

Building Sewer Connection Requirements

June 11, 2021

BUILDING SEWER CONNECTION REQUIREMENTS

**AVOID CUTTING UNDERGROUND UTILITY
LINES IN YOUR AREA**

***AT LEAST TWO WORKING DAYS
BEFORE YOU BEGIN EXCAVATION
CONTACT ARIZONA BLUE STAKE, INC.***

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BUILDING SEWER CONNECTION REQUIREMENTS

ANY PERSON DESIRING TO MAKE A NEW, REVISED OR REPAIRED SEWER INSTALLATION MUST FIRST MAKE APPLICATION WITH GREEN VALLEY WATER FOR A PERMIT BEFORE STARTING WORK. THE GREEN VALLEY WATER PERMIT (ORANGE CARD) MUST BE POSTED IN A CONSPICUOUS PLACE NEAR THE INSTALLATION. ALL WORK TWO FEET (2') BEYOND THE EXIT FROM THE BUILDING OR STRUCTURE TO THE TAP SHALL BE INSPECTED AND APPROVED BY GREEN VALLEY WATER IN ITS ENTIRETY.

- 1. PIPE AND FITTINGS** – All building sewers and fittings shall be an approved type with material meeting Green Valley Water minimum code requirements, including but not limited to:
 - A. Three-inch (3") or four-inch (4") plastic ABS schedule 40 sewer pipe (ASTM-D2751 or ASTM-D2661) with ABS glue used on couplings, or PVC sewer pipe SDR 35 (ASTM 3034), or equivalent, with PVC glue used on couplings or their respective equals such as gasketed pipe, with all-purpose glue for ABS to PVC transition.
 - a. Flexible couplings or connections may only be FERNCO brand coupling.
 - b. Cleanouts must be standard three or four inch (3" or 4") with screw-in plugs.
 - B. Three-inch (3") may only be used for single residential dwellings.
 - C. All taps to commercial property will be six-inch (6"). Service lines will be six-inch (6") to the building.

- 2. CLEANOUTS** – All building sewer connections shall be provided with a clean out at the following locations:
 - A. Connection to building drain line. This cleanout must be installed with a "TEE" or "DOUBLE WYE", not less than two-feet (2') or more than ten-feet (10') from building foundation.
 - B. Intervals not to exceed fifty-feet (50') as measured along center line of pipe.
 - C. All ninety-degree (90°) elbows.

NOTE: When a cleanout is to be located under any permanent paved surface, it shall be brought to finished grade and provided with brass cap cleanout.

- 3. BUILDING SEWER CONNECTION** – Where sewer is connected to the building sewer or wherever there is a change in pipe material, the following types of connections are approved:
 - A. Weld Coupling

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- B. The use of rubber reducers with stainless steel clamps are acceptable adapters for changes in pipe type or sizes.
4. **INTERCEPTORS/TRAPS** – When in the judgment of Green Valley Water, waste pretreatment is required, an approved type grease interceptor and/or sand trap shall be required before connection to the public sewer system. Grease interceptors are to be installed outside. Sizing will be based on the EPA-2 Model and will be confirmed by Green Valley Water during THE PLAN review.
5. **SEWER GRADE** – All building sewer connections shall be laid to a grade of not less than one-fourth inch (1/4”) per foot. All PIPES shall be laid with socket ends of pipe upgrade. Pipe shall be laid with uniform bearing under FULL LENGTH of the barrel of the pipe.
6. **SEWER DEPTH** – The depth of the building sewer at the property line shall be governed by the slope of the property and the depth of the main. The building sewer service line should be installed at a minimum depth of eighteen inches (18”) whenever possible.
7. **INSTALLATION** – Sewer and water lines shall not be run or laid in the same trench when the sewer line is of materials not approved for inside use unless both of the following conditions are met:
- A. The bottom of the water pipe, at all points, shall be at least twelve inches (12”) above the top of the sewer line.
- B. The water pipe shall be placed on a solid shelf excavated at least one foot (1’) away from the sewer in the common trench.

When a water line crosses over a sewer line and the minimum distance cannot be maintained, (that is less than one foot (1’) between the pipes) the sewer line must be installed using ductile iron piping or encased in concrete. Concrete encasement shall extend a minimum of two-feet (2’) of each side of the crossing. The encasement provide a minimum of two inches (2”) of concrete beyond the entire outside diameter.

8. **SEWERS BELOW GRADE** –

- A. All gravity Building Sewer Connections shall be protected from backflow of sewage by the installation of an approved type backflow valve per the following detail.

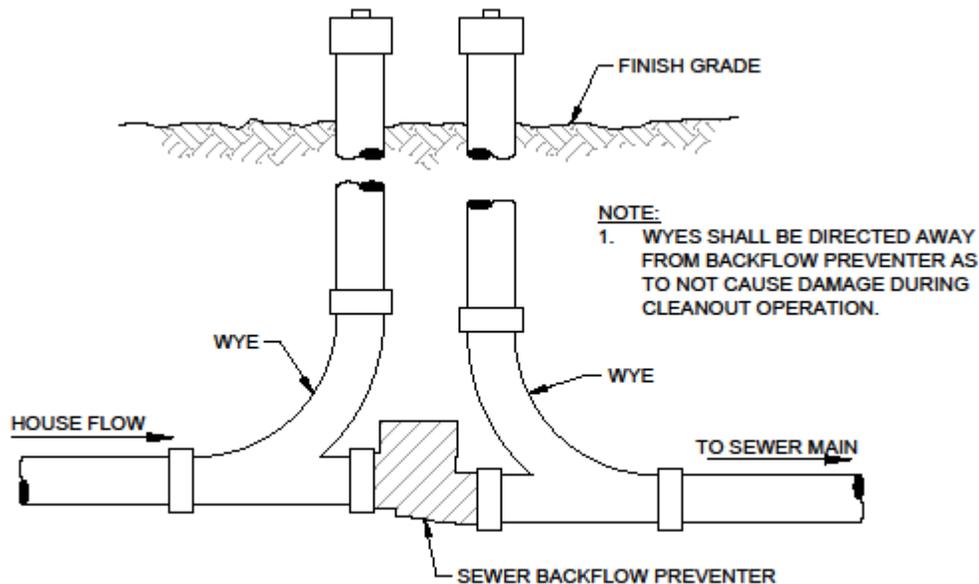
Backflow valves shall have cast iron, PVC or brass bodies, non-corrosive bearings, seats and self-aligning discs, and shall be constructed as to insure a positive mechanical seal and to remain closed, except when discharging wastes. Such valves shall remain sufficiently open during periods of low flows



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to avoid screening of solids and shall not restrict capacities or cause excessive turbulence during peak loads.

Valve access covers shall be bolted type with gasket and each valve shall bear the manufacturer's name cast into body and cover. Alternative devices may be approved for a specific installation.



2-WAY DOUBLE CLEANOUT WITH BACKFLOW PREVENTER

N.T.S.

- B. Sewer line piping serving fixtures located below the crown level of the sewer main shall discharge into an approved watertight sump or tank, located as to receive the sewage by gravity. Sewage from the sump shall be lifted and pumped into the sewer main under pressure through a Green Valley Water approved pressure main material.

9. SMALL DIAMETER SEWERS AND PUMP SYSTEMS – When pumping systems are required to discharge into the Green Valley Water sewer system, the following minimum standards shall be met:

- A. Minimum discharge pipe size shall be one and one quarter inch (1 ¼") in diameter.
- B. Pipe shall be PVC Schedule 40, High Density Polyethylene (HDPE), or Polyethylene. PVC Schedule 40 discharging piping in excess of one hundred feet (100') in length must have gasketed bell and spigot joints. HDPE pipe must be outside diameter controlled, DR-11, 160 psi minimum pressure rated

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- (ASTM D3035). Polyethylene pipe must have a 100 PSI rating (ASTM-D2239). All fittings used in poly pipe installation must be brass.
- C. Where bend fittings are used on ridged piping, thrust blocks must be installed.
 - D. Discharge piping shall be laid in a separate trench from any water lines.
 - E. Metallic marking ribbon labeled “Sewer” shall be installed approximately one-foot (1’) above the discharge piping in the trench.
 - F. The discharge line shall be fitted with an accessible backwater or swing check valve and with proper isolation valves for maintenance.
 - G. Sumps and tanks shall be watertight, with all openings or penetrations sealed. Sumps shall be water tested to a level above the uppermost penetration.
 - H. All sumps or receiving tanks must be placed on a concrete pad or base and anchored. The pad should contain a minimum of 10 square feet of concrete. Environmental One Pumps can be set on bedded material of 3/8 minus and concrete placed approximately to surround the bottom third of the tank. (Tank should be filled with water before concrete is placed.)
 - I. Material used for backfill around the sump must be compacted, clean, screened material of 3/8” minus in size.
 - J. Rim elevation of sumps shall be at a grade to prevent runoff or drainage from entering system.
 - K. Pumping systems intended for “Public Use” (other than a single-family residence) shall be fitted with duplex pumps.
 - L. All pumping systems will have a high-water level alarm installed.
 - M. Discharge piping shall be tested under a minimum of 60 psi of hydrostatic pressure or air tested at 20 psi for one minute per one hundred feet.
 - N. Referenced UPS section 409 or the installation manual providing the manufactures recommendations for additional information.
 - O. All cleanouts, valves, etc., shall be protected by traffic bearing lids and risers as shown in MAG standard details 391-1 and 391-2 and adjusted to finished grades.

Note: If using an Environment One pumping system, piping on inlet side must be 4-inch (4”) beveled schedule 40 pipe.

- 10. INSTALLATION OF SEWER TAPS** – Green Valley Water will install ALL TAPS to the sewer mains. An installation fee will be charged. It will be the responsibility of the property owner, or the property owner’s contractor, to expose the sewer main for a width of at least three feet (3’) at the tap site and comply with MAG specs section 601 and all OSHA standards.



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**- TRENCHES MUST BE MADE SAFE TO INSTALL TAP PER OSHA STANDARDS -
**ADEQUATE SAFETY REQUIREMENTS TO BE DETERMINED BY GREEN VALLEY WATER
PERSONNEL****

- 11. DEPTH OF SEWER TAPS** – All main sewer lines are installed at a minimum of 36” of cover in right-of-way. Green Valley Water cannot guarantee depths of sewer lines at the property line. At property line, depth could be a minimum of 18” or at a depth exceeding 10’. We recommend you field verify tap depth prior to starting construction.
- 12. INSPECTION AND WATER TEST** – Green Valley Water must be called a minimum of 24-hours in advance to set up an appointment for an inspection.

All Building Sewer Connection installations within Green Valley Water boundaries shall be inspected in its entirety for approval and acceptance before being backfilled. The property owner or the contractor must be present at the site at time of inspection.

**PERMIT NUMBER AND ADDRESS MUST BE GIVEN WHEN CALLING FOR AN
INSPECTION. FOR INSPECTION CALL: (928)474-5257**

- 13. DEVIATIONS** – Any deviation from these specifications will require the written, prior approval of Green Valley Water.
- 14. MATERIALS NOT ALLOWED IN SEWER** – No person shall discharge or cause to be discharged any storm water, surface water, ground water, roof run-off, sub-surface drainage, cooling water or unpolluted industrial process waters to any sanitary sewer.

Except as provided in this section, no person shall discharge or cause to be discharged any of the following described waters or wastes into any public sewer:

- A. Any liquid or vapor having a temperature higher than 150 degrees Fahrenheit.
- B. Any water or waste which may contain more than fifty parts per million of weight of fat, oil or grease.
- C. Any gasoline, benzene, naphtha, fuel oil, other flammable or explosive liquid, solid or gas, or other hydrocarbons.
- D. Any garbage that has not been properly shredded.
- E. Any ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, paunch manure, grits such as brick, cement, onyx, carbide or any other solid or viscous substance capable of causing obstruction to the



