

Requirements for  
On-Lot Sewer Facilities  
Amador County, California

Installation &  
Materials Specifications for  
**STEP Systems**  
(Septic Tank Effluent - Pumped Systems)

February 2023

## Installation & Materials Specifications for STEP Systems

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## **Installation & Materials Specifications for STEP Systems**

### **Section A - Introduction and General Description**

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#### **A1. General**

The septic sewer system represents an economical means of wastewater collection that has been developed to serve in areas where conventional gravity sewers are not feasible. The two types of sewer systems used in Amador County are the STEF (Septic Tank Effluent Flow/Gravity Systems) and STEP System (Septic Tank Effluent Pumped Systems).

All new wastewater facilities to be accepted by AWA for ownership or maintenance shall be conventional or STEF/STEP wastewater collection systems. New STEF/STEP systems shall not be allowed, excepting a single lot connection to a previously approved STEF/STEP system that has already been constructed and approved by AWA. Expansions of or extensions to STEF/STEP systems shall not be allowed.

This specification deals only with STEP systems. STEP systems are comprised of a primary septic tank, pumping septic tank, vault, screen, pump, control panel, and level sensors. All materials and their installation shall meet all of the requirements of the Uniform Plumbing Code, National Electrical Code and AWA specifications, whichever is more stringent.

The primary septic tank, pumping septic tank, pump, alarm/pump control panel, vault, screen, piping, and all appurtenances from the building to the service connection shall be installed and maintained by the property owner in accordance with the adopted rules and regulations and these specifications. Maintenance shall include periodic pumping of the septic tanks as well as the replacement of any worn or broken parts, which are a part of the septic tanks, pump, vault, alarm/pump control panel, or pressure sewer piping to the collection main. A list of Suppliers with phone numbers and addresses are included in Appendix A for convenience.

Commercial and non-single family residential connections shall comply with and be similar to the STEP system requirements contained herein, may be required to be sized larger based on size and flow requirements, require dual tanks, be fully designed by the applicant's engineer and are subject to AWA review and approval.

#### **A2. Right of Entry**

Authorized agents of AWA shall have the right to enter any lot for the purpose of sewer system facilities inspections, maintenance, and repair in accordance with adopted rules and regulations.

### **A3. Sewer Permit**

Each property owner will be required to obtain the required permits from AWA as a condition of the building permit. Each septic tank location will be required to be accessible year-round, by maintenance vehicles for the purpose of inspection by AWA personnel, and maintenance including periodic pumping of septic tanks by the owner. Septic tanks, alarm/pump panel, and sewer clean-out locations shall be reviewed and approved as a part of the permit process.

Service to multiple lots through a single service connection shall not be permitted. Manifold services shall not be permitted. Each property shall install its own service connection service and STEF/STEP System.

## **Section B - Materials and Installation**

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### **B1. General Installation Conditions**

The installation of all on-lot facilities shall be inspected and approved by AWA prior to connection to the wastewater system. The property owner shall be responsible for the installation and maintenance of all on-lot facilities including but not limited to the following:

- a. Gravity sewer service line to primary septic tank
- b. Concrete primary septic tank
- c. Gravity connection between primary septic tank and pumping septic tank.
- d. Concrete pumping septic tank
- e. Tank risers and lids
- f. Pump vault and effluent screen inside tank
- g. Effluent pump and power cable
- h. Discharge piping
- i. Float controls and electrical hook up
- j. Pump control panel and alarm
- k. Pressure sewer system lateral from pumping septic tank to sewer main line service connection.

#### **B1.01 Special Conditions**

The final obligation and responsibility for correcting surface settlement will be that of the property owner. If determined by AWA field inspector that compaction testing is required, the cost of testing shall be paid by the property owner.

The property owner shall be fully responsible for the repair and replacement of all facilities or materials damaged by the installer.

## **B1.02 Electrical Requirements and Installation**

It shall be the responsibility of the property owner to provide all wiring to the pump control panel. The property owner will supply one hundred fifteen volt (115v) or two hundred thirty volt (230v) service depending on the pump requirements utilizing separate circuit, dual element fuses or circuit breakers at the main panel. The property owner will be responsible for paying the monthly electric bill for the pump.

The pump control panel and all associated electrical components shall be installed as per the National Electrical Code (NEC) and AWA specifications, whichever is more stringent. All electrical components must be inspected and approved by the Amador County Building Department.

## **B1.03 Inspections**

The property owner shall be responsible for scheduling inspections with AWA for the installation of all on-lot sewer facilities. The following inspections are required:

- a. Just prior to and while the septic tanks are being set.
- b. Water testing of the septic tanks, pressure testing of all piping, and pump testing.
- c. After final grading and clean-up of job site.

To schedule inspections call (209) 223-3018. All inspections by AWA shall be scheduled between 9:00 a.m. and 4:00 p.m. Monday through Friday. Inspections must be scheduled at least two working days prior to the day of inspection

The Applicant shall pay the required engineering services and fees deposit as determined by the AWA Engineer and AWA Water Code prior to review of application, submittals, plans, or scheduling of meetings or inspections

## **B1.04 Submittals**

The property owner is responsible for submitting two copies of the following information for review and approval by AWA **prior** to installation:

- a. A completed AWA application for installation of on-lot sewer facilities.
- b. Site plan showing the location of the structure, primary septic tank, pumping septic tank, piping, conduit(s), and alarm/pump panel.
  1. Spot elevations will be required for the invert of the building sewer, the invert of the inlets and outlets to septic tanks and pump tanks, and the invert of the service connection box piping. The site plan shall be to scale and preferably on a sheet no larger than eleven inches by seventeen inches (11" x 17").
- c. Product performance information and the pump curve for pump to be used.

- d. Complete product information on the septic tank, if not supplied from a recommended manufacturer.
- e. Product information or certificates of compliance on all piping, valves and appurtenances, if not supplied by the recommended manufacturer.
- f. Specification on imported backfill material.

## **B2. Building Sewer**

### **B2.01 General**

The building sewer is the line between the building served and the primary septic tank. Pipe materials and installation of the building sewer shall meet all the requirements of the Uniform Plumbing Code and AWA specifications (whichever is more stringent).

Work under this section shall include furnishing all labor, materials, tools and equipment necessary for the installation and pressure testing of the building sewer line as shown on the plans specified herein.

### **B2.02 Materials**

PVC and ABS are acceptable materials for the building sewer and shall be Schedule 40, with Schedule 40 solvent welded fittings or SDR-26 PVC with bell and spigot fittings.

ABS and Schedule 40 PVC fittings shall conform to ASTM D 3311 and be solvent welded. All 90 degree bends shall be long-radius sweeps, "hard" 90 degree fittings are not permitted.

ABS pipe and fittings shall be Schedule 40 and conform to ASTM D 2661. Solvent cement used on ABS shall conform to ASTM D 2235.

Schedule 40 PVC shall conform to ASTM D 1785 or D 2665 (or both). Solvent cement used on PVC shall conform to ASTM D 2564.

SDR-26 PVC pipe and fittings shall conform to ASTM D 3034 and shall be joined using bell and spigot joints conforming to ASTM D 3212 and flexible watertight elastomeric seals conforming to ASTM F 913 or F 477.

### **B2.03 Building Sewer Cleanout**

Sewer cleanouts shall be installed a maximum of five feet (5') from the building, be two-way, and spaced every one-hundred feet (100') as measured from the initial building cleanout, to the primary septic tank. Cleanouts are also required following all bends of 22° or greater.

Cleanouts shall be a minimum pipe diameter of three inches (3") and be SDR-26, schedule 40 PVC or ABS. Details are shown on Figure SS-3.

### **B2.04 STEP Sewer Service Connection**

Each property, residence, building or location, as determined by AWA, will be required to have installed a Standard Sewer Service Connection per SS-9.

Service connection boxes and lids shall be a polymer concrete utility box as manufactured by Oldcastle (Fibrelyte) or Quