



Woodland Fire Department

Community Risk Reduction Division

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WOODLAND FIRE DEPARTMENT	
TECHNICAL POLICY	
STANDARD TITLE:	Installation and Maintenance of Private Fire Hydrants
STANDARD NUMBER:	TP-012 EFFECTIVE DATE: 08/21/2024 REVISION DATE: 02/01/2026

SCOPE

This standard is for the design, installation, and maintenance of private fire hydrants and is pursuant to the 2025 California Fire Code, Local Ordinance and the 2025 edition of NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances*.

This Standard will apply to all fire hydrants installed on private property within the jurisdiction of the Woodland Fire Department. This standard does not apply to public fire hydrants installed within a utility easement on private property.

SPECIFICATIONS

1. Private On Site Hydrants

- a. Fire hydrants shall be a Clow 960 or an approved equal.
- b. Fire hydrants shall be mounted on an approved break off check valve.
- c. All fire hydrants shall be supplied by a minimum of eight inch piping. The piping size may be reduced to six inch piping if the distance from the point of connection at the hydrant bury to the main supply piping or public water supply piping is less than 25 feet.
- d. Non-metallic pipe shall not be used within five feet of a building.
- e. Outlets shall be national standard threads with metal protector caps. One 4½-inch “steamer” outlet and two 2½-inch outlets are required.
- f. The 4½-inch “steamer” outlet shall face the street or fire apparatus access roadway. This outlet shall be a minimum of 18 inches above grade measured from the center of the operating stem.
- g. The 2½-inch outlets shall be placed above the 4½-inch “steamer” outlet and be oriented 90 degrees relative to each other.

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- h. Nut size of valve/stem and protector caps shall be of pentagonal shape and furnished with a nut of 1 $\frac{1}{8}$ -inches measured from point to flat of the pentagon.
- i. Hydrant outlet valves shall open in a counter-clockwise direction.
- j. Fire hydrants shall be a minimum of 24 inches in height from base flange to top of hydrant.
- k. Fire hydrants are to be factory painted in accordance with the following:
 - Standard Rated Pressure - Fire Engine Red Body and Safety Yellow Cap Color
 - Boosted Rated Pressure (on a fire pump) - Fire Engine Red Body and Cap Color
- l. The fire hydrant base flange shall be a minimum, of 2 inches above the finished grade or planter curb.
- m. Hydrants shall be within 8 feet of the approved fire department access.
- n. Fire hydrant spacing in commercial areas shall be a maximum of 300 feet on center.
- o. Fire hydrant spacing in residential areas shall be a maximum of 500 feet on center.
- p. Buildings equipped with a standpipe shall have a fire hydrant located within 40 feet of the fire department connection.
- q. Fire hydrants shall not be located closer than 40 feet from the building to be protected.
- r. Fire hydrants shall not be installed in the bulb of a cul-de-sac.
- s. There shall be no obstructions, including plants, within a 36-inch radius of any fire hydrant.
- t. There shall be a seven-foot vertical clearance above the 36-inch clear radius around the fire hydrant.
- u. Vehicle protection shall be provided for fire hydrants subject to vehicular damage by approved barricades or a minimum of a six-inch curb.
- v. Blue reflective hydrant markers shall be installed in accordance with the following (CFC § 509):
 - I. On unstriped roadways, blue markers shall be set in the center of the roadway.
 - II. On undivided striped roadways, blue markers shall be set 6 inches to the hydrant side of the center stripe.

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- III. On divided roadways, the blue marker shall be set 6 inches to the side of the median or lane striping, which is closest to the hydrant.
- IV. In locations where hydrants are situated on corners, blue markers shall be installed on both approaches fronting the hydrant.

2. Backflow Prevention

- a. Private fire hydrant supply piping may be provided with backflow prevention devices as approved by the City of Woodland and Fire Department.
- b. Flow and pressure loss through the backflow prevention devices shall be taken into consideration when calculating pressure flow and loss for an on-site hydrant system.

