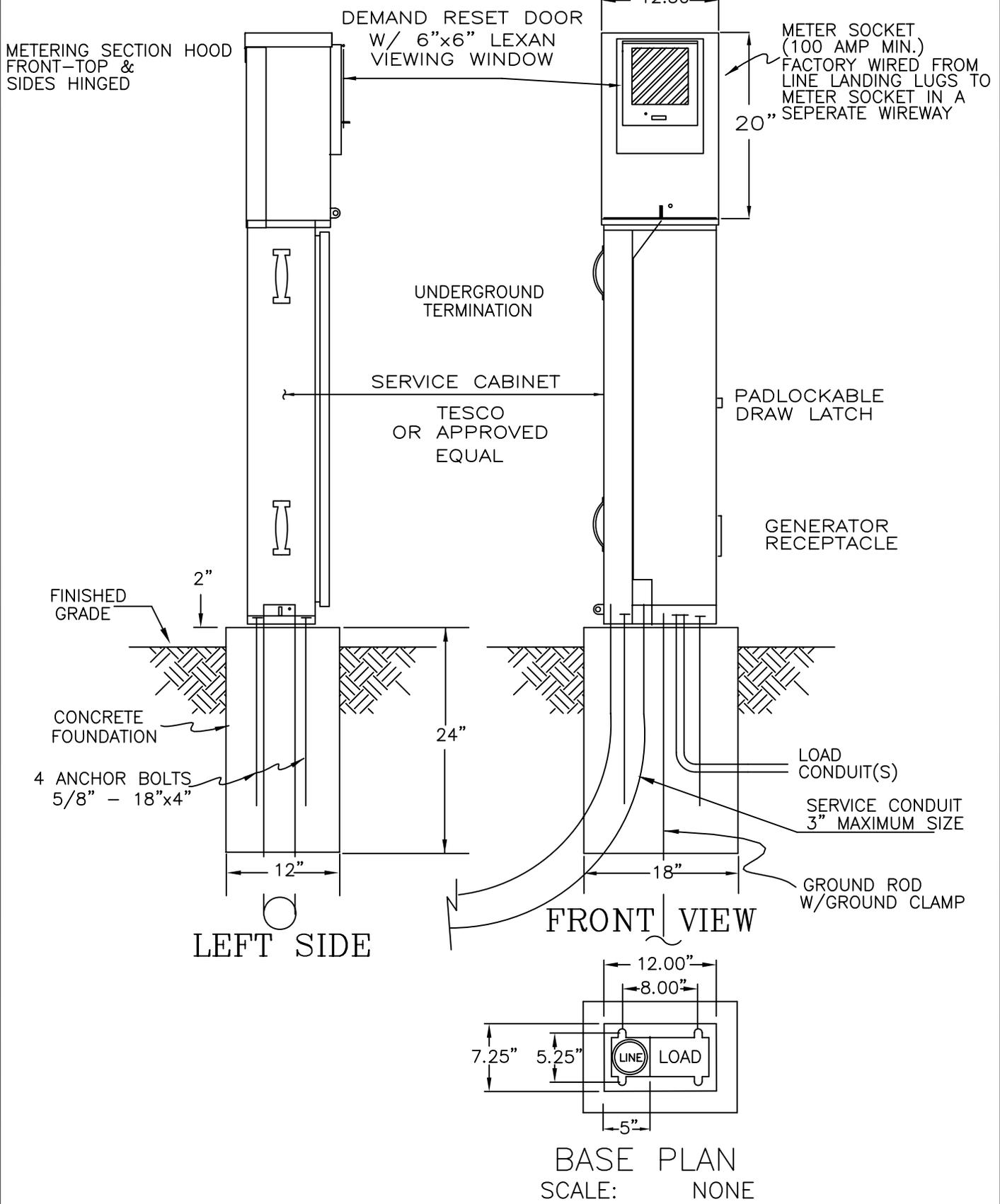
20A SPARE	20A SPARE	20A I.T.S. SPARE	20A I.T.S.	15A CONTROL	40A LIGHTING	40A LIGHTING	40A SAFETY LIGHT	40A SIGNAL	100A MAIN	
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SWITCH LOCATION

REF. & REV.
 SEPT., 2009

CITY OF FRESNO

SIGNAL LIGHT
 WIRING NEW INSTALLATIONS 26-100 CABINETS



NOTES

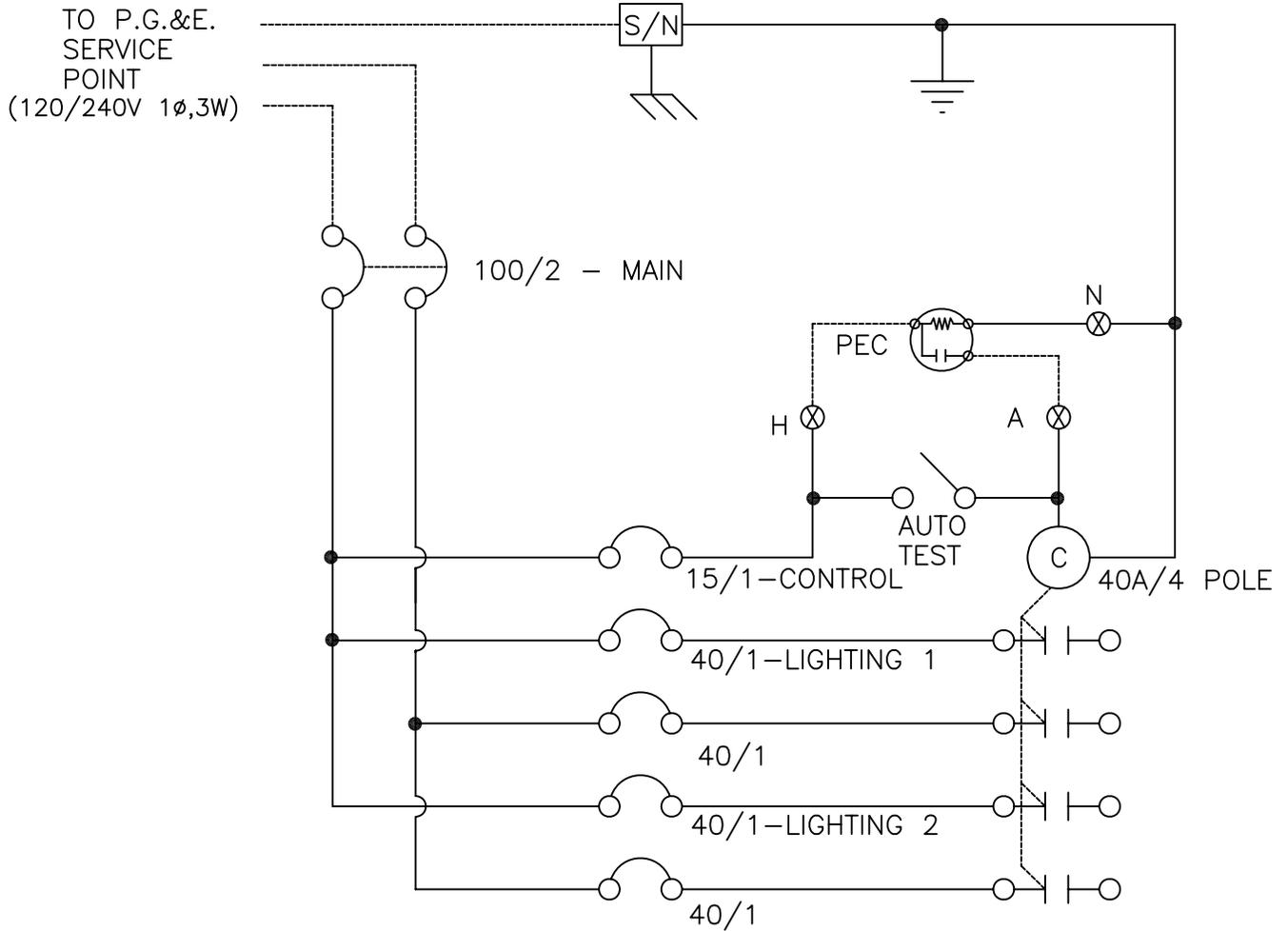
1. IN ORDER FOR CONFORMITY AND REPLACEMENT PURPOSES ALL SERVICE PEDESTAL FOUNDATIONS TO BE CONSTRUCTED TO THESE SPECIFICATIONS. ANY DEVIATIONS FROM THESE REQUIREMENTS SHALL HAVE THE APPROVAL OF THE ELECTRICAL SUPERINTENDANT.

SIGNAL LIGHT
SERVICE FOUNDATION DETAIL

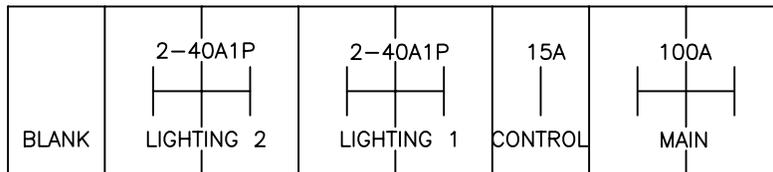
REF. & REV.
 AUG., 2002

CITY OF FRESNO
E-17

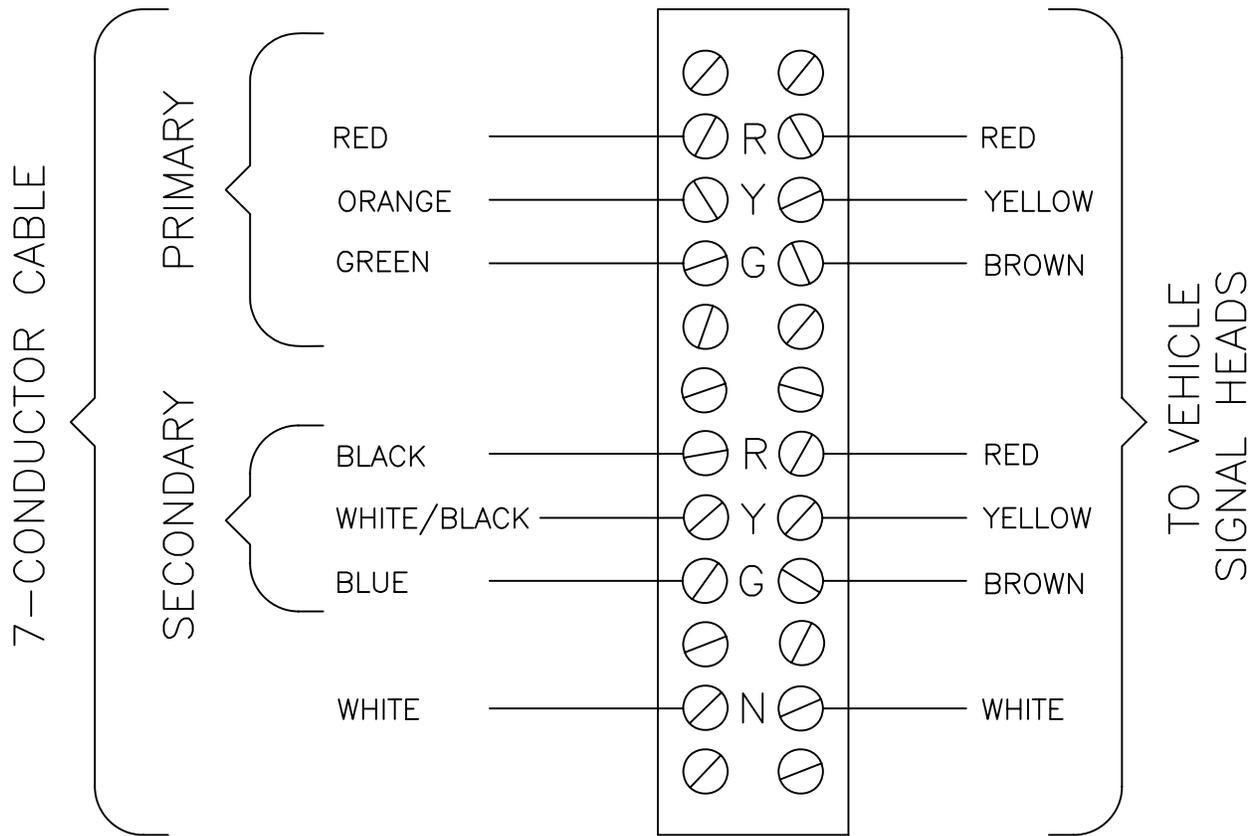
NOTE:
 SERVICE CABINET SHALL BE TESCO 23-000 LBS
 UNMETERED OR APPROVED EQUIVALENT.



SERVICE PEDESTAL SCHEMATIC



SWITCH LOCATION

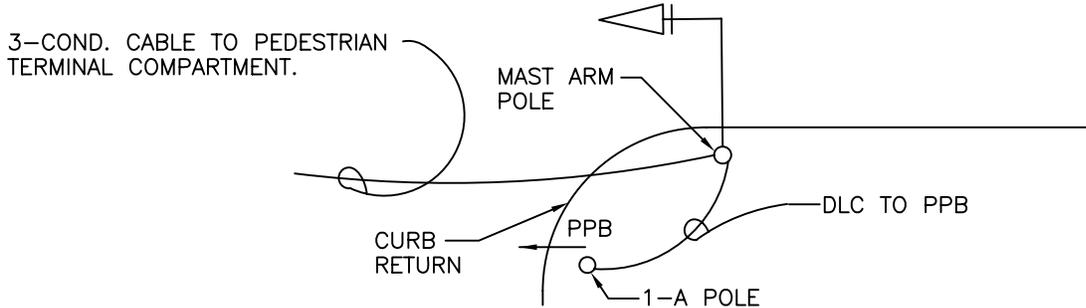
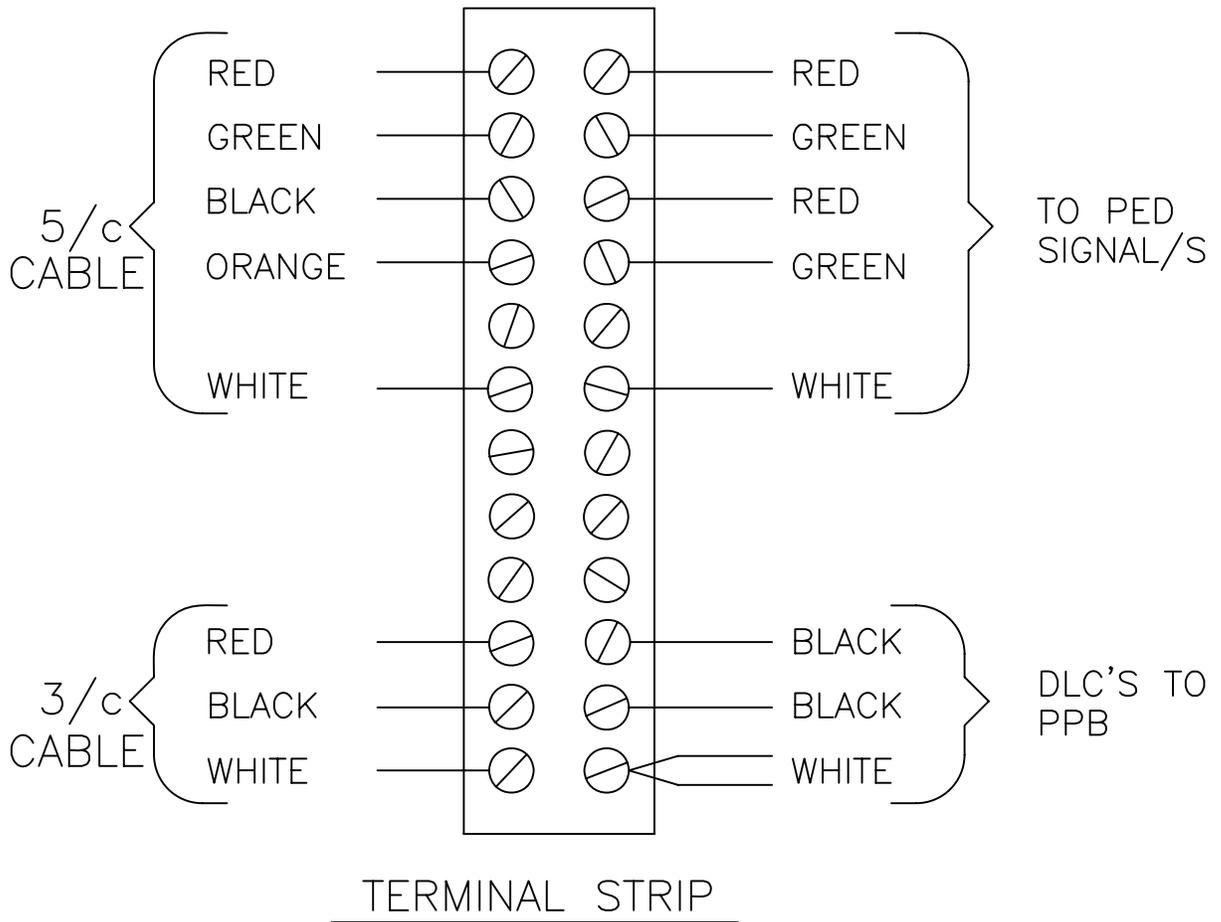


VEHICLE TERMINAL COMPARTMENT

NOTES:

1. INSTALL SINGLE CONDUCTOR COLOR CODED #14 THWN COPPER WIRE BETWEEN TERMINAL STRIP AND EACH SIGNAL ASSEMBLY AND CONNECT.
2. BAND LOOSELY ALL CABLES AT TERMINALS AND IN PULL BOXES WITH EMBOSSED PVC TAPE MARKED "CABLE #1 TO PHASE 2", "CABLE #2 TO PHASE 4", ETC.
3. WITHIN INDIVIDUAL CABLES THE ASSIGNMENTS OF PRIMARY OR SECONDARY COLORS ARE BASED UPON THE TABLE BELOW :

PRI	SEC
NB	EB or SB or WB
EB	SB or WB
SB	WB
THRU	TURN

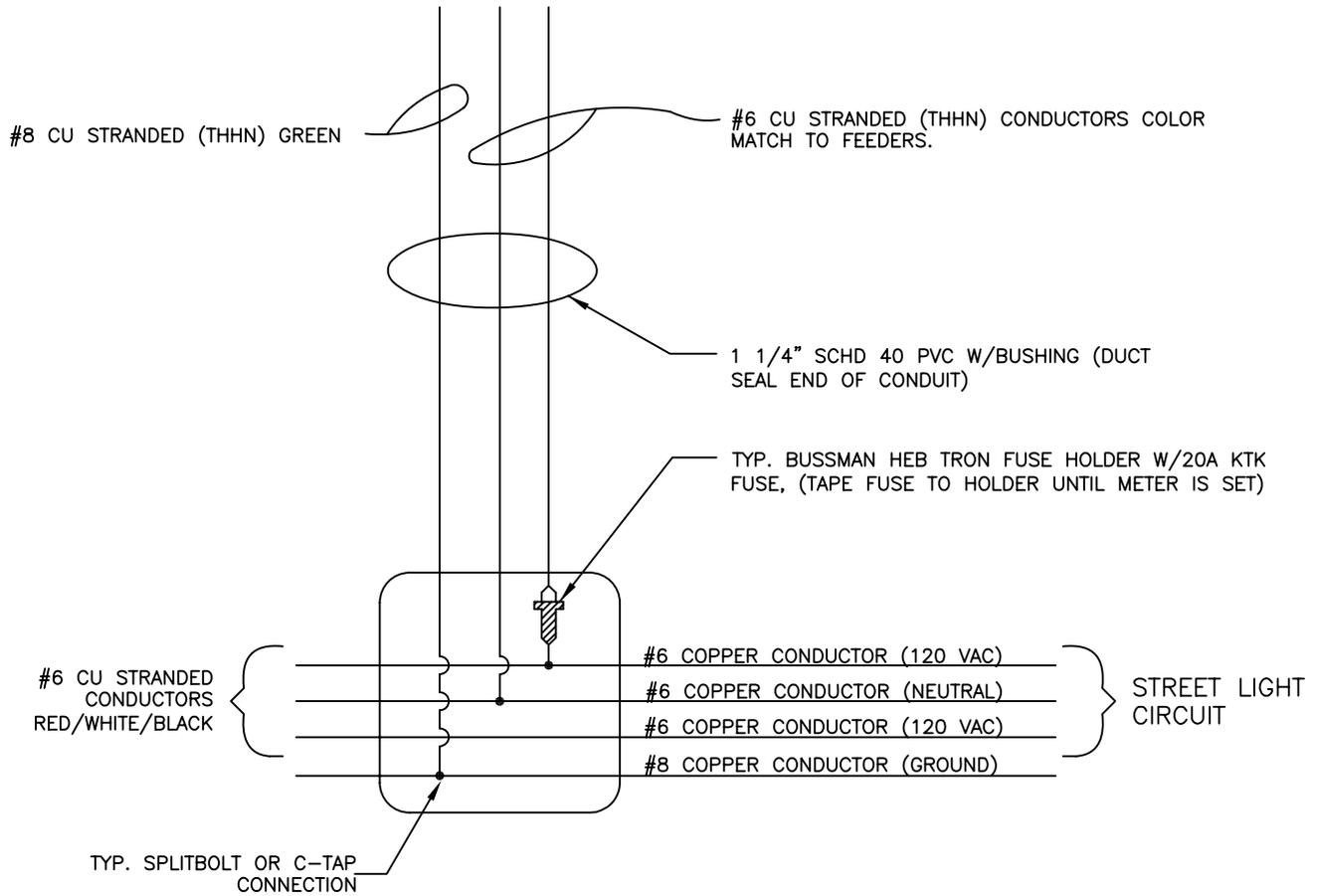


TYPICAL CORNER CONNECTIONS

NOTES:

1. INSTALL SINGLE CONDUCTOR COLOR CODED #14 THWN COPPER WIRE BETWEEN TERMINAL STRIP AND EACH SIGNAL ASSEMBLY AND CONNECT.
2. BAND LOOSELY ALL CABLES AT TERMINALS AND IN PULL BOXES WITH EMBOSSED PVC TAPE MARKED CABLE #1 TO PHASE 2", CABLE #2 TO PHASE 4", ETC.

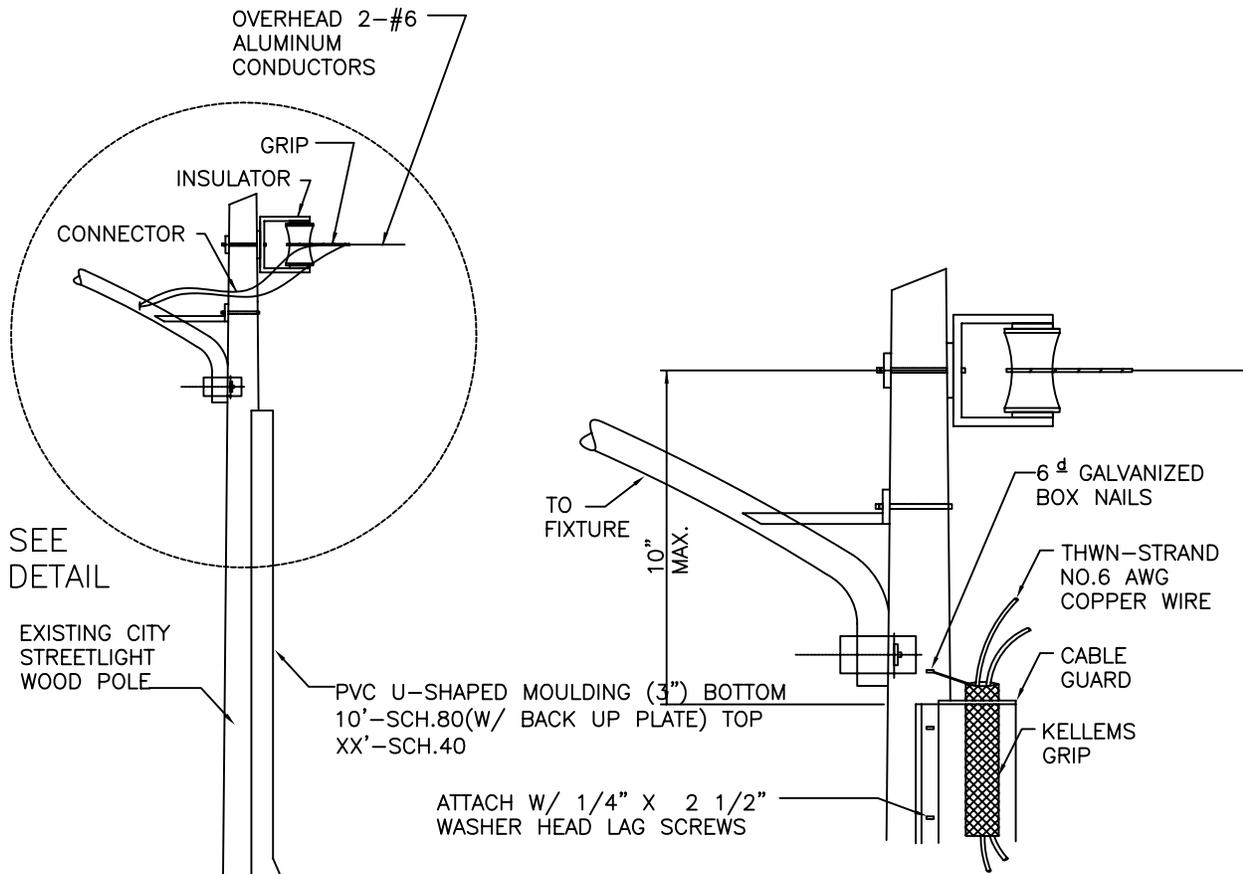
TO
IRRIGATION CONTROLLER
CAGE ASSEMBLY
120 VOLTS 2-WIRE W/ GROUND



TYPICAL NO. 3 1/2 PULLBOX

NOTES:

1. GROUT BOX AT CONDUIT ENTRANCE. RESTORE ANY GROUT DAMAGED BY INSTALLATION.
2. INSULATE HOT/NEUTRAL SPLICES AS FOLLOWS:
 COVER WITH 2-LAYERS RUBBER TAPE-FILLING VOIDS.
 APPLY 1-LAYER 1/2 LAPPED PVC TAPE.
 APPLY 1-LAYER FRICTION TAPE & COAT WITH AN APPROVED ELECTRICAL SEALING COMPOUND.
3. PULL BOX SHALL BE A "CHRISTY B09TL LOCKING LID" OR EQUIVALENT.



SEE
DETAIL

EXISTING CITY
STREETLIGHT
WOOD POLE

PVC U-SHAPED MOULDING (3" BOTTOM
10'-SCH.80(W/ BACK UP PLATE) TOP
XX'-SCH.40

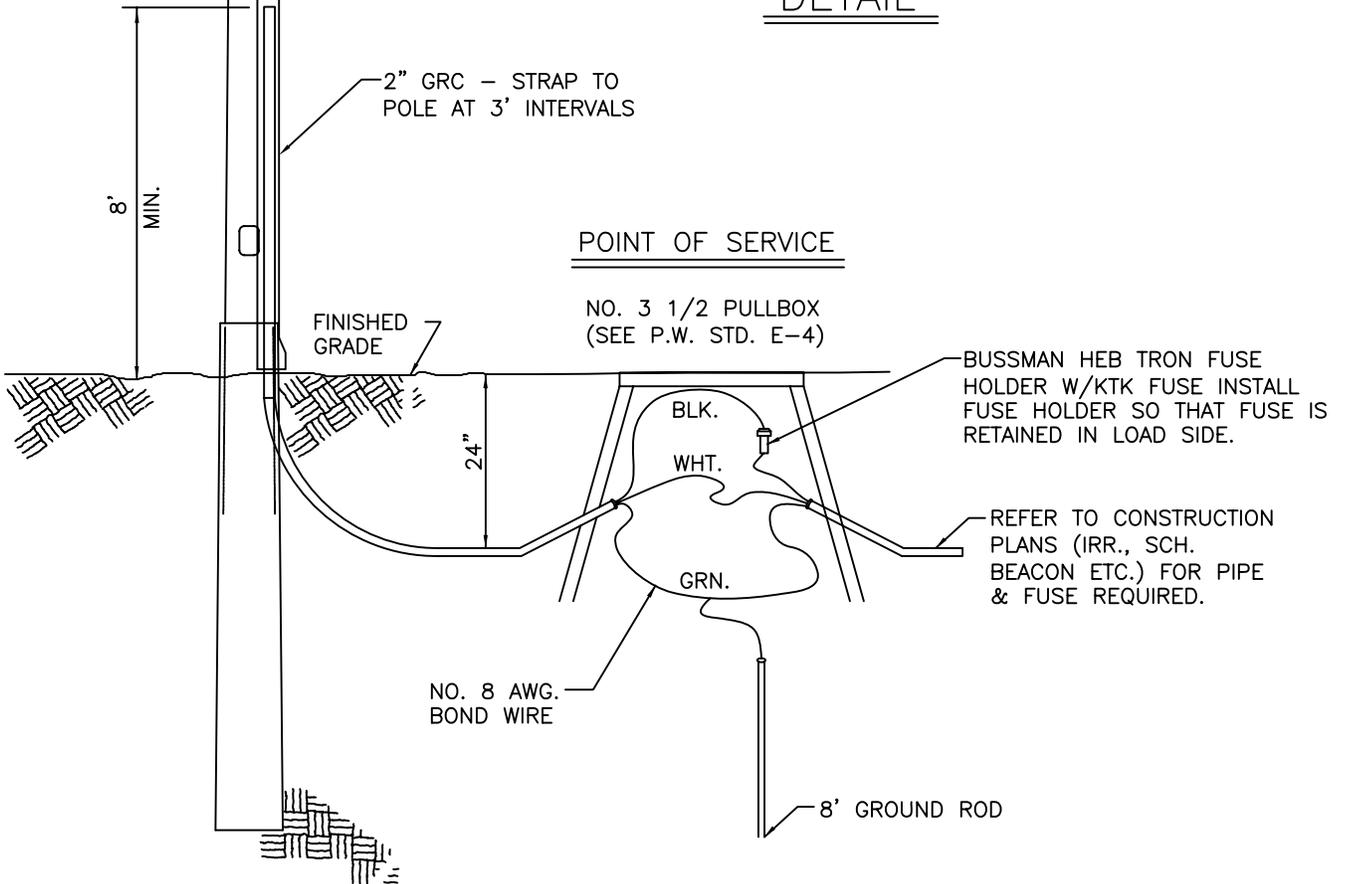
ATTACH W/ 1/4" X 2 1/2"
WASHER HEAD LAG SCREWS

TO
FIXTURE
10"
MAX.

6^d GALVANIZED
BOX NAILS
THWN-STRAND
NO.6 AWG
COPPER WIRE
CABLE
GUARD
KELLEMS
GRIP

TAPE WIRES AS
NEEDED FOR
PROPER FIT

DETAIL



8'
MIN.

2" GRC - STRAP TO
POLE AT 3' INTERVALS

POINT OF SERVICE

NO. 3 1/2 PULLBOX
(SEE P.W. STD. E-4)

FINISHED
GRADE

24"

BUSMAN HEB TRON FUSE
HOLDER W/KTK FUSE INSTALL
FUSE HOLDER SO THAT FUSE IS
RETAINED IN LOAD SIDE.

BLK.

WHT.

GRN.

REFER TO CONSTRUCTION
PLANS (IRR., SCH.
BEACON ETC.) FOR PIPE
& FUSE REQUIRED.

NO. 8 AWG.
BOND WIRE

8' GROUND ROD

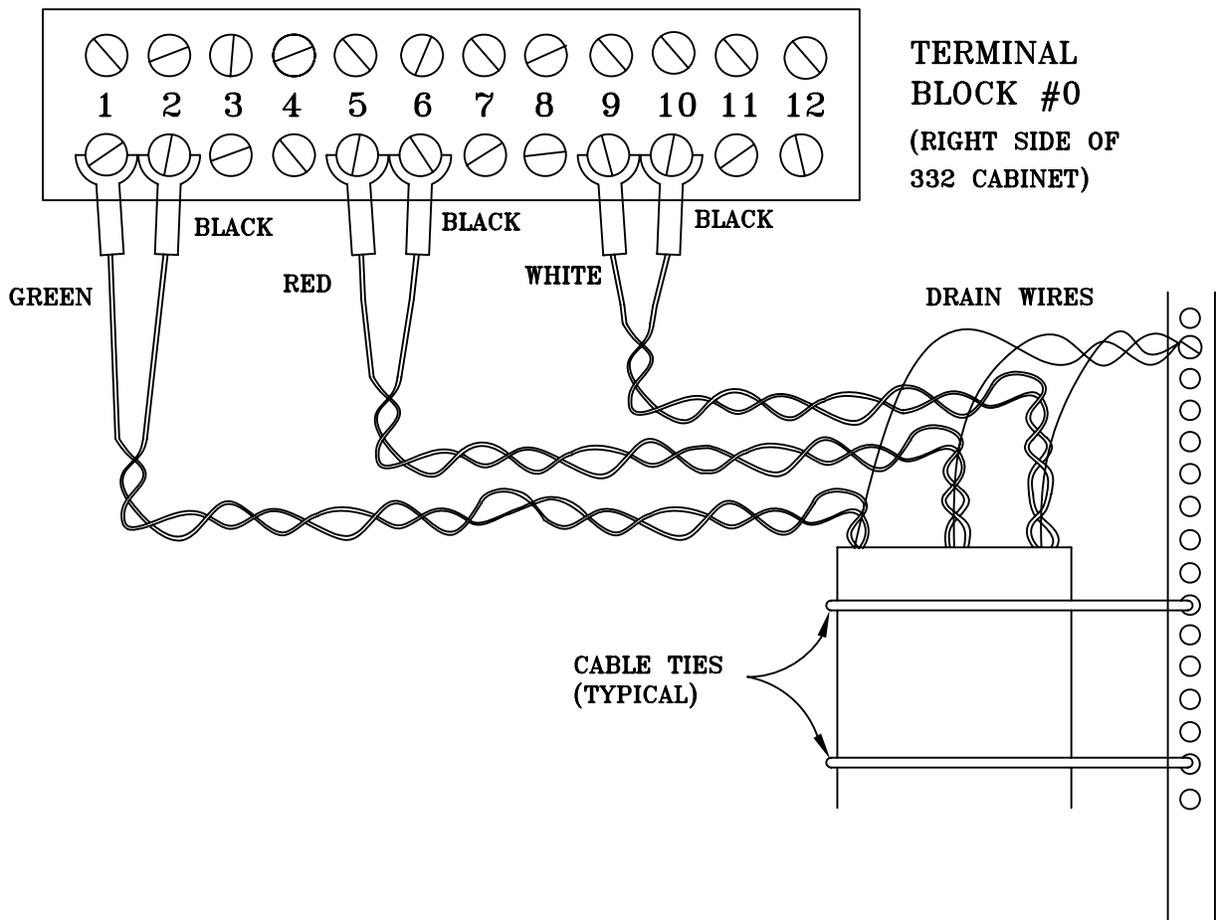
SERVICE RISER DETAIL
FROM EXISTING STREETLIGHT