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- flow in sewers or other interference with the proper operation of the sewage works.
- F. The admission into the public sewers of any water or wastes having:
 - 1. A five-day biochemical oxygen demand greater than 300 parts per million.
 - 2. Containing more than 350 parts per million of suspended solids.
 - 3. Any quantity of substances having the characteristics described in this section shall be forbidden.
 - G. Any waters or wastes having a PH lower than five and one-half or higher than nine or having any other corrosive property capable of causing damage or hazard to structures, equipment and personnel of the sewage works.
 - H. Any waters or wastes containing a toxic, radio-active or poisonous substance in sufficient quantity to injure or interfere with any sewage treatment process, constitute a hazard to humans or animals, or create any hazard in the receiving waters of the sewage treatment plant.
 - I. Waters or wastes containing dissolved/suspended solids of such character/quantity that unusual attention or expense is require to handle such materials at the sewage treatment plant.
 - J. Any noxious, malodorous gas or substance capable of creating a public nuisance.
 - K. Dissolved Sulphide must be corrected to be not more than 0.5 PPM before delivery to the sewer system.

WATER AND/OR AIR TEST AS TAKEN FROM THE UNIFORM PLUMBING CODE

WATER TEST – The water test shall be applied to the drainage system either in its entirety or in sections. If applied to the entire system, all openings in the piping shall be tightly closed, except the highest opening, and the system filled with water to point of overflow. If the system is tested in sections, each opening shall be tightly plugged except the highest opening of the section under test and each section shall be filled with water. No section shall be tested with less than a four-foot (4') head of water.

When testing successive sections, at least the upper four feet (4') of the next preceding section shall be tested. No joint or pipe (except the uppermost four feet (4') of the system) shall have been submitted to a test of less than a four-foot (4') head of water.

The water shall be kept in the system, or in the portion under test, for at least fifteen (15) minutes before inspection starts: The system shall then be tight at all points.

HYDROSTATIC TEST – The hydrostatic test shall be applied to the piping either in its entirety or in sections. The test section shall be slowly filled with water and all air shall be



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vented from the line. Any leaks observed while filling should be repaired prior to bringing the test to full pressure. Once the entire system is filled and brought to test pressure, the piping should be allowed to stabilize for a minimum of two hours. Note: A pressure pump may be required to bring the test to full pressure.

For hydrostatic testing on small diameter sewers, the pressure shall be raised to a minimum of 60 PSI and held for a minimum of one hour. A Green Valley Water Field Inspector will make the determination as to the passage of the hydrostatic test.

AIR TEST – The air test shall be made by attaching an air compressor testing apparatus to any suitable opening. After closing all other inlets and outlets to the system air will be forced into the system until there is a uniform gage pressure of five (5) pounds per square inch or sufficient to balance a column of mercury ten inches (10”) in height. The pressure shall be held without introduction of additional air for a period of at least fifteen (15) minutes.

BUILDING SEWER TEST – Building sewers shall be tested by plugging the end at its point of connection with the public sewer or private sewage disposal system and completely filling the building sewer with water from the lowest to the highest point thereof, or by approved equivalent low pressure air test, or other test as prescribed by the administrative authority. The building sewer shall be water tight at all points.

The water or air test is the responsibility of the contractor or person(s) doing the job, and will be inspected by Green Valley Water.

SEWER USE CHARGE – The sewer use charge shall commence when connection of the sewer line from the facility being served is completed and has been inspected by Green Valley Water. Sewer use charges shall terminate only when the facility served is no longer physically connected to Green Valley Water sewer line. The sewer use charge shall be charged and collected from the property owner whether or not said unit is occupied during the billing period.

COMMON MISTAKES MADE BY HOMEOWNERS AND CONTRACTORS

1. Failure to call Blue Stake Center before digging.
2. The wrong type of glue used - all-purpose glue is the only glue that will work on both ABS and PVC pipe.
3. Wrong pipe – pipe that doesn't meet minimum crush requirements.
4. Pipe laid in the trench backwards (Bell and Hub).
5. Utility lines in same trench.
6. Cleanout spacing exceeding fifty (50) foot intervals.
7. No four (4) foot stand pipe.



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8. No water test.
9. There was a water test and inspection ball has leaked and there is no plumber or owner on site to refill and check.
10. Pipe, joints and tap have been covered before inspection by Green Valley Water personnel.
11. On the installation of a tap to a sewer main line, the excavation is not large enough, unsafe to work in without proper shoring, or inadequate de-watering.
12. Any deviations will require prior, written approval.
13. Green Valley Water personnel will not stand by if an inspection fails. The inspection will have to be rescheduled at a later date.