3. Looped Systems (CFC § 507)

- a. Three or more hydrants will require two points of connection to the public or private water supply piping.
- b. Two or more hydrants in conjunction with fire sprinkler supply piping will require two points of connection to the public or private water supply piping.
- c. Seven or more fire sprinkler systems will require two points of connection to the public or private water supply piping.
- d. When two or more points of connection to the main water supply are required, they shall be installed as remotely as possible.

4. Shared Utility Agreement (CFC § 507)

- a. A Shared Utility and Maintenance Agreement shall be recorded at the public recorder's office having jurisdiction and provided to the Fire Department for all private fire hydrant systems serving multiple parcels or properties.

5. Installation and Inspections (NFPA 24)

- a. Underground piping shall be installed in accordance with NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances* and the approved plans prepared by a civil engineer or piping installation contractor. The underground fire service installation contractor shall submit for review and approval, a schematic drawing showing the part for part installation arrangement of the underground piping and appurtenances and a parts list with listing information for all parts prior to installation. A trench cross sectional detail shall

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be included on the plans. A copy of the APPROVED underground fire service plans shall be on site for all Woodland Fire Department inspections and acceptance testing.

- b. Plastic piping approved for underground installations shall be PVC, C900, Class 150 or greater, and be listed for such use.
- c. All runs of non-metallic water pipe shall have a No. 10 gauge solid soft drawn copper locator wire taped on top of the pipe to facilitate locating the pipe at a later date. The wire shall be stubbed up inside each valve box. Continuity test shall be conducted on each splice at all locations.
- d. Galvanized pipe is not approved for underground supply piping.
- e. Non-metallic pipe shall not be used within five feet of a building.
- f. Above grade valves for controlling the water supply for on-site fire hydrant systems shall be electrically supervised.
- g. All piping shall be laid in a six inch bed of sand or natural gravel not over one inch in diameter and have a twelve inch fill of sand or natural gravel not over one inch in diameter. See detail, page 6.
- h. A strand of minimum 3" wide non-detectable blue tape marked "CAUTION: WATER LINE BURRIED BELOW" shall be placed 12 inches above all piping.
- i. All sections of ductile iron pipe or ductile iron fittings shall be encased in either 8-mil linear low density (LLD) or 4-mil high-density, cross-laminated (HDCL) polyethylene sheets or tubes in accordance with American Water Works Association Standard C105/A21.5-05, *Polyethylene Encasement for Ductile-Iron Pipe Systems*. Any fasteners shall be made of low-alloy steel.
- j. Concrete thrust blocks or other approved retaining, shall be installed at all locations where piping changes direction.
- k. A 200-PSI hydrostatic pressure test shall be performed on all installed piping and appurtenances for a period of two hours. The piping shall be center-loaded during pressure testing with all joints, fittings and appurtenances uncovered. Failure to comply with this section will result in a test failure and the uncovering of the piping for a visual inspection and retesting.
- l. A fire hydrant flush, using the 4½-inch "steamer" outlet, shall be conducted at all hydrants and witnessed by the Fire Department. Piping shall be flushed until all foreign objects have been discharged and the water is clear.

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m. Fire Department personnel may conduct flow testing to verify the ability of the system to provide the required fire flow.

6. Maintenance and Testing (CFC § 507.5.2)**a. Annual Maintenance**

- I. Ensure hydrant is visible and accessible.
- II. Remove caps and inspect threads, gaskets and cap chains.
- III. Clean and lubricate threads.
- IV. Check condition of pentagon operating nut.
- V. Locate and exercise the underground control valve (key valve, road box or foot valve).
- VI. Operate each valve on the hydrant and flow water for approximately one minute.
- VII. Clean and paint hydrant in accordance with the City standard (Refer to Item k. above under Specifications for paint colors)
- VIII. Ensure the blue reflective marker is installed and visible.
- IX. Any deficiencies noted shall be corrected immediately.

