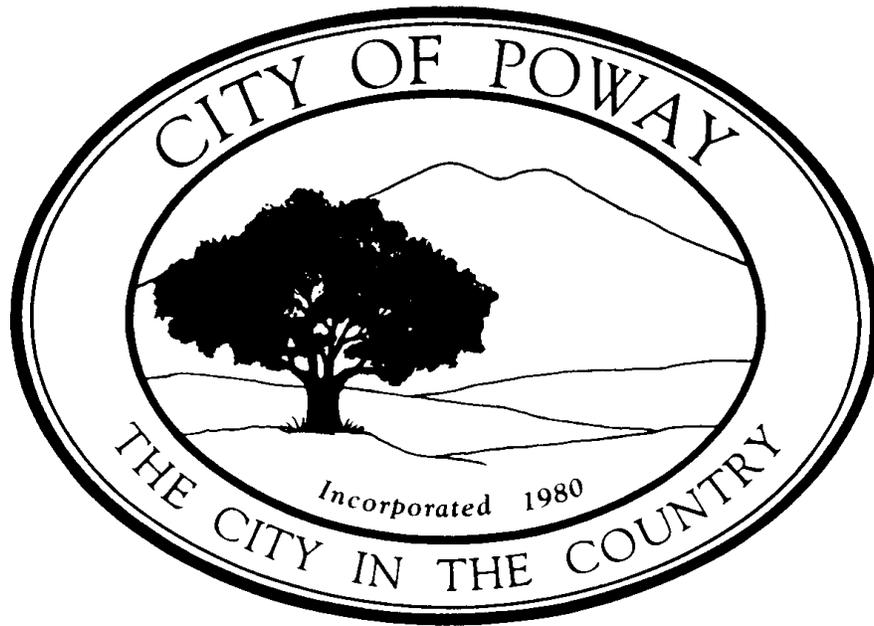
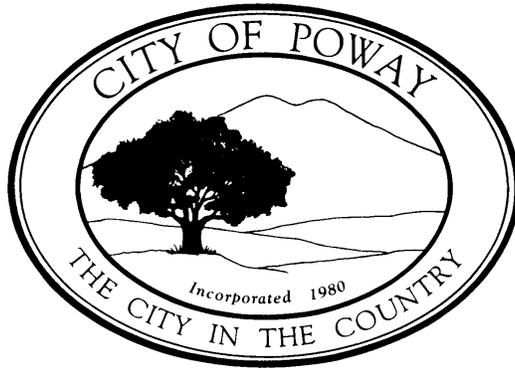


Supplemental Engineering Standards



2012



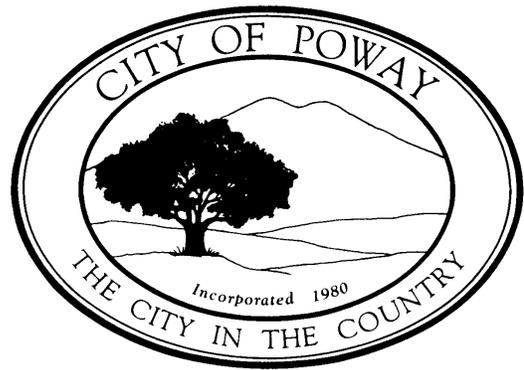
Engineering Supplements

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Section 1

Engineering Supplements



Introduction

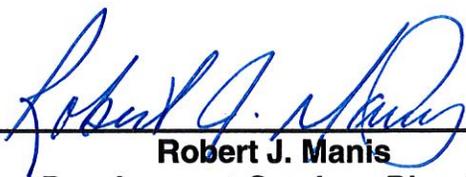
Introduction

The following information consists of specifications, details, and standards that have been adopted by the City of Poway. These details and specifications supplement the San Diego Regional Standard Drawings, September 2012; the Standard Specifications for Public Works Construction, 2012 edition (Greenbook) and the associated Regional Supplement Amendments, 2012; and Caltrans Standard Plans, 2010.

The Approved Materials List for publicly owned systems, such as potable water, sanitary sewer, and storm systems are included as a guide to materials to be included in the design specifications of either a Public Capital Improvement project, or a private development project that may include one or all of these systems.

Street design indexes and standard sections for street designs are included as amendments to the City of Poway's General Plan for Specific Plans that are located within the City.

**These Supplemental Engineering Standards for the City of Poway
have been approved and adopted.**



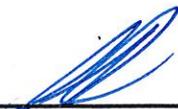
Robert J. Manis
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FORWARD

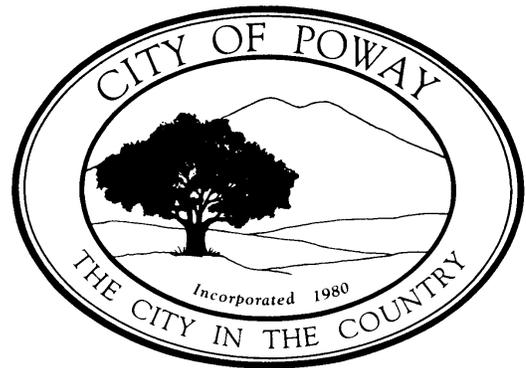
These Supplemental Amendments have been prepared by the City of Poway and adopted by the City Council for use in the City of Poway in conjunction with the Standard Specifications for Public Works Construction, 2012 edition (“Green Book”); and the 2012 Regional Supplement Amendments prepared by the County of San Diego.

The specifications contained herein take precedence over the specifications contained in the Standard Specifications for Public Works Construction, 2012 edition, and the 2012 Regional Supplement Amendments.

These specifications are intended to be used only in the City of Poway.

Section 2

Engineering Supplements



**Technical Specifications Supplement
To the "2012 Green Book"**

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PART 2 CONSTRUCTION MATERIALS

SECTION 200 – ROCK PRODUCTS

200-2 UNTREATED BASE MATERIAL.

200-2.1 General.

Delete existing description and replace with the following: “Any base material used for the project work shall be Crushed Aggregate Base per Section 200-2.2 Crushed Aggregate Base, or Crushed Miscellaneous Base per section 200-2.4.1.”

SECTION 202 - MASONRY MATERIALS

202-1 BRICK.

202-1.5.1 Mortar.

(Add the following subsection):

Hydrated lime shall conform to Specifications for Hydrated Lime for Masonry Purposes, ASTM C207.

SECTION 203 – BITUMINOUS MATERIALS

203-1 PAVING ASPHALT.

203-1.1 General.

The Contractor shall furnish the Engineer, at least two (2) weeks prior to the start of work, with a list of material sources together with Certificates of Compliance, indicating that materials to be incorporated in the work fulfill the requirements of these Specifications. The Certificates of Compliance shall be signed by the material supplier or representative. The Engineer may permit the use of paving materials, aggregate, cement line, anti-strip agents, asphalt, or any combination thereof prior to sampling and testing when accompanied by a Certificate of Compliance.

203-1.2 Testing Requirements. (Add the following)

The paving asphalt for this project shall be PG 64-10.

203-6 ASPHALT CONCRETE.

203-6.1 General. (Add the following)

Asphalt shall contain a maximum Recycled Asphalt Pavement (RAP) of 15%.

203-6.4 Asphalt Concrete Mixtures.

203-6.4.3 Composition and Grading. (Add the following)

The aggregate grading to be used shall be Class C-2. For full depth paving on arterial streets, the top course shall have aggregate grading of Class C-2 and the lower course shall have aggregate grading of Class B.

SECTION 207 - PIPE

207-10 STEEL PIPE.

207-10.2.9 Dielectric Connections.

(Add the following subsection):

Insulating bushings shall be molded "Lexan" polycarbonate insulating bushings as approved by the City.

Pipe Wrap shall be as indicated on the Standard Drawing and shall be supplied in four-inch rolls. Prior to application of the pipe wrap, the copper tubing or brass pipe, fittings, valves, or corporation stops within four feet of the main (measured horizontally) shall be thoroughly cleaned of all dirt and grease, and dried. The tape shall then be wrapped tightly around the cleaned copper tubing or brass pipe, fittings, valves, or corporation stops. For each layer, the tape shall be lapped a minimum of 3/8 inch.

207-17 PVC PLASTIC PIPE.

207-17.1 General.

(Amend the last sentence of the first paragraph to read as follows):

Pipe, fittings, couplings, and joints shall conform to the requirements of ASTM 3034 for diameters from 4" - 15" and ASTM F679 for diameters 18" - 24." Pipe shall have a minimum SDR of 35.

(Add the following sentence):

Pipe stored at the worksite shall be protected from direct sunlight. Any pipe showing signs of fading shall be considered damaged and removed from the site.

207-25 POLYVINYL CHLORIDE (PVC) PRESSURE PIPE.

207-25.1 Polyvinyl Chloride (PVC) Pressure Water Pipe.

(Add the following paragraphs):

These specifications apply to polyvinyl chloride pressure pipe (PVC) to be used for the conveyance of potable and reclaimed water.

Pipe shall conform to the requirements of AWWA C900 for 4" - 12" diameter pipes. The class of pipe shall be specified on the Plans and Specifications. All Class 150 pipe shall

conform to the requirements of DR18, and Class 200 pipe shall conform to the requirements of DR14.

Pipe shall conform to the requirements of AWWA C905 for 14" - 36" diameter pipes. Minimum acceptable pressure rating (PR) shall be 235 psi.

207-25.2 Manufacturing Requirements.

(Add the following subsection):

207-25.2.1 PVC Compounds.

Compounds used to manufacture PVC pressure pipe fittings and couplings shall conform to the requirements of ASTM 1784.

207-25.2.2 Markings.

All pipe, fittings, and couplings shall be clearly marked as follows:

1. Nominal pipe diameter
2. Class of pipe

207-25.2.3 Joints.

All joints shall be bell and spigot type. Provisions must be made for expansion and contraction at each joint with an elastomeric gasket. Gaskets shall conform to the requirements of ASTM F477. Bells shall be an integral wall section with a solid cross-section gasket.

207-25.2.4 Fittings.

Fittings shall be either PVC or ductile iron "push-on" type. PVC fittings shall conform to the requirements of Section 207-21. Ductile iron fittings shall be "push-on" type and shall conform to the requirements of ANSI A21.53 (AWWA C153) with a minimum working pressure of 350 psi. Cement lining and gaskets shall conform to ANSI A21.4 (AWWA C104) and ANSI 21.11 (AWWA-C111), respectively.

207-25.3 Protection of Materials.

All pipe stored on site shall be covered in a manner that will protect it from direct sunlight. Any pipe showing discoloration or fading, shall be considered damaged and removed from the site.

207-26 PIPE APPURTENANCES.

207-26.1 Water Services 50 mm (2-inch) and Smaller.

(Amend this section as follows):

Copper Tube: Copper tubing for air and vacuum valves, manual air release, blow-off valves, backflow prevention for sprinkler systems, and water service assemblies shall conform to the requirements of ASTM B88, Type "K". All tubing shall be soft (annealed). Flare fittings shall consist of bronze threaded fittings with flare seat, and bronze companion flare

tailpiece. Flared fittings shall conform to ANSI B16.26. or G70.1. Copper tubing bends shall be made with wrought copper solder fittings, conforming to ANSI B16.18 or B16.22. Solder shall be high grade silver solder (15' grade) intended for use in high pressure copper tube water lines.

Brass Pipe: Brass pipe shall be red brass, threaded, conforming to ASTM B43, regular. Fittings for use with brass pipe shall be cast bronze, threaded, 125 pound, conforming to ANSI B16.15.

General: All nuts and bolts used for fastening any pipe and/or appurtenances to the water system shall be standard hexagonal head machine bolts and hexagonal nuts conforming to ASTM A307, Grade B, except all buried valves, which shall be jointed to connecting pipe or adapter with ASTM A320 (Grade B8M and M [AISI 316]) stainless steel nuts and bolts. All bolt threads shall be lubricated with graphite or oil prior to installation.

207-26.2 Fire Hydrants.

(Amend this section as follows):

Bodies shall be cast-bronze with a minimum working pressure rating of 150 psi and shall equal or exceed AWWA C503. Base shall be drilled for six bolts except when 8-hole drilling is specified or shown on the plans. Stems shall have "O" ring packings. Plastic protector caps and chains with fasteners shall be supplied for all outlets. All hose outlets shall have "National Standard Hose Threads" (NFPA Handbook - American National Standard Fire Hose Coupling Screw Threads).

Two-way hydrants shall be provided at all locations where fire hydrants are indicated, unless otherwise shown on the Plans or specified herein. In commercial, industrial, and high-density residential zoned areas, three-way hydrants shall be provided.

Two-way hydrants shall consist of one 2 ½-inch and one 4-inch hose outlets, steamer type.

NOTE: Three-way hydrants with two 2 ½-inch outlets and one 4-inch outlet may be used in commercial areas with the approval of the Fire Marshall.

Three-way hydrants shall consist of one 2 ½-inch and two 4-inch hose outlets, steamer type.

Hydrant Buries shall be heavy cast iron, designed for use at a normal operating pressure of 200 psi, and shall be 6-inch diameter with 6-inch inlet bell and 24-inch or 30-inch flanged riser, consistent with spool and head flange drillings. Bury extensions shall be flanged and of similar design and construction. The interior surfaces of all buries shall be lined with 5/16-inch cement mortar. Exteriors shall be coated with asphalt varnish.

Scored Spools shall be cast iron, flanged both ends. The interior surfaces of all spools shall be lined with 5/16-inch cement mortar. Exteriors shall be coated with asphalt varnish. Spools 12 inches and longer shall be scored on both ends, 3 inches from face of flanges. Spools less than 12 inches long shall be scored in the middle. The score shall be a V-groove, ¼-inch wide, and from 1/8-inch minimum to 3/16 inch deep. The face of the flange shall be at least 4 inches, and more than 8 inches above the splash pad. Where there is no concrete curb, the elevation of the top of the spool shall be determined by the City's representative.

Nuts and Bolts for cast-iron fittings shall be stainless steel. ASTM A320, Grade B8M and BM (AISI 316).

207-26.3 Gate Valves.

(Amend this section as follows):

Gate Valves, unless otherwise indicated, shall be the same size as the main in which they are installed. All gate valves shall be nonrising stem counterclockwise opening. Valves shall have the same type ends as the pipe or fitting on which they are installed. Valves shall be marked with raised lettering cast on the body, indicating manufacturer and working pressure. Working pressure rating shall equal or exceed that of the pressure class of the adjoining pipe.

Three-inch and Smaller Gate Valves: The body and all interior working parts shall be constructed of ASTM B62(85-5-5-5) Copper Alloy 836 bronze--except stem shall be copper silicon and/or copper nickel alloy and shall not contain more than 2% aluminum nor more than 5% zinc, and shall have a minimum tensile strength of at least 60,000 psi, a minimum yield strength of at least 30,000 psi, and a minimum of at least 15% elongation in 2-inches. Handwheels shall be bronze or brass. Valves shall be Jones No. 372, Ohio Brass No. 220, or City-approved equal.

Four-inch and Larger Gate Valves: Valves shall conform to all sections of AWWA C500 and the following:

Gate valves shall be iron bodied, solid copper alloy internal working parts, parallel faced, double disc bottom wedging valves. The minimum designated water working pressure shall be 200 psi for valves 4 inches through 12 inches, and 150 psi for larger valves.

Copper alloy for all internal working parts, including stems, shall not contain more than 2% aluminum or more than 5% zinc. Bronze shall be ASTM B62 (85-5-5-5) Copper Alloy 836, except that stem shall be copper silicon and/or nickel alloy and shall have a minimum tensile strength of at least 60,000 psi, a minimum yield strength of at least 30,000 psi, and a minimum of at least 15% elongation in 2 inches. All body bolts shall be stainless steel ASTM A320 Grade B8M and 8M (ASTI 316). Valves shall be equipped with operating nuts unless otherwise indicated.

Resilient-Seated Valves, unless otherwise indicated, shall be the same size as the main in which they are installed. All resilient-seated valves shall be nonrising stem, counterclockwise opening. Valves shall be marked with raised lettering cast on the body, indicating manufacturer and working pressure. Working pressure rating shall equal or exceed that of the pressure class of the adjoining pipe.

207-26.4 Butterfly Valves.

(Amend this section as follows):

Butterfly valves shall be tight closing, rubber seated, conforming to AWWA C504-74. Valves shall be Class 150B with a maximum working differential pressure across the disc of 150 psi and shall be City approved.

Valves 12 inches and larger shall be flanged body unless otherwise indicated on the drawings or specified elsewhere. Valves 10 inches and smaller shall be flanged body, or bell type for asbestos cement or polyvinyl chloride pipe. Flanged end (or ends) shall be provided if so indicated on the drawings. Flanged ends shall conform in dimension and drilling to ANSI B16.1 Class 125 cast iron flanges. All exterior cap screws and bolts on valve body shall be ASTM A276, Type 304 or 316 stainless steel.

Shafts may consist of straight-through one-piece shafts or may be of the "stud shaft" type. Shaft material shall be ASTM A276, Type 304 or 316 stainless steel; or carbon steel with Type 304 or 316 stainless steel journals and static seals to isolate the interior of the disc and the shaft from water.

Discs shall be cast iron conforming to ASTM A48, Class 40; ductile iron conforming to ASTM A536, Grade 65-45-12; or alloy cast iron, conforming to ASTM A436, Type 1. The valve disc shall rotate 90° from fully open to the slightly shut position.

Valve seat retention and fastening devices when furnished for rubber seats, shall be either ASTM A276, Type 304 or 316 stainless steel; or bronze containing not more than 7% zinc nor more than 2% aluminum. Where the rubber seat is applied to the disc, it shall be vulcanized to a stainless steel seat-retaining ring, which is firmly clamped to the disc by stainless steel nylon locking screw fasteners.

Operators shall be of the manual type. The operators shall be of a worm gear, rack and pinion, or traveling-nut type with adjustable stops to limit disc travel and shall be totally enclosed and self-locking. The number of turns to rotate the disc shall vary with the size, but not be less than 2 turns per inch diameter valve size through 8 inches, nor less than 30 turns on 10-inch and larger valves. The operator shall be of the size required for opening and closing the valve at its rated operating pressure for permanent installation and operation in a buried or submerged location and shall be fully gasketed, sealed, and factory packed with grease.

Operators for valves to be buried below ground level shall be equipped with standard AWWA 2-inch square operating nuts. All exterior cap screws shall be ASTM A276, Type 316 or 304 stainless steel.

Operators for valves to be located above ground level or in vaults below ground level shall have a disc position indicator and a handwheel or crank.

Adapters, when required, shall conform to the Standard Drawing for Butterfly Valve Assembly. Cast iron (ductile) adapters shall conform to the requirements of ANSI A21.10, (A21.53) AWWA C110, (AWWA C153). Flanges shall conform to ANSI B16.1, Class 125 unless otherwise specified. The thrust collar adapter (required on 12-inch valves and larger) shall have the collar integrally cast with the adapter or welded to be equal in strength to a cast collar. Interior surface of adapter fittings shall be mortar lined and seal coated in accordance with ANSI A21.4 (AWWA C-104).

Four-inch and Larger Resilient-Seated Valves: Valves shall conform to all sections of AWWA C509 and the following:

Valve bodies shall be iron bodied. The minimum designated water working pressure shall be 200 psi for valves 4 inches through 12 inches, and 150 psi for larger valves.

Copper alloy for internal bronze parts, including stem, shall not contain more than 2% aluminum or more than 5% zinc. Bronze shall be ASTM B62 (85-5-5-5) copper alloy 836, except that stem shall be copper silicon and/or nickel alloy and shall have a minimum yield strength of at least 60,000 psi, a minimum yield strength of at least 30,000 psi, and a minimum of at least 15% elongation in 2 inches. All body bolts shall be stainless steel ASTM A320 Grade B8M and 8M (AISI 316). All valve body interior metal surfaces shall be 12 mil epoxy coated. Valves shall be equipped with operating nuts unless otherwise indicated.

Valve Boxes: The lower valve box shall be 6" diameter pipe of material acceptable to the City of Poway.

Untraveled Areas - The upper valve box sleeve shall be a 6" ABS or sewer pipe. Valve box covers shall be painted white with 2 coats of traffic marking type paint.

Traveled Areas - The valve box and cover shall be SBF 1208.

A concrete ring shall be provided to support upper valve box and cover.

Valve Stem Extensions: Where valve operator nut is 5 feet or more below top of valve box, a galvanized steel extension shall be provided.

207-26.5 Manual Air Release and Blow Off Assemblies.

(Add the following subsection):

No hydrants are to be used as blow-off assemblies.

Pipe Sleeves and Covers: The steel pipe sleeves shall be C-900 PVC pipe. Valve boxes and covers shall be seated flush with the paved surface of the natural ground or paved surface. The topside of the cover shall be painted with two coats of traffic type paint.

Angle Valves shall have bronze bodies conforming to ASTM B62, Copper Alloy 836, rates for 300 psi W.O.B., and brass or bronze handwheel. Discs shall be composition. Stems shall be copper silicon and/or copper nickel alloy. Valve manufacturer shall either guarantee the stem against dezincification for the life of the valve, or shall certify that the stem contains not more than 2% aluminum or more than 5% zinc.

207-26.6 Post Indicator Valves.

(Add the following subsection):

Post indicator valves shall consist of an indicator post type non-rising stem gate, resilient-seat or butterfly valve, which is listed and approved by Underwriters' Laboratories, Inc. All devices shall have Underwriters' Laboratories, Inc., label affixed thereto. Valves shall be located no further than 40 feet from the nearest fire hydrant. The top of the post indicator valve shall be 36 inches above the adjacent grade. Location of post indicator valves shall be approved by the Fire Marshall. All post indicator valves shall be painted red.

SECTION 209 – ELECTRICAL COMPONENTS

209-3 COMPONENTS FOR STREET LIGHTING AND TRAFFIC SIGNAL SYSTEMS.

209-3.2 Anchor Bolts, Nuts, and Washers.

(Delete section in its entirety and replace with the following):

Anchor bolts shall be of the type and size as shown on Regional Standard Drawing E-1. Anchor bolts shall conform to the specifications of ASTM A-307, and shall be provided with two nuts and two washers each. Bolts, nuts, and washers shall be galvanized by the hot-dip process conforming to ASTM A-153 or cadmium plated with Type NS coating conforming to ASTM A-165. Direct bury or embedded installation is **not** allowed.

209-3.3 Metal Standards.

209-3.3.3.2 Steel Standards.

(Add the following sentence):

Steel poles may be used on approved or required basis only. Steel poles shall meet the criteria of the Engineer.

209-3.4 Conduit.

(Delete section in its entirety and replace with the following):

All conduit shall be 2" U.L.-approved heavy wall polyvinyl chloride (PVC Schedule 40) unless a different material or size is required by the Engineer. Conduit of larger size may be used provided that the larger size is used the entire length of the run between pull boxes. Reducing couplings shall not be used. **Conduit to be sealed at all ends.**

209-3.7 Pull Boxes.

(Add the following paragraph):

State No. 3½ Pull Box (15 3/8" x 10 1/8") or equivalent shall be installed per Caltrans Standard Drawing ES-8. Pull boxes and covers shall be of concrete. Pull box covers shall be inscribed "**STREET LIGHTING.**" Covers shall be secured with 3/8-inch bolts, cap screws or studs, and nuts, which shall be of brass, stainless steel, or non-corroding material.

209-4 STREET LIGHTING SYSTEM MATERIALS.

209-4.1 Reinforced Concrete Standards.

209-4.1.1 General.

(Add the following paragraphs):

Ultimate strength of a pole shall be calculated in accordance with the latest revision of American Concrete Institute (A.C.I.) standard 318. Under working loads (including wind loading), the pole must not be stressed beyond the cracking strength. Wind loads shall be as specified in the last edition of the AASHTO standards.

The American Association of State Highway and Transportation Officials in their publication, "Standard Specification for Structural Supports for Highway Signs, Luminaries and Traffic Signals," stipulates that poles shall be of sufficient strength to support a single LPS luminaire weighing 90 pounds, 5 feet in length, with an EPA of 4 square feet in an 80 MPH wind zone.

Concrete poles shall be tapered, centrifugally cast, and pre-stressed. They will be round, black and white marble aggregate, or naturally exposed aggregate. Other colors of aggregate may be used with written approval of the Engineer; however pole shape and color shall be uniform for any one project. Replacement poles shall match existing.

Aggregate shall conform to current requirements ASTM C33, except that abrasion requirements therein shall not apply, and no more than 7% shall pass a #100 mesh sieve. No dye or sealer shall be used without approval of the Engineer.

After exposing the aggregate, the pole shall be coated with a minimum of two coats of flat concrete sealer.

The centrifugal casting process shall produce a center duct throughout the length of the pole. This duct shall be free from sharp projections or edges that might damage the wire or cable. It shall be a minimum of 1½ inch in diameter. All reinforcing steel shall have a minimum cover of 5/8 inch of concrete.

After curing, the surface of the pole shall be treated to remove cement latency and to develop the surface texture. When finished, poles shall be without cracks or crazing and shall have a uniform surface (without objectionable mold marks) and texture throughout the entire length. Maximum deviation from string line at any point shall not exceed 0.03 inch per foot of length.

209-4.1.2 Reinforcement.

(Add the following paragraphs):

Pre-stressing steel shall conform to 9 mm diameter ASTM A-421 indented wire with a minimum ultimate strength of 206,000 psi. Reinforcing bar shall conform to ASTM A-615. Wire for cage shall conform to ASTM A-82. Base plate shall conform to ASTM A-36 and shall be galvanized to ASTM A-123. Steel for luminaire arm, when required, shall conform to ASTM A-53, Grade B, and shall be fully galvanized.

The poles shall contain a minimum of 8 strands of 9 mm diameter, solid, indented pre-stressing steel wires to maintain required ultimate strength, pre-stressed to a minimum of 6600# per wire. A mild steel cage consisting of circumferential 12-gauge A-82 wire welded to 4 longitudinal 11-gauge wires at not more than a 4-inch pitch, shall encapsulate the pre-stressing steel throughout the entire length of the pole. The area of circumferential steel along any three feet of the shaft shall not be less than design. All steel shall be electrically bonded. The cover over the pre-stressing wires shall be no less than ½".

209-4.2 Wire/Conductors.

209-4.2.2 Series Circuits Conductors.

(Replace with the following):

Service runs shall be of solid or stranded THW or XHHW copper wire No. 10 minimum. Voltage drop studies will be required to determine proper wire sizes. Stranded THW or XHHW copper wire No. 10 shall be used from the fuse holder at the base of each pole to the luminaire. Copper wire shall conform to the applicable portion of ASTM B-3 and ASTM B-8. Wire connectors shall be of a type approved by the Engineer and be U.L. approved. The installation procedure, including connector size and crimping tools shall conform to the manufacturer's recommendations. Aluminum conductors will not be allowed. THHN and THWN will **not** be allowed.

209-4.2.4 Color Coding.

(Add the following subsections):

209-4.2.4.1 120-Volt Circuits.

Circuits requiring 120 volts, one wire will be black and one will be white, with the black being the hot wire and fused to the pole. The ground wire from the luminaire to the grounding point in the lighting standard shall be green or bare wire.

209-4.2.4.2 240-Volt Circuits.

Circuits that require 240 volts shall have one black wire, one red wire, and one green (ground) wire. Ground wire shall be included in all new 240-volt circuits and shall be connected to a ¾" x 8' copper covered steel ground rod to be installed in the first pull box from the SDG&E service point. Black and red wires shall be fused to the pole. Green wires shall be secured to ground in the pole. The ground wire from the luminaire to the grounding point in the lighting standard shall be green or bare wire.

209-4.2.5 Splicing of Wires.

(Add the following subsection):

Splices shall be permitted in pull boxes and lighting standard bases only. All splices shall be waterproof and with epoxy encapsulation or heat-shrinking tubing.

209-4.2.6 Excess Wire in Pull Boxes.

(Add the following subsection):

The first pull box from the SDG&E service point shall be considered the City's beginning of service. At this point, the hot leg(s) of the circuit shall be properly fused. The fuse holders shall be connected to all load sides with a minimum of 15 inches of wire from the conduit end providing ample room for movement. All conductors on the service side of the fuse holder and

the white neutral/ground on 120-volt circuits shall terminate with a minimum of 15 feet of appropriate size wire beyond the fuse holder to facilitate connection to the service point.

In pull boxes, wiring from one conduit to another shall be of sufficient length to freely wrap along the entire interior of the pull box. This excess wire should be at least 30 inches.

209-4.3 Splicing Units and Terminal Blocks.

209-4.3.2 Fused Splice Connectors.

(Delete the last paragraph and add the following paragraphs):

Fuses shall be slow-blow 13/32" x 1 1/2" in-line type fuses. The fuses installed in the poles shall be rated at 5 amperes for 120-volt service and 5 amperes for each conductor of 240-volt circuits. Circuit fuses shall be installed in the first pull box from the SDG&E service point and rated at 20 amperes.

Fuses shall be installed in each hot leg of the lighting conductor. Both legs of a 240-volt circuit and only the hot leg of a 120-volt circuit shall be fused. Each light shall be fused inside the pole and accessible from the hand hole.

209-4.3.2.1 Fuse Holders.

(Add the following subsection):

Fuse holders shall be completely waterproof, and shall grip the fuse in the load side section when the fuse holder is opened. Holders shall also be able to take a 13/23" x 1 1/2" fuse and shall have crimp-type tubular terminals of the size designed for the size of wire in the particular streetlight. On 240-volt systems, Bussmann HEXAA waterproof double fuse holders (or approved equal) shall be used.

209-4.5 Lamp Ballasts.

209-4.5.1 General.

(Add the following paragraphs):

Low Pressure Sodium Vapor ballasts shall be suitable for use on multiple distribution circuits with 60 Hz, 120 or 240 volt rating.

Ballasts shall be of the component type, consisting of precision wound coils and welded magnetic steel lamination assembled together and impregnated with a baked-on insulating weather proof varnish and a metal cased, hermetically sealed capacitor.

The operating sound pressure noise level shall not exceed the ambient noise level by more than 5 decibels (5db) at a distance of 30 feet when measured by a sound level meter conforming to the American Standard for sound level meters. Where the ambient noise level is below 40 decibels (40db), a minimum of 40 decibels (40db) shall be assumed as ambient.

209.4.7 Photoelectric Controls.

209-4.7.2 Photoelectric Unit.

(Delete the first sentence in the second paragraph and replace with the following):

The control unit shall have a "TURN-ON" level of 2.6 ± 0.6 foot-candles. The TURN OFF/ON ratio shall be 1.5:1. Turn-off shall have a 2.5 second delay.

(Add the following paragraphs):

The control unit shall contain a cadmium sulfide photoelectric cell with a DC drive circuit and DC coil relay. The unit shall be suitable for operation with a 120-volt or 240-volt line supply and a minimum rated load capacity of 1000W tungsten; 1800 VA ballast type loads with a normal power consumption of not more than 2 watts. The control unit shall include 160 joule, 6500 amp MOV surge protection to prevent damage from sudden voltage surges.

Cover shall be made of high impact resistant, UV stabilized polypropylene. Cover shall be colored black.

PART NIGHT controls shall turn of at the middle of the night. Cover shall be colored green.

209-4.9 Low Pressure Sodium Vapor Lamps.

(Add the following subsection):

Low Pressure Sodium Vapor lamps shall have clear glass bulbs and be suitable for use in street lighting applications. The lamp shall be designed to operate in a horizontal position.

The Low Pressure Sodium Vapor lamps shall be manufactured by G.E.C., Osram, or Philips. Use of any other lamp will require the Engineer's written approval prior to installation.

All Low Pressure Sodium Vapor lamps shall have a rated average life of 18,000 hours or more. The light output shall be 13,500 Lumens for 90-watt lamps and 33,000 Lumens for 180-watt lamps.

215 – STREET NAME SIGNS

(Add the following section):

215-1 PROPOSED SIGNS.

215-1.1 General.

The street name sign shall comply with Section 2D.43 of the latest edition of the California Manual on Uniform Traffic Control Devices (MUTCD). Contractor must call the Department of Public Works for new signs to match color and finish details unless otherwise instructed by the City Engineer.

The lettering names of streets on Street Name signs shall be composed of a combination of lower-upper case letters with initial upper-case letters. The street name suffix abbreviations are as follows:

Avenue = Ave	Court = Ct
Drive = Dr	Lane = Ln
Place = Pl	Road = Rd
Street = St	Terrace = Ter
Trail = Trail	Way = Way

215-1.2 Finish.

Signs are to be 0.08" High Intensity Prismatic Reflective Extruded Aluminum double sided and meet ASTM D4956 Type IV retro-reflective sheeting standards. Signs shall be 9" minimum tall BROWN.

215-1.3 Color.

The finished color coat shall be BROWN.

215-1.4 Legend.

Sign lettering shall be 6" minimum "C" font upper-lower case in accordance with Section 2D.43 "Street Name Signs (D3-1 or D3-1a)" of the latest edition of the California MUTCD. A City logo, 5" wide and 3-1/2" high to be on left side of street name. A 3/4" high "CITY OF POWAY" legend shall be above the City logo. Graphics shall be either printed with translucent inks applied vinyl graphics or opaque and translucent film.

215-1.5 Mounting Hardware.

2 NPC2.5	Post Cap 2-1/2" I.D.
2 NPC1	Cross Saddles
2NB20.5	Bolt, 20-1/2" x 5/8" with Nut and Washer (Galvanized)

215-1.6 Post.

Post manufacturing requirements:
Length – 10 feet
Aluminum – 6063 – T6 Alloy
Outside Dimension – 2-7/8"
Inside Dimension – 2-1/2"
Schedule 10, Seamless

PART 3 CONSTRUCTION METHODS

SECTION 300 - EARTHWORK

300-2 UNCLASSIFIED EXCAVATION.

300-2.3 Overshooting.

(Add the following paragraph):

Blasting: Blasting for excavation will be permitted only after securing approval of the City Engineer, and only when proper precautions are taken for the protection of persons and property. The hours of blasting will be fixed by the City Engineer. Any damage by blasting shall be repaired by the contractor at his expense. The contractor's methods of blasting and procedure shall conform to State laws and local ordinances. Precautions should be taken to post signs warning operators of radio equipment to stop transmitting in any area in which blasting operations are in progress. The contractor shall also obtain permission from the Poway Fire Department prior to commencing blasting operations.

SECTION 302 - ROADWAY SURFACING

302-5 ASPHALT CONCRETE PAVEMENT.

302-5.6 Rolling.

302-5.6.2 Density and Smoothness.

(Amend paragraph two as follows):

The compaction after rolling shall be 95 percent of the density obtained by ASTM Test No. D-1560 or ASSHTO T-246 "Resistance to Deformation of Bituminous Mixtures by Means of Hveem Apparatus".

SECTION 303 - CONCRETE AND MASONRY CONSTRUCTION

303-6 STAMPED CONCRETE.

(Delete entire section and replace with the following):

303-6.1 General.

- I. Stamped concrete pattern and color must be approved by the Planning Department before issue of right-of-way permit. Submit: 1) color sample; and 2) patterned drawing.
- II. Colored, imprinted concrete shall be bomanite or an approved equal. The concrete shall be integrally colored throughout the concrete mix.

303-6.2 Line and Grade.

The configuration of the drive approaches shall conform to the San Diego Regional Standard Drawing G-14 for residential driveways and San Diego Regional Standards. The thickness of the concrete has been increased to 6 ½" (min.) thick. No stamped concrete shall be used for driveway approaches adjacent to concrete sidewalks. The subgrade for the drive approach must be compacted to 90% of the maximum dry density of the soil encountered.

Sidewalks shall conform to G-7 of the San Diego Regional Standard Drawings and the joint locations in the sidewalk shall conform to G-9 of San Diego Regional Standard Drawings. The thickness of the sidewalk shall be increased to 5" (min.). The subgrade of the sidewalk shall be compacted to 90% of the soil's maximum dry density.

303-6.3 Concrete Mix Design.

The concrete shall be 560-B-3250 (minimum compressive strength of 3250 psi). Portland cement shall conform to ASTM C150, Type I, II, V depending on soil conditions. Aggregates shall conform to ASTM C33. Mixing water shall be fresh, clean, and potable.

The color of the concrete must be integral to the mix and shall comply with ASTM C309

303-6.4 Installation.

The surface of the stamped concrete shall be covered with a sheet of plastic or visquene before stamping so that the product would be smooth and free of nicks and pot marks. After stamping and removal of visquene, a light trowel/broom finish may be needed, as directed by the Engineer.

303-6.5 Textures.

The depth and width of the stamped impressions in the concrete shall not exceed 3/8 inches.

SECTION 306 - UNDERGROUND CONDUIT CONSTRUCTION

306-1 OPEN TRENCH OPERATIONS.

306-1.1 Trench Excavation.

306-1.1.1 General.

(Add the following paragraph):

The contractor shall dispose of the water from the work in a suitable manner without damage to adjacent property. Water shall be disposed of in such a manner as not to be a menace to the public health, and shall meet N.P.D.E.S. requirements.

306-1.2 Installation of Pipe.

306-1.2.14 Field Jointing of Cement Mortar - Lined Steel Pipe.

(Add the following subsection):

Rubber ring joints shall be completed in the trench. The ends of the pipe shall be thoroughly cleaned and positioned for joining. Vegetable soap solution shall be applied to the inside of the bell, and the rubber gasket snapped into the groove on the spigot end. The bell end shall be coated with cement mortar in such a manner and in sufficient quantity to completely fill the recess between the respective linings of the two joined sections of pipe. The spigot end shall then be entered into the bell end of the adjacent pipe section the distance shown on the shop drawings.

The steel jumper rod shall then be welded into place to form an electrical bond between joined pipe sections.

The outside joint recess shall be grouted with cement mortar after a fabric diaper has first been placed around the joint and tightened securely to prevent leakage while the mortar is being poured. The diaper shall be made of heavy-duty polyethylene fabric of sufficiently close weave to prevent cement loss from the mortar. The fabric shall be hemmed on each edge and shall contain a metal strap within each hem sufficiently longer than the circumference of the pipe to allow a secure attachment of the diaper to the pipe. The diaper width will depend on pipe size and design and shall be the width recommended by the manufacturer. Following installation of the diapers, the joints shall be poured and rodded from one side only until the mortar comes up to the top of the diaper on the opposite side. Approximately one hour subsequent to the pouring of the joint, the joint shall be rechecked, and if any settlement, leakage, or shrinkage has taken place, the joint shall be refilled with mortar.

The diaper shall be stripped and the joint inspected all around, repaired if necessary, and given a heavy coating of curing compound at the earliest practicable time after the mortar has hardened sufficiently. Joint mortar shall be protected from direct sunlight for at least 14 days by covering with burlap, heavy paper, or moist backfill material. Water shall not be allowed to enter the pipe until 36 hours after placing joint mortar.

Welded Joints shall be completed in the trench. When the pipe is being laid, both the spigot and the bell ends shall be thoroughly cleaned of all foreign matter; and all protective materials shall be removed from the surfaces that are to be in contact at the joints. Just prior to joining the two ends together, each end of the pipe shall be "battered" with cement mortar in such a manner and in sufficient quantity to completely fill the space between the respective mortar linings. After the joining is completed, the pipe interior shall be swabbed to remove all excess mortar by drawing an approved type swab or squeegee through the pipe. For pipe 24 inches in nominal inside diameter and larger, a ½-inch recess between adjacent linings shall be provided and later pointed from the inside with cement mortar and troweled smooth.

All field welding shall conform to AWWA C206 and shall be done by experienced welders qualified in accordance with that standard.

In all hand welding, the metal shall be deposited in successive layers and the minimum number of passes or beads in the completed weld shall be as follows:

Steel Cylinder Thickness, Inches	Fillet Weld Minimum Number of Passes
Smaller than 3/16	1
3/16 and ¼	2
5/16	3
3/8	3

Where welded joints are designated on the Plans, the pipe may be joined with rubber gaskets as specified above for rubber ring joint in lieu of slip (lap) joints. The outside recess between the bell and spigot shall then be caulked with a rod to facilitate the welding. The weld shall be continuous for the full circumference of the pipe. After the joints have been welded and have cooled, the joint shall be grouted with cement mortar in the same manner as specified for rubber ring joints.

Butt Strap Closure Joints shall be completed in the trench after the pipe has been laid to the alignment and the grade shown on the Plans. They shall be field welded to the outside of the pipe along both edges by full circumferential fillet welds or one of the edges may be shop welded and the other field welded. Welding shall be done in the same manner as specified for welded joints. The pipe coupling shall be oriented at the top of the butt strap closure for 16 inches and smaller pipe, and at both sides for large pipe to permit access for mortaring the inside of the joint. After welding and mortaring, the coupling shall be closed with a ferrous plug.

All exposed metal surfaces shall be cleaned by wire brushing.

The interior of the joints shall be filled with stiff plastic consistency cement mortar in accordance with Appendix A of AWWA C205.

Wire fabric, 2" x 4" by 13-gauge, clean and free from rust, shall be applied to the exterior of the joints so that the wire on the 2-inch spacing runs circumferentially around the pipe. The wire on the 4-inch spacing shall be crimped in such a manner that the mesh will be held 3/8 inch from the butt strap metal surface.

The mesh shall be lapped a minimum of 8 inches and shall be securely wired in position. The joint exterior shall then be coated with cement mortar to a thickness of at least 1 ½ inches over all ferrous metals.

Immediately prior to applying mortar to the interior or exterior of the joints, a cement wash shall be applied to the metal surfaces to be coated.

Flanged Joints: Steel jumper rods shall be welded to each steel flange to form an electrical bond. Where a cast iron body valve or fitting is located between two steel flanges, the jumper rod shall bridge the valve and form an electrical bond between the steel flanges. Flange faces shall be wire brushed and gaskets shall be thoroughly cleaned just prior to joining. Following the tightening of the bolts, all buried painted and bare metal surfaces including bolts, nuts, jumper rods, and companion flanges shall be cleaned by wire brushing and then washed with cement and encased in cement mortar as specified above for butt strap closure joints. Where pipe coating has been held back to facilitate bolting, the coating shall be built up to at least ½ inch greater than the required minimum coating thickness for pipe near a flange.

Following application of the mortar encasement, the joint and the adjoining sections of pipe within a distance of two pipe diameters of the joint shall be wrapped with polyethylene film in accordance with AWWA C105.

Flexible Coupling Joints shall be completed in the trench after the pipe has been laid to the alignment and grade shown on the plans. Each pipe end for a distance of 6 to 8 inches back from the end shall be thoroughly cleaned to remove oil, dirt, loose scale, rust, and other foreign matter. Flanges, gaskets, and sleeves shall then be assembled on the pipe ends in accordance with the manufacturer's recommendations. Gaskets, pipe ends, and coupling sleeve flares shall be lubricated with a vegetable soap compound to facilitate the joining. Coupling sleeves shall be accurately centered over the pipe ends and one pipe end shall touch the coupling sleeve centering stop if the coupling sleeve is so equipped.

Bolts shall be tightened to the torque recommended by the manufacturer with a torque wrench in the presence of the City's representative.

A steel jumper rod shall be placed around the coupling and welded to each steel cylinder of pipe section being joined through the coupling. It shall also be welded to the coupling itself.

All exposed couplings, bolts, nuts, and pipe metal surfaces shall be cleaned, cement mortar encased, and polyethylene wrapped as specified for flanged joints above.

Cement Mortar for encasing, buttering, pointing, and grouting shall comply with the requirements of AWWA C205.

306-1.4 Testing Pipelines.

306-1.4.5 Water Pressure Test.

(Amend this section as follows):

L = Maximum allowable leakage in gallons for a four-hour test, for section of pipeline tested.

C = 1.0 for PVC pressure pipe.

306-1.4.8 Televising Sewer Mains and Storm Drains

(Amend this section as follows):

All sanitary sewer lines 6 inches and larger in diameter shall be video inspected prior to their acceptance. The video inspection is to be scheduled after all air, wayne ball, and mandrel testing has been completed. Any deficiencies found during video inspection shall be corrected by the contractor at his expense. All repairs performed will be subject to further video inspection.

For sewer mains located in streets, the roadway will have compacted subgrade in place, surrounding all sewer manholes. For sewer mains located in easements offsite of roadways, the contractor will provide a 10-foot wide graded access road with a 20-foot wide graded radius around all manholes. In all cases, the manhole frame and cover will be a minimum of 3 inches above grade, and a maximum of 12 inches above grade.

306-1.4.9 Leakage Test for Sewer Manholes.

(Add the following subsection):

When air pressure test (Section 306-1.4.4) is used to test sewer mains, all manholes shall be tested by the water exfiltration method (Section 306-1.4.2). All inlets and outlets to the manhole shall be plugged to prevent leakage. The allowable leakage shall be one gallon per hour, for manholes five feet in diameter or smaller. Bolt down lids shall be required in unpaved areas.

SECTION 307 – STREET LIGHTING AND TRAFFIC SIGNAL SYSTEMS

307-8 FOUNDATIONS, FOUNDATION CAPS AND SLABS.

307-8.3 Foundation Caps.

(Add the following sentence):

Foundation cap is to be poured onto a clean base surface with continuous concrete from base to cap.

307-10 STANDARDS, PEDESTALS AND MAST ARMS.

307-10.1 General.

(Add the following paragraphs):

Installation shall be according to Regional Standard Drawing E-1 and E-2. Streetlight poles shall be installed 7 feet behind the face of curb or berm, unless otherwise approved by the Engineer. Foundation shall be anchor base. Direct burial will not be allowed.

Streetlight Mounting Heights

1. Pole height measuring from ground surface (± 2 feet):
28 feet for 180-watt units
25 feet for 90-watt units
2. Luminaire mounting height (± 1 foot):
30 feet for the 180-watt units
27 feet for 90-watt units

307-10.2 Mast Arms.

(Add the following paragraphs):

Poles shall be furnished with a mast arm that provides a minimum of six inches of horizontal straight section at the end of the arm to mount a two-inch I.P.S. slip-fitter type luminaire mount.

The mast arm shall be long enough to give a one-foot minimum curb overhang to the luminaire. The usual length for the arm in a typical installation is eight feet. Changes in configuration of mast arms will be permitted, with prior approval of the Engineer, and if the mounting height and stability are maintained.

Mast arms shall be 2 inches I.P.S. aluminum, with an elliptical cross section. Aluminum arms shall be made of corrosion resistant alloys, such as Aluminum Association wrought alloys 6061, 6062, or 6063, or cast alloys 319, or 356. Mast arms shall be self-supporting, without braces, scrolls, or rods. Mounting shall be perpendicular to the street centerline unless otherwise shown on the plans.

All exposed hardware shall be stainless steel. All protected hardware not visible after installation shall be cast aluminum and/or stainless steel, hot-dipped, galvanized, or cadmium plated steel.

307-11 PULL BOXES.

307-11.1 General.

(Add the following paragraphs):

A pull box shall be installed within three feet of each street lighting standard. A pull box shall also be installed within three feet of the service point unless the lighting standard is within six feet of the service point. In this case, only one pull box shall be required between the light standard and the service point. Pull boxes shall **not** be spaced more than 200 linear feet apart. When circuits with multiple lights cross roadways, pull boxes shall be installed at both sides of the road crossings. For single light circuits, pull boxes need not be installed at both sides of the roadway, but only on the side of the roadway opposite the light. Pull boxes shall also be installed where the service run changes direction by more than 30 degrees around corners or curves.

Pull boxes shall **not** be installed in any part of a driveway or other traveled way unless approved by the Engineer. If the pull box is in the traveled way or driveway it shall be provided with a locking metal cover.

(Replace the 4th paragraph with the following):

The bottom of each pull box shall rest firmly on a 6-inch thick bed of 1-inch crushed rock extending 6 inches beyond the outside edges of the pull box. Pull boxes in the vicinity of curbs and/or sidewalks shall be placed adjacent to the back of the curb and/or sidewalk. Pull boxes shall not generally be placed within sidewalk panels.

307-12 CONDUIT.

307-12.1 General.

(Add the following paragraphs):

Conduit laid parallel to the street shall be installed under the sidewalk where new sidewalk is being constructed or directly behind the existing sidewalk.