REF. & REV.
AUG., 2002

CITY OF FRESNO

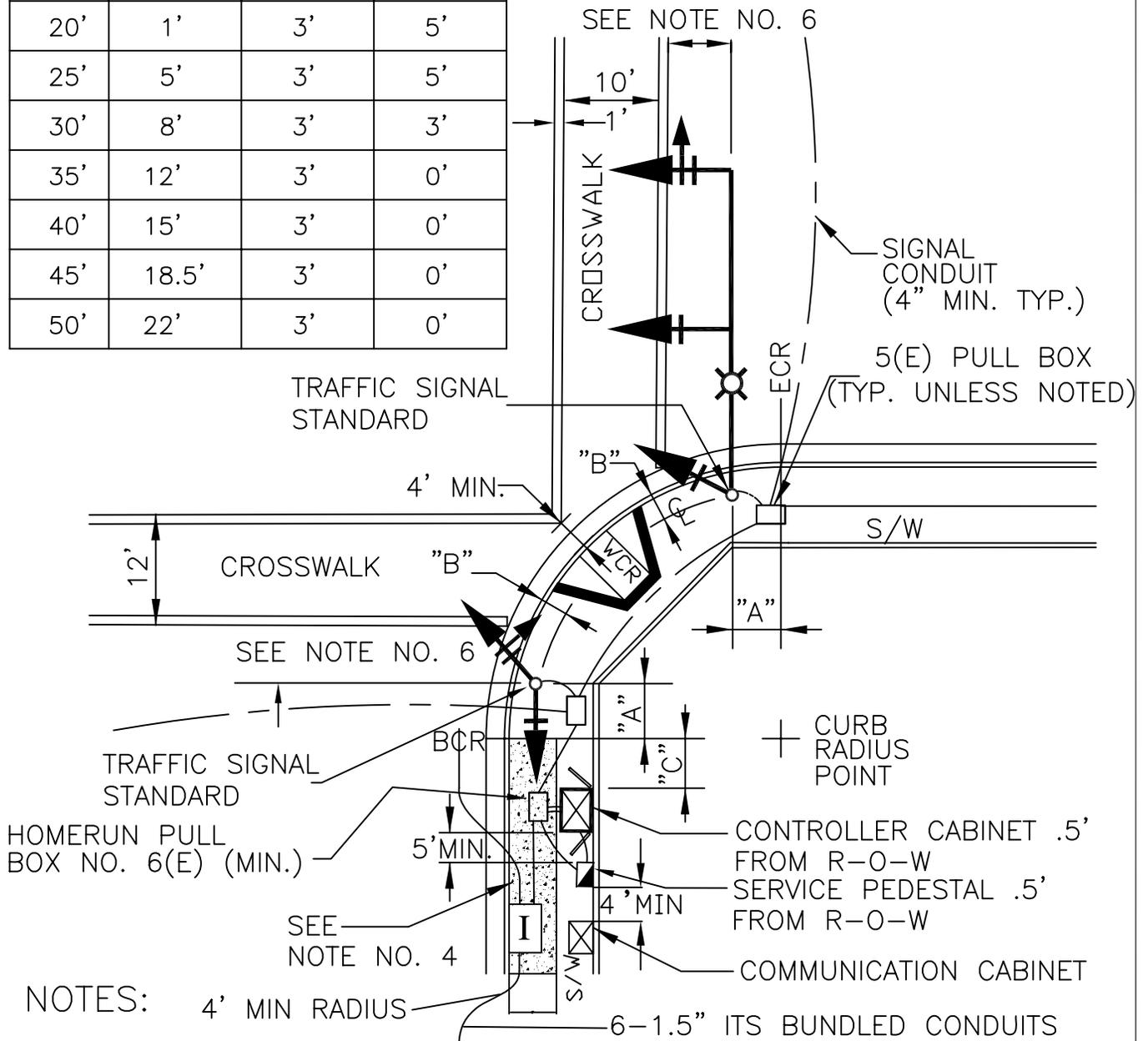
E-22

**COORDINATION CABLE TERMINATION
(ONE OR MORE CABLES AS APPROPRIATE)**



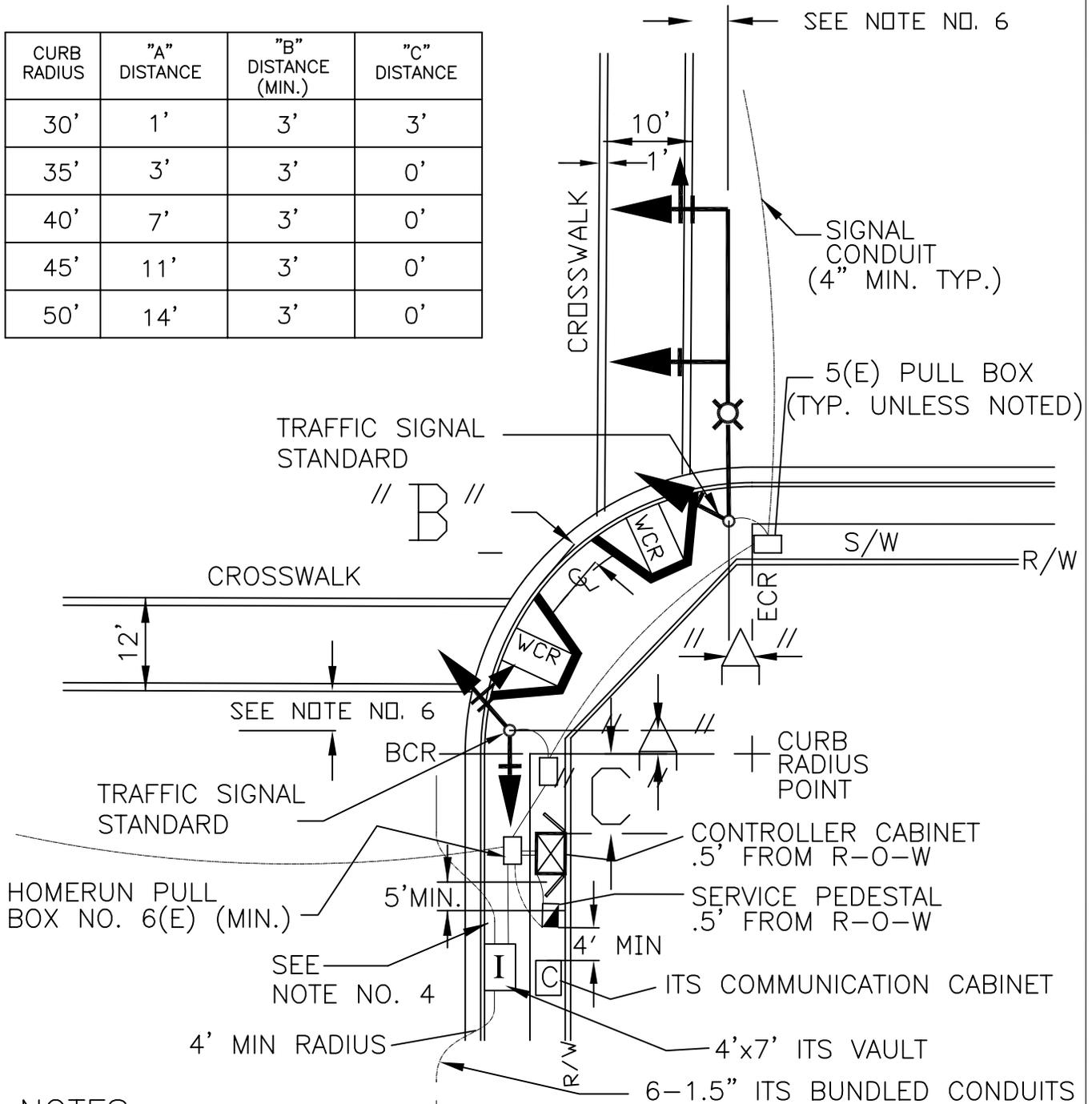
1. TERMINATE TWISTED PAIRS AS SHOWN USING APPROPRIATE SOLDERLESS INSULATED FORK TERMINALS.
2. TERMINATE DRAIN WIRES WITH A SINGLE INSULATED RING TERMINAL TO RACK SIDE FRAME (GROUND) USING 10-32 MACHINE SCREW ON ONE END ONLY OF EACH CABLE. FOR STANDARDIZATION, ONLY CABLE ENDS FROM SOUTH OR EAST OF INTERSECTION ARE GROUNDED. UNUSED DRAIN WIRES ARE FOLDED BACK ALONG JACKET MINIMUM 1" & TAPED.
3. UNDERGROUND INLINE SPLICES ARE NOT PERMITTED. CONDUCTORS & DRAIN WIRES SHALL BE SPLICED USING UNINSULATED CRIMP CONNECTORS. THE CONNECTION SHALL BE STAGGERED AND SOLDERED (FLAMELESS METHOD) EACH INDIVIDUAL CONDUCTOR SPLICE SHALL HAVE HEAT SHRINK TUBING APPLIED. THE ENTIRE SPLICE ASSY. SHALL HAVE TWO (2) LAYERS OF HEAT SHRINK TUBING APPLIED. TUBING SHALL BE 3M I.T.C.S.N. OR APPROVED EQUAL. ALL HEAT SHRINK TUBING SHALL BE APPLIED USING A FLAMELESS METHOD.

CURB RADIUS	"A" DISTANCE	"B" DISTANCE (MIN.)	"C" DISTANCE
20'	1'	3'	5'
25'	5'	3'	5'
30'	8'	3'	3'
35'	12'	3'	0'
40'	15'	3'	0'
45'	18.5'	3'	0'
50'	22'	3'	0'



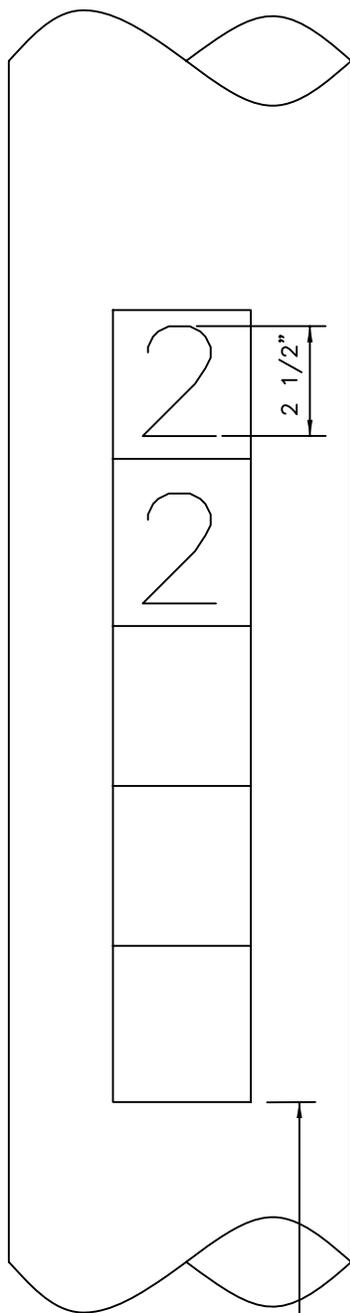
1. ALL EQUIPMENT SHALL BE LOCATED ACCORDING TO CITY OF FRESNO APPROVED PLANS. ANY VARIATION TO THE PLANS SHALL HAVE THE APPROVAL OF THE CITY TRAFFIC ENGINEER.
2. ALL EQUIPMENT SHALL BE LOCATED ACCORDING TO THE ULTIMATE STREET WIDTH AND CURB RETURNS.
3. ULTIMATE AND EXISTING CURB RETURN ARE/SHALL BE SHOWN ON CONSTRUCTION PLANS.
4. ADDITIONAL SIDEWALK TO BE INSTALLED PER CITY STANDARDS AS APPLICABLE TO MAINTAIN A 4' MINIMUM ADA CLEAR PATH ADJACENT TO EQUIPMENT.
5. DISTANCE "C" SHALL BE ADJUSTED AS NECESSARY FOR THE 4' ADA CLEARANCE REQUIREMENT.
6. DISTANCE "A" HAS BEEN CALCULATED TO PLACE A PEDESTRIAN PUSH BUTTON APPROXIMATELY 5' FROM CROSSWALK. IF UNFORESEEN CONDITIONS DO NOT ALLOW SIGNAL STANDARD OR CROSSWALK PLACEMENT AS SHOWN, A PEDESTRIAN PUSH BUTTON POST SHALL BE INSTALLED TO MEET ADA GUIDELINES.
7. LOCATE PULLBOXES FOR TESCO & TS COMBINED 3' FROM FACE OF CURB TO EDGE OF PULLBOX

CURB RADIUS	"A" DISTANCE	"B" DISTANCE (MIN.)	"C" DISTANCE
30'	1'	3'	3'
35'	3'	3'	0'
40'	7'	3'	0'
45'	11'	3'	0'
50'	14'	3'	0'

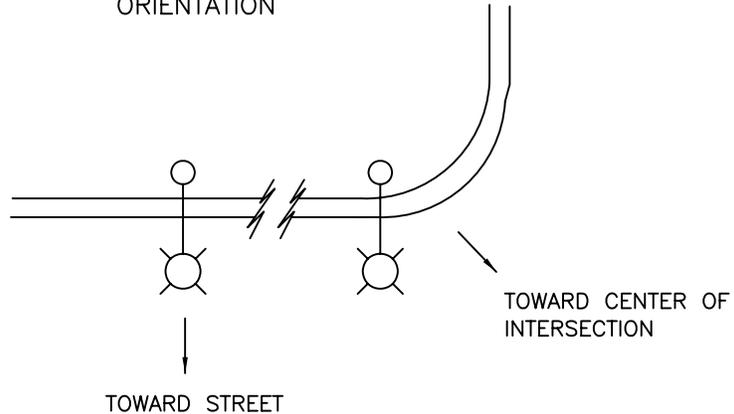


NOTES:

1. ALL EQUIPMENT SHALL BE LOCATED ACCORDING TO CITY OF FRESNO APPROVED PLANS. ANY VARIATION TO THE PLANS SHALL HAVE THE APPROVAL OF THE CITY TRAFFIC ENGINEER.
2. ALL EQUIPMENT SHALL BE LOCATED ACCORDING TO THE ULTIMATE STREET WIDTH AND CURB RETURNS.
3. ULTIMATE AND EXISTING CURB RETURN ARE/SHALL BE SHOWN ON CONSTRUCTION PLANS.
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5. DISTANCE "C" SHALL BE ADJUSTED AS NECESSARY FOR THE 4' ADA CLEARANCE REQUIREMENT.
6. DISTANCE "A" HAS BEEN CALCULATED TO PLACE A PEDESTRIAN PUSH BUTTON APPROXIMATELY 5' FROM CROSSWALK. IF UNFORESEEN CONDITIONS DO NOT ALLOW SIGNAL STANDARD OR CROSSWALK PLACEMENT AS SHOWN, A PEDESTRIAN PUSH BUTTON POST SHALL BE INSTALLED TO MEET ADA GUIDELINES.



NUMBERING
ORIENTATION



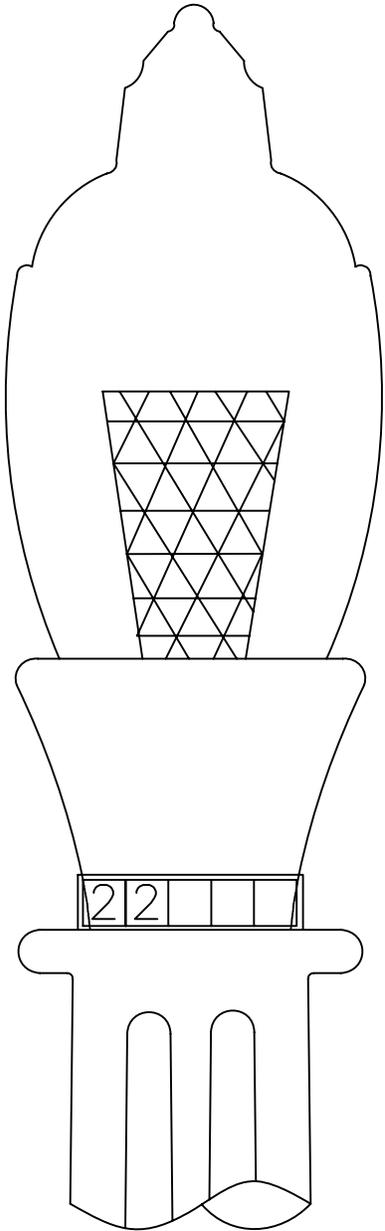
NOTES:

1. NUMERALS SHALL BE ALMETEK PS-2.5 SERIES, OR APPROVED EQUAL, BLACK ON WHITE PRESSURE SENSITIVE MARKERS OF REFLECTIVE SCOTCHLITE.
2. FOR METAL POLES, APPLY TO CLEAN SURFACE.
3. FOR WOOD POLES, USE EMBOSSED ALUMINUM BACKING PLATE SECURED WITH 1-1/2" ALUMINUM ROOFING NAILS. BACKING PLATE SHALL BE ALMETEK PS-2.5V5 OR APPROVED EQUAL.

10'6" FROM GRADE/SIDEWALK ELEVATION, ADJUST AS NEEDED TO CLEAR HARDWARE OR APPURTENANCES.

NOTES:

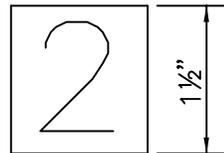
INSERT #'S AS NEEDED INTO HOLDER.
FORM TO BASE OF CAPITAL & SECURE
WITH STAINLESS STEEL STRAP.



GLOBE

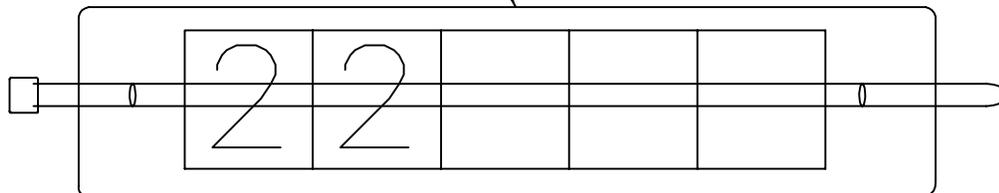
CAPITAL

POLE



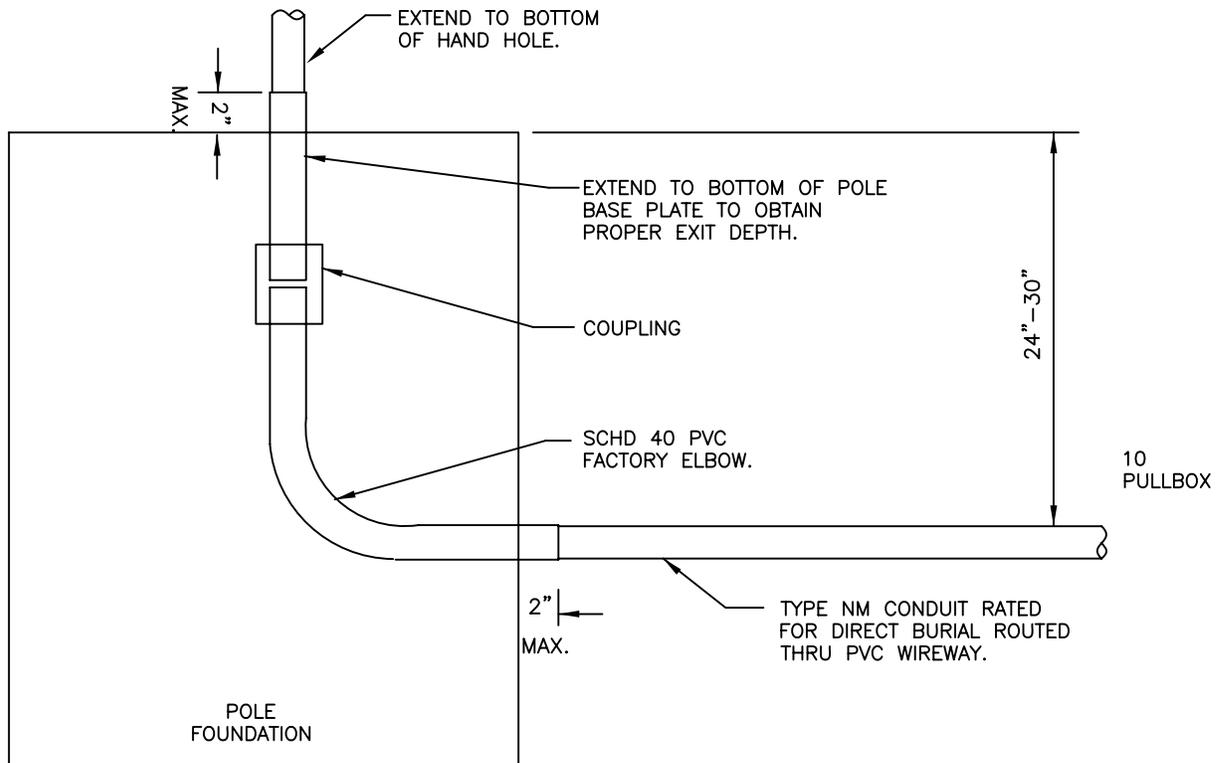
UV RESISTANT POLY NUMERAL TAGS
ALMETEK TR-2 SERIES BLACK ON
YELLOW.

UV RESISTANT POLY TAG HOLDER
ALMETEK TH-5V



STAINLESS STEEL
STRAP PANDUIT
MLT8H-LP OR
APPROVED EQUAL.

NUMERAL HOLDER DETAIL

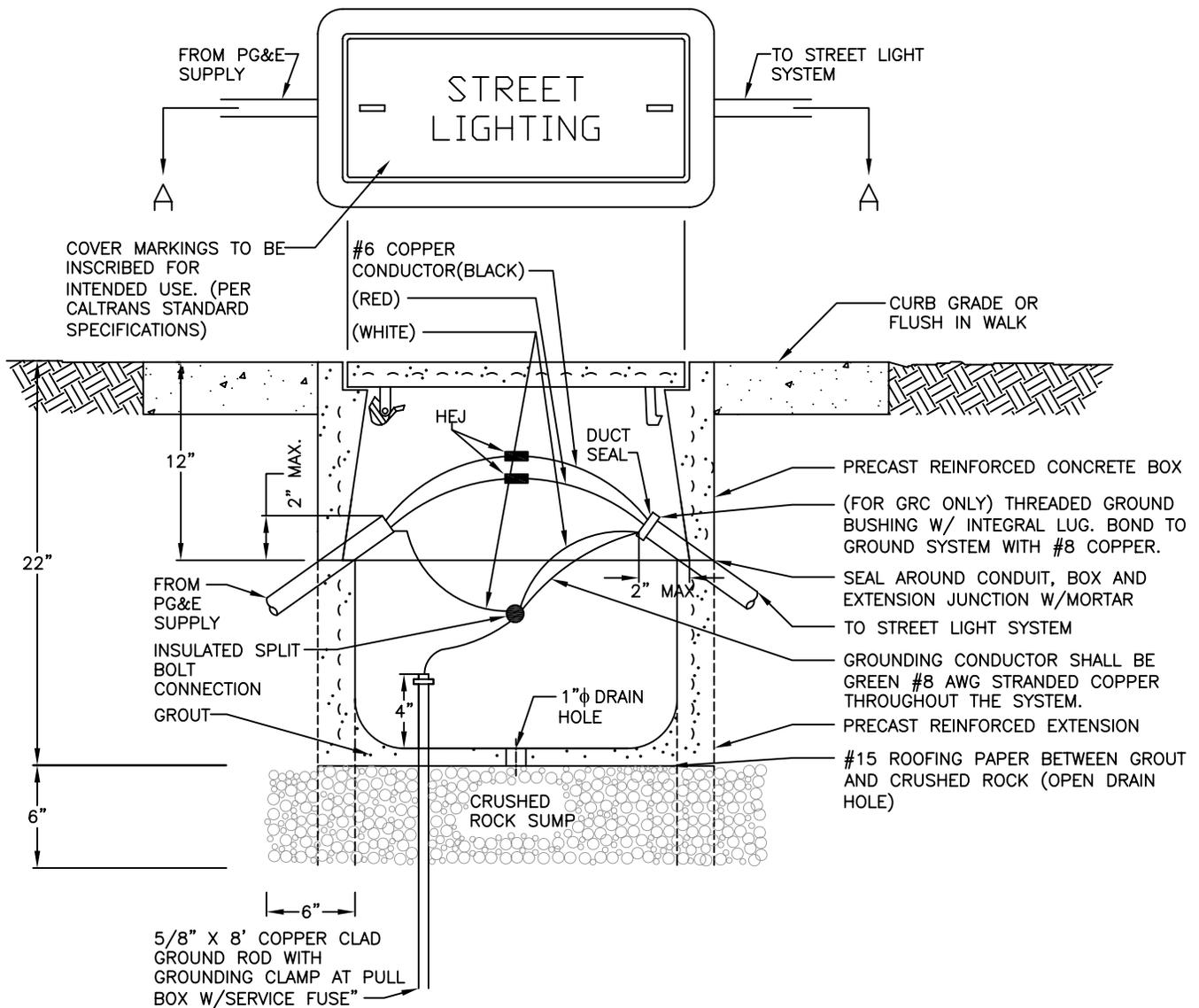


POLE TYPE	PVC	NM	GRC
PPBP	--	--	1"
POLE TYPE 1A	2.5"	1.5"	--
POLE TYPE 15	2.5"	1.5"	--
POLE TYPES 16-61	3"	2"	--

SIGNAL LIGHT
FOUNDATION WIRE-WAY DETAIL

REF. & REV.
NOV., 2007

CITY OF FRESNO
E-27

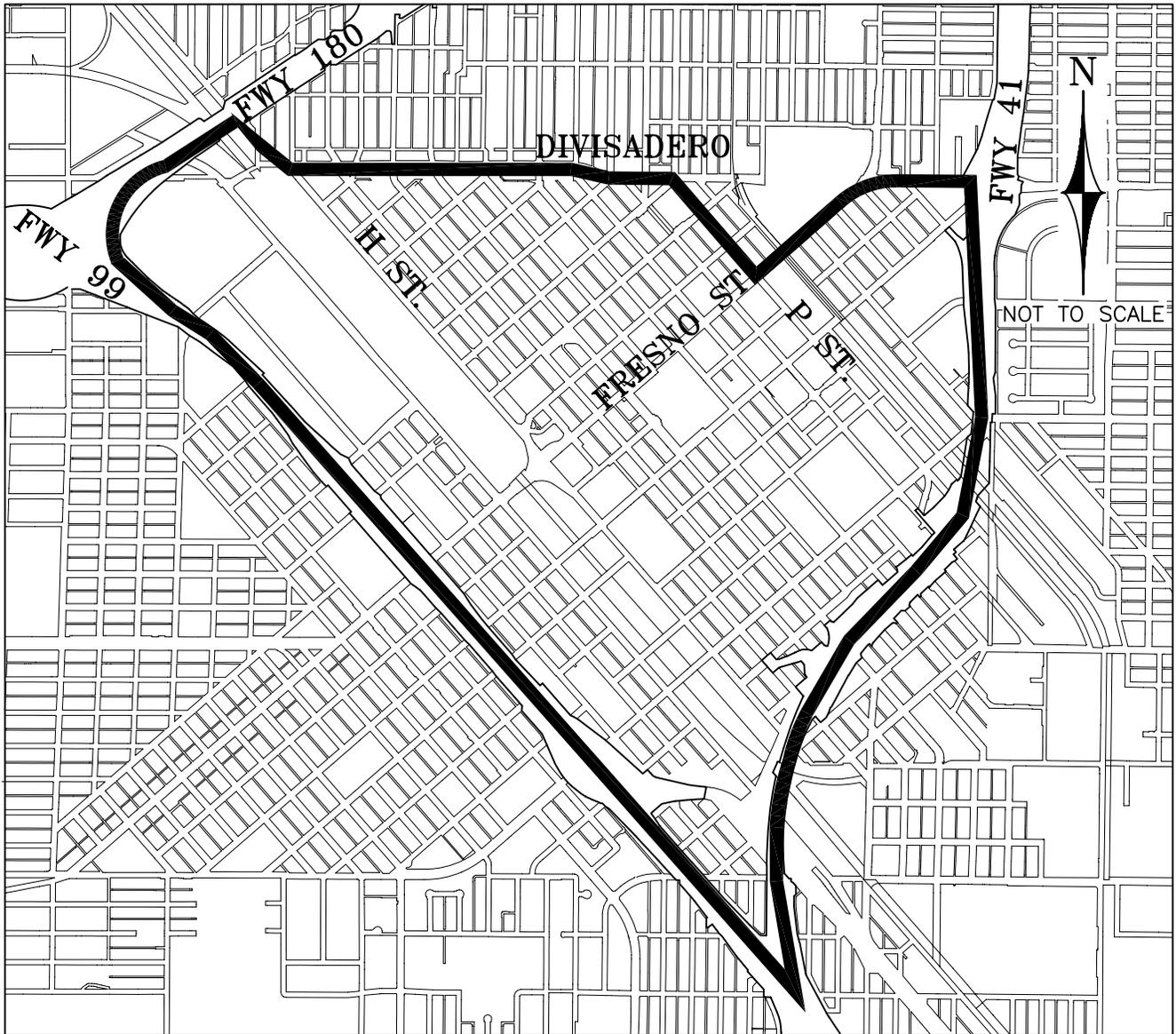


Section A-A

NOTES:

1. PULL BOXES SHALL BE PER CALTRANS STANDARD SPECIFICATIONS.
2. PULL BOXES SHALL BE GROUTED PRIOR TO INSTALLATION OF CONDUCTORS, SLOPED TOWARD THE DRAIN HOLE. PLACE A LAYER OF ROOFING PAPER BETWEEN THE CRUSHED ROCK AND THE GROUT (OPEN DRAIN HOLE).
3. PULL LIDS BEFORE POURING CONCRETE AROUND PULL BOXES.
4. WRAP PULL BOX WITH ROOFING PAPER BEFORE BACKFILLING.
5. FUSE AT POINT OF SERVICE SHALL BE 60A IF #6 CONDUCTOR AND 40A IF #8 CONDUCTOR AND SHALL HAVE A TRON HEJ TYPE FUSE HOLDER (SINGLE POLE). INSULATE WIRE CONNECTION SAME AS SPLICES (23-3.13).
6. INSTALL A ONE-FOOT RING OF CONCRETE, FOUR INCHES DEEP, AROUND THE WRAPPED PULL BOXES INSTALLED IN DIRT AND TURF AREAS, SLOPED TO DRAIN AWAY FROM THE PULL BOX.
7. SERVICE PULL BOX SHALL BE WITHIN STREET ROW AND NOT PRIVATE PROPERTY.
8. STREETLIGHTING PULLBOX LIDS SHALL BE A "CHRISTY B90TL LOCKING LID" OR EQUIVALENT AT POINT OF SERVICE ONLY.
9. STREET LIGHT CONDUCTORS SHALL BE INSTALLED CONTINUOUS. SPLICES SHALL ONLY BE PERMITTED AT THE HAND HOLE LOCATIONS OF THE STREET LIGHT STANDARD.

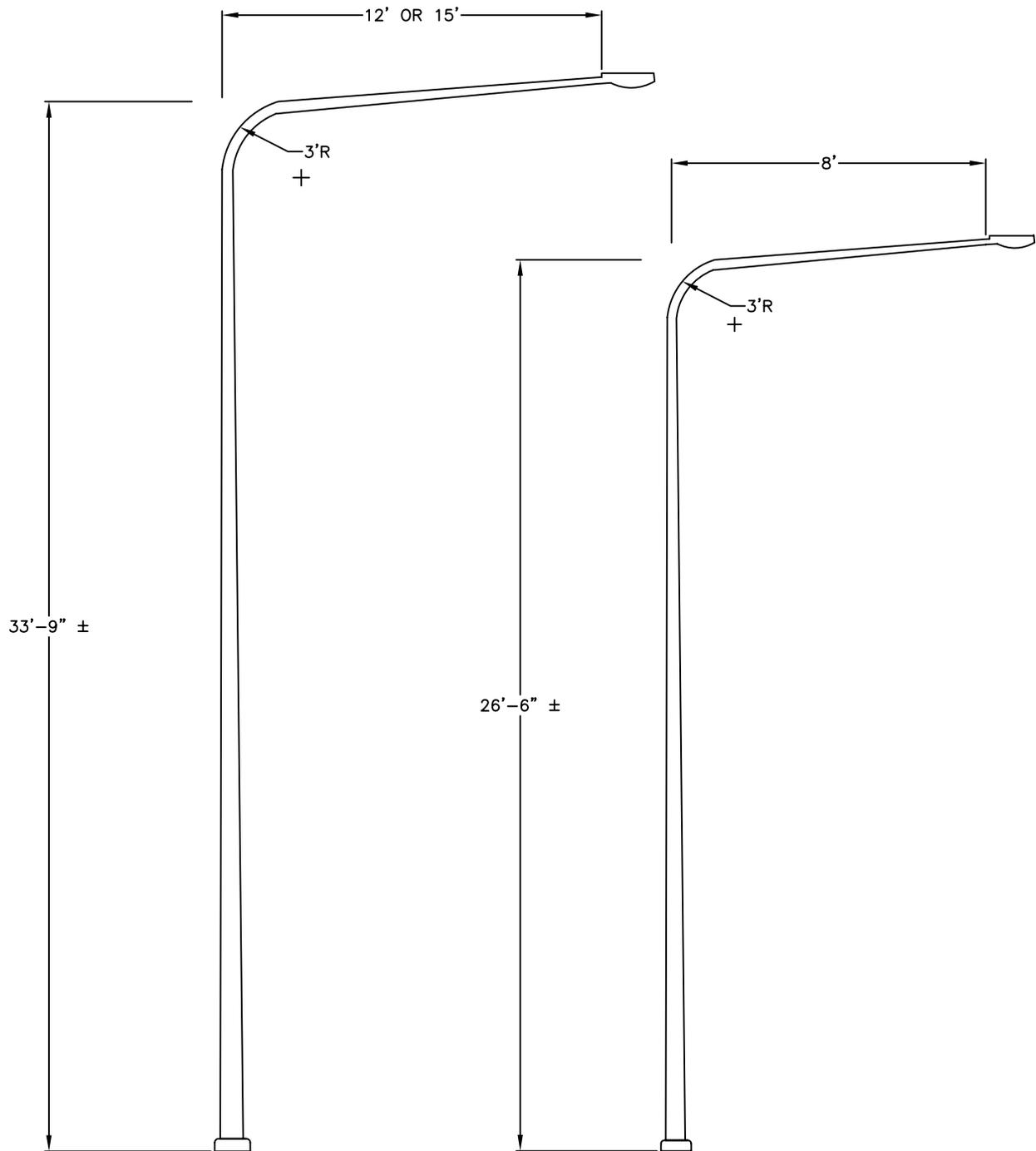
DOWNTOWN VICINITY MAP



NOTES:

1. ALL STREET LIGHTS AND TRAFFIC SIGNAL POLES INSTALLED WITHIN THE "DOWNTOWN FRESNO AREA" SHALL BE IN ACCORDANCE WITH THE DECORATIVE POLE STANDARDS INCLUDED HEREIN.

2. THE "DOWNTOWN FRESNO AREA" IS BOUNDED BY THE FOLLOWING ROADWAYS: DIVISADERO (41 TO FRESNO ST), FRESNO ST (DIVISADERO TO P ST), P ST (FRESNO ST TO DIVISADERO), DIVISADERO (P ST TO H ST), H ST (DIVISADERO TO 180), 180 (H ST TO 99), 99 (180 TO 41), 41 (99 TO DIVISADERO). BOTH SIDES OF THE BOUNDRY STREETS SHALL UTILIZE DECORATIVE POLES.

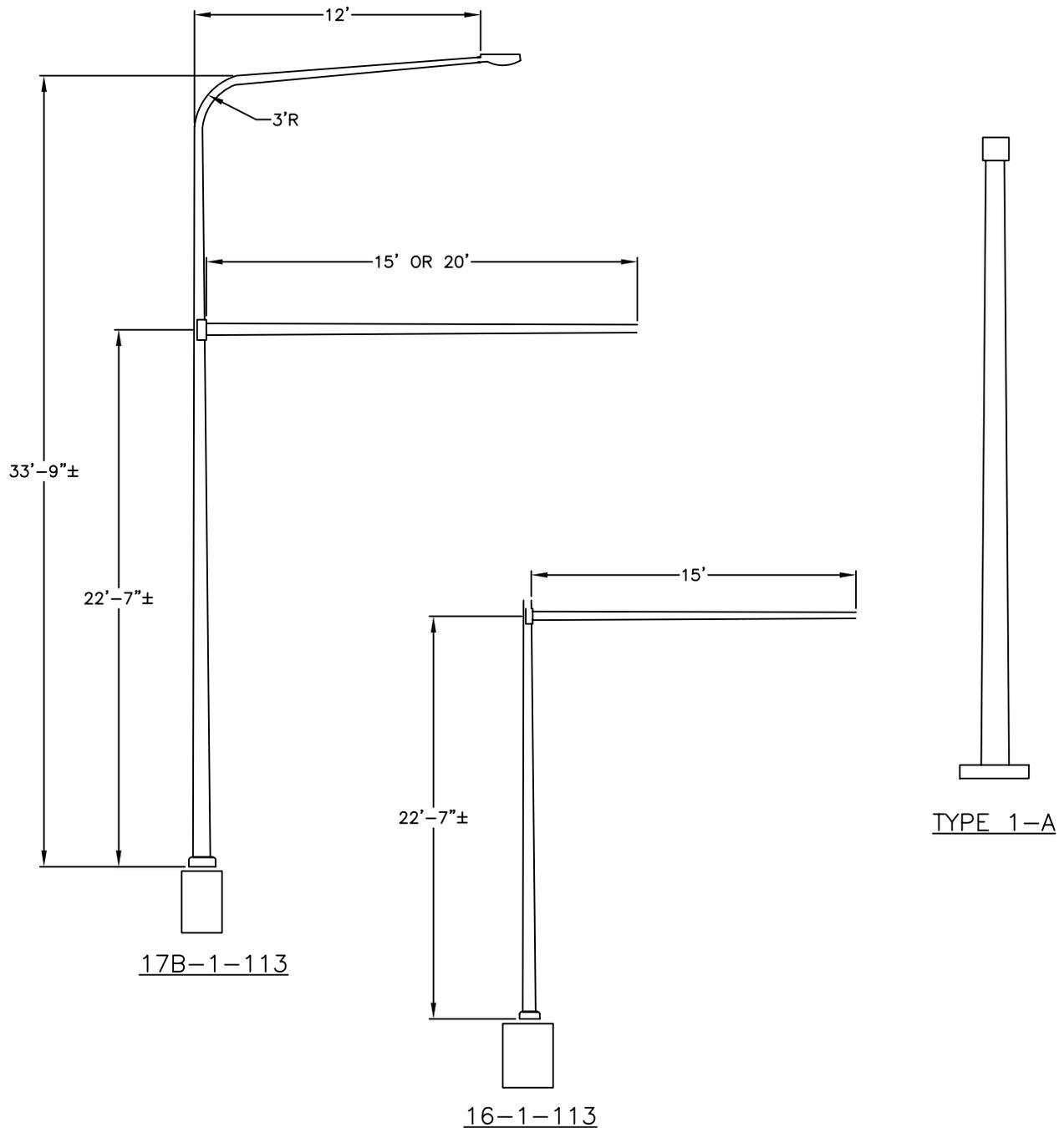


MAJOR STREET STANDARD

LOCAL STREET STANDARD

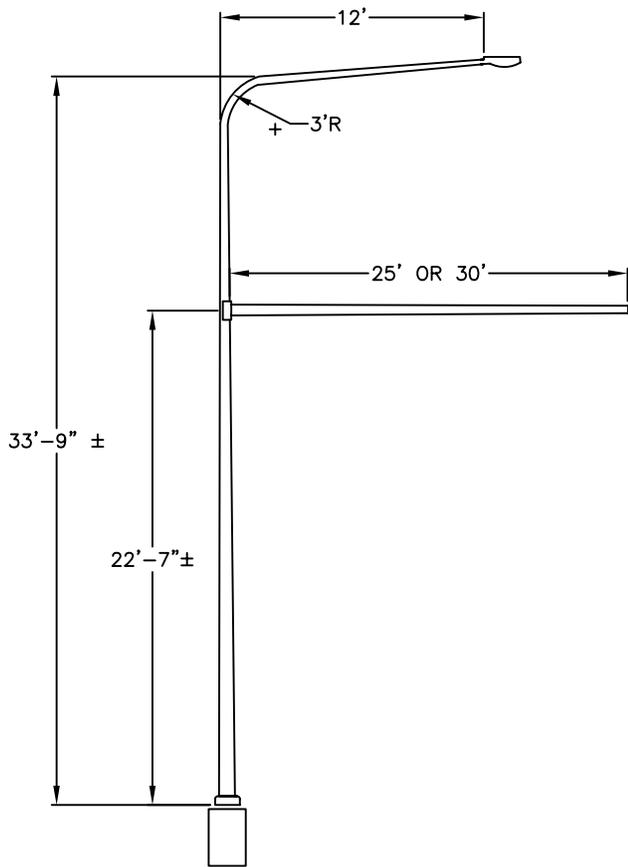
GENERAL NOTES:

1. THE DECORATIVE POLE STANDARDS SHALL APPLY TO THE "DOWNTOWN FRESNO AREA" AS DEFINED BY PW STD E-29.
2. ALL NOTES AND REQUIREMENTS PER PW STD E-1 AND E-2 SHALL STILL APPLY, OTHER THAN POLE DIMENSIONS AND COLORS.
3. POLE FINISH: BASE COAT - HOT DIP GALVANIZE TO ASTM A123
 FINISH COAT - TGIC OR URETHANE POLYESTER POWDER
 COLOR - BRONZE TO MATCH ADJACENT DECORATIVE POLES

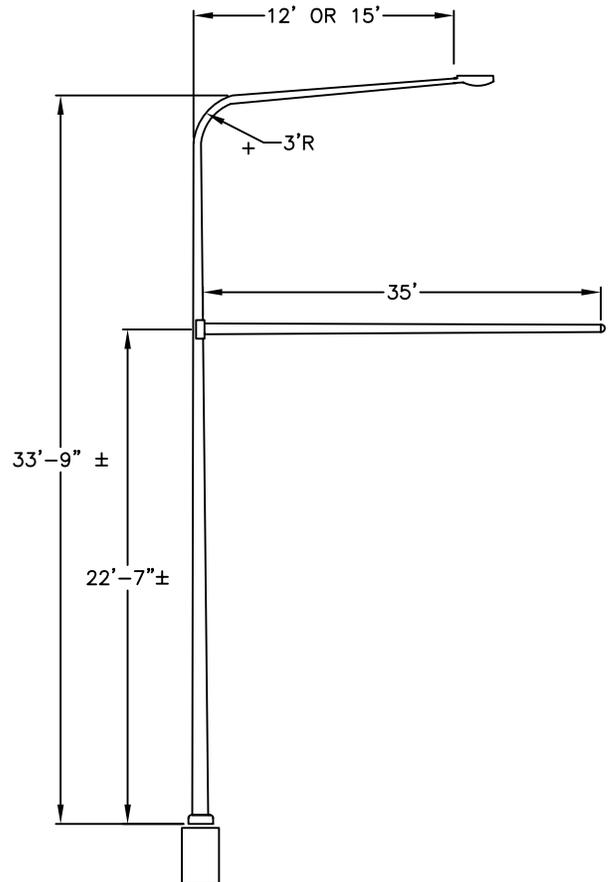


GENERAL NOTES:

1. THE DECORATIVE POLE STANDARDS SHALL APPLY TO THE "DOWNTOWN FRESNO AREA" AS DEFINED BY PW STD E-29.
2. ALL NOTES AND REQUIREMENTS PER PW STD E-1 AND E-2 SHALL STILL APPLY, OTHER THAN POLE DIMENSIONS AND COLORS.
3. POLE FINISH: BASE COAT - HOT DIP GALVANIZE TO ASTM A123
FINISH COAT - TGIC OR URETHANE POLYESTER POWDER
COLOR - BRONZE TO MATCH ADJACENT DECORATIVE POLES
4. POLES MUST MEET CALTRANS 1997 STANDARD SPECIFICATIONS FOR TYPE 1-A, 16-1-113, AND 17B-1-113.



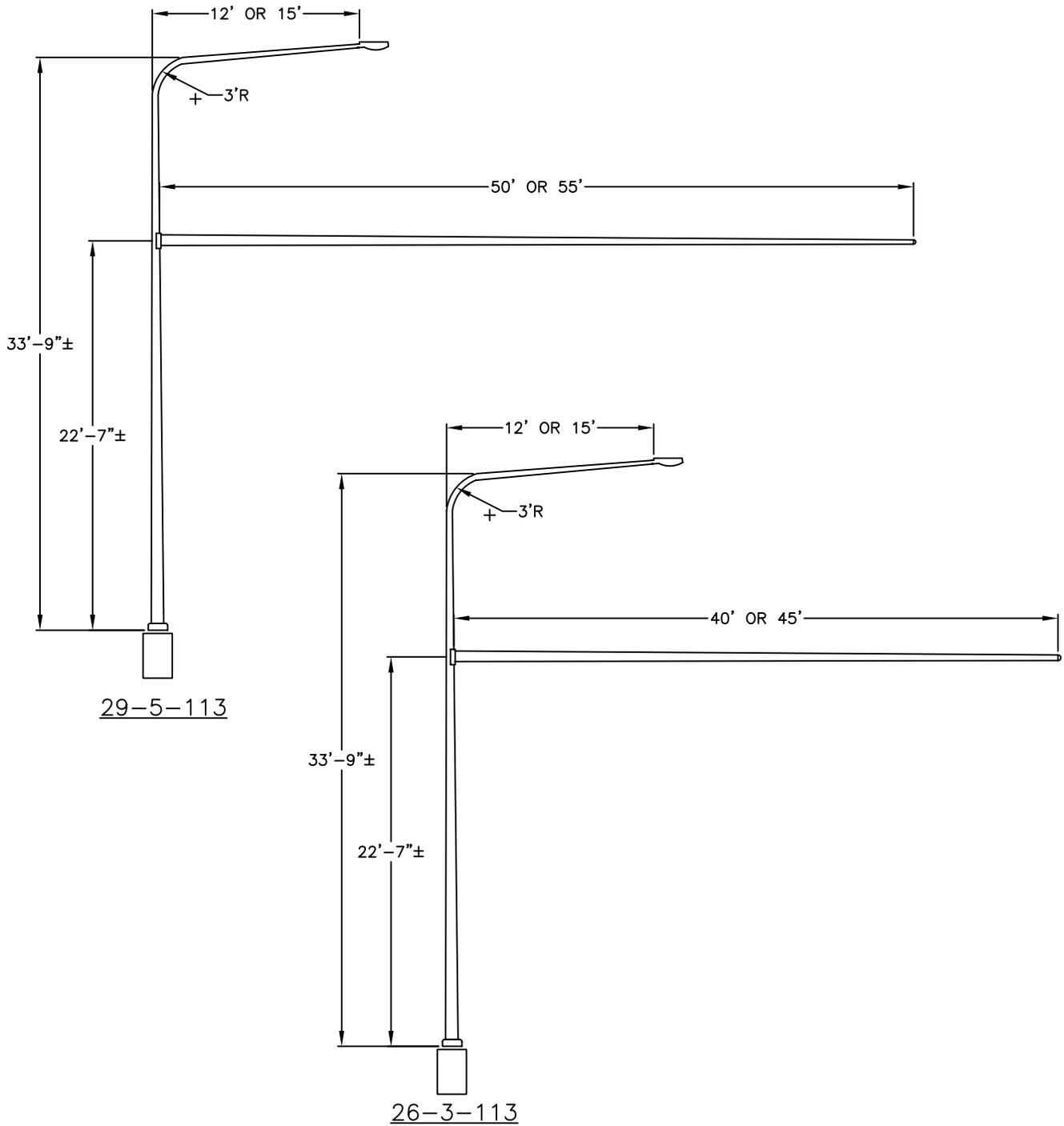
19-3-113



24-3-113

GENERAL NOTES:

1. THE DECORATIVE POLE STANDARDS SHALL APPLY TO THE "DOWNTOWN FRESNO AREA" AS DEFINED BY PW STD E-29.
2. ALL NOTES AND REQUIREMENTS PER PW STD E-1 AND E-2 SHALL STILL APPLY, OTHER THAN POLE DIMENSIONS AND COLORS.
3. POLE FINISH: BASE COAT - HOT DIP GALVANIZE TO ASTM A123
FINISH COAT - TGIC OR URETHANE POLYESTER POWDER
COLOR - BRONZE TO MATCH ADJACENT DECORATIVE POLES
4. POLES MUST MEET CALTRANS 1997 STANDARD SPECIFICATIONS FOR TYPE 19-3-113 AND 24-3-113.

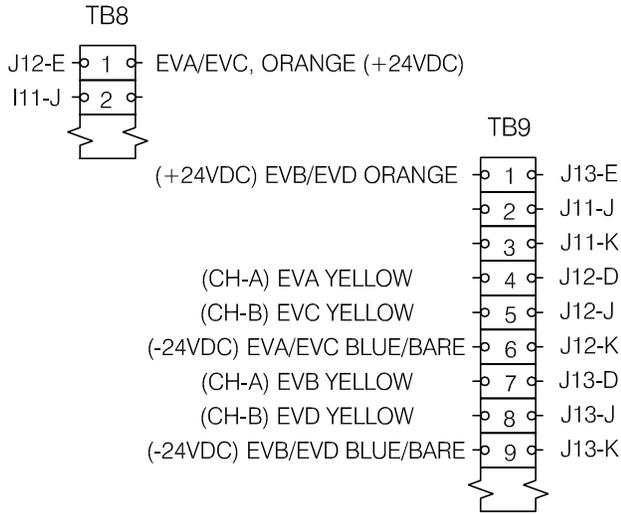


GENERAL NOTES:

1. THE DECORATIVE POLE STANDARDS SHALL APPLY TO THE "DOWNTOWN FRESNO AREA" AS DEFINED BY PW STD E-29.
2. ALL NOTES AND REQUIREMENTS PER PW STD E-1 AND E-2 SHALL STILL APPLY, OTHER THAN POLE DIMENSIONS AND COLORS.
3. POLE FINISH: BASE COAT - HOT DIP GALVANIZE TO ASTM A123
FINISH COAT - TGIC OR URETHANE POLYESTER POWDER
COLOR - BRONZE TO MATCH ADJACENT DECORATIVE POLES
4. POLES MUST MEET CALTRANS 1997 STANDARD SPECIFICATIONS FOR TYPE 26-3-113 AND 29-5-113.

OPTICOM FIELD WIRE DETAIL

(FOR STANDARD MODEL 721/752 INSTALLATIONS)

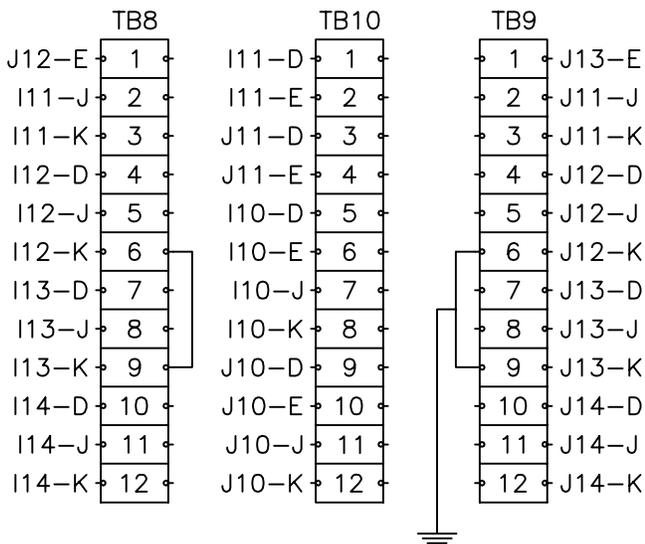


NOTES: 332 CABINET MODIFICATIONS FOR OPTICOM MODEL 752 DISCRIMINATORS(TWO-CHANNEL, DUAL PRIORITY, ENCODED) AND MODEL 721 DETECTORS(TWO DIRECTION, SINGLE CHANNEL).

CAUTION

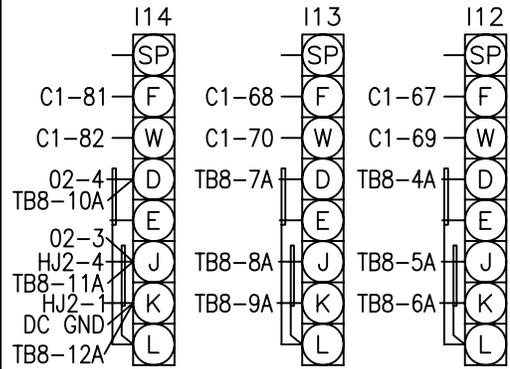
CONNECT TERMINAL K OF THE TYPE 170/2070 CONTROLLER TO THE EARTH GROUND TO ALLOW DISSIPATION OF STATIC CHARGES ON THE DETECTOR CABLE. FAILURE TO CONNECT TERMINAL K TO THE EARTH GROUND MAY DAMAGE THE EQUIPMENT. IF DETECTORS HAVE BEEN MOUNTED BUT NOT CONNECTED TO THE PHASE SELECTOR, STRIP INSULATION FROM EACH DETECTOR CABLE AND CONNECT ALL THE WIRES TO EARTH GROUND UNIT THE INSTALLATION CAN BE COMPLETED.

LOWER INPUT PANEL

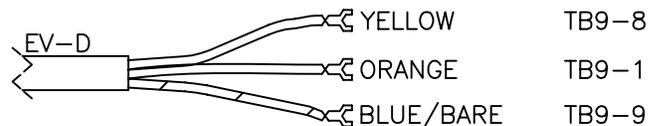
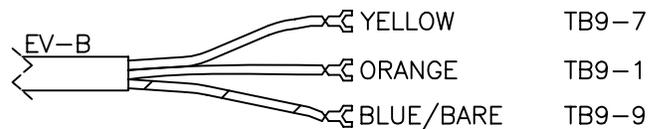
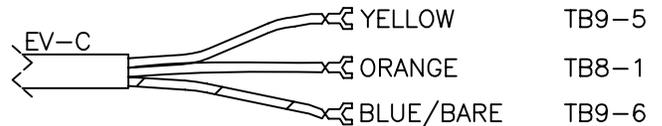
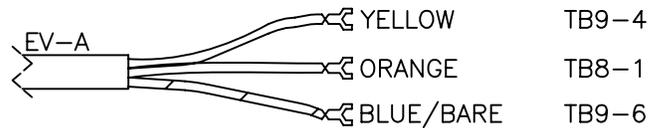
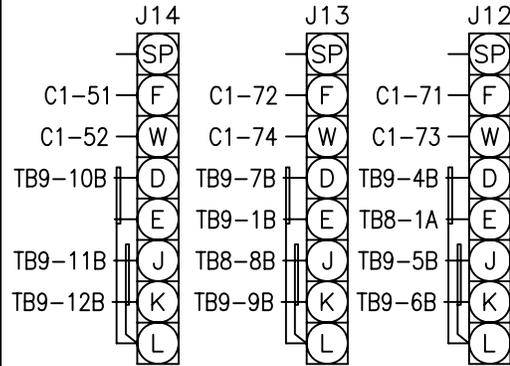


TB10 HD30A SERIES TERMINAL BLOCK OR EQUAL.

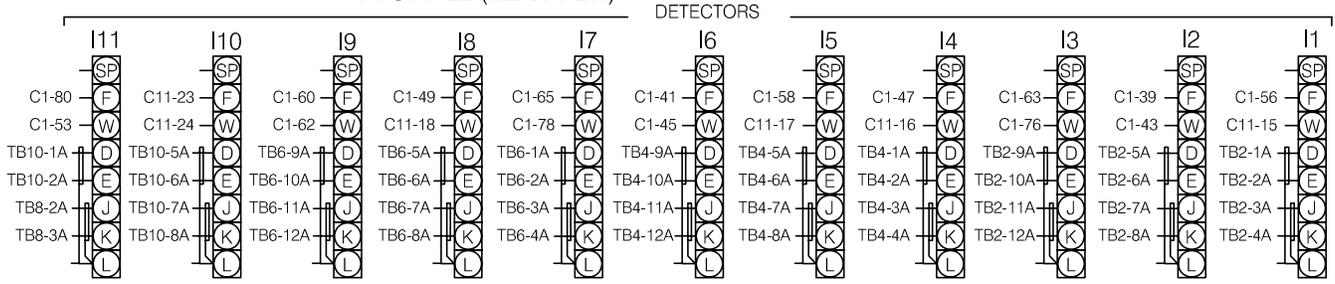
I INPUT FILE - ISOLATION (REAR VIEW)



J INPUT FILE- ISOLATION(REAR VIEW)



I INPUT FILE (REAR VIEW)

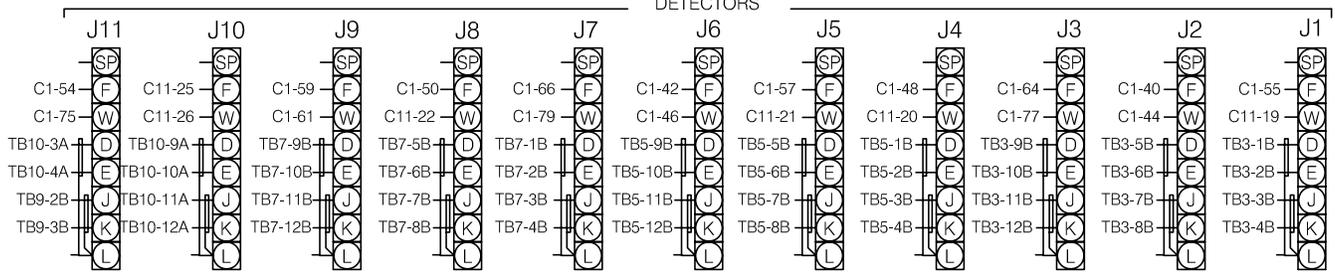


DETECTORS

NOTE:
SEE CITY STANDARD DRAWING E-34
WIRING DETAILS FOR INPUT FILE
I12, I13, I14, J12, J13 & J14.

		INPUT FILE FRONT VIEW													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
U		11U	21U	213U	214U	315U	416U	417U	418U	119U	SP110U	2111U	Ø2P	Ø6P	FS
L		11L	21L	213L	214L	315L	416L	417L	418L	319L	SP110L	4111L	Ø4P	Ø8P	ST

J INPUT FILE (REAR VIEW)

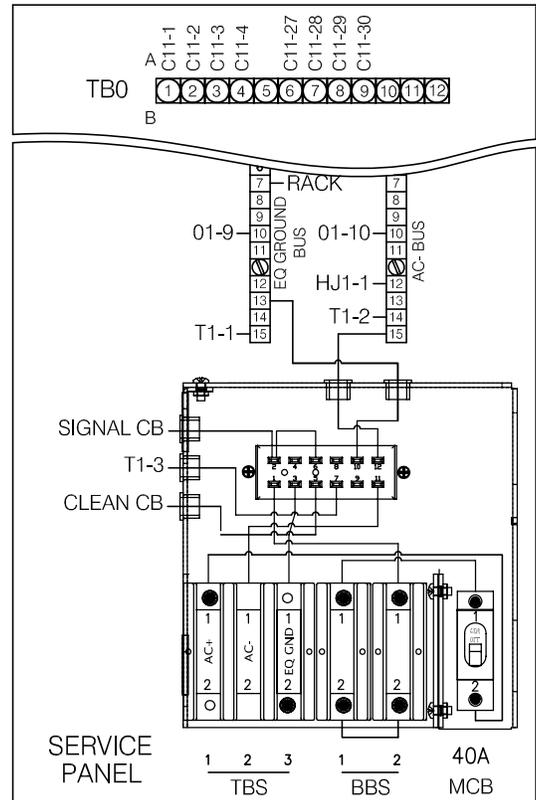
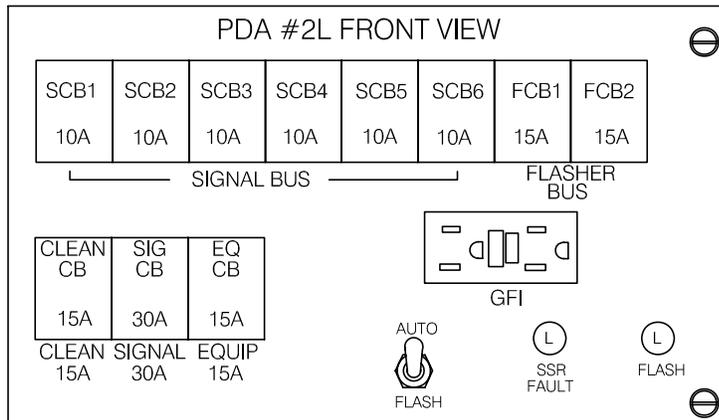


DETECTORS

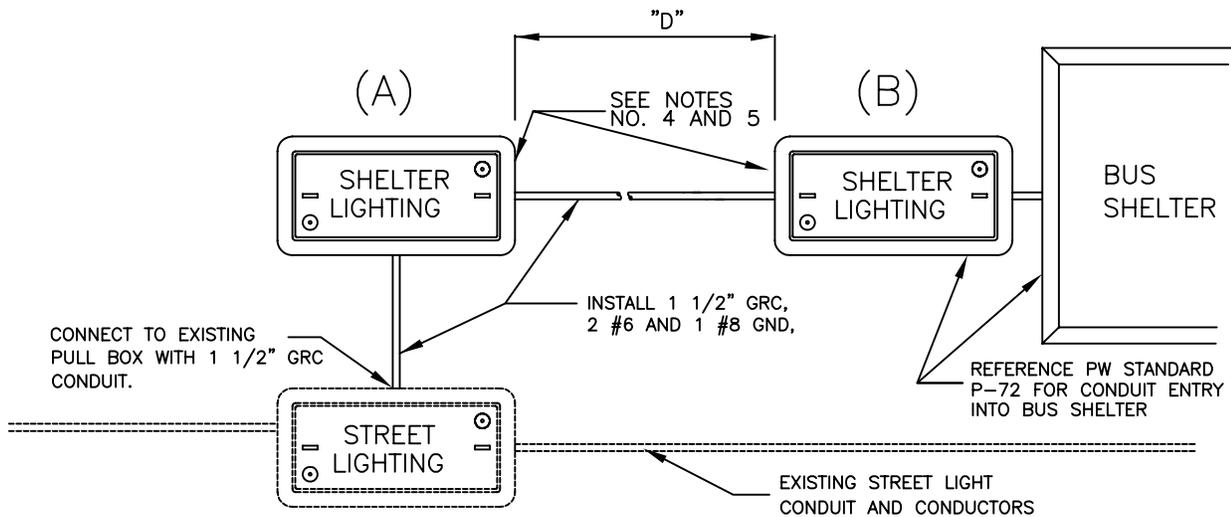
CABLE C11S		
PIN NO.	UNIVERSAL FUNCTION	CONN. TO
1	SPECIAL-OUTPUT	TB0-1A
2	SPECIAL-OUTPUT	TB0-2A
3	SPECIAL-OUTPUT	TB0-3A
4	SPECIAL-OUTPUT	TB0-4A
5-14	NOT USED	NOT USED
15	1 CALL, EXT	I1-W
16	2 CALL, QUEUE	I4-W
17	3 CALL, EXT	I5-W
18	4 CALL, QUEUE	I8-W
19	5 CALL, EXT	J1-W
20	6 CALL, QUEUE	J4-W
21	7 CALL, EXT	J5-W
22	8 CALL, QUEUE	J8-W
23	SPECIAL-INPUT	I10-F
24	SPECIAL-INPUT	I10-W
25	SPECIAL-INPUT	J10-F
26	SPECIAL-INPUT	J10-W
27	SPECIAL-INPUT	TB0-6A
28	SPECIAL-INPUT	TB0-7A
29	SPECIAL-INPUT	TB0-8A
30	SPECIAL-INPUT	TB0-9A
21-34	NOT USED	NOT USED

		INPUT FILE FRONT VIEW													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
U		5J1U	6J2U	6J3U	6J4U	7J5U	8J6U	8J7U	8J8U	5J9U	SPJ10U	6J11U	EVA	EVB	RR1
L		5J1L	6J2L	6J3L	6J4L	7J5L	8J6L	8J7L	8J8L	7J9L	SPJ10L	8J11L	EVC	EVD	RR2

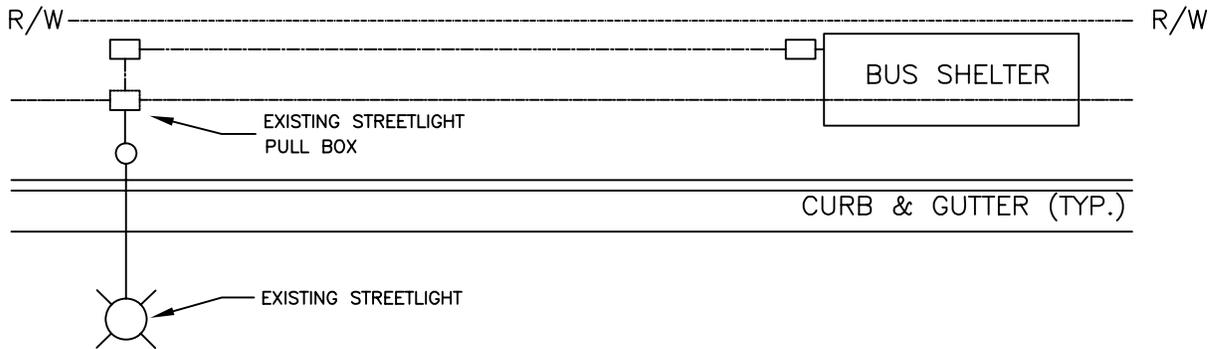
NOTES: 332L CONTROLLER CABINETS MASTER CIRCUIT BREAKER SHALL BE 40A AND THE SIGNAL CIRCUIT BREAKER SHALL BE 30A AND THE FLASHER BUS SHALL BE 2P-15A (CURVE 3 OR DELAY 22). C11S CABLE SHALL BE PROVIDED WITH CABINET.



INSTALLATIONS TO BE APPROVED AND MAINTAINED
 BY CITY OF FRESNO, FACILITIES MANAGEMENT DIVISION
 PHONE: 621- 1487 OR CHIEF OF FACILITIES (ELECTRICAL) 621-1230



BUS SHELTER LIGHTING CONNECTION

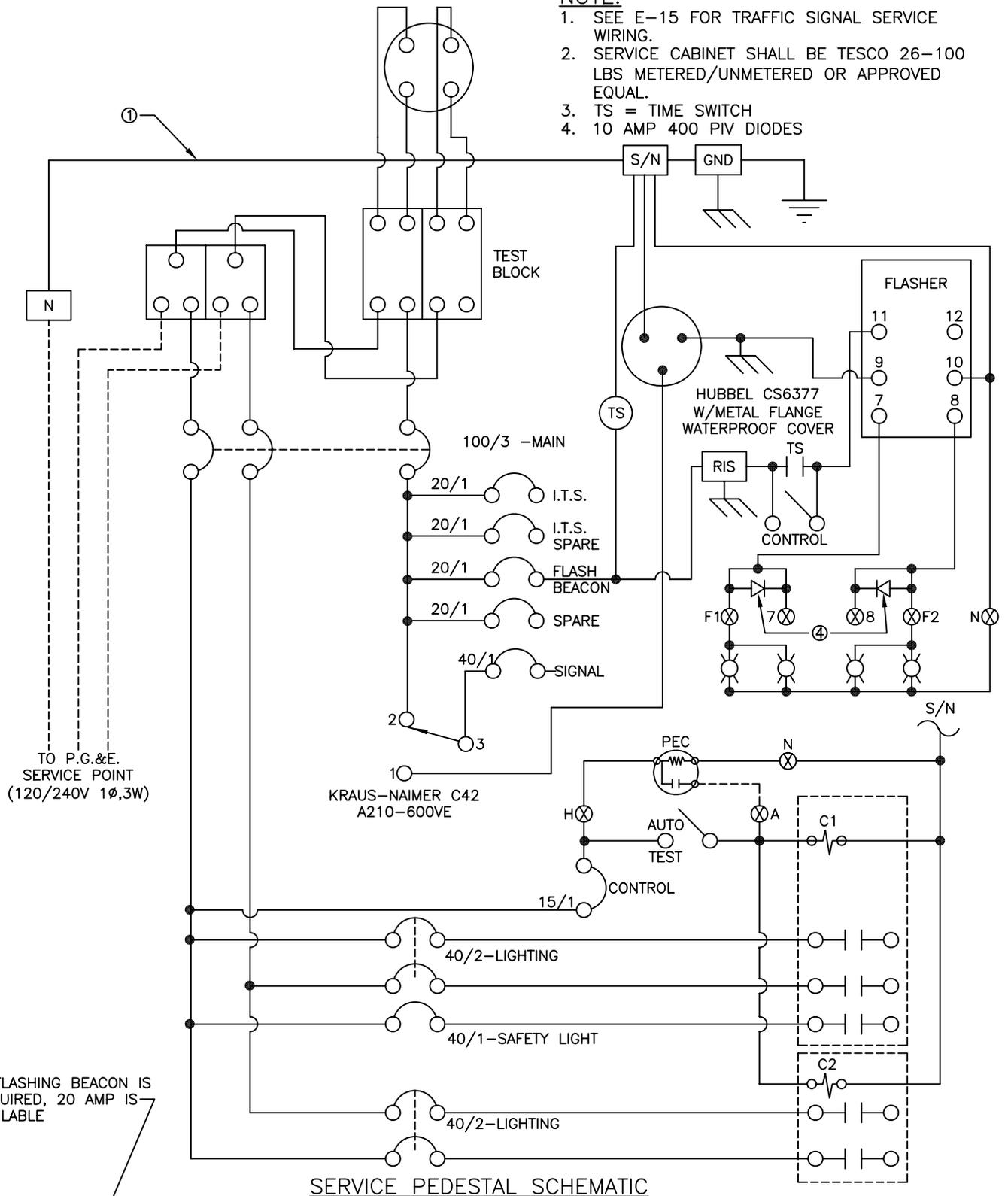


GENERAL NOTES

1. PULL BOXES SHALL BE INSTALLED PER CITY STANDARD E-4.
2. DO NOT LOCATE THE PULL BOXES ABOVE THE JOINT TRENCH.
3. PULL BOX COVER MARKINGS SHALL BE INSCRIBED "SHELTER LIGHTING".
4. IF DISTANCE "D" EXCEEDS 20 FT. PULL BOX "A" IS REQUIRED ADJACENT TO EXISTING STREET LIGHT PULL BOX. IF DISTANCE "D" IS LESS THAN 20', PULL BOX "A" IS NOT REQUIRED.
5. A TRON TYPE FUSE HOLDER WITH 5A FUSE TO BE INSTALLED IN NEAREST PULL BOX. INSCRIBED "SHELTER LIGHTING" ADJACENT TO EXISTING STREET LIGHT PULL BOX.
6. ALL BUS SHELTER LIGHTING CONDUCTOR SPLICES SHALL BE TO APPLICABLE ELECTRICAL, STATE AND CITY STANDARDS.
7. ALL SHELTER LIGHTING SHALL BE NUMBERED. NUMERICAL SEQUENCE TO BE OBTAINED FROM PG&E. NUMBERS TO BE 2 1/2" HIGH AND INSTALLED ON SHELTER STRUCTURE.
8. ELECTRICAL FEED FROM EXISTING STREET LIGHTING SYSTEM TO SHELTER LIGHTING SHALL BE CONTINUOUS AND NOT BE IMPACTED BY A MASTER PHOTO CELL (PEC). INSTALL PEC'S ON STREET LIGHT LUMINAIRES AFFECTED BY SHELTER LIGHTING INSTALLATION REQUIREMENTS.

NOTE:

1. SEE E-15 FOR TRAFFIC SIGNAL SERVICE WIRING.
2. SERVICE CABINET SHALL BE TESCO 26-100 LBS METERED/UNMETERED OR APPROVED EQUAL.
3. TS = TIME SWITCH
4. 10 AMP 400 PIV DIODES



IF FLASHING BEACON IS REQUIRED, 20 AMP IS AVAILABLE

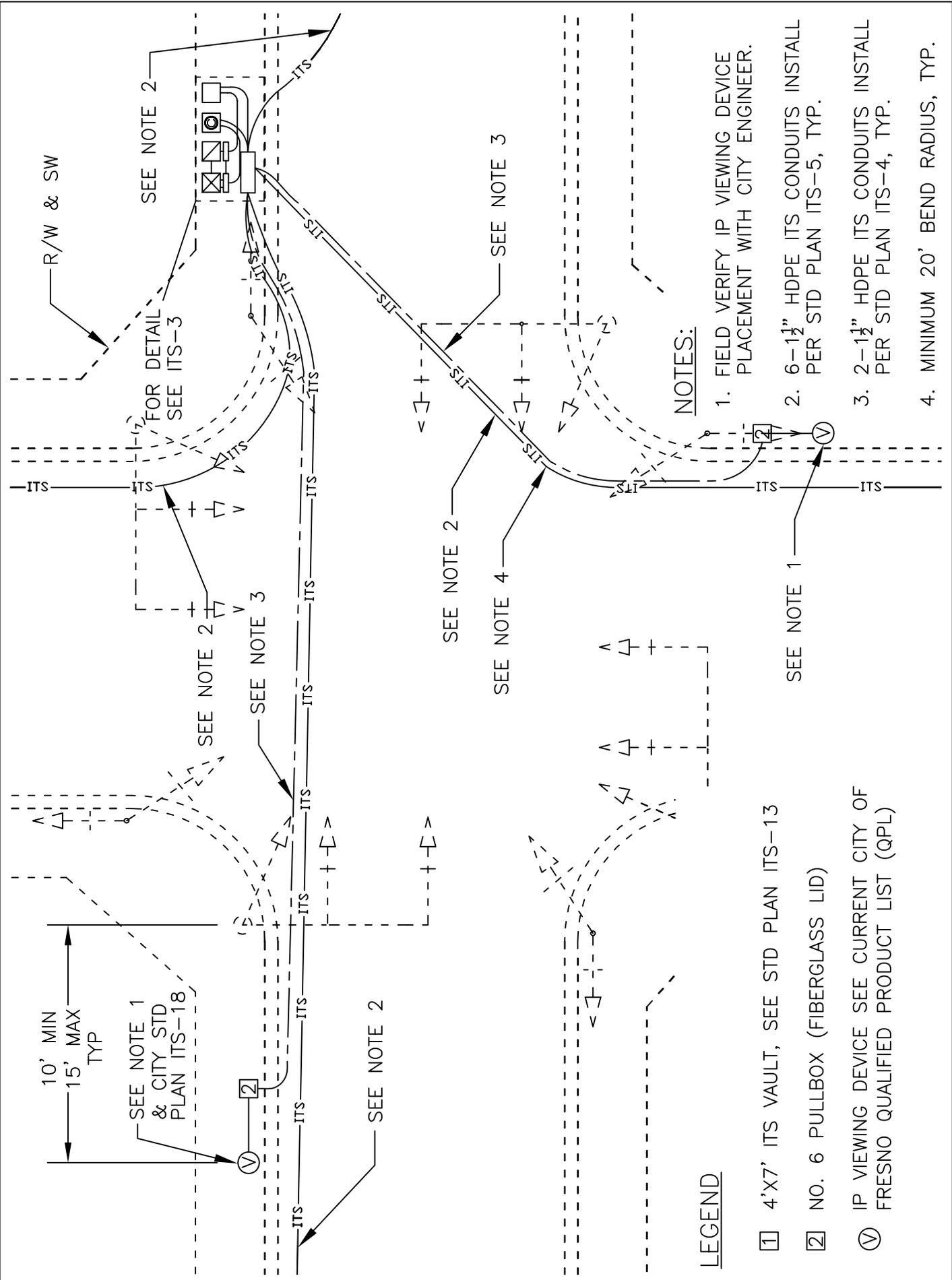
20A SPARE	20A FLASH BEACON	20A I.T.S. SPARE	20A I.T.S.	15A CONTROL	40A LIGHTING	40A LIGHTING	40A SAFETY LIGHT	40A SIGNAL	100A MAIN
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SWITCH LOCATION

FLASHING BEACON
WIRING NEW INSTALLATIONS 26-100 CABINETS

REF. & REV.
SEPT., 2009

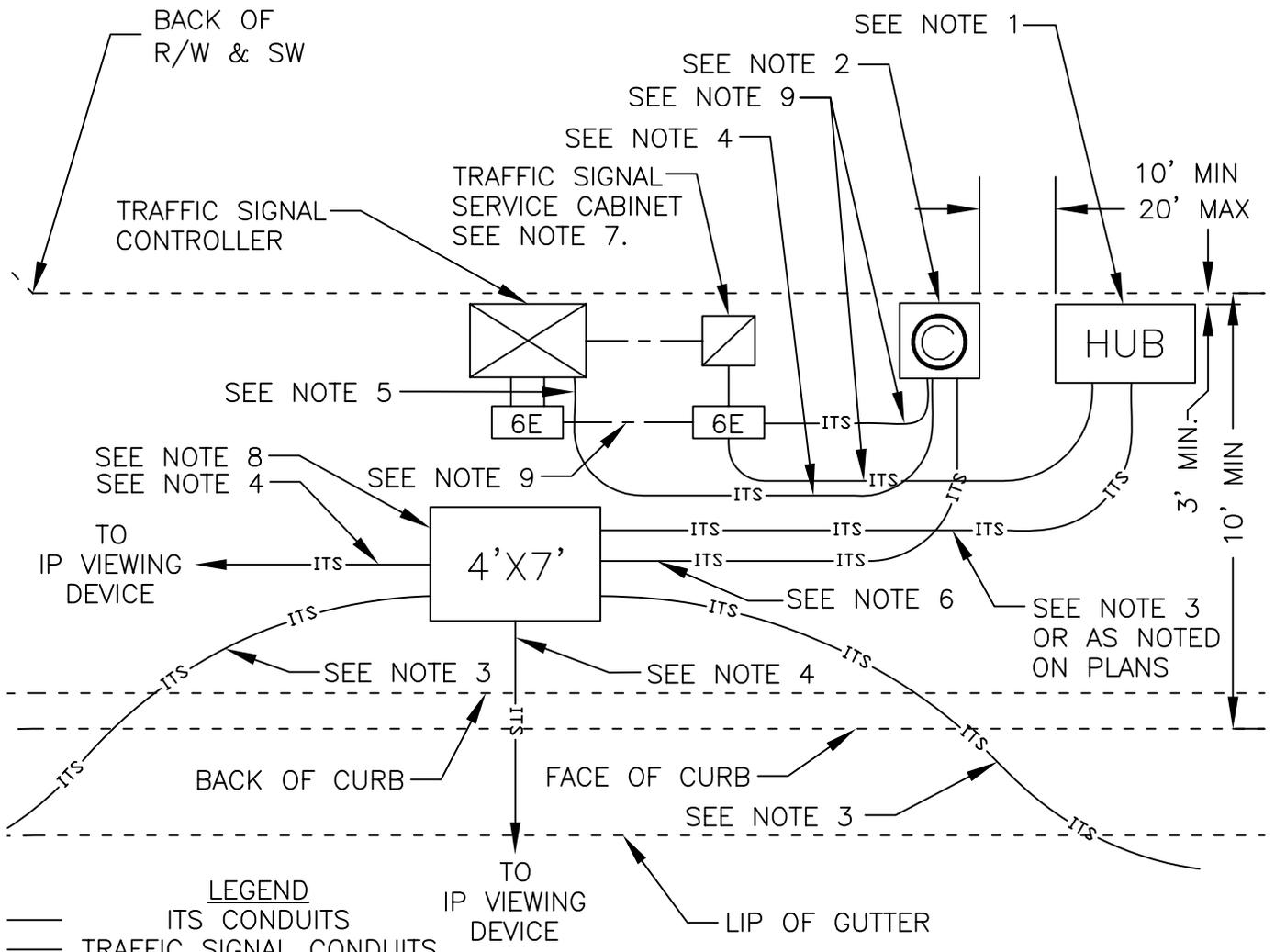
CITY OF FRESNO
E-36



TYPICAL ITS INTERSECTION LAYOUT

REF. & REV. JULY 2011

CITY OF FRESNO
ITS-2



NOTES:

1. ITS CABINET HUB SHALL BE INSTALLED IN A LOCATION APPROVED BY CITY ENGINEER.
2. ITS INTERSECTION COMMUNICATIONS CABINET PER CURRENT CITY OF FRESNO QUALIFIED PRODUCT LIST. (QPL)
3. 6-1½" ITS CONDUITS INSTALL PER STD PLAN ITS-5, TYP.
4. 2-1½" ITS CONDUITS INSTALL PER STD PLAN ITS-4, TYP.
5. FOR EXISTING TRAFFIC SIGNAL CONTROLLER, INSTALL 2-1½" CONDUITS INTO HOMERUN 6E PULLBOX.
6. 4-1½" ITS CONDUITS INSTALL PER STD PLAN ITS-4, TYP.
7. UPGRADE TRAFFIC SIGNAL SERVICE CABINET TO TESCO 27-000 AT LOCATIONS REQUIRING A HUB CABINET.
8. 4'x7' ITS VAULT, SEE STD PLAN ITS-13.
9. INSTALL 2" RIGID CONDUIT.
10. FOR TRAFFIC SIGNAL EQUIPMENT LAYOUT, SEE STD PLAN E-24.
11. ANY VARIATION FROM THIS STANDARD SHALL HAVE THE APPROVAL OF THE CITY ENGINEER.

**TYPICAL ITS INTERSECTION CONDUIT
RUN LAYOUT WITH HUB**

REF. & REV.
JULY 2011

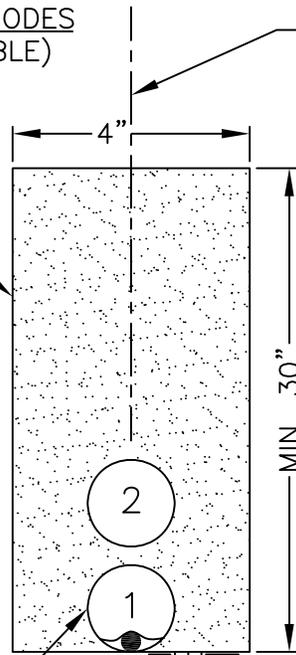
**CITY OF FRESNO
ITS-3A**

CONDUIT COLOR CODES

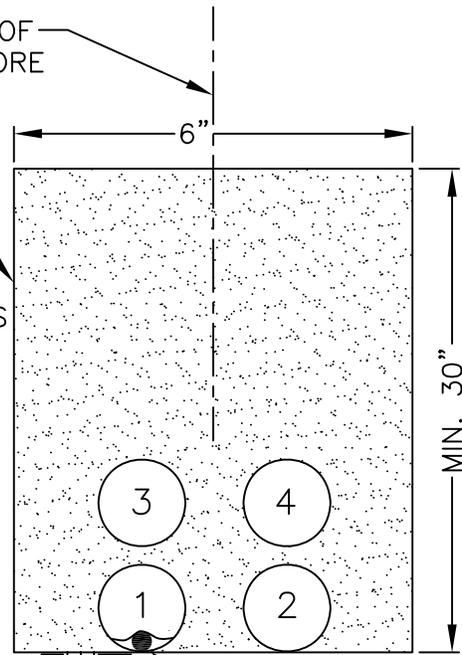
1. WHITE (TONEABLE)
2. BLUE
3. GREEN
4. YELLOW

CONCRETE
SLURRY
BACKFILL PER
SPECIFICATIONS

CENTER LINE OF
TRENCH OR BORE



CONCRETE
SLURRY
BACKFILL PER
SPECIFICATIONS



2-1 1/2" HDPE
COMMUNICATION
CONDUIT

SEE NOTE 6

4-1 1/2" HDPE
COMMUNICATION
CONDUIT

TYPE 2-1 1/2"
TRENCHING DETAIL
SEE NOTE 5

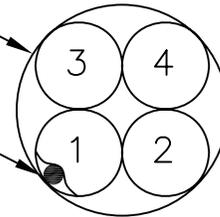
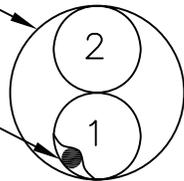
TYPE 4-1 1/2"
TRENCHING DETAIL
SEE NOTE 5

4" COMMUNICATION
DUCT

4" COMMUNICATION
DUCT

TONEABLE CONDUIT

TONEABLE CONDUIT



TYPE 2 CONDUIT
INNERDUCT DETAIL

TYPE 4 CONDUIT
INNERDUCT DETAIL

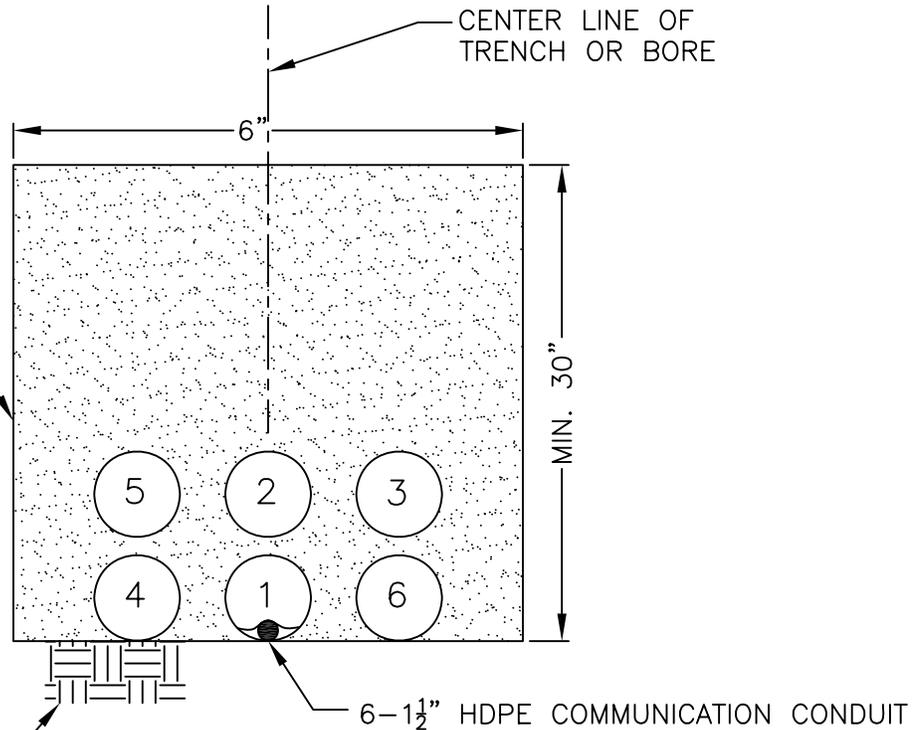
NOTES:

1. ALL CONDUIT SHALL BE SDR-11 HDPE COMMUNICATION.
2. ALL CONDUIT PLACEMENT SHALL BE PLACED PER CALIFORNIA GENERAL ORDER 128 (G.O.128).
3. ALL TRENCH OR BORING OF ITS CONDUIT SHALL HAVE ONE TONEABLE CONDUIT USED FOR TRACER.
4. CONDUITS SHALL BE WHITE, BLUE, GREEN AND YELLOW AS NUMBERED ABOVE.
5. DIRECTIONAL BORING OPTIONAL.
6. REMOVE TRENCH SPOIL MATERIALS TO UNDISTURBED GROUND.
7. ALL CONDUITS SHALL CONTAIN CITY APPROVED PULL TAPE.

CONDUIT COLOR CODES

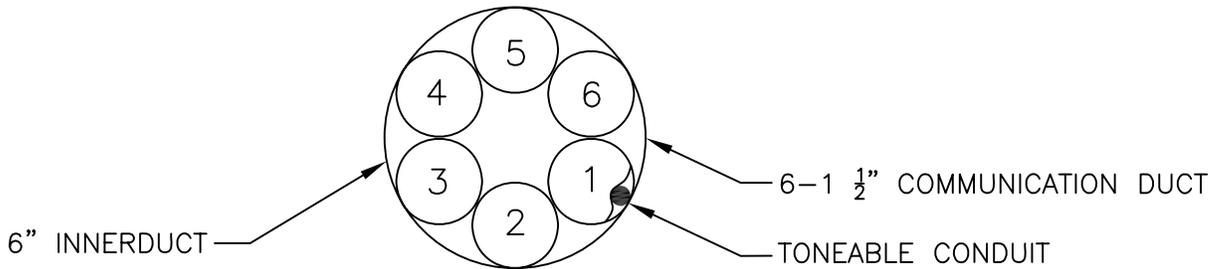
1. WHITE (TONEABLE)
2. BLUE
3. GREEN
4. YELLOW
5. RED
6. ORANGE

CONCRETE SLURRY
BACKFILL PER
SPECIFICATIONS



SEE NOTE 6

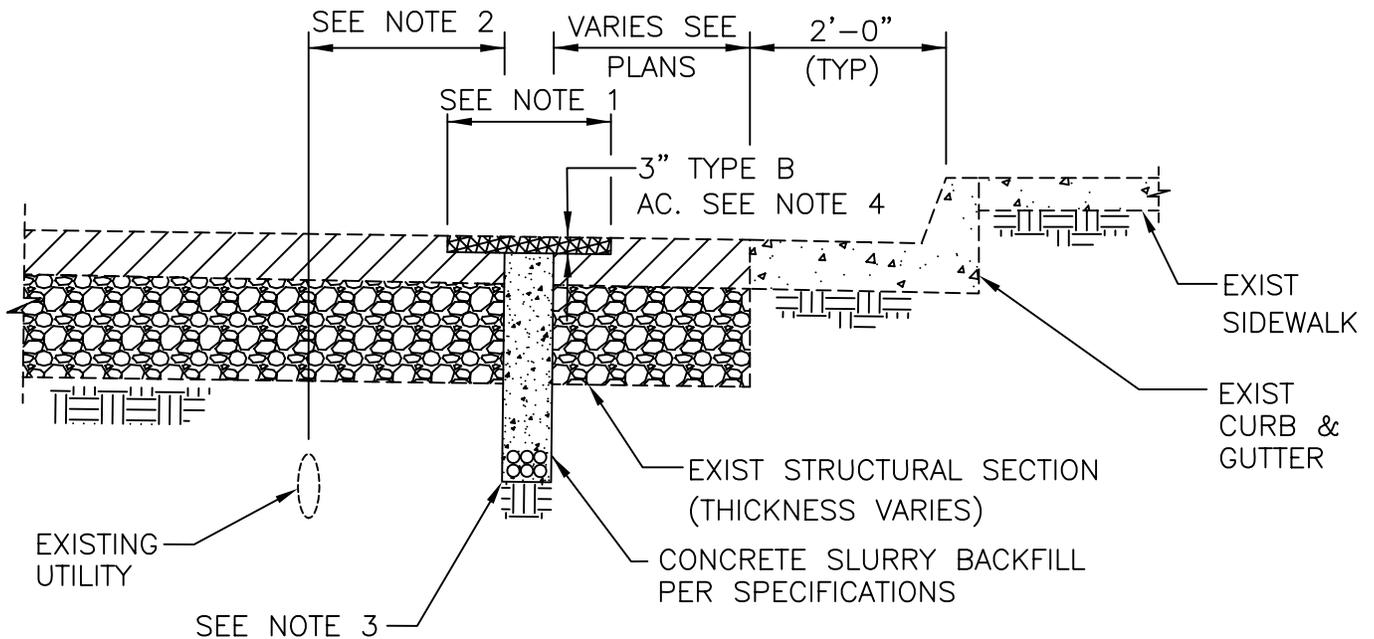
TYPE 6-1 1/2"
TRENCHING DETAIL
SEE NOTE 5



TYPE 6 CONDUIT
INNERDUCT DETAIL

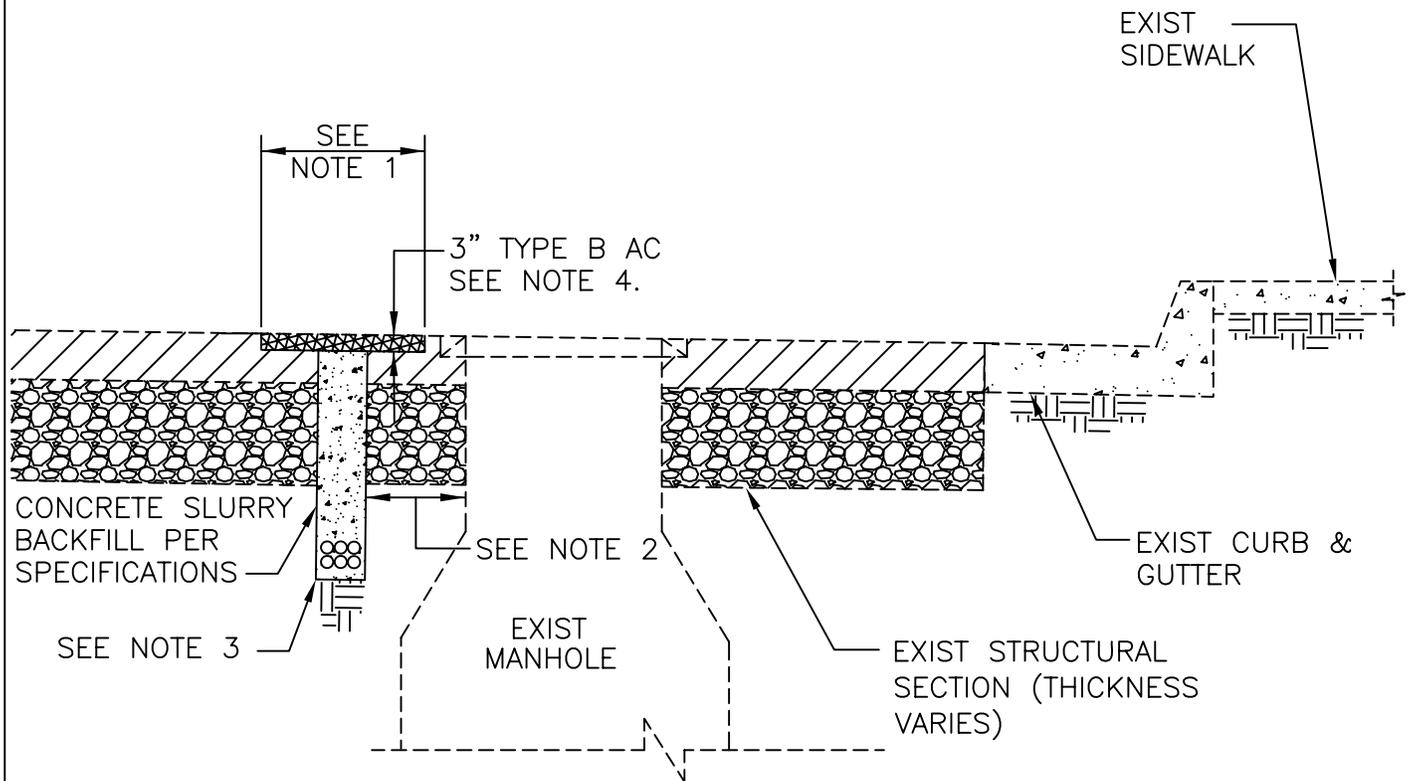
NOTES:

1. ALL CONDUIT SHALL BE SDR-11 HDPE COMMUNICATION.
2. ALL CONDUIT PLACEMENT SHALL BE PLACED PER CALIFORNIA GENERAL ORDER 128 (G.O.128).
3. ALL TRENCH OR BORING OF ITS CONDUIT SHALL HAVE ONE TONEABLE CONDUIT USED FOR TRACER.
4. CONDUITS SHALL BE WHITE, BLUE, GREEN, YELLOW, RED AND ORANGE AS NUMBERED ABOVE.
5. DIRECTIONAL BORING OPTIONAL.
6. REMOVE TRENCH SPOIL MATERIALS TO UNDISTURBED GROUND.
7. ALL CONDUITS SHALL CONTAIN PULL CITY APPROVED PULL TAPE.



NOTES:

1. GRIND EXISTING PAVEMENT TO NEAT EDGE MINIMUM 20" WIDE.
2. CONTRACTOR SHALL ADJUST HORIZONTAL TRENCH ALIGNMENT TO AVOID EXISTING UTILITIES AS NECESSARY. VERIFY ALIGNMENT ADJUSTMENTS WITH CITY REPRESENTATIVE. MAINTAIN MIN 12" CLEARANCE FROM EXISTING UTILITIES AND OBSTRUCTIONS.
3. FOR ITS CONDUIT TRENCH DETAIL, SEE STD DWG ITS-4 AND ITS-5.
4. REPAVING OPERATIONS SHALL BE TO CITY STD SPECS AND DRAWINGS.

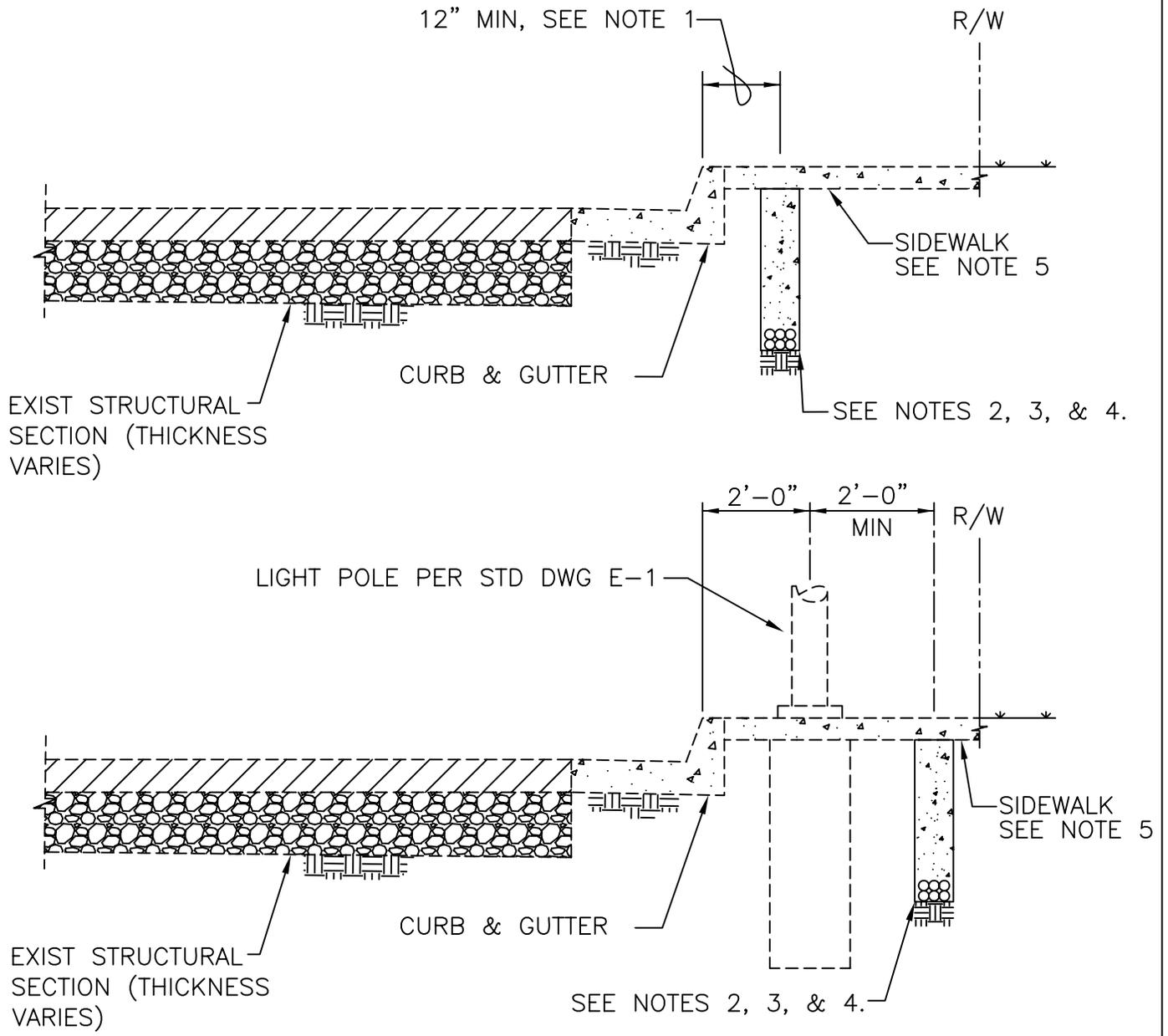


NOTES:

1. GRIND EXISTING ASPHALT PAVEMENT TO NEAT EDGE MINIMUM 20" WIDE.
2. CONTRACTOR SHALL ADJUST HORIZONTAL TRENCH ALIGNMENT TO AVOID EXISTING UTILITIES AS NECESSARY. VERIFY ALIGNMENT ADJUSTMENTS WITH CITY REPRESENTATIVE. MAINTAIN MIN 12" CLEARANCE FROM EXISTING UTILITIES AND OBSTRUCTIONS.
3. FOR ITS CONDUIT TRENCH DETAIL, SEE STD DWG ITS-4 AND ITS-5.
4. REPAVING OPERATIONS SHALL BE TO CITY STD SPECS AND DRAWINGS.

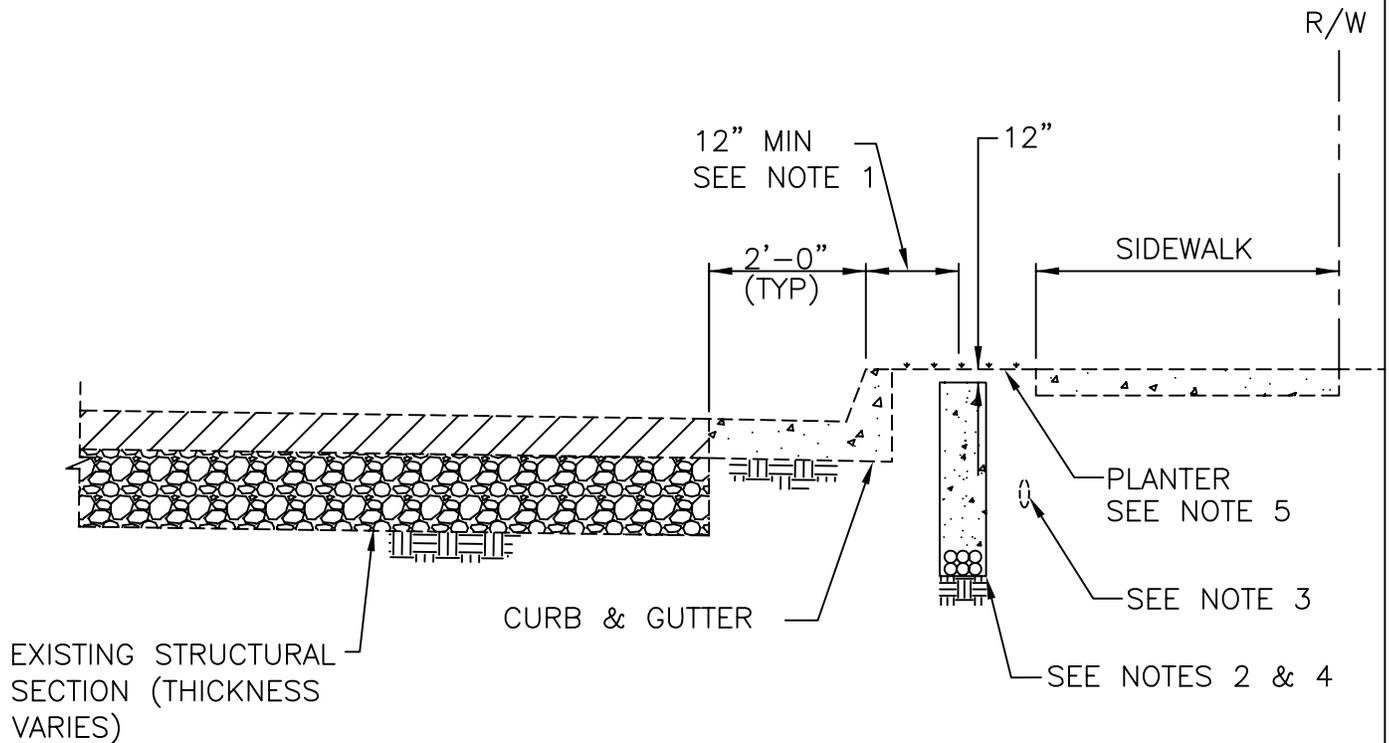
NOTES:

1. LOCATE ITS TRENCH UNDER SIDEWALK TO AVOID EXISTING & PROPOSED UTILITIES.
2. TRENCH BEFORE INSTALLATION OF NEW SIDEWALK.
3. CONTRACTOR SHALL ADJUST HORIZONTAL TRENCH ALIGNMENT TO AVOID EXISTING UTILITIES AS NECESSARY. VERIFY ALIGNMENT ADJUSTMENTS WITH CITY REPRESENTATIVE.
4. FOR ITS CONDUIT TRENCH DETAIL, SEE STD DWG ITS-4 AND ITS-5.
5. DIRECTIONAL BORE OR REMOVE & REPLACE SIDEWALK (BETWEEN EXISTING JOINT) & TRENCH.
6. INSTALLATION OF ITS CONDUITS UNDER SIDEWALK SHALL ONLY BE ALLOWED WITH WRITTEN PERMISSION FROM THE CITY ENGINEER.



NOTES:

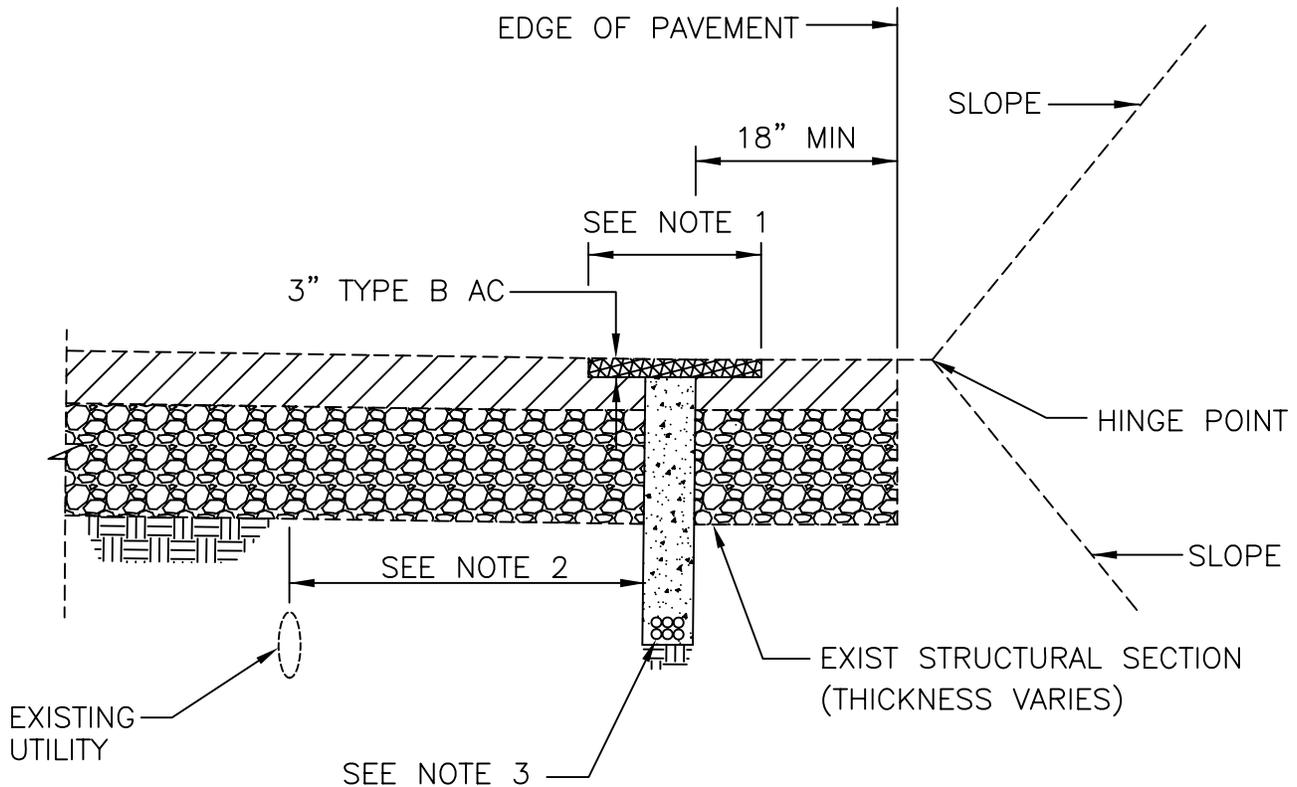
1. LOCATE ITS TRENCH UNDER PLANTER TO AVOID EXISTING & PROPOSED UTILITIES.
2. TRENCH BEFORE INSTALLATION OF LANDSCAPING IN NEW CONSTRUCTION.
3. CONTRACTOR SHALL ADJUST HORIZONTAL TRENCH ALIGNMENT TO AVOID EXISTING UTILITIES AS NECESSARY. VERIFY ALIGNMENT ADJUSTMENTS WITH CITY REPRESENTATIVE.
4. FOR ITS CONDUIT TRENCH DETAIL, SEE STD DWG ITS-4 AND ITS-5.
5. DIRECTIONAL BORE OR REMOVE & REPLACE IRRIGATION AND LANDSCAPING IN KIND.
6. INSTALLATION OF ITS CONDUITS IN PLANTER AREAS SHALL ONLY BE ALLOWED WITH WRITTEN PERMISSION FROM THE CITY ENGINEER.



ITS CONDUIT TRENCH
LAYOUT NO. 4

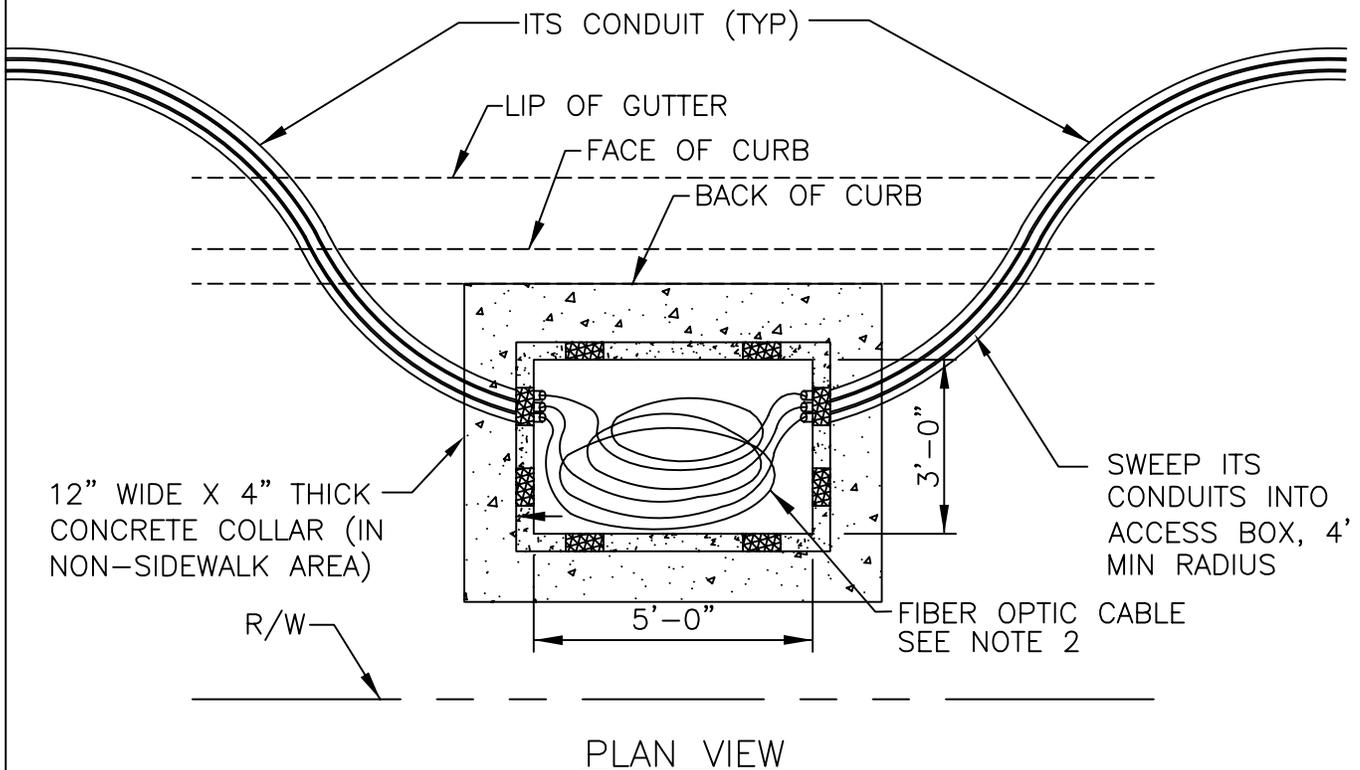
REF. & REV.
FEB., 2008

CITY OF FRESNO
ITS-9



NOTES:

1. GRIND EXISTING ASPHALT PAVEMENT TO NEAT EDGE MINIMUM 20" WIDE.
2. CONTRACTOR SHALL ADJUST HORIZONTAL TRENCH ALIGNMENT TO AVOID EXISTING UTILITIES AS NECESSARY. VERIFY ALIGNMENT ADJUSTMENTS WITH CITY REPRESENTATIVE. MAINTAIN MIN 12" CLEARANCE FROM EXISTING UTILITIES AND OBSTRUCTIONS.
3. FOR ITS CONDUIT TRENCH DETAIL, SEE STD DWG ITS-4 AND ITS-5.
4. REPAVING OPERATIONS SHALL BE TO CITY STD SPECS AND DRAWINGS.



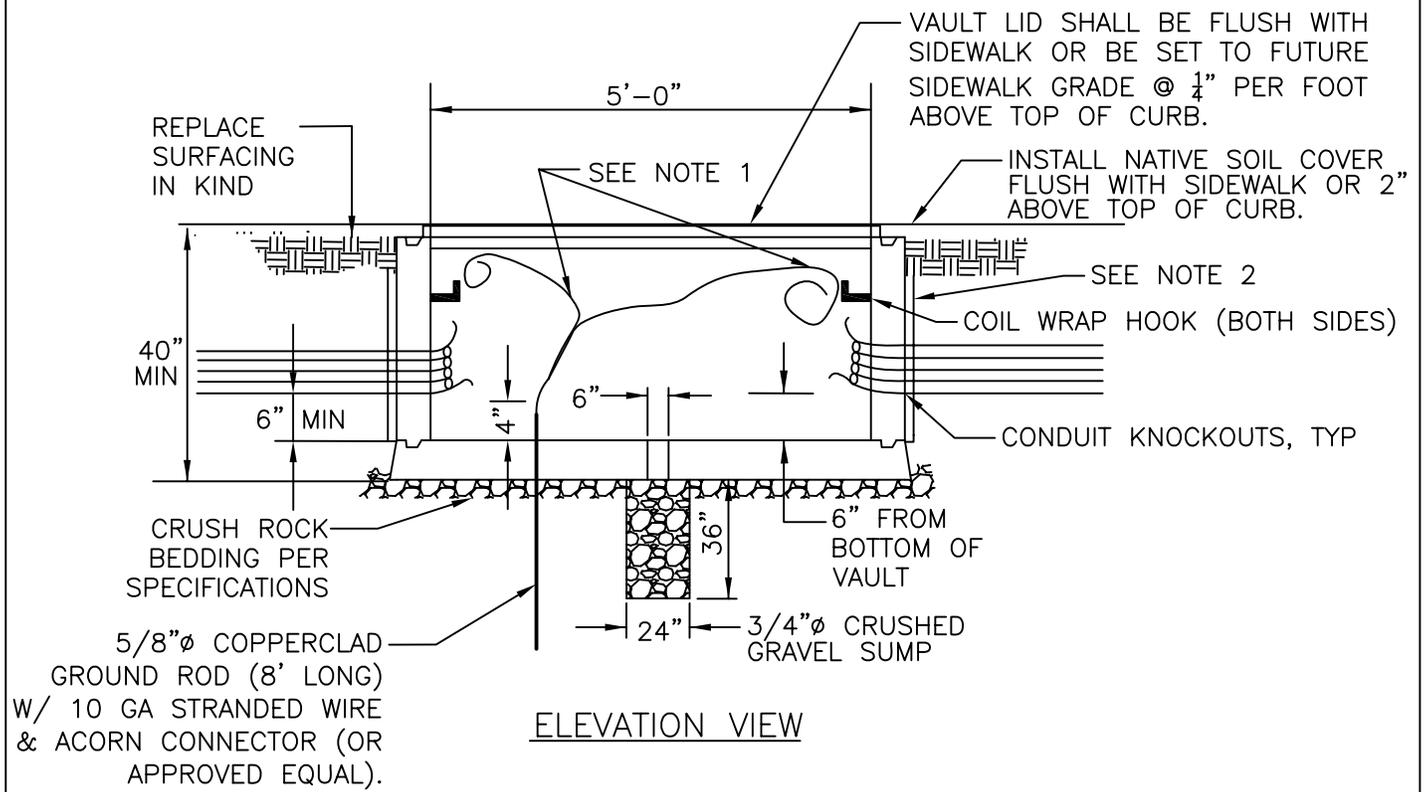
NOTES:

1. TOP THREE CONDUITS NOT SHOWN FOR CLARITY.
2. COIL APPROXIMATELY 150 FEET (OR AS NOTED ON PLANS) OF FIBER OPTIC CABLE AROUND INSIDE BASE OF COMMUNICATIONS VAULT VERTICALLY WITH A MINIMUM RADIUS OF 32". (ATTACH TO HOLD DOWNS WITH METAL TIE WRAPS) PER SPECIFICATIONS.
3. 90° CONDUIT ENTRIES ARE NOT ALLOWED. CONDUIT SHALL BE DIRECTLY ACROSS FROM ADJACENT CONDUITS.
4. LABEL ALL CABLE IN PULL BOX & SERVICE BOX.
5. VAULT SHALL HAVE A TORSION SUSPENDED & SPRING LOADED LID WITH TWO HOLDUP BRACING BARS.
6. VAULTS SHALL INCLUDE BOLT DOWN LIDS.
7. LABELING ON LID SHALL READ "ITS COMMUNICATIONS".
8. VAULTS SHALL BE PER CURRENT CITY OF FRESNO QUALIFIED PRODUCTS LIST (QPL).
9. FOR ADDITIONAL 3' X 5' VAULT DETAILS, SEE STD PLAN ITS-12.