b. Five Year Maintenance

- I. Perform annual maintenance as outlined above.
- II. Perform flow testing in accordance with NFPA 291, *Recommended Practices for Fire Flow Testing and Marking of Hydrants*.
- III. Any deficiencies noted shall be corrected immediately.

c. Licensing Requirements

- I. Fire hydrant maintenance and testing shall be performed by one of the following:
 - A. C-16 – Fire Protection Contactor
 - B. C-36 – Plumbing Contractor
 - C. C-34 – Pipeline Contactor
 - D. California State Fire Marshal – License A, Type

d. Record Keeping

- I. All maintenance and testing of private fire hydrants shall be recorded and maintained by the property owner. Copies shall be made available to the Fire Department upon request.

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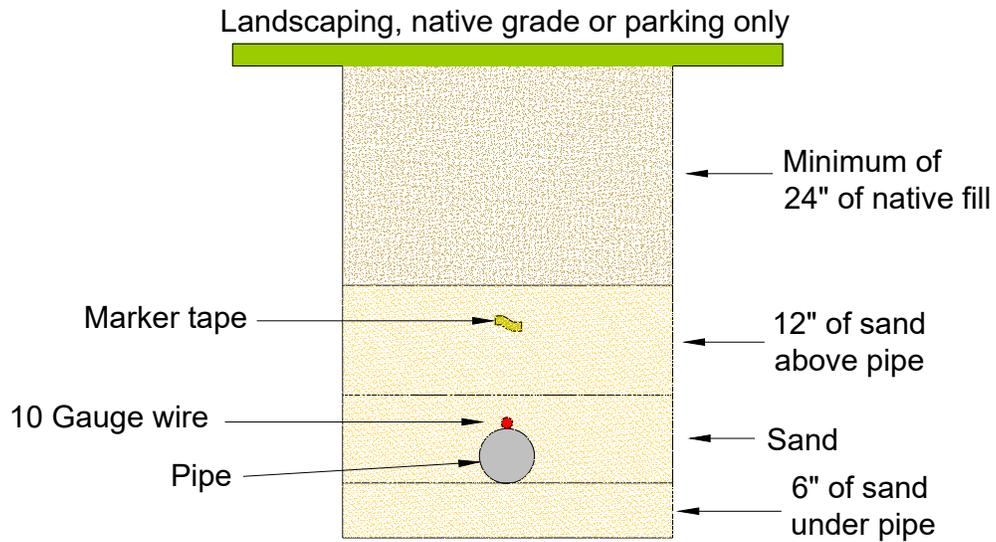
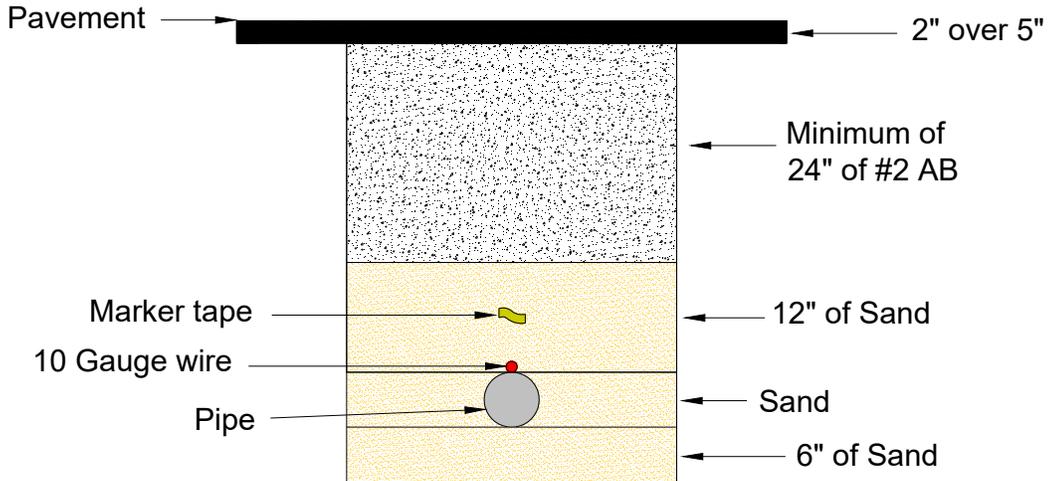
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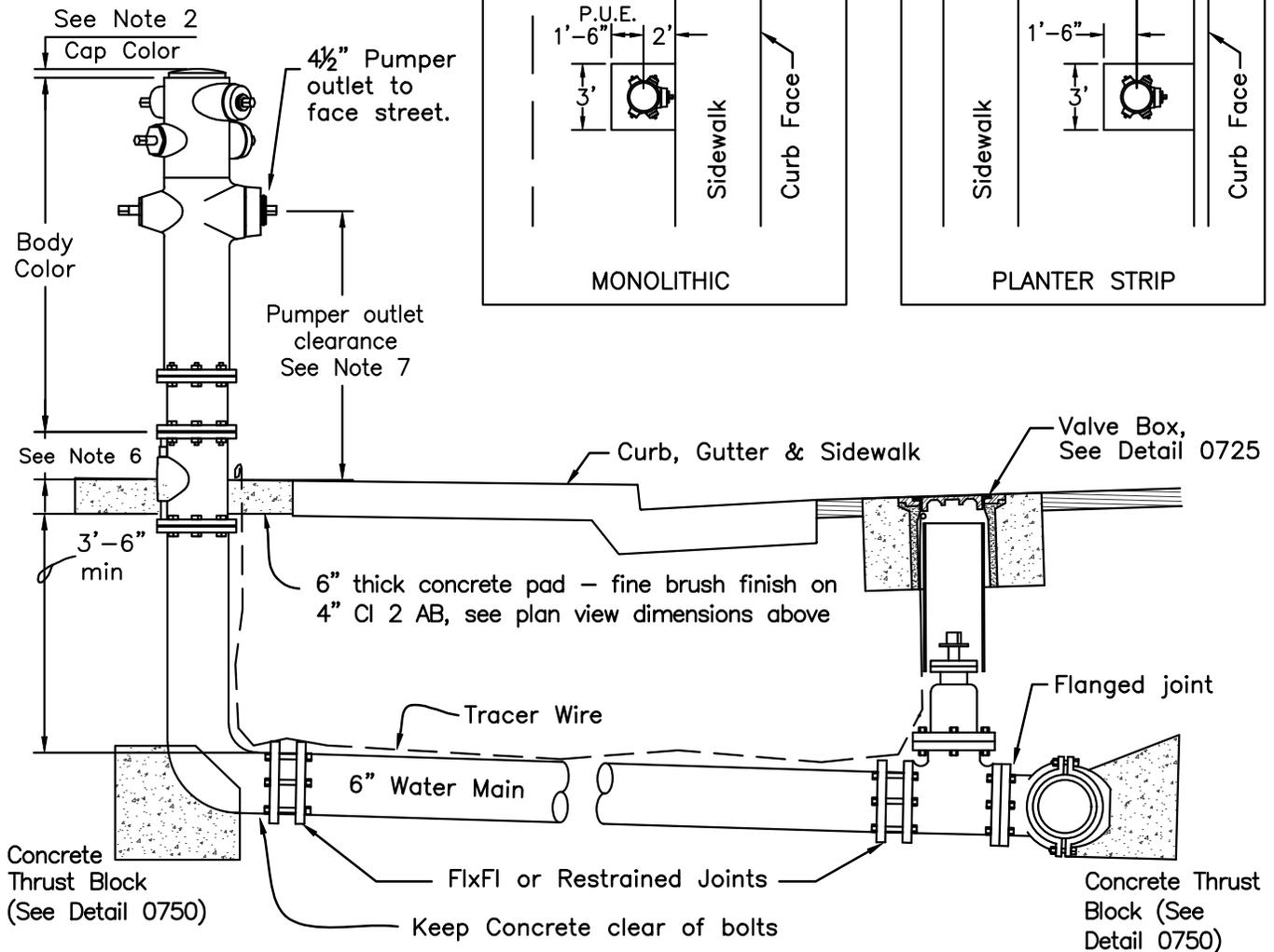
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PLAN VIEW: TYPICAL LOCATIONS**PROFILE VIEW****Notes:**

1. Replace existing improvements damaged during construction to equal or better condition.
2. See Const. Specifications Section 12.02.G. for hydrant colors.
3. Install Bonding Jumpers (not shown) per Detail 0743. Do not connect hydrant body or break off check valve.
4. Wet barrel hydrants and break off (breakaway) check valves shall be manufactured, installed and maintained in accordance with AWWA M17, C503 and any other applicable codes.
5. Pre-approved wet barrel hydrants include:
 - 5.1. Clow model 960
 - 5.2. Jones model J-4060
6. Install breakaway check valve in concrete pad per manufacturer's recommendations and in accordance with Pumper Clearances outlined in Note 7. Bolts shall be removable without damaging pad.
7. Pumper outlet clearance above concrete pad varies with breakaway check valve type. Pre-approved breakaway check valves and their respective Pumper outlet clearances are as follows:
 - 7.1. Clow model LBI 400A, Pumper Clearance = 24" min. - 28" max.
 - 7.2. Clow model LP 619, Pumper Clearance = 22" min. - 26" max.
 - 7.3. Jones model J-5000, Pumper Clearance = 21" min. - 24" max.

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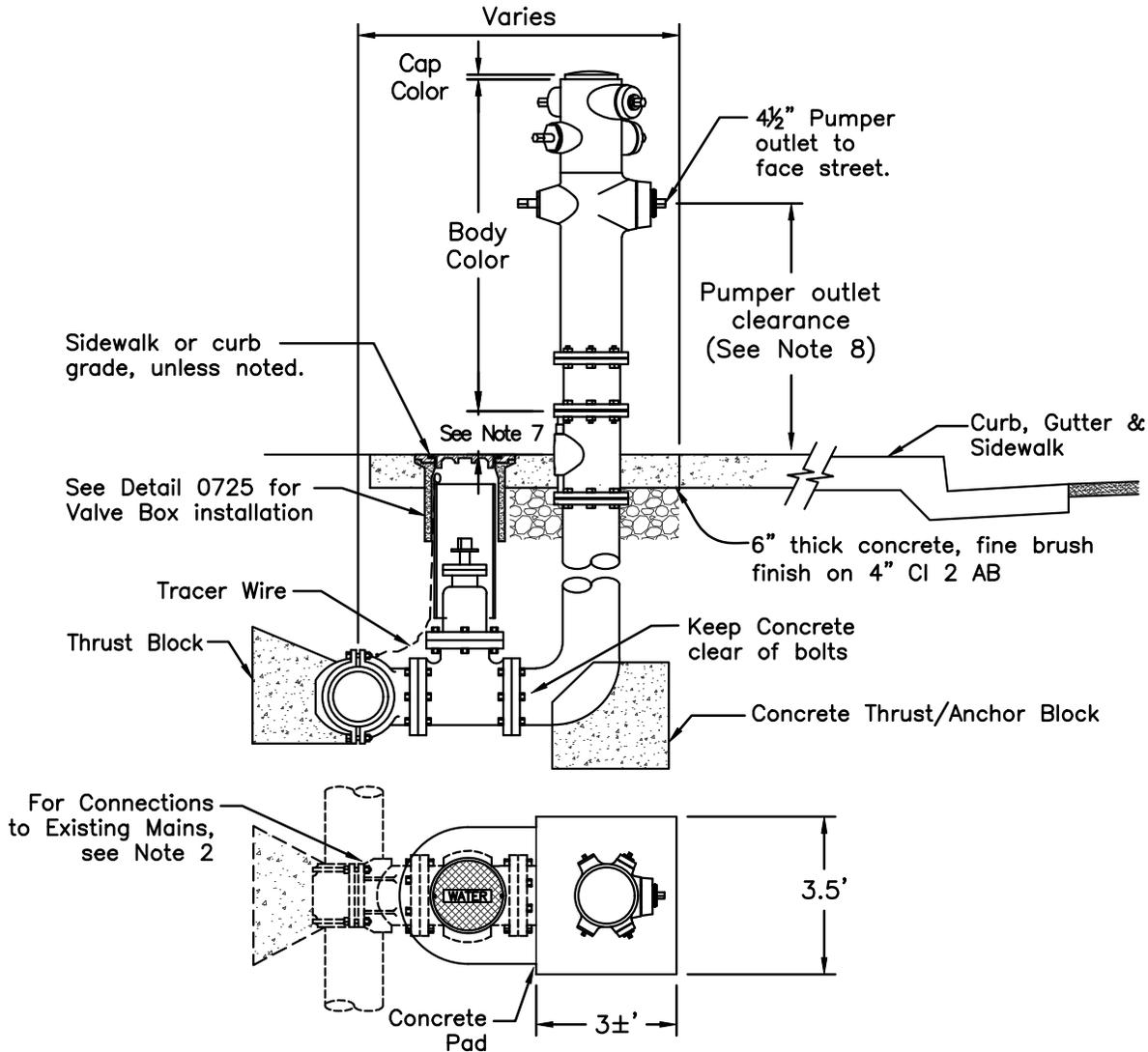