Conduit shall be laid to a depth of not less than 30 inches and shall be sand-encased with 3-inch minimum over and around all sides. Conduit laid in an open trench shall **not** be covered nor shall any trench or inspection hole be backfilled until the Engineer has accepted installation. No conduit end shall be within 2 inches of making contact with any part of the pull box.

307-14 SERVICES.

307-14.1 General.

307-14.1.1 San Diego Gas & Electric (SDG&E) Connection.

(Add the following subsection):

All service points must be obtained from SDG&E. In rare instances, a new light can be connected to an existing light system, but only after approval of the Engineer. An SDG&E easement is not sufficient for a service point unless SDG&E agrees to extend their facilities to the City right-of-way. Service runs across private property are not acceptable.

For service from a wood power pole, the service point will be a pull box that SDG&E will install, at the Contractor's expense, at the foot of the pole or in the City's right-of-way. SDG&E will complete the work when contracted for a service point. The box must be installed before work on the light may begin.

The pull box installed within three feet of the service point (see Section 307-11.1) shall contain waterproof fuse holders and 30-amp fuses on the hot legs. This service point pull box must be in the City's right-of-way.

Before SDG&E will energize a light circuit, three sets of RECORD DRAWINGS must be submitted to the City by the Contractor. The drawings must clearly show:

1. Wattage and type of light
2. Location of each light denoting specific distance in footage from a given intersection (e.g. Community Road south of Kirkham Way 370" SES, or Colony Drive at Colony Way)
3. Conduit runs and pull boxes
4. Service point. If the service point is a wooden power pole or transformer, show the pole or station number.
5. Size of wire in conduit run and poles
6. Lengths and distances of wire runs
7. Sizes and locations of fuses
8. Voltage of the system
9. Manufacturer and model numbers/names of luminaries, poles, and mast arms
10. Installing Contractor's name, address, telephone number, and a responsible contact's name.

307-16 STREET LIGHTING CONSTRUCTION.

307-16.8 Luminaires.

307-16.8.2 Lamp Size and Identification.

(Add the following paragraphs):

Street lighting luminaries shall be completely assembled and furnished with a lamp and an external photoelectric control unit. Luminaries shall be designed for horizontal mounting with a horizontal burning lamp. The optics shall be full cutoff type of standard make and manufactured by a manufacturer of recognized experience and ability who is now regularly engaged in the manufacture of street lighting luminaries. The luminaire shall be die cast aluminum or welded heavy gauge aluminum sheet and furnished with an optical assembly removable without the use of special tools. The luminaire lens shall be glass.

The luminaire shall have a slip-fitted mounting bracket capable of attaching to a two-inch (2") pipe without the need for special mounting parts. Leveling and clamping of the luminaire to the mast arm pipe shall be accomplished by tightening mounting bolts, which are externally or internally accessible. Luminaries shall be installed in a horizontal position unless other installation is approved by the Engineer.

The luminaire shall include an integral twist-lock type receptacle for photoelectric cell control in accordance with the latest EEI-NEMA standards. The receptacle shall be adjustable with respect to North and pre-wired to the terminal board. The luminaire power unit assembly shall be mounted on a separate component of the luminaire to facilitate replacement and shall consist of an integral ballast, capacitor, and heavy-duty terminal block.

The ballast assembly shall be enclosed in a separate compartment from the optical assembly. Both compartments shall be sealed with a heat-resisting gasket. The optical assembly door hinge shall be designed so that when the door is opened, the hinge pins shall prevent the door from falling free. The luminaire shall be constructed and installed in such a manner to provide the required lighting distribution, with the lower edge of the luminaire's housing below the entire light source and lens. The addition of external shielding to accommodate these criteria is **not** permissible. The light distribution patterns shall be Type II.

The net weight of the complete operating luminaire shall be no greater than 50 pounds for 90-watt units and 55 pounds for 180-watt units.

307-16.8.4 Photoelectric Units.

(Add the following sentence):

The photocell shall be properly oriented with the photocell pointing north.

307-16.8.6 Payment.

(Add the following sentence):

All street light installations are to be guaranteed for a period of one year from the date of acceptance of the improvements by the City for maintenance, at no additional cost to the City.

SECTION 310 - PAINTING

310-5 PAINTING VARIOUS SURFACES.

310.5.5 Painting Lumber.

310-5.5.1 Paint.

(Amend this section as follows):

Exterior wood surfaces shall receive two primer coats and two finish coats. Primer shall be two coats of white undercoat; each applied to a minimum dry film thickness of one mil.

Interior wood surfaces shall receive one primer coat and two finish coats. Primer coat shall be one coat of white undercoat applied to a minimum dry film thickness of one mil.

310-6 PAINTING MASONRY.

(Add the following subsection):

310-6.1 General.

Masonry construction and surface preparation shall conform to Section 303-4. Masonry surfaces shall be painted as follows:

Exterior surfaces shall receive two coats of primer-sealer, and one finish coat. Interior surfaces shall receive one coat of primer-sealer, and one finish coat.

SECTION 315 - STREET NAME SIGNS

(Add the following section):

315-1 EXISTING SIGNS.

315-1.1 General.

The contractor shall be responsible for removal, salvage, and delivery of existing signs to the City Central Supply Warehouse.

Contractor shall verify if existing signs, that are to be removed, are located in concrete and/or dirt. Existing signs shall not be cut off at ground level and hole patched. For signs located in dirt areas, the contractor shall remove the pole foundation, fill hole, and re-compact. For signs located in concrete, the contractor shall remove the pole foundation, fill hole, and replace concrete panel to nearest joint, no concrete patches will be allowed.

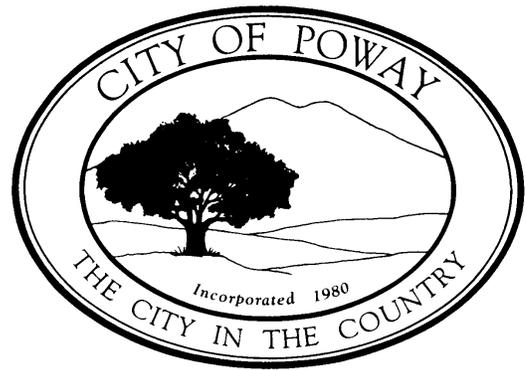
Payment for concrete replacement shall be included in the bid line item for sign removal.

315-2 PROPOSED SIGNS.

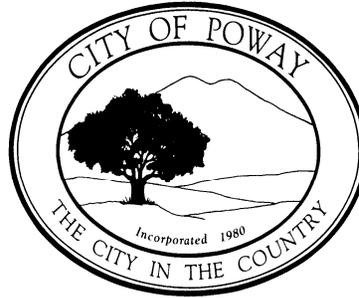
315-2.1 General.

New signs shall be located at the southeast corner, 7 feet behind the face of curb, and at the curb return or as specified by the Engineer.

Section 3 Engineering Supplements



Approved Materials List For Public Works



City of Poway

APPROVED MATERIALS LIST 2012

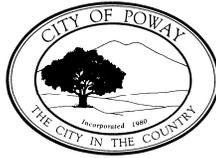
THESE MATERIALS AND THEIR MANUFACTURERS ARE APPROVED FOR USE IN THE CITY OF POWAY. REQUESTS FOR ALTERNATIVE MATERIALS OR MANUFACTURERS SHALL BE SUBMITTED IN WRITING TO THE DEVELOPMENT SERVICES DEPARTMENT FOR APPROVAL BY THE CITY ENGINEER PRIOR TO INSTALLATION.

Notice of Change to California Law: No-Lead Brass to be Used in Public Water Systems

Due to changes in California State law enacted in Assembly Bill (AB) – 1953, the State of California is requiring that no-lead brass be used in the construction of a public water system by January 1, 2010.

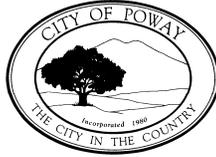
Because of these changes to the State law, the City of Poway will no longer allow leaded brass to be installed in the construction of public water systems starting on January 1, 2010, in accordance with State law.

Since this requirement, AB-1953, will be in effect, the City of Poway advises contractors and suppliers at this time to begin depleting their on-hand stock of leaded brass and begin restocking as needed with no-lead brass. As of January 1, 2010 there shall be no exceptions granted for leaded brass in public water systems within the City of Poway.



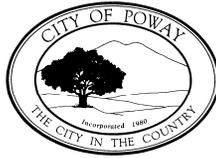
**Approved Materials List - Drainage
City of Poway
2012**

ITEM	DESCRIPTION	MANUFACTURER
Chain Like Fence	9 ga. Galvanized fabric & hardware, ASTM A-392 RSD M-5, 6 20	Frontier Fence Sentry Fence
Drainage Structure Grate	Hot dipped galvanized; RSD D-15	Center Steel
Manhole Cover & Frame	36" dia. cast iron, 2 pc. cover	South Bay Foundry SBF-1325 Alhambra Foundry
Manhole Cover & Frame Heavy Duty	24" dia. cast iron	South Bay Foundry SBF-1310
Manhole Cover & Frame Light Duty	24" dia. cast iron	South Bay Foundry SBF-1535 Alhambra Foundry
High Density Polyethylene Pipe (HDPE)	8" - 24" ASTM 3035, Not approved for street use	ADS Inc.
PVC	8" - 24" ASTM D3034 SDR35 not approved for street use 12" - 30" HANCOR Hi-Q Sure Lok HDPE	J-M Mfg. HANCOR
Reinforced Concrete Pipe	12" - 72" dia. ASTM C76	Ameron Johnson-Bateman HydroConduit Rialto
C-905	8" - 24" Water Pipe use to convey storm water	Certainteed J-M Vynletech



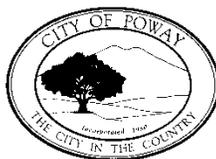
**Approved Materials List - Sewer
City of Poway
2012**

ITEM	DESCRIPTION	MANUFACTURER
Fittings ABS	Schedule 40	GPK
Fittings PVC	ASTM D-3034, SDR-35	GPK J-M Mfg. Vassallo
Manhole Frame & Cover	24" dia. cast iron With City of Poway/Sewer in raised lettering on covers	South Bay Foundry SBF-131 Alhambra Foundry A-131 B&W Precast F-1310
Manhole Frame & Cover	36" dia. cast iron, 2-pc. cover With City of Poway/Sewer in raised lettering on covers	South Bay Foundry SBF-1325 Alhambra Foundry B&W Precast F-1325
Manhole Frame & Cover unsurfaced areas	24" dia. cast iron bolt down	South Bay Foundry SBF-1310-M4 Alhambra Foundry A-1254
Manhole Frame & Cover unsurfaced areas	36" dia. cast iron bolt down, 2-pc. cover	South Bay Foundry SBF-1325-M4 Alhambra Foundry
Pipe ABS	Schedule 40	Colbe Foam Core
Pipe PVC	4" - 15" ASTM D1784, D-2321, C-2855, D-3034, SDR-35, F-447; min. stiffness = 46 psi 12" - 30" HANCOR Hi-Q Sure Lok HDPE	J-M Mfg. Certain-Teed Pacific Western Pipe Vinyl Tech
Pipe VCP	ASTM C-700	Gladdin & McBean Mission Clay
Precast Manholes (rings & cones)	RSD S-2, 5x3	Marcon B&W Precast
C/O Dead End	SBF 1243 Type Clean Outs	South Bay Foundry
Prop. Line C/O Box	Round Concrete Box w/Cast Iron Lid (w/Sewer on Lid)	J&R "Round" Concrete - 5RT J&R "Round" C.I. Lid - 5RT



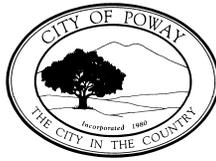
**Approved Materials List - Street Lighting
City of Poway
2012**

ITEM	DESCRIPTION	MANUFACTURER
Poles	MBBO7.4 for use with 90W LPS luminaire MBBX08 for use with 180W LPS luminaire	Ameron Ameron
Luminaires	LPSV	Spaulding Palomar Visionaire Lighting Roadway
Photocontrols	D124-2.6-SMBK DPN124-2.6-TMGN for part night controls 6390B-BK	DTL DTL Ripley
Fuses	FNQ	Bussman
Fuse Holders	HEX Series	Bussman
Wire	Type THW Type XHHW - 2	
Decorative Pole Finish (Old Poway Park and Town Center areas)	Two part epoxy - RAL 6005 – Moss Green	



**Approved Materials List – Traffic Signals
City of Poway
2012**

ITEM	DESCRIPTION	MANUFACTURER
Signal Cabinet	Caltrans type 332	McCain
Signal Controller	Caltrans type 170E	McCain
Video Detection	Vantage Edge 2	Iteris
Battery Backup Power Supply	Dimension 24M11-WBE	Sensata Technologies
Electrical Service Cabinet	MEUG-16-M100-SDGE - Aluminum USP16-M2100-112CTB-SD-AL	Meyers Pacific Utility Products
Backup Battery	DCM0075 - 75AH AGM Battery	Interstate Battery
LED Pedestrian Countdown Module	430-6479-001XC	Dialight
LED Signal Module - Red	DR6-RTFB-20A 433-1210-003	Gelcore Dialight
LED Signal Module - Yellow	DR6-YTFB-20A 433-3230-001	Gelcore Dialight
LED Signal Module - Green	DR6-GTFB-20A 433-2220-001	Gelcore Dialight
RG-59/U Coaxial Video Cable	8281	Belden
Emergency Vehicle Preemption	Detector – 721 Phase Selector - 752	GTI
Signal Housing	12" - Aluminum	McCain
Pedestrian Pushbutton	5" x 7" Bulldog III	McCain Polara



**Approved Materials List - Water Utilities
City of Poway
2012**

All brass parts and fittings shall comply with California State Assembly Bill AB-1953.

ITEM	DESCRIPTION	MANUFACTURER
Air Vac Assembly	Cast iron body epoxy coated w/stainless steel internal parts. 1" - 2" NPT, manual per PW-1 3" - 6" Flanged	Vent-O-Matic RBX Apco Crispin
Angle Meter Stop	¾" - 2" brass NL (AB 1953) 1½" & 2" 2-bolt flanges Ball valves	Jones ¾" - 1" zzzzj1964W Jones 1½" - 2" J1973W Ford BA-23, BFA 23 McDonald 74602B
Anti-Seize Compound	For use on stainless steel bolts and nuts	Loctite Never Seez
Backflow Preventers		Per USC approved materials list
Bolts & Nuts	Stainless Steel #316	Pacific Coast Bolts Tripac Fasteners Industrial Thread Prod.

ITEM	DESCRIPTION	MANUFACTURER
Brass Pipe & Fittings	¾" - 2" red brass per ASTM B43 NL (AB1953)	Jones, Ford, Nibco Lee Merit
Bushing/Insulated	Molded "Lexan" Polycarbonate insulating bushing	Farwest Corrosion Control
Chlorine	Liquid (gas) or Sodium Hypochlorite solution. For swabbing of potable water parts/pipe during installation. Disinfecting new water lines	
Copper Tubing	ASTM B88, Type "K", soft/hard	Mueller Streamline Cerro Cambridge Lee
Copper Fittings	¾" - 2"	EPC, Lee, Nibco Mueller
Corporation Stop	MIP x Flare ball valves NL (AB 953)	Jones 1929 Mueller B-25025 Ford FB700 McDonald 74704B
Couplings: PVC - C900 4" thru 12" PVC - C900 14" thru 36"	Repair, Transition, Deflection	Certainteed Naco

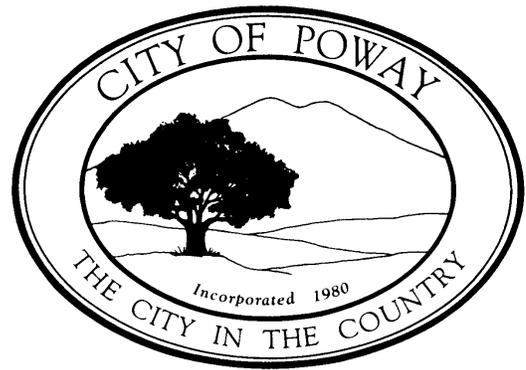
ITEM	DESCRIPTION	MANUFACTURER
Couplings: Transition - Mechanical	Transition from ACP to PVC Pipe All bolts/nuts to be 304 or 316 All couplings used to transition ACP to PVC need restraints on PVC side. Grease, then in plastic	Smith-Blair - Quantum or Omni Viking Johnson - Maxifit or Maxistep Ford FC2W Dresser XR501 Romac XR501
Curb Stop Customer Handle	¾" - 2" brass ball valves NL (AB 1953)	Jones J-1908W, Jones J-1913W Ford B13-w/HB34S Ford BF13-w/HB67S McD 76101MW-SHDLB
Fire Hydrants: 150 psi Residential Commercial Industrial	¾" drilled holes 2½" x 4" non-painted 2" - 2½" x 4" non-painted 1" - 2 ½" x 2" - 4" non-painted	Jones 3700, 3765, 3775 w/plastic caps
Fire Hydrants: 200 psi Residential Commercial Industrial	¾" drilled holes 2½" x 4" non-painted 2 - 2½" x 4" non-painted	AVK - 24/70 Residential AVK - 24/90 Commercial
Fire Hydrants Old Poway Park	2 - 2½" x 4" ports, "0" style, polished brass	Jones
Fire Hydrant - Bury Ell	Push-on ductile iron short radius 30" barrel	South Bay Foundry Clow
Fire Hydrant - Spools	6" - 4" thru 20" cement mortar lined and seal coated Fire hydrant "breakoff" spool w/groove	Clow South Bay Foundry
Fire Hydrant Break-off Check	Fire Hydrant Break-off Check Valve	AVK - Flow Guard II James Jones – Tell Tail

ITEM	DESCRIPTION	MANUFACTURER
Fittings, Cast/Ductile Iron	Flanged or Push-on tees, bends, crosses, reducers adapters, etc. For water lines 4" and larger. Manufactured per AWWA standards.	Sigma SIP South Bay Foundry Star Pipe Products Tyler
Fire Service Backflow	Double detector check	Approval during plan check by Poway Fire Dept and Poway Public Works per USC
Joint Restraint Assembly	360 Wedge device used for the connection of pipe and its fittings. This device will not replace the use of thrust blocks. 304 or 316 ss bolts/nuts	Sigma PV-Lok Ford Uniflange 1500 Star 1200 Series Romac RomaGrip/611
Gasket	1/8" thick ring. Non Asbestos Content	Tripac Calpico Pacific Coast Bolt
Grease	For bolt corrosion protection on buried bolts. NO-OX-ID Type	NSF SACHEM
Meter Box and Lid	Concrete	J&R 4½ two piece 5½ two piece
Monofilament Poly Wrap (Milwrap)	Minimum thickness 10 mil	

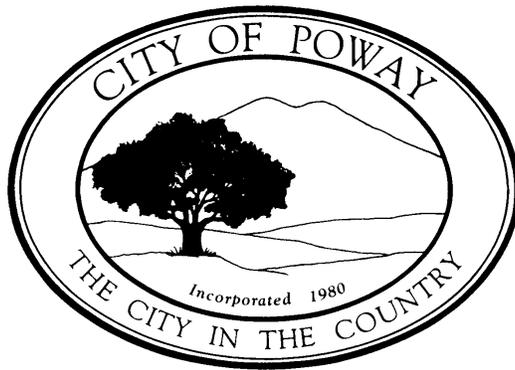
ITEM	DESCRIPTION	MANUFACTURER
Mortar - Installation or repair for water steel pipe	Cement based with high compressive and bonding strength	Tamms Speedcrete Blue Line
Pipe Lubricant	Rubber gasket pipe lubricant for use on PVC, or Cast/Ductile iron joints, NSF Required	Christy Pro-Lube Whitlam Blue Lube
Pipe, PVC	4" thru 12" 150 & 200, AWWA C900 14" thru 36" C905	Diamond J-M Vynletech North American
Post Indicator	This device is no longer approved for installation. Contact Poway Public Works and Poway Fire for questions. Includes indicator and tamper switch. All devices shall be UL label affixed.	
Service Clamp - AC	¾" - 2" FIP threads, brass saddle brass straps and nuts OR SS straps and nuts for AC pipe size	Jones J - 979(D), J-969(D) Romac 101B, 202B, 202BS Ford 2028, 202BS McDonald 3826, 3846
Service Clamp - PVC	¾" - 2" FIP threads, brass saddle SS straps and nuts ONLY	Ford 101BS, 202BS Jones J696(D) Romac 202BS McDonald 3846

ITEM	DESCRIPTION	MANUFACTURER
Tapping Sleeve For ACP and PVC Epoxy Coated or Stainless Steel	Fabricated Epoxy or SS with stainless steel bolts and nuts for 4" - 12" wet taps. Check to see that it is the correct application. ACP or PVC Must use #316 stainless nuts/ bolts throughout.	Clow F-5205, F-5207 Ford FTSC, FAST Dresser 630, 610 Mueller 304, 615, 619 Romac SSTIII, FTS-420 Smith-Blair 665, 664, 622, 664
Unions	$\frac{3}{4}$ " - 2"	Lee Merit
Valve: Ball/Angle	$\frac{3}{4}$ " - 2" bronze & brass NL (AB 1953)	Jones J190W Ford BA11-777W McDonald 74604BF
Valve: Butterfly	12" - 36" cast iron or ductile iron, resilient seated epoxy coated low zinc stem #304, 316 fasteners 200 PSI	Pratt Mueller
Valve: Resilient Wedge	4" - 12", cast iron or ductile iron, epoxy coated low zinc stem, 12 mil epoxy lined interior #304, 316 fasteners 200 PSI FI x FI; PO x PO; FI x PO	American Flow Control AFC 2500 AVK Ser.25 Clow M&H Style 76 Mueller Ser. 2361
Valve Cover	Cast iron valve cover & box 8" valve lid 12" AR/BO lid	South Bay Foundry - SBF 1208N South Bay Foundry - SBF 1243
Valve Key Extension	Extension for valve nuts deeper than 60" Square composite extension w/glued on adapters	Ferguson Waterworks

Section 4 Engineering Supplements



**Standard Detail Drawings Supplement
To the “2012 Regional Standard Drawings”**

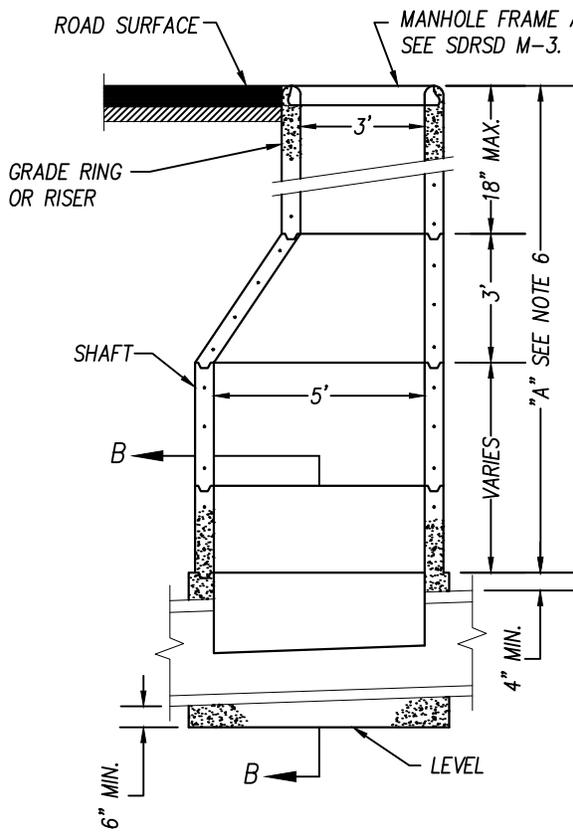


Engineering Supplements

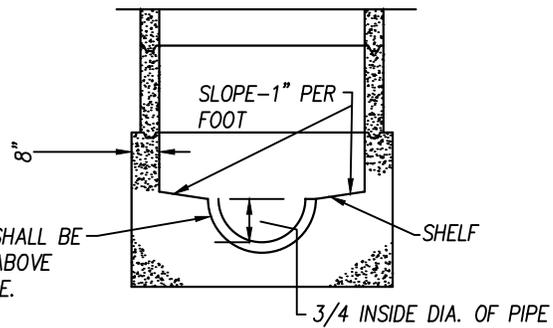
Index of Detail Drawings

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PW-34	BACKFLOW PRESSURE TEST STATION
PW-35	POTABLE WATER SERVICE LINE BYPASS DETAIL



SECTION A-A



SECTION B-B

NOTES:

1. MANHOLE FRAME AND ALL JOINTS SHALL BE SET IN CLASS "C" MORTAR OR MASTIC.
2. ALL PRECAST COMPONENTS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C-478.
3. VERTICAL WALL OF CONE SHALL BE ON THE UPSTREAM SIDE OF THE MANHOLE.
4. CONCRETE BASE SHALL BE 560-C-3250.
5. APPROVED WATER STOP REQUIRED FOR PLASTIC PIPE CONNECTORS.
6. PRECAST SECTIONS SHALL BE USED WITHIN DIMENSION "A" AS REQUIRED, IN ORDER OF PREFERENCE LISTED:
 - A. CONE (NOTCHED FOR PIPE IF DIMENSION "A" IS LESS THAN 3').
 - B. 6" TO 18" OF 3' DIAMETER GRADE RINGS/AND/OR RISERS.
 - C. 5' DIAMETER SHAFT VARIABLE HEIGHT.
7. FLEXIBLE PIPE JOINTS SHALL BE REQUIRED WITHIN 12" OF INSIDE FACE OF MANHOLE EXCEPT FOR PLASTIC PIPE.
8. ALL PATCHING WITHIN MANHOLE BASE SHALL BE EPOXY MORTAR.
9. PRIOR APPROVAL OF PRECAST BASE IS REQUIRED BY THE AGENCY.

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

MANHOLE 5' x 3' DIAMETER

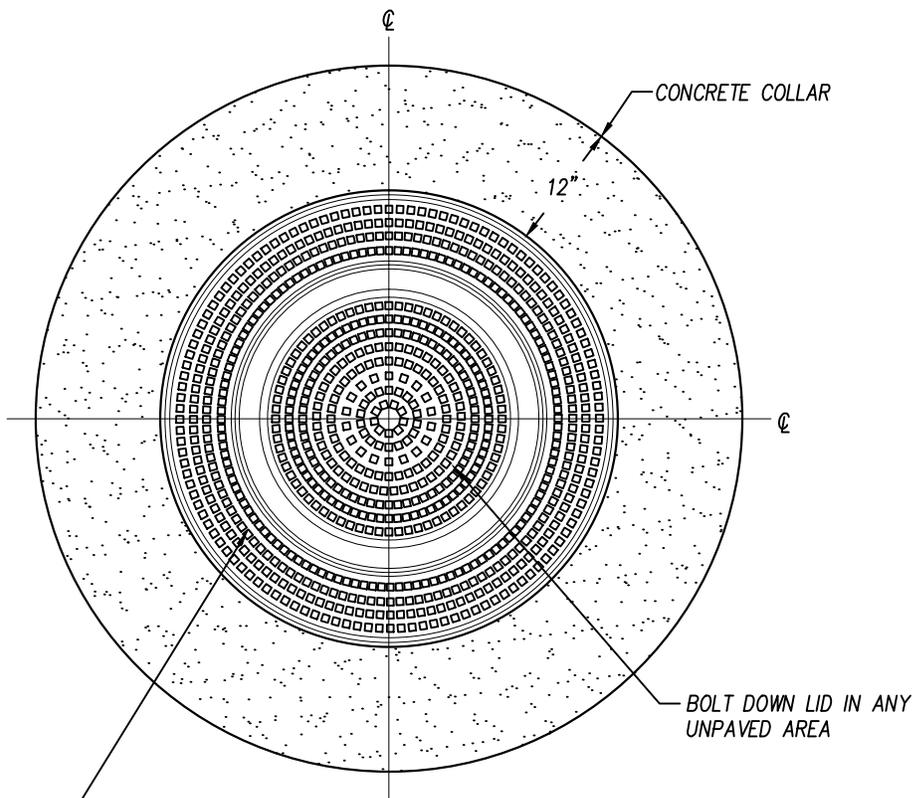
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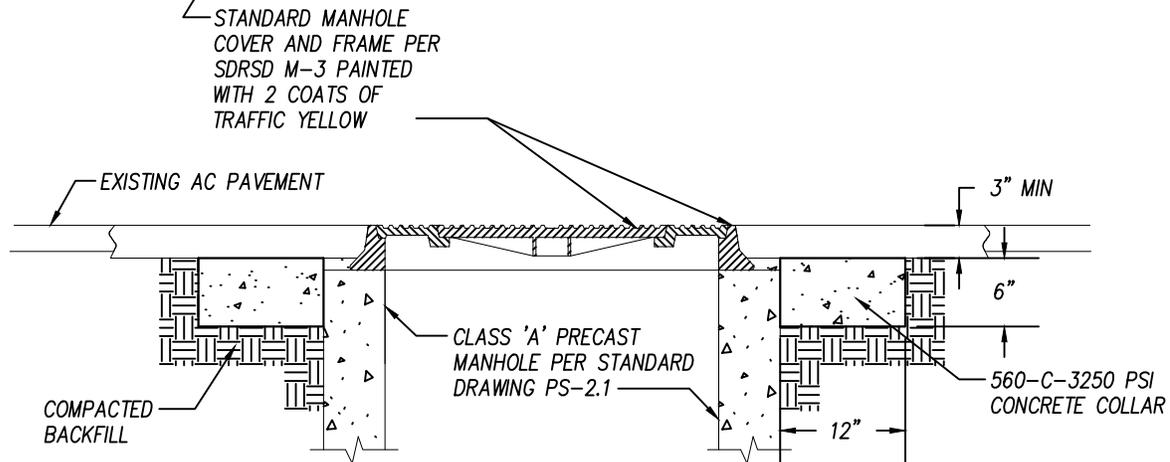
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3/18/13
DATE

PS-2.1



PLAN



SECTION

NOTES:

1. THIS DETAIL TO BE USED ON ALL MANHOLES THAT ARE LOCATED IN A.C. PAVED AREAS.
2. IN AREAS WHERE THERE IS NO A.C. PAVING, POUR CONCRETE COLLAR 12" THICK X 24" WIDE OUTSIDE OF MANHOLE FRAME.

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

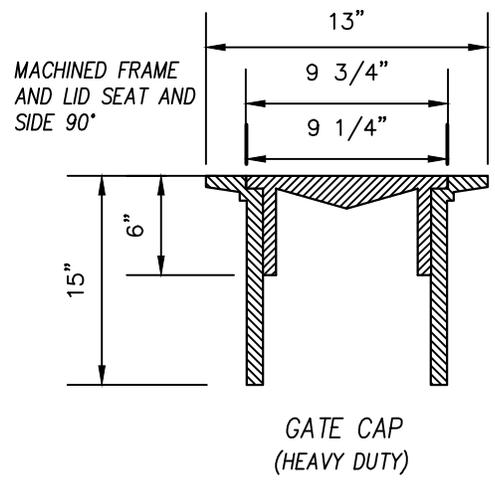
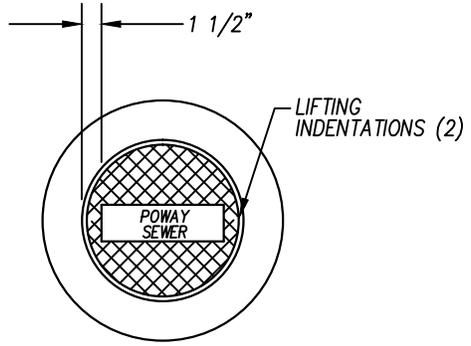
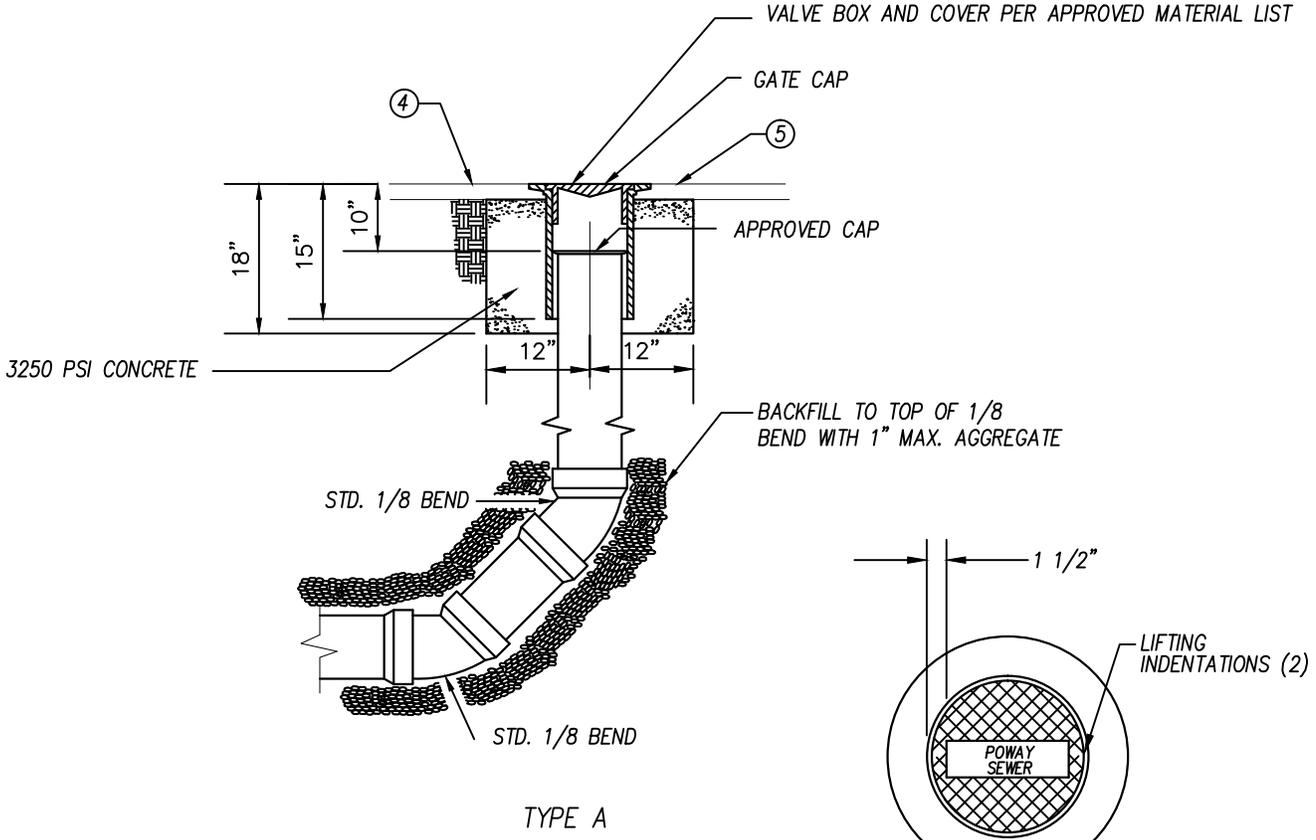
CONCRETE COLLAR
FOR MANHOLE 5'x3'

APPROVED


 CITY ENGINEER
 R.C.E. 41975

3/18/13
 DATE

DRAWING NUMBER PS-2.2



NOTES:

1. GATE CAP SHALL BE LABELED "POWAY SEWER"
2. CLEANOUTS MAY BE USED FOR EITHER V.C.P. OR PLASTIC SEWER MAINS.
3. RISER TO BE SAME DIAMETER AS SEWER MAIN.
4. IN UNPAVED AREAS A PCC COLLAR 6" THICK AND 36" IN DIAMETER IS TO BE POURED AROUND THE LID
5. 3" AC OVER 6"x24" DIAMETER PCC SLAB (PAVED AREA)

LEGEND ON PLANS



REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

END OF LINE
SEWER MAIN CLEANOUT

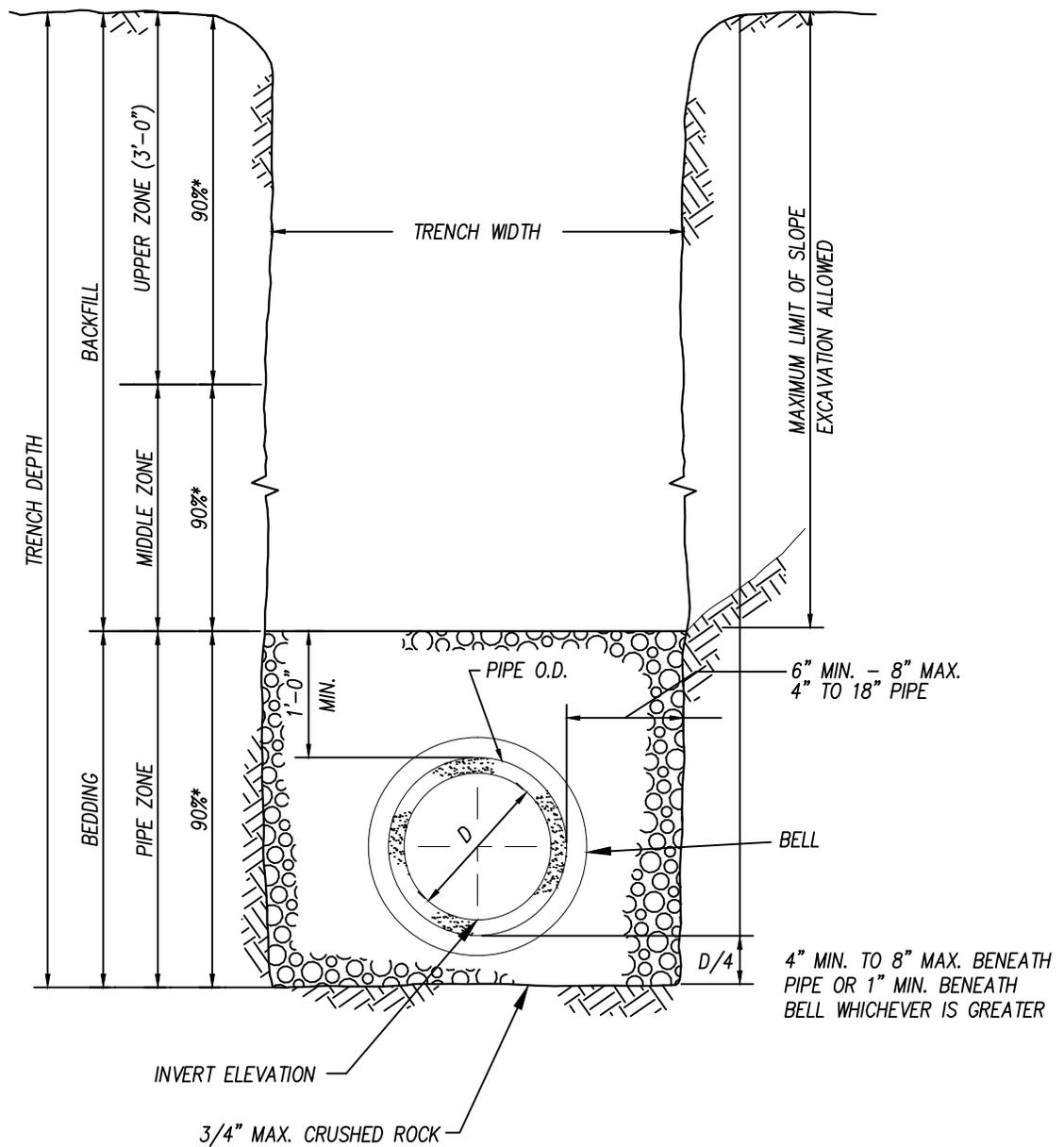
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CITY ENGINEER
R.C.E. 41975

DATE 3/18/13

DRAWING NUMBER PS-3



NOTES:

1. FOR TRENCHING RESURFACING IN IMPROVED STREETS, SEE SDRSD G-24A AND G-24B, TYPE A.
2. (*) INDICATES MINIMUM RELATIVE COMPACTION.
3. MINIMUM DEPTH OF COVER FROM THE TOP OF PIPE TO FINISH GRADE FOR ALL SANITARY SEWER INSTALLATIONS SHALL BE 3 FEET. FOR COVER LESS THAN 3 FEET, SEE SDRSD SP-03 FOR CONCRETE ENCASEMENT.
4. SEE TYPE A INSTALLATION DETAILS NOT SHOWN FOR TYPE B AND C.
5. TYPE C INSTALLATION IS FOR PIPE WITH DIAMETER 15" OR LESS.
6. THE UPPER 12 INCHES OF SUBGRADE IN STREETS SHALL BE COMPACTED TO 95%.

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

PIPE BEDDING AND TRENCH BACKFILL
FOR SEWERS

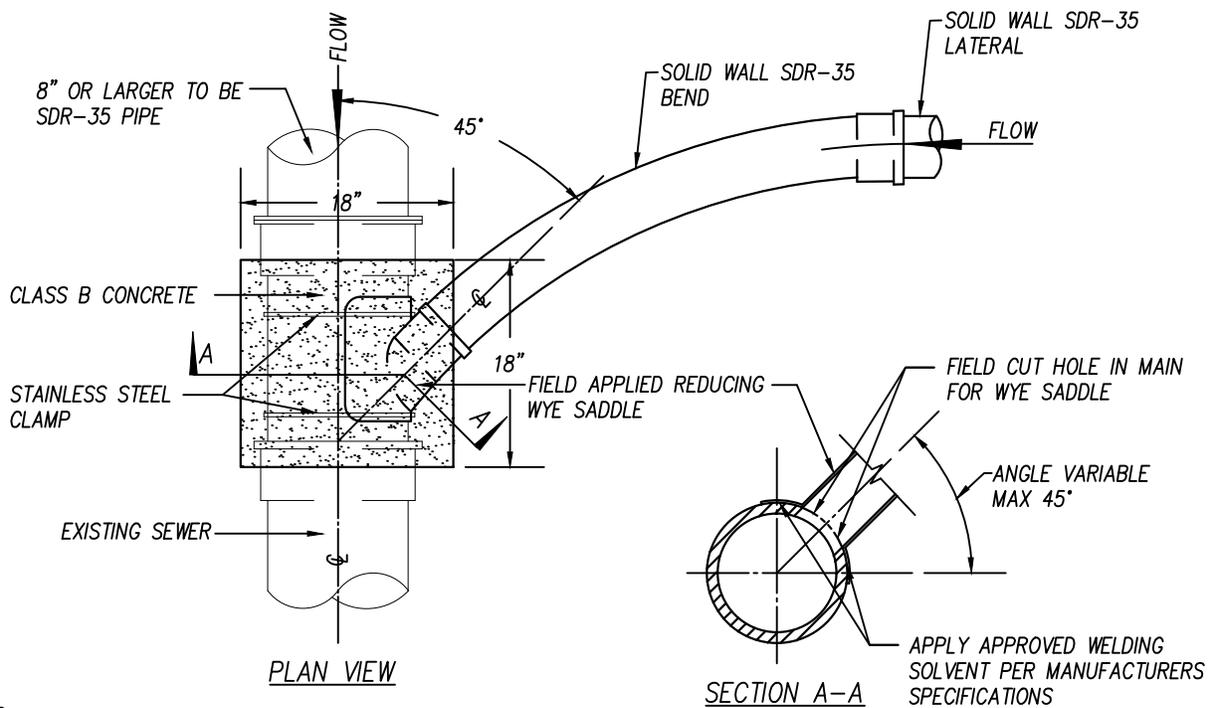
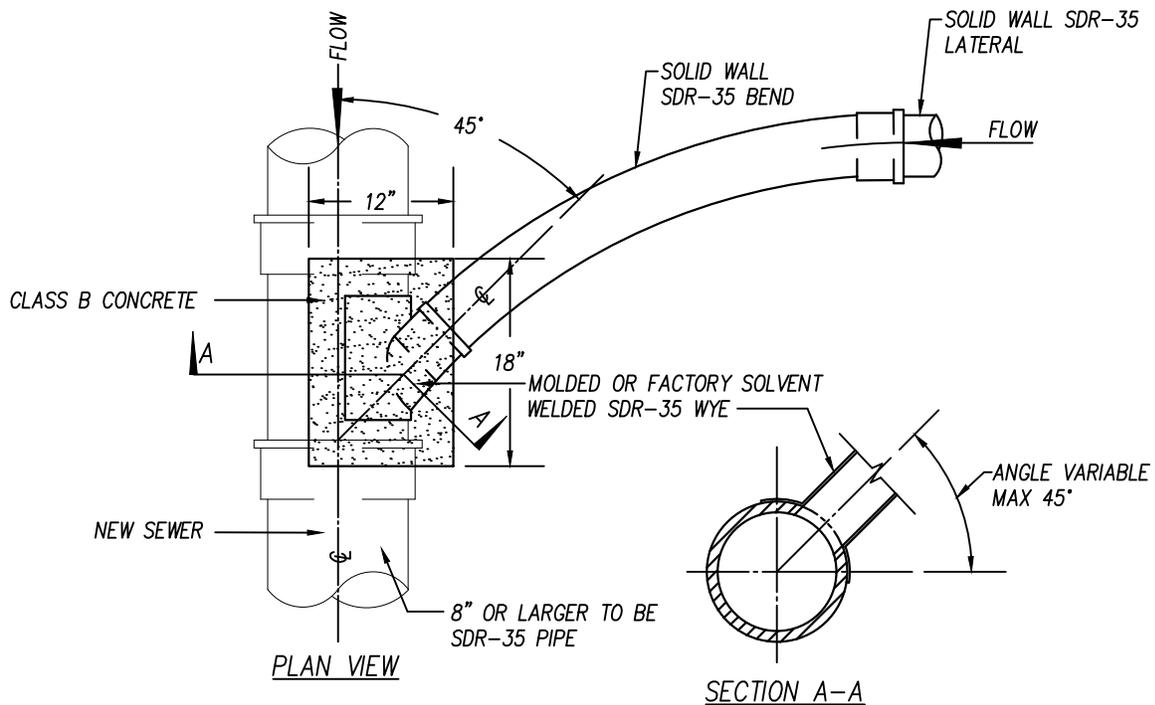
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CITY ENGINEER
R.C.E. 41975

3/18/13
DATE

DRAWING
NUMBER

PS-4



NOTES:

1. ALL LATERAL JOINTS SHALL BE MADE WITH APPROVED WELDING SOLVENT PER MANUFACTURER SPECIFICATIONS.
2. SEE PS-13 FOR ADDITIONAL SEWER LATERAL DETAILS.
3. BEDDING FOR SOLID WALL SDR-35 LATERAL SHALL BE PER PS-13.
4. LONG RADIUS BEND SHOWN, SHORT RADIUS BEND MAY BE USED.

LEGEND ON PLANS



REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

STANDARD
SEWER LATERALS

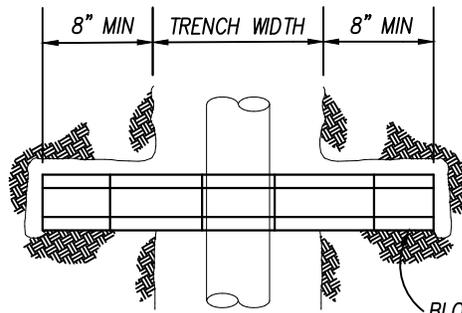
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3/18/13
DATE

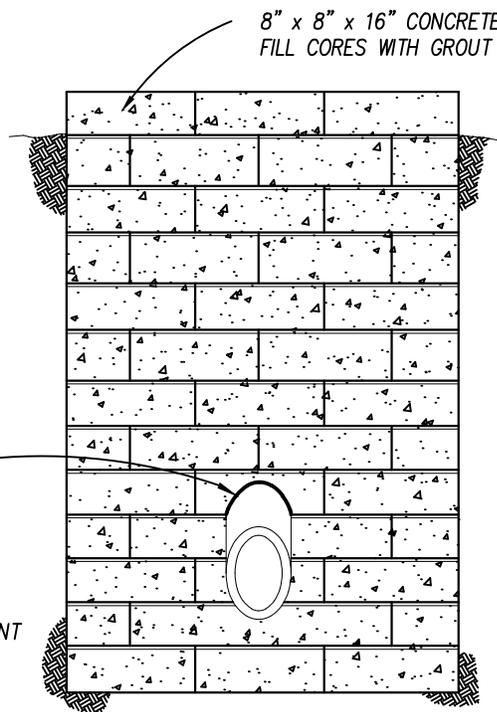
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PS-7



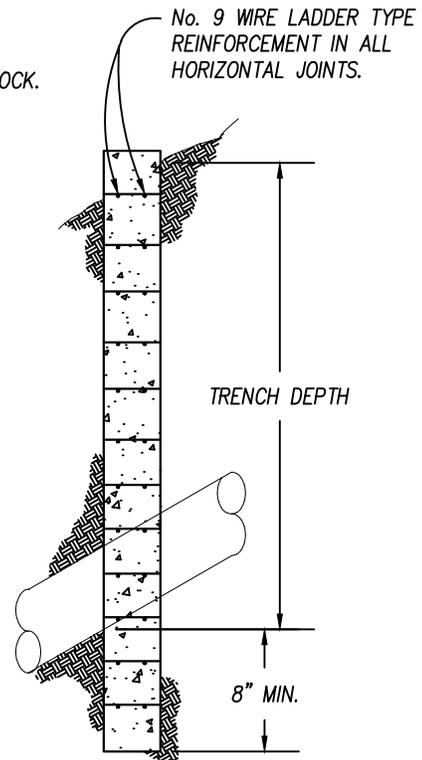
PLAN

BLOCKS TO BE LAID OUT AS TIGHTLY AS POSSIBLE TO DOWNSTREAM SIDE OF NOTCH.