ITS 3' X 5' VAULT
DETAILS NO. 1

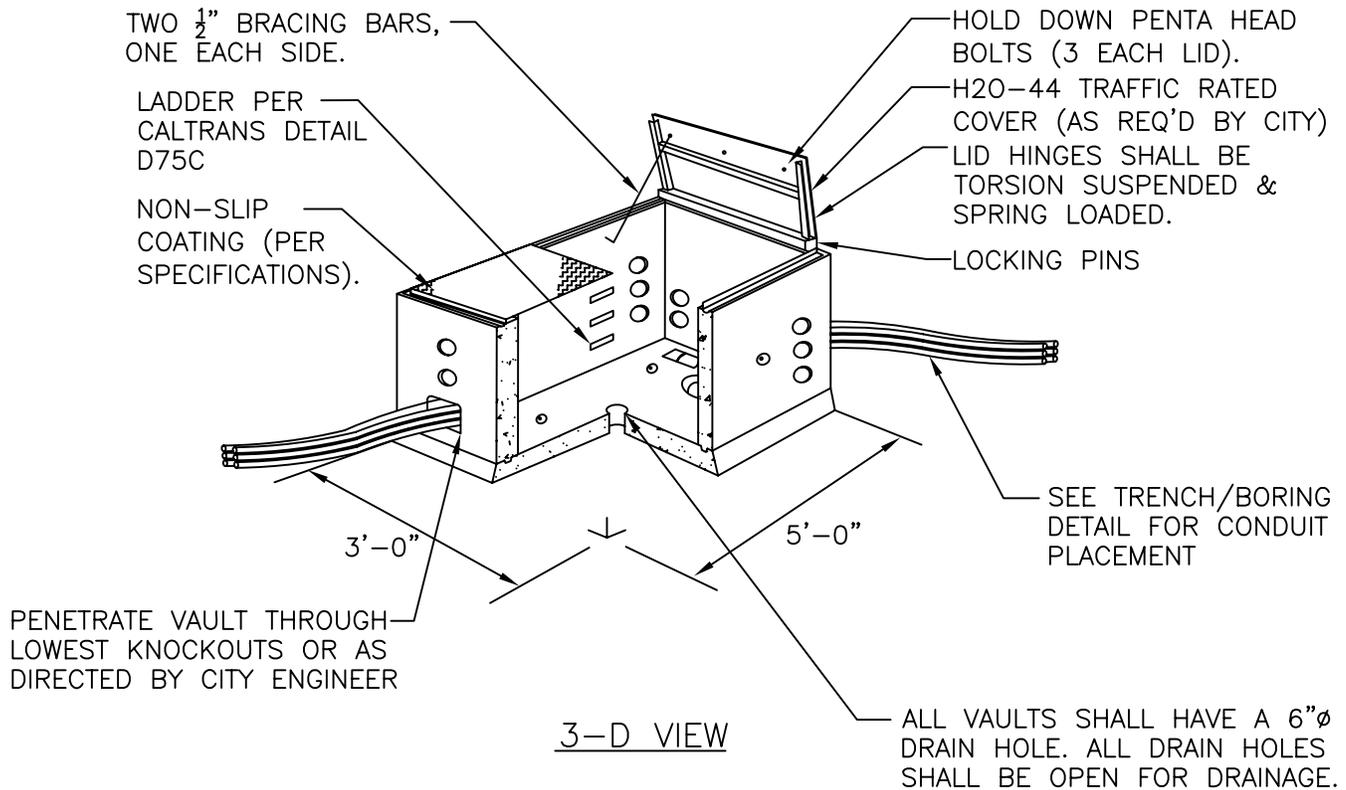
REF. & REV.
JULY 2011

CITY OF FRESNO
ITS-11



NOTES:

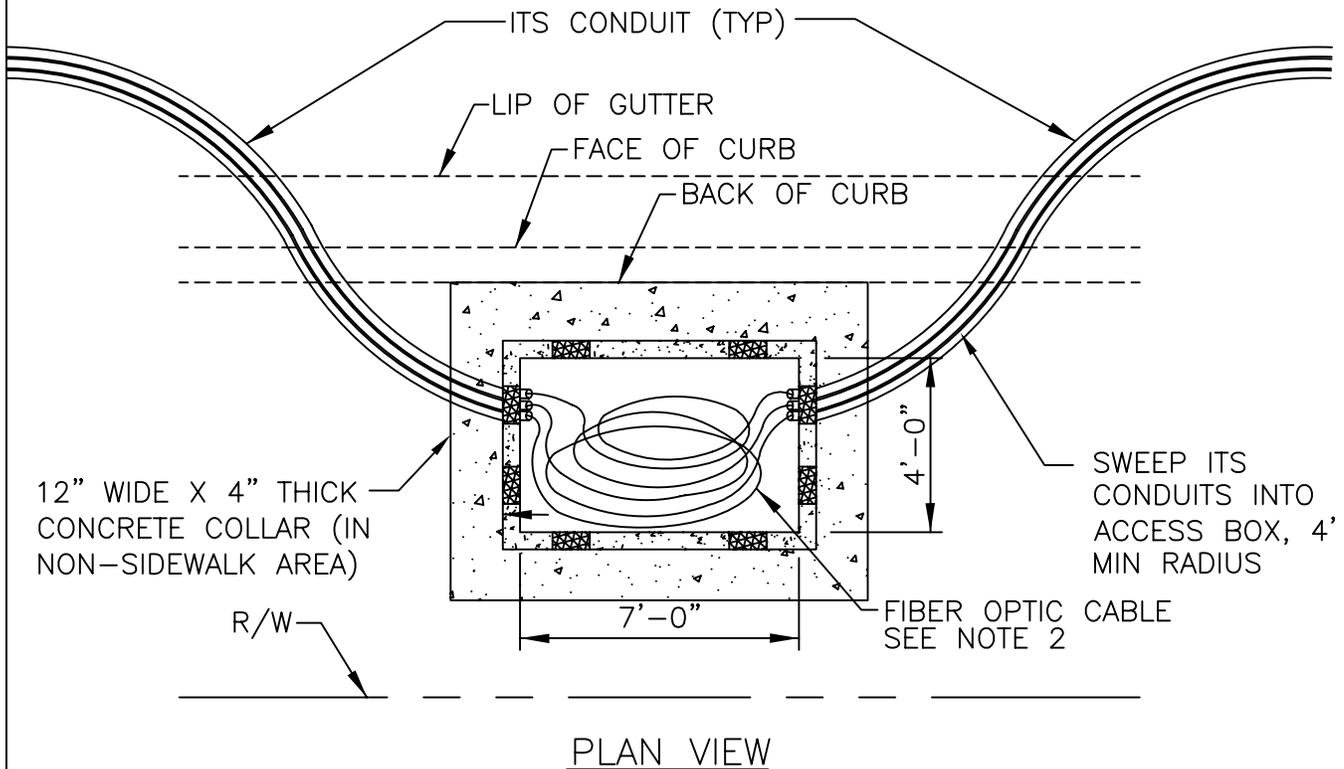
1. INSTALL COMMUNICATIONS BELLS ON CONDUIT ENDS & CONNECT TONEABLE CONDUIT TO GROUNDING ROD.
2. WRAP VAULT WITH BUILDING PAPER PER SPECIFICATIONS BEFORE BACKFILLING.



ITS 3' X 5' VAULT
DETAILS NO. 2

REF. & REV.
FEB., 2008

CITY OF FRESNO
ITS-12



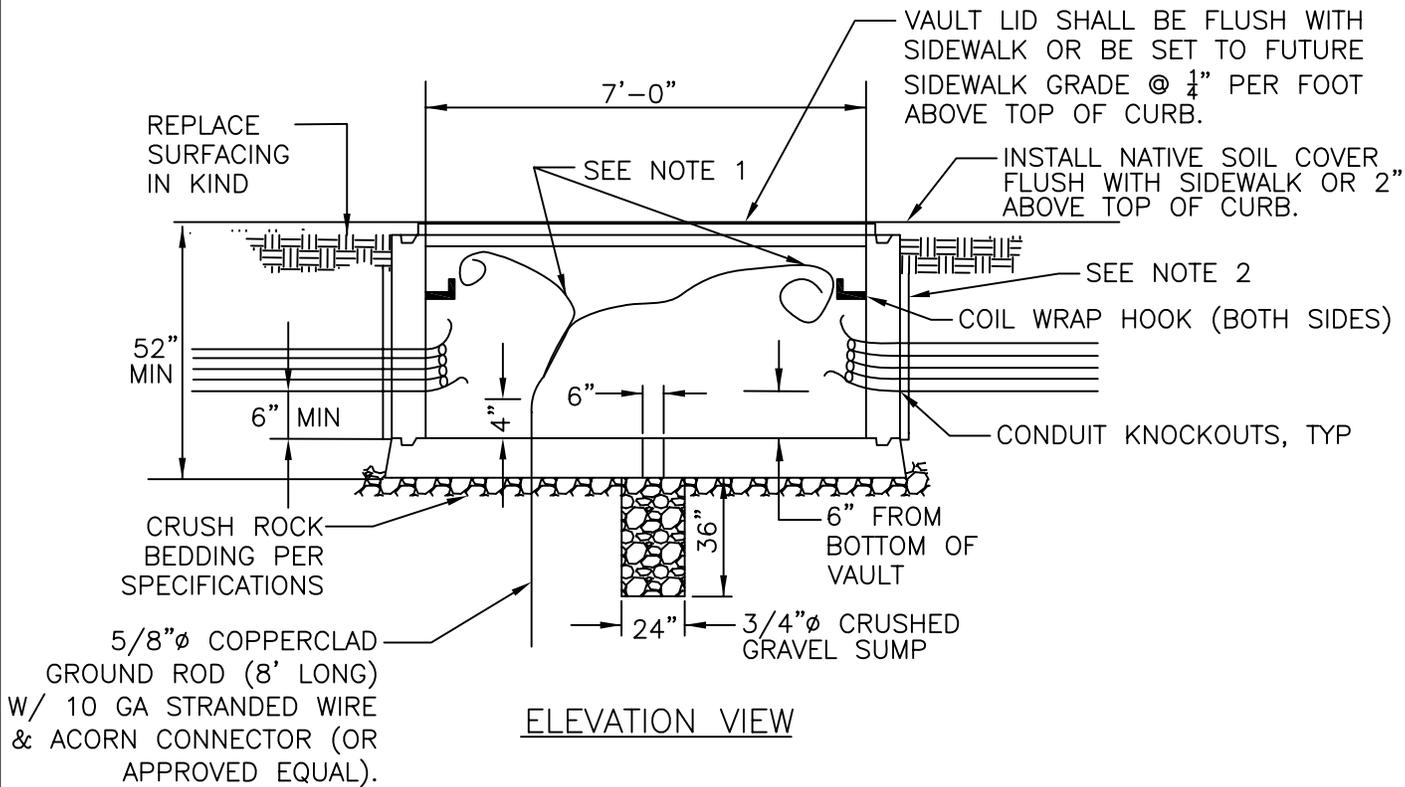
NOTES:

1. TOP THREE CONDUITS NOT SHOWN FOR CLARITY.
2. COIL APPROXIMATELY 300 FEET (OR AS NOTED ON PLANS) OF FIBER OPTIC CABLE AROUND INSIDE BASE OF COMMUNICATIONS VAULT VERTICALLY WITH A MINIMUM RADIUS OF 32". (ATTACH TO HOLD DOWNS WITH METAL TIE WRAPS) PER SPECIFICATIONS.
3. 90° CONDUIT ENTRIES ARE NOT ALLOWED. CONDUIT SHALL BE DIRECTLY ACROSS FROM ADJACENT CONDUITS.
4. LABEL ALL CABLE IN PULL BOX & SERVICE BOX.
5. VAULT SHALL HAVE A TORSION SUSPENDED & SPRING LOADED LID WITH TWO HOLDUP BRACING BARS.
6. VAULTS SHALL INCLUDE BOLT DOWN LIDS.
7. LABELING ON LID SHALL READ "ITS COMMUNICATIONS".
8. VAULTS SHALL BE PER CURRENT CITY OF FRESNO QUALIFIED PRODUCTS LIST (QPL).
9. FOR ADDITIONAL 4' X 7' VAULT DETAILS, SEE STD PLAN ITS-14.

ITS 4' X 7' VAULT
DETAILS NO. 1

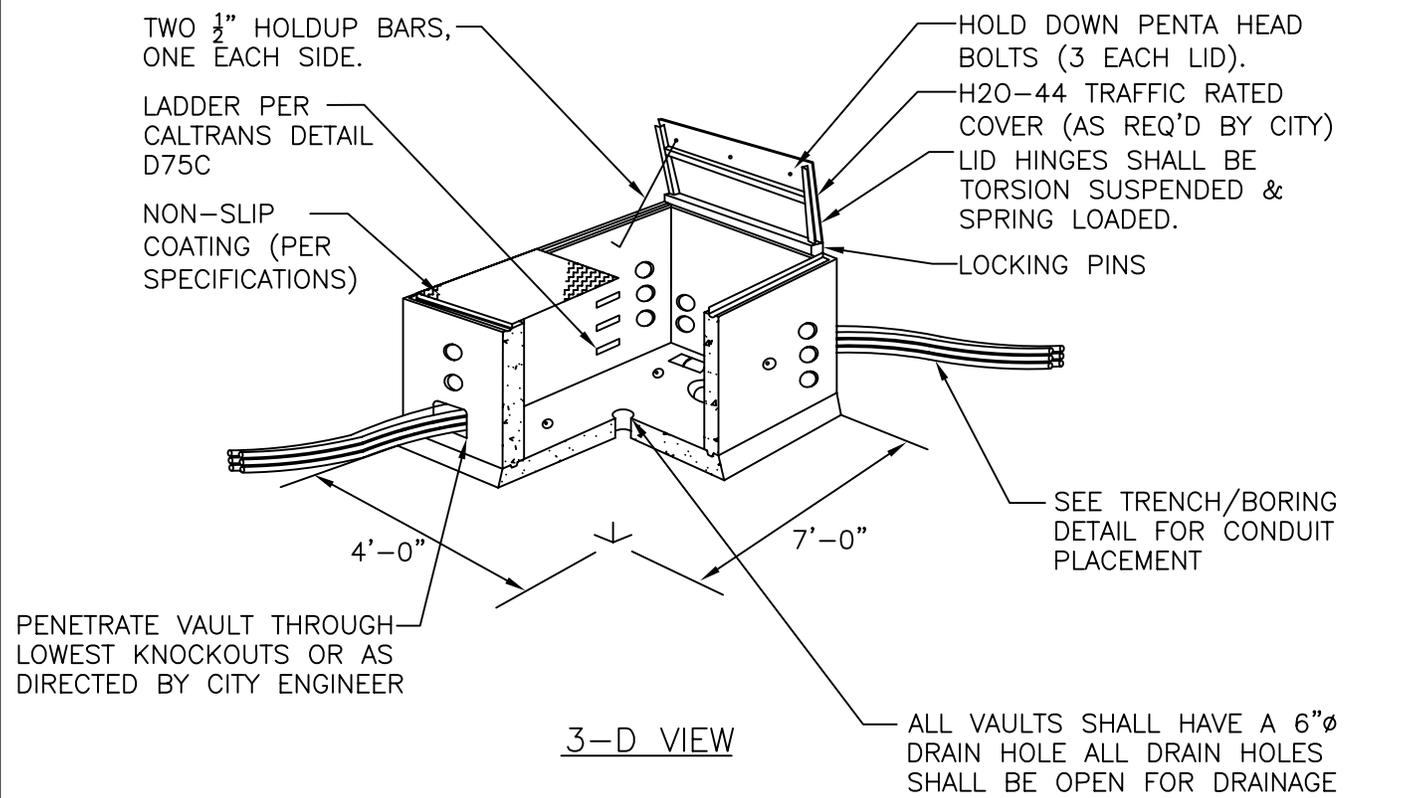
REF. & REV.
JULY 2011

CITY OF FRESNO
ITS-13



NOTES:

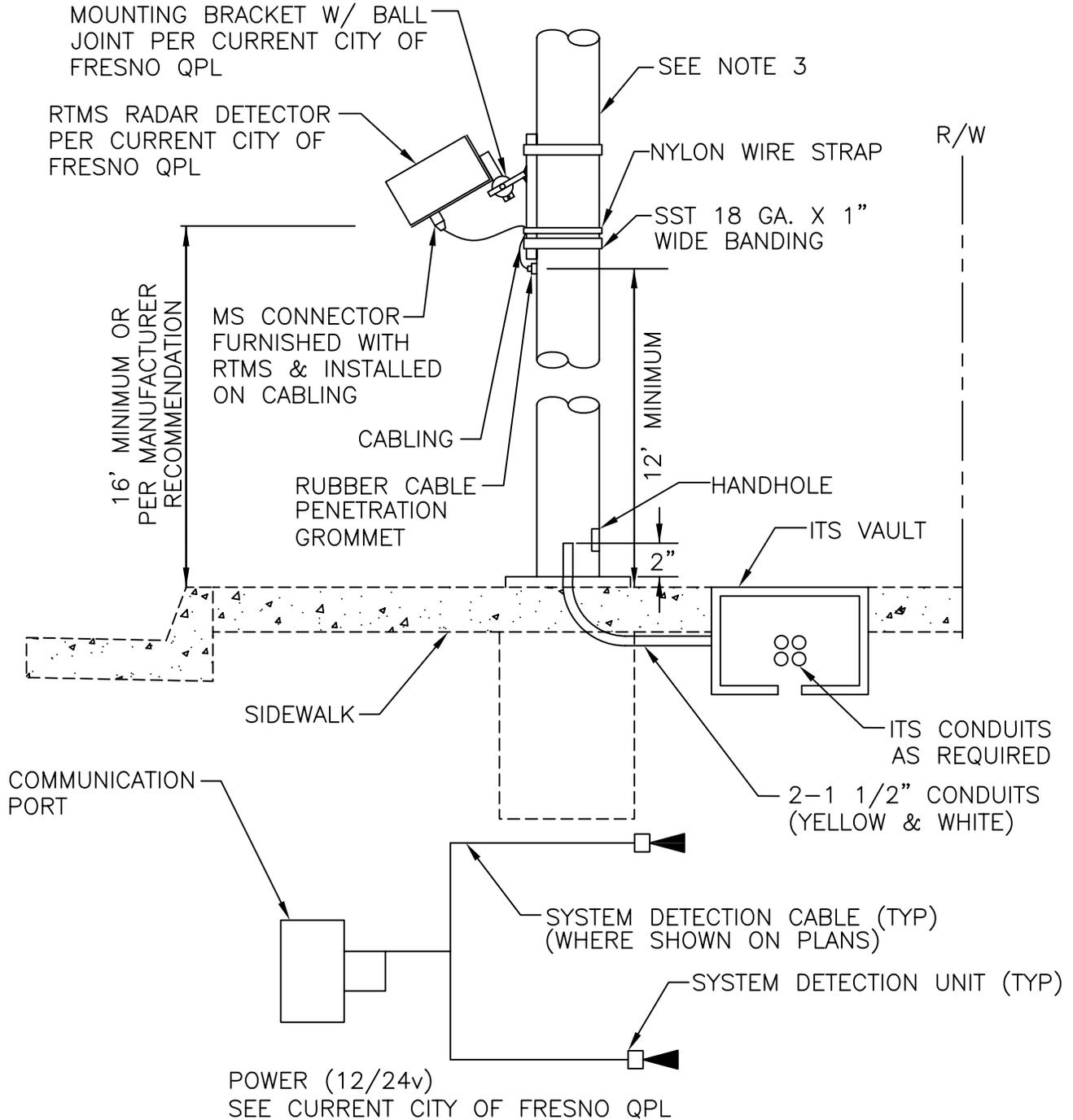
1. INSTALL COMMUNICATIONS BELLS ON CONDUIT ENDS & CONNECT TONEABLE CONDUIT TO GROUNDING ROD.
2. WRAP VAULT WITH BUILDING PAPER PER SPECIFICATIONS BEFORE BACKFILLING.



<p>ITS 4' X 7' VAULT DETAILS NO. 2</p>	<p>REF. & REV. FEB., 2008</p>	<p>CITY OF FRESNO ITS-14</p>
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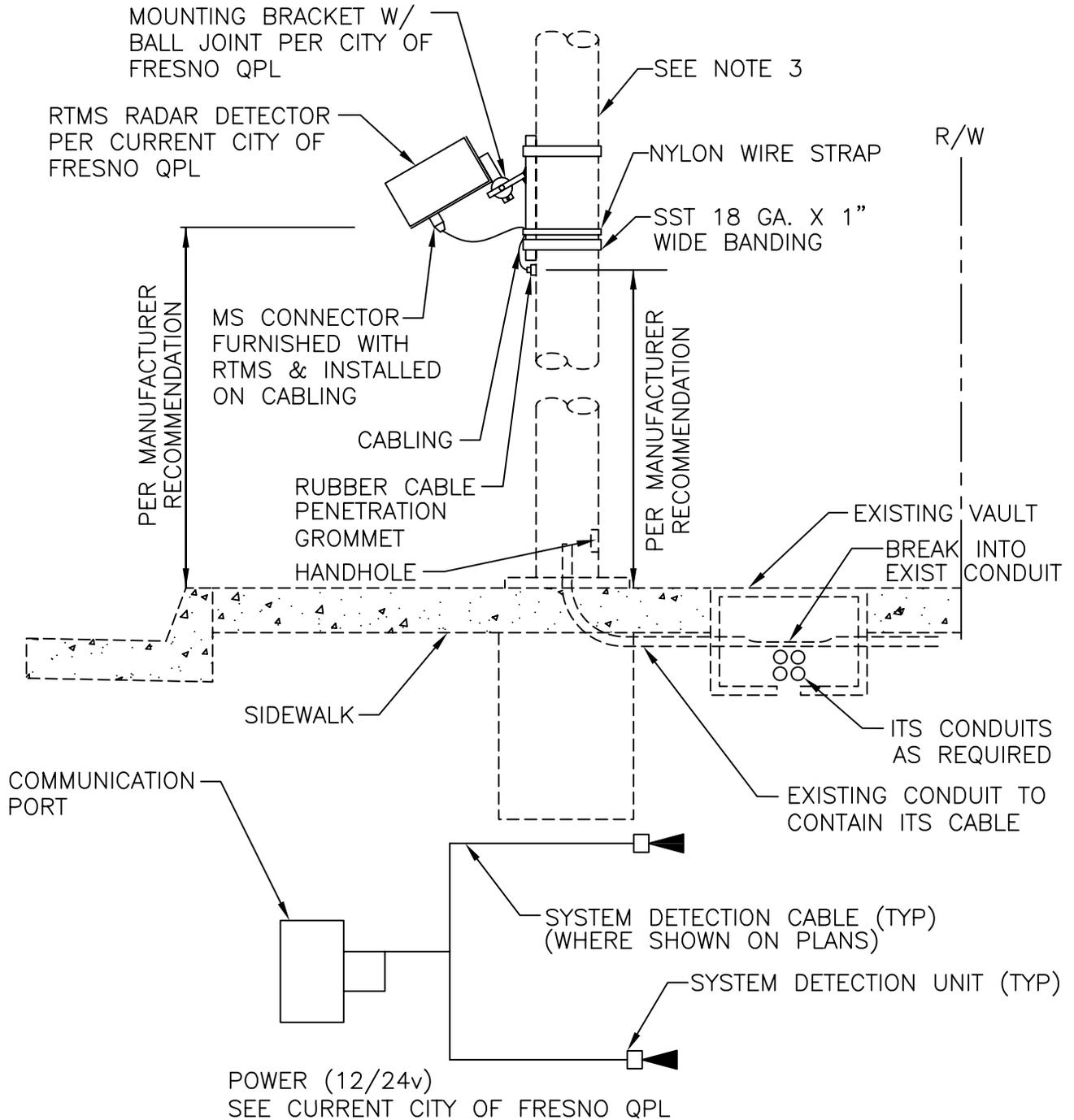
NOTES:

1. MOUNTING HEIGHT TO BE DETERMINED BY CITY ENGINEER.
2. MANUFACTURER'S REPRESENTATIVE SHALL ALIGN THE RADAR DETECTION UNIT IN THE FIELD PRIOR TO START-UP.
3. INSTALL NEW E-1 POLE WITHOUT MASTARM & LUMINAIRE.
4. INSTALL PER CURRENT MANUFACTURERS STANDARDS.



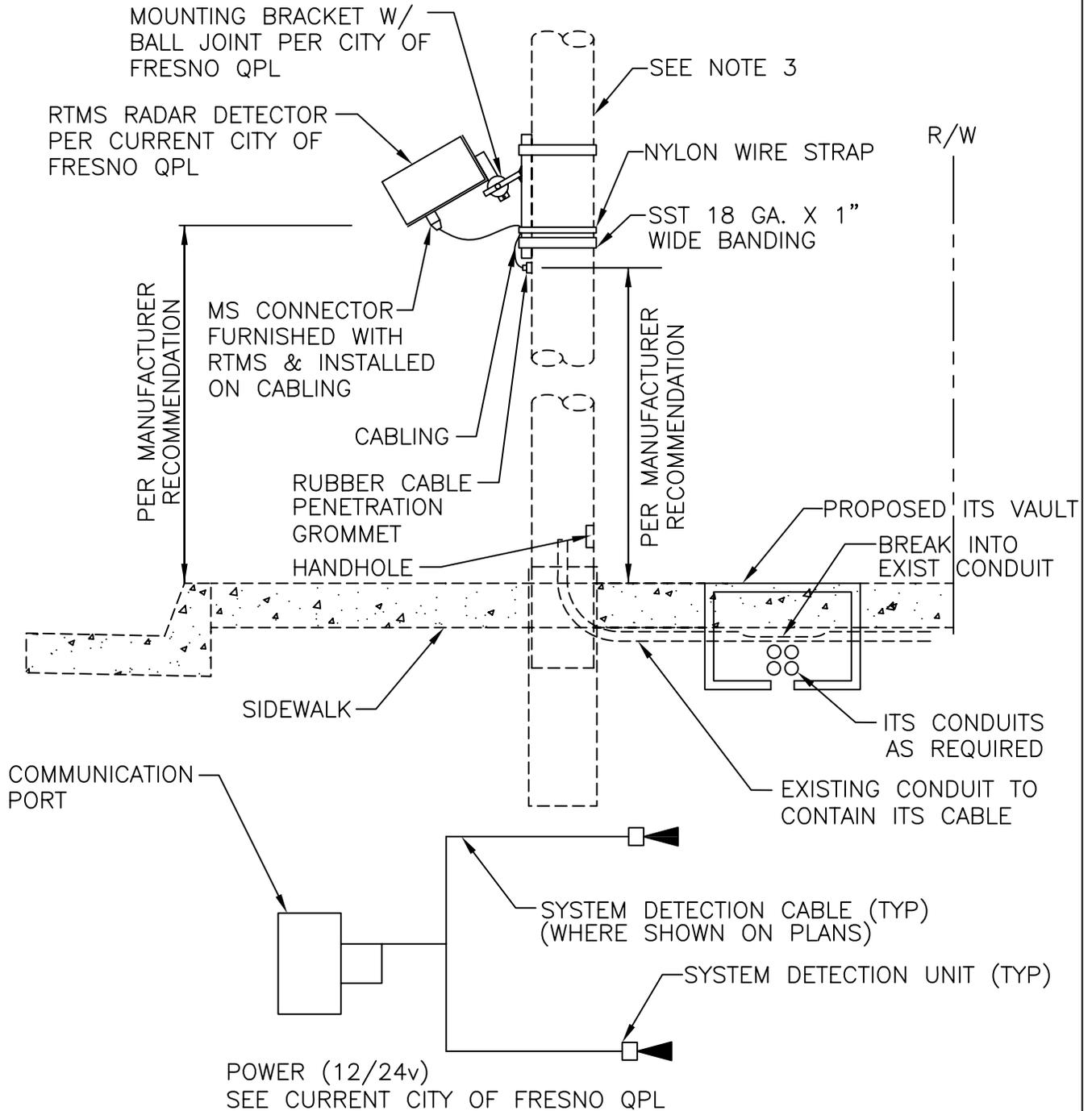
NOTES:

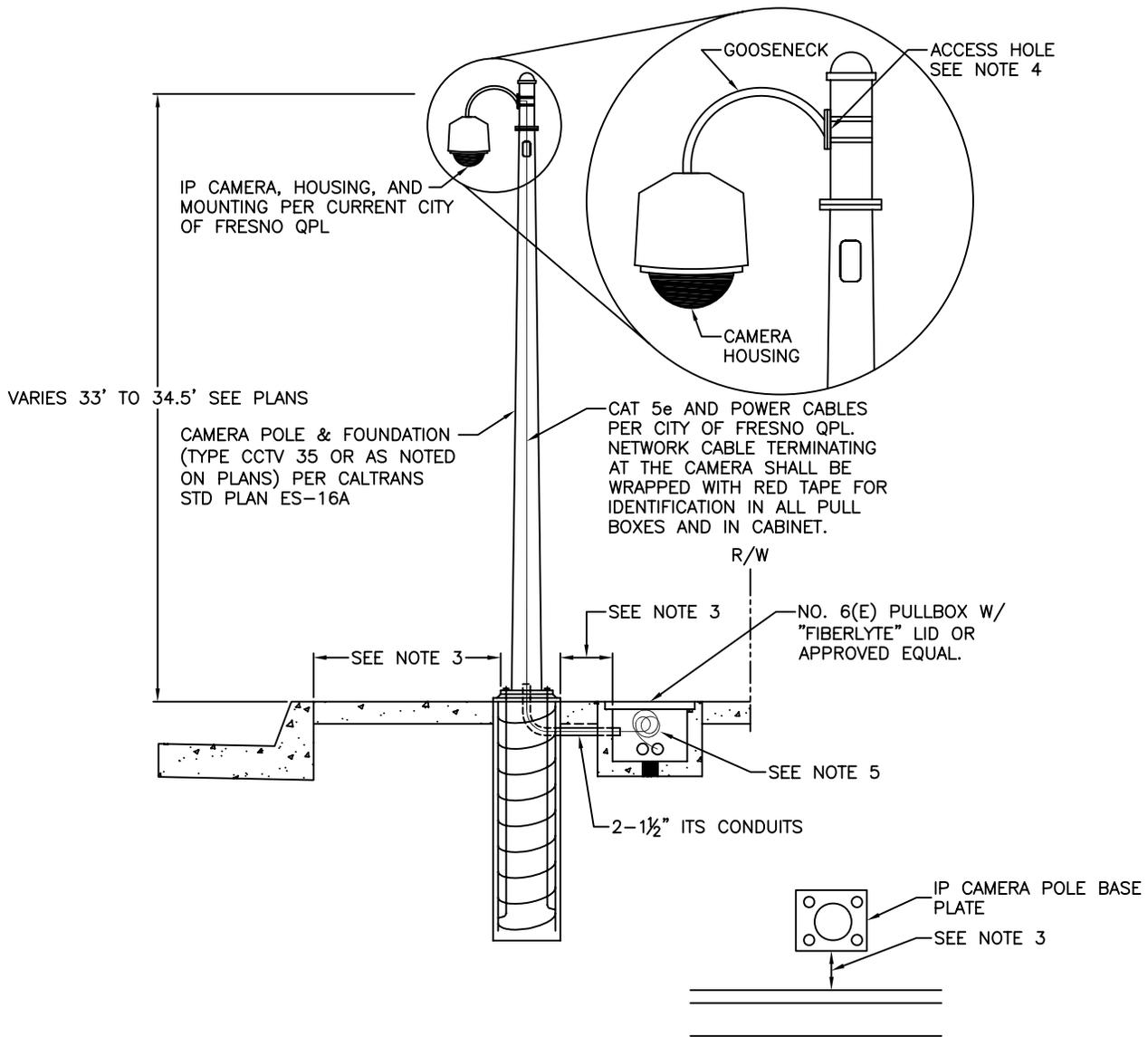
1. MOUNTING HEIGHT TO BE DETERMINED BY CITY ENGINEER.
2. MANUFACTURER'S REPRESENTATIVE SHALL ALIGN THE RADAR DETECTION UNIT IN THE FIELD PRIOR TO START-UP.
3. MOUNT ON EXISTING CITY STD PLAN E-1 POLE.
4. INSTALL PER CURRENT MANUFACTURERS STANDARDS.



NOTES:

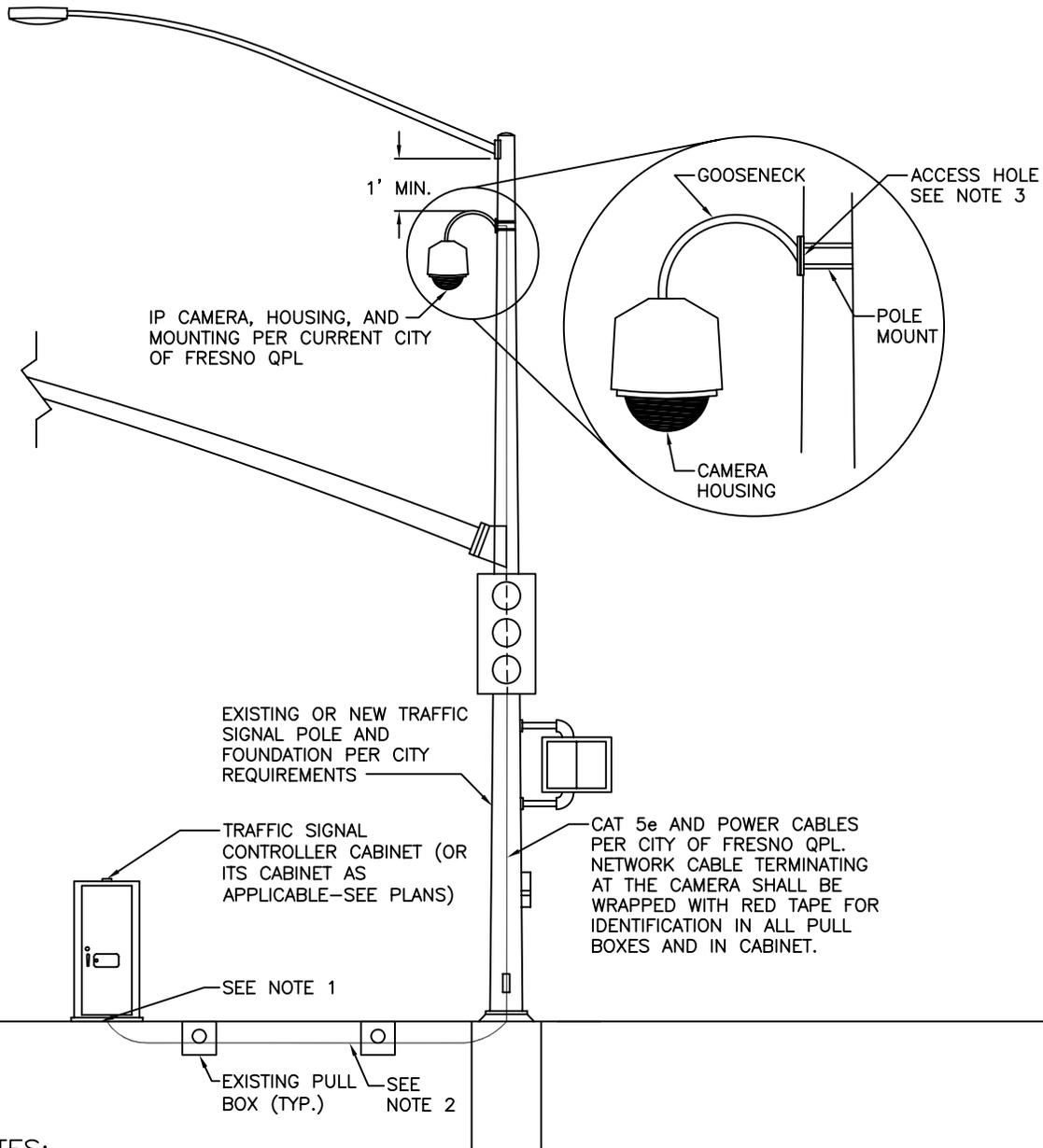
1. MOUNTING HEIGHT TO BE DETERMINED BY CITY ENGINEER.
2. MANUFACTURER'S REPRESENTATIVE SHALL ALIGN THE RADAR DETECTION UNIT IN THE FIELD PRIOR TO START-UP.
3. MOUNT ON EXISTING CITY STD PLAN E-2 POLE.
4. INSTALL PER CURRENT MANUFACTURERS STANDARDS.





NOTES:

1. THE CONTRACTOR SHALL VERIFY EXISTING UTILITY LOCATIONS, IDENTIFYING POTENTIAL CONFLICTS BEFORE ORDERING OR FABRICATING ANY MATERIAL.
2. DURING POLE ERECTION, THE POST SHALL BE RAKED AS NECESSARY WITH THE USE OF LEVELING NUTS TO PROVIDE A PLUMB POLE AXIS.
3. ALIGN SIDE OF POLE BASE PLATE PARALLEL WITH CURB FACE. 1' MINIMUM & 3' MAXIMUM SETBACK. IF CURB & GUTTER DOESN'T EXIST, ALIGN BASE PLATE PER CITY ENGINEER. MAINTAIN MINIMUM 4' ADA CLEARANCES.
4. DRILL MAX 3/4" BEVELED HOLE. GROMMET SHALL FORM A TIGHT SEAL BETWEEN POLE AND CABLE.
5. COIL APPROXIMATELY 2' MAXIMUM OF CAT 5e AND POWER CABLES INSIDE BASE OF PULLBOX.



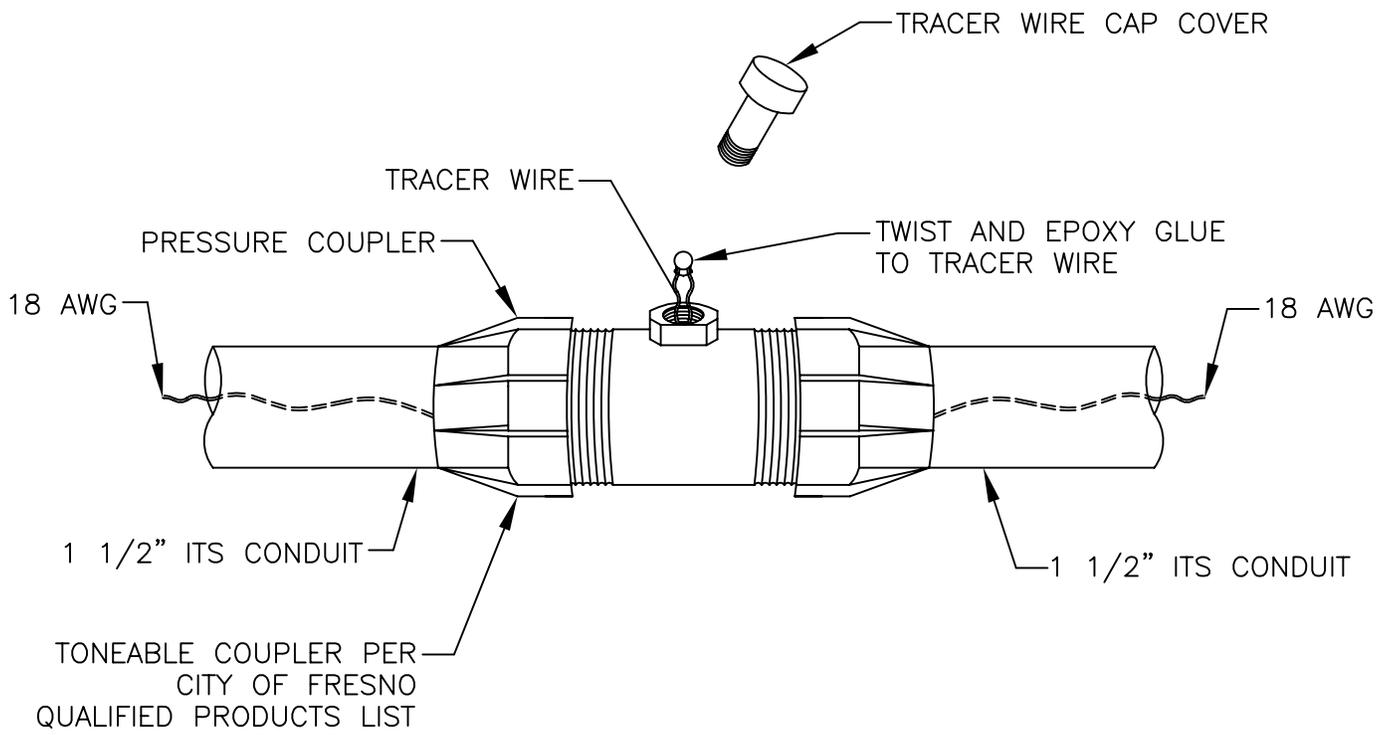
NOTES:

1. FOR NETWORKING CONNECTIONS, SEE SPECIFICATIONS.
2. EXTEND CABLES THROUGH TRAFFIC SIGNAL CONDUIT AND PULL BOXES. COIL MAX. 2' OF SLACK IN EACH PULL BOX. NETWORK CABLE TERMINATING AT THE CAMERA SHALL BE WRAPPED WITH RED TAPE FOR IDENTIFICATION IN ALL PULL BOXES AND IN CABINET.
3. DRILL MAX $\frac{3}{4}$ " BEVELED HOLE. GROMMET SHALL FORM A TIGHT SEAL BETWEEN POLE AND CABLE.
4. CAMERA SHALL BE MOUNTED AT MAXIMUM ALLOWABLE HEIGHT UNLESS OTHERWISE NOTED ON PLANS.

TRAFFIC SIGNAL MOUNTED IP
CAMERA

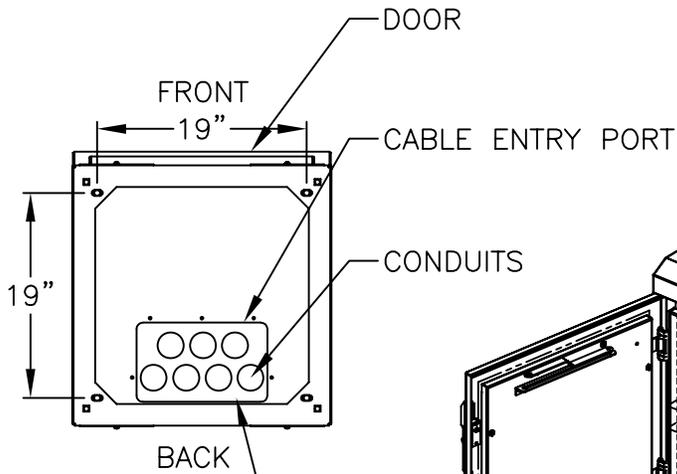
REF. & REV.
JULY 2011

CITY OF FRESNO
ITS-18A



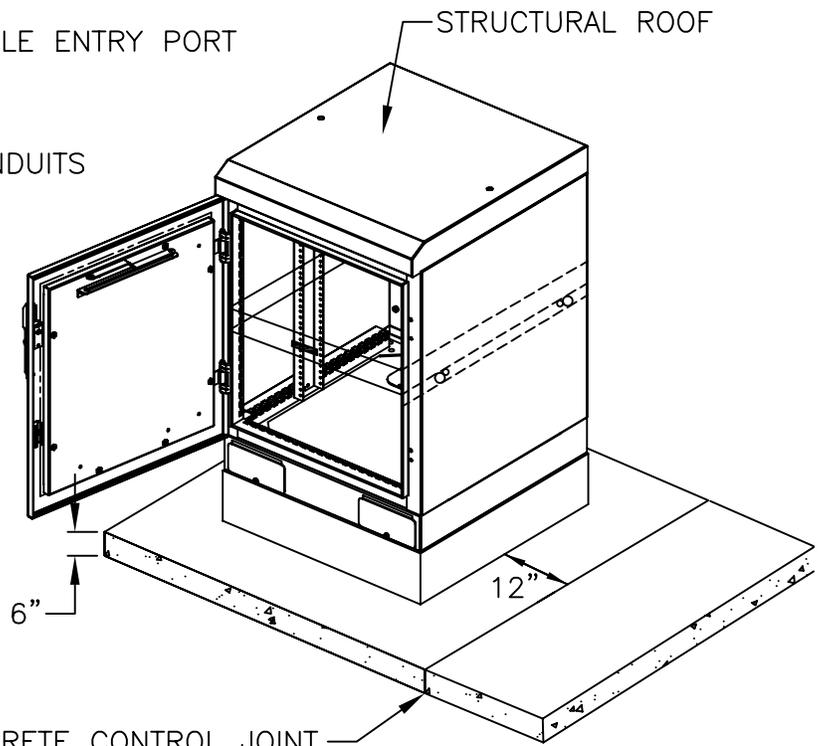
NOTES:

1. ALL COUPLER TRACER CAPS SHALL BE SEALED W/ WATER PROOF SEALER (SCOTCHCOAT) OR APPROVED EQUAL.

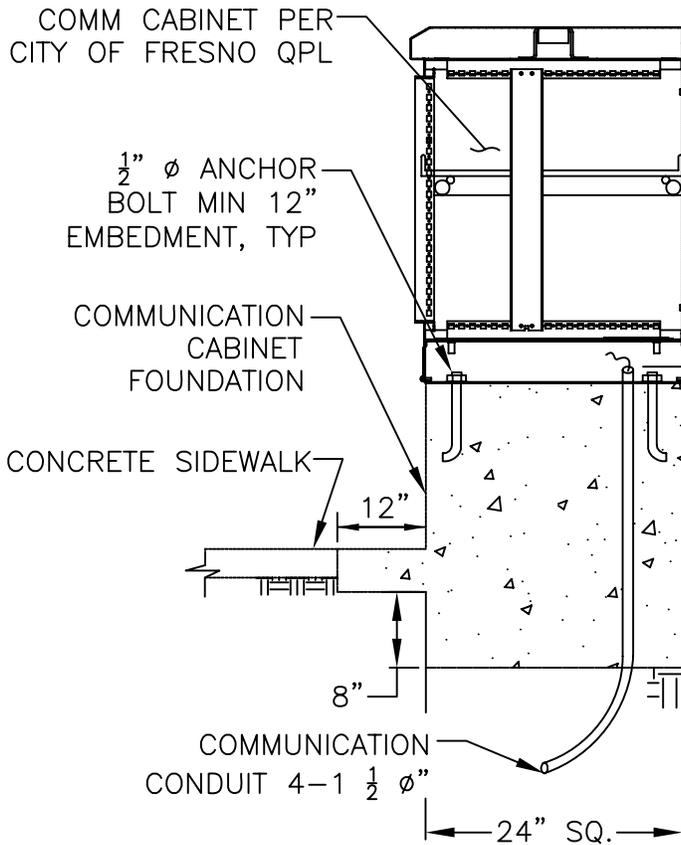


COVER PLATE FOR
7-1 1/2" CONDUITS W/
CITY APPROVED PULL
TAPE. PLUG CONDUIT
ENDS.

PLAN VIEW



3D VIEW



SIDE VIEW

NOTE:

THE ENGINEER SHALL
APPROVE CONCRETE FORMS
AND CONDUIT PLACEMENT
PRIOR TO PLACING CONCRETE.

*PIPE HEIGHT SHALL BE
MIN. 2" ABOVE FOUNDATION

95% RELATIVE COMPACTION

COMMUNICATION CABINET
DETAILS

REF. & REV.
JULY 2011

CITY OF FRESNO
ITS-20

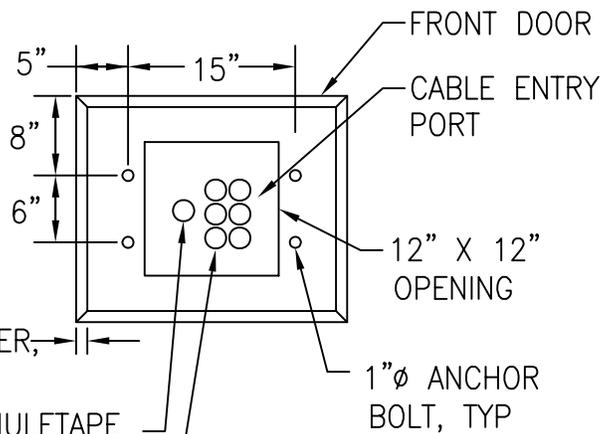
NOTES:

1. INSPECTOR SHALL APPROVE FORMS AND CONDUIT PLACEMENT PRIOR TO PLACING CONCRETE.
2. CONSTRUCT MINIMUM 36"X36"X3 $\frac{1}{2}$ " CONCRETE MAINTENANCE PAD AT FRONT AND BACK DOORS IF NO SIDEWALK EXISTS.
3. MAINTAIN WORKING CLEARANCES PER NEC.

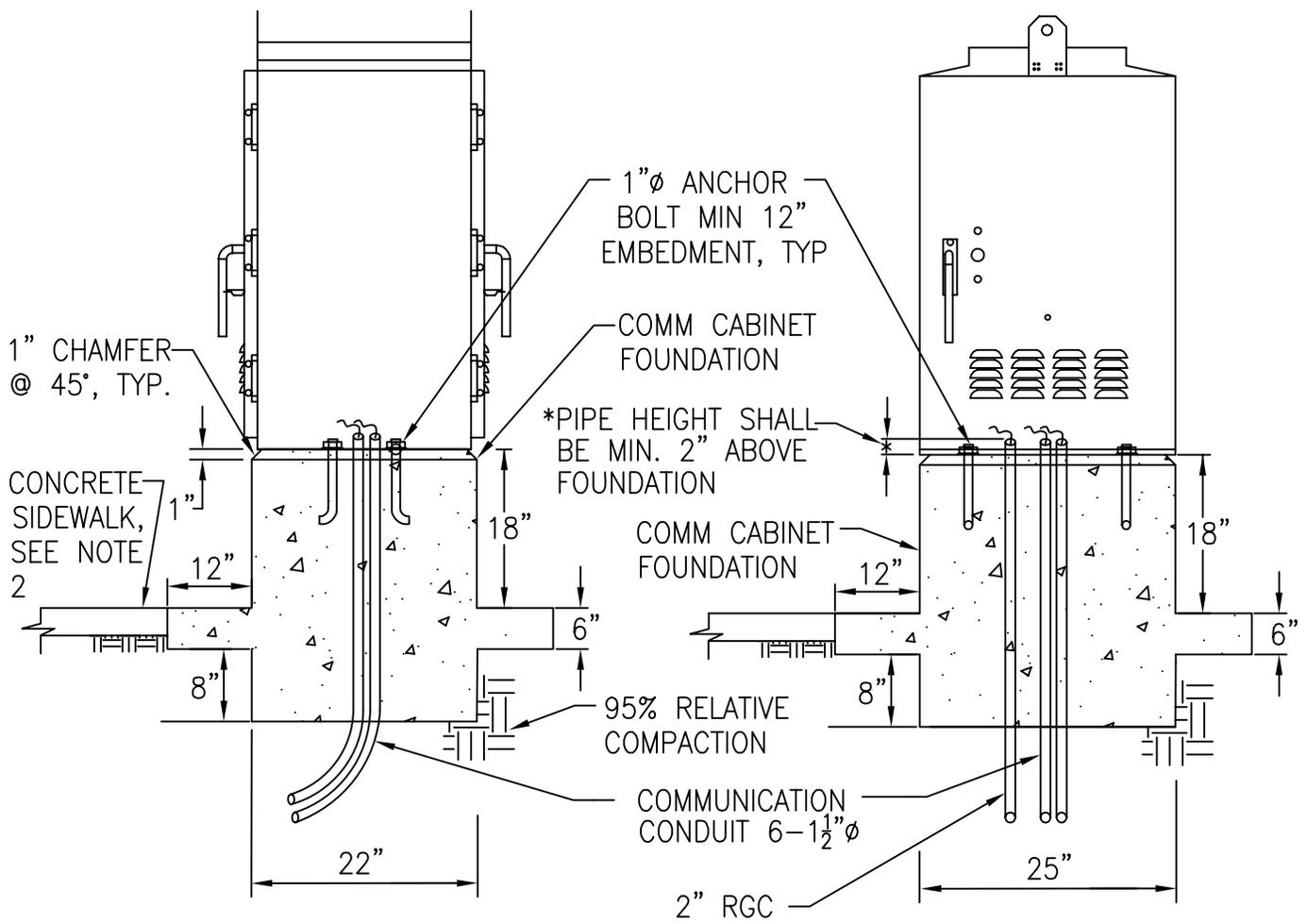
2" RGC (POWER) WITH MULETAPE (IF EMPTY). END TO BE PLUGGED PER CITY SPECIFICATIONS.

6-1 $\frac{1}{2}$ " HDPE CONDUITS WITH BELL ENDS AND MULETAPE (IF EMPTY). ENDS TO BE PLUGGED PER CITY SPECIFICATIONS.

1" CHAMFER, TYP.



PLAN VIEW



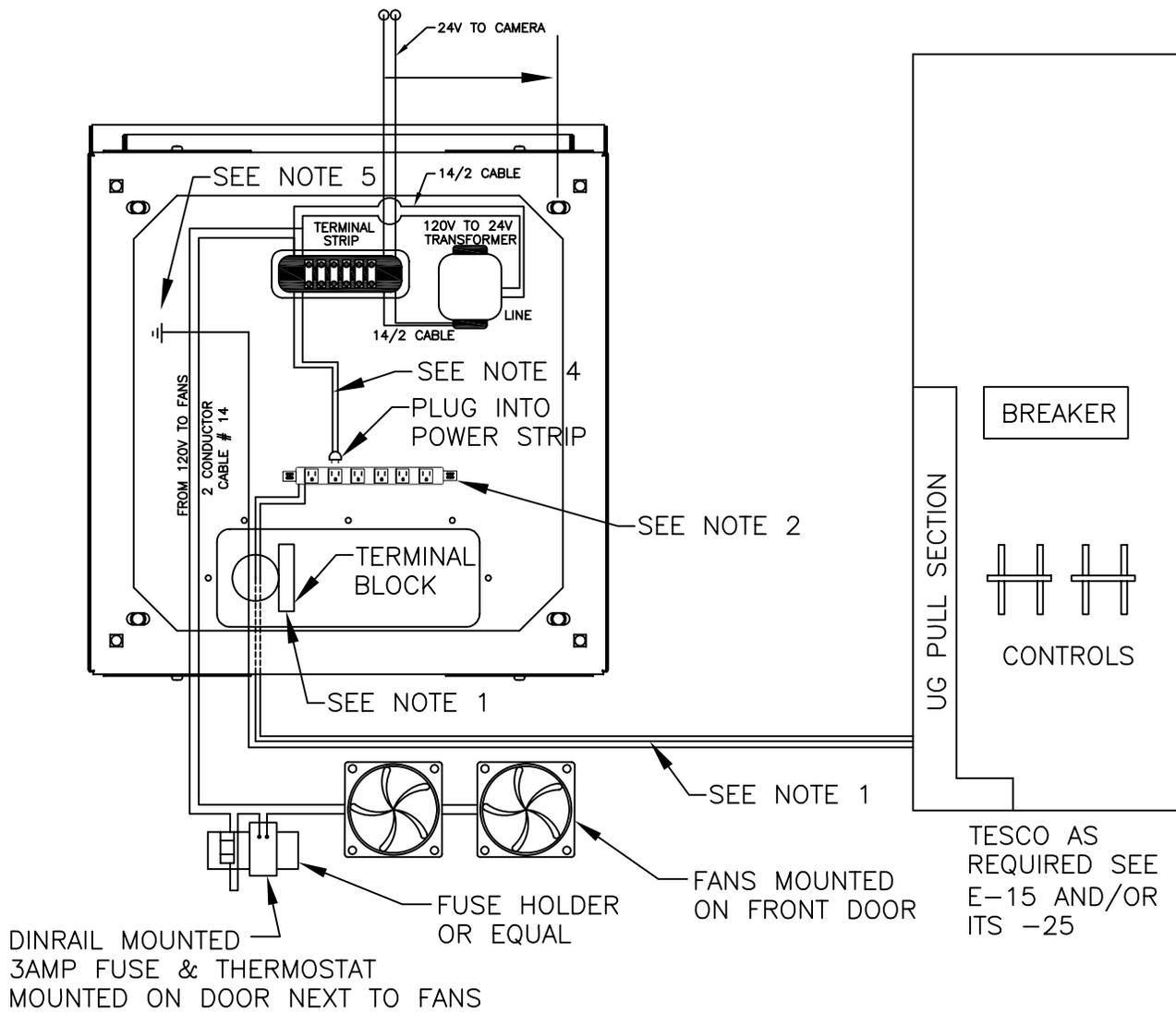
SIDE VIEW

FRONT VIEW

MODEL 336 COMMUNICATION
CABINET DETAILS

REF. & REV.
JULY 2011

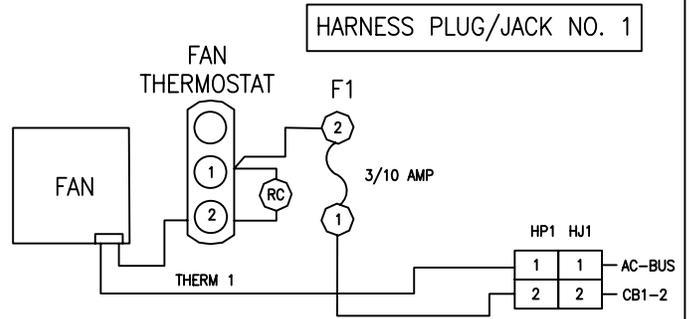
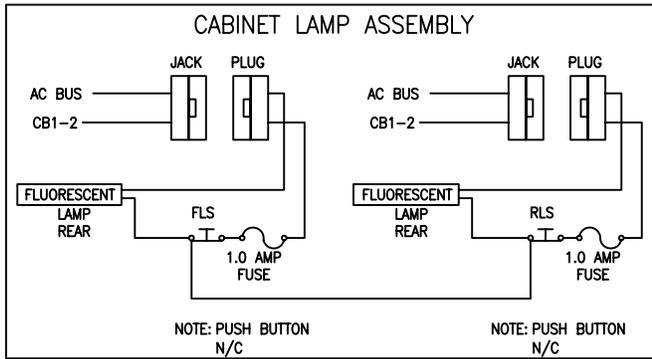
CITY OF FRESNO
ITS-20A



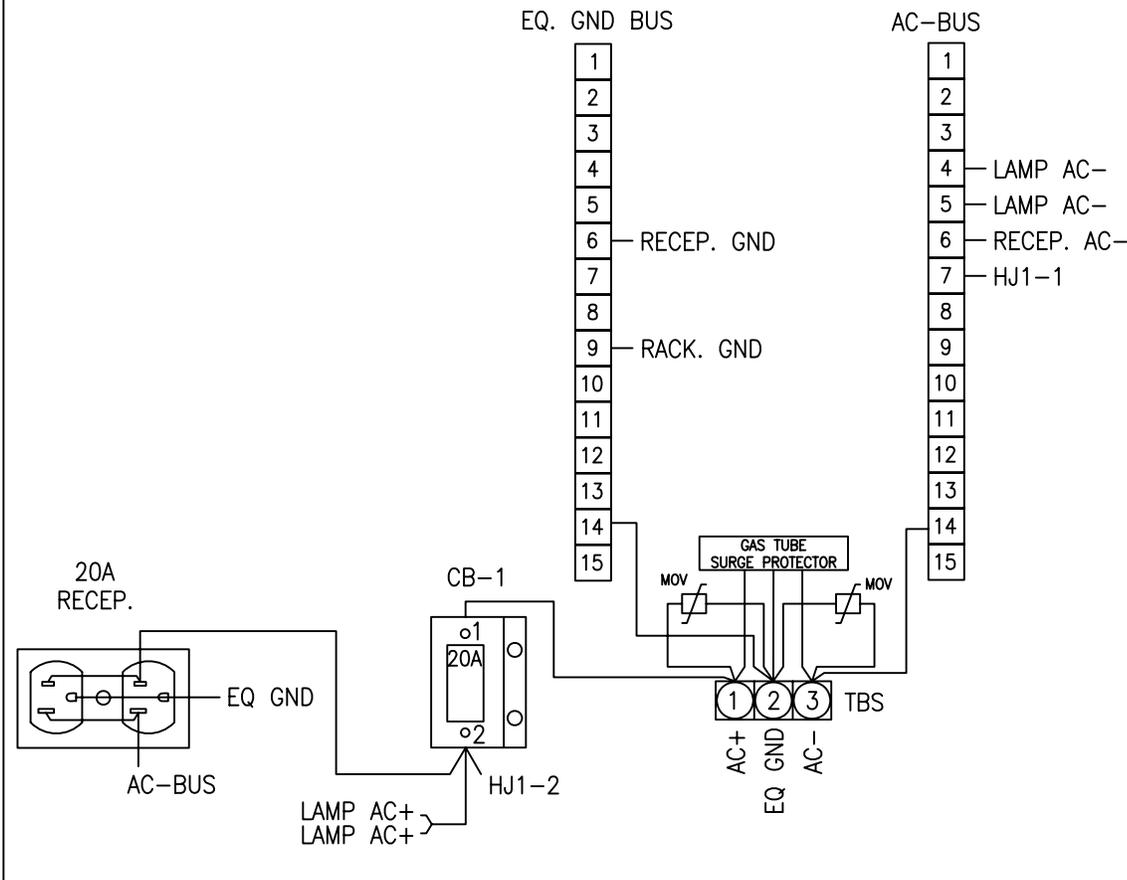
PLAN VIEW

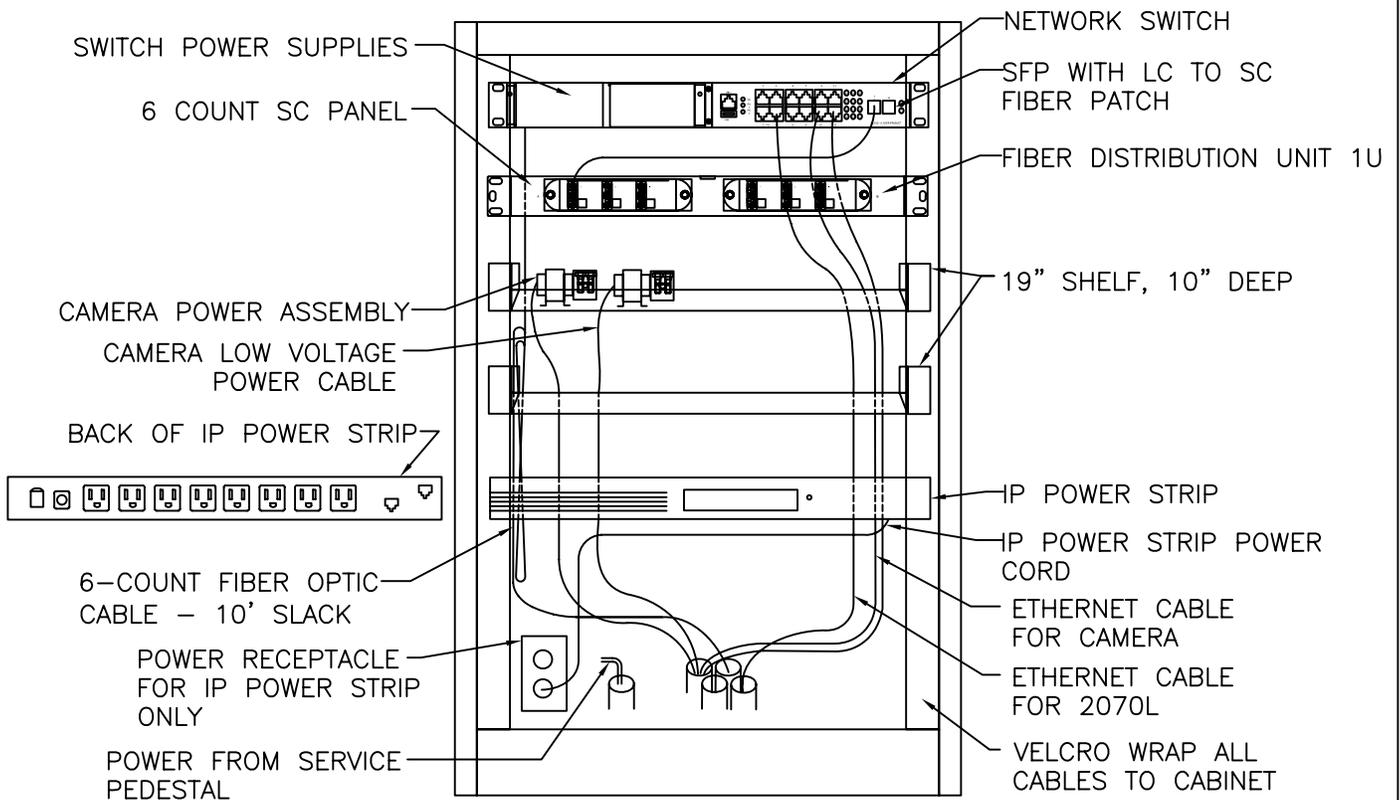
NOTES:

1. PROVIDE POWER TO COMMUNICATIONS CABINET FROM SERVICE PEDESTAL. PROVIDE 20 AMP SINGLE POLE CIRCUIT BREAKER, LABEL "ITS" IN TESCO, SEE E-15 AND OR E-16, CONNECT CONDUCTORS TO A TERMINAL BLOCK INSIDE COMMUNICATION CABINET. CONDUCTORS SHALL BE #12 STRANDED THHW INSULATION, BLACK, WHITE, AND GREEN IN COLOR.
2. PROVIDE AND SECURE RACK MOUNTED POWER STRIP. POWER STRIP TO HAVE ON/OFF SWITCH AND OVER-CURRENT PROTECTION AND SIX RECEPTACLES. CORD CAP ON POWER MUST HAVE RIGHT ANGLE.
3. ALL WIRING BETWEEN COMPONENTS SHALL BE SJO CORD SECURED BY AN APPROVED METHOD.
4. PROVIDE POWER FROM TERMINAL STRIP TO FANS WITH 14/2 SJO CORD. SECURE CORD USING APPROVED METHOD AS NOT TO DAMAGE CORD DURING OPENING AND CLOSING CABINET DOOR (AVOID PINCHING AND AS NOT TO TRANSMIT STRAIN TO TERMINATIONS (STRESS RELIEF)). POWER TO FAN WILL BE PROTECTED VIA A 3 AMP FUSE AND THERMOSTAT.
5. BOND TO CABINET WITH APPROVED LUG.



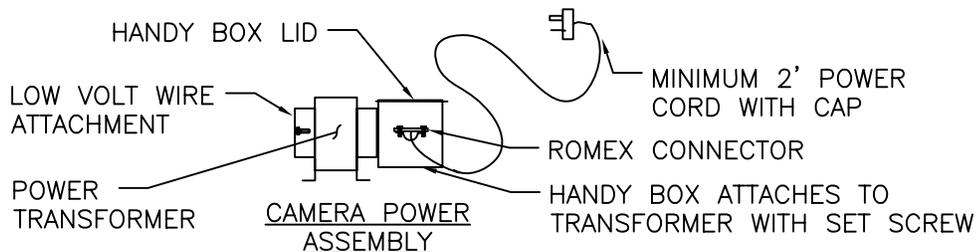
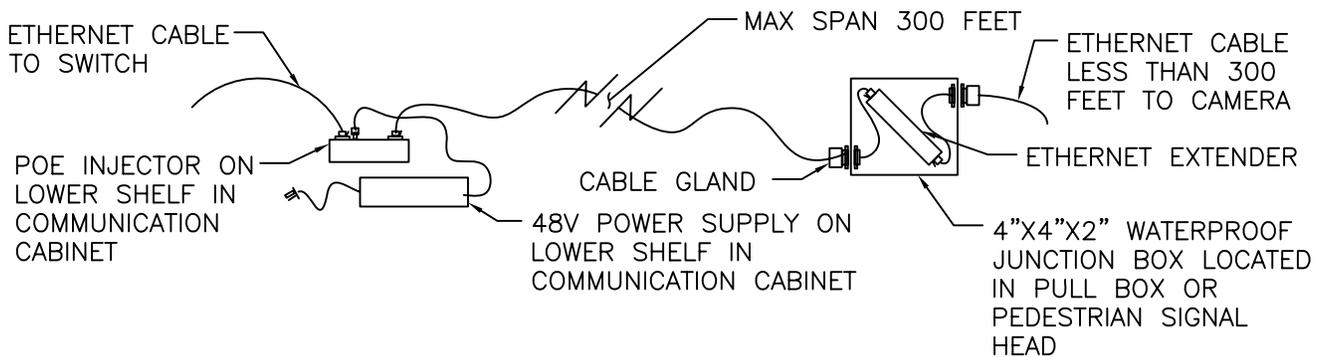
SERVICE PANEL

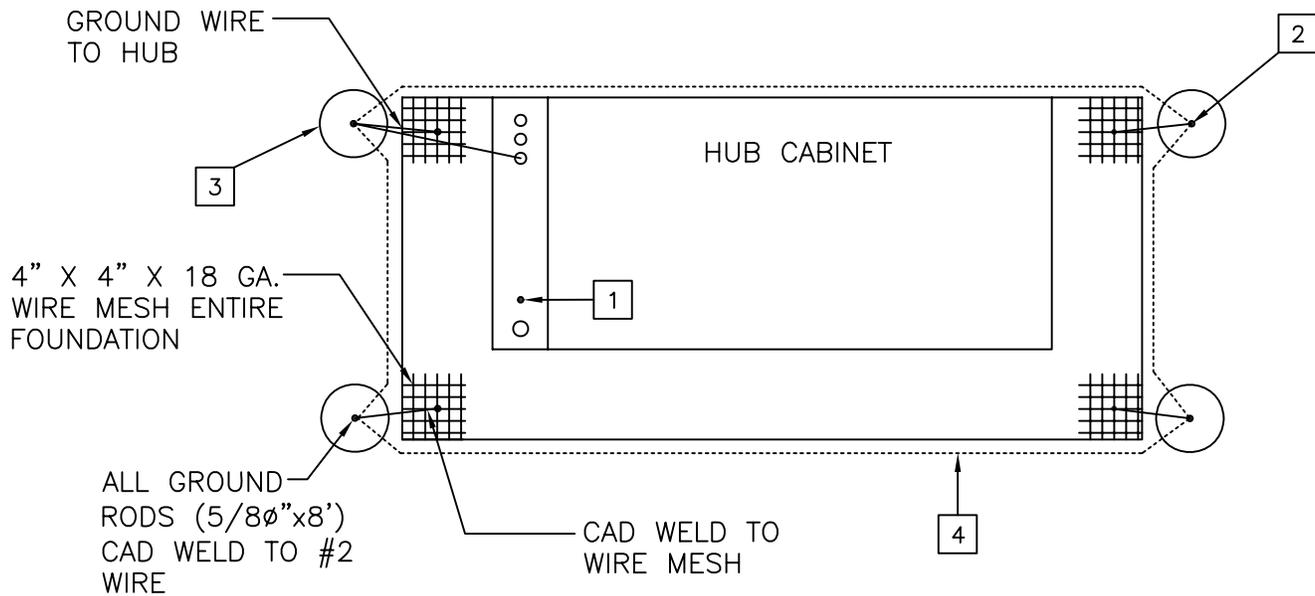




NOTE:
 MINIMUM 4" VERTICAL SPACING BETWEEN EQUIPMENT.

(ONLY FOR ETHERNET RUNS LONGER THAN 300')
ETHERNET EXTENDER FOR CAMERA





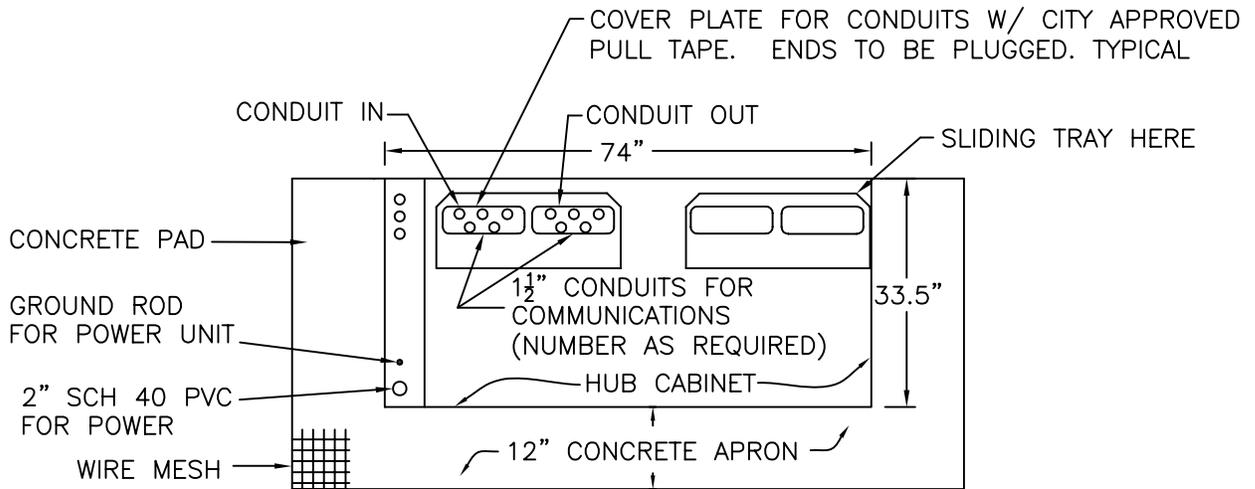
- 1 FURNISH AND INSTALL 1 - 8' GROUND ROD FOR POWER UNIT.
- 2 FURNISH AND INSTALL 4 - 8' GROUND RODS FOR GROUND GRID.
- 3 FURNISH AND INSTALL 4 - 9" FLOWER ROUND HAND HOLES, LID INSCRIBED "GROUND".
- 4 #2 AWG BARE TINNED WIRE.

NOTE: CLAMPS WILL NOT BE ALLOWED, ALL CONNECTIONS SHALL BE CAD WELDS.

HUB FOUNDATION GROUNDING DETAILS

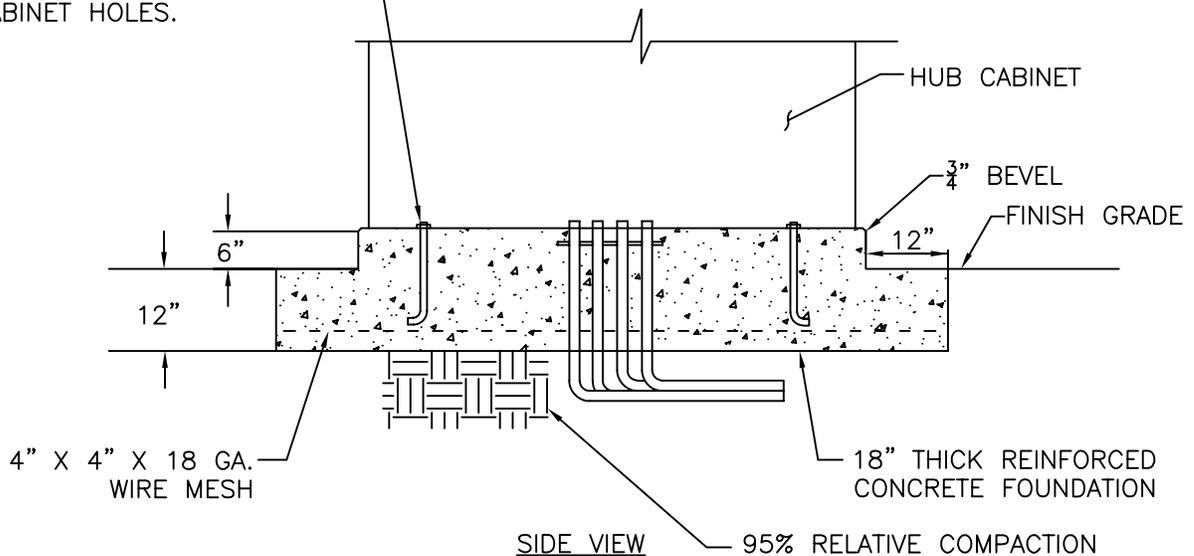
REF. & REV.
FEB., 2008

CITY OF FRESNO
ITS-22



3/4" ϕ X 12" WEDGE ANCHOR BOLTS MIN 12" EMBEDMENT, TYP. COORDINATE BOLT LOCATIONS WITH PRE-DRILLED CABINET HOLES.

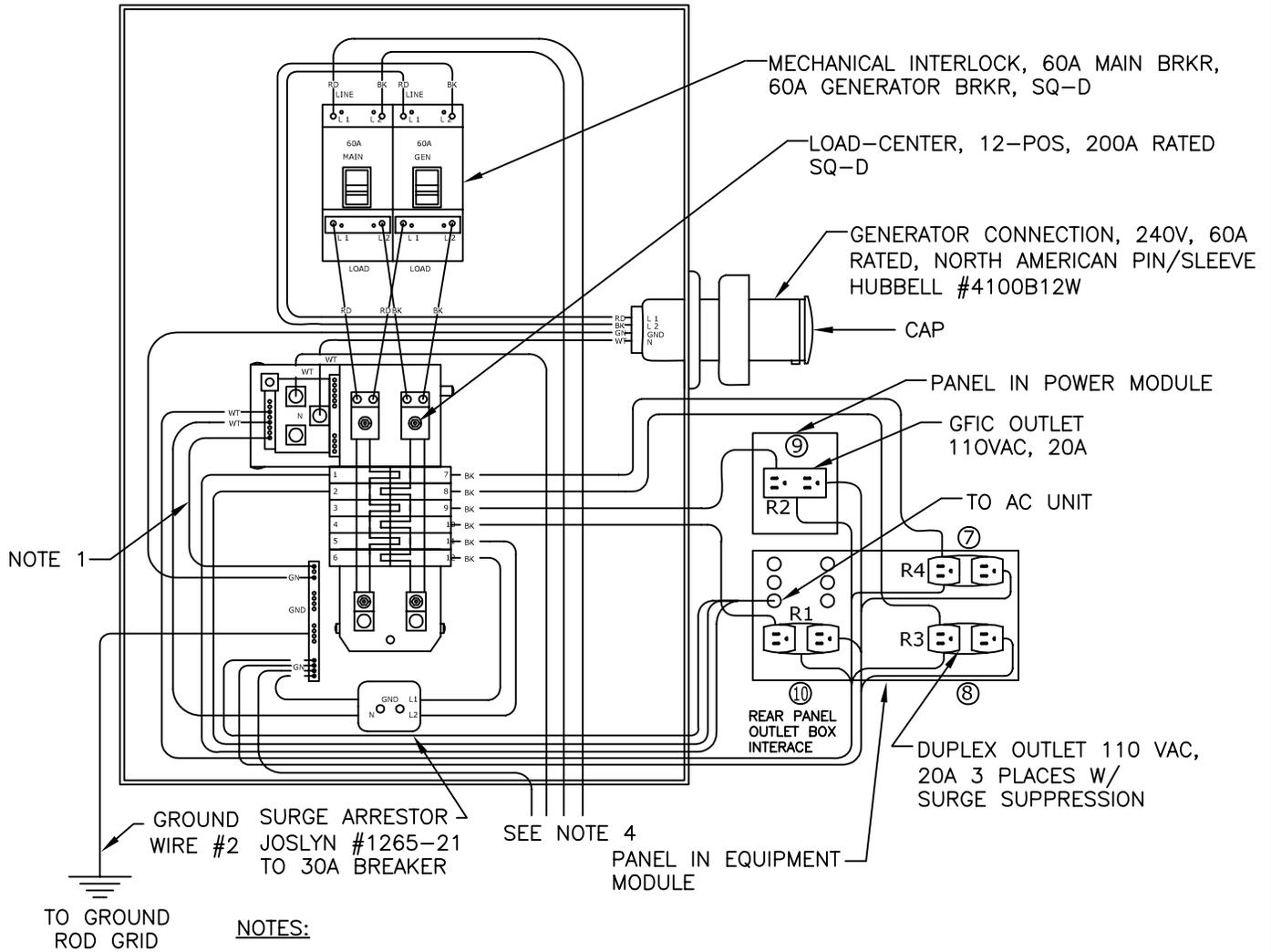
PLAN VIEW



NOTE:

THE CITY ENGINEER SHALL APPROVE FORMS AND CONDUIT PLACEMENT PRIOR TO PLACING CONCRETE.

AMPS	VOLTS	DESCRIPTION	DESIG	COLOR	POS	POS	COLOR	DESIG	DESCRIPTION	VOLTS	AMPS
15	240	AIR CONDITIONER	L1		1	7	BK	L1	R4 DUPLEX RECEPTACLE	110	20
			L2		2	8	BK	L2	R3 DUPLEX RECEPTACLE	110	20
			L1		3	9	BK	L1	R2 GFIC RECEPTACLE	110	20
			L2		4	10	BK	L2	R1 DUPLEX RECEPTACLE	110	20
			L1		5	11	BK	L1	SURGE ARRESTOR	220	30
			L2		6	12	BK	L2			



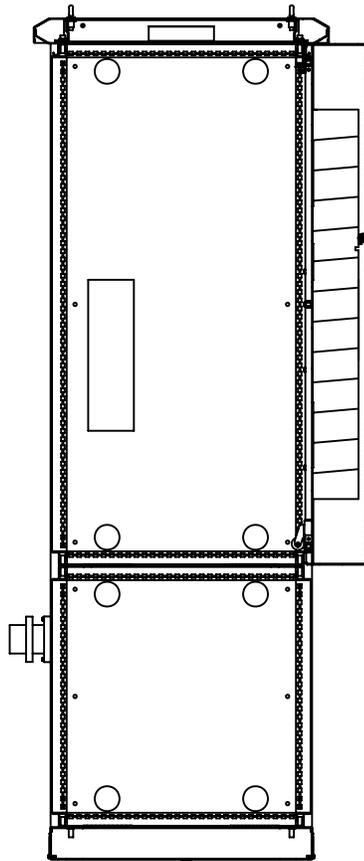
NOTES:

1. BONDED GROUND BETWEEN NEUTRAL & GROUND SHIPPED LOOSE. INSTALL PER LOCAL CODE REQUIREMENTS.
2. CONTACT TSSL SUPERINTENDENT 48 HOURS PRIOR TO ENERGIZING CABINET.
3. ALL WIRING SHALL COMPLY WITH APPLICABLE ELECTRICAL CODES AND SHALL BE APPROVED BY THE CITY ENGINEER.
4. 230 V, 60A SERVICE (3-#6 POWER, 1-#8 GROUND). LAND ON 60A ITS BREAKER IN SERVICE PEDESTAL, SEE ITS-26.

HUB CABINET WIRING DIAGRAM

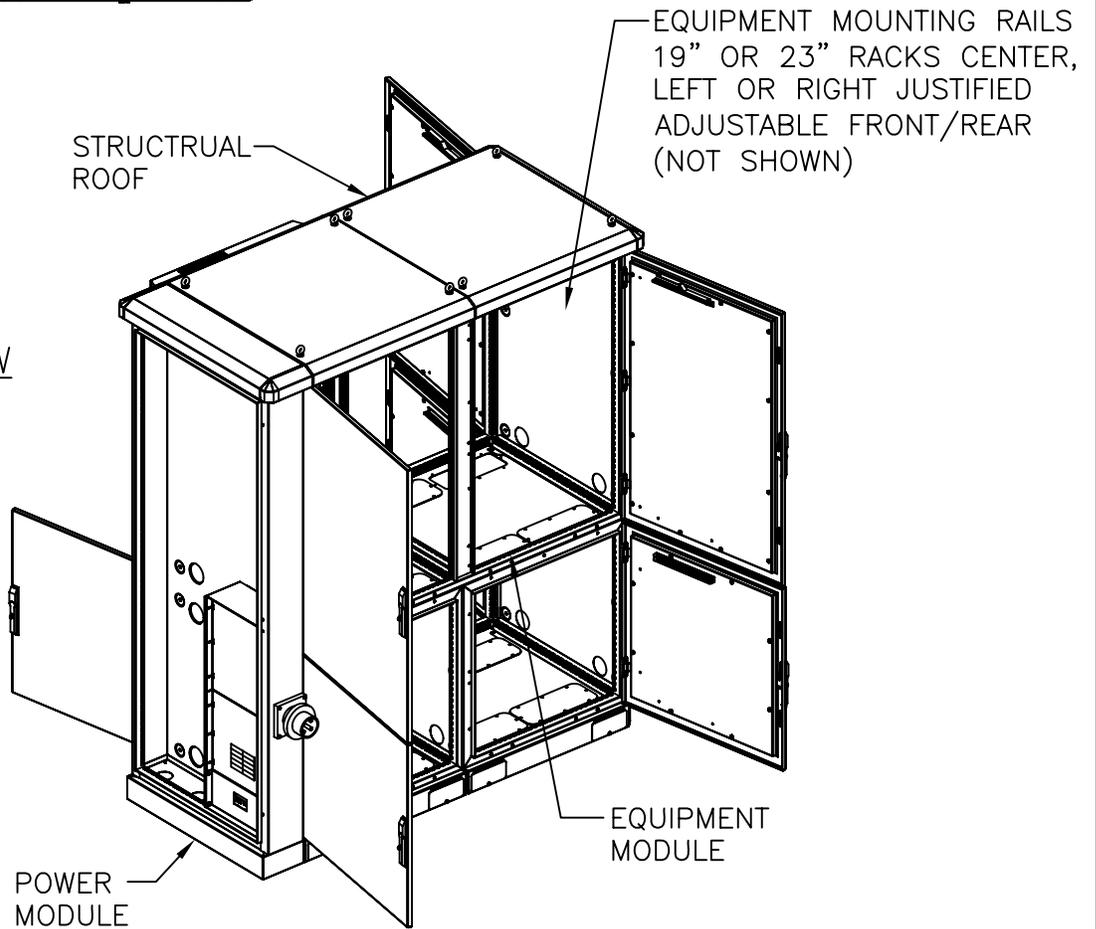
REF. & REV. JULY 2011

CITY OF FRESNO ITS-24



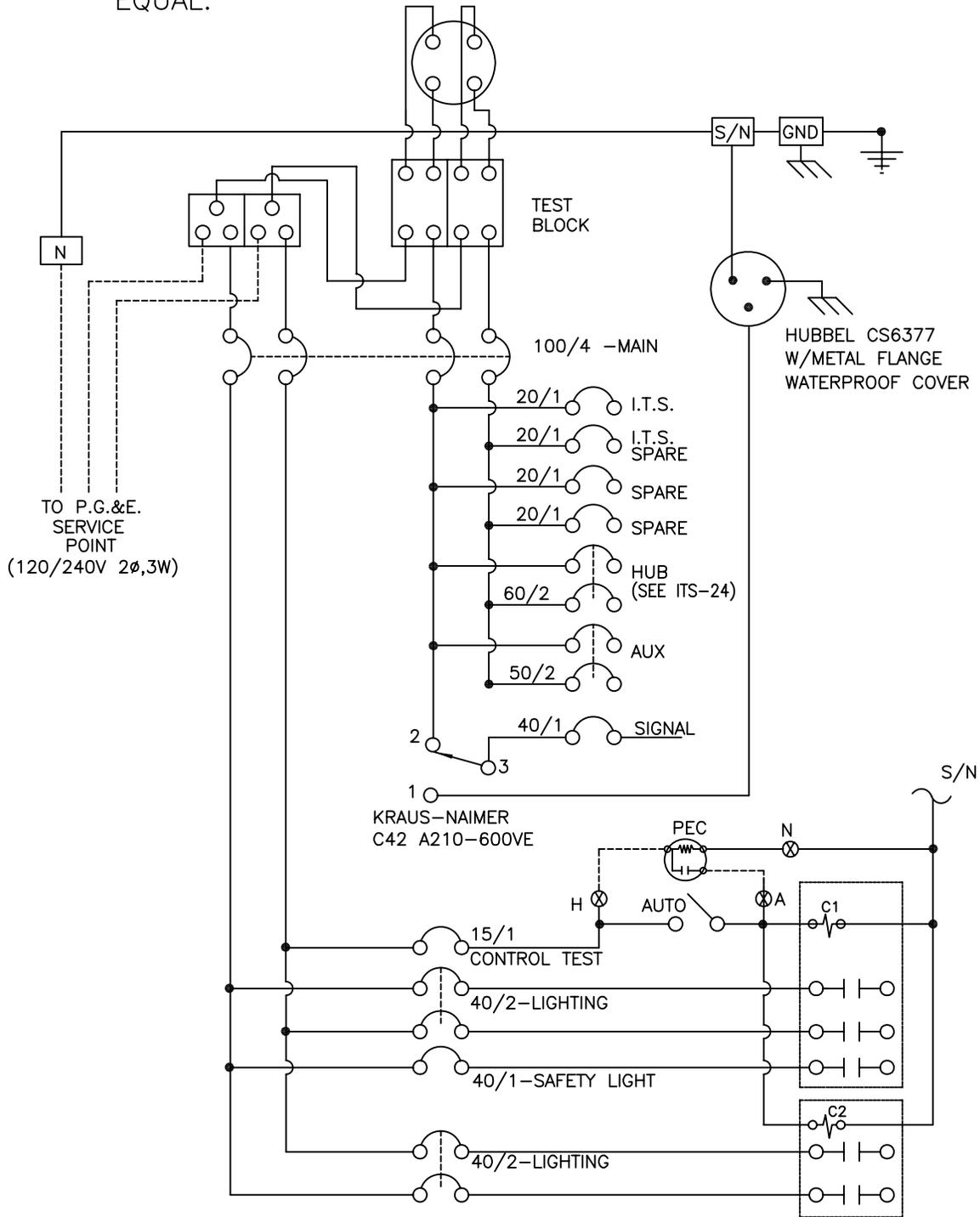
RIGHT SIDE VIEW

3-D VIEW



NOTE:

SERVICE CABINET SHALL BE TESCO 27-000
 LBS METERED/UNMETERED OR APPROVED
 EQUAL.



SERVICE PEDESTAL SCHEMATIC

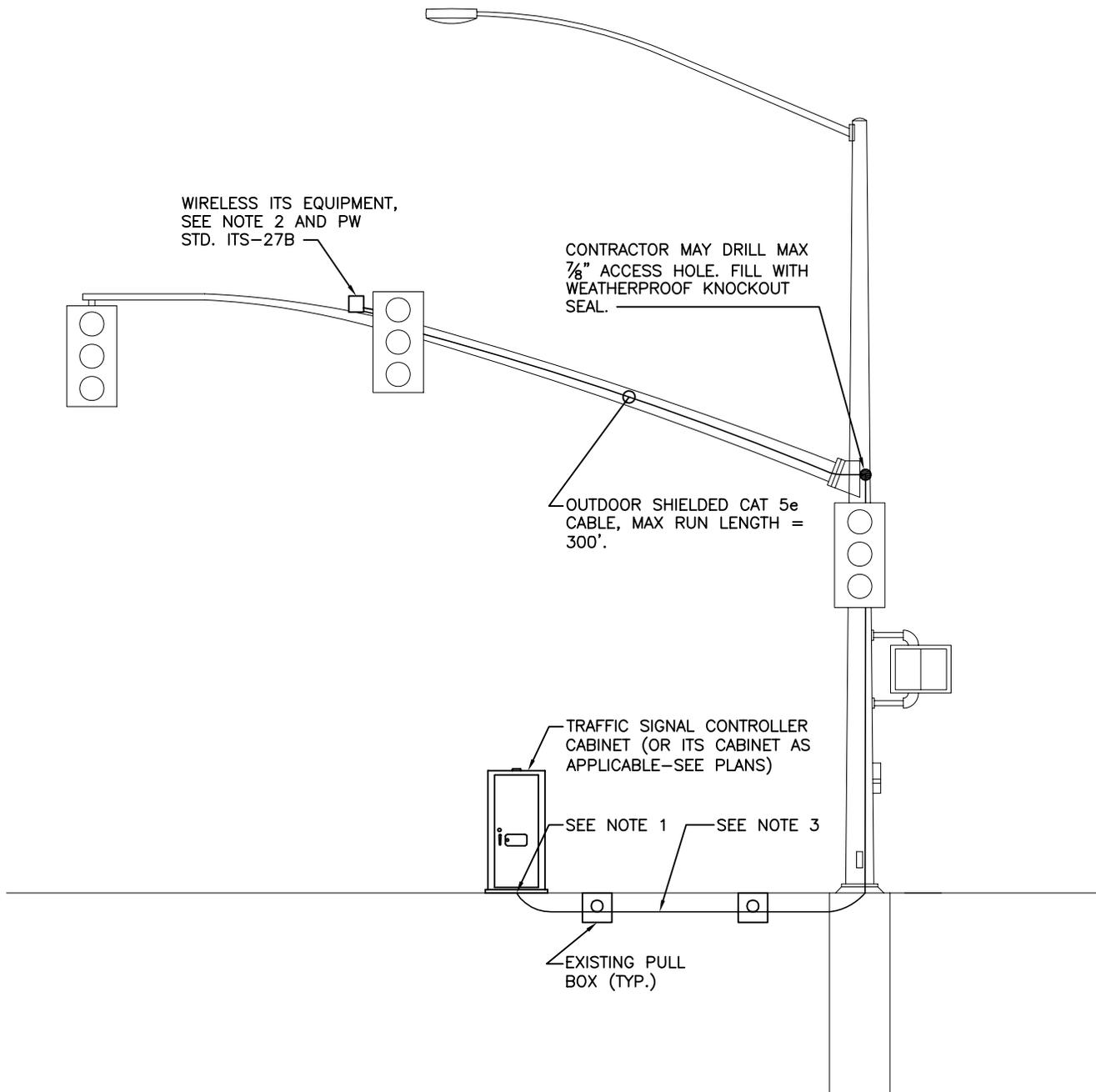
50A	60A	20A	20A	20A	20A	15A	40A	40A	40A	40A	100A
AUX	HUB	SPARE	SPARE	I.T.S. SPARE	I.T.S.	CONTROL TEST	LIGHTING	LIGHTING	SAFETY LIGHT	SIGNAL	MAIN

SWITCH LOCATION

ITS HUB CABINET
 SERVICE PEDESTAL SCHEMATIC

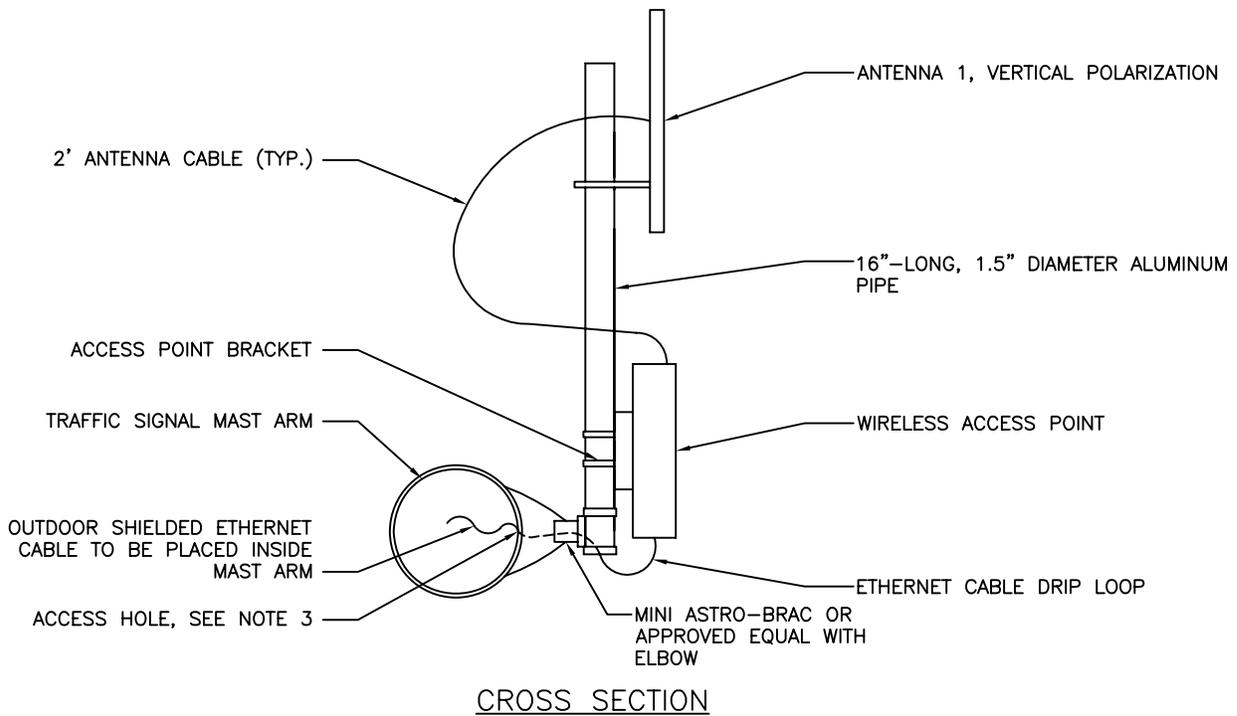
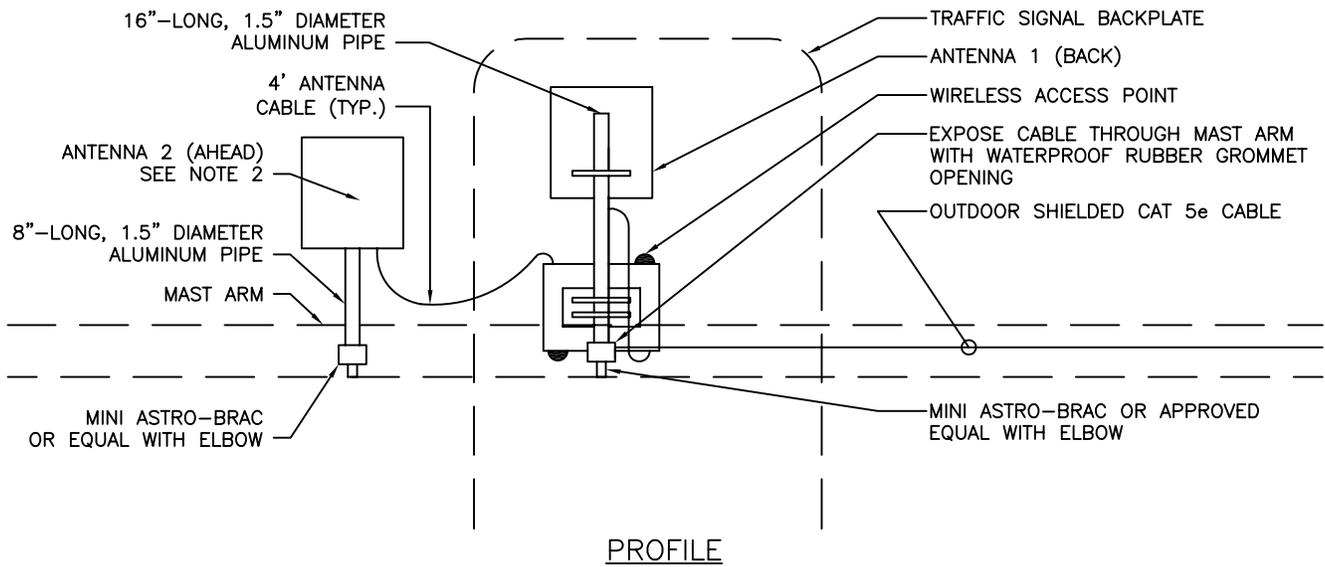
REF. & REV.
 JULY 2011

CITY OF FRESNO
 ITS-26



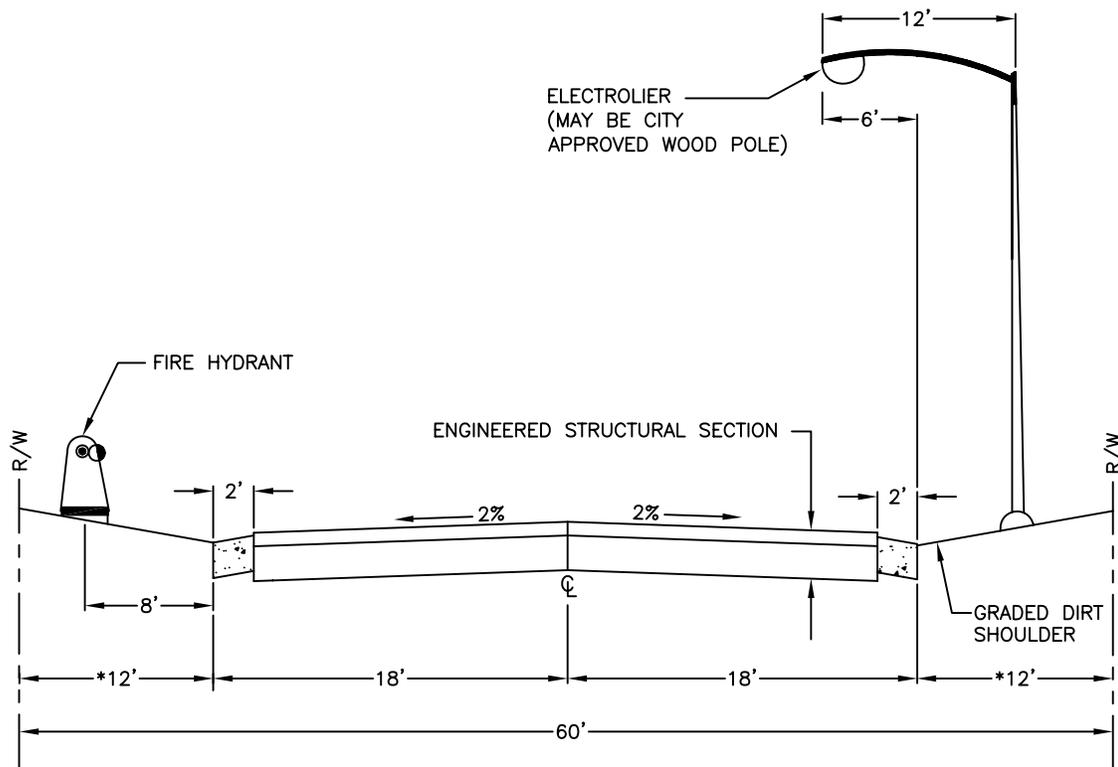
NOTES:

1. FOR NETWORKING CONNECTIONS, SEE SPECIFICATIONS. NETWORK CABLE TERMINATING AT ACCESS POINT SHALL BE WRAPPED WITH BLUE TAPE FOR IDENTIFICATION IN ALL PULL BOXES AND IN CABINET. NETWORK CABLE SHIELDING SHALL BE GROUNDED IN CONTROLLER CABINET.
2. CONTRACTOR SHALL PERFORM A FIELD SURVEY WITH A BUCKET TRUCK TO LOCATE OPTIMAL POSITION OF EQUIPMENT ON MAST ARM IN THE PRESENCE OF THE CITY ENGINEER PRIOR TO INSTALLATION.
3. EXTEND CABLES THROUGH TRAFFIC SIGNAL CONDUIT AND PULL BOXES. COIL MIN. 6' OF SLACK IN EACH PULL BOX.
4. CABLE SHALL BE INSTALLED INSIDE SIGNAL MAST ARM FOR TRAFFIC SIGNAL POLES CONFORMING TO CALTRANS STANDARDS DATED 1977 OR NEWER. FOR TRAFFIC SIGNAL POLES CONFORMING TO OLDER STANDARDS – SEE PLANS.



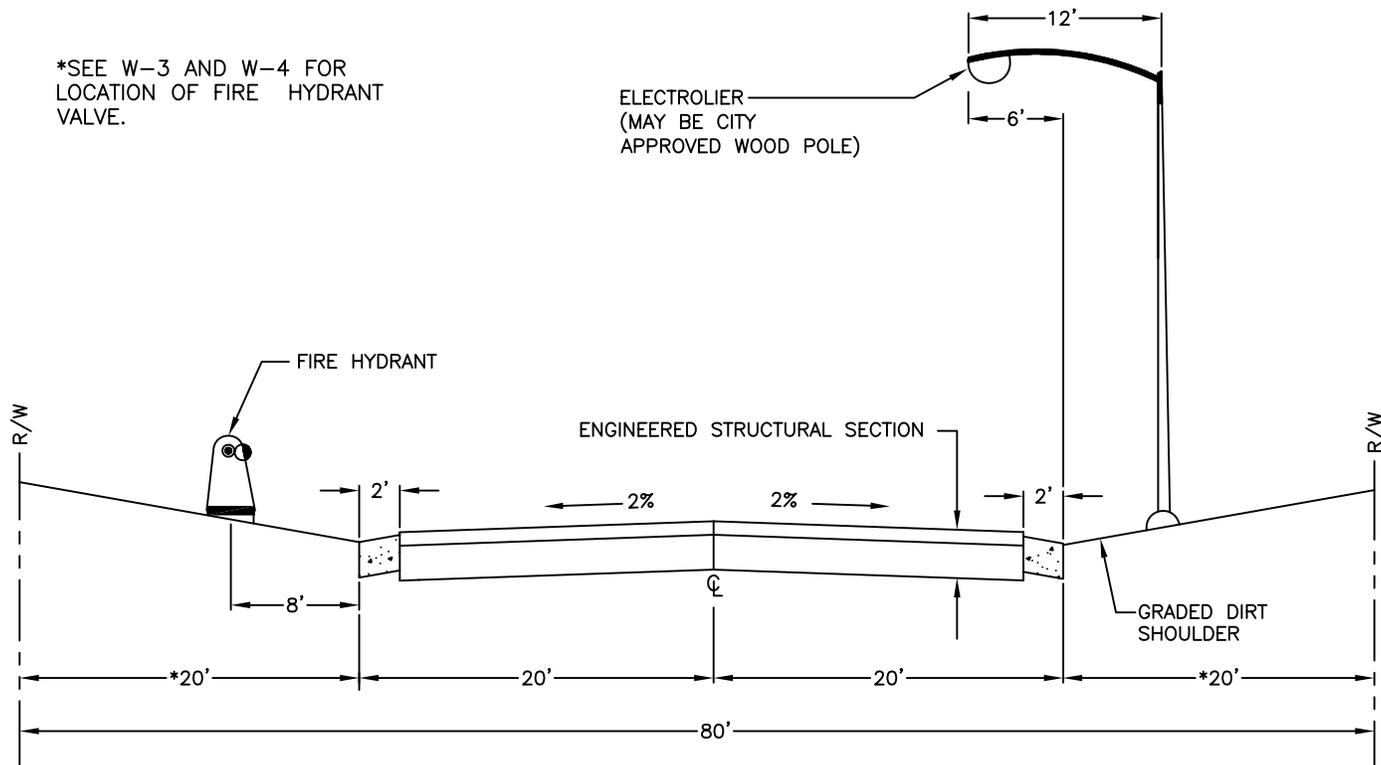
NOTES:

1. ANTENNA 2 WILL BE REQUIRED FOR ALL INTERSECTIONS FOR EXTENSION OF WIRELESS CORRIDOR, SEE PLANS.
2. ANTENNA 2 MOUNTING IS SIMILAR TO THAT SHOWN IN THE CROSS SECTION ABOVE, BUT NO HOLES ARE DRILLED IN THE MAST ARM, AN 8"–LONG ALUMINUM PIPE IS USED, AN ACCESS POINT IS NOT INSTALLED, AND THE MINI ASTRO–BRAC IS INSTALLED ON TOP OF THE MAST ARM WITH NO ELBOW.
3. DRILL MAX $\frac{3}{4}$ " BEVELED HOLE. GROMMET SHALL FORM A TIGHT SEAL BETWEEN POLE AND CABLE.
4. ANTENNA 2 WILL BE MOUNTED IN THE SAME DIRECTION AS ANTENNA 1 WHEN IT IS THE LAST ACCESS POINT IN RUN.



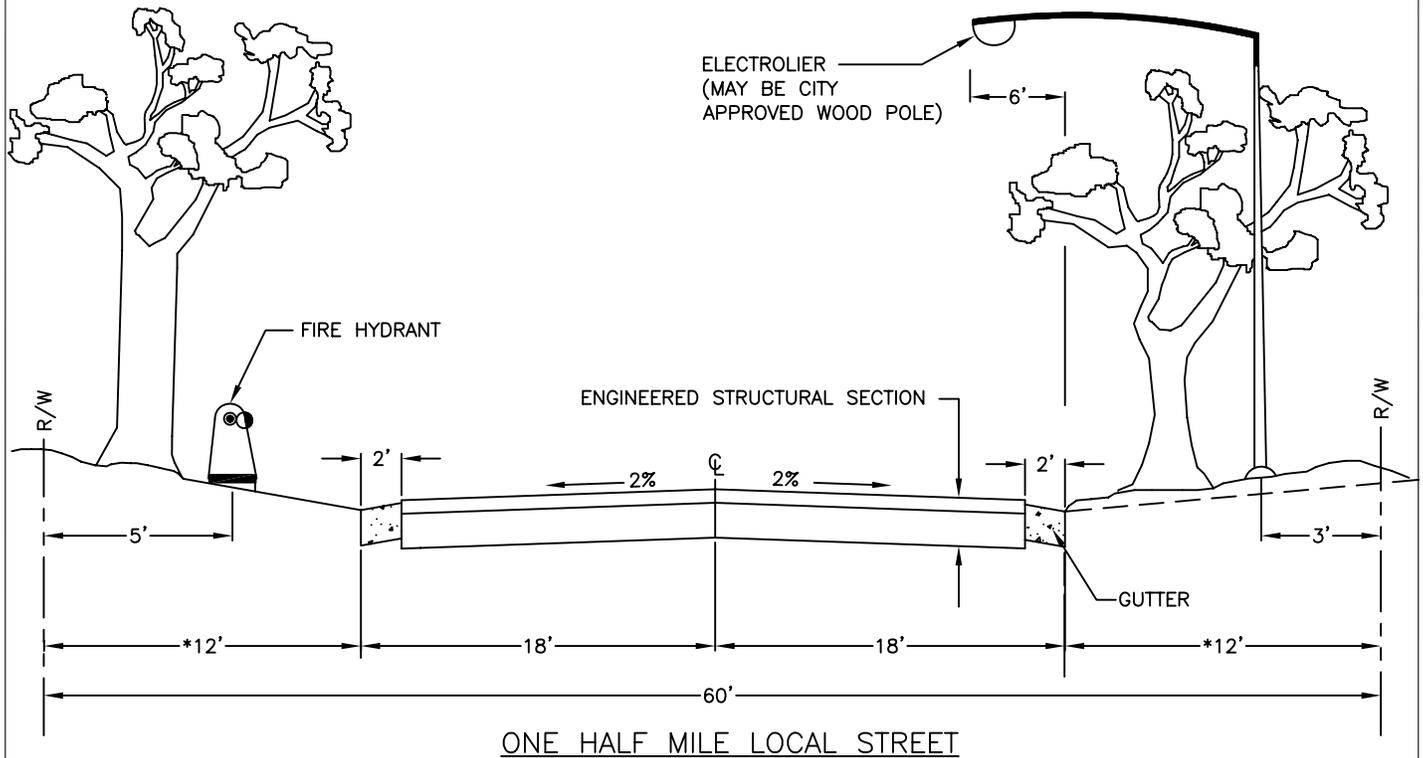
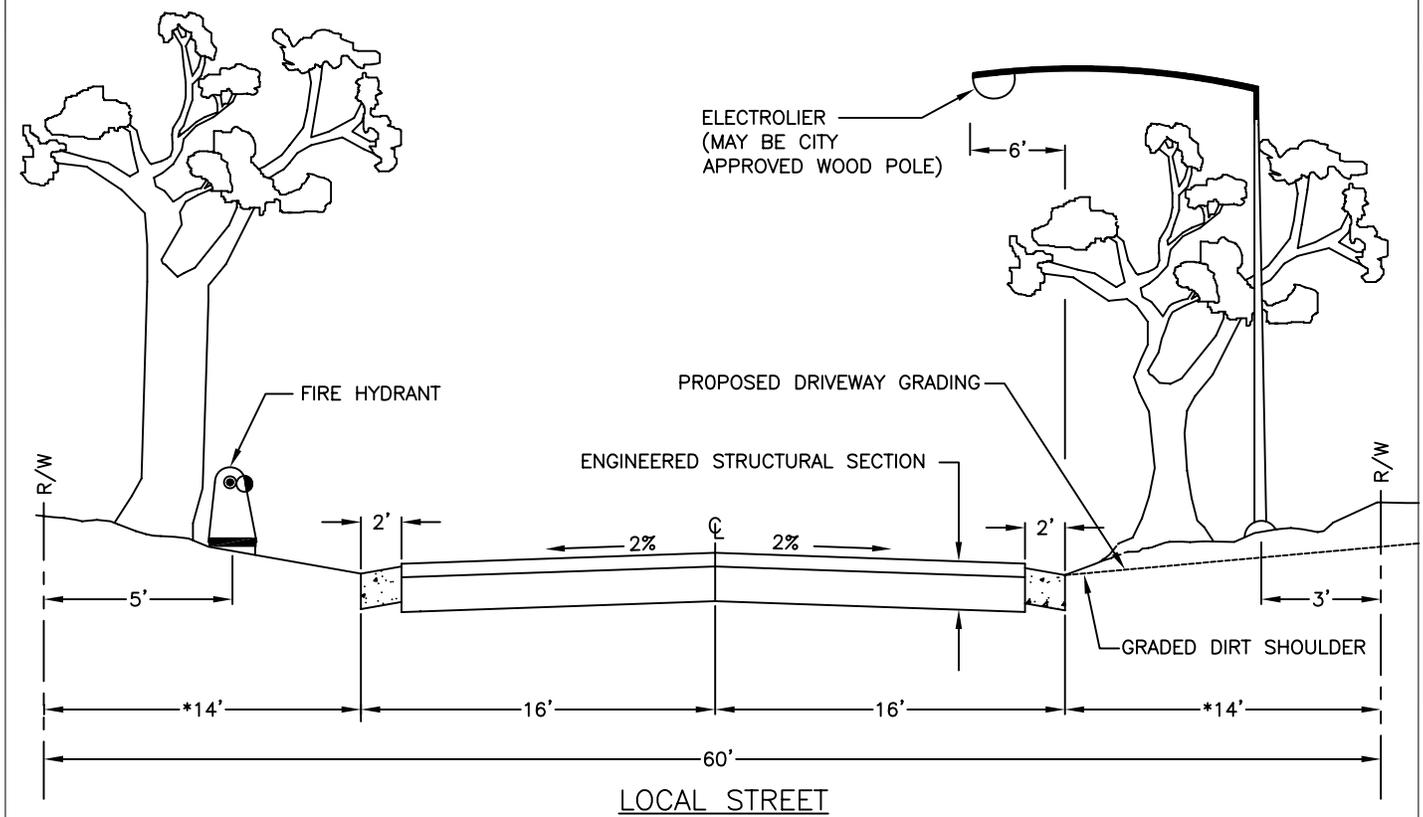
LOCAL STREET

*SEE W-3 AND W-4 FOR LOCATION OF FIRE HYDRANT VALVE.