CITY OF WOODLAND
COMMUNITY DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

APPROVED BY
DATE 03/12/21 BRENT MEYER, CITY ENGINEER

**FIRE HYDRANT
WITH WATER MAIN
IN STREET**

0730

**Notes:**

1. New Water Mains at back of walk require City Engineer approval. See Detail 0730 for new mains.
2. For Connections to Existing Water Mains:
 - 2.1. Developer/Contractor provides all materials.
 - 2.2. All excavation, preparation, backfilling and resurfacing work performed by Developer/Contractor.
 - 2.3. Hot-Tap performed by City crews.
 - 2.4. See Const. Specifications Section 12.07 for additional details.
3. Replace existing improvements damaged during construction to equal or better condition.
4. See Const. Specifications Section 12.02.G. for hydrant colors.
5. Wet barrel hydrants and break off (breakaway) check valves shall be manufactured, installed and maintained in accordance with AWWA M17, C503 and any other applicable codes.
6. Pre-approved wet barrel hydrants include:
 - 6.1. Clow model 960
 - 6.2. Jones model J-4060
7. Install breakaway check valve in concrete pad per manufacturer's recommendations and in accordance with Pumper Clearances outlined in Note 8. Bolts shall be removable without damaging pad.
8. Pumper outlet clearance above concrete pad varies with breakaway check valve type. Pre-approved breakaway check valves and their respective Pumper outlet clearances are as follows:
 - 8.1. Clow model LBI 400A, Pumper Clearance = 24" min. - 28" max.
 - 8.2. Clow model LP 619, Pumper Clearance = 22" min. - 26" max.
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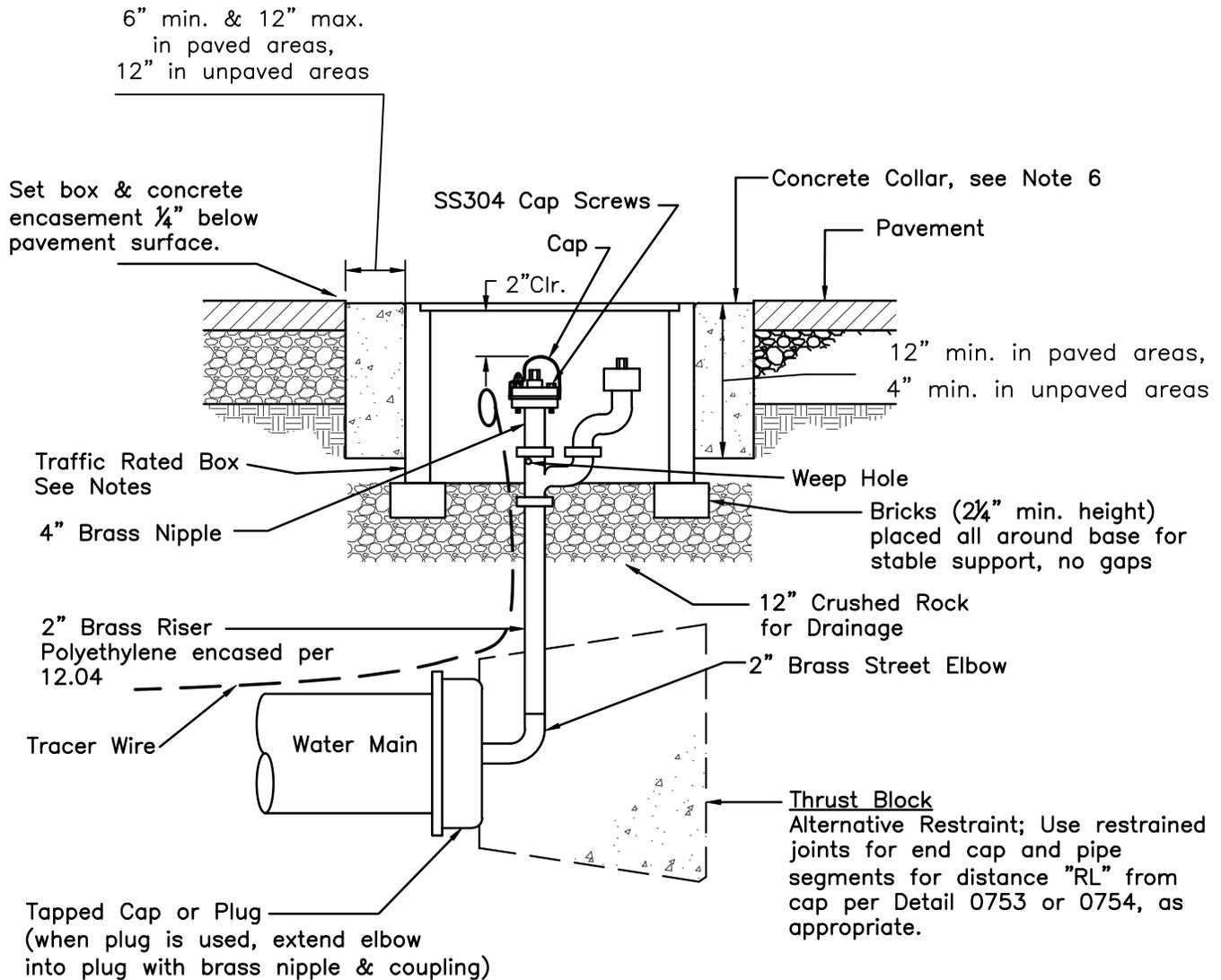
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CITY OF WOODLAND

COMMUNITY DEVELOPMENT DEPARTMENT
ENGINEERING DIVISIONAPPROVED BY
DATE 03/12/21 BRENT MEYER, CITY ENGINEERFire Hydrant with
Water Main Under or
Behind Sidewalk

0735



Notes:

1. Blowoff hydrant shall be non-freezing, self-draining with 2" FIP inlet, non-rising operating rod, and open to the left (CCW).
2. All working parts shall be bronze-bronze and shall be servicable from above grade without digging.
3. Outlet shall be bronze 2 $\frac{1}{2}$ " NST.
4. Acceptable models are Eclipse 78 by Kupferle or approved equal.
5. Box shall be Christy B1017 (H-20 traffic loading) or approved equivalent.
6. Concrete shall be per Construction Specification 6.01 and receive a fine brush finish around box.

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COMMUNITY DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

APPROVED BY
DATE 03/12/21 BRENT MEYER, CITY ENGINEER

BLOWOFF HYDRANT

0740