



Fire Prevention Division

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STANDARDS FOR UNDERGROUND PIPING FOR PRIVATE FIRE SERVICE MAINS AND HYDRANTS

The following “STANDARD NOTES FOR UNDERGROUND PIPING FOR PRIVATE HYDRANTS AND SPRINKLERS” shall be placed, verbatim, on all underground plans.

1. INSPECTION REQUIREMENTS

- 1.1. The following inspections are required for underground piping serving fire sprinkler systems and/or private hydrants: 1) Pre-pour inspection; 2) Hydrostatic testing; 3) Flush inspection. Please schedule all inspections at least 24 hours in advance. Have a copy of the approved underground plan on site for the inspector. Failure to cancel a scheduled inspection or not having approved plans will result in a failed inspection and a reinspection fee charged before the inspection can occur. To schedule an inspection call the Fire Prevention Division at (707) 257-9590, Monday-Friday, 8:00 a.m. – 5:00 p.m.
- 1.2. **Pre-pour inspection:** Thrust block excavation shall be completed; but thrust blocks shall not be poured. All pipe shall be in place and exposed for visual inspection. Pipe shall be laid on a minimum six-inch bed of clean sand, pea gravel or quarry fines. Trench shall be of a sufficient depth to allow the required cover above the pipe. Ferrous pipe and fittings shall be wrapped and tightly taped to inhibit water infiltration. Bolts and ferrous joints, pipe, and fittings shall be coated with asphaltic sealant or other corrosion retarding material.
- 1.3. **Hydro Testing:** Thrust blocks shall be in place and cured. Pipe shall be center-loaded with clean sand to prevent uplift, but all joints shall remain exposed. The system shall be hydrostatically tested at 200 psi (or 50 psi over maximum static pressure, whichever is greater) for a duration of at least two hours prior to the arrival of the inspector.
- 1.4. **Flush Inspection:** All portions of the underground system shall be flushed to remove debris prior to connection to overhead piping. Flow shall be through a minimum of two 2 ½ -inch hoses, one 4-inch hose or a 4-inch pipe, unless otherwise approved by the inspector prior to scheduling the flush. Hose or pipes shall be restrained to prevent injury or damage. The public works department or other applicable agency shall be notified of the scheduled flush as required. De-chlorination, water containment and/or discharge shall be the responsibility of the contractor. *Note: The flush and hydro inspections may be scheduled concurrently.*
- 1.5. Prior to fire final project approval, all detector check assemblies, control valves, and fire department connections (FDC) shall be clearly labeled with the address(es) served by the device. Address signs shall be securely attached to the device and be of a durable, fade-resistant material which is clearly visible and legible. FDC and 4 ½ - inch hydrant outlets shall be unobstructed and oriented toward the fire access. Valves shall be locked in the open position with breakaway locks. All valves, backflow assemblies, and private hydrants shall be painted. Hydrant and FDC caps shall be in place and secured. A Contractor's Material and Test Certificate for Underground Piping form shall be signed by

the installing contractor and owners' representative. A copy of this form shall be provided to the Fire Department prior to final acceptance of the underground work.

2. GENERAL REQUIREMENTS

- 2.1. Installation, inspection, and testing shall conform to 2010 NFPA 13 and 2010 NFPA 24. Napa City Fire Department jurisdiction starts at the downstream side of the last valve on the detector check assembly. Verify design and installation requirements for the portion of the system preceding this point with the Public Works Department, Water Division.
- 2.2. Vegetation shall be selected and maintained in such a manner as to allow immediate location of and unobstructed access to; all hydrants, control valves, fire department connections, and other devices or areas used for firefighting purposes.
- 2.3. A minimum three-foot clearance shall be provided around all hydrants. A minimum of three-foot clearance shall be provided on at least one side of a detector check assembly to allow proper operation of the device. The front of the FDC shall be free of any obstructions.
- 2.4. Any future modification to the approved private underground piping system is subject to review, inspection and approval by the Napa City Fire Department.
- 2.5. Approval of this plan shall not be interpreted as approval of any information or project conditions other than those items on this plan and applicable sections of 2010 NFPA 13 and 2010 NFPA 24. This project may be subject to additional requirements not stated herein upon examination of actual site and project conditions or disclosure of additional information.