ONE HALF MILE LOCAL STREET

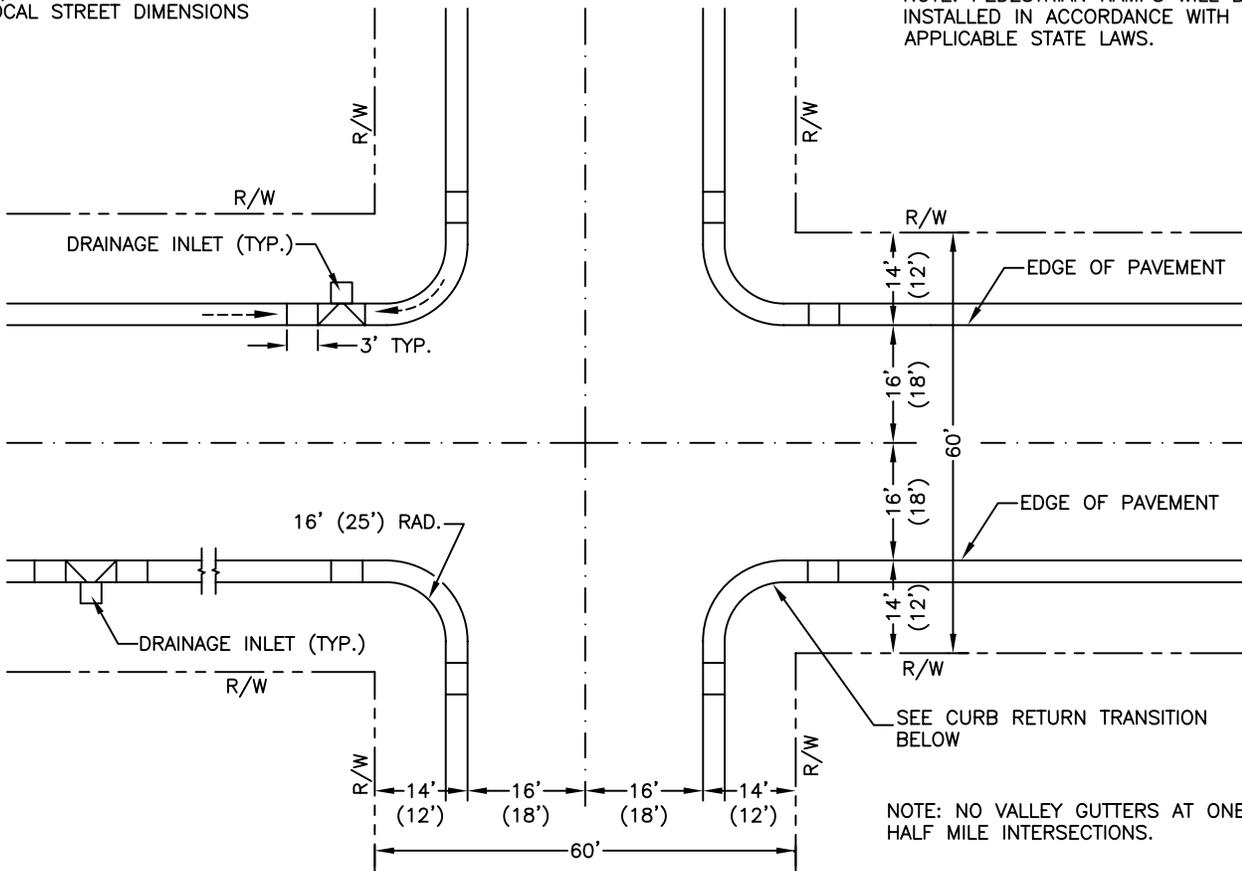
*NO PAVEMENT OR BASE INSTALLATION (GRAVEL, SUBBASE, ETC.) EXCEPT FOR DRIVEWAY APPROACHES IN THIS AREA.



*NO PAVEMENT OR BASE INSTALLATION (GRAVEL, SUBBASE, ETC.) EXCEPT FOR DRIVEWAY APPROACHES IN THIS AREA.

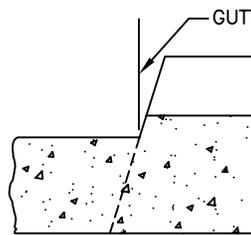
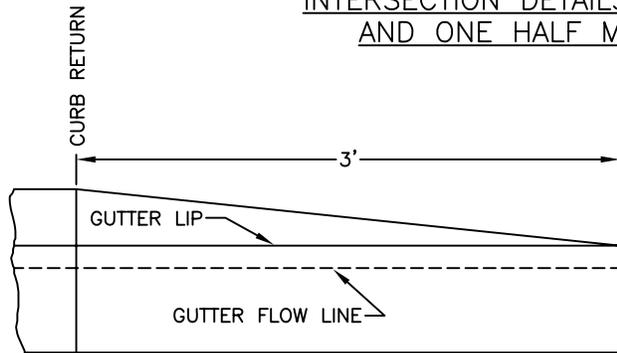
() DENOTES ONE HALF MILE LOCAL STREET DIMENSIONS

NOTE: PEDESTRIAN RAMPS WILL BE INSTALLED IN ACCORDANCE WITH APPLICABLE STATE LAWS.

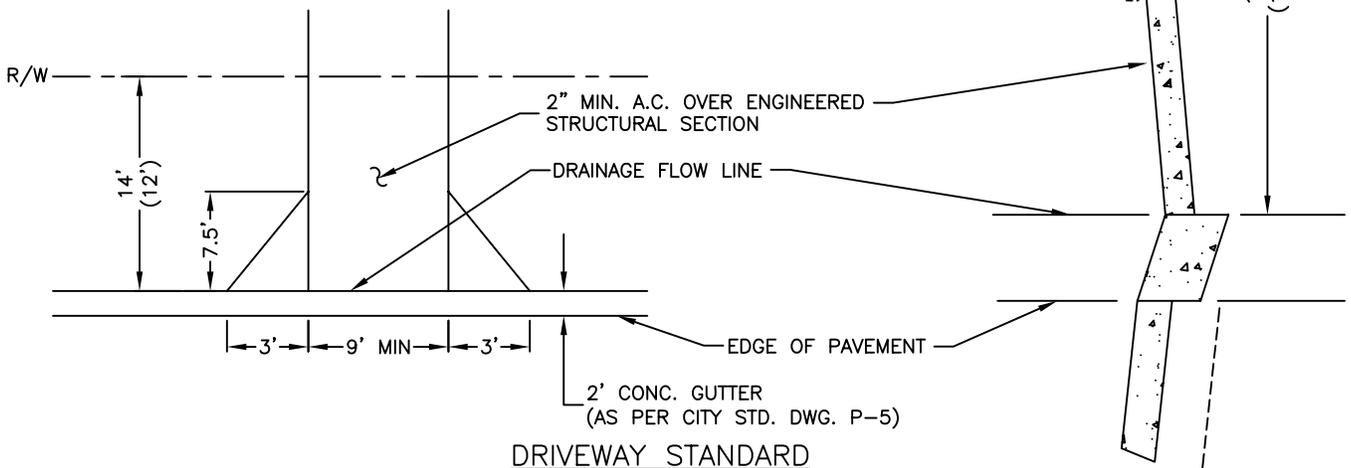


NOTE: NO VALLEY GUTTERS AT ONE HALF MILE INTERSECTIONS.

INTERSECTION DETAILS FOR MODIFIED LOCAL AND ONE HALF MILE LOCAL STREETS

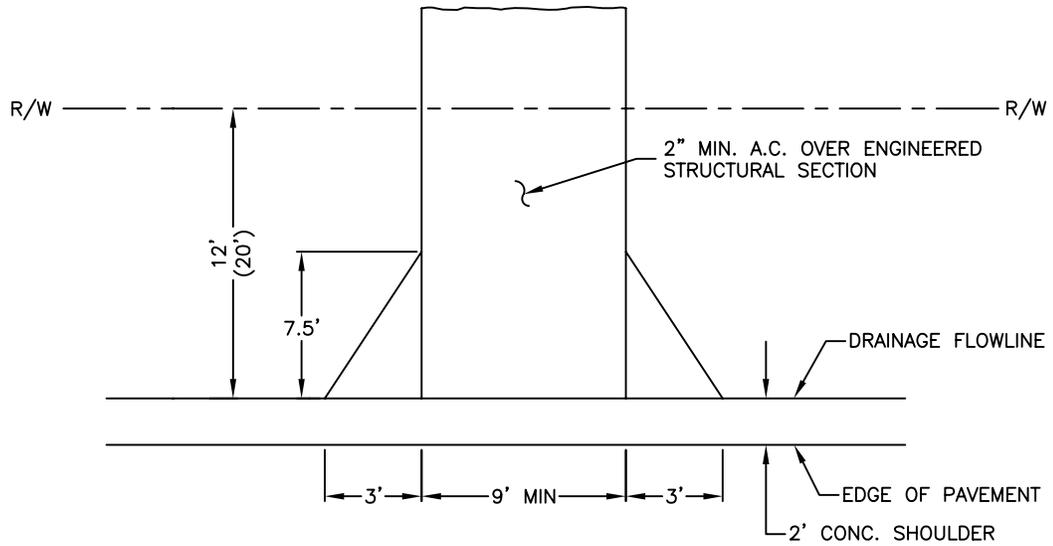


CURB RETURN TRANSITION

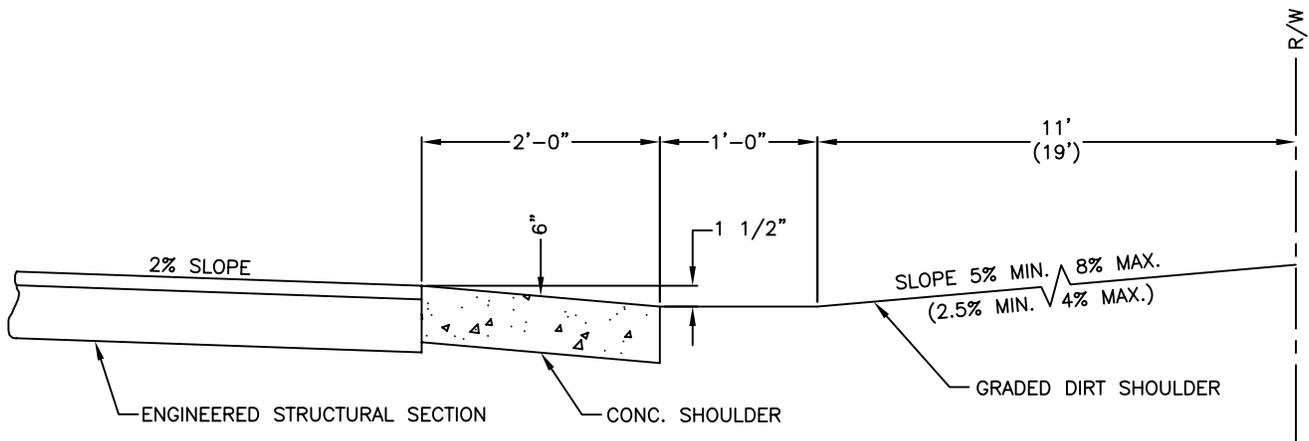


DRIVEWAY STANDARD

() DENOTES ONE HALF MILE LOCAL STREET DIMENSIONS.

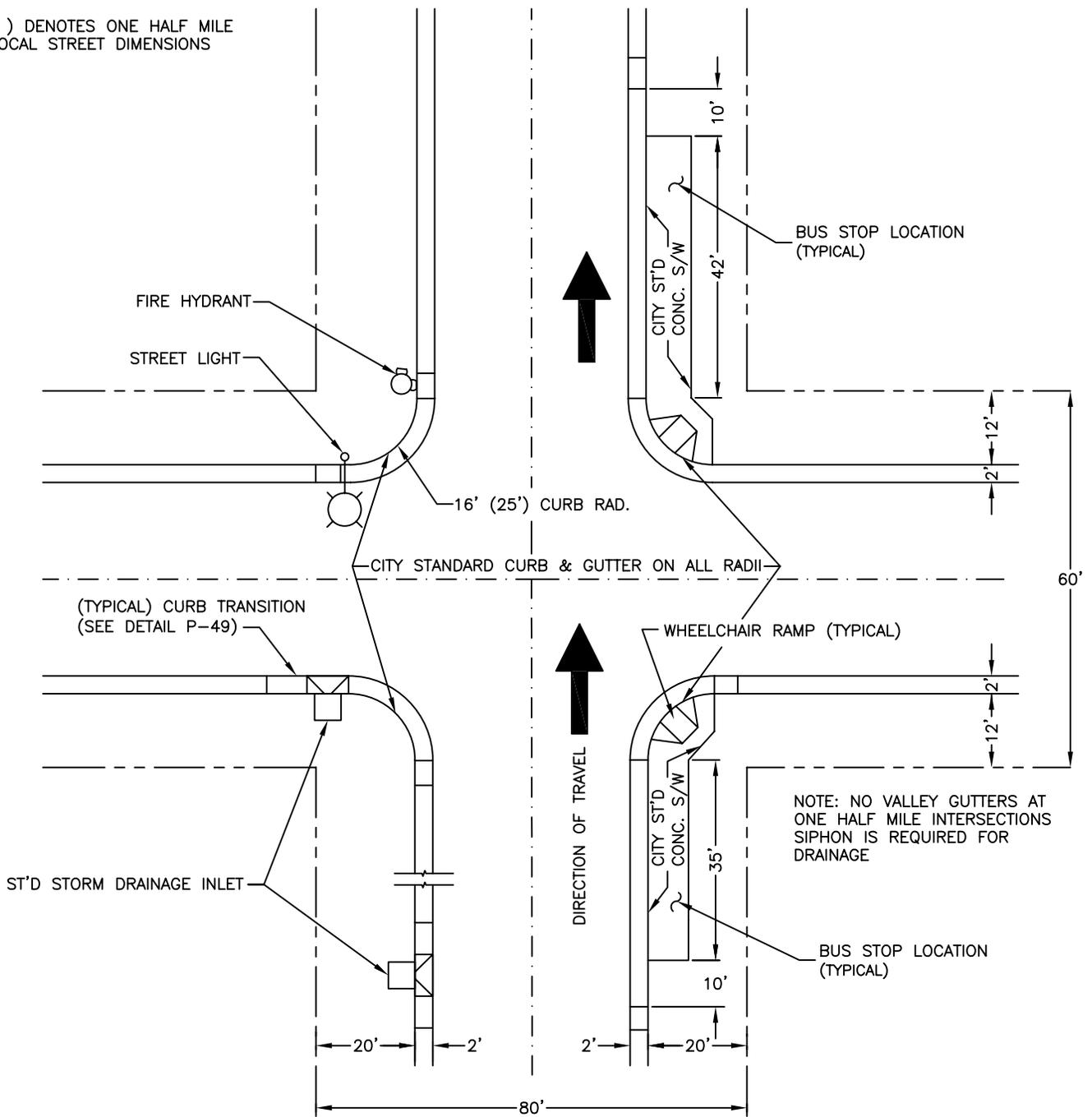


DRIVEWAY STANDARD

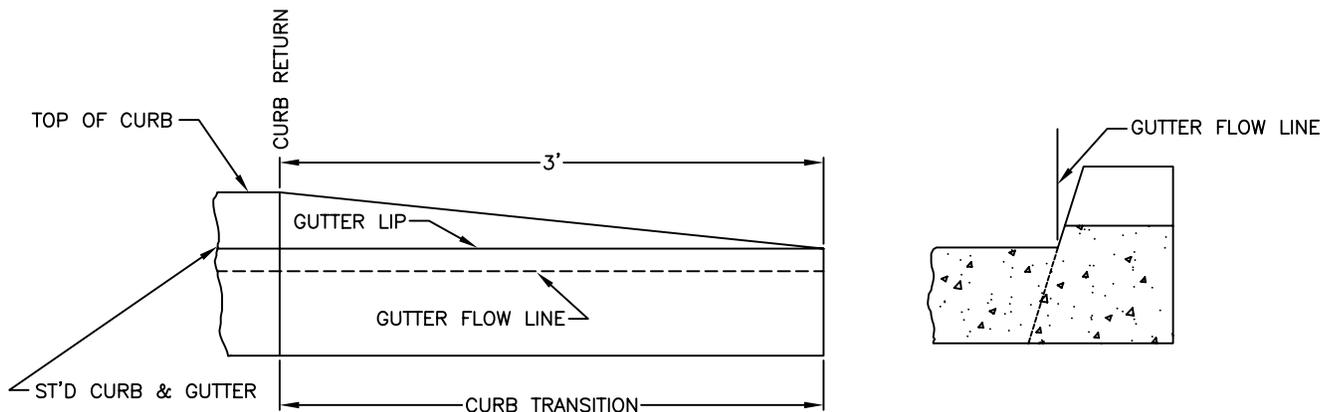


SHOULDER GRADING DETAIL

() DENOTES ONE HALF MILE LOCAL STREET DIMENSIONS



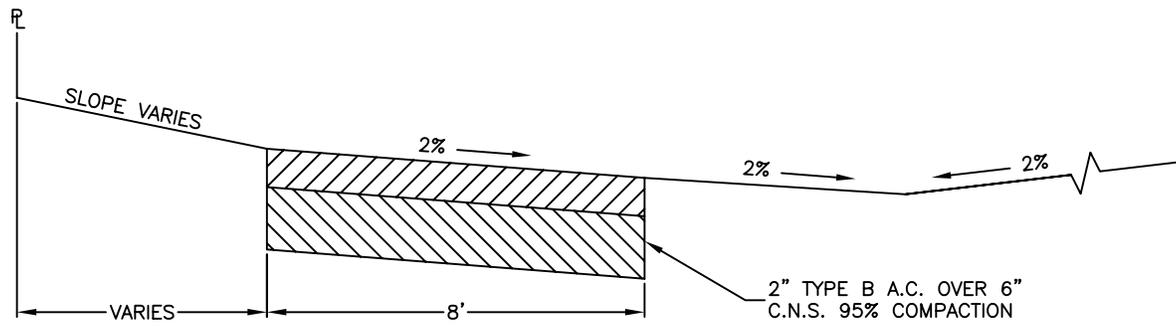
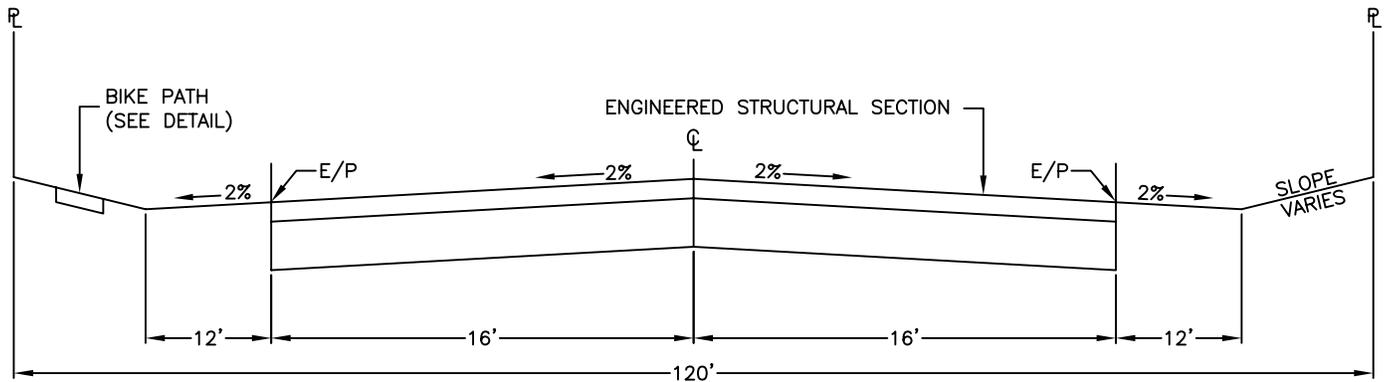
NOTE: MAJOR STREETS REQUIRE FULL STREET IMPROVEMENTS TO CURRENT URBAN STANDARDS.



INTERSECTION DETAILS
FOR MODIFIED STREETS
(LOCAL & 1/2 MILE LOCAL)

REF. & REV.
 AUG., 2010

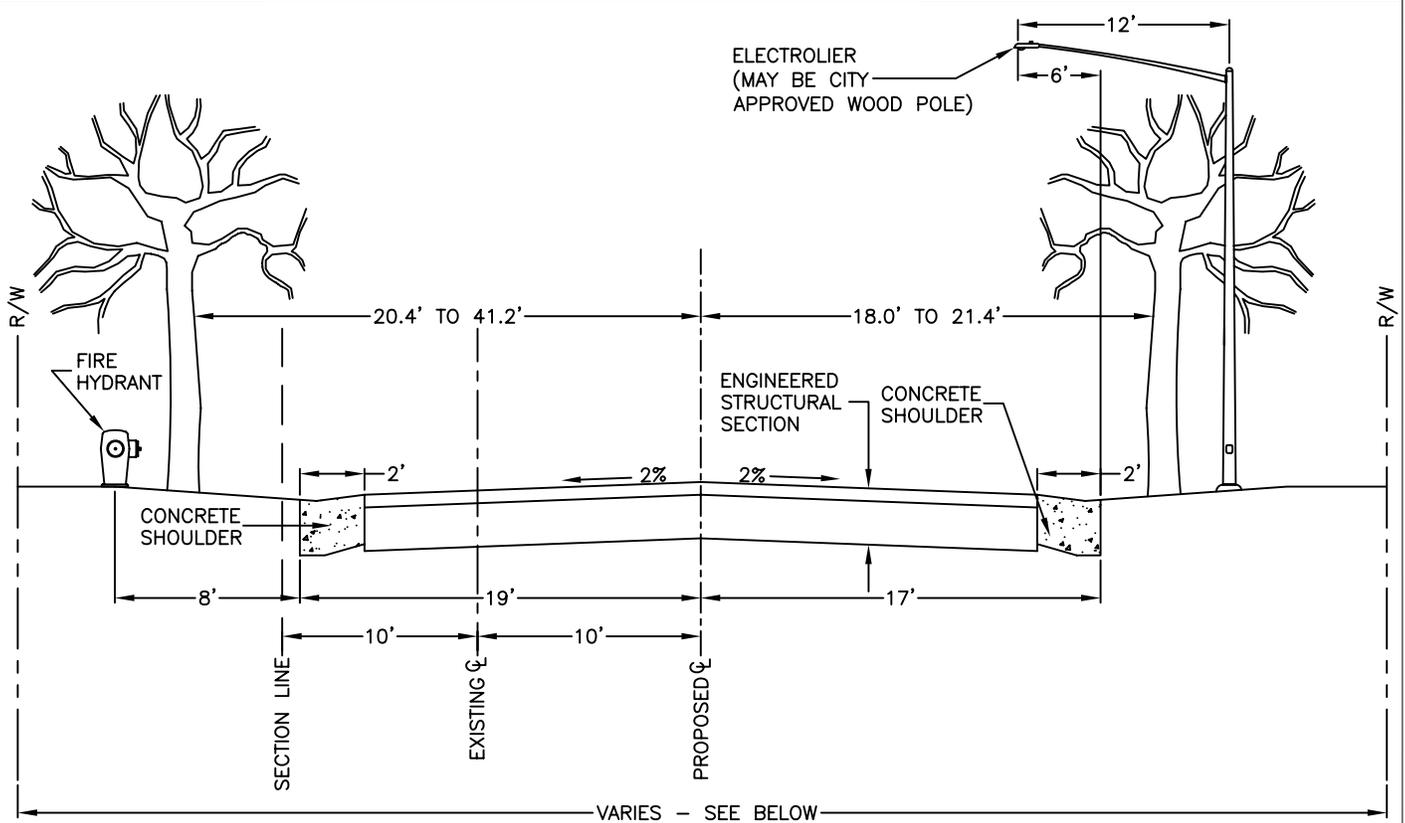
CITY OF FRESNO
API-5



BIKE PATH DETAIL

NOTES:

1. CURB AND GUTTER IS PROHIBITED.
2. DRIVEWAY APPROACHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DRAWING P-4.
3. ASPHALT CONCRETE PAVEMENT SHALL CONFORM TO CITY STANDARDS.
4. SEE STANDARD DRAWINGS W-3 AND W-4 FOR LOCATION OF FIRE HYDRANT VALVES.
5. PROPERTY OWNER MAY PLACE ASPHALT CONCRETE PAVEMENT (2" A.C. OVER 6" C.N.S.) BETWEEN EDGE OF PAVEMENT (EP) AND PROPERTY LINE (PL) BY OBTAINING AN ENCROACHMENT PERMIT FROM THE PUBLIC WORKS DEPARTMENT. PROPERTY OWNER SHALL BE RESPONSIBLE FOR MAINTAINING PAVEMENT BETWEEN EP AND PL.
6. ANY ENCROACHMENT INTO THE PUBLIC RIGHT OF WAY SHALL HAVE AN ENCROACHMENT PERMIT AND FEES SHALL BE PAID IN ACCORDANCE WITH THE MASTER FEE SCHEDULE.
7. IF SHOULDER IS PAVED, FLOW LINE OF GUTTER MUST BE ESTABLISHED OR APPROVED BY THE PUBLIC WORKS DEPARTMENT.



EXISTING RIGHT-OF-WAY WIDTHS

- 40' FANCHER CREEK TO 25' S/O FLORENCE
- 60' 25' S/O FLORENCE TO 70' S/O PITT
- 40' 70' S/O PITT TO 30' S/O GEARY
- 60' 30' S/O GEARY TO 110' N/O GEARY
- 40' 110' N/O GEARY TO 90' S/O ATCHISON
- 60' 90' S/O ATCHISON TO CALIFORNIA

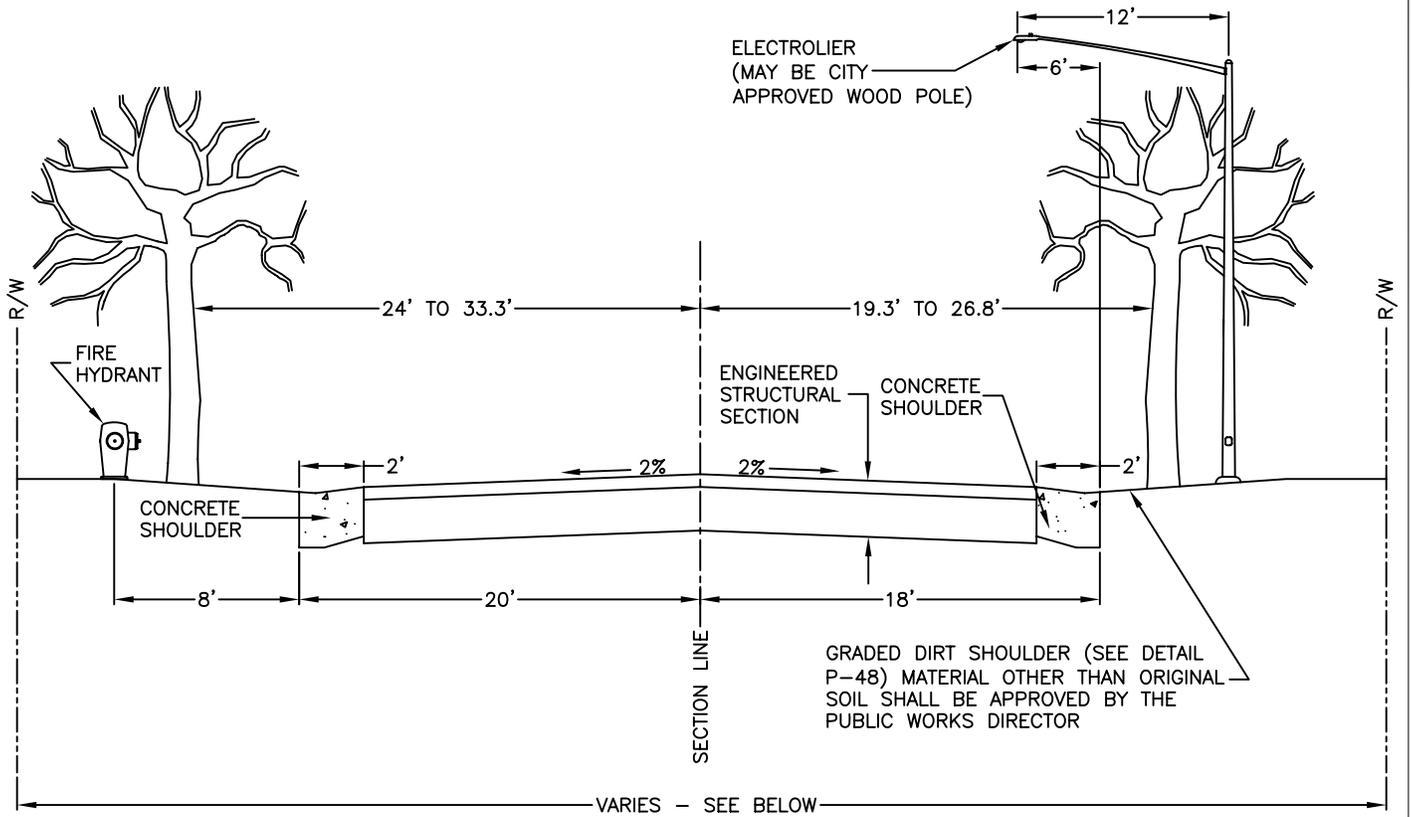
NOTES:

1. A TWO FOOT CONCRETE SHOULDER IS REQUIRED IN AN R-M OVERLAY DISTRICT.
2. ASPHALT CONCRETE PAVING BETWEEN THE EDGE OF PAVEMENT OR CONCRETE SHOULDER AND THE PROPERTY LINE IS PROHIBITED EXCEPT FOR DRIVEWAY APPROACHES.
3. DRIVEWAY APPROACHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DRAWING P-4.
4. ASPHALT CONCRETE PAVEMENT SHALL CONFORM TO CITY STANDARDS.
5. SEE STANDARD DRAWING W-3 AND W-4 FOR LOCATION OF FIRE HYDRANT VALVES.

MINNEWAWA AVENUE
FANCHER CREEK TO CALIFORNIA AVENUE

REF. & REV.
AUG., 2010

CITY OF FRESNO
API-7



EXISTING RIGHT-OF-WAY WIDTHS

- 50' CALIFORNIA TO COLUMBIA
- 40' COLUMBIA TO 145' N/O COLUMBIA
- 50' 145' N/O COLUMBIA TO 535' N/O COLUMBIA
- 40' 535' N/O COLUMBIA TO 210' S/O HEATON
- 50' 210' S/O HEATON TO 205' N/O HEATON
- 40' 205' N/O HEATON TO BUTLER

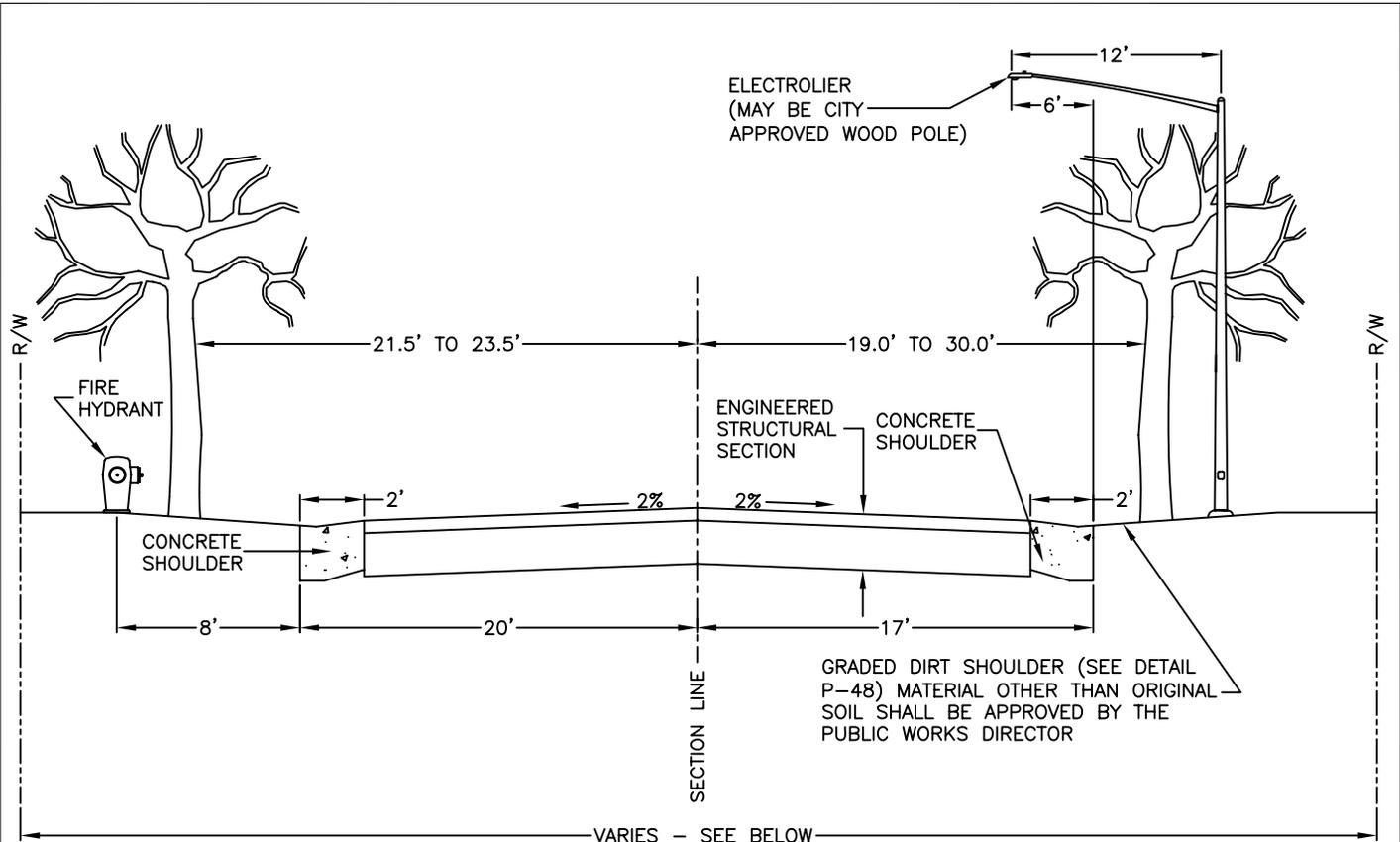
NOTES:

1. A TWO FOOT CONCRETE SHOULDER IS REQUIRED IN AN R-M OVERLAY DISTRICT. SEE STANDARD DRAWING P-48.
2. ASPHALT CONCRETE PAVING BETWEEN THE EDGE OF PAVEMENT OR CONCRETE SHOULDER AND THE PROPERTY LINE IS PROHIBITED EXCEPT FOR DRIVEWAY APPROACHES.
3. DRIVEWAY APPROACHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DRAWING P-48.
4. ASPHALT CONCRETE PAVEMENT SHALL CONFORM TO CITY STANDARDS.
5. SEE STANDARD DRAWING W-3 AND W-4 FOR LOCATION OF FIRE HYDRANT VALVES.
6. CURB AND GUTTER EXISTS ON THE EAST SIDE FOR APPROXIMATELY 255' NORTH AND SOUTH OF HEATON.

MINNEWAWA AVENUE
CALIFORNIA AVENUE TO BUTLER AVENUE

REF. & REV.
AUG., 2010

CITY OF FRESNO
API-8



EXISTING RIGHT-OF-WAY WIDTHS

- 50' BUTLER TO 240' N/O LIBERTY
- 60' 240' N/O LIBERTY TO LANE
- 50' LANE TO KINGS CANYON
- 60' KINGS CANYON TO HUNTINGTON
- 40' HUNTINGTON TO PALM DRIVE
- 40'-50' PALM DRIVE TO TULARE

NOTES:

1. A TWO FOOT CONCRETE SHOULDER IS REQUIRED IN AN R-M OVERLAY DISTRICT.
2. ASPHALT CONCRETE PAVING BETWEEN THE EDGE OF PAVEMENT OR CONCRETE SHOULDER AND THE PROPERTY LINE IS PROHIBITED EXCEPT FOR DRIVEWAY APPROACHES.
3. DRIVEWAY APPROACHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DRAWING P-4.
4. ASPHALT CONCRETE PAVEMENT SHALL CONFORM TO CITY STANDARDS.
5. SEE STANDARD DRAWING W-3 AND W-4 FOR LOCATION OF FIRE HYDRANT VALVES.
6. CURB AND GUTTER EXISTS ON THE EAST SIDE FOR APPROXIMATELY 255' NORTH AND SOUTH OF HEATON, ON THE EAST SIDE FROM TULARE TO APPROXIMATELY 570' SOUTH OF TULARE, AND ON THE WEST SIDE FROM KINGS CANYON TO APPROXIMATELY 200' NORTH OF KINGS CANYON.

MINNEWAWA AVENUE
BUTLER AVENUE TO TULARE AVENUE

REF. & REV.
AUG., 2010

CITY OF FRESNO
API-9