FRONT ELEVATION

1/2" EXPANSION JOINT MATERIAL AROUND PIPE.



SIDE ELEVATION

8" x 8" x 16" CONCRETE BLOCK. FILL CORES WITH GROUT

No. 9 WIRE LADDER TYPE REINFORCEMENT IN ALL HORIZONTAL JOINTS.

TYPE A

LEGEND ON PLANS



REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

CUTOFF WALL

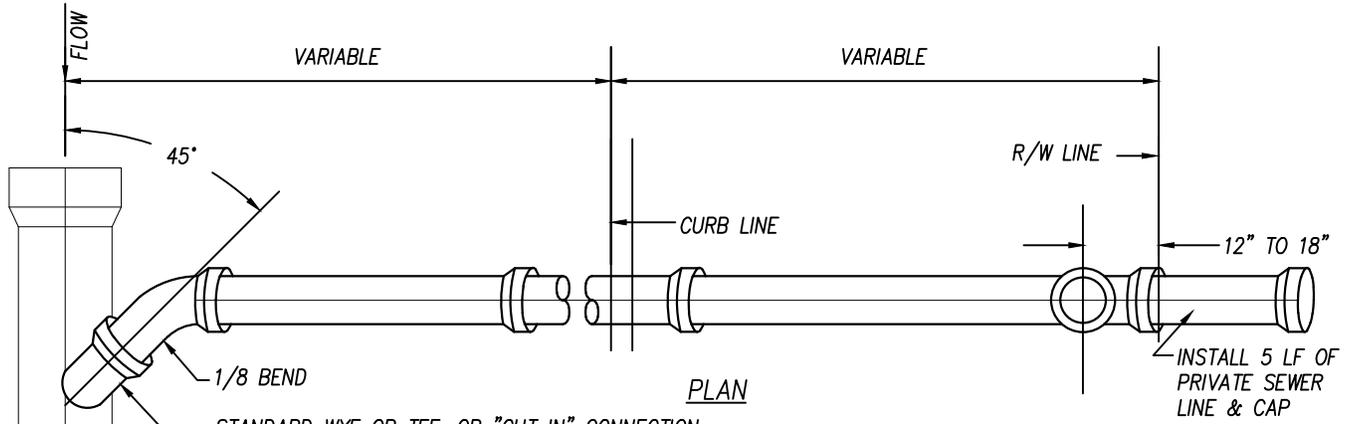
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CITY ENGINEER
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DRAWING
NUMBER

3/18/13
DATE

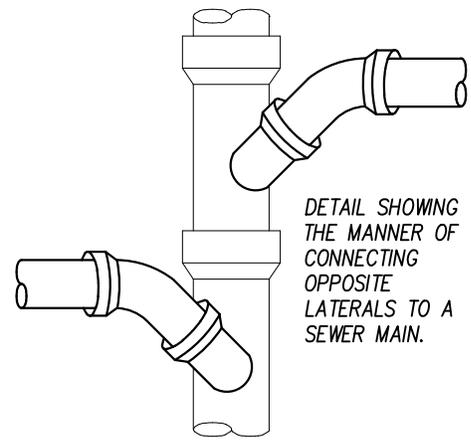
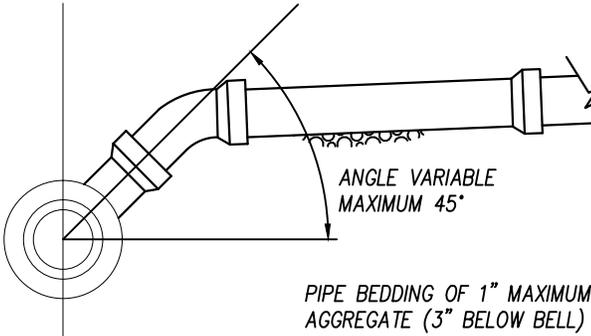
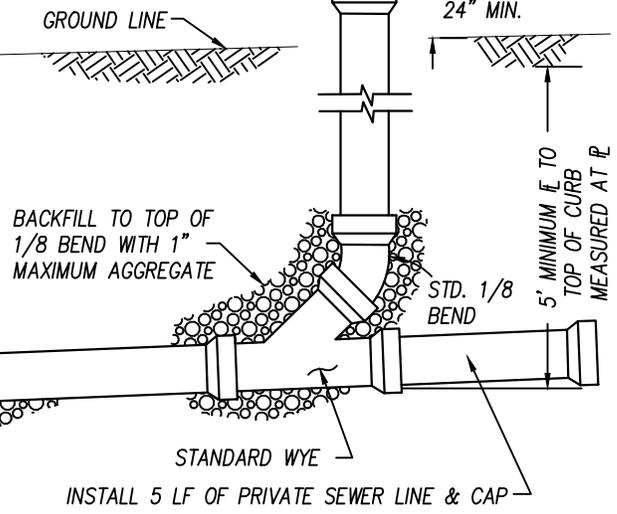
PS-10



STANDARD WYE OR TEE, OR "CUT IN" CONNECTION. WHERE A "CUT IN" CONNECTION IS USED, IT SHALL BE SURROUNDED WITH 4" OF CLASS 470-C-2000 CONCRETE.

LEAVE C.O. RISER ABOVE ADJACENT GRADE. CITY FORCES TO SET C.O. BOX.

LETTER "S" STAMPED IN FACE OF CURB NOT LESS THAN 1 1/2" HIGH AND 3/16" DEEP



NOTES:

1. IN NO CASE SHALL A LATERAL CONNECT TO A SEWER MAIN DIRECTLY ON TOP OF THE PIPE.
2. SEWER LATERALS SHALL HAVE A MINIMUM SLOPE OF 2%.
3. ALL JOINTS ON SEWER LATERAL PIPE SHALL BE COMPRESSION TYPE SDR-35.
4. LATERALS SHALL EXTEND TO PROPERTY LINE UNLESS OTHERWISE NOTED ON PLANS.

LEGEND ON PLANS



REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

SEWER LATERAL
WITH PROPERTY LINE CLEANOUT

APPROVED

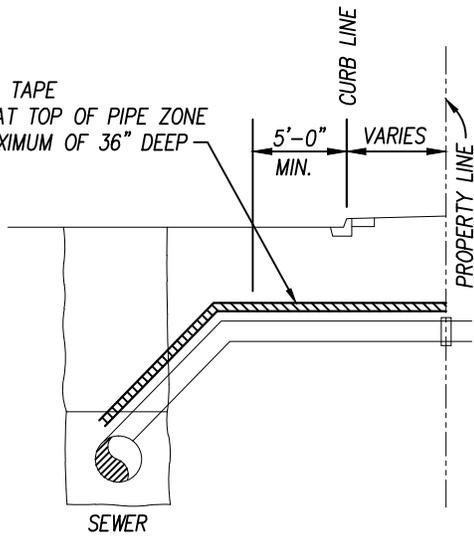
CITY ENGINEER
R.C.E. 41975

3/18/13
DATE

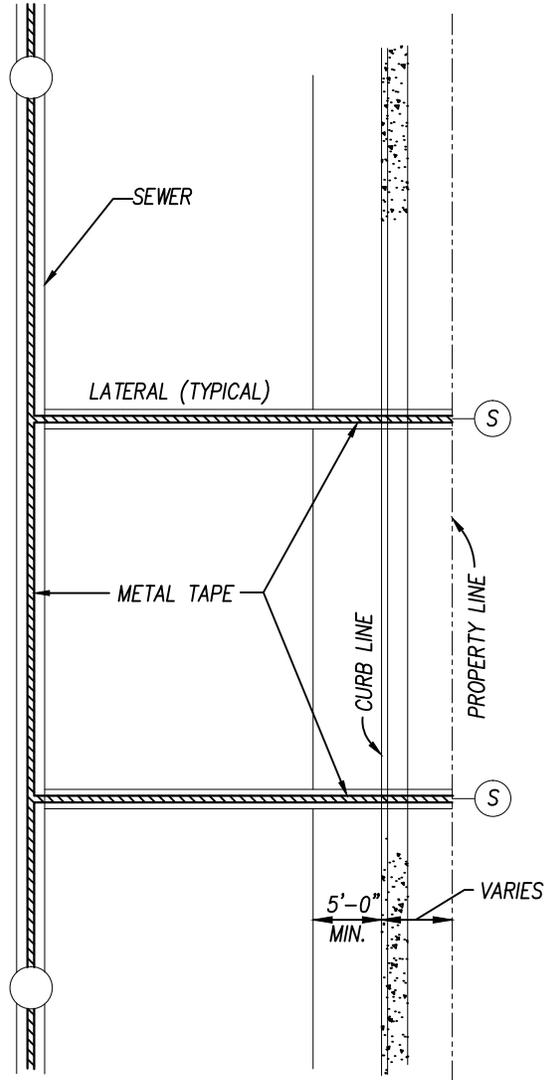
DRAWING
NUMBER

PS-13

6" METAL TAPE
 INSTALL AT TOP OF PIPE ZONE
 OR A MAXIMUM OF 36" DEEP



SECTION



PLAN

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

METALLIC TAPE LOCATOR
 FOR NON-METALLIC SEWER PIPE

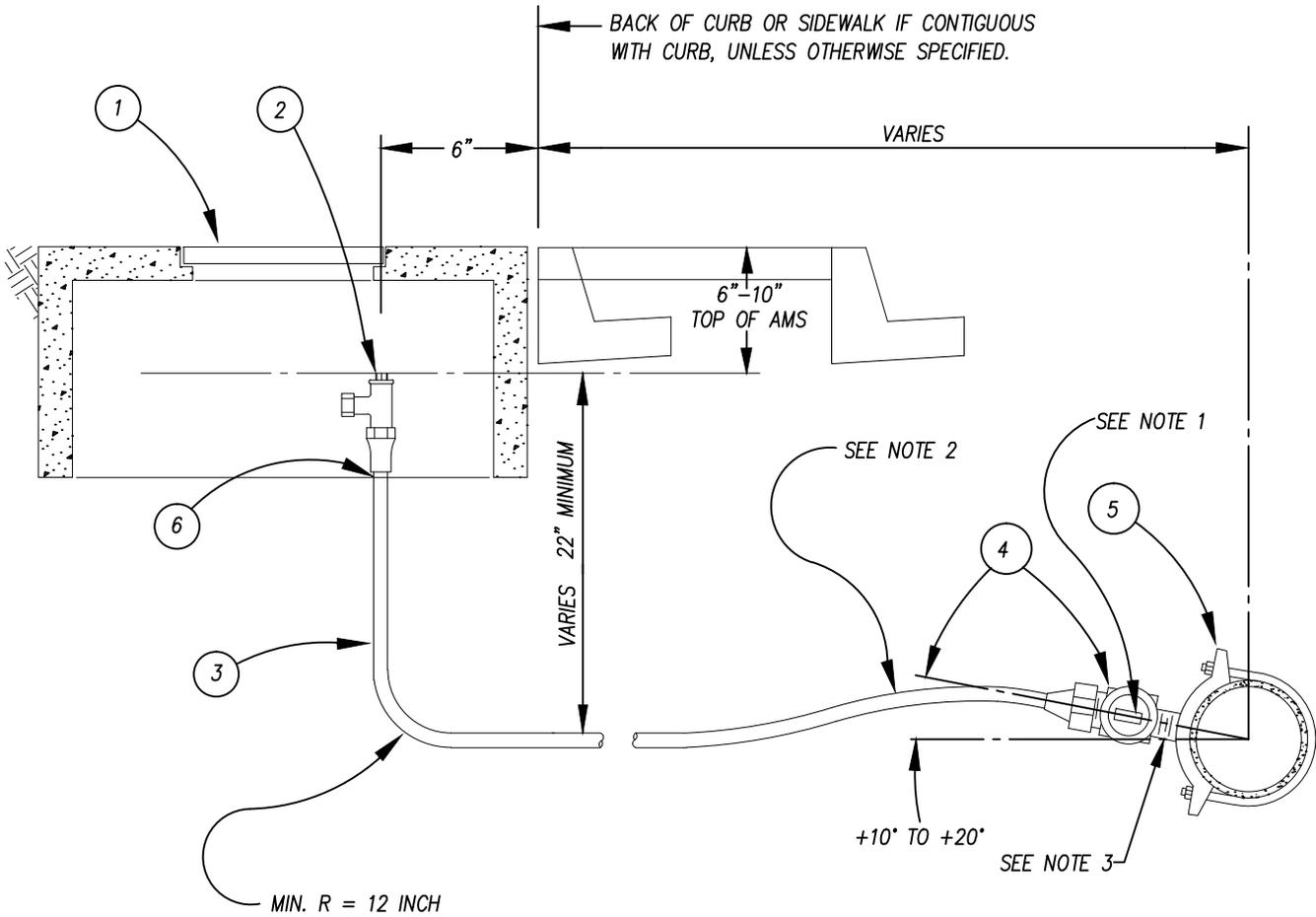
APPROVED


 CITY ENGINEER
 R.C.E. 41975

3/18/13
 DATE

DRAWING
 NUMBER

PS-19



NOTES:

1. INSTALL CORPORATION STOP PERPENDICULAR TO PIPE AXIS.
2. COPPER SERVICE SHALL BE NO MORE THAN 3" ABOVE THE MAIN.
3. ALL SOLDER TO BE SILVER SOLDER.
4. STAMP "W" FOR DOMESTIC ON CURB FACE OPPOSITE METER AND "R" FOR RECLAIMED.

ITEM	NO.	DESCRIPTION	SPECS
1	1	CONC. METER BOX	
2	1	BRONZE ANGLE METER STOP W/ LOCKWING	SEE CITY
3	1	COPPER WATER SERVICE TUBE-TYPE K, SOFT ANNEALED	APPROVED
4	1	BRONZE CORP STOP WITH TAIL PIECE	MATERIALS LIST
5	1	BRONZE SERVICE CLAMP, SINGLE FLAT STRAP (A.C. OR P.V.C.)	
6		USE ALL FLARE CONNECTIONS	

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

1" WATER
SERVICE ASSEMBLIES

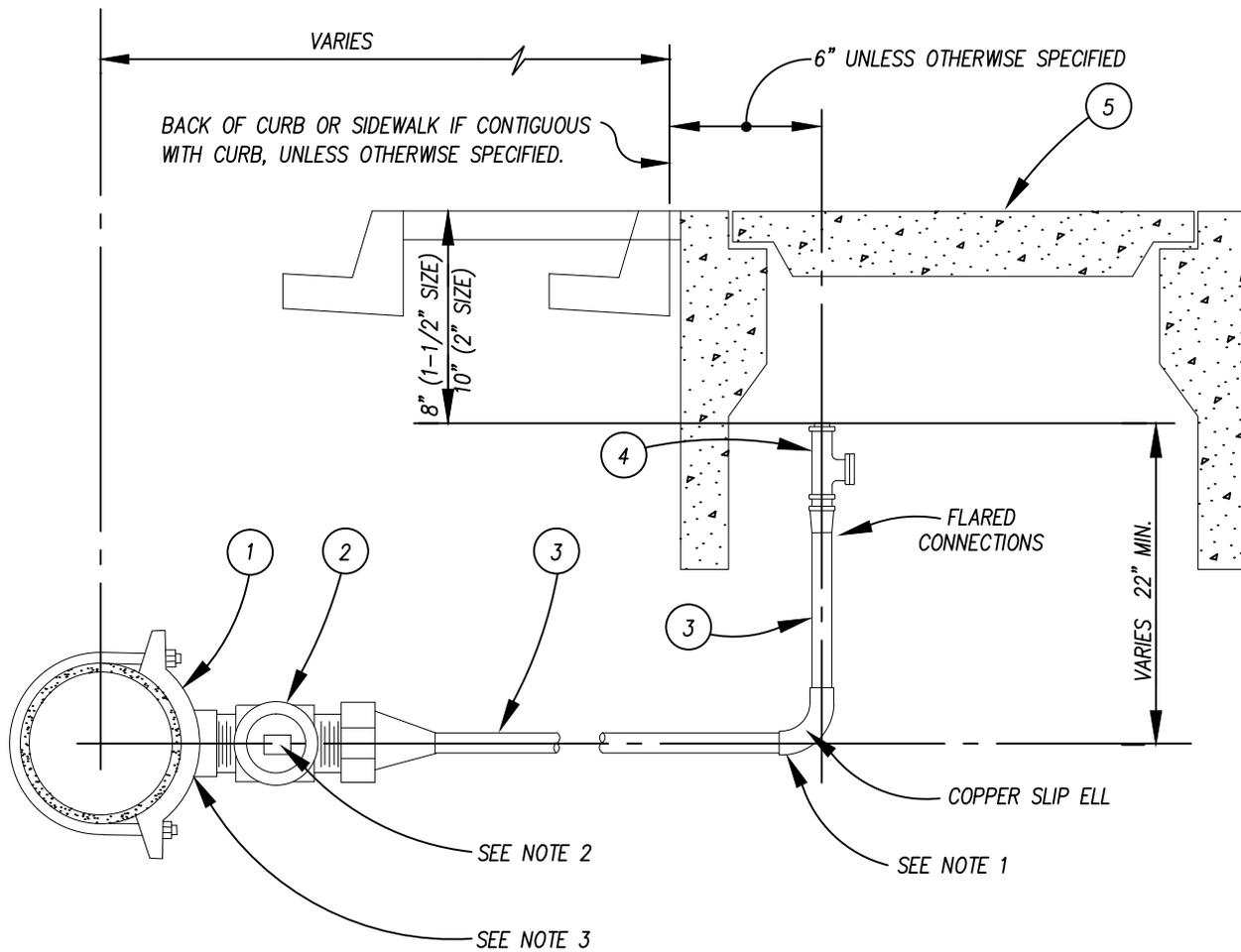
APPROVED

CITY ENGINEER
R.C.E. 41975

DRAWING
NUMBER

3/18/13
DATE

PW-1



NOTES:

1. SILVER SOLDER REQUIRED.
2. INSTALL CORP STOP PERPENDICULAR TO PIPE AXIS.
3. STAMP "W" FOR DOMESTIC SERVICE ON CURB FACE OPPOSITE METER, "R" FOR RECLAIMED.
4. IF SERVICE IS FOR RESIDENTIAL THEN AMS WILL BE 8"-10" ON BOTH 1½" OR 2".

ITEM	NO.	DESCRIPTION	SPECS
1	1	DOUBLE STRAP BRONZE SERVICE CLAMP	
2	1	CORP. STOP WITH TAIL PIECE	SEE CITY
3	1	COPPER WATER SERVICE TUBE-TYPE K, SOFT ANNEALED	APPROVED
4	1	BRONZE ANGLE METER STOP W/ LOCKWING	MATERIALS LIST
5	1	CONCRETE METER BOX	

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

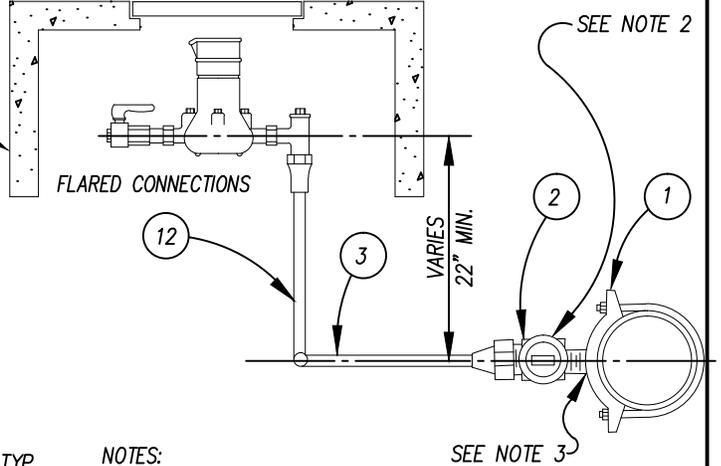
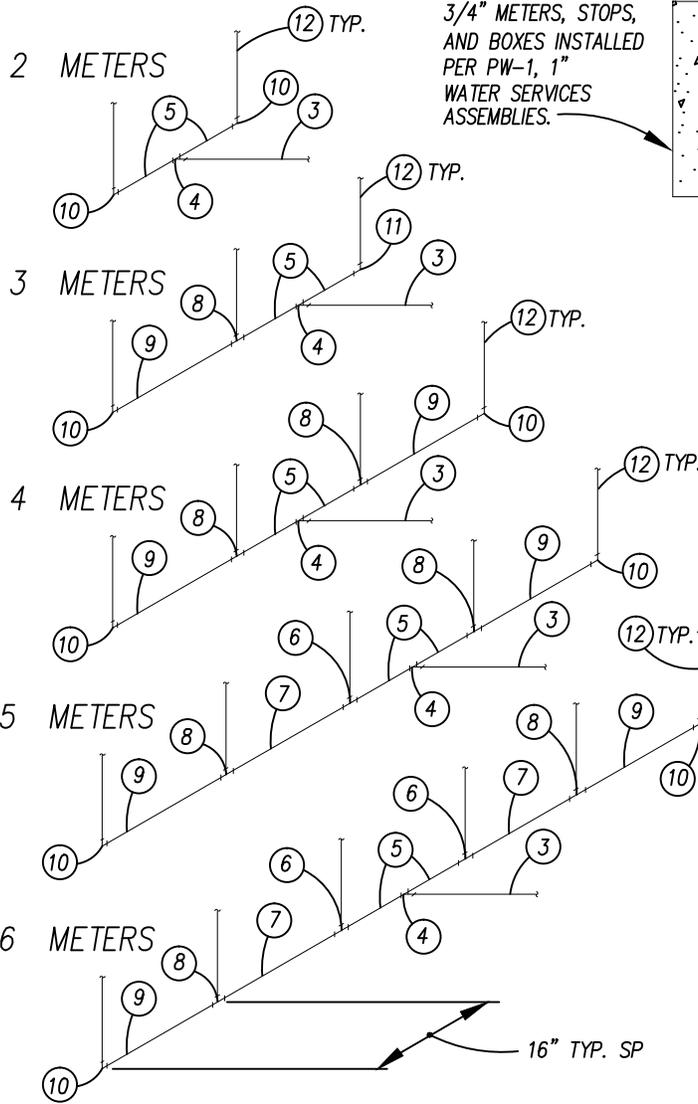
1 1/2" AND 2" WATER SERVICE ASSEMBLIES

APPROVED


CITY ENGINEER
R.C.E. 41975

3/18/13
DATE

DRAWING NUMBER PW-2.1



- NOTES:
1. SILVER SOLDER REQUIRED.
 2. INSTALL CORP. STOP PERPENDICULAR TO PIPE AXIS.
 3. APPROVED BY PUBLIC WORKS ONLY

ITEM	SIZE FITTING / NO. OF METERS				
	2 METERS	3 METERS	4 METERS	5 METERS	6 METERS
1	1"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
2	1"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
3	1"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
4	3/4"x3/4"x1"	1"x1"x1 1/2"	1"x1"x1 1/2"	1 1/2"	1 1/2"
5	3/4"x6"	1"x6"	1"x5 1/2"	1 1/2"x5"	1 1/2"x5"
6	—	—	—	1 1/2"x1"x3/4"	1 1/2"x1"x3/4"
7	—	—	—	1"x14"	1"x14"
8	—	1"x3/4"x3/4"	1"x3/4"x3/4"	1"x3/4"x3/4"	1"x3/4"x3/4"
9	—	3/4"x14"	3/4"x14"	3/4"x14"	3/4"x14"
10	3/4"	3/4"	3/4"	3/4"	3/4"
11	—	1"x3/4"	—	—	—
12	3/4"	3/4"	3/4"	3/4"	3/4"

ITEM	NO.	DESCRIPTION	SPECS
1	1	DOUBLE STRAP BRONZE SERVICE CLAMP	
2	1	CORP. STOP WITH TAIL PIECE	
3	1	COPPER WATER SERVICE, TYPE K, SOFT (ANNEALED)	
4	1	SILVER SOLDER JOINT TEE	
5	2	COPPER WATER SERVICE TUBE, TYPE K, SOFT (ANNEALED)	SEE CITY
6	VARIES	SILVER SOLDER JOINT RED. TEE	APPROVED
7	VARIES	COPPER WATER SERVICE TUBE, TYPE K, SOFT (ANNEALED)	MATERIALS LIST
8	VARIES	SILVER SOLDER JOINT RED. TEE	
9	VARIES	COPPER WATER SERVICE TUBE, TYPE K, SOFT (ANNEALED)	
10	1 OR 2	SILVER SOLDER JOINT BEND	
11	0 OR 1	SILVER SOLDER JOINT RED. BEND	
12	1/MTR	COPPER WATER SERVICE TUBE RISER, TYPE K, SOFT (ANNEALED)	

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

MULTIPLE
WATER SERVICE ASSEMBLY

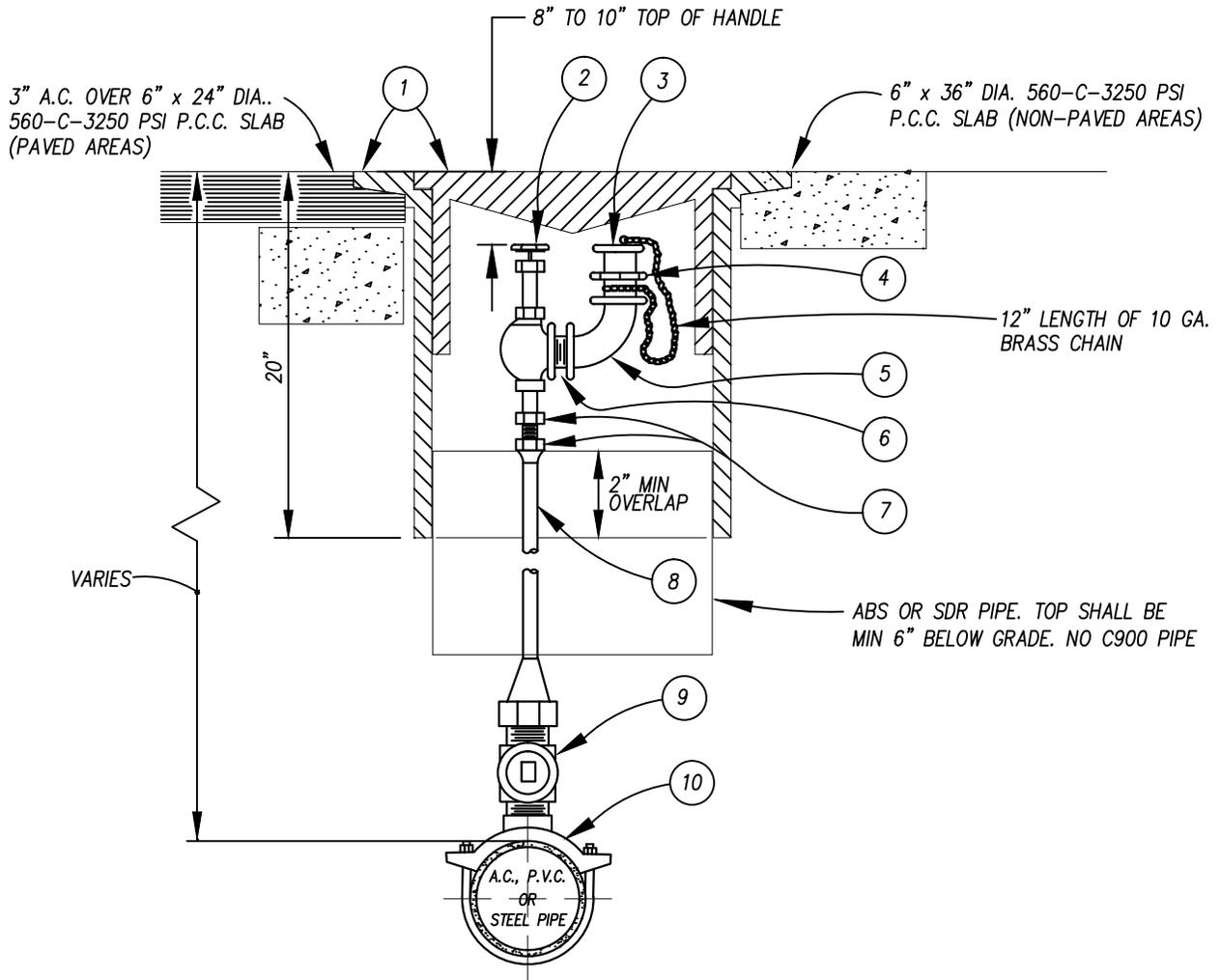
APPROVED

CITY ENGINEER
R.C.E. 41975

DRAWING
NUMBER

3/18/13
DATE

PW-2.3



NOTES:
 1. INSTALL CORPORATION STOP PERPENDICULAR TO PIPE AXIS.

ITEM	NO.	DESCRIPTION	SPECS
1	1	12" C.I. VALVE BOX AND COVER MARKED "POWAY WATER"	
2	1	1" BRZ. ANGLE VALVE W/ BRZ. HANDWHEEL & COMP. DISC	
3	1	1 1/2" HOSE THREAD CAP W/ CHAIN LUG.	
4	1	1 1/2" MALE HOSE NIPPLE	SEE CITY
5	1	1 1/2" x 1" 90° REDUCING ELBOW	APPROVED
6	1	1" CLOSE NIPPLE	MATERIALS LIST
7	1	1" BRONZE COUPLING (FLARE & MALE NPT)	
8	1	1" COPPER WATER SERVICE TUBE, TYPE K, (SOFT ANNEALED)	
9	1	1" CORP. STOP WITH TAIL PIECE	
10	1	DOUBLE STRAP BRONZE SERVICE CLAMP	

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

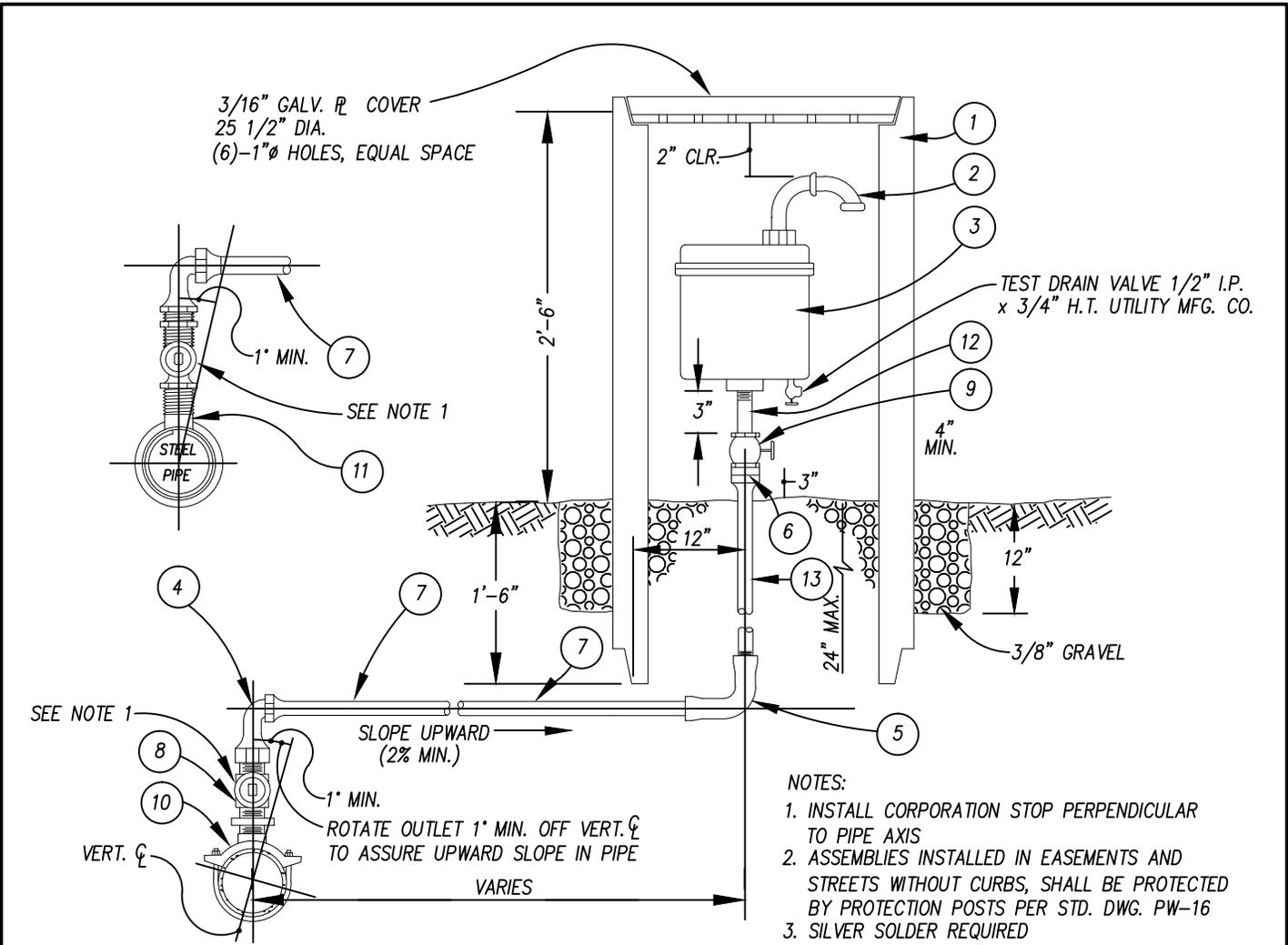
CITY OF POWAY STANDARD DRAWING

MANUAL AIR
 RELEASE ASSEMBLY

APPROVED

[Signature] 3/18/13
 CITY ENGINEER DATE
 R.C.E. 41975

DRAWING NUMBER PW-3



ITEM	DESCRIPTION
1	24" I.D. x 4' REINFORCED CONCRETE PIPE
2	90° STREET ELLS
3	COMBINATION AIR RELEASE AND AIR VACUUM VALVE
4	90° FLARE X FEMALE NPT ADAPTER
5	90° ELL, SLIP
6	FLARE x FEMALE NPT ADAPTER
7	COPPER TUBING
8	BRONZE CORP STOP AND 1/4 BEND
9	BRONZE GATE VALVE
10	BRONZE DOUBLE STRAP SERVICE STRAP
11	APPROPRIATE CLAMP (PVC OR AC)
12	BRASS PIPE NIPPLE
13	FLARE X MIP ADAPTER

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

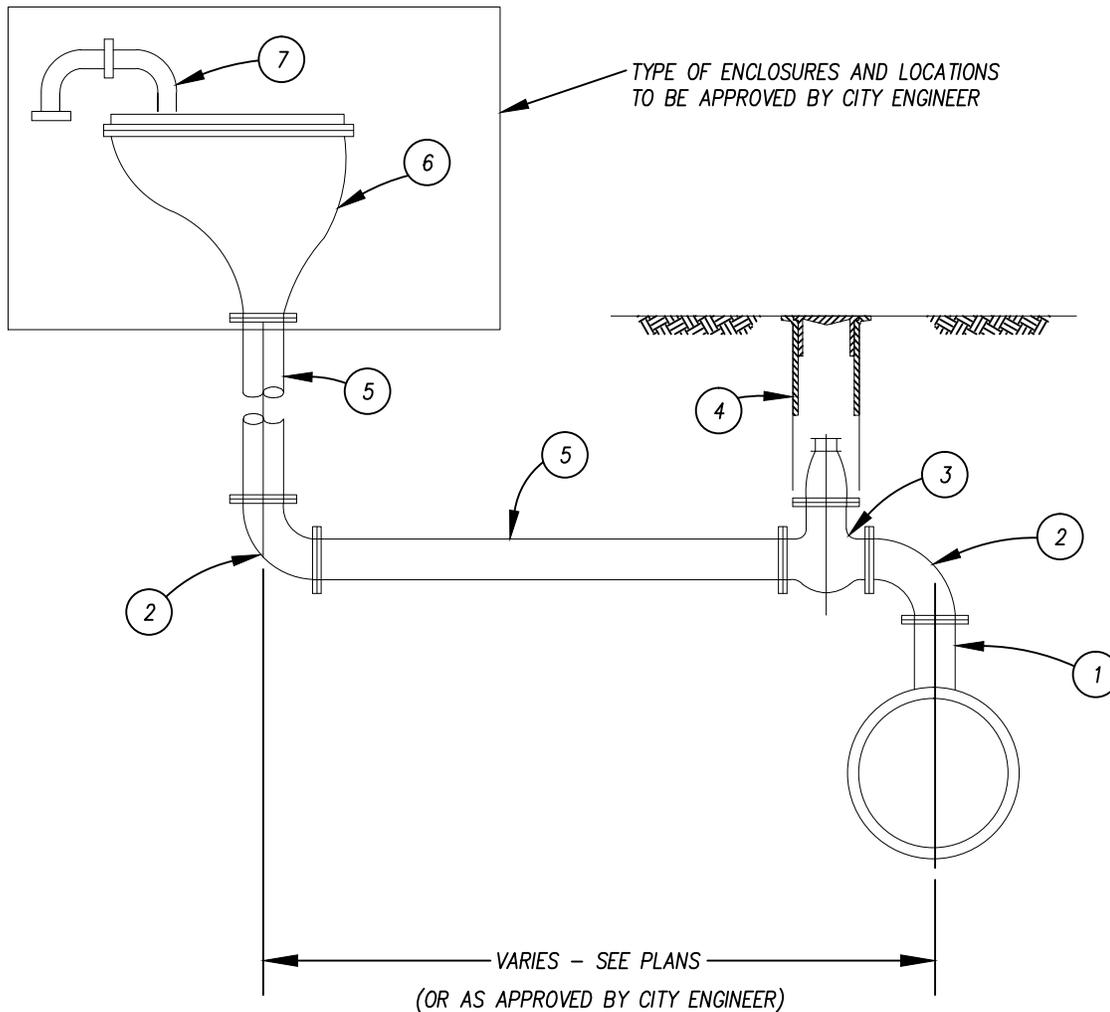
AIR & VACUUM VALVE
ASSEMBLY

APPROVED

[Signature]
3/18/13
DATE

CITY ENGINEER
R.C.E. 41975

DRAWING NUMBER PW-4

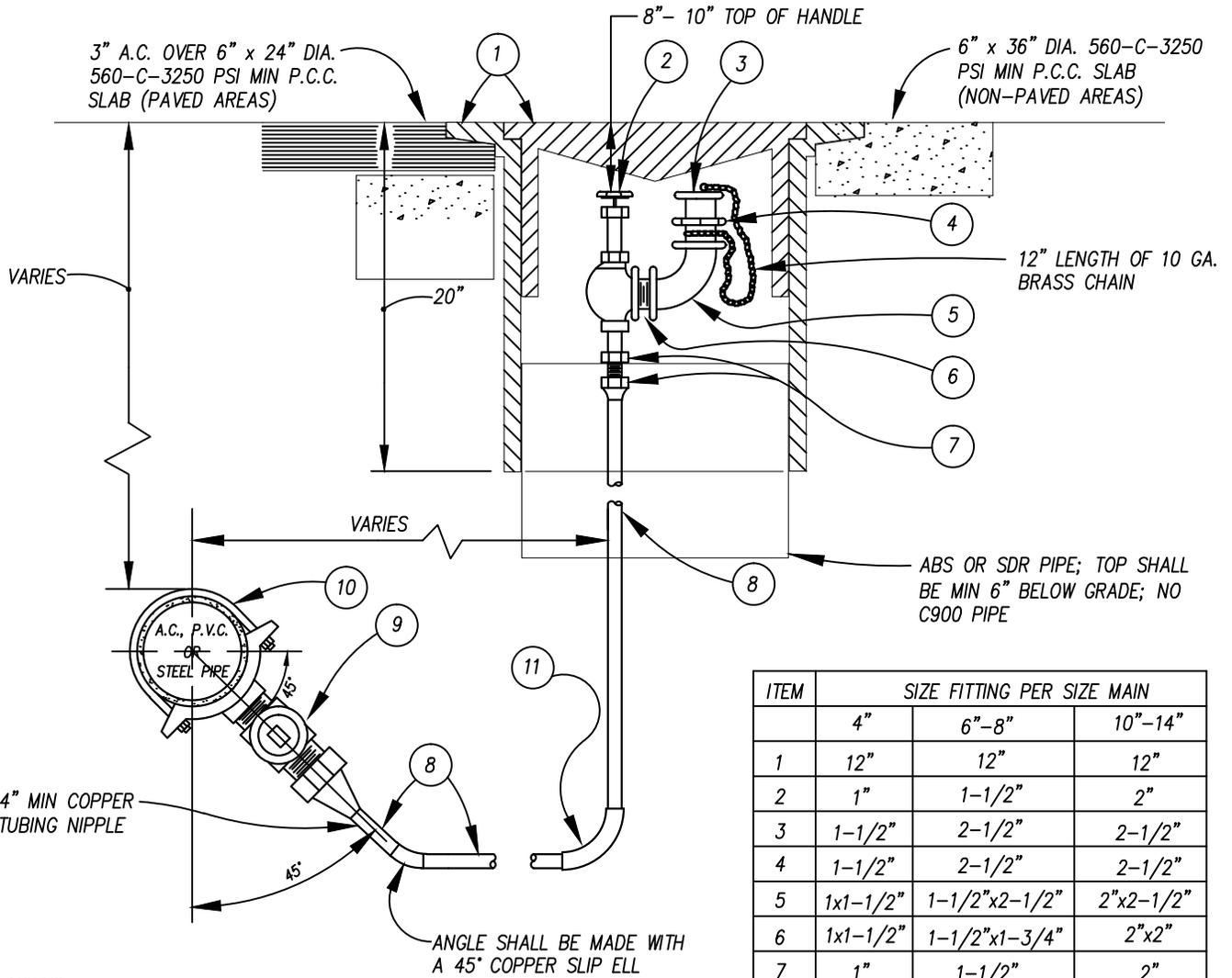


- ① FLANGED OUTLET, CEMENT LINED AND COATED STEEL
- ② FLANGED, 90° ELL, CEMENT LINED AND COATED STEEL
- ③ VALVE
- ④ VALVE WELL AND CAP (PER PW-12)
- ⑤ STEEL PIPE, CEMENT LINED AND COATED
- ⑥ AIR AND VACUUM VALVE
- ⑦ 2-90° ELLS (NOT REQUIRED WITH ABOVE GROUND METAL ENCLOSURES)

LEGEND ON PLANS



REVISION	BY	APPROVED	DATE	CITY OF POWAY STANDARD DRAWING	APPROVED
REDRAWN	MR	S. CROSBY	03/13		4" AND 6" AIR AND VACUUM VALVES
				3/18/13 DATE	
				DRAWING NUMBER PW-5	



- NOTES:
1. INSTALL CORPORATION STOP 45° TO PIPE AXIS.
 2. ALL SOLDER TO BE SILVER

ITEM	SIZE FITTING PER SIZE MAIN		
	4"	6"-8"	10"-14"
1	12"	12"	12"
2	1"	1-1/2"	2"
3	1-1/2"	2-1/2"	2-1/2"
4	1-1/2"	2-1/2"	2-1/2"
5	1x1-1/2"	1-1/2"x2-1/2"	2"x2-1/2"
6	1x1-1/2"	1-1/2"x1-3/4"	2"x2"
7	1"	1-1/2"	2"
8	1"	1-1/2"	2"
9	1"	1-1/2"	2"

ITEM	NO.	DESCRIPTION	SPECS
1	1	12" C.I. VALVE BOX AND COVER MARKED "POWAY WATER"	
2	1	BRZ. ANGLE VALVE W/ BRZ. HANDWHEEL & COMP. DISC	
3	1	HOSE THREAD CAP W/ CHAIN LUG.	
4	1	MALE HOSE NIPPLE	SEE CITY
5	1	90° REDUCING ELBOW	APPROVED
6	1	CLOSE NIPPLE	MATERIALS LIST
7	1	1" BRONZE COUPLING (FLARE & MALE NPT)	
8	1	COPPER WATER SERVICE TUBE TYPE K, (SOFT ANNEALED)	
9	1	CORP. STOP WITH TAIL PIECE	
10	1	DOUBLE STRAP BRONZE SERVICE CLAMP (A.C. PIPE)	
11	1	MIN. R=12 X (I.D.) ² OR COPPER SLIP ELL	

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

BLOW-OFF ASSEMBLY
14" DIA AND SMALLER

APPROVED



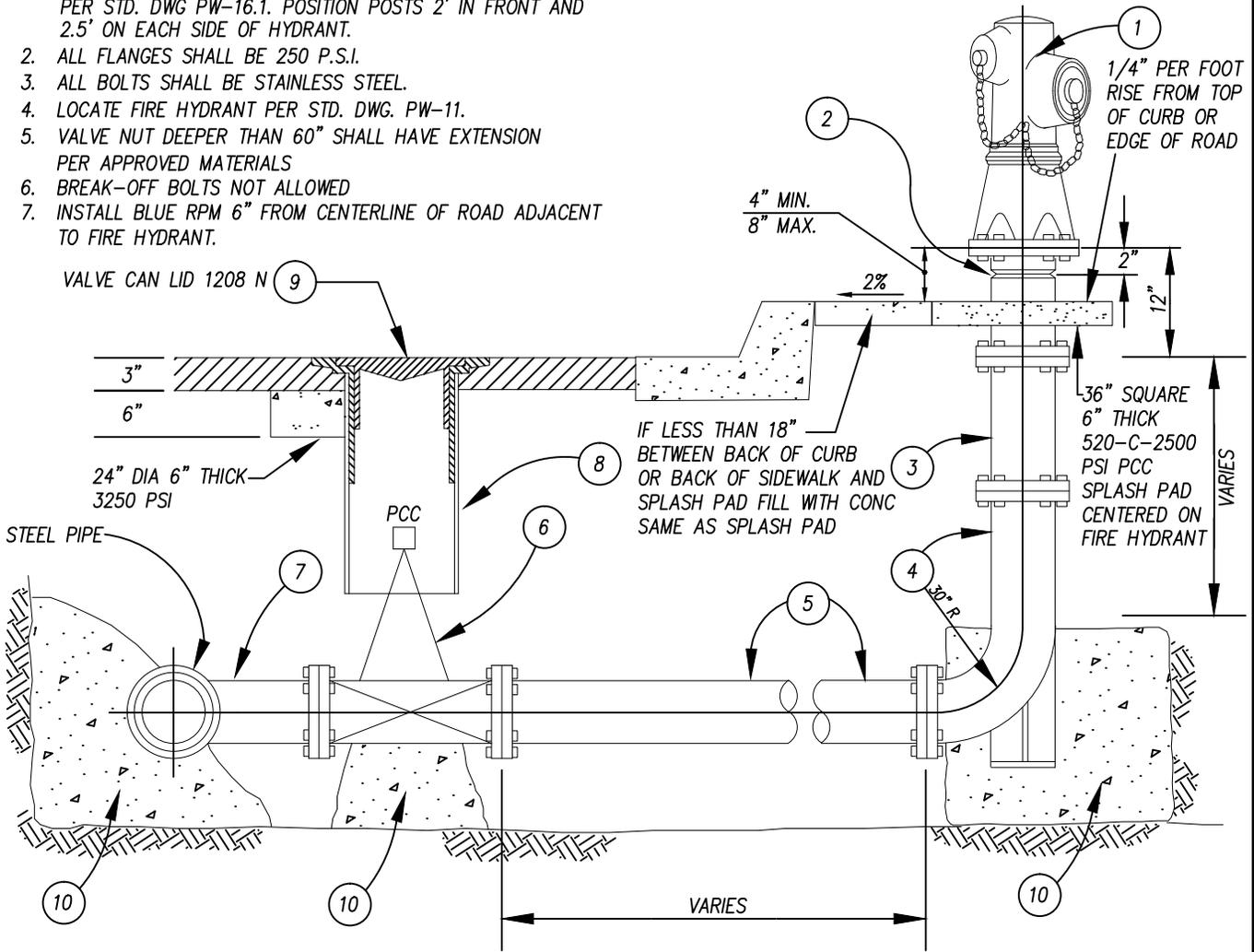
CITY ENGINEER
R.C.E. 41975

DATE
3/18/13

DRAWING NUMBER
PW-6

NOTES:

1. FIRE HYDRANTS LOCATED IN EASEMENTS OR ON STREETS WITHOUT CURBS SHALL BE PROTECTED WITH GUARD POSTS PER STD. DWG PW-16.1. POSITION POSTS 2' IN FRONT AND 2.5' ON EACH SIDE OF HYDRANT.
2. ALL FLANGES SHALL BE 250 P.S.I.
3. ALL BOLTS SHALL BE STAINLESS STEEL.
4. LOCATE FIRE HYDRANT PER STD. DWG. PW-11.
5. VALVE NUT DEEPER THAN 60" SHALL HAVE EXTENSION PER APPROVED MATERIALS
6. BREAK-OFF BOLTS NOT ALLOWED
7. INSTALL BLUE RPM 6" FROM CENTERLINE OF ROAD ADJACENT TO FIRE HYDRANT.



ITEM	NO.	DESCRIPTION	REMARKS
1	1	6" FIRE HYDRANT	PER POWAY'S APPROVED MATERIALS LIST
2	1	HYDRANT RISER - BREAK-OFF SPOOL W/ CHECK VALVE	SCORED (NOT MOLDED), CEMENT LINED
3	1	HYDRANT SPOOL 6" CAST IRON	LENGTH AS REQUIRED - CEMENT LINED
4	1	6" HYDRANT BURY ELL	FLANGED BY FLANGE - CEMENT LINED
5	1	6-5/8" O.D. STEEL PIPE, 10 GA. W/ SLIP-ON FLANGES	CEMENT LINED AND COATED
6	1	6" GATE VALVE - FLANGE BY FLANGE	PER POWAY'S APPROVED MATERIALS LIST
7	1	6" FLANGED OUTLET	CEMENT LINED AND COATED
8	1	PIPE SLIP JOINT, SDR-35 PVC, VALVE BOX ASSEMBLY	SEE STD. DWG PW-12
9	1	8" C.I. VALVE BOX AND COVER MARKED "POWAY WATER"	SEE STD. DWG PW-12
10	3	PCC THRUST BLOCKS 2000 PSI	SEE STD. DWG PW-17.1 & 17.2 FOR BEARING AREA

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

CLASS 300 INSTALLATION
FIRE HYDRANT ASSEMBLY

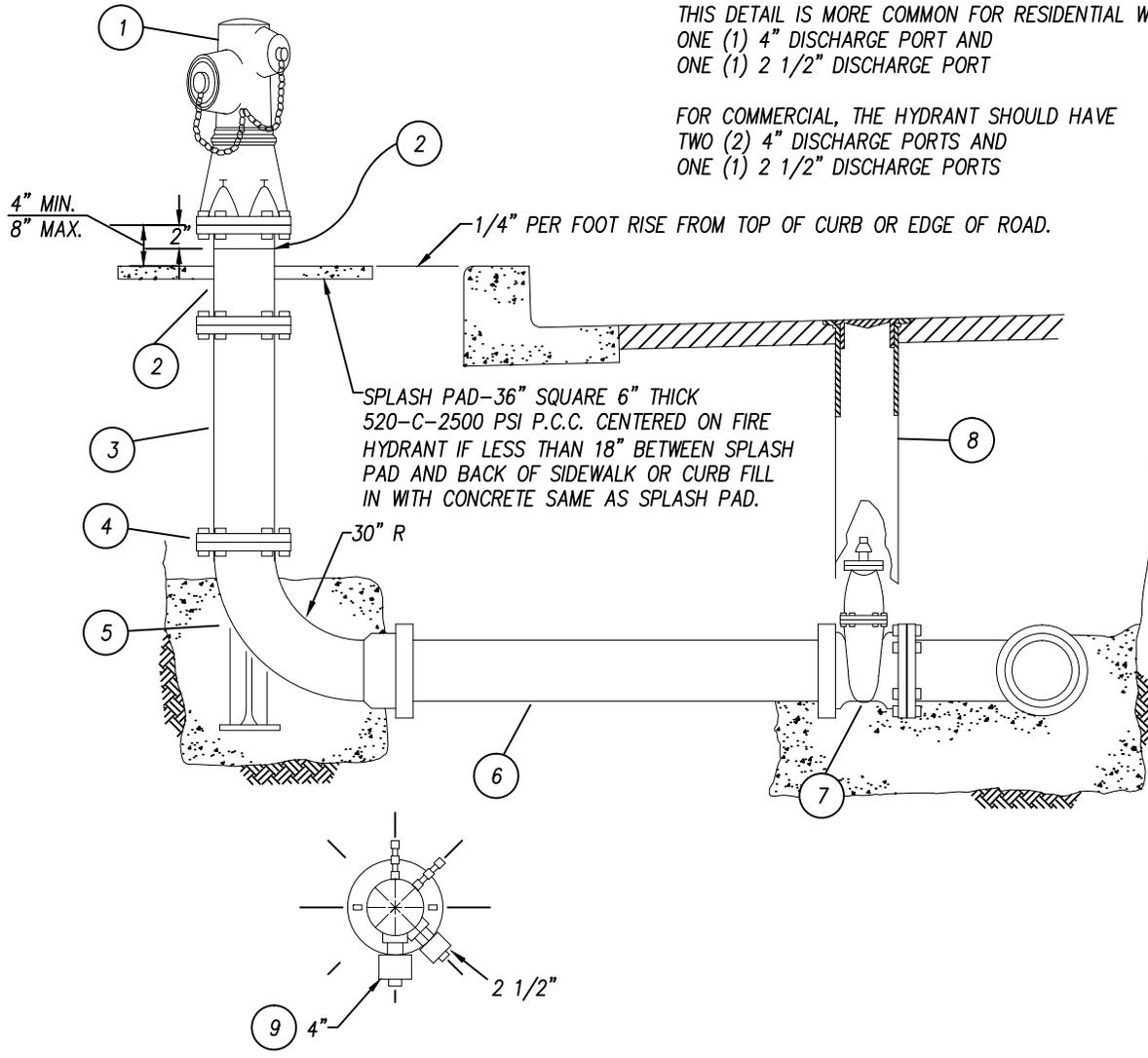
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CITY ENGINEER
R.C.E. 41975

3/18/13
DATE

DRAWING
NUMBER

PW-8



THIS DETAIL IS MORE COMMON FOR RESIDENTIAL WITH ONE (1) 4" DISCHARGE PORT AND ONE (1) 2 1/2" DISCHARGE PORT

FOR COMMERCIAL, THE HYDRANT SHOULD HAVE TWO (2) 4" DISCHARGE PORTS AND ONE (1) 2 1/2" DISCHARGE PORT

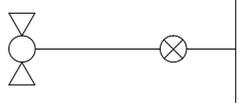
SPLASH PAD-36" SQUARE 6" THICK
5200-C-2500 PSI P.C.C. CENTERED ON FIRE HYDRANT IF LESS THAN 18" BETWEEN SPLASH PAD AND BACK OF SIDEWALK OR CURB FILL IN WITH CONCRETE SAME AS SPLASH PAD.

PLAN VIEW CURB FACE

- 1 FIRE HYDRANT
- 2 12" LONG BREAK-OFF SPOOL W/ CHECK VALVE
- 3 6" EXTENSION SPOOL
- 4 3/4"x 3" HEX. HEAD MACHINE BOLTS AND NUTS, TYPICAL ALL BOLTS AND NUTS TO BE STAINLESS STEEL (MARKED 316)
- 5 6" HYDRANT ELL - SHORT RADIUS 6" x 30"(LENGTH)
- 6 6" STEEL OR PVC PIPE
- 7 6" VALVE
- 8 VALVE WELL INSTALLATION (SEE PW-12)
- 9 4" PORT TO FACE HYDRANT VALVE OR PER FIRE DEPT

- NOTES:
- 1. ITEMS 2, 3 & 6 MAY BE CEMENT LINED AND COATED FLANGED STEEL PIPE WHERE PERMITTED BY AGENCY
 - 2. VALVE NUT DEEPER THAN 60" SHALL HAVE EXTENSION PER APPROVED MATERIALS
 - 3. BREAK-OFF BOLTS NOT ALLOWED
 - 4. INSTALL BLUE RPM 6" FROM CENTERLINE OF ROAD ADJACENT TO FIRE HYDRANT

LEGEND ON PLANS



REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

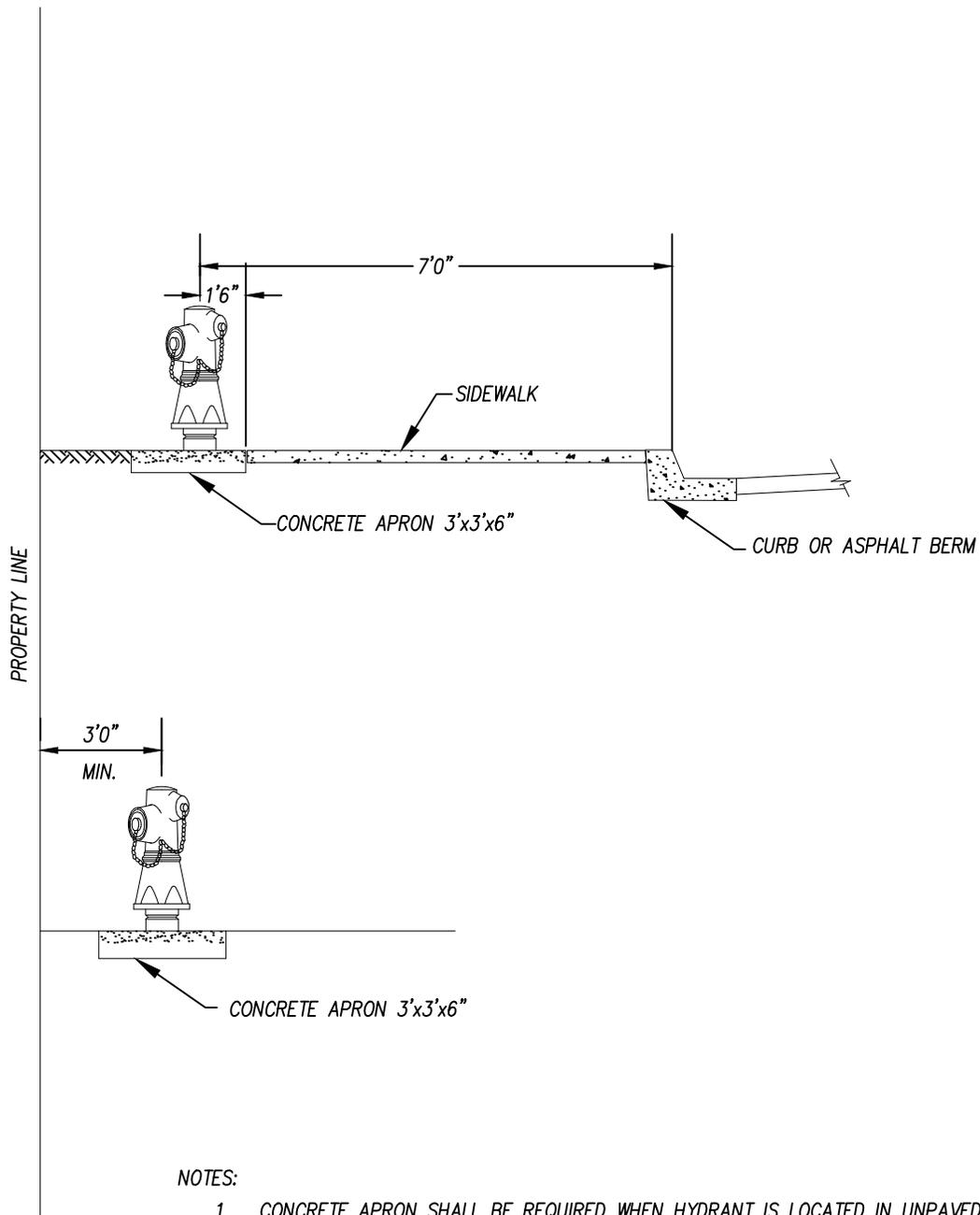
6" FIRE HYDRANT

APPROVED

CITY ENGINEER
 R.C.E. 41975

3/18/13
 DATE

DRAWING NUMBER PW-10



NOTES:

1. CONCRETE APRON SHALL BE REQUIRED WHEN HYDRANT IS LOCATED IN UNPAVED AREAS. APRON SHALL BE 6" THICK 520-C-2500 CONCRETE.
2. WHEN DISTANCE FROM HYDRANT TO THE TOP OR TOE OF SLOPE IS LESS THAN 2'0" SPECIAL HYDRANT INSTALLATION WILL BE REQUIRED BY AGENCY.
3. WHERE HYDRANT IS NOT PROTECTED BY A VERTICAL FACE OF CURB, PROTECTION POSTS ARE REQUIRED. SEE STANDARD DRAWING PW-16.1 FOR DETAILS.
4. THE CENTERLINE OF THE HYDRANT SHALL BE LOCATED 5' MINIMUM FROM CURB RETURN AND MINIMUM 3'6" FROM DRIVEWAY OR ANY FIXED OBSTRUCTION.
5. INSTALL BLUE RPM 6" FROM CENTERLINE OF ROAD ADJACENT TO FIRE HYDRANT.

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

FIRE HYDRANT LOCATIONS

APPROVED


CITY ENGINEER
R.C.E. 41975

3/18/13
DATE

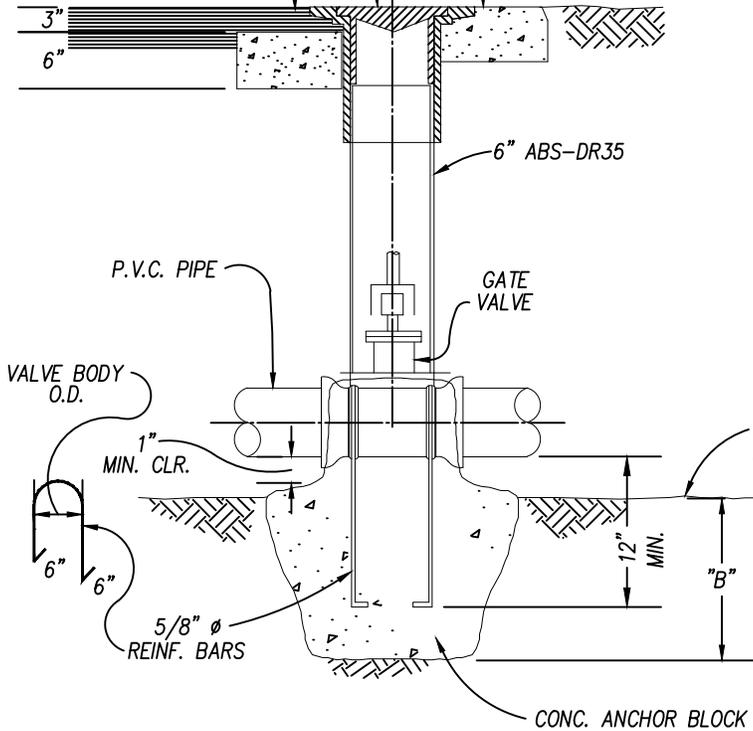
DRAWING
NUMBER

PW-11

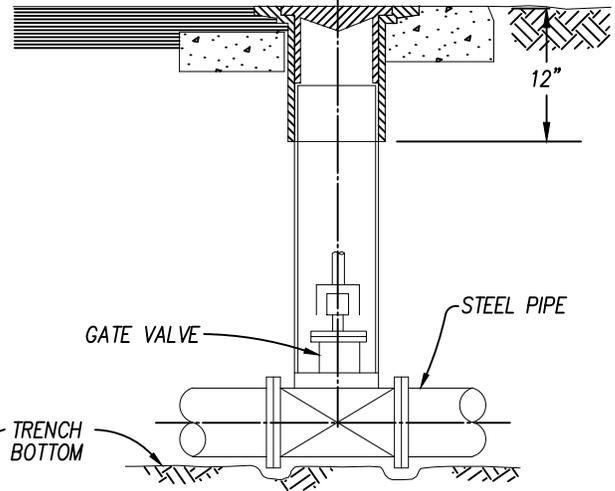
3" A.C. OVER 6" x 24"
DIA. 560-C-3250 P.C.C.
SLAB (PAVED AREA)

8" CAST IRON VALVE BOX & COVER SBF1208
W/ ROUND HOLE IN CENTER

6" x 36" DIA. 560-C-3250
P.C.C. SLAB (NON-PAVED)



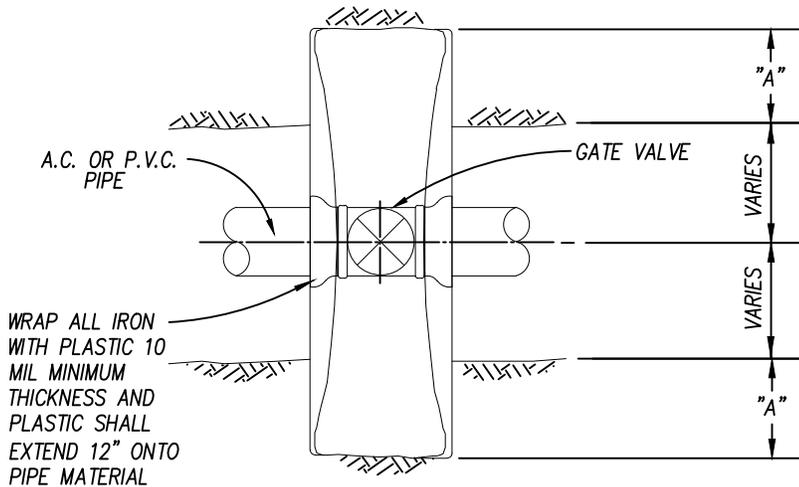
ELEVATION



ELEVATION

NOTES:

1. INSTALL VALVE OPERATOR EXTENSION PER PW-13.
2. WATER VALVE CAN LIDS SHALL BE PAINTED TRAFFIC WHITE FOR DOMESTIC AND PURPLE FOR RECLAIMED. 2 COATS OF PAINT.



PLAN

CONCRETE ANCHOR BLOCK SCHEDULE		
PIPE SIZE	"A"	"B"
4"	12"	-
6"	12"	8"
8"	15"	12"
10"	24"	12"

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

GATE VALVE, FLANGE OUTLET AND CAP ASSEMBLIES

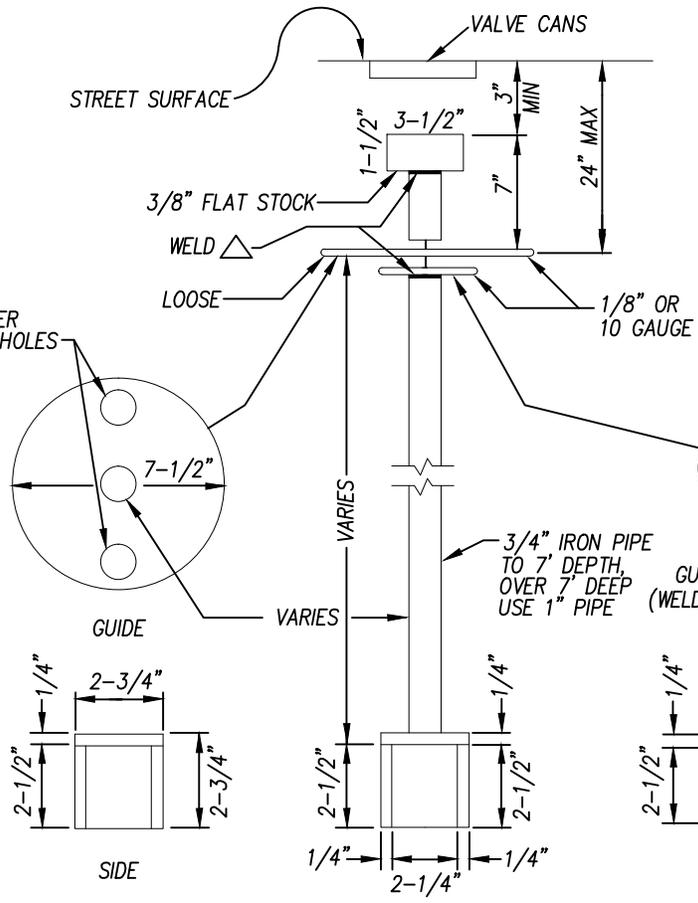
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R.C.E. 41975

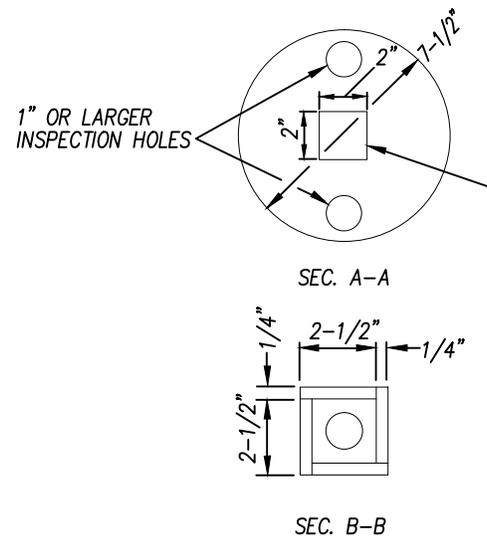
3/18/13
DATE

DRAWING NUMBER

PW-12

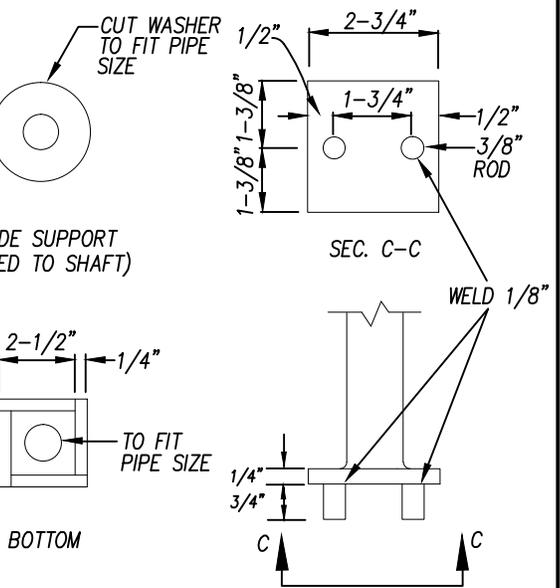


BUTTERFLY VALVE KEY EXTENSION

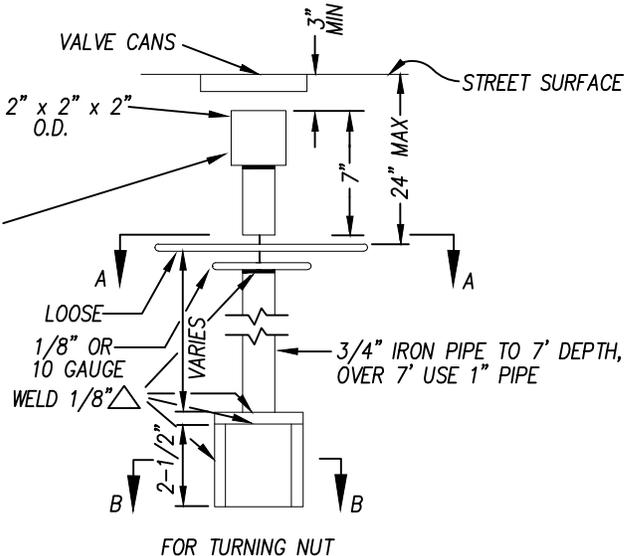


GATE VALVE KEY EXTENSION

- NOTES:
1. VALVE KEY EXTENSIONS SHALL BE INSTALLED:
 - A) FOR ALL BUTTERFLY VALVES, AND
 - B) FOR ALL GATE VALVES WHEN TOP OF GATE VALVE NUT IS 60" OR MORE BELOW GROUND OR PAVEMENT SURFACE.
 2. PAINT ALL GALVANIZED FINISHED SURFACES WITH ASPHALT VARNISH.
 3. MATERIALS & WORKMANSHIP SHALL BE AS REQUIRED BY SECTIONS 206 AND 304 OF STD. SPECS.



WHEEL TYPE KEY EXTENSION



REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

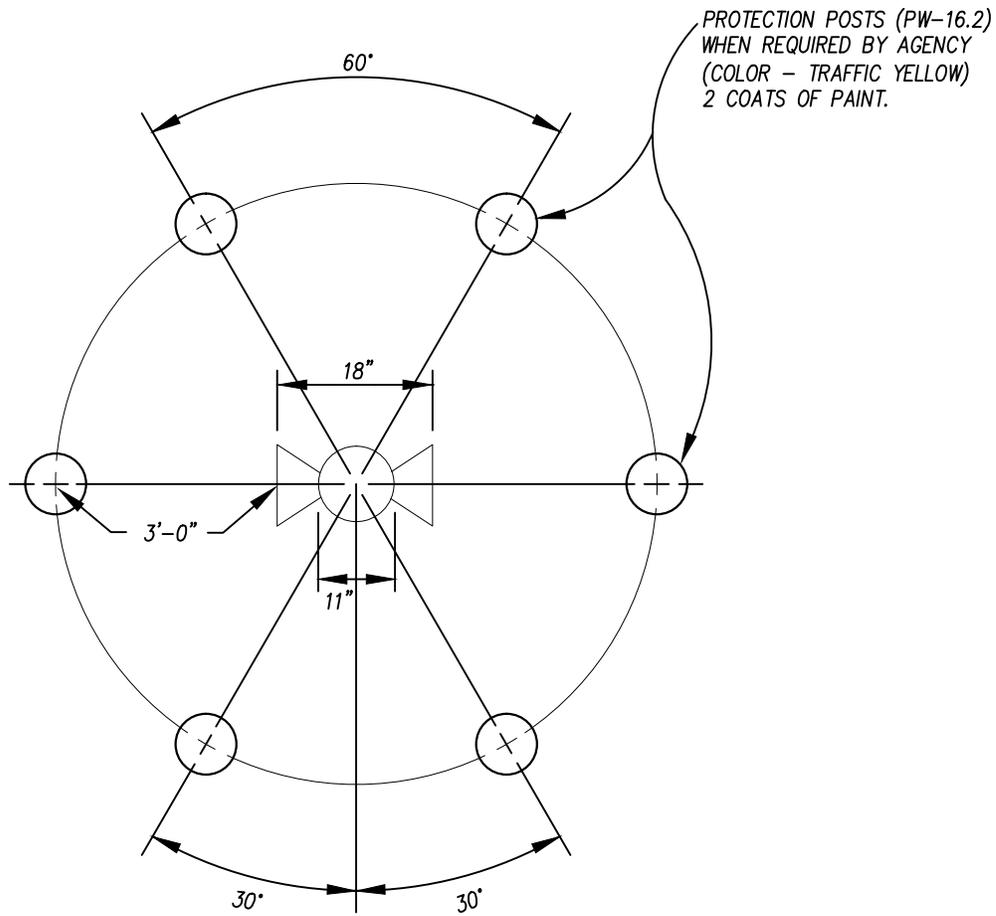
CITY OF POWAY STANDARD DRAWING

VALVE KEY EXTENSIONS

APPROVED

[Signature] 3/18/13
 CITY ENGINEER DATE
 R.C.E. 41975

DRAWING NUMBER PW-13



NOTE: NUMBER OF POSTS TO
BE DETERMINED BY ENGINEER

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

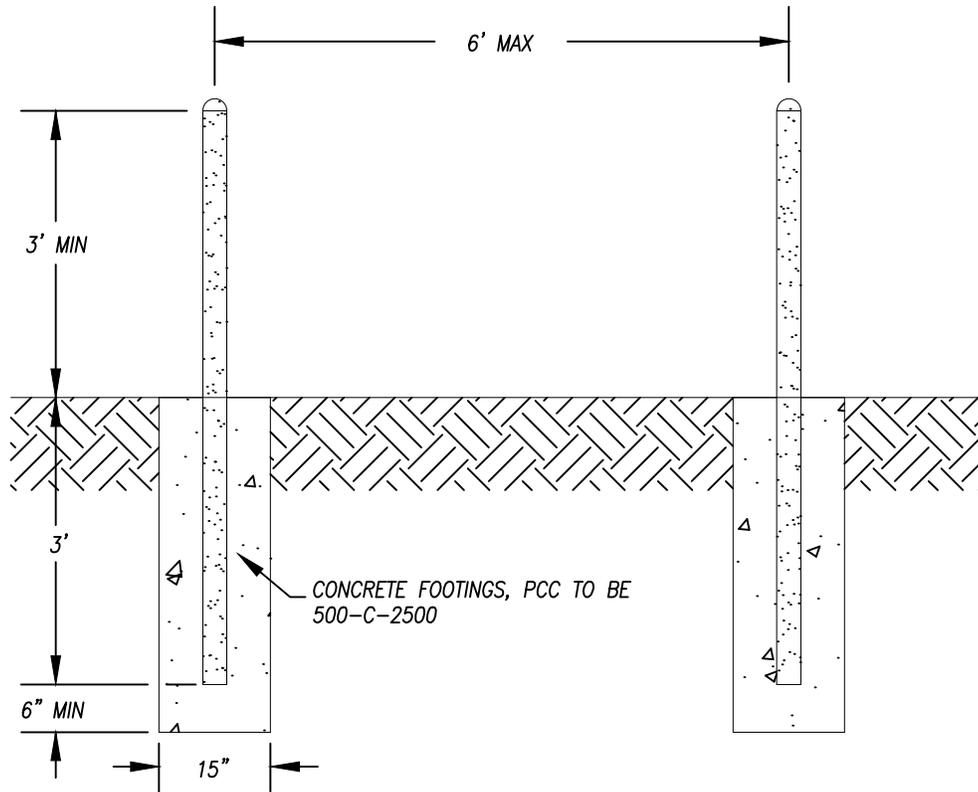
FIRE HYDRANT
PROTECTION POSTS

APPROVED

CITY ENGINEER
R.C.E. 41975

DRAWING
NUMBER PW-16.1

3/18/13
DATE



NOTES:

1. POSTS SHALL BE PAINTED TRAFFIC YELLOW.
2. PROTECTION POSTS ARE REQUIRED FOR ALL FIRE HYDRANTS, FDCs, PIVs, AND ABOVE GROUND STORAGE TANKS LOCATED LESS THAN 4' FROM A CURB.
3. POSTS SHALL BE LOCATED NOT LESS THAN 3' FROM ABOVE GROUND STORAGE TANKS.
4. POSTS SHALL BE LOCATED NOT LESS THAN 2' FROM FDCs AND PIVs.
5. POSTS SHALL BE CONSTRUCTED OF CONCRETE FILLED SCHEDULE 40 STEEL, ±4" IN DIAMETER, WITH CONCRETE CAP. CONCRETE SHALL BE CLASS 500-C-2500.

REVISION	BY	APPROVED	DATE
DELETE NOTE	DS	FDC	9/7/07
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

**FIRE HYDRANT PROTECTION
POST DETAIL**

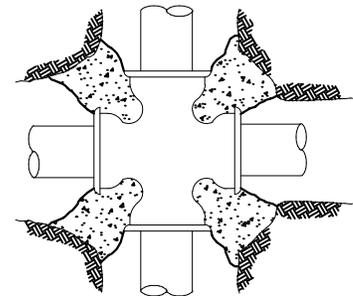
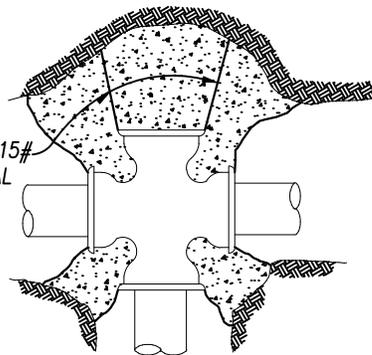
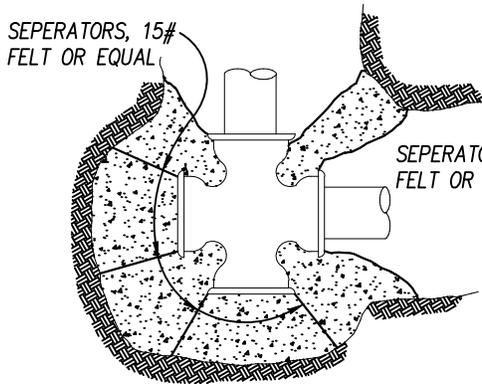
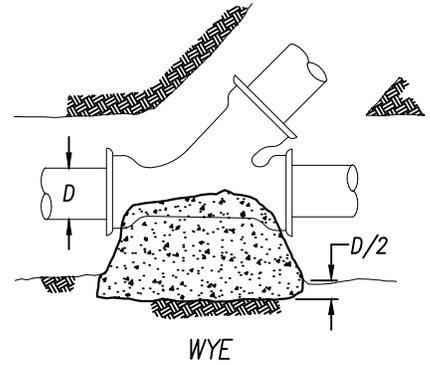
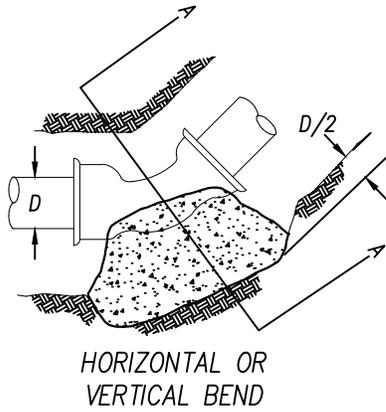
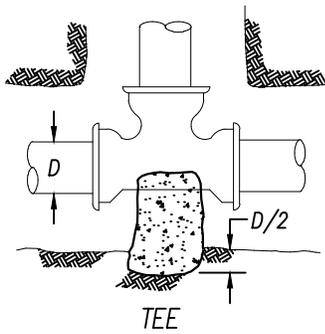
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CITY ENGINEER
R.C.E. 41975

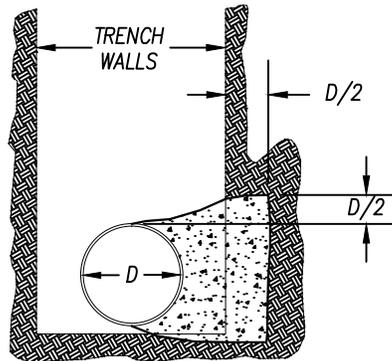
3/18/13
DATE

DRAWING
NUMBER

PW-16.2



CROSS BLOCKING



SECTION A-A

NOTES

1. CONCRETE SHALL BE 450C-2000 OR 565E-2000P.
2. SEE STANDARD DRAWING W-18 FOR BEARING AREAS.
3. BOND BREAKER IS REQUIRED ON DEAD END BLOCKING AND SHALL BE #15 BUILDING FELT.
4. TAPPED CAPS ARE NOT ALLOWED.
5. A MINIMUM OF 6" OF CONCRETE SHALL BE PLACED BENEATH EACH FITTING.
6. ALL IRON IS TO BE WRAPPED IN PLASTIC SHEETING MINIMUM 10 MILS THICK

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

CONCRETE THRUST BLOCKS

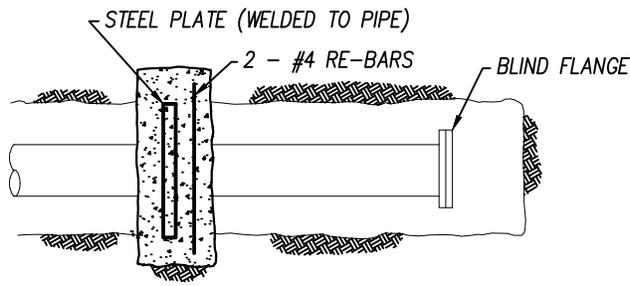
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DRAWING
NUMBER

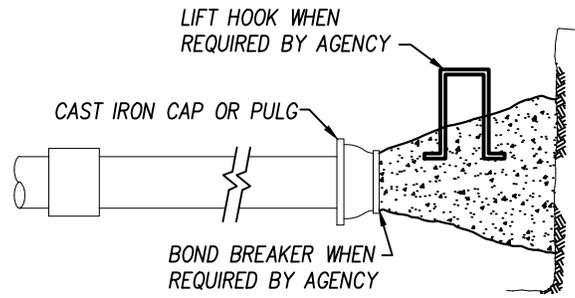
3/18/13
DATE

PW-17.1

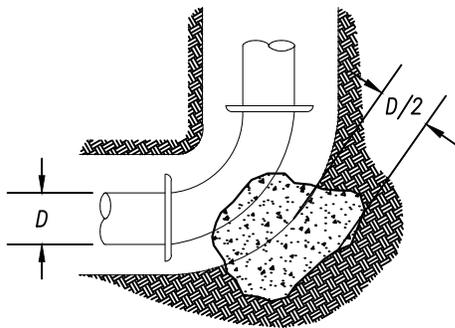


STEEL PIPE
PLAN

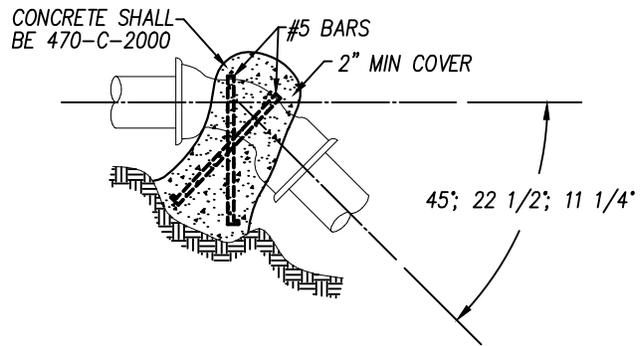
DEAD END BLOCKING



A.C. PIPE
ELEVATION



90° BEND



ANCHOR BLOCK
(VERTICAL BEND ONLY)

NOTES:

1. CONCRETE THRUST BLOCKING SHALL NOT COVER UNDERGROUND SWING CHECK VALVE INSPECTION PORT.
2. INDICATE PIPE TYPE, SIZE, AND DIAMETER.
3. THRUST BLOCKS SHALL BE INSTALLED IN ACCORDANCE WITH SDRSD W-17 & W-18 AND THE CITY OF POWAY SPECIFICATIONS.
4. ALL BOLTS AND NUTS TO BE STAINLESS STEEL (316).
5. ALL UNDERGROUND FITTINGS TO BE WRAPPED IN 10 MIL PLASTIC. PLASTIC SHALL EXTEND 12" ONTO PIPE MATERIAL.
6. ALL MATERIALS SHALL BE FM/UL LISTED AND SHALL BE APPROVED BY THE FIRE MARSHAL PRIOR TO INSTALLATION.
7. ANCHOR BLOCK - CITY OF POWAY APPROVED JOINT RESTRAINT ASSEMBLY REQUIRED.
 - A. INCREASE VOLUMES SHOWN IN PROPORTION TO PRESSURES EXISTING WHEN PRESSURE TESTING PIPELINE.
 - B. SPECIAL DESIGN REQUIRED.

ANCHOR BLOCK			
PIPE NOMINAL DIA	CUBIC FT OF CONCRETE REQUIRED PER 100PSI PRESSURE (SEE NOTE 7A)		
	45°	22 1/2°	11 1/4°
4	7	4	2
6	15	8	4
8	27	14	7
10	SEE 7B	21	11
12	SEE 7B	SEE 7B	16

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

CONCRETE THRUST BLOCKS
AND ANCHOR BLOCKS

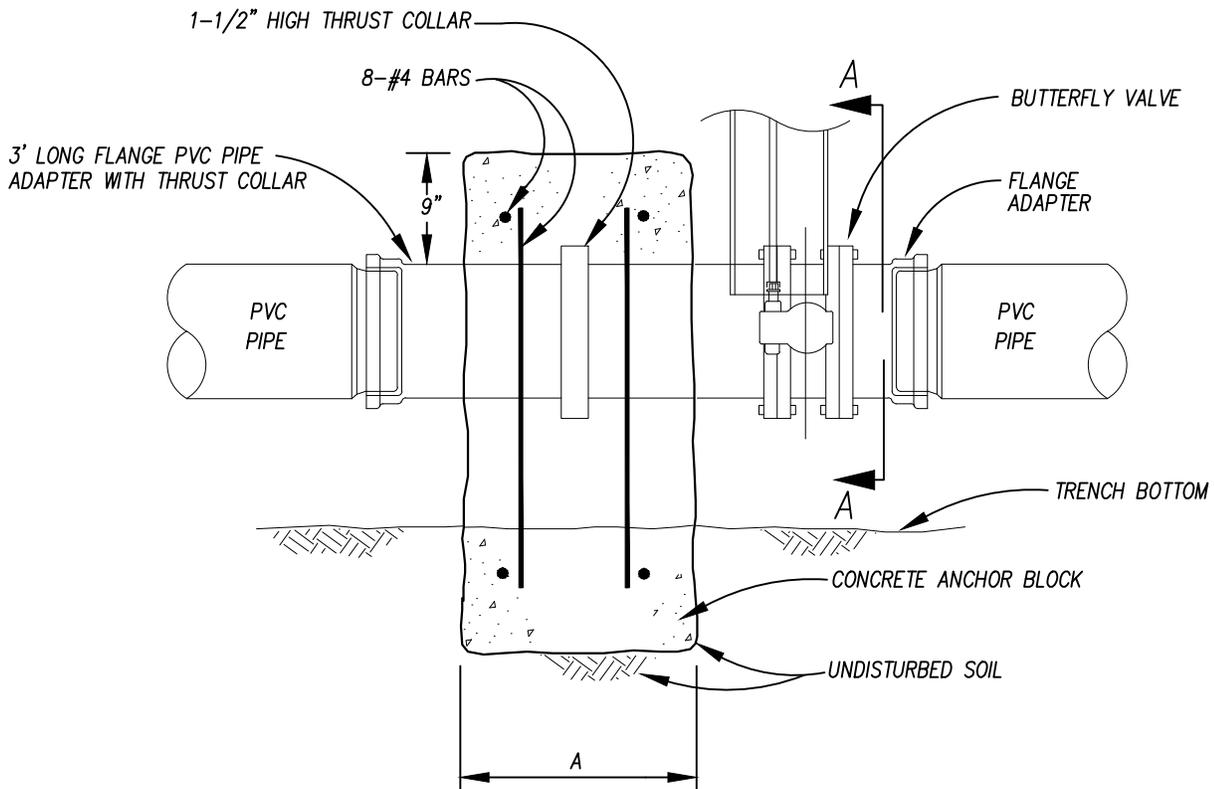
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3/18/13
DATE

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NUMBER

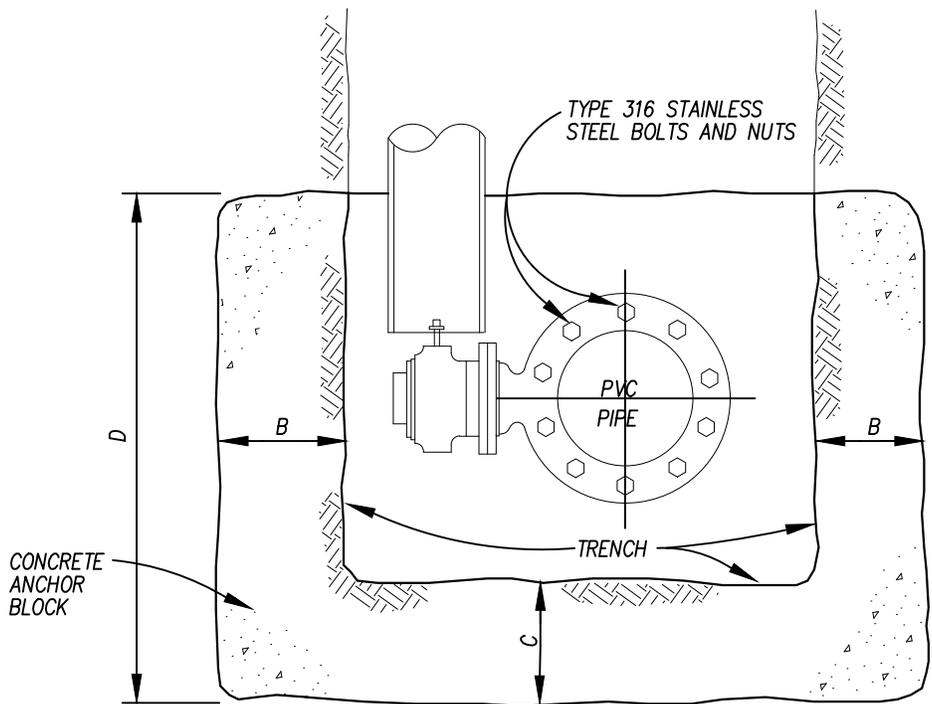
PW-17.2



CONCRETE ANCHOR BLOCK SCHEDULE				
PIPE SIZE	CL 150			
	A	B	C	D
12"	21"	26"	12"	36"
14"	24"	30"	15"	45"
16"	24"	36"	15"	48"
18"	24"	45"	18"	51"

NOTES:

1. WRAP ALL IRON WITH 10 MIL THICK PLASTIC SHEETING.
2. THIS DRAWING IS NOT APPLICABLE TO STEEL PIPE INSTALLATIONS.



SECTION A-A

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

CONCRETE ANCHOR BLOCK FOR BUTTERFLY VALVE ASSEMBLY 12-INCH AND LARGER

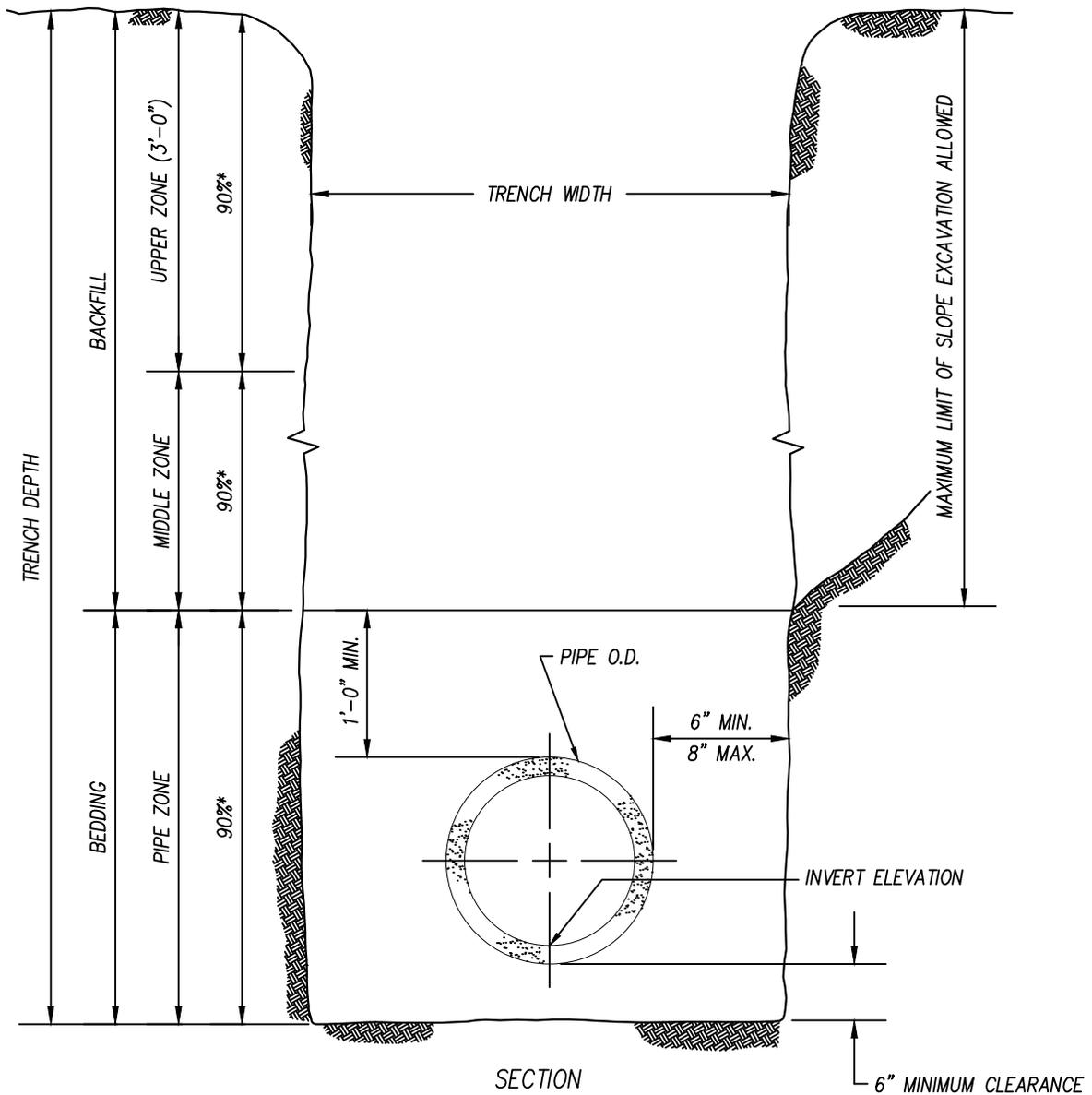
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R.C.E. 41975

3/18/13
DATE

DRAWING NUMBER

PW-19.2



NOTES

1. FOR TRENCHING ON IMPROVED STREETS SEE SDRSD G-24A (TYPE A) AND G-24B FOR RESURFACING DETAILS. TOP 12" SHALL BE 95% R.C.
2. (*) INDICATES MINIMUM RELATIVE COMPACTION.
3. BEDDING MATERIAL SHALL BE GRANULAR WITH A SAND EQUIVALENT (SE) OF NOT LESS THAN 30 AND AN EXPANSION COEFFICIENT, WHEN SATURATED WITH WATER, OF NOT MORE THAN 0.5 OF ONE PERCENT (0.5%). THE SAND MATERIAL MUST PASS 100% OF #4 SIEVE SIZE

SIEVE SIZE	PERCENT PASSING
#4	100
#8	75 - 100
#200	0 - 15

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

**PIPE BEDDING AND TRENCH BACKFILL
FOR WATER MAINS**

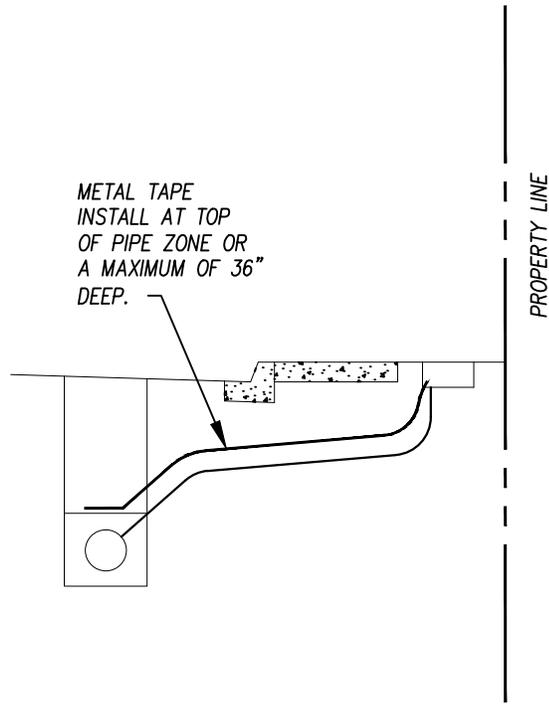
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CITY ENGINEER
R.C.E. 41975

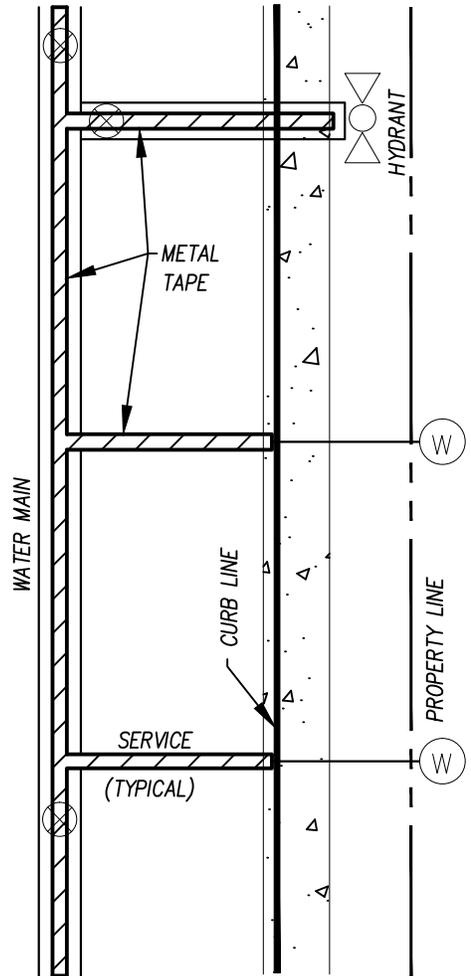
3/18/13
DATE

DRAWING
NUMBER

PW-21



SECTION



PLAN

NOTES:

1. ALL TAPE TO BE 3" METALLIC - BLUE IN COLOR AND "WATER LINE BELOW" PRINTED CONTINUOUSLY.
2. ADEQUATELY BOND SERVICE TAPE TO ENSURE ELECTRICAL CONTINUITY.
3. TAPE SHALL EXTEND INTO SERVICE BOX OR WELL CASING TO ALLOW FOR MARK-OUT BY CONTINUITY TESTER.