3. PIPE AND TRENCH REQUIREMENTS

- 3.1. A six-inch (6") bed of clean fill sand, pea gravel or quarry fines shall be provided below the pipe and twelve-inches (12") shall be provided above the pipe.
- 3.2. Pipe shall be buried at least 36" where subject to loading (e.g., driveways, parking lots) and at least 30" elsewhere.
- 3.3. All pipe shall be approved for use in fire service systems. Class 150 will be used at a minimum, and class 200 pipe shall be used where water pressure exceeds 150 psi. The use of galvanized pipe is prohibited when a portion of the pipe is buried.
- 3.4. All ferrous pipe and fittings shall be protected by wrapping in polyethylene sheeting.
- 3.5. All bolts and ferrous fittings used for underground connections shall be cleaned and thoroughly coated with asphalt or other corrosion retarding material after assembly and prior to wrapping.
- 3.6. Thrust blocks, or another approved method of thrust restraint, shall be provided wherever pipe changes direction.
- 3.7. A minimum two-inch clearance shall be provided where the pipe passes through slabs or walls. Underground system shall terminate at the riser flange and placed a minimum of 18- inches and a maximum of 24-inches from an exterior wall and 6-inches above the slab.

- 3.8. Pipe running under a building or building foundation shall be stainless steel and shall not contain mechanical joints.
- 3.9. The FDC shall contain a minimum of two-2 ½ inch inlets. When the system design demand including interior hose stream demand or a standpipe is a minimum of 500 gpm, four- 2 ½ inch outlets shall be provided.

4. HYDRANT REQUIREMENTS

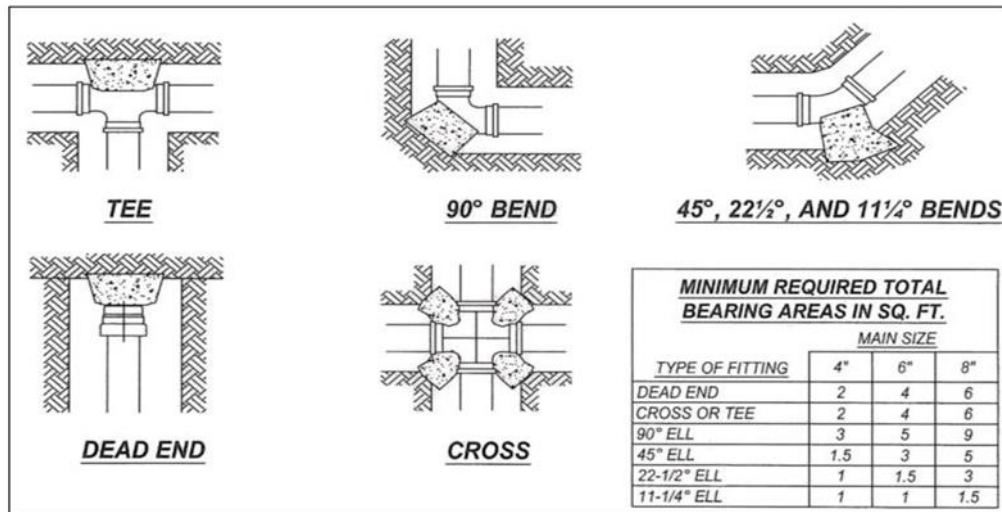
- 4.1. Private fire hydrants shall be listed with two-2 ½ inch outlets and one - 4 ½ - inch outlet. The 4 ½ -inch outlet shall face the fire department access road. All outlets shall be provided with National Standard Threads (NST). Private hydrants shall be painted OSHA safety yellow.
- 4.2. Fire hydrant supply piping shall be a minimum of six inches in diameter. The lowest outlet cap nut shall be a minimum height of 18-inches above finished grade.
- 4.3. A keyed gate valve shall be provided for each hydrant in an accessible and clearly visible location. Valves shall not be located in parking stalls.
- 4.4. All fire hydrants shall have a “Blue Reflective Pavement Marker” indicating their location. Refer to City of Napa Public Works Standard W-21 for installation requirements. Private hydrants and markers are to be maintained in good condition by the property owner.

The following “STANDARD DETAILS FOR UNDERGROUND PIPING FOR PRIVATE HYDRANTS AND SPRINKLERS” shall be placed on all underground plans.

1. **A copy of the applicable Public Works Standard Installation Detail (W-7A, W-7B, W-7C, W-7D). Standard detail sheets are available on the City of Napa Public Works Department Website:**

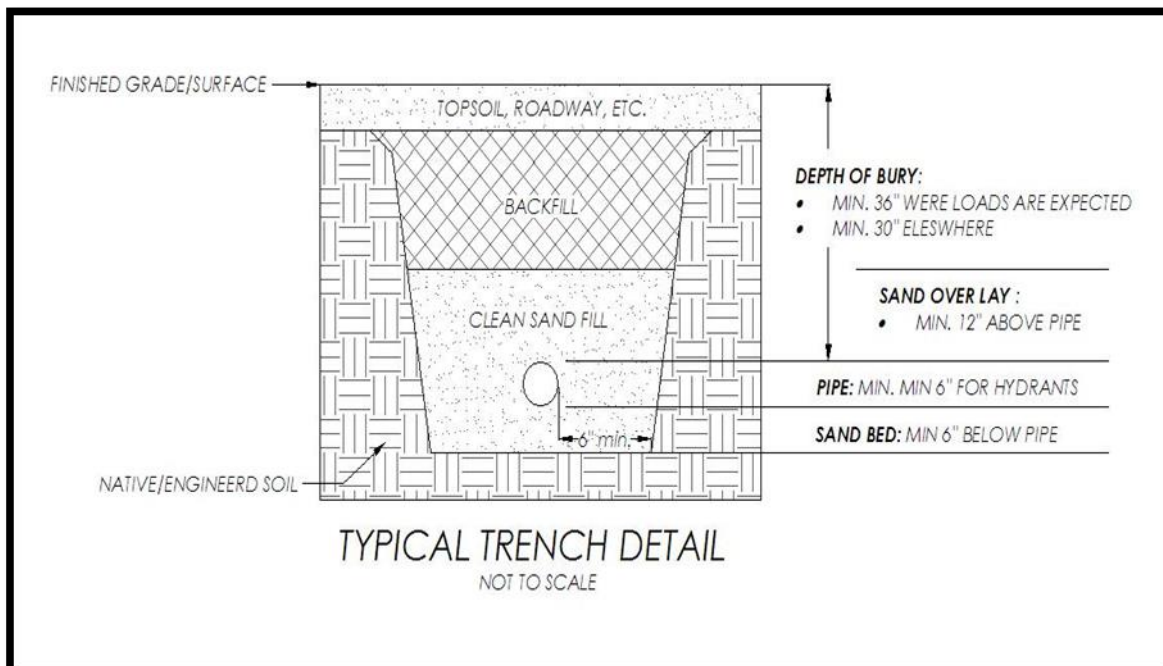
http://www.cityofnapa.org/index.php?option=com_content&task=view&id=224&Itemid=653

2. **Thrust block details:**



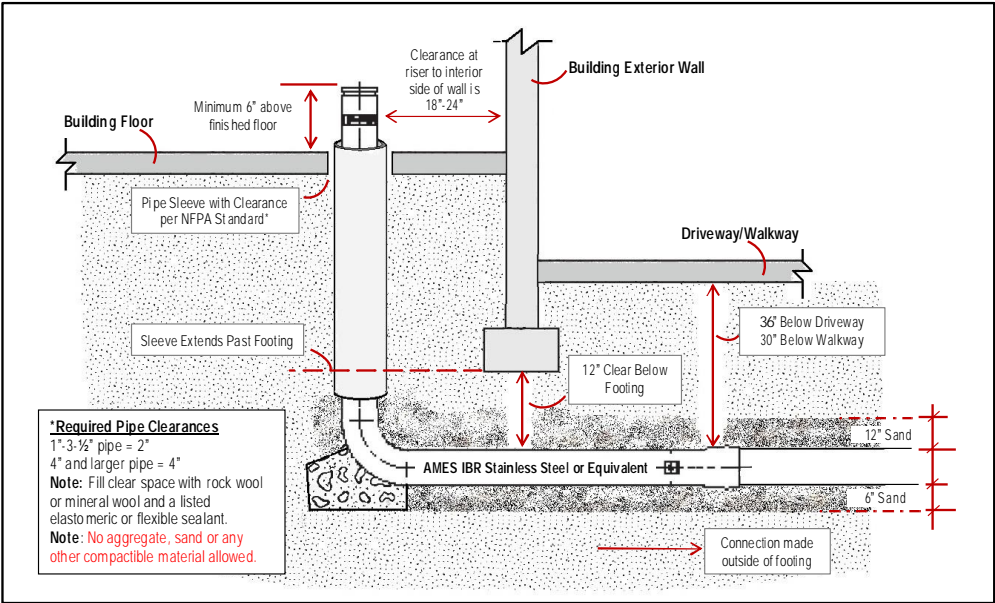
NOTES - BEARING AREAS SHOWN ARE BASED ON 150 PSI SERVICE PRESSURE, 1,500 PSF SOIL BEARING CAPACITY, AND A SAFETY FACTOR OF 1.25.

3. Trench Details:



4. Underground Foundation Riser Detail:

UNDERGROUND INSTALLATION DETAIL



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