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

METALLIC TAPE LOCATOR
FOR NON-METALLIC WATER PIPE

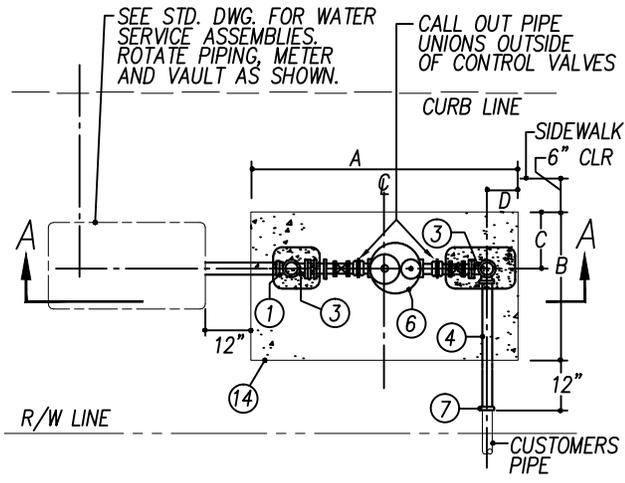
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CITY ENGINEER
R.C.E. 41975

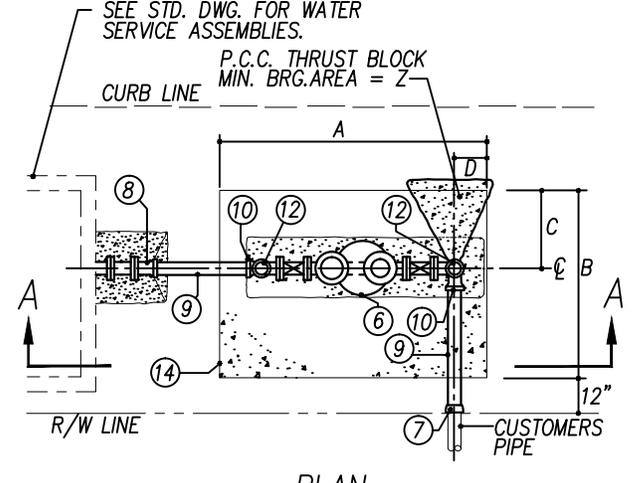
3/18/13
DATE

DRAWING
NUMBER

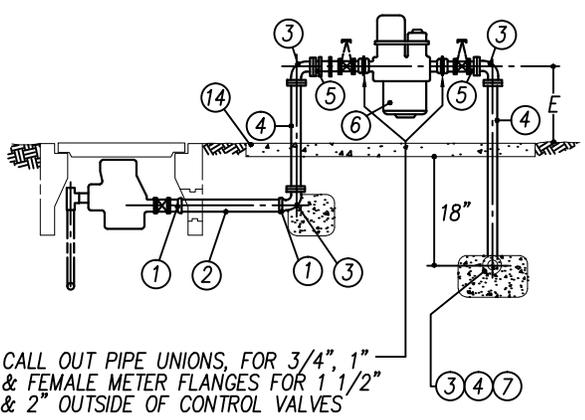
PW-25



PLAN



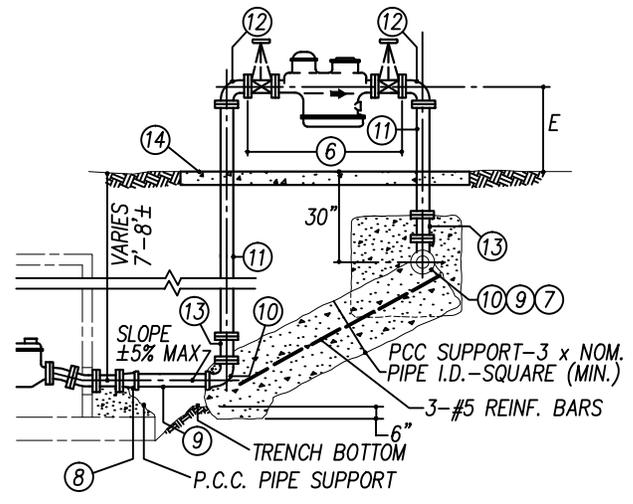
PLAN



NOTE: SILVER SOLDER REQUIRED

SECTION A-A

3/4", 1-1/2" AND 2" ASSEMBLY



SECTION A-A

3", 4" AND 6" ASSEMBLY

EQUIPMENT SCHEDULE				SIZES-DIMENSIONS							
ITEM	REQ.	DESCRIPTION	SPECIFICATIONS	REF.	3/4"	1"	1-1/2"	2"	3"	4"	6"
1	2	COPPER ADAPTER, S.J. x MALE N.P.T.		A	3'-0"	3'-0"	4'-0"	4'-0"	6'-6"	6'-6"	8'-6"
2	-	TYPE "K" HARD COPPER TUBE		B	2'-0"	2'-0"	2'-6"	2'-6"	4'-0"	4'-0"	4'-6"
3	4	COPPER C X C ELL		C	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	1'-6"	2'-0"
4	-	BRASS PIPE, THREADED		D	3"	3-1/2"	5-1/2"	5'-0"	14"	10"	12"
5	2	BRASS CLOSE NIPPLE		E	1'-6"	1'-6"	1'-6"	2'-0"	2'-0"	2'-0"	2'-6"
6	1	REDUCED PRESS. BACKFLOW PREVENTER									
7	1	TEMPORARY CAP		Z	-	-	-	-	5 S.F.	5 S.F.	9 S.F.
8	1	ADAPTER, C.I. FIG x R.T.		1-5	3/4"	1"	1-1/2"	2"	-	-	-
9	-	A.C. OR P.V.C. - 150 PIPE	STD. 3'-3" LENGTH M.O.A.	6	3/4"	1"	1-1/2"	2"	3"	4"	6"
10	2	90° FIG. x R.T. C.I. BEND		7	3/4"	1"	1-1/2"	2"	4"	4"	6"
11	2	FIG. C.I. SPOOL	INTEGRALLY CAST FLANGES	8-10	-	-	-	-	4"	4"	6"
12	2	90° FIG. C.I. BEND		11&12	-	-	-	-	3"	4"	6"
13	2	FIG. C.I. REDUCER		13	-	-	-	-	4" x 3"	-	-
14	1	2'X 3'X 4" CONCRETE SPLASH PAD	SEE TABLE	14	W101+100T	W201+200T	W202+200T	GV-200	GV-300		

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY

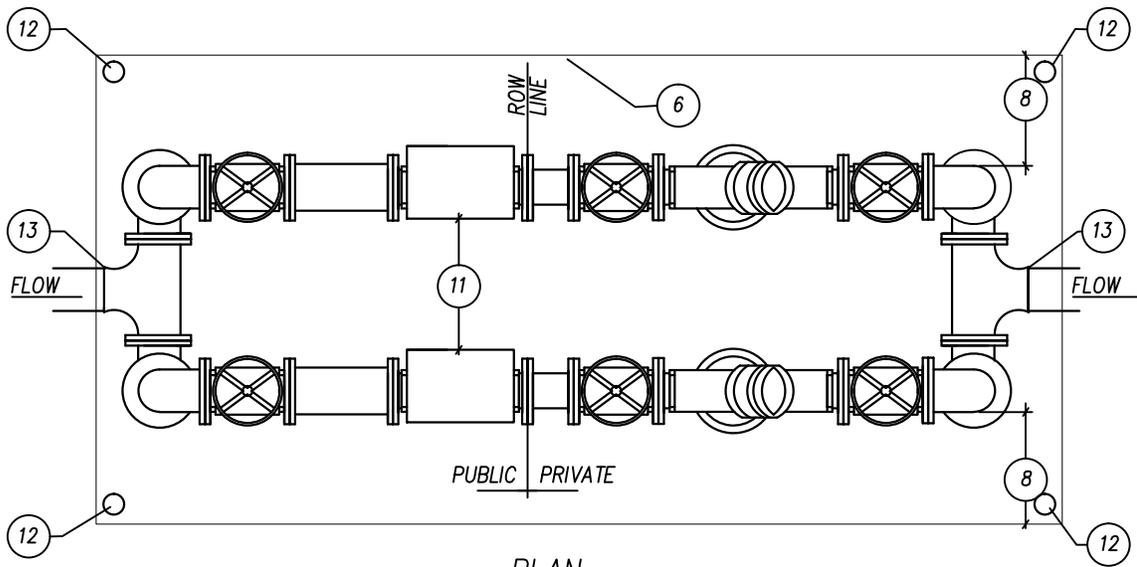
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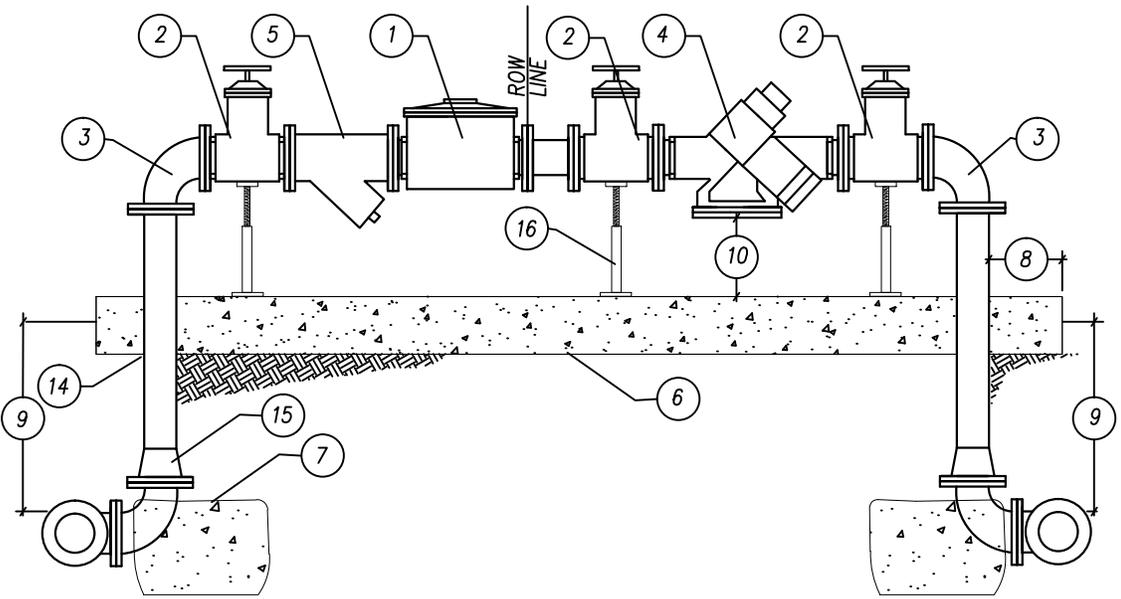
CITY ENGINEER
R.C.E. 41975

DATE
3/18/13

DRAWING NUMBER
PW-26



PLAN
NOT TO SCALE



ELEVATION
NOT TO SCALE

- NOTES:
1. IF UNINTERRUPTIBLE SERVICE IS NEEDED, THEN A BYPASS MAY BE INSTALLED WITH CITY APPROVAL. BYPASS MUST BE PROTECTED BY BACKFLOW PREVENTER.
 2. SEE PW-27.1 FOR ADDITIONAL NOTES AND MATERIALS DATA.

REVISION	BY	APPROVED	DATE
ADDED NOTE	DS	FDC	9/7/07
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

3" & LARGER WATER METER/
BACKFLOW PREVENTER INSTALLATION

APPROVED



CITY ENGINEER
R.C.E. 41975

3/18/13
DATE

DRAWING NUMBER PW-27

NOTES:

1. 48" CHAIN LINK FENCE WITH BLACK EPOXY COATED FINISH IS OPTIONAL.
2. PAINT AS PER POWAY STANDARD
3. FLANGE BOLTS ARE TO BE 316 STAINLESS STEEL.
4. LOCATE BACKFLOW PREVENTION DEVICE IN SUCH A MANNER THAT WILL ALLOW THE DEVICE TO BE READILY ACCESSIBLE FOR INSPECTION AND REPAIR.
5. TESTING SHALL BE CONDUCTED PRIOR TO ACCEPTANCE BY PUBLIC WORKS.
6. MATERIALS SHALL BE SELECTED FROM THE CITY OF POWAY'S APPROVED MATERIALS LIST.

<u>ITEM</u>	<u>NO.</u>	<u>DESCRIPTION</u>	<u>SPECS</u>
1	-	WATER METER	SINGLE READ COMPOUND (SUPPLIED BY THE CITY OF POWAY) (INSTALLED BY CONTRACTOR)
2	-	WEDGE VALVE	RER APPROVED MATERIALS LIST
3	-	90° ELBOW	CAST IRON
4	-	BACKFLOW PREVENTER	PER APPROVED MATERIAL LIST
5	-	STRAINER	
6	-	CONCRETE PAD	6" THICK (2,500 PSI)
7	-	THRUST BLOCK	PW-17.1
8	-	6"	
9	-	36" MIN.	
10	-	12" MIN., 24" MAX.	
11	-	18" MIN., 30" MAX.	
12	-	PROTECTION POSTS	PW-16.2
13	-	PUSH-ON T	CAST IRON (MUST BE SIZE OF SERVICE)
14	-	PIPE PENETRATION	WRAP IN 10 MIL VISQUEEN
15	-	FLXFL REDUCER	
16	-	ADJUSTABLE VALVE SUPPORT	
<u>UNINTERRUPTABLE SERVICE EQUIVALENTS</u>			
		SERVICE SIZE	METERS REQUIRED
		3"	2 - 2" METERS
		4"	2 - 3" METERS
		6"	2 - 4" METERS
		8"	2 - 6" METERS
		10"	2 - 8" METERS

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

3" & LARGER WATER METER/
BACKFLOW PREVENTER INSTALLATION

APPROVED



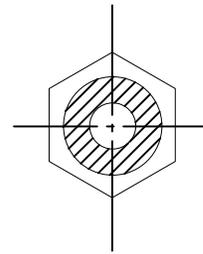
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3/18/13
DATE

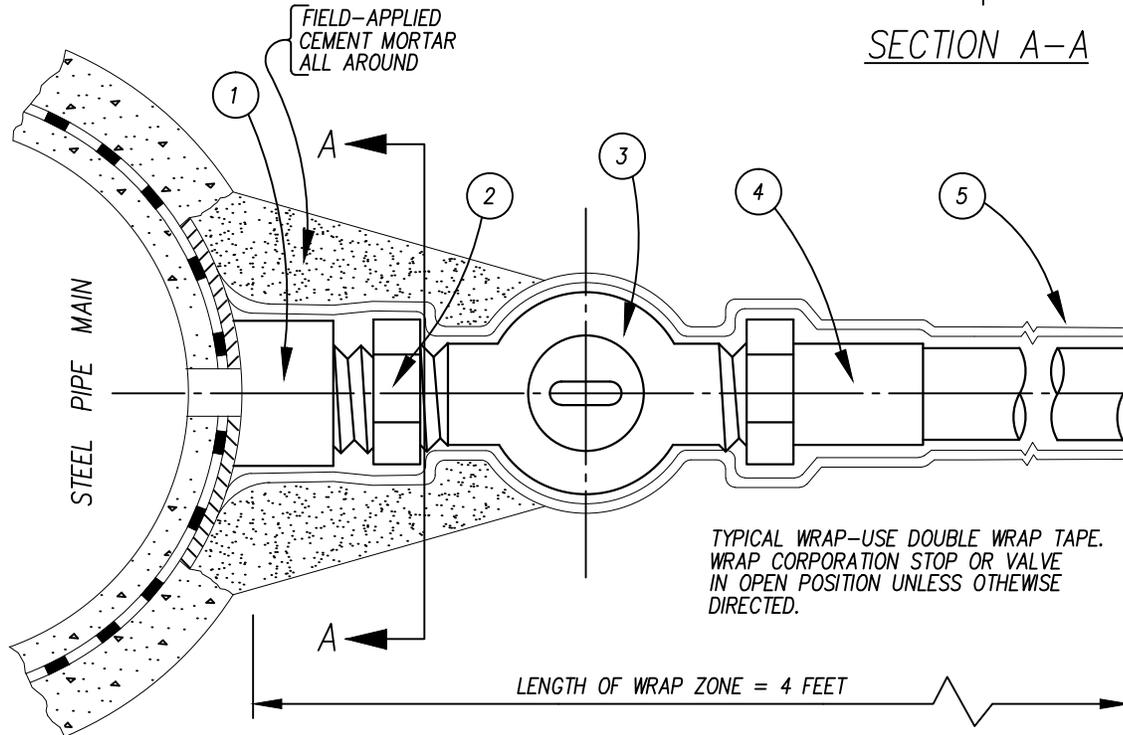
DRAWING NUMBER PW-27.1

NOTES:

DIELECTRIC CONNECTIONS SHALL BE REQUIRED ON ALL AIR AND VACUUM VALVE ASSEMBLIES, MANUAL AIR RELEASE ASSEMBLIES, BLOW-OFF ASSEMBLIES, AND WATER SERVICE ASSEMBLIES WHERE COPPER TUBING OR BRASS PIPE CONNECTIONS ARE MADE TO STEEL MAINS.



SECTION A-A



<u>COPPER TUBING</u>	<u>VALVE OR CORP. STOP</u>	<u>STEEL COUPLING</u>	<u>INSULATING BUSHING</u>
3/4"	3/4"	1"	3/4"x1"
1"	1"	1-1/2"	1"x1-1/2"
1-1/2"	1-1/2"	2"	1-1/2"x2"
2"	2"	2-1/2"	2"x2-1/2"

<u>ITEM</u>	<u>NO.</u>	<u>DESCRIPTION</u>	<u>SPECS</u>
1	1	1/2 LENGTH OF EXTRA STRONG PIPE COUPLING	SEE CITY APPROVED MATERIALS LIST
2	1	INSULATING BUSHING—NPT	
3	1	CORPORATION STOP—MALE NPT x FLARE NUT	
4	1	CORPORATION STOP FLARE NUT	
5	1	PVC TAPE (10 MILL, PRESSURE SENSITIVE)	

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

DIELECTRIC CONNECTION TO STEEL MAIN

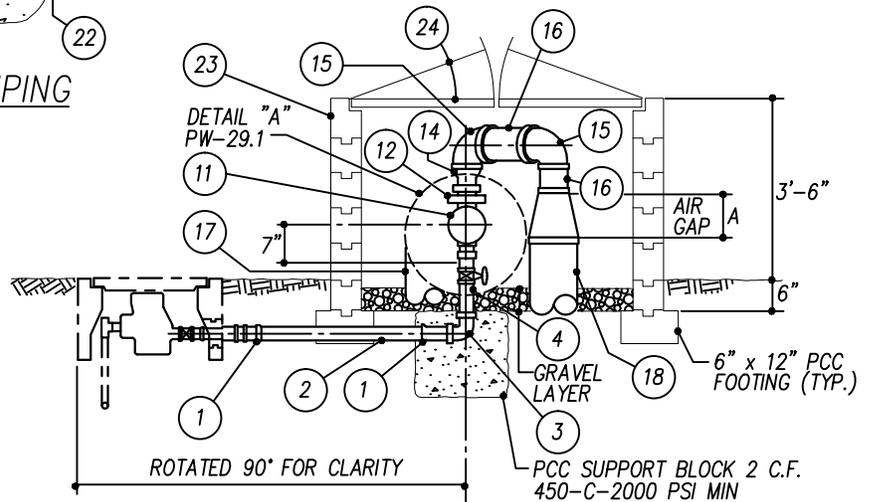
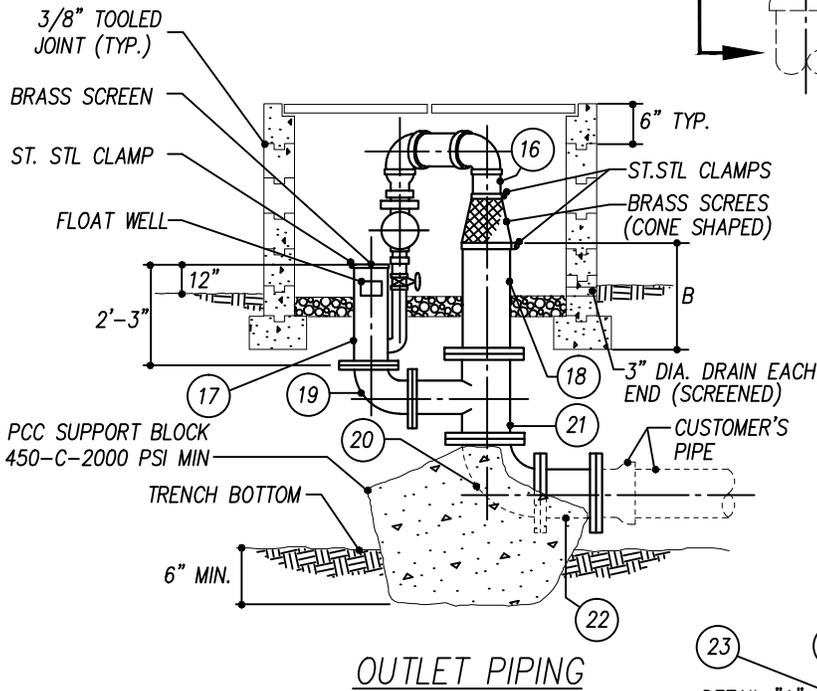
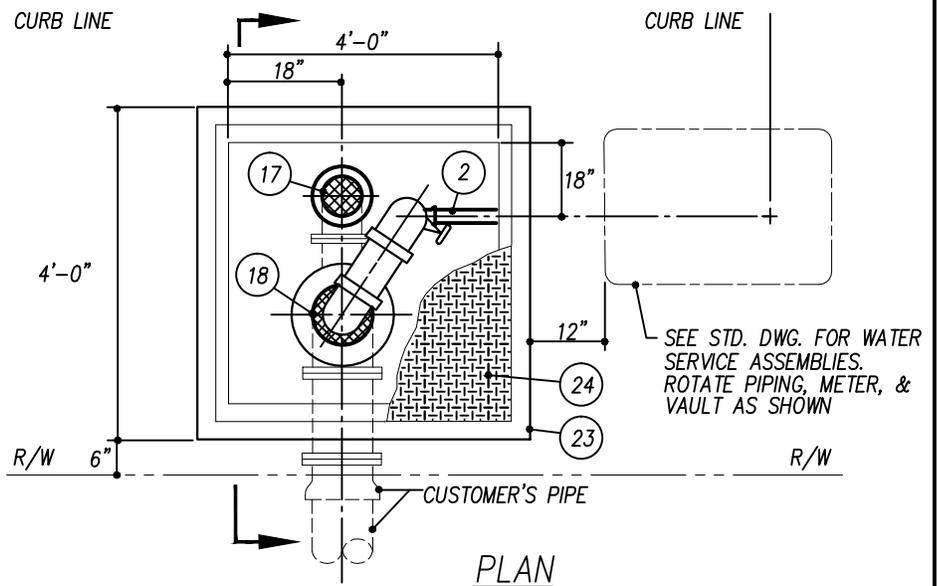
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CITY ENGINEER
R.C.E. 41975

3/18/13
DATE

DRAWING NUMBER

PW-28



NOTE: SILVER SOLDER REQUIRED

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

AIR GAP SEPARATOR ASSEMBLIES

APPROVED

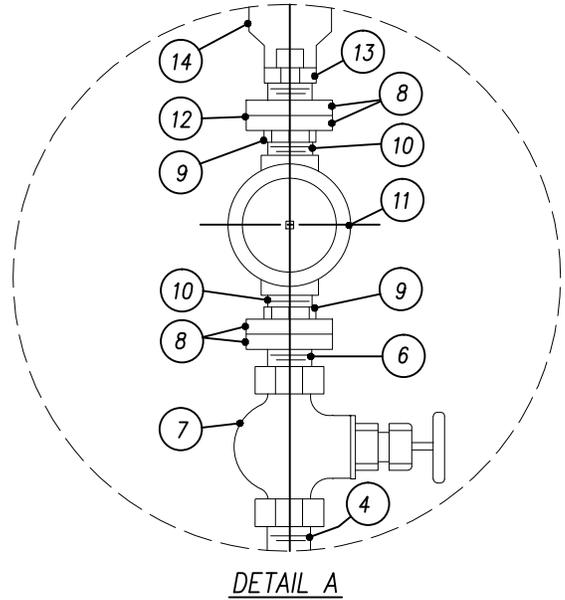
CITY ENGINEER
R.C.E. 41975

3/18/13
DATE

DRAWING NUMBER PW-29

SIZES-DIMENSIONS

REF.	3/4"	1"	1-1/2"	2"
A	6"	8"	12"	12"
B	2'-3"	2'-3"	2'-1"	2'-0"
1 THRU 7	3/4"	1"	1-1/2"	2"
8	3/4" - 4 REG	1"-2 REG	1-1/2" -2 REG	2" - 2 REG
9	-	-	-	-
10	3/4"	-	-	-
11	3/4" SCR.	1" FIG.	1-1/2" FIG	2" FIG.
12	3/4"	1"	1-1/2"	2"
13	3/4" x 1"	1"	1-1/2"	2"
14	1" x 3"	1" x 4"	2" x 6" *	2" x 6"
15 & 16	3"	4"	6"	6"
17 & 19	8"	8"	8"	8"
18 ,20, 22	8"	8"	10"	12"
21	8"	8"	10"x10"x8"	12"x12"x8"



* WITH 1-1/2" x 2" FLUSH, BRONZE BUSHING

EQUIPMENT SCHEDULE

ITEM	REQ.	DESCRIPTION	SPECIFICATIONS
1	2	COPPER ADAPTER, S.J. x MALE N.P.T.	
2	-	TYPE "K" SOFT COPPER TUBE	
3	1	BRONZE 90° SCREWED ELL	
4	-	BRASS PIPE, THREADED	
5	1	BRONZE UNION, SCREWED	
6&10	-	BRASS CLOSE NIPPLE	
7	1	BRONZE GLOBE VALVE, SCREWED	
8	-	#150 BRONZE FLANGE, SCREWED	SEE TABLE
9	2	BRONZE BUSHING, OUTSIDE HEAD-SCREWED	
11	1	FLOAT VALVE	
12	1	ORIFICE PLATE, PADDLE TYPE	SEE STD. SPECS FOR BORING DIA.
13	1	COPPER ADAPTER, FTG.x MALE N.P.T.	
14	1	COPPER FTG. ADAPTER, FTG. x S.J.	
15	2	COPPER 90° ELL, S.J.	
16	-	TYPE "K" HARD COPPER TUBE	
17&18	1	C.I.P. FIG. ONE END	
19&20	1	FIG. 90° C.I. BEND	
21	1	FIG. C.I. TEE	
22	1	FIG. C.I. SPOOL, 12" LONG	INTEGRALLY CAST FLANGES
23	-	PRECAST CONCRETE VAULT	"QUICKSET" TV-3013
24	-	HINGED COVER, PARKWAY TYPE	"QUICKSET" GPB-3100

REVISION	BY	APPROVED	DATE
NEW DWG	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

AIR GAP SEPARATOR ASSEMBLIES NOTES AND DETAILS

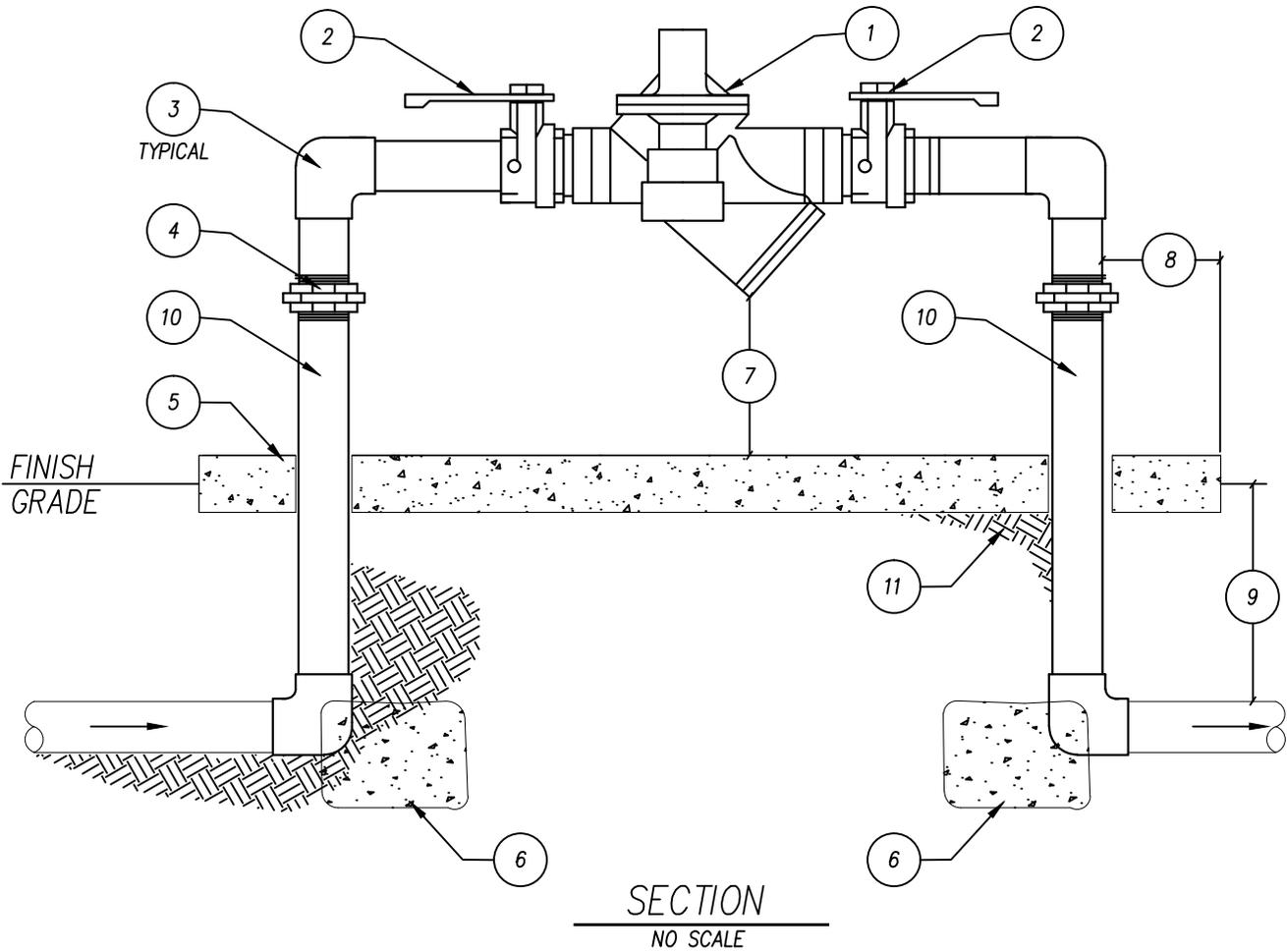
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CITY ENGINEER
R.C.E. 41975

3/18/13
DATE

DRAWING
NUMBER

PW-29.1



NOTES:

1. LOCATE BACKFLOW PREVENTER WITHIN 12" OF WATER METER OR PER ENGINEER'S DIRECTION.
2. ALL METAL JOINTS MUST BE SILVER SOLDERED.

ITEM	NO.	DESCRIPTION	SPECS
1	-	BACKFLOW PREVENTER	PER APPROVED MATERIALS LIST
2	-	BALL VALVE	PER APPROVED MATERIALS LIST
3	-	90° ELBOW	BRASS OR COPPER
4	-	UNION	BRASS OR COPPER
5	-	CONCRETE PAD	6" THICK (520-C-2500 PSI); SEE PW-26
6	-	THRUST BLOCK	PW-17.1 FOR 1 1/2" AND LARGER
7	-	12" MIN., 24" MAX.	
8	-	6"	
9	-	12" MIN.	
10	-	RISER	BRASS OR COPPER; WRAPPED WITH PLASTIC TAPE THROUGH CONCRETE
11	-	SUBGRADE	COMPACTED 90%

REVISION	BY	APPROVED	DATE
ADDED NOTE	DS		
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

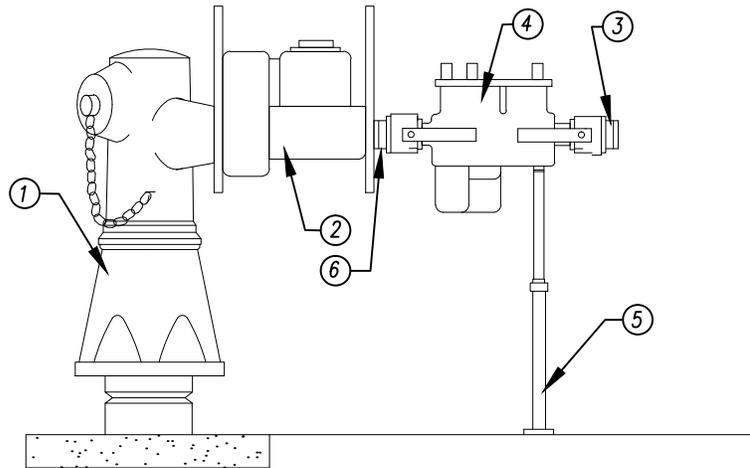
2" & SMALLER BACKFLOW PREVENTER INSTALLATION

APPROVED


CITY ENGINEER
R.C.E. 41975

3/18/13
DATE

DRAWING NUMBER PW-30



ELEVATION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR BACKFLOW PREVENTION BY INSTALLING A REDUCED PRESSURE PRINCIPLE PREVENTION ASSEMBLY (R.P.). THE CONTRACTOR MUST HAVE THE R.P. ASSEMBLY TESTED FOR COMPLIANCE. THE TEST MUST BE MAILED/EMAILED TO THE CITY'S CROSS-CONNECTION CONTROL DEPARTMENT OR THE PROJECT INSPECTOR WITHIN FIVE DAYS AFTER INSTALLATION. FAILURE TO DO SO CAN RESULT IN TERMINATION OF SERVICE. ANY QUESTIONS CONTACT CITY CROSS-CONNECTION CONTROL DEPARTMENT (858) 668-4744 OR (858) 668-4735.

ITEM	NO.	DESCRIPTION	REMARKS
1	1	FIRE HYDRANT	
2	1	CONSTRUCTION WATER METER	SUPPLIED BY THE CITY OF POWAY
3	1	MALE FIRE HOSE CONNECTION	
4	1	REDUCED PRESSURE BACKFLOW PREVENTER	SUPPLIED BY CUSTOMER
5	1	ADJUSTABLE PIPE SUPPORT	
6	1	FEMALE FIRE THREAD CONNECTION	

REVISION	BY	APPROVED	DATE
EDIT	DS		
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

CONSTRUCTION METER
BACKFLOW ASSEMBLY

APPROVED


CITY ENGINEER
R.C.E. 41975

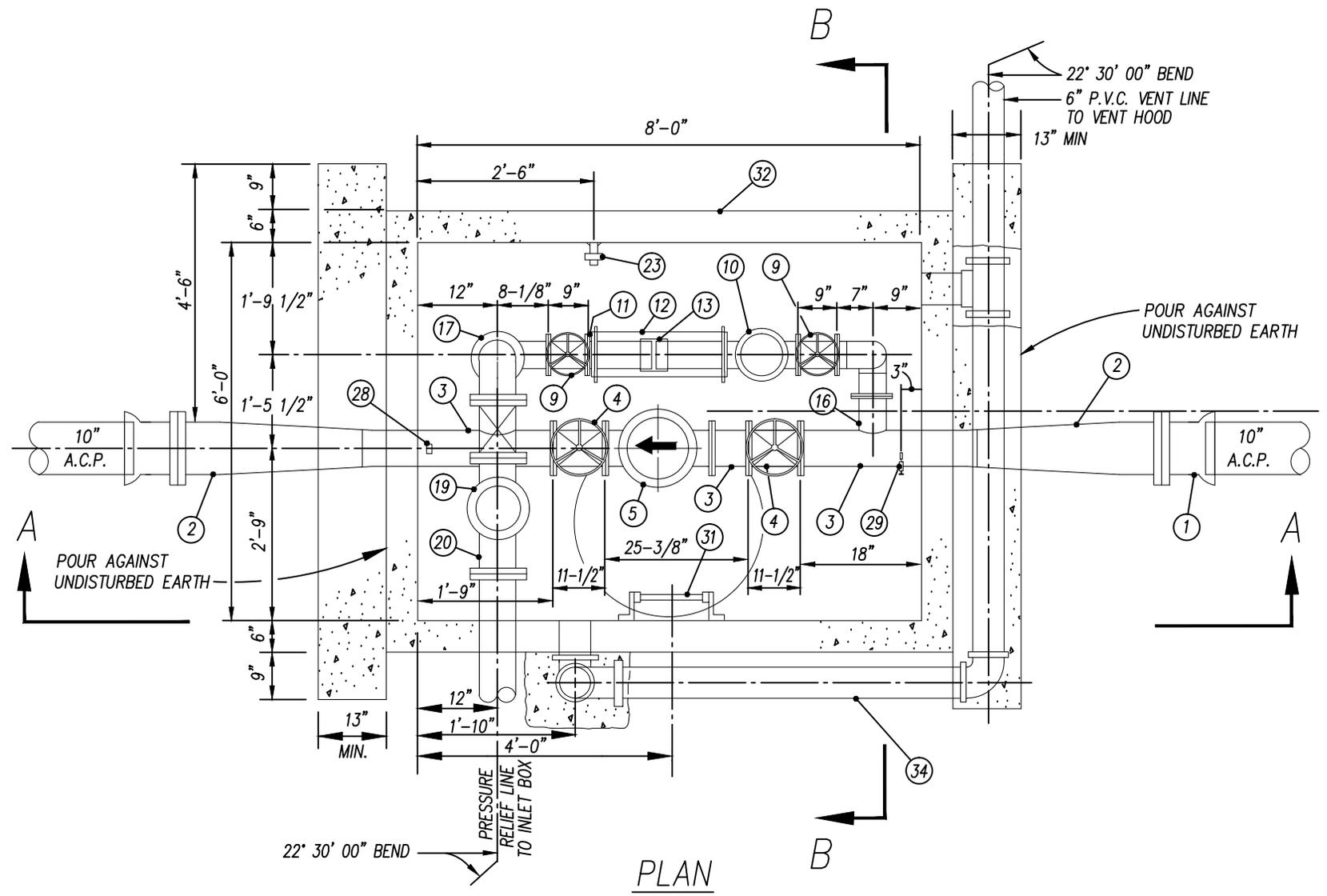
3/18/13
DATE

DRAWING NUMBER PW-30.1

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. GROSSBY	03/13

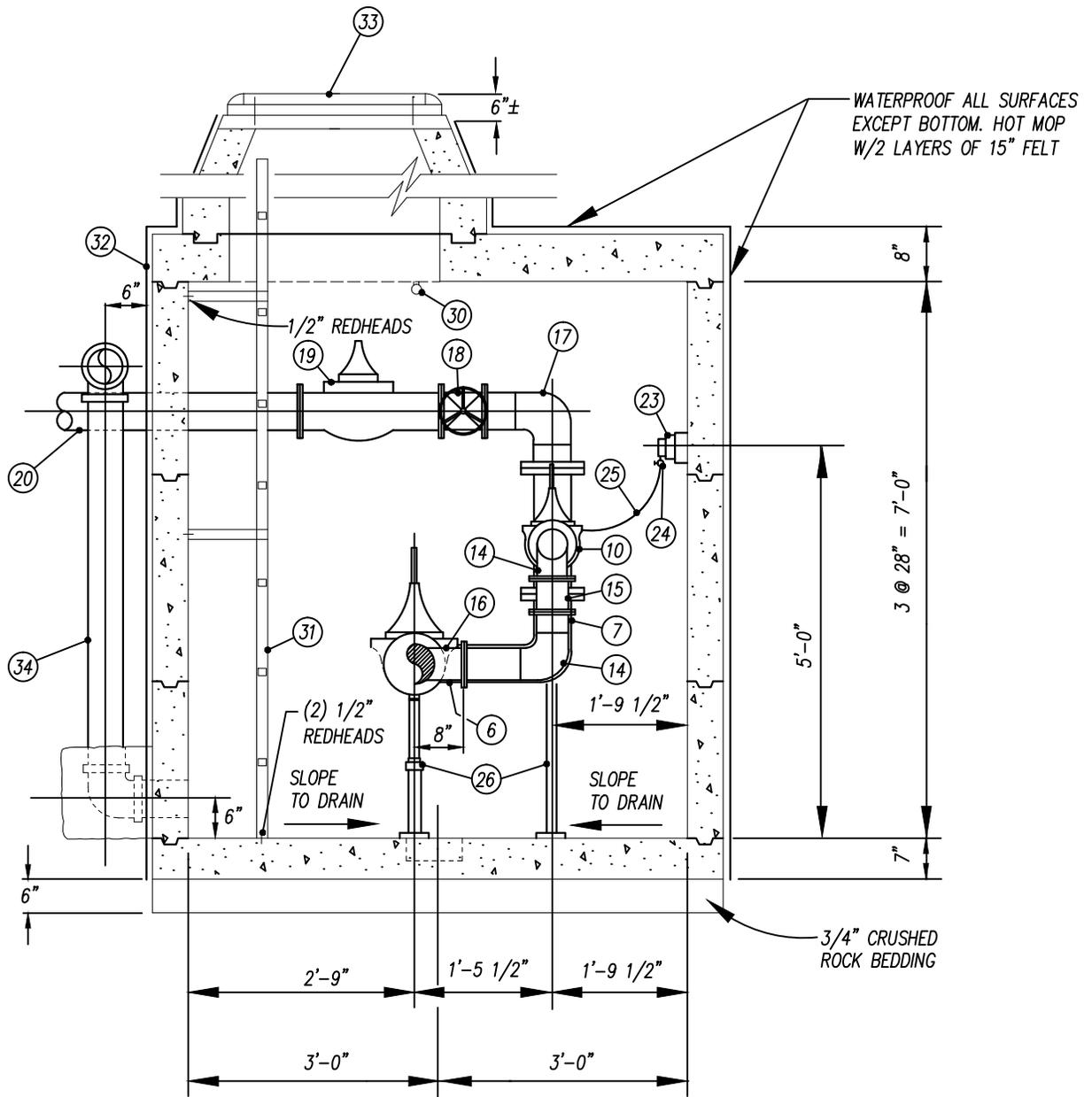
CITY OF POWAY STANDARD DRAWING

**PRESSURE REGULATING STATION
PLAN VIEW**



- NOTES:
1. SECTION A-A LOCATED ON POWAY STD. DWG. PW-31.2
 2. SECTION B-B LOCATED ON POWAY STD. DWG. PW-31.3
 3. STEEL PIPE AND FITTINGS SHALL BE 10 GA. STEEL WALL THICKNESS UNLESS OTHERWISE NOTED
 4. ALL FERROUS VAULT PIPING TO BE CEMENT OR EPOXY
 5. ALL FLANGES SHALL BE CLASS 150
 6. SEE POWAY STD. DWG. PW-31.4 AND PW-31.5 FOR EQUIPMENT SCHEDULE AND ADDITIONAL DETAILS
 7. SEE SECTION A-A FOR REINFORCEMENT DETAILS

APPROVED	CITY ENGINEER	DATE
	<i>[Signature]</i>	3/18/13
DRAWING NUMBER	PW-31.1	



SECTION B-B

NOTES:

1. PLAN VIEW LOCATED ON POWAY STD. DWG. PW-31.1
2. SECTION A-A LOCATED ON POWAY STD. DWG PW-31.2
3. STEEL PIPE AND FITTINGS SHALL BE 10 GA. STEEL WALL THICKNESS UNLESS OTHERWISE NOTED.
4. ALL FERROUS VAULT PIPING TO BE CEMENT OR EPOXY.
5. ALL FLANGES SHALL BE CLASS 150.
6. SEE POWAY STD. DWG. PW-31.4 AND PW-31.5 FOR EQUIPMENT SCHEDULE AND ADDITIONAL DETAILS.

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

PRESSURE REGULATING STATION
SECTION B-B

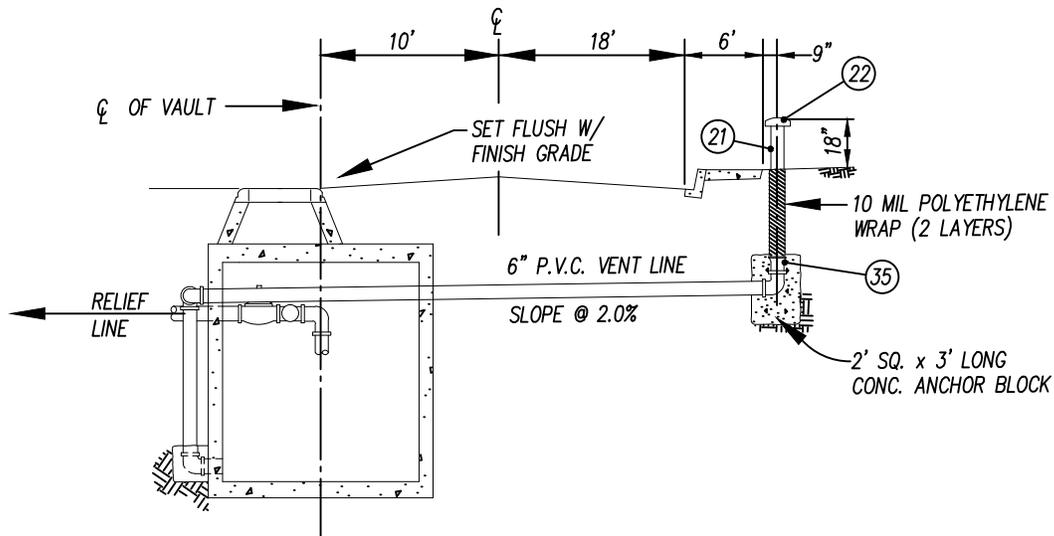
APPROVED

CITY ENGINEER
R.C.E. 41975

DRAWING
NUMBER

3/18/13
DATE

PW-31.3



VENTILATION – LINE
PROFILE

EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	10" CAST IRON FLANGE x AC ADAPTER	19	6" PRESSURE RELIEF VALVE, CLAYTON MODEL 51G-01, EPOXY COATED
2	10" x 8" STEEL PIPE REDUCER, CEMENT LINED AND COATED, FLANGE x PE	20	6" x 10 GA. WELDED STEEL PIPE, CEMENT LINED OUTSIDE OF PIPE, TO BE CEMENT COATED OUTSIDE OF VAULT AND BARE INSIDE OF VAULT
3	8-5/8" O.D. x 10 GA. STEEL PIPE, CEMENT LINED. OUTSIDE OF PIPE TO BE CEMENT COATED OUTSIDE OF VAULT AND BARE INSIDE OF VAULT	21	6" STANDARD WEIGHT GALVANIZED STEEL PIPE
4	8" GATE VALVE W/ HANDWHEEL	22	MUSHROOM TYPE HOOD-ALHAMBRA FOUNDRY #A-2163
5	8" PRESSURE REDUCING VALVE, CLAYTON MODEL 90G-01, EPOXY COATED	23	FLOW INDICATOR
6	6" STEEL FLANGED OUTLET	24	3" VALVE BRASS MANIFOLD
7	SHORT RADIUS STANDARD WEIGHT STEEL 90° ELBOW W/ BASE (2" PIPE W/ 1/4" STEEL P)	25	3/8" O.D. REFRIGERATION TUBING
8	6" x 6" x 4" STANDARD WEIGHT STEEL TEE	26	ADJUSTABLE PIPE SUPPORT, GRINNEL #264
9	4" GATE VALVE W/ HANDWHEEL	27	2" PIPE SUPPORT W/ ADJUSTABLE COUPLING AND FLOOR FLANGE
10	4" PRESSURE REDUCING AND FLOW CONTROL VALVE, CLAYTON MODEL 49G-01, EPOXY COATED	28	3-1/2" PRESSURE GAGE W/ GAGE COCK. 0-200 PSI, MARSH TYPE I USG
11	4" ORIFICE PLATE	29	HOSE BIBB AND PRESSURE GAGE - SEE DETAIL
12	4" HARNESS-SEE DETAIL	30	3/4"Ø SPIDER TYPE ANCHOR INSERT W/ 3/4"Ø SHANK, GALVANIZED WELDLESS EYEBOLT
13	4" FLEX. COUPLING	31	GALVANIZED LADDER-ALHAMBRA FOUNDRY #A-3400
14	4" SHORT RADIUS STANDARD WEIGHT STEEL 90° ELBOW	32	PRE-CAST UTILITY VAULT
15	4" STANDARD WEIGHT STEEL PIPE SPOOL	33	MANHOLE FRAME AND COVER-ALHAMBRA FOUNDRY #A-1105 WITH CAP SCREWS AND NEOPRENE RING SEAL
16	4" STEEL FLANGED OUTLET	34	6" SCH. 40 P.V.C. PIPE AND FITTINGS (VENTS)
17	6" SHORT RADIUS STANDARD WEIGHT STEEL 90° ELBOW	35	6" SCH. 40 P.V.C. FEMALE ADAPTER
18	6" GATE VALVE W/ HANDWHEEL	36	PRE-CAST REINFORCED CONCRETE NECKING AND GRADE RINGS

REVISION	BY	APPROVED	DATE
NEW DWG	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

PRESSURE REGULATING STATION
EQUIPMENT SCHEDULE AND DETAILS

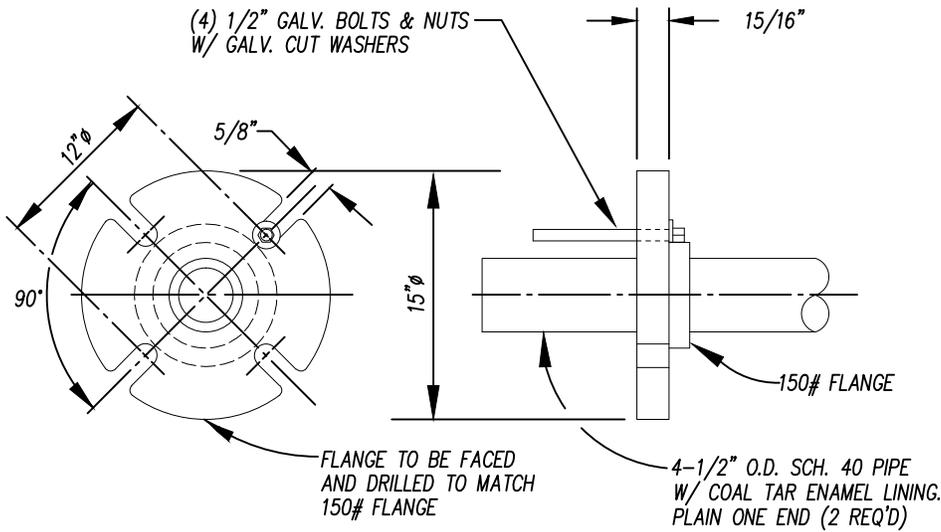
APPROVED

CITY ENGINEER
R.C.E. 41975

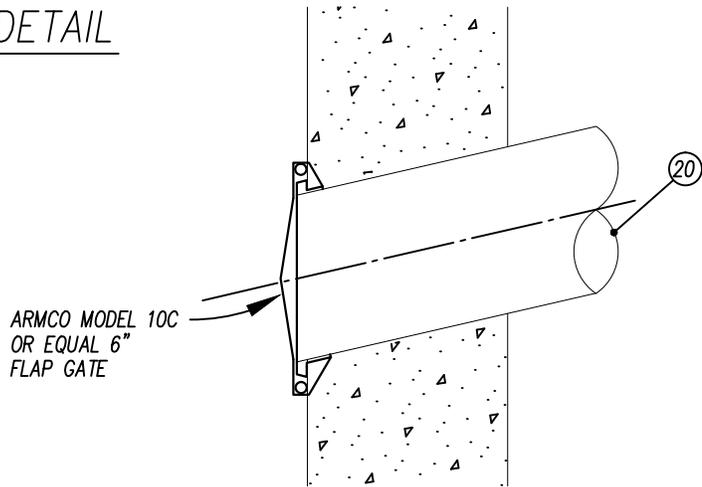
3/18/13
DATE

DRAWING
NUMBER

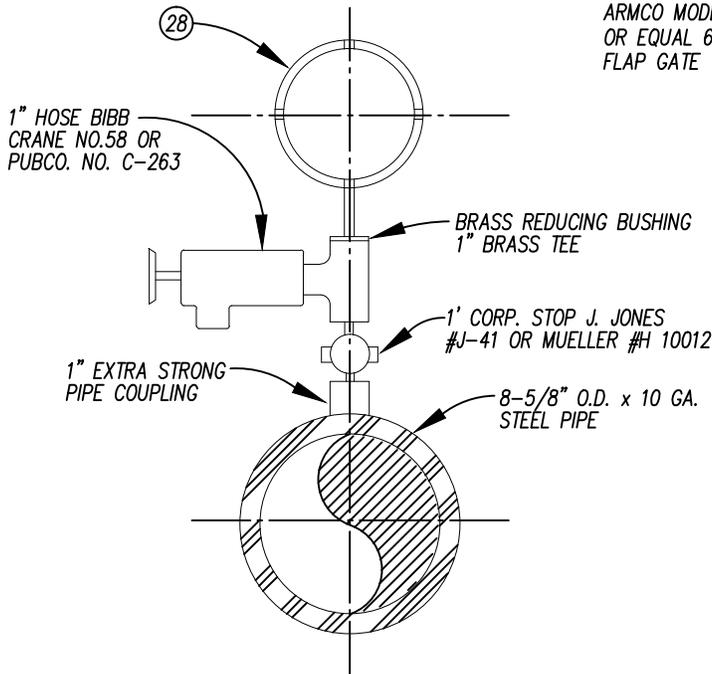
PW-31.4



HARNES DETAIL



FLAP GATE FOR PRESSURE
RELIEF LINE DETAIL



HOSE BIBB DETAIL

NOTE:
SEE POWAY STD. DWG. PW-31.4 FOR
EQUIPMENT SCHEDULE.

REVISION	BY	APPROVED	DATE
NEW DWG	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

PRESSURE REGULATING STATION
DETAILS

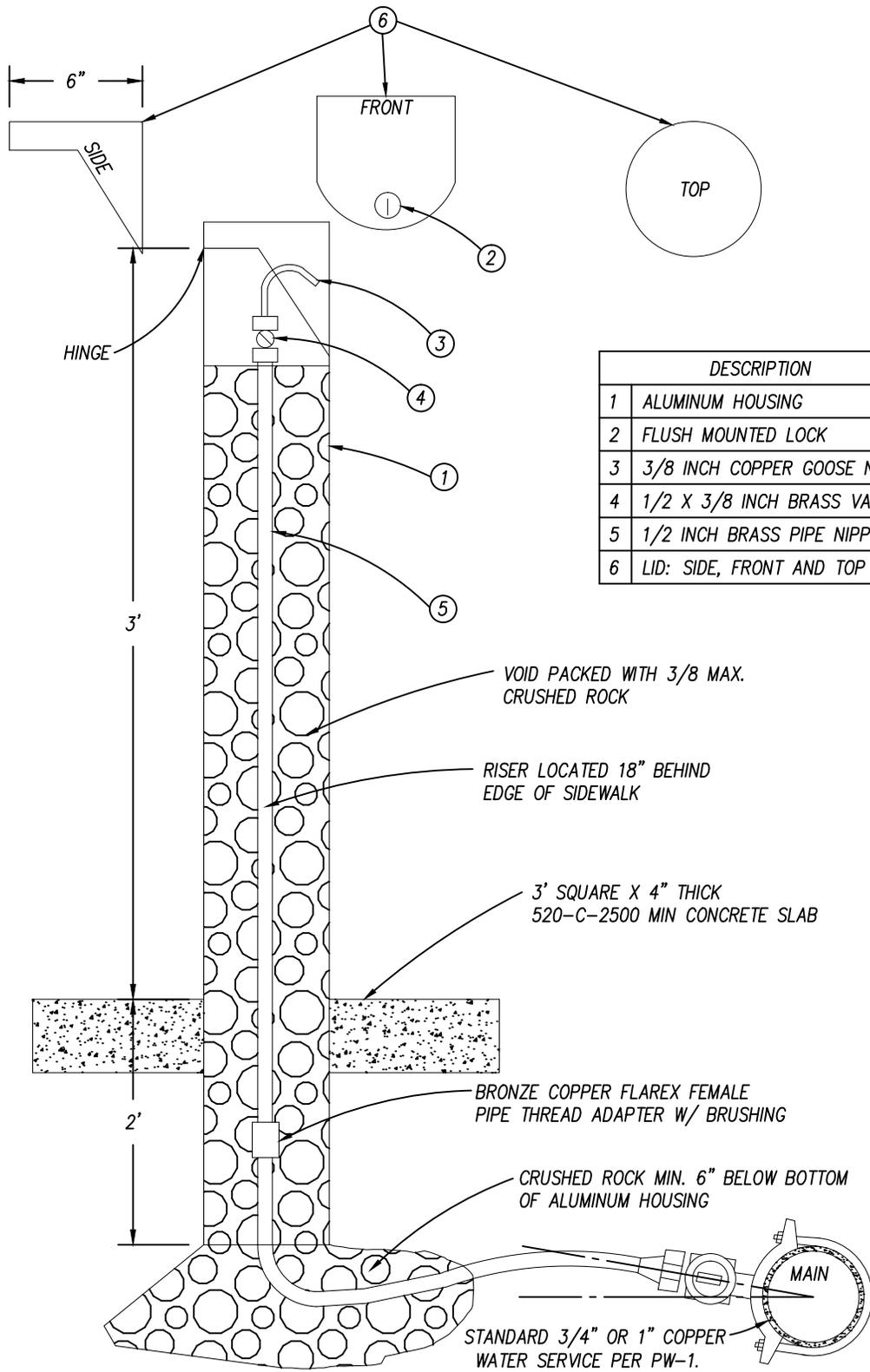
APPROVED

CITY ENGINEER
R.C.E. 41975

DRAWING
NUMBER

3/18/13
DATE

PW-31.5



REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

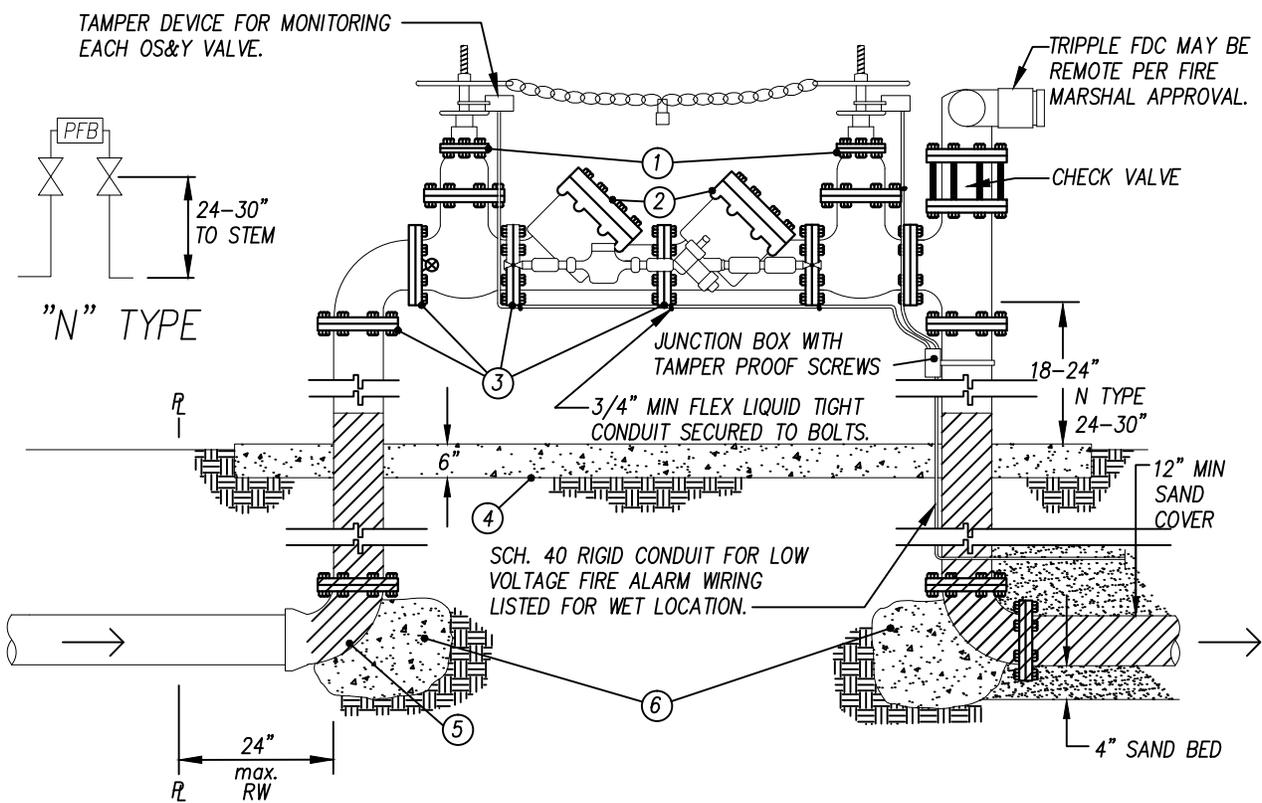
CITY OF POWAY STANDARD DRAWING

1" WATER SAMPLING ASSEMBLY

APPROVED

[Signature] 3/18/13
 CITY ENGINEER R.C.E. 41975 DATE

DRAWING NUMBER PW-32



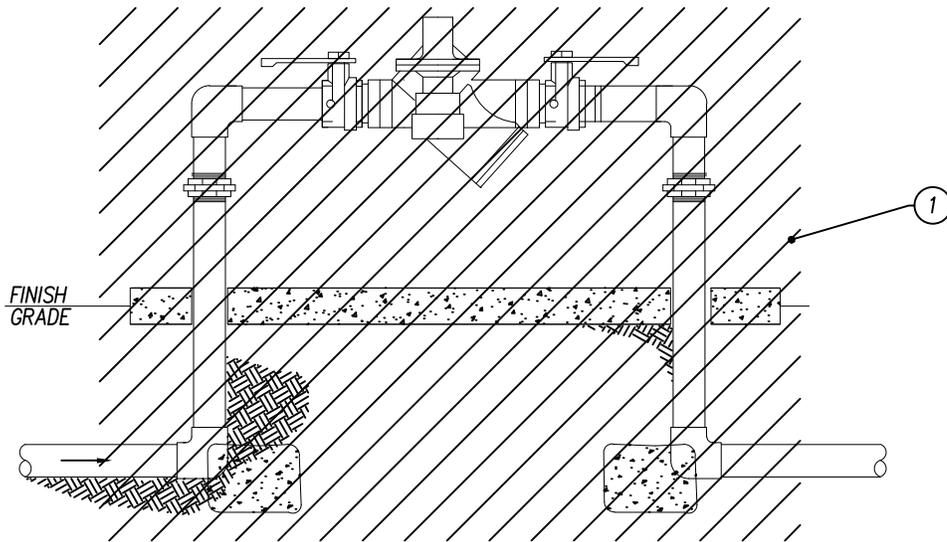
GENERAL NOTES:

- A. MATERIALS SHALL BE UL LISTED FOR FIRE SERVICE.
- B. MATERIALS SHALL BE INSPECTED PRIOR TO INSTALLATION.
- C. 316 ST. STEEL NUTS AND BOLTS.
- D. LOCATION OF BACKFLOW AND FDC SHALL BE APPROVED BY FIRE DEPARTMENT PRIOR TO PLACEMENT.
- E. WRAP BOLTS WITH 10 MIL PLASTIC SHEATHING PRIOR TO PLACEMENT OF THRUST BLOCKS.
- F. FOR STREET VALVE INFORMATION SEE POWAY STD. DWG PW-12.
- G. ANY MODIFICATION TO FIRE DEPARTMENT REQUIREMENTS MUST HAVE WRITTEN APPROVAL FROM THE FIRE DEPARTMENT.

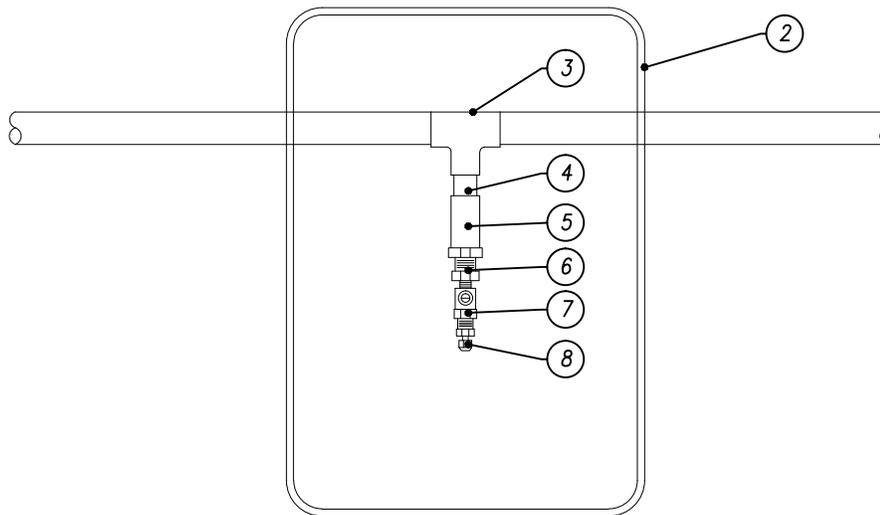
NOTES:

- ① O.S.&Y. GATE VALVE WITH FULL ENCAPSULATED RESILIENT SEAT APPROVED EQUAL CONFORMING TO LATEST EDITION AWWA STANDARD C509.
- ② U.S.C. APPROVED BACKFLOW PREVENTER ASSEMBLY WITH 3/4" NON-VALVED BYPASS METER ASSEMBLY BACKFLOW. SUPPORT ASSEMBLY PER MANUFACTURER'S RECOMMENDATIONS.
- ③ ALL RISERS AND ABOVE GROUND MAINLINE FITTINGS SHALL BE DUCTILE IRON FLANGE TYPE, EPOXY COATED INSIDE OR CEMENT MORTAR LINED.
- ④ CONCRETE SLAB, 520-C-2500 PSI MIN. PROTECTION POST MAY BE REQUIRED.
- ⑤ PO x FI 90°
- ⑥ PCC THRUST BLOCKS, SIZE AS REQUIRED FOR SOIL TYPE. (SEE POWAY STD. DWG. PW-17.1 & 17.2) 450-C-2000 PSI MIN.

REVISION	BY	APPROVED	DATE	CITY OF POWAY STANDARD DRAWING	APPROVED	
REDRAWN	MR	S. CROSBY	03/13		DOUBLE CHECK DETECTOR BACKFLOW PREVENTOR	 CITY ENGINEER R.C.E. 41975
					DRAWING NUMBER	PW-33



DEMOLITION SECTION
NO SCALE



RE-WORK PLAN
NO SCALE

ITEM	NO.	DESCRIPTION	SPECS
1	-	REMOVE EXISTING DEVISE AND CONCRETE	PER APPROVED MATERIALS LIST
2	-	VALVE BOX	12"X17" PLASTIC
3	-	FULL SIZE TO 3/4" TEE	COPPER
4	-	3/4" NIPPLE	COPPER
5	-	3/4" TO 3/4" THREADED	COPPER
6	-	3/4" TO 1/8"	COPPER
7	-	1/8" BALL VALVE OR TEST COCK	BRASS
8	-	1/8" COMPRESSION FITTING	COPPER

REVISION	BY	APPROVED	DATE
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

BACKFLOW PRESSURE
TEST STATION

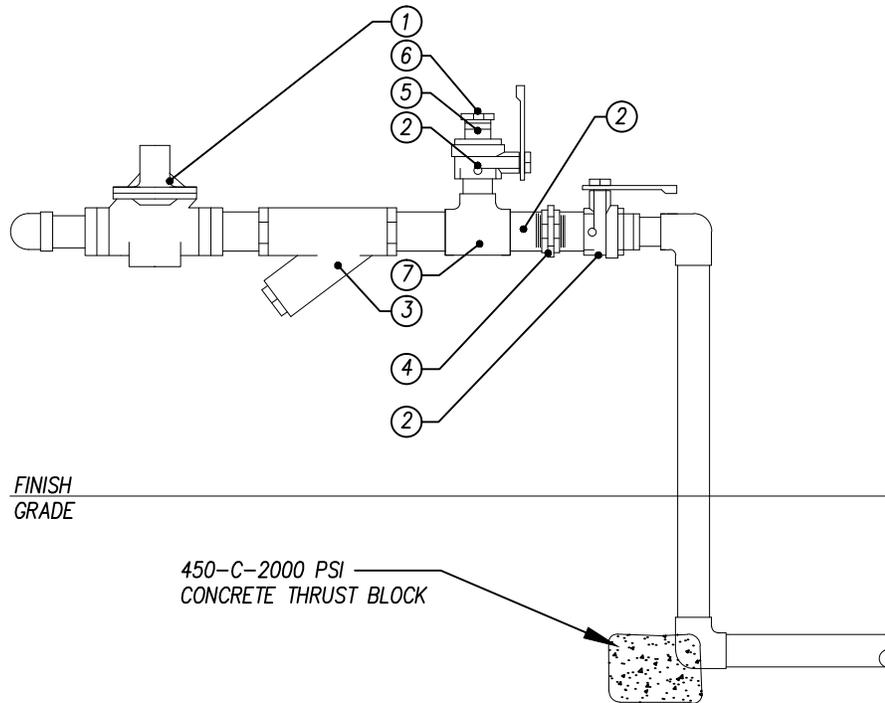
APPROVED


CITY ENGINEER
R.C.E. 41975

3/18/13
DATE

DRAWING
NUMBER

PW-34



SECTION
NO SCALE

ITEM	NO.	DESCRIPTION	SPECS
1	-	PRESSURE REGULATOR	OWNER SUPPLIED
2	-	1" BALL VAVE	BRASS
3	-	STRAINER	OWNER SUPPLIED
4	-	UNION	COPPER
5	-	1" THREADED NIPPLE	COPPER
6	-	THREADED CAP	BRASS
7	-	FULL SIZE TO 1" TEE	COPPER

REVISION	BY	APPROVED	DATE
ADDED NOTES	DS	FDC	9/7/07
REDRAWN	MR	S. CROSBY	03/13

CITY OF POWAY STANDARD DRAWING

POTABLE WATER SERVICE
LINE BYPASS DETAIL

APPROVED

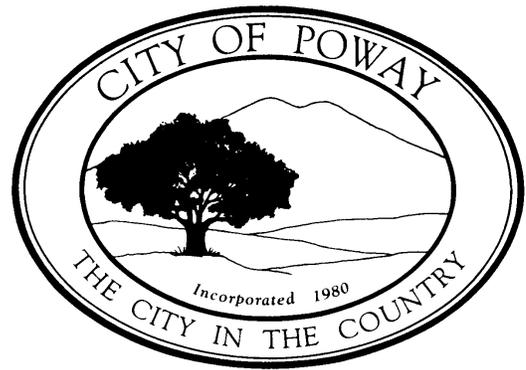
CITY ENGINEER
R.C.E. 41975

DRAWING
NUMBER

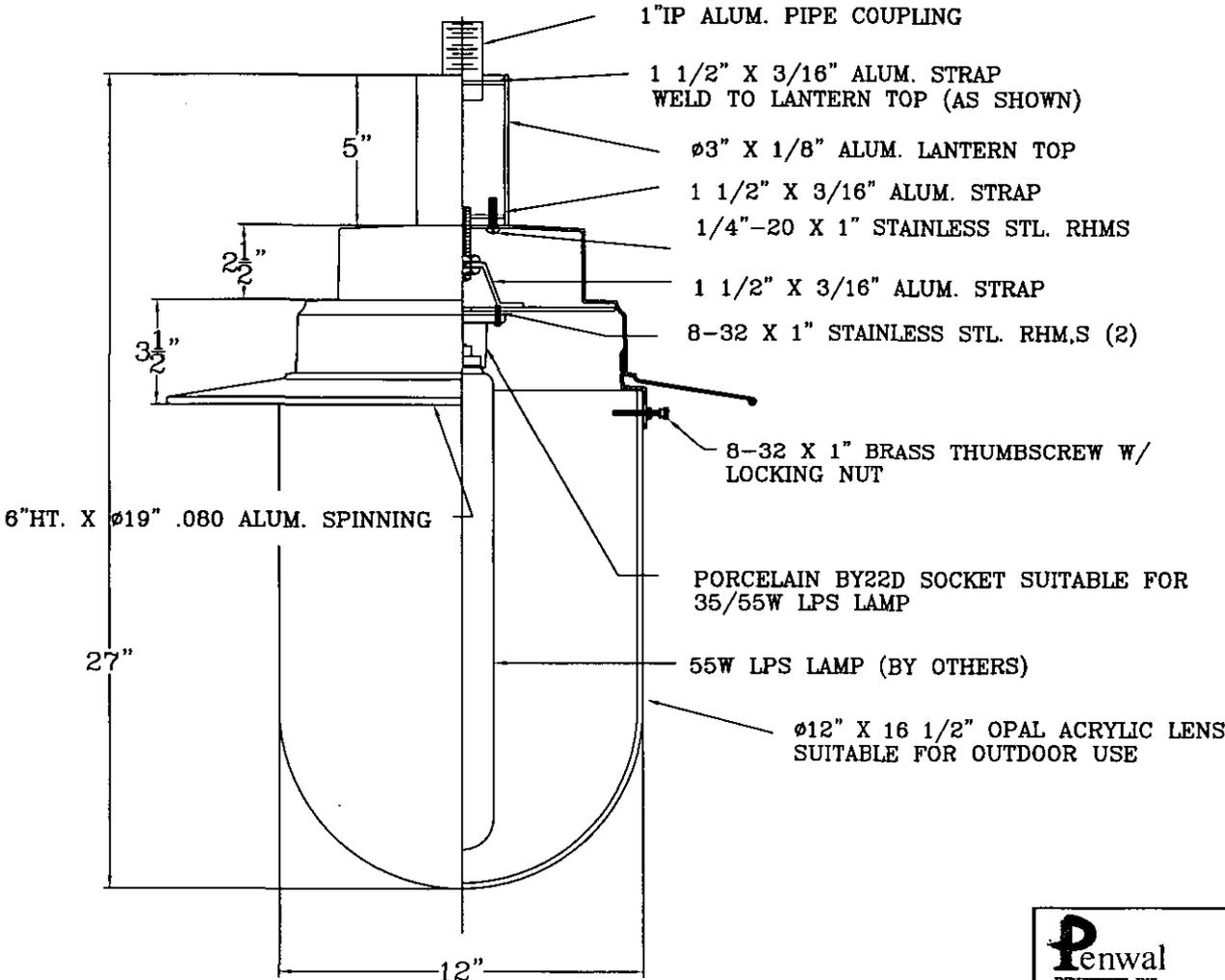
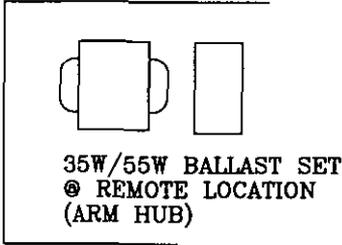
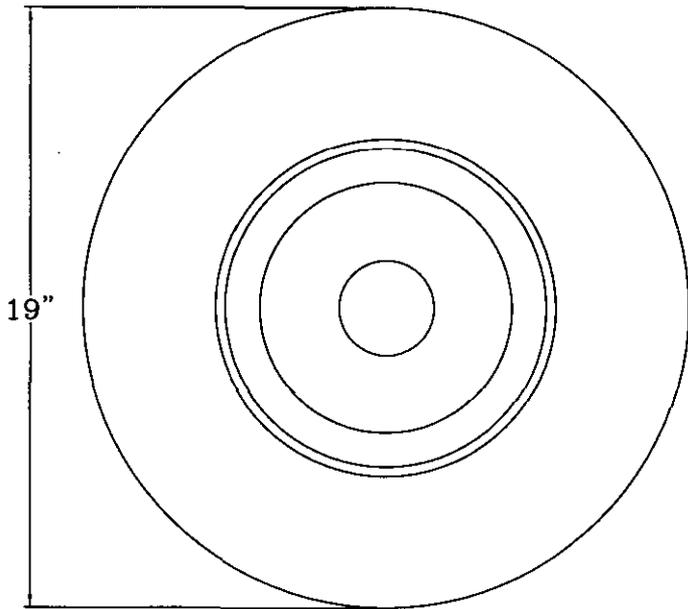
3/18/13
DATE

PW-35

Section 5 Engineering Supplements



Decorative Street Lighting Details



CAST ALUMINUM TO BS 590 OR 218
ALLOY UNLESS NOTED OTHERWISE
FINISH TO BS 681. MIN. TOLERANCES
ALL HARDWARE TO BE NON-FERROUS
AND TAMPER-RESISTANT

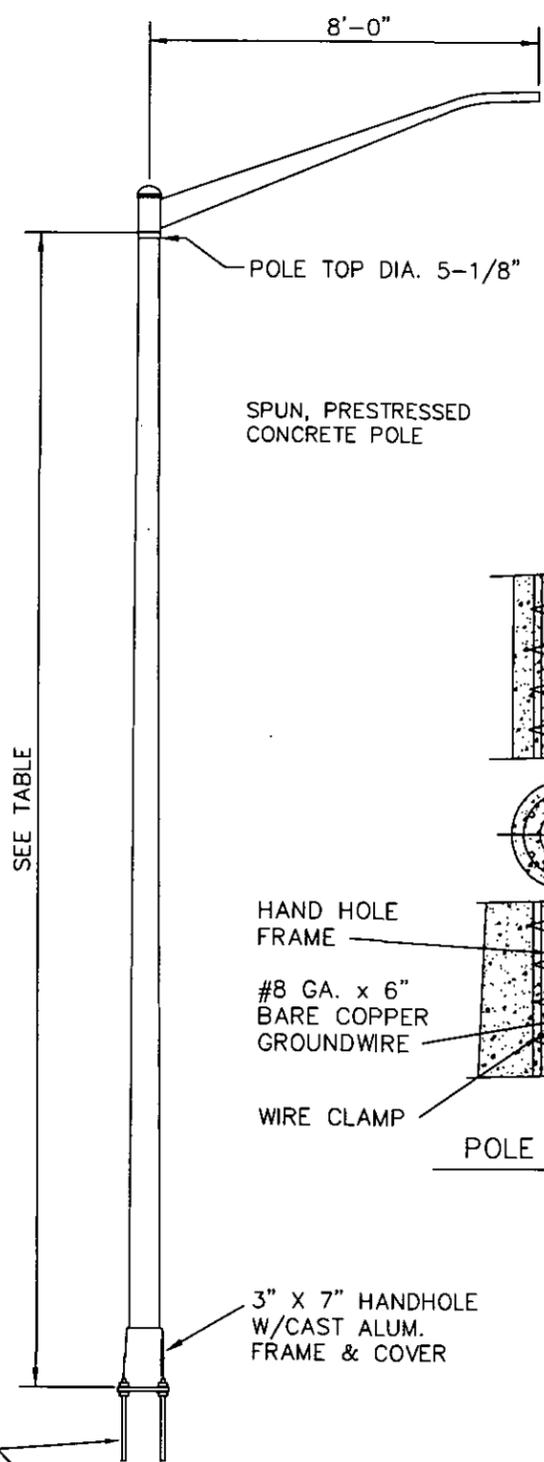
Tolerance: 1/16" = ± 1/16"
1/8" = ± 1/16"
Whole units = ± 1/8"

Penwal
INDUSTRIES INC.

12011 Acadia Street - Riverside Community, CA 92700 - (714) 682-1888 - Fax (714) 682-1888

CITY NAME	CITY OF POWAY	QTY.	
PROJECT NAME	OLD POWAY STREET LIGHTING	SCALE	NO SCALE
DRAWING TITLE	LANTERN ASSEMBLY	FINISH	ENR. PAINT TO MATCH POWAY CITY GREEN
LOCATION	EXTERIOR	DATE	03-28-04
DRAWN BY	S. JONES	DATE	03-28-04
APPROVED BY	MS	DATE	03-28-04
SHEET NO.		1 of 1	

REV.	DATE	DESCRIPTION	DRN.	APPR.
A	01/04	CHANGED TO SHOW MRAE8"X"A ARM	D.G.	



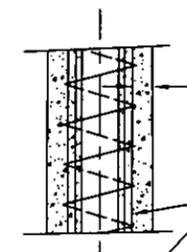
SPUN, PRESTRESSED CONCRETE POLE

HAND HOLE FRAME

#8 GA. x 6" BARE COPPER GROUNDWIRE

WIRE CLAMP

POLE SECTION



1/2" CLEAR COVER (TYP.)

(8) 9mm PRESTRESSING STEEL WIRES ASTM A-421

1-3/8" WALL (TYP.)

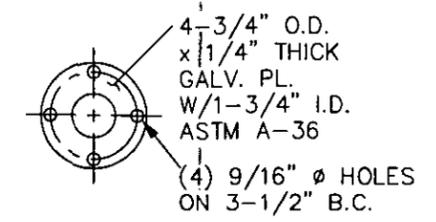
#12 GA. SPIRAL STEEL WIRE AT 3" PITCH ASTM A-82

#11 GA. LONGITUDINAL STEEL WIRE WELDED TO SPIRAL WIRE ASTM A-82

SEE TABLE

3" X 7" HANDHOLE W/CAST ALUM. FRAME & COVER

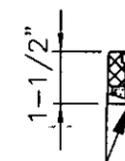
(4) 1"x36"x4" GALV. ANCHOR BOLTS WITH HEX NUTS AND WASHERS ASTM A-307



TOP MOUNT WASHER

4-3/4" O.D. x 1/4" THICK GALV. PL. W/1-3/4" I.D. ASTM A-36
(4) 9/16" Ø HOLES ON 3-1/2" B.C.

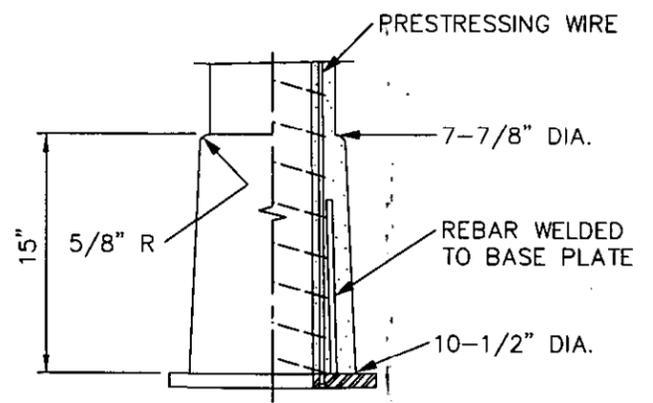
(4) 1/2"-13 TAPPED HOLES EQUALLY SPACED ON 3-1/2" B.C. FOR (4) 1/2"-13 x 1-1/2" LG. SST S304 HEX HD CAP SCREWS WITH LOCKWASHERS



POLE TOP SECTION

(MOD-TX) 1" THICK x 5" O.D. ALUM STRESS PLATE ALLOY 356-T6

(8) 9mm PRESTRESSING STEEL WIRE



BELL SECTION

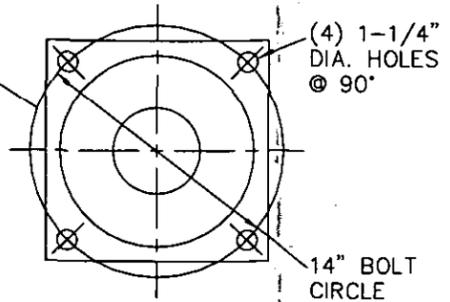
PRESTRESSING WIRE

7-7/8" DIA.

REBAR WELDED TO BASE PLATE

10-1/2" DIA.

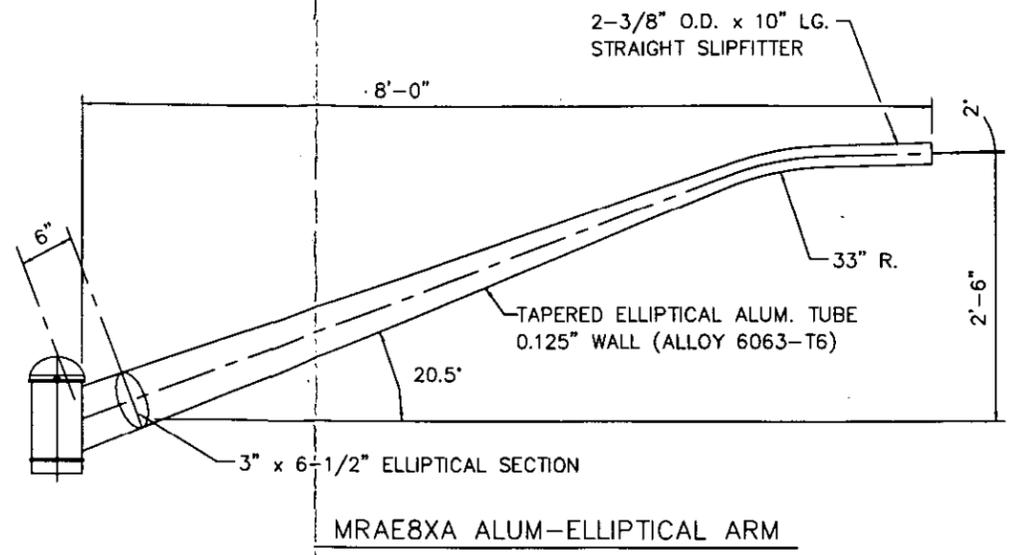
13" SQ. x 7/8" THICK GALV. STEEL PLATE A-36



BASE PLATE

(4) 1-1/4" DIA. HOLES @ 90°

14" BOLT CIRCLE



MRAE8XA ALUM-ELLIPTICAL ARM

2-3/8" O.D. x 10" LG. STRAIGHT SLIPFITTER

8'-0"

33" R.

TAPERED ELLIPTICAL ALUM. TUBE 0.125" WALL (ALLOY 6063-T6)

20.5°

3" x 6-1/2" ELLIPTICAL SECTION

MBB MEDIUM-BELL-BASEPLATE-ROUND

POLE DESIGNATION	POLE HEIGHT ABOVE GROUND	BUTT DIA.	BOLT CIRCLE	ULTIMATE G.L. MOMENT (ft. lbs.)	WEIGHT (lbs.)
MBBX07.4	24'-3"	10-1/2"	14"	19,100	750
MBBX08	26'-3"	10-1/2"	14"	24,700	900

() POLES REQ'D. W/MOD-TX, POLE TOP STRESS PLATE & MRAE8XA ALUM. ARM ASSY.

NOTE:

- (1) FINISH: #123N, GRAY, NATURAL TERRAZZO EXPOSED FINISH WITH NO COATING.
- (2) ASTM C-150 TYPE III GRAY CEMENT.
- (3) f'c @ 28 DAYS=7,000 PSI, USING SPUN CYLINDER TEST.
- (4) f'c @ 28 DAYS=5,000 PSI, USING ASTM C-31 CYLINDER TEST.
- (5) POLES MANUFACTURED TO ASTM C-1089-97 SPECIFICATIONS.
- (6) PROTECTIVE COAT EXPOSED P.C. WIRES AT POLE ENDS.

APPROVED BY:

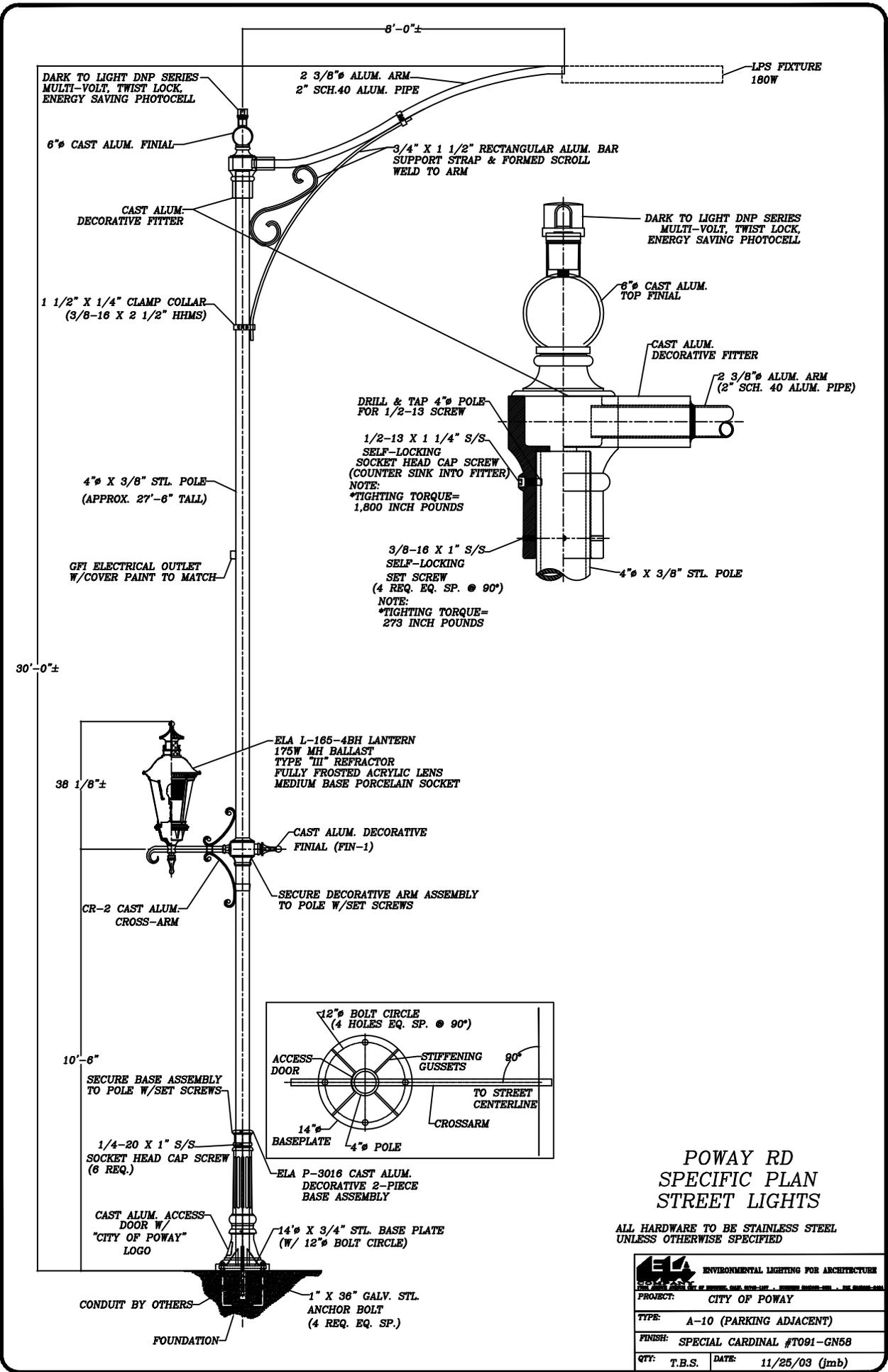
DATE:

Ameron POLE PRODUCTS & SYSTEMS

CITY OF POWAY, CA
MBBX-8.0 & 7.4 (123N) W/MOD-TX

THIS DOCUMENT CONTAINS INFORMATION WHICH IS PROPRIETARY TO AMERON. IT SHALL NOT BE REPRODUCED, USED OR DISCLOSED TO ANYONE WITHOUT THE PRIOR WRITTEN PERMISSION OF AMERON.

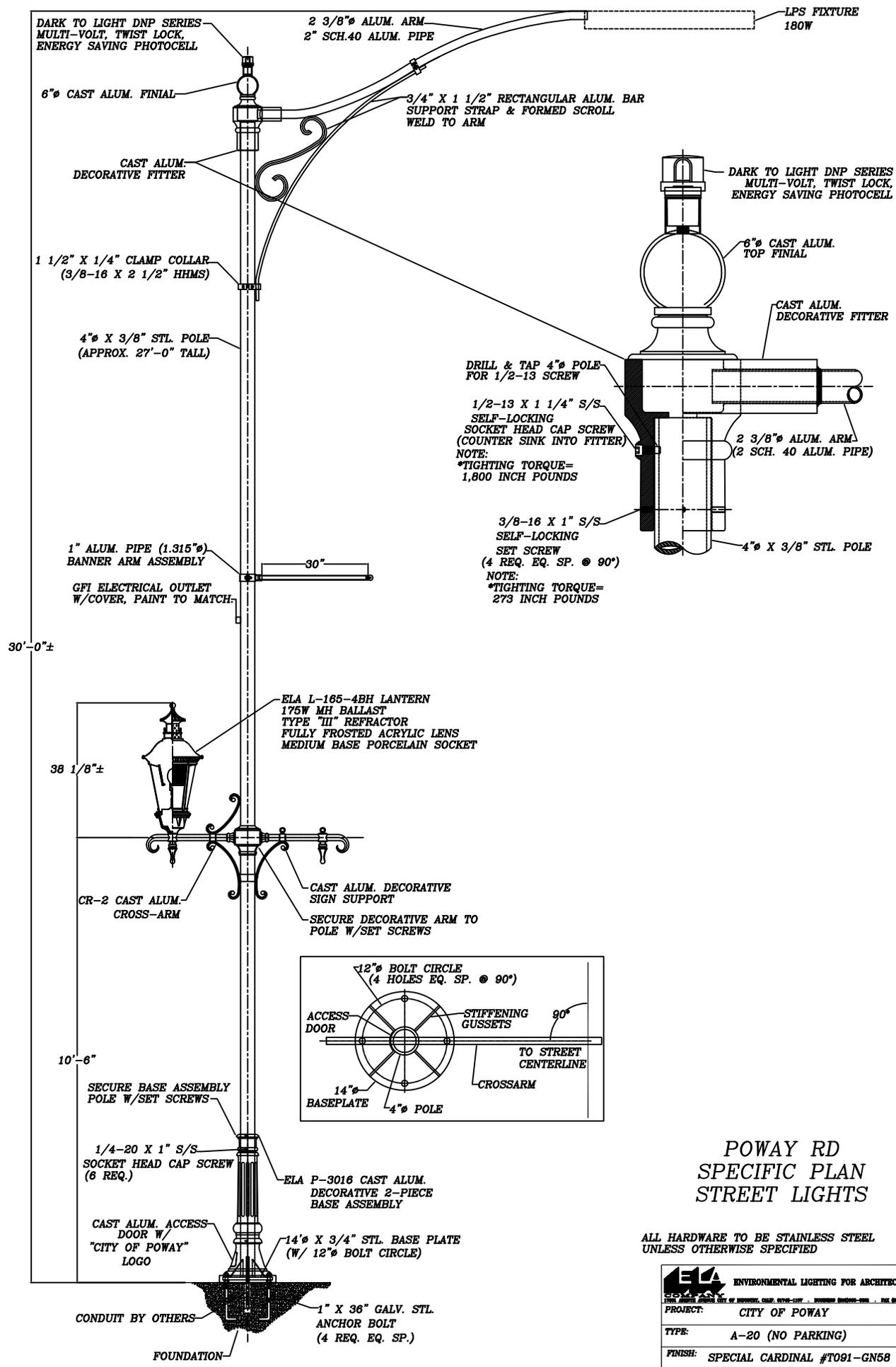
DRAWN: RS	4/02	SCALE	DWG. NO.	REV
CHK'D:		N.T.S.	SK042602	A



**POWAY RD
SPECIFIC PLAN
STREET LIGHTS**

ALL HARDWARE TO BE STAINLESS STEEL
UNLESS OTHERWISE SPECIFIED

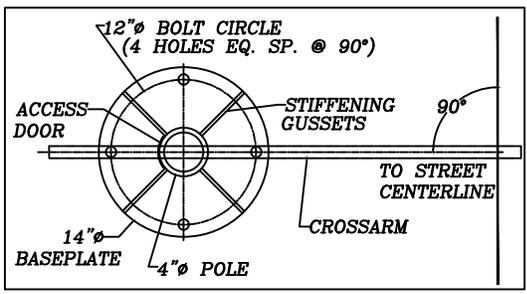
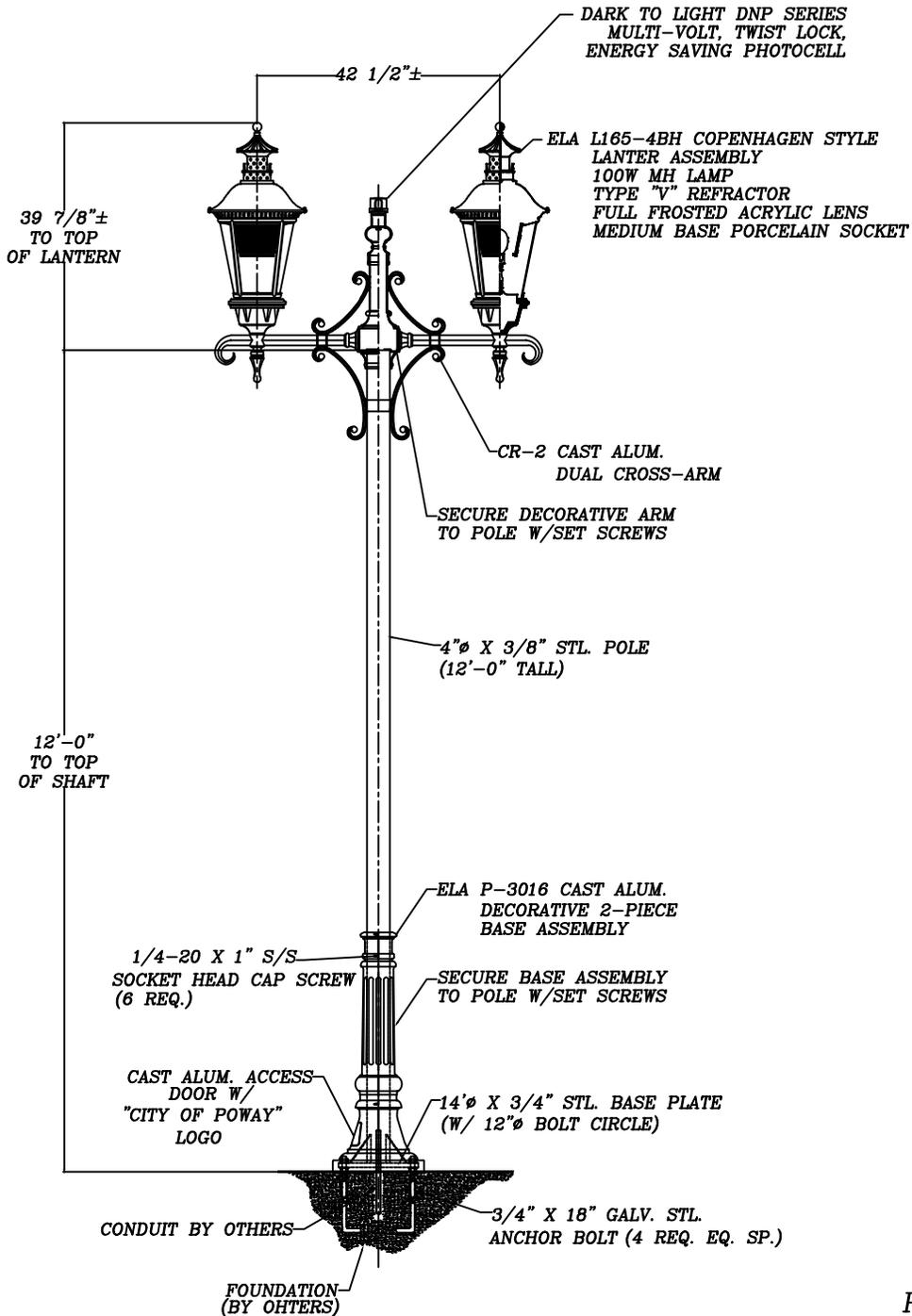
 ENVIRONMENTAL LIGHTING FOR ARCHITECTURE <small>2555 W. 10TH AVE. SUITE 100 DENVER, CO 80202-1001 TEL: 303.733.1111 FAX: 303.733.1112</small>	
PROJECT:	CITY OF POWAY
TYPE:	A-10 (PARKING ADJACENT)
FINISH:	SPECIAL CARDINAL #T091-GN58
QTY:	T.B.S. DATE: 11/25/03 (jmb)



**POWAY RD
SPECIFIC PLAN
STREET LIGHTS**

ALL HARDWARE TO BE STAINLESS STEEL UNLESS OTHERWISE SPECIFIED

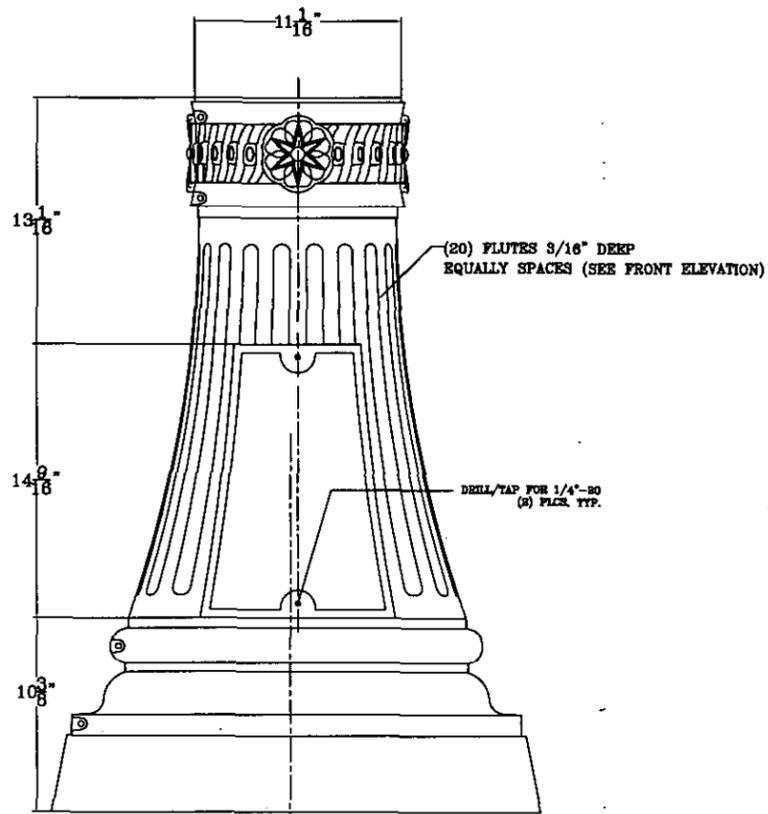
 ENVIRONMENTAL LIGHTING FOR ARCHITECTURE <small>1000 W. BROADWAY, SUITE 200, DENVER, CO 80202-3107 • (303) 733-0000 • FAX (303) 733-0001</small>	
PROJECT:	CITY OF POWAY
TYPE:	A-20 (NO PARKING)
FINISH:	SPECIAL CARDINAL #T091-GN58
QTY:	T.B.S. DATE: 11/25/03 (jmb)



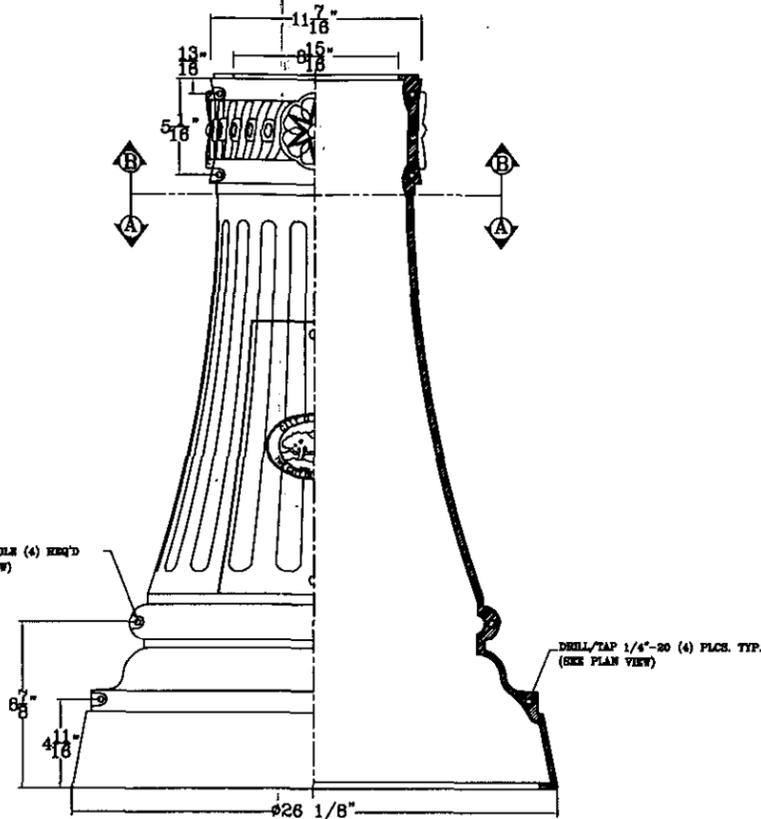
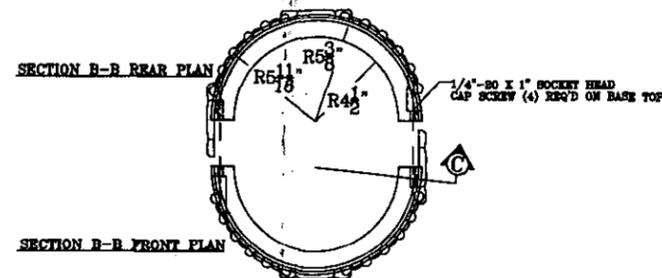
POWAY RD
SPECIFIC PLAN
STREET LIGHTS

ALL HARDWARE TO BE STAINLESS STEEL
UNLESS OTHERWISE SPECIFIED

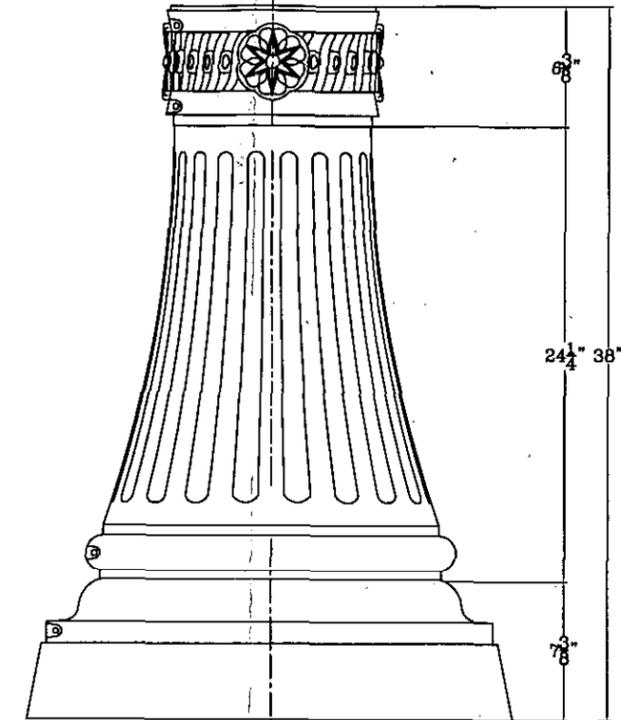
 ENVIRONMENTAL LIGHTING FOR ARCHITECTURE <small>COMPANY 11000 ARCADE AVENUE, CITY OF INDUSTRY, CALIF. 91748-1107 • BUSINESS (909)200-0001 • FAX (909)200-0044</small>	
PROJECT: CITY OF POWAY	
TYPE:	B-10
FINISH:	SPECIAL CARDINAL #T091-GN58
QTY:	T.B.S. DATE: 11/25/03 (jmb)



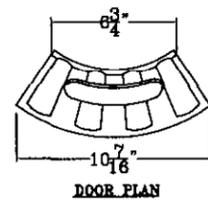
BASE FRONT DOOR DETAIL



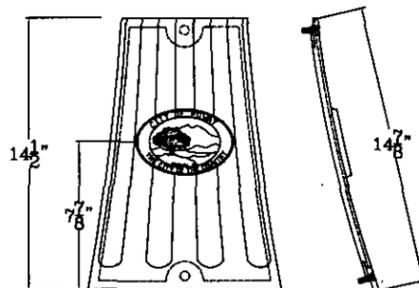
FRONT ELEVATION SECTION C



REAR ELEVATION



DOOR PLAN

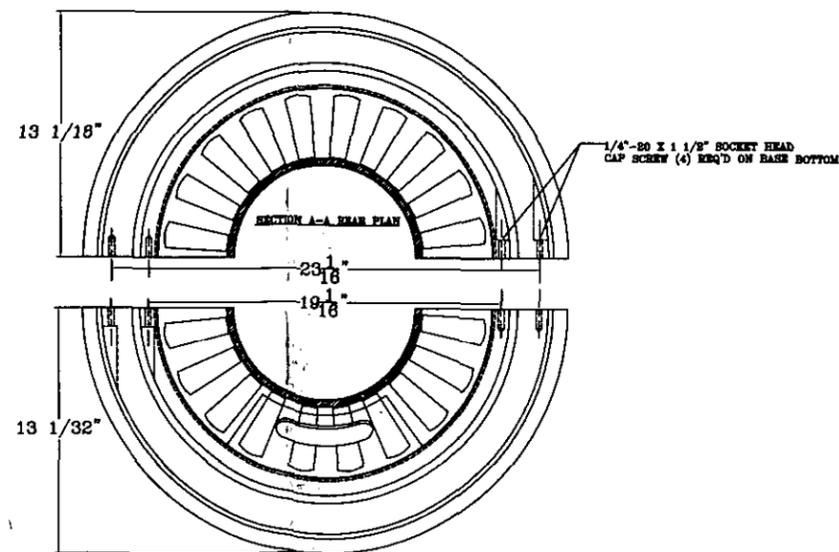


DOOR

DOOR CENTER SECTION



DOOR LOGO ENLARGED VIEW

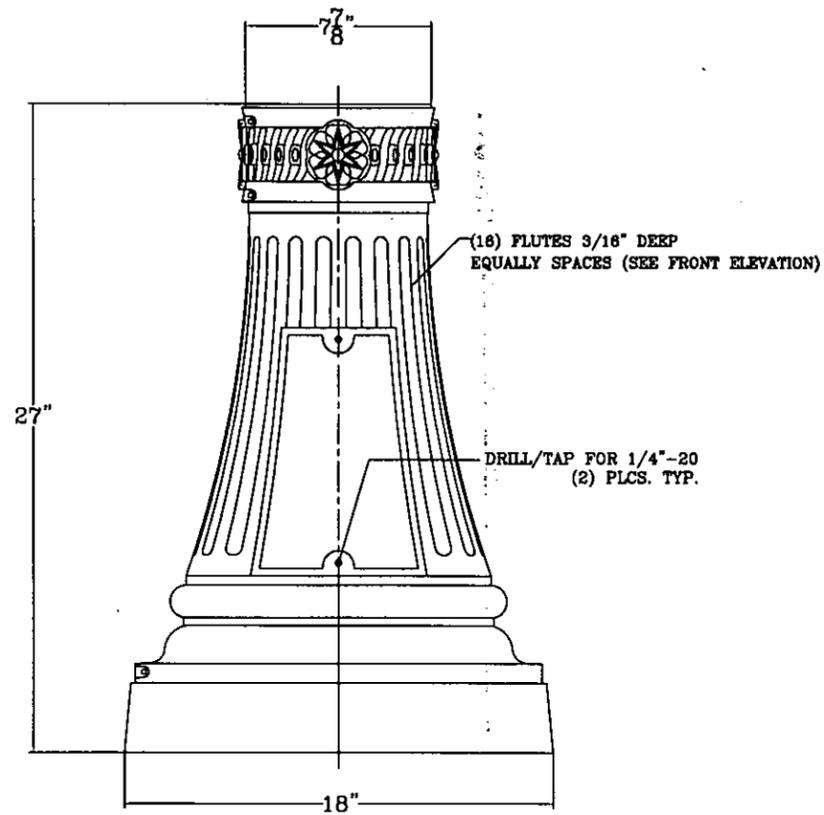


SECTION A-A FRONT PLAN

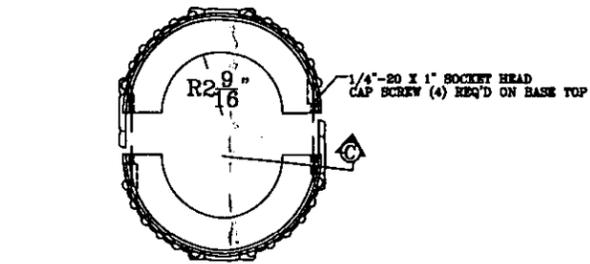
Tolerance: X/16" = ± 1/16"
 X/8" = ± 1/16"
 Whole units = ± 1/8"

CAST ALUMINUM TO BE 360 OR 319 ALLOY UNLESS NOTED OTHERWISE FINISH TO BE 5ML MIN. THICKNESS ALL HARDWARE TO BE NON-FERROUS AND TAMPER-RESISTANT

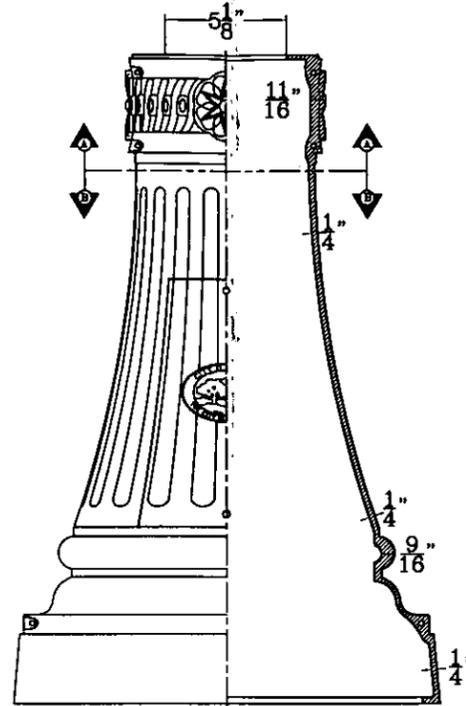
Penwal INDUSTRIES INC.		10611 Acacia Street • Rancho Cucamonga CA 91730 • (909) 488-1500 • Fax (909) 488-1500	
CLIENT NAME:	CITY OF POWAY	QTY.:	
PROJECT NAME:	OLD POWAY STREET LIGHTING	SCALE:	NO SCALE
DRAWING TITLE:	LARGE BASE DETAIL	FINISH:	5ML PAINT TO MATCH POWAY CITY GREEN
LOCATION:	EXTERIOR	REVISIONS:	
DRAWN BY:	S. JONES	DATE:	01-14-04
APPROVED BY:		DATE:	06-11-04
		DATE:	08-30-04
SHEET NO.		1 of 1	



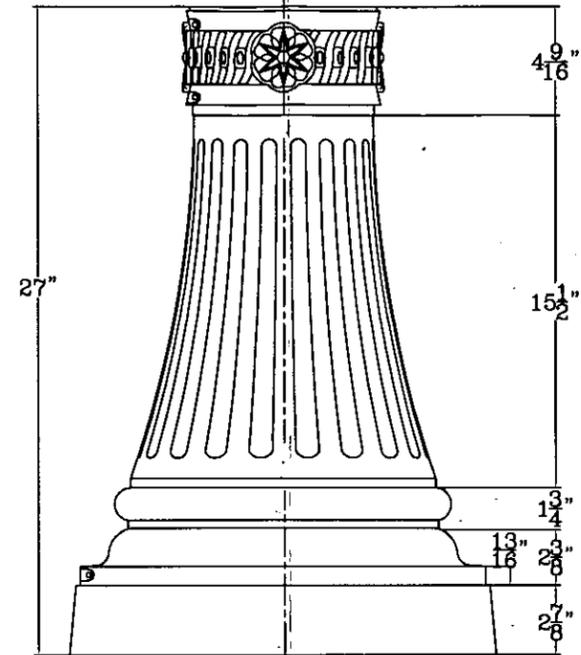
BASE FRONT DOOR DETAIL



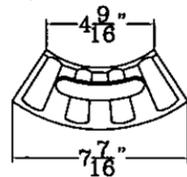
FRONT ELEVATION SECTION C



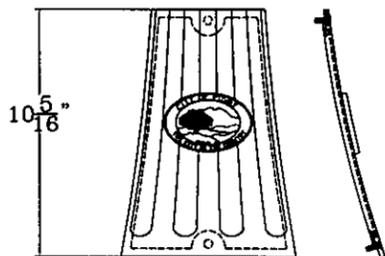
FRONT ELEVATION SECTION C



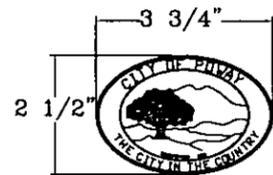
REAR ELEVATION



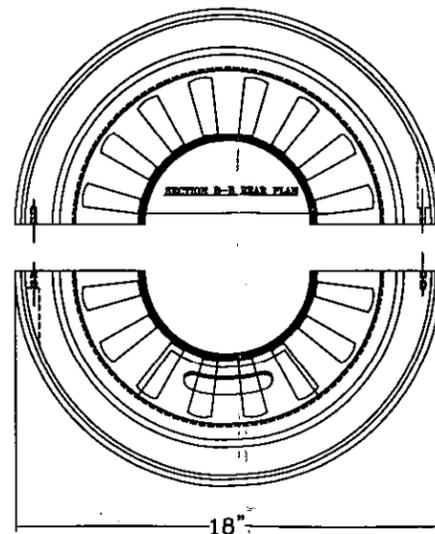
DOOR PLAN



DOOR DOOR CENTER SECTION



DOOR LOGO ENLARGED VIEW



SECTION B-B FRONT PLAN

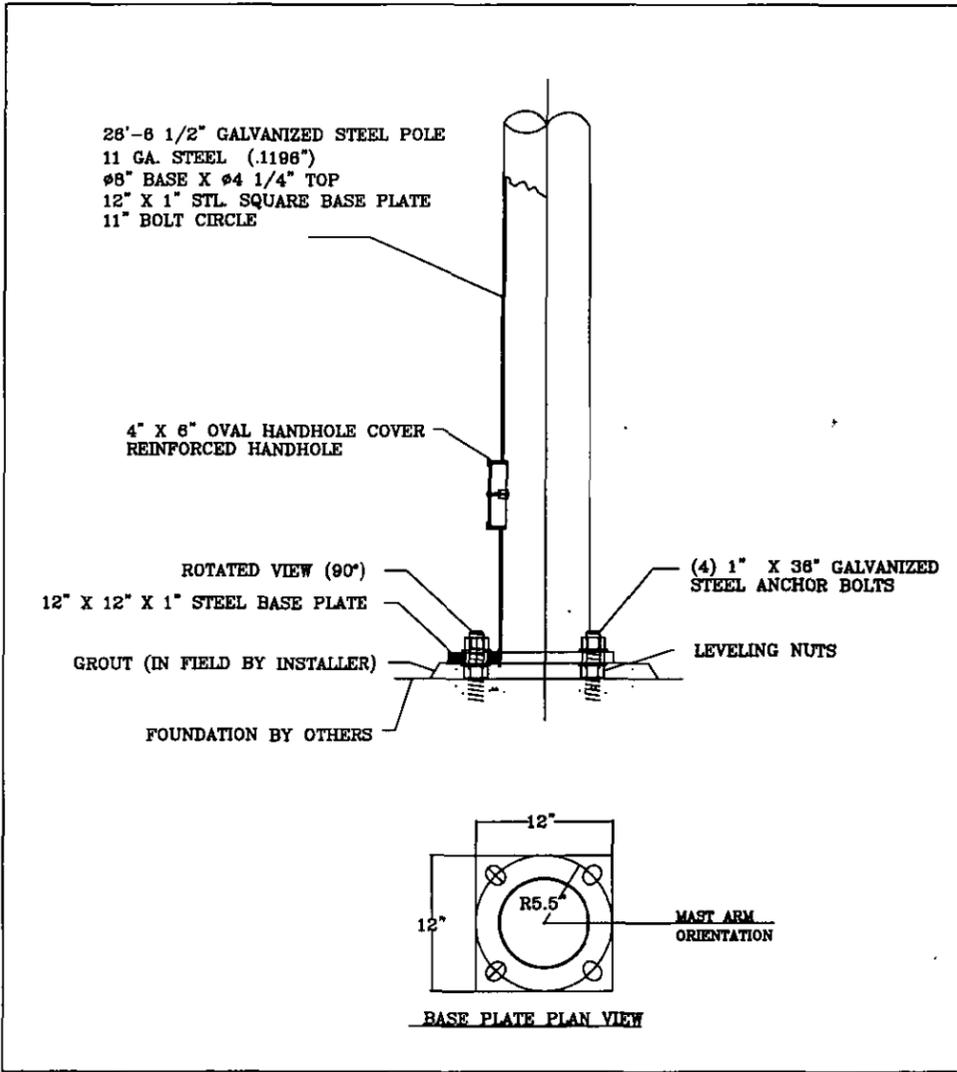
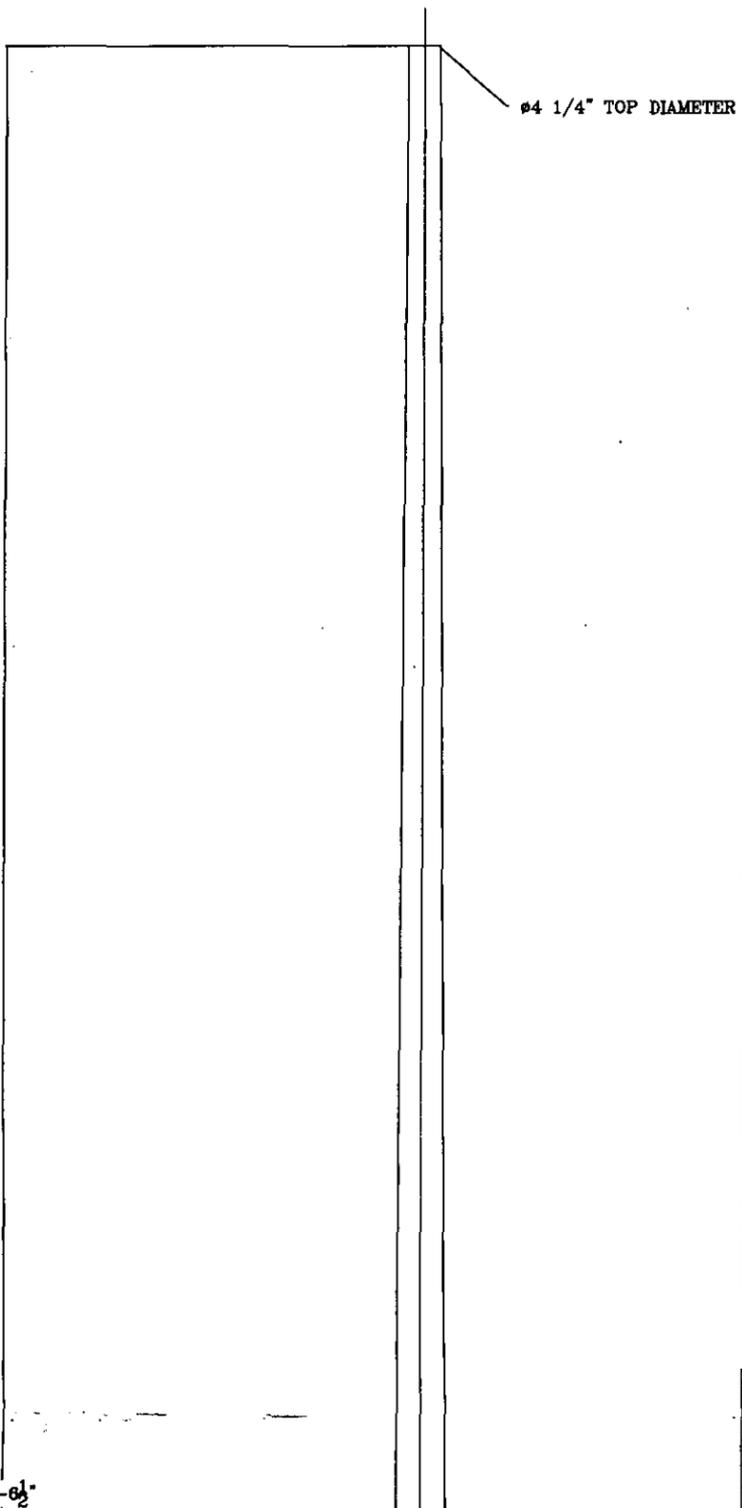
Tolerance: X/16" = ± 1/16"
 X/8" = ± 1/16"
 Whole units = ± 1/8"

CAST ALUMINUM TO BE 356 OR 319
 ALLOY UNLESS NOTED OTHERWISE
 FINISH TO BE 5ML MIN. THICKNESS
 ALL HARDWARE TO BE NON-FEROUS
 AND TAMPER-RESISTANT

Penwal
 INDUSTRIES INC.

10611 Acacia Street · Rancho Cucamonga CA 91730 · (909) 466-1555 · Fax (909) 466-1666

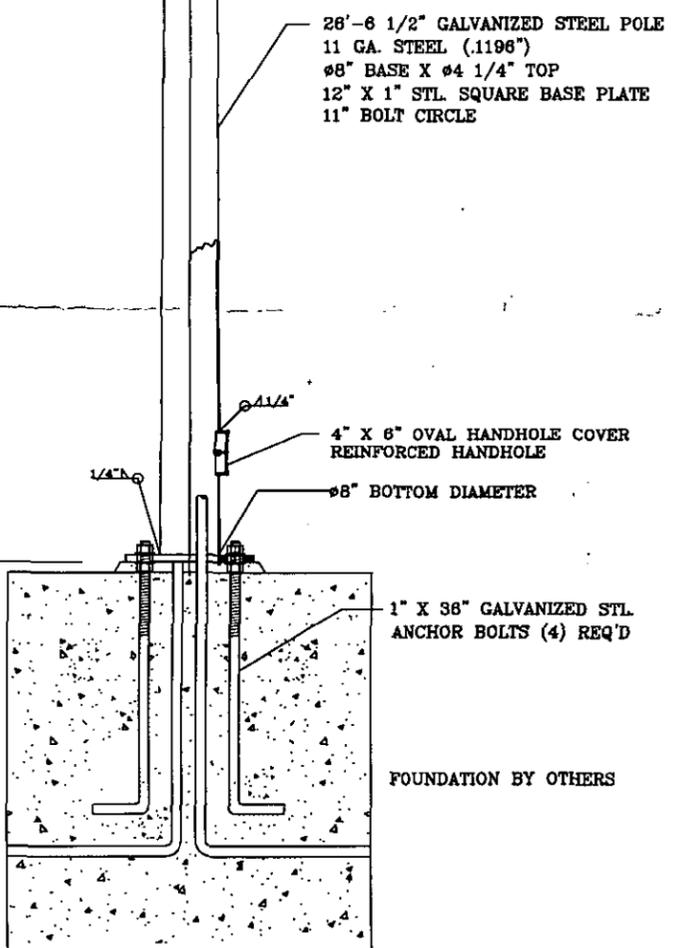
CLIENT NAME:	CITY OF POWAY	QTY.:	
PROJECT NAME:	OLD POWAY STREET LIGHTING	SCALE:	NO SCALE
DRAWING TITLE:	SMALL_BASE_DETAIL	FINISH:	5ML PAINT TO MATCH POWAY CITY GREEN
LOCATION:	EXTERIOR	REVISIONS:	
DRAWN BY:	S. JONES	DATE:	06-10-04
APPROVED BY:		BY:	r1
		DATE:	08-11-04
			r2
			08-30-04
		SHEET NO.	
			1 of 1



POLE SPECIFICATIONS			
POLE HEIGHT	BASE DIAMETER	TOP DIAMETER	WALL THICKNESS
28'-6 1/2"	8"	4 1/4"	11 ga. (.1196")
8.09m	203mm	108mm	3.04 mm.

BASE PLATE DIMENSIONS				
PLATE THICKNESS	PLATE DIAMETER	QTY. OF ANCHORS	ANCHOR BOLT DIMENSIONS	BOLT CIRCLE
1"	12" square	4	1" x 3/8" x 4"	11"
25mm	305mm	4	25mm X 920mm X 102mm	280mm

28'-6 1/2"



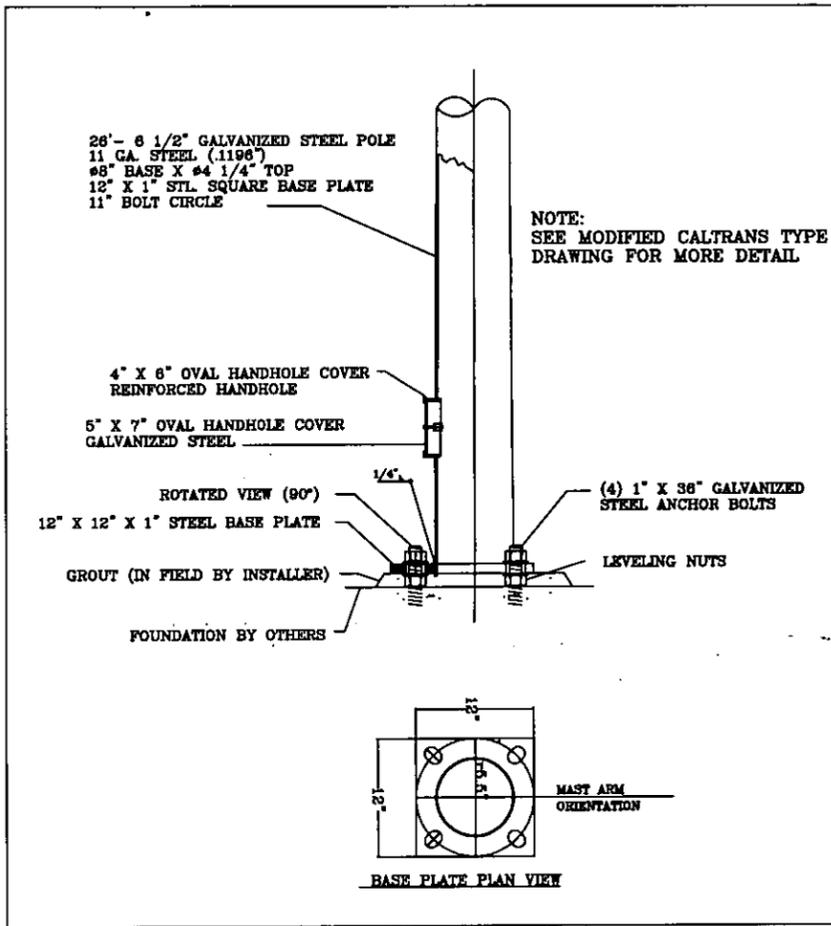
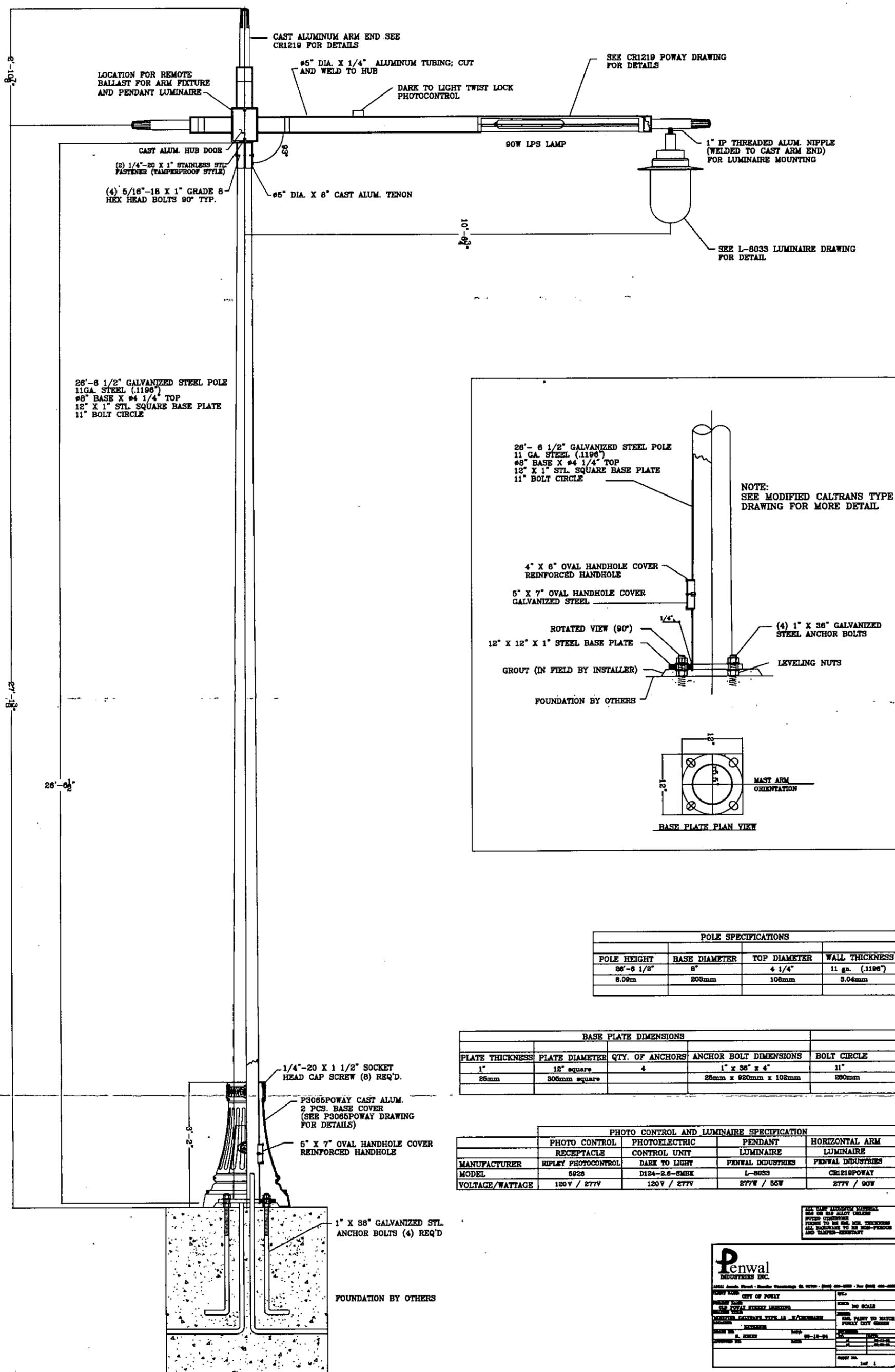
FINISH TO BE 5ML MIN. THICKNESS
ALL HARDWARE TO BE NON-FEROUS
AND TAMPER-RESISTANT

Tolerance: X/16" = ± 1/16"
X/8" = ± 1/16"
Whole units = ± 1/8"

Penwal
INDUSTRIES INC.

10811 Acacia Street · Rancho Cucamonga CA 91730 · (909) 466-1555 · Fax (909) 466-1565

CLIENT NAME: CITY OF POWAY	QTY.:
PROJECT NAME: OLD POWAY STREET LIGHTING	SCALE: NO SCALE
DRAWING TITLE: MODIFIED CALTRANS TYPE 15 POLE	FINISH: 5ML PAINT TO MATCH POWAY CITY GREEN
LOCATION: EXTERIOR	REVISIONS:
DRAWN BY: S. JONES	DATE: 08-10-04
APPROVED BY:	DATE:
	BY: r1 DATE: 08-11-04
	BY: r2 DATE: 08-30-04
SHEET NO. 1 of 1	



POLE SPECIFICATIONS			
POLE HEIGHT	BASE DIAMETER	TOP DIAMETER	WALL THICKNESS
26'-6 1/2"	8"	4 1/4"	11 ga. (.1196")
8.09m	203mm	106mm	3.04mm

BASE PLATE DIMENSIONS				
PLATE THICKNESS	PLATE DIAMETER	QTY. OF ANCHORS	ANCHOR BOLT DIMENSIONS	BOLT CIRCLE
1"	12" square	4	1" x 36" x 4"	11"
25mm	305mm square		25mm x 920mm x 102mm	280mm

	PHOTO CONTROL AND LUMINAIRE SPECIFICATION			
	PHOTO CONTROL RECEPTACLE	PHOTOELECTRIC CONTROL UNIT	PENDANT LUMINAIRE	HORIZONTAL ARM LUMINAIRE
MANUFACTURER	RIPLY PHOTOCONTROL	DARK TO LIGHT	FENWAL INDUSTRIES	FENWAL INDUSTRIES
MODEL	6926	D124-2.6-SMBK	L-8033	CR1219POWAY
VOLTAGE/WATTAGE	120V / 277V	120V / 277V	277V / 55W	277V / 90W

ALL DIMENSIONS UNLESS NOTED OTHERWISE SHALL BE IN MILLIMETERS. ALL DIMENSIONS TO BE SHOWN UNLESS OTHERWISE NOTED. ALL DIMENSIONS TO BE SHOWN UNLESS OTHERWISE NOTED.

Penwal Industries Inc.

11411 South Street • South Gate, CA 90260 • (310) 481-2222 • Fax (310) 481-2222

CITY OF POWAY

PROJECT NO. _____

DATE _____

SCALE _____

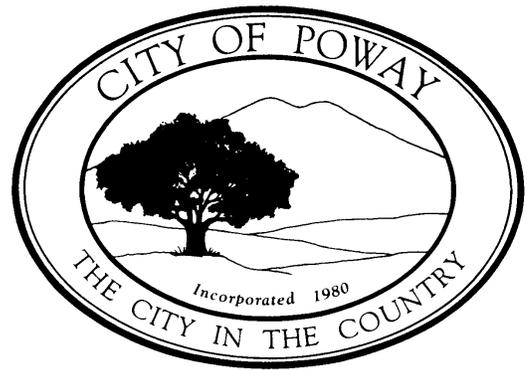
DESIGNED BY _____

CHECKED BY _____

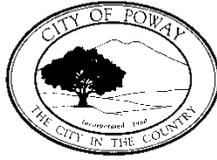
DATE 02-10-04

1 of 1

Section 6 Engineering Supplements



Trail Standards and Specifications



CITY OF POWAY

TRAIL STANDARDS AND SPECIFICATIONS

A. GENERAL REQUIREMENTS

1. Street Crossings

Recreational trails that cross City streets shall receive appropriate signs and pavement markings in accordance with City of Poway and State of California standards. Paving requires approval of City Engineer and Director of Public Works. All concrete paving for trails shall have a heavy broom finish.

2. Owner or Developer shall provide structural soils tests in areas where recreational trails are planned. Based on soil classification and soil report recommendations, trails shall be constructed as noted below.

2.1 Expansive soil: Excavate to six-inch depth and apply City-approved soil sterilant. Construct six-inch-deep decomposed granite trail.

2.2 Non-expansive soil: Scarify trail area to a depth of six inches and remove rocks, clods, and other unsuitable material. Apply City-approved herbicide, fine grade, and compact native soil to satisfaction of Director of Public Works.

2.3 Local trails shall be six to ten feet wide, on average. Regional and Community trails will vary from 15 to 20 feet wide. Trail dimensions shall be determined by Director of Public Works.

2.4 Landscaped borders adjacent to recreational trails may be used rather than trail fencing, with approval of Department of Public Works Trails Supervisor.

2.5 Recreational trail fencing shall be constructed in accordance with City standards. Fencing shall occur on both sides of trails unless otherwise approved by Director of Public Works.

2.6 Concrete footings for posts shall contain at least five cubic feet of Class 470-C-2000 concrete.

2.7 Wood fence members shall be approved construction grade lodgepole pine, and treated with City-approved wood preservative.

B. TRAIL STANDARDS

1. Recreational Trail Types

<u>Designation</u>	<u>Width</u>
Regional multi-purpose trails	20 feet
Community trails	15 feet
Local feeder trails	10 feet

2. Trail Classifications: Determined by Development Services Department according to proposed population density.

- Urban
- Rural
- Wilderness

3. Trail Tread Design and Construction Standards

3.1 Trail Clearance

- a. Vertical clearance shall be at least ten feet from trail surface with brush, weeds, debris and rocks removed from trail tread.
- b. Where topography, right-of-way configuration, grading, and existing vegetation prevent the full width construction of trails as noted above, the Public Works Department or Development Services Department, with input from Public Works, may reduce trail width requirements.

3.2 Trail Grades and Tread Construction

- a. Vertical grades:
 - 0-5% optimum
 - 5-10% maximum for distance over 500 feet
 - 10-15% maximum for distances limited to 250 feet
 - 15-20% permitted for short distances less than 100 feet
- b. Switch backs: May be required on steep slopes as a special condition.
- c. Cross slopes:
 - 1-2% optimum
 - 6% maximum in approved locations only

d. Drainage:

Prevent erosion by proper grading and the use of diversionary devices such as water bars and berms.

e. Culverts:

Culverts, bridges and stream fords shall be installed where trails cross streams.

f. Trailway excavation:

Trail routes may traverse slopes with varying degrees of steepness. City shall review and approve construction techniques and procedures for construction of trail treads.

g. Side slope cuts and fills: 2:1 maximum gradient

Slopes shall be compacted to prevent erosion. Rock retaining walls shall be required if slopes are not compacted, or exceed 2:1.

h. Surfacing:

Native soils, if suitable for construction, and decomposed granite shall be used for trail treads. Trail treads shall be cleared of rocks over one inch in diameter, debris, and roots, then surfaces graded evenly. In poor soil areas, decomposed granite or reclaimed base material, with Public Works approval, shall be furnished and placed.

i. Utilities and concrete drainage ditches:

Above-ground utilities, utility boxes, and concrete drainage ditches shall not be permitted in recreational trail easements.

4. Trail Structure Design and Construction Standards

4.1 General Requirements

a. Fences shall follow grades of trail treads. Posts shall be leveled and in line with one another. Fences shall follow contours of landforms upon which they are constructed. Where fencing is required on both sides of trails, fences shall run parallel and level with one another. Fences shall be constructed on easement lines.

b. Fence post footings shall be concrete, each with at least 80 pounds of dry Portland cement. Footings shall not be visible upon

completion of trail construction. After cutting lodgepole pine fencing, cuts shall be treated with wood preservative. Dark wood preservatives (City-approved) may be used below ground.

4.2 Trail Fencing Standards

- a. Urban and rural classifications – regional and community trails.

Approved lodgepole pine fencing shall be provided – two-rail fencing treated with wood preservative.

- b. Wilderness trails:

Fencing is not required, except in hazardous areas (for example, if adjacent down slopes exceed 1.5:1). Steep conditions shall require approved lodgepole fencing on down slope sides of trail.

- c. Hazardous areas:

Other fencing materials may be required in hazardous areas.

4.3 Off Road Vehicle (ORV) Barriers

ORV barriers shall be constructed where breaks in fences occur that would allow vehicle access onto trails. If trails are dedicated to the City of Poway, the City will provide locks upon completion of trails. ORV barriers shall be at least eight feet and eight inches (8'-8") in width, and attached to ends of fence posts nearest to roads.

4.4 Trail Signs

- a. Trail identification signs shall be placed every one-half mile. Trail signs on community and regional trails shall be constructed in accordance with State of California trail design standards.

- b. Hazard signs shall be constructed to State trail design standards. Place signs wherever potential safety hazards may be present - for example, steep embankments and 20 percent, or greater, trail grades.

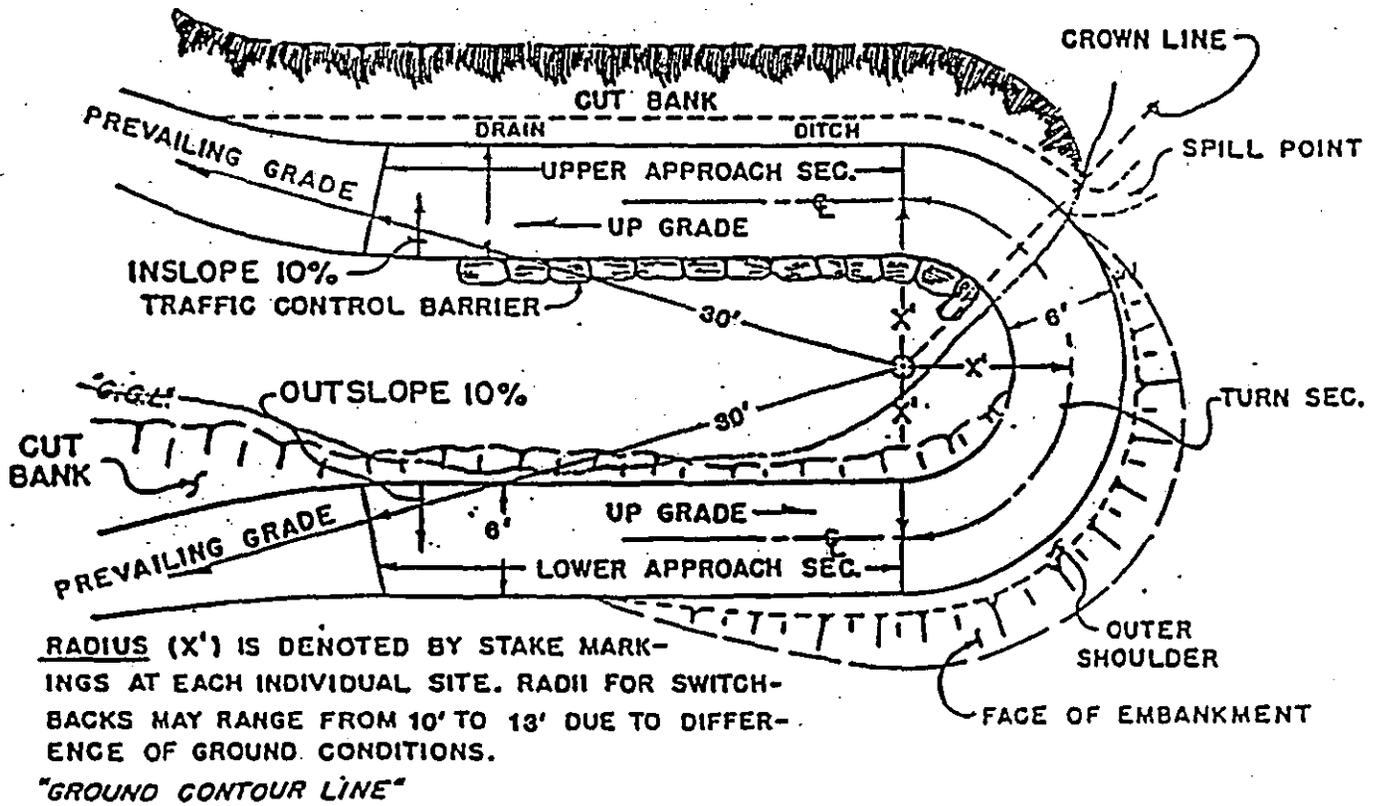
- c. Local feeder trails shall be identified with the hazard sign design.

C. TRAIL MAINTENANCE (during Developer's maintenance period)

1. Contractor shall be responsible for replacing damaged redwood headers on trails. Contractor shall also reposition and maintain headers that have been kicked free from original positioning.
2. Shrubs and trees shall be trimmed along trails to allow safe clearance for trail users. Refer to Section B - Trail Standards, subsection 3.1 - Trail Clearance for required clearances.
3. Contractor shall maintain weed free trails with approved mechanical or chemical methods.
4. Trails shall be dragged and rolled monthly.
5. Holes greater than three inches in diameter shall be filled-in weekly.



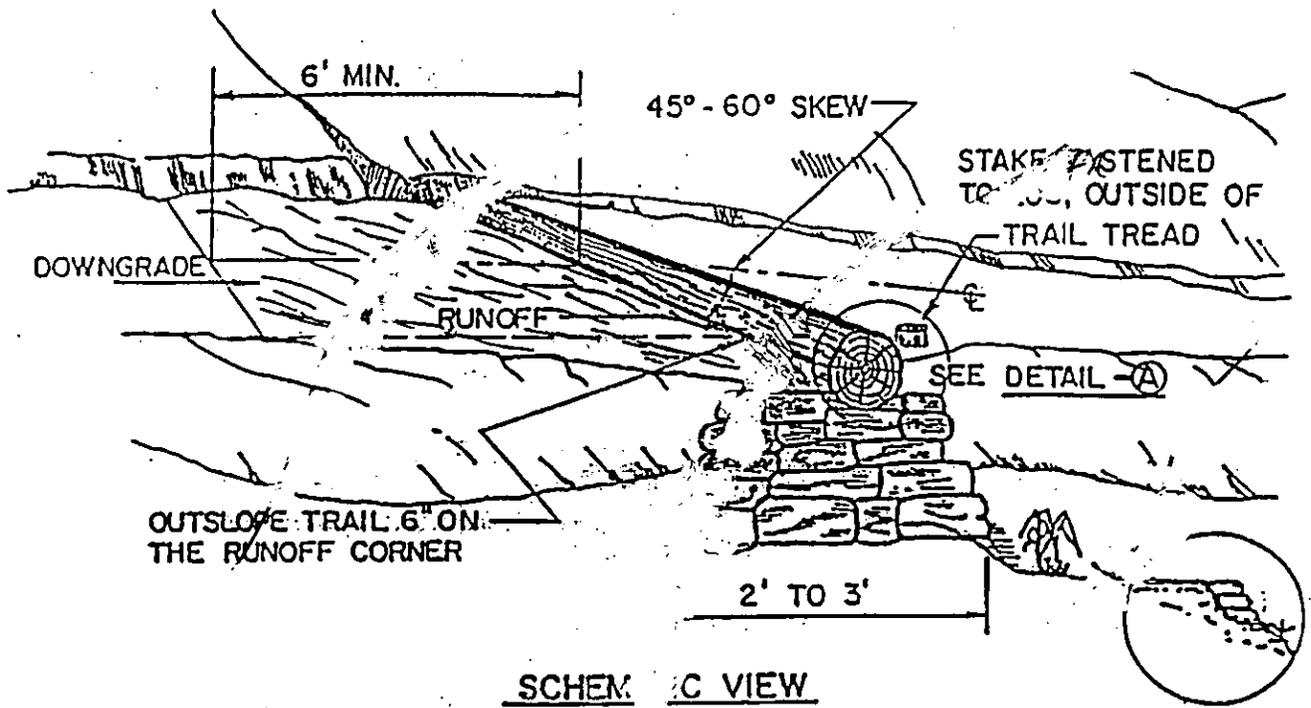
TYPICAL SWITCHBACK LOCATION AND DEVELOPMENT



TRAIL STANDARDS
AND SPECIFICATIONS

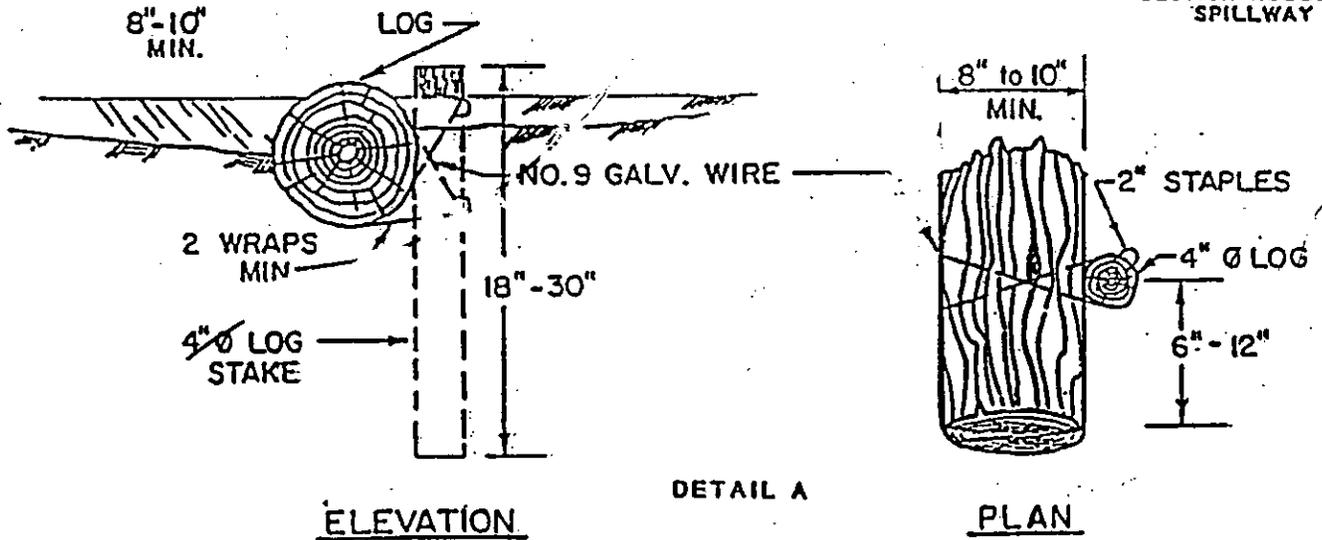
SWITCHBACK CONSTRUCTION DETAILS

EXHIBIT D



SCHEMATIC VIEW

TYPICAL CROSS SECTION RUBBLE SPILLWAY



ELEVATION

DETAIL A

PLAN

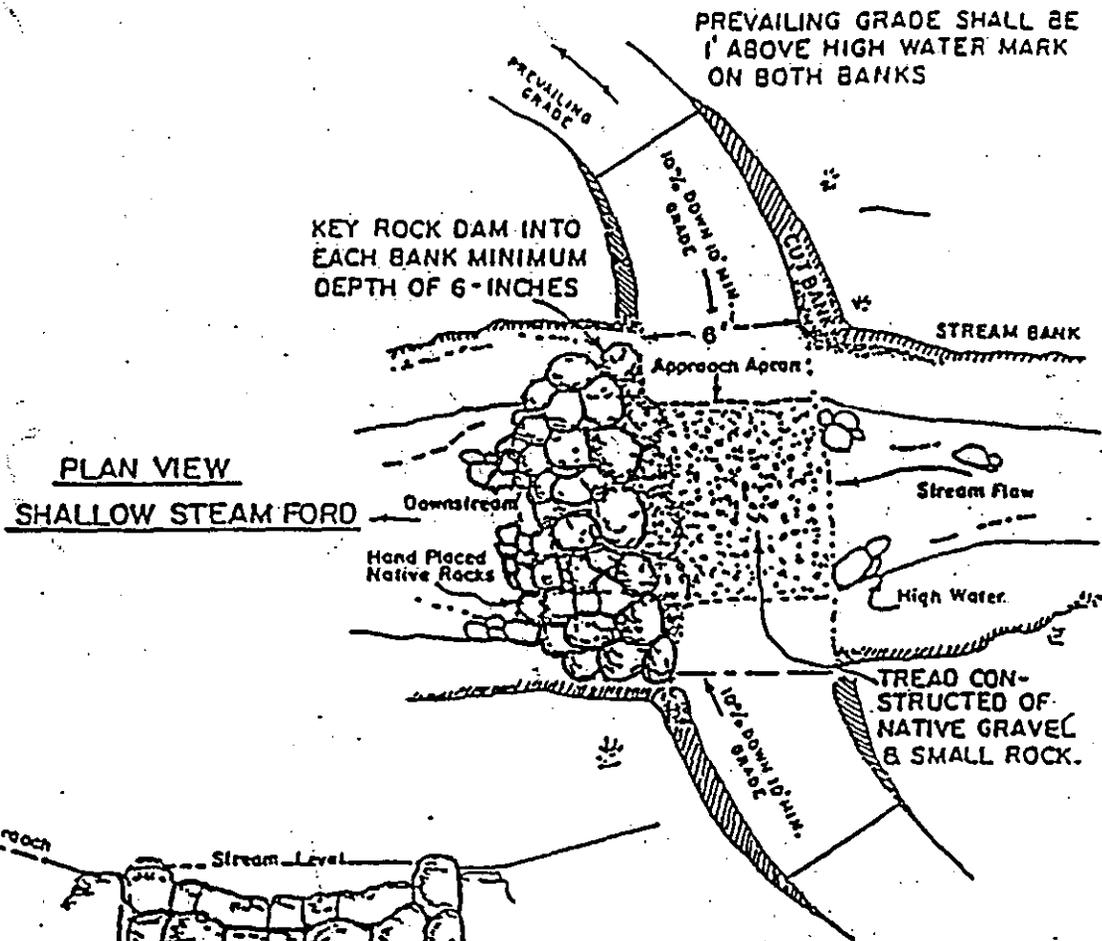
ALL LOGS TO BE PRESSURED TREATED

TRAIL STANDARDS
AND SPECIFICATIONS

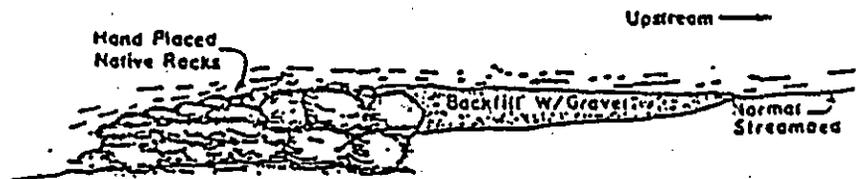
LOG WATER BAR
SEE ATTACHED AMMENDMENT

CITY OF POWAY

EXHIBIT E



PROFILE VIEW ROCK DAM



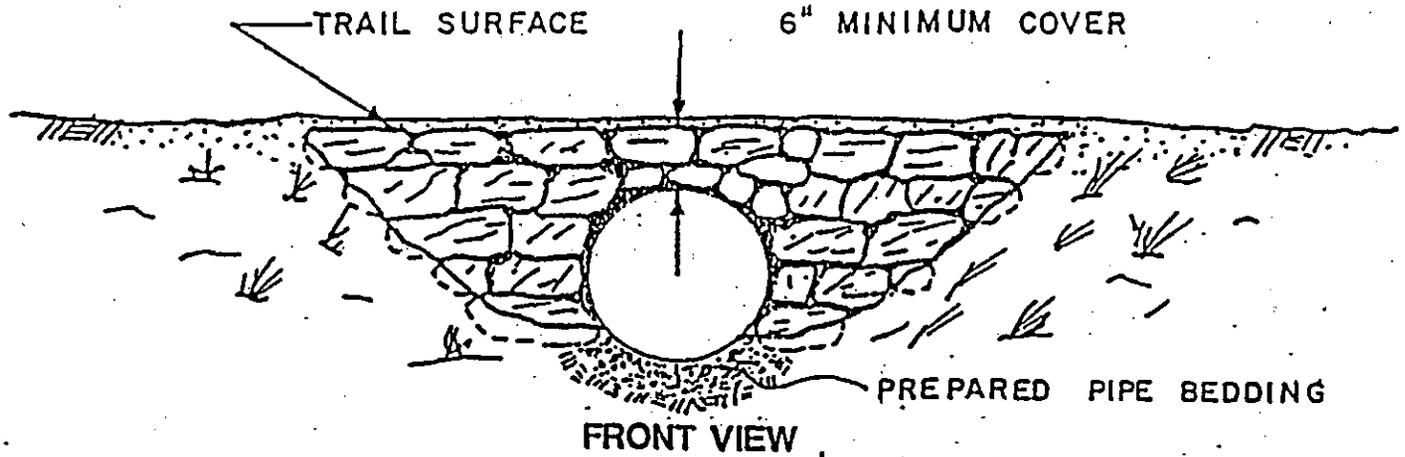
CROSS SECTION VIEW

TRAIL STANDARDS
AND SPECIFICATIONS

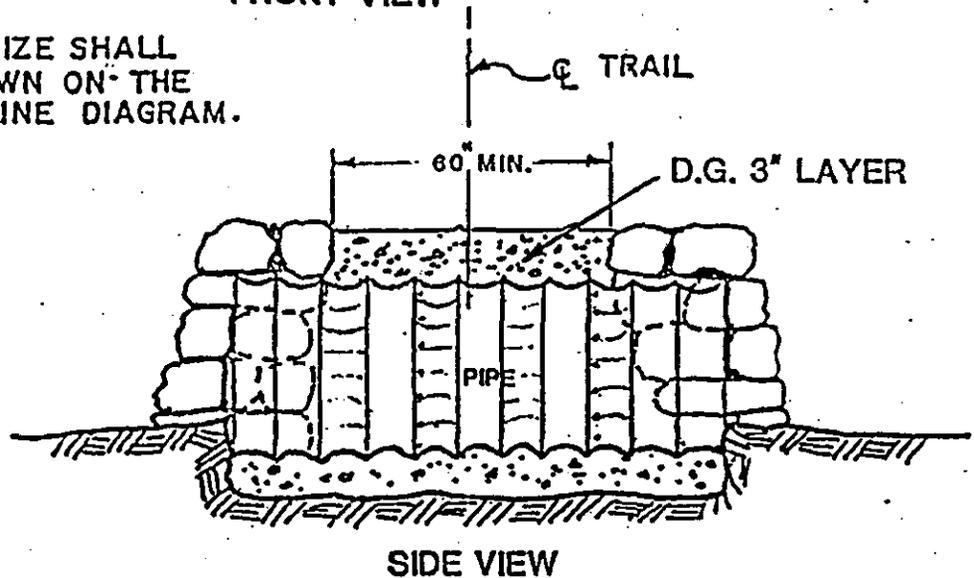
TRAILWAY EXCAVATION
SHALLOW STREAM FORD
AND GULLY CROSSINGS

CITY OF POWAY

EXHIBIT F



CULVERT SIZE SHALL BE AS SHOWN ON THE STRAIGHT LINE DIAGRAM.



TRAIL STANDARDS
AND SPECIFICATIONS

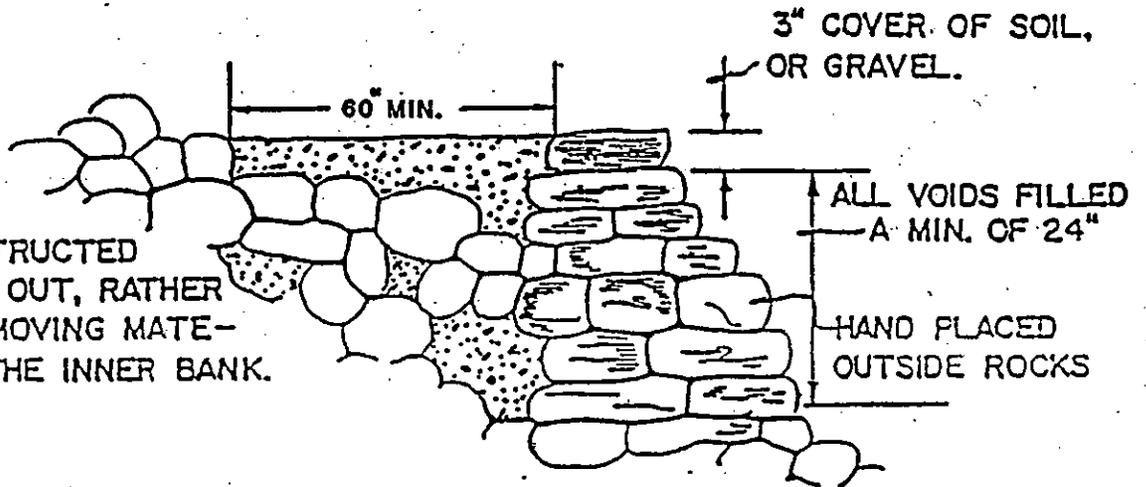
TYPICAL CULVERT INSTALLATION

CITY OF POWAY

EXHIBIT H

NOTE:

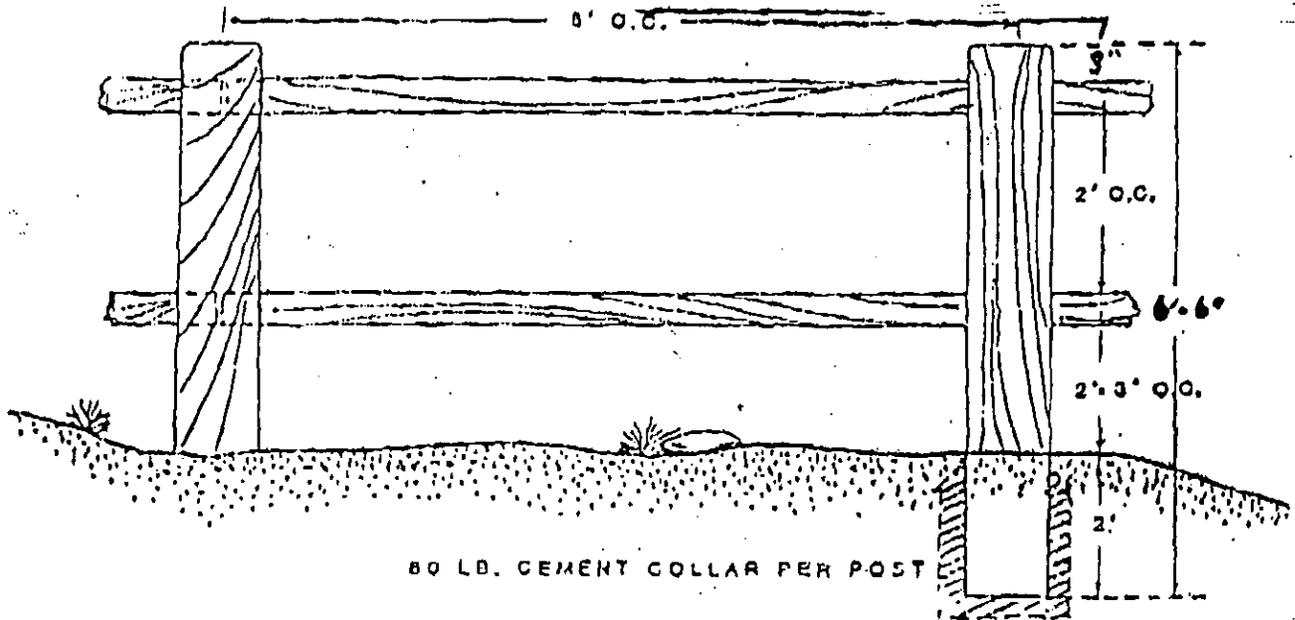
TREAD CONSTRUCTED
BY BUILDING OUT, RATHER
THAN BY REMOVING MATE-
RIAL FROM THE INNER BANK.



TRAIL STANDARDS
AND SPECIFICATIONS

TRAILWAY EXCAVATION
TALUS AND RUBBLE ROCK SECTION

ROUNDRAIL TRAIL FENCE



CCA TREATED POST

6'6" x 5 1/2" Diameter -
Two hole 3 5/8"

4' x 4 1/2" Diameter -
Two hole

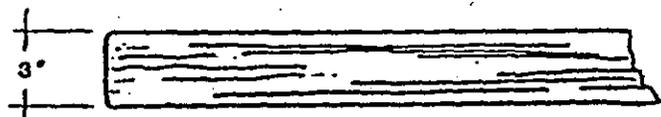
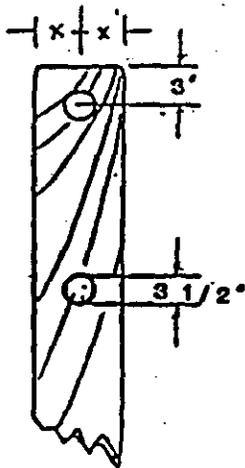
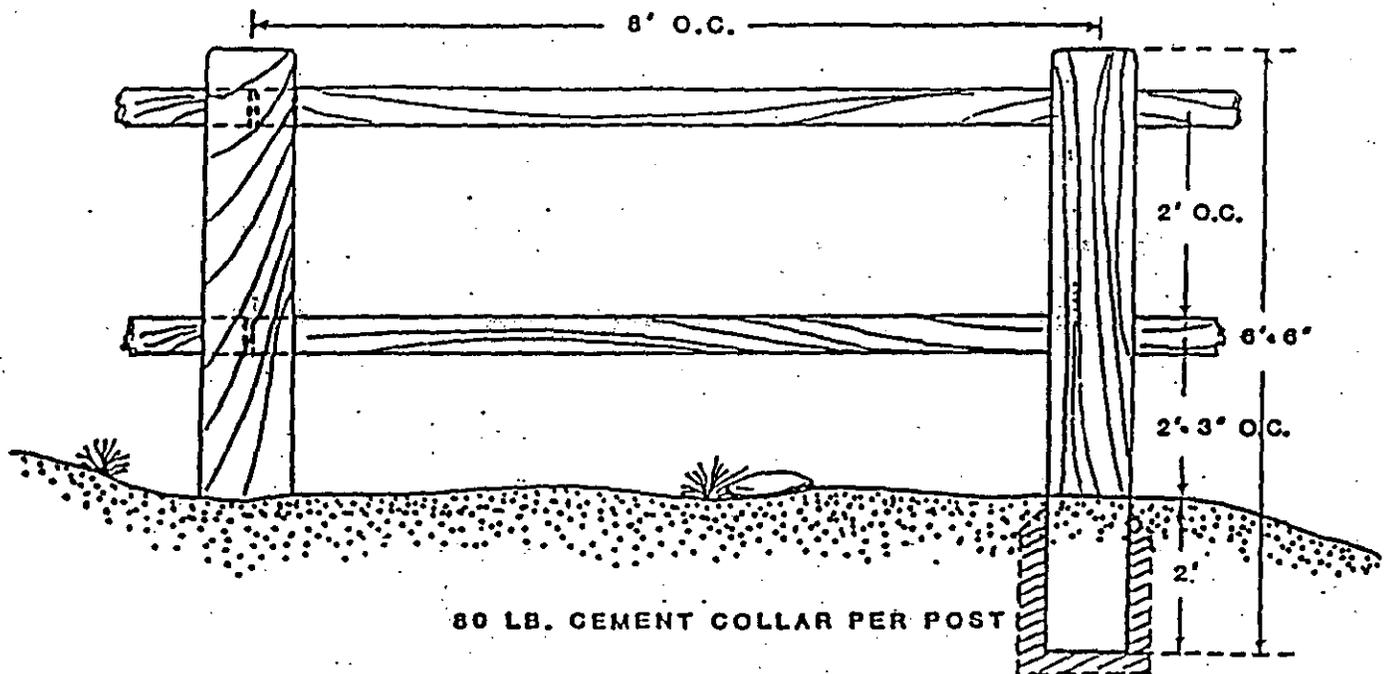
CCA TREATED RAILS

8' x 3 1/2" Diameter -
~~tapered~~ or non-tapered

* ALL MATERIALS CCA TREATED *

CITY OF POWAY

EXHIBIT J



RAILS SHALL BE 3 INCH MINIMUM DIAMETER
LOGEPOLE PINE IN GOOD CONDITION
AND PENTA TREATED

POST SHALL BE 6 INCH MINIMUM DIAMETER PENTA
TREATED LOGEPOLE PINE IN GOOD CONDITION
ALL RAILS TO BE SECURED BY 20P GALV. NAILS

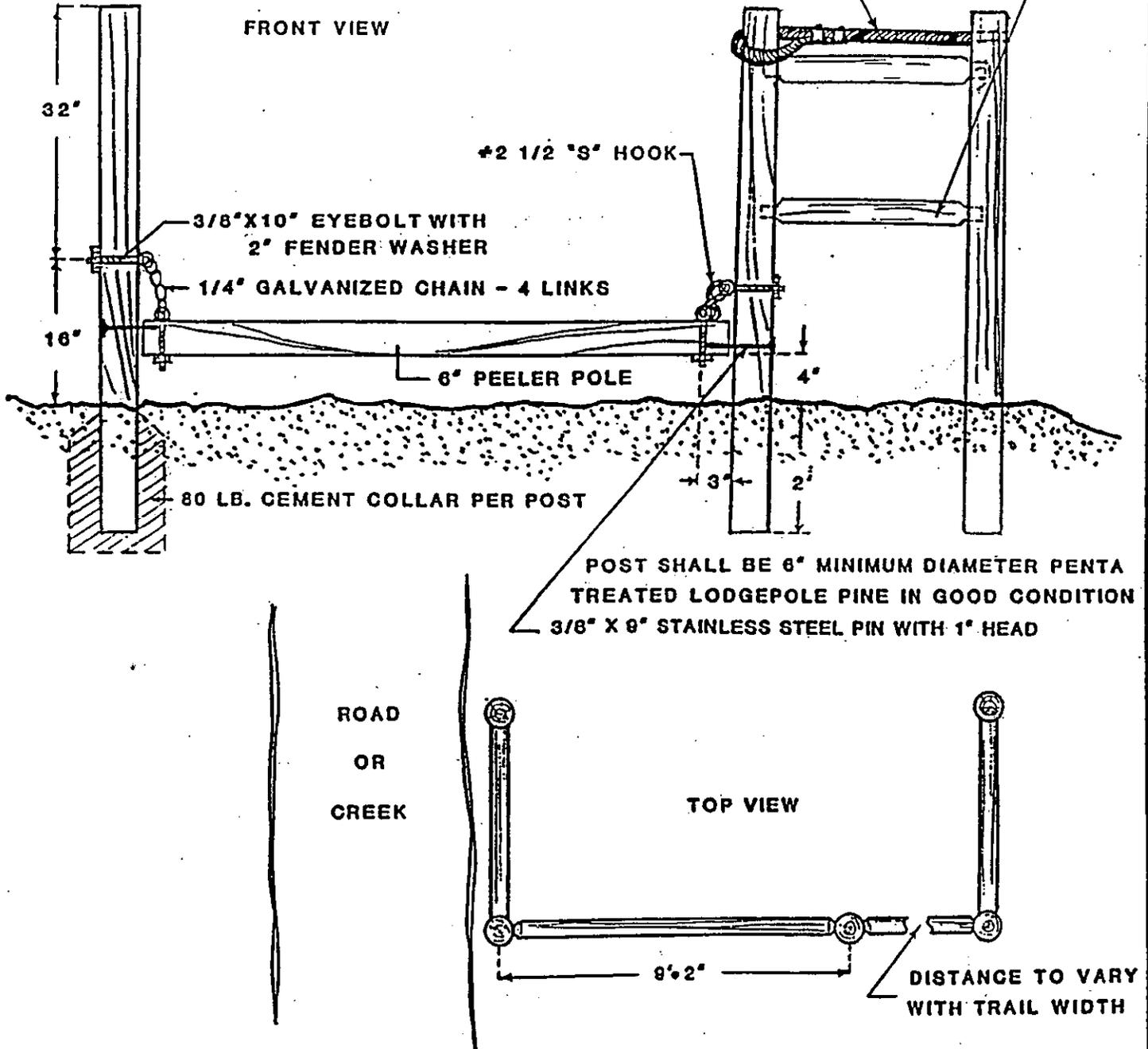
TRAIL STANDARDS
AND SPECIFICATIONS

LOGEPOLE FENCING

CITY OF POWAY

EXHIBIT L

URBAN/REGIONAL TRAIL STANDARDS - LODGEPOLE PINE FENCING SEE EXHIBIT J
OTHER TRAIL STANDARDS - CABLE FENCING SEE EXHIBIT K

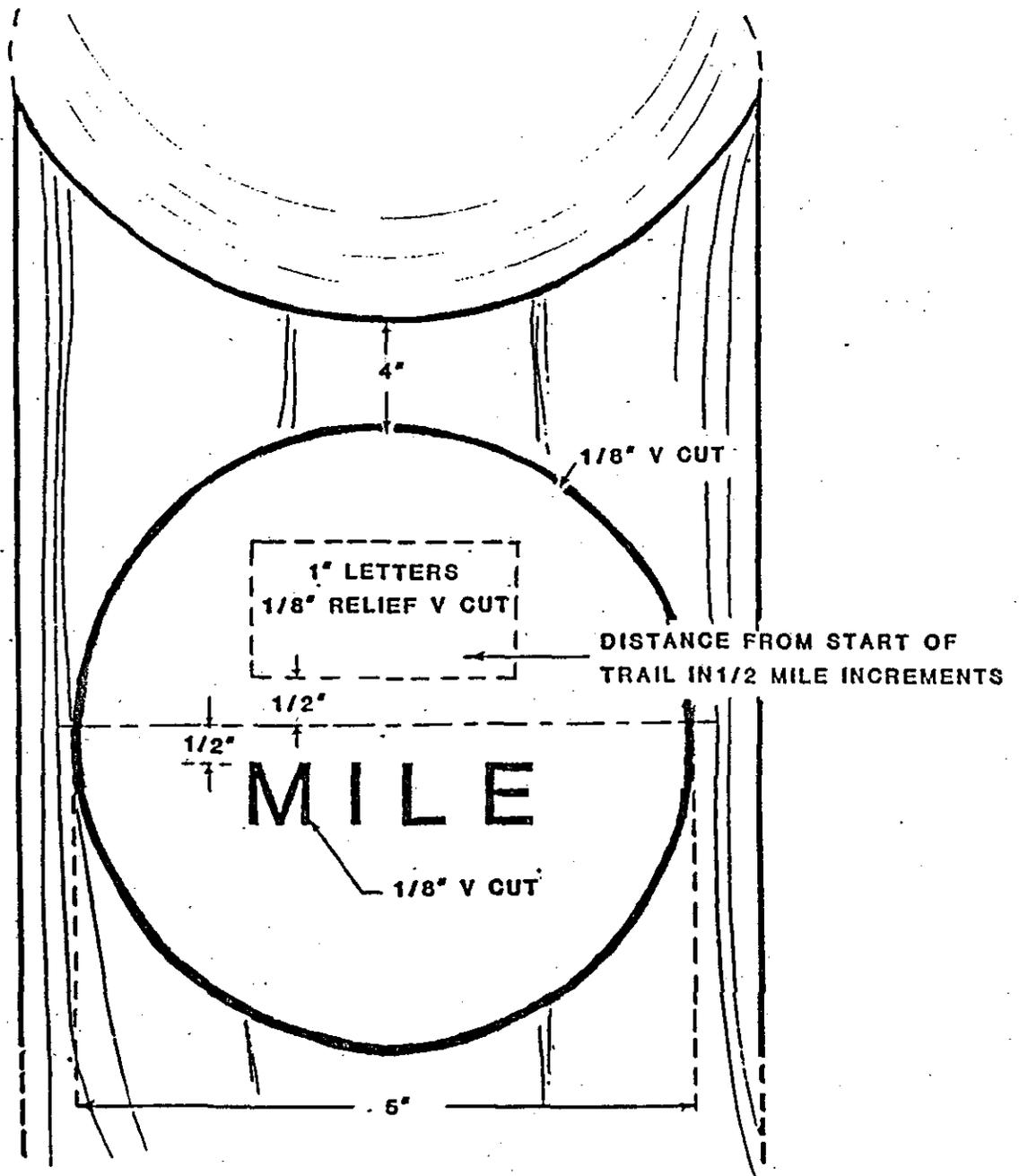


TRAIL STANDARDS
AND SPECIFICATIONS

ORV BARRIER CONSTRUCTION

CITY OF POWAY

EXHIBIT N

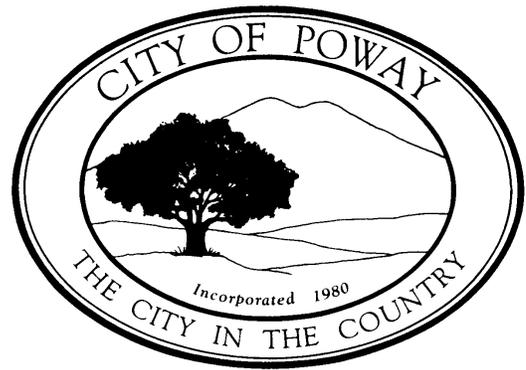


DISTANCES TO BE SUPPLIED BY THE PLANNING DEPT.

TRAIL STANDARDS
AND SPECIFICATIONS

TRAIL IDENTIFICATION SIGN

Section 7 Engineering Supplements



Traffic Index

City of Poway Traffic Index (TI)

(5% TRUCK)

Segment Number	Roadway	Segment	Functional Classification	2030 ADT	T I	
					10 yrs+ Design	20 yrs Design
1	Scripps Poway Parkway	Western City limit to Pomerado Rd	6-Lane Prime Arterial	58,900	9.5	10.4
2		Pomerado Rd to Community Rd		54,500	9.4	10.3
3		Community Rd to Danielson St		27,000	8.7	9.4
4		Danielson St to Eastern City limit		27,300	8.7	9.5
5	Ted Williams Parkway	Western City limit to Pomerado Rd	6-Lane Prime Arterial	42,500	9.2	10.0
6		Pomerado Rd to Twin Peaks Rd	4-Lane Major Arterial	20,000	8.4	9.1
7	Camino Del Norte	Western City limit to Pomerado Rd	6-Lane Prime Arterial	43,500	9.2	10.0
8	Twin Peaks Road	Pomerado Rd to Ted Williams Pkwy	4-Lane Major Arterial	34,400	9.2	10.0
9		Ted Williams Pkwy to Community Rd		42,700	9.4	10.2
10		Community Rd to Midland Rd		26,700	8.9	9.7
11		Midland Rd to Espola Rd		23,600	8.8	9.5
12	Pomerado Road	Western City limit to Twin Peaks Rd	4-Lane Major Arterial	27,300	8.9	9.7
13		Twin Peaks Rd to Ted Williams Pkwy		29,800	9.0	9.8
14		Ted Williams Pkwy to Poway Rd		33,400	9.2	9.9
15		Poway Rd to Stowe Dr		27,900	9.0	9.7
16		Stowe Dr to Stonemill Dr		24,000	8.8	9.6
17	Community Road	Twin Peaks Rd to Hilleary Rd	4-Lane Major Arterial	23,000	8.8	9.5
18		Hilleary Rd to Poway Rd		27,900	9.0	9.7
19		Poway Rd to Stowe Dr		28,100	9.0	9.7
20		Stowe Dr to Scripps Poway Pkwy	Business Park Collector (4-Ln)	19,400	8.6	9.3
21		Scripps Poway Pkwy to Kirkham Way		5,400	7.4	8.0

City of Poway Traffic Index (TI)

(5% TRUCK)

Segment Number	Roadway	Segment	Functional Classification	2030 ADT	T I	
					10 yrs+ Design	20 yrs Design
22	Espola Road	Western City limit to Valle Verde Rd	4-Lane Collector	26,000	8.9	9.6
23		Valle Verde Rd to Titan Way		23,900	8.8	9.6
24		Titan Way to Twin Peaks Rd	3-Lane Specific Arterial	23,000	8.8	9.5
25		Twin Peaks Rd to Poway Rd		21,600	8.7	9.4
26	Poway Road	Western City limit to Pomerado Rd	4-Lane Major Arterial	39,600	9.3	10.1
27		Pomerado Rd to Community Rd		37,400	9.3	10.1
28		Community Rd to Midland Rd		36,500	9.3	10.0
29		Midland Rd to Garden Rd	4-Lane Major Arterial	35,700	9.2	10.0
30		Garden Rd to Espola Rd	2-Lane Collector	13,100	8.2	8.9
31		Espola Rd to SR-67	2-Lane Specific Arterial	20,000	8.6	9.4
32	Midland Road	Twin Peaks Rd to Aubrey St	2-Lane Collector	10,500	8.0	8.7
33		Aubrey St to Cynthia Ln		15,500	8.4	9.1
34		Cynthia Ln to Poway Rd	4-Lane Collector	15,300	8.3	9.1
35	Garden Road	East of Poway Rd	2-Lane Collector	14,400	8.3	9.0
36	Kirkham Road/Way	Stowe Dr to Gateway Pl	Business Park Collector (4-Ln)	21,700	8.7	9.4
37	Stowe Drive	Pomerado Rd to Kirkham Way	Business Park Collector (4-Ln)	19,300	8.6	9.3
38	Parkway Center Drive	Stowe Dr to Scripps Poway Pkwy	Business Park Collector (4-Ln)	7,400	7.7	8.3
39	Tech Center Drive	Scripps Poway Pkwy to Kirkham Way	Business Park Collector (2-Ln)	12,000	8.1	8.8
40	Danielson Street	Community Rd to Kirkham Way	Business Park Collector (2-Ln)	15,000	8.3	9.0

City of Poway Traffic Index (TI)

(5% TRUCK)

Segment Number	Roadway	Segment	Functional Classification	2030 ADT	TI	
					10 yrs+ Design	20 yrs Design
41	Carriage Road	North of Poway Rd	2-Lane Local Collector	5,300	7.4	8.0
42		South of Poway Rd		4,200	7.2	7.8
43	Del Poniente Road	West of Espola Rd	2-Lane Local Collector	2,100	6.6	7.2
44	Lake Poway Road	West of Espola Rd	2-Lane Local Collector	1,900	6.5	7.1
45		East of Espola Rd		1,500	6.3	6.9
46	Metate Lane	Rick St to Community Rd	2-Lane Local Collector	3,300	6.9	7.5
47	Oak Knoll Road	Poway Rd to Pomerado Rd	2-Lane Collector	10,100	7.9	8.6
48	Old Coach Road	North of Espola Rd	2-Lane Collector	7,300	7.6	8.3
49	Robison Boulevard	Pomerado Rd to Ridgedale Dr	2-Lane Collector	6,700	7.6	8.2
50	Silverlake Drive	Poway Rd to Robison Blvd	2-Lane Collector	5,300	7.4	8.0
51	Stone Canyon Road	West of Martincoit Rd	2-Lane Collector	7,500	7.7	8.3
52	Tierra Bonita Road	South of Twin Peaks Rd	2-Lane Collector	2,900	6.8	7.4
53	Titan Way	Riparian Rd to Espola Rd	2-Lane Collector	8,100	7.7	8.4
54	Valle Verde Road	North of Espola Rd	2-Lane Collector	6,900	7.6	8.2
55	Putney Road	Midland Rd to Ipava Dr	2-Lane Collector	1,500	6.3	6.9
56	Ipava Drive	Putney Rd to Tierra Bonita Rd	2-Lane Collector	900	6.0	6.5
57	Sycamore Canyon Road	South of Garden Rd	2-Lane Collector	2,000	6.5	7.1
58	Martincoit Road	Espola Rd to Orchard Gate Rd	2-Lane Collector	2,500	6.7	7.3
59	Residential Street	Residential Collector @ 3% Truck	2-Lane Local	5,000	6.9	7.5
60	Residential Street	Local Residential @ 3% Truck	2-Lane Local	3,000	6.5	7.0
61	Residential Street	Local Residential @ 3% Truck	2-Lane Local	2,000	6.2	6.7
62	Residential Street	Local Residential @ 3% Truck	2-Lane Local	1,000	5.7	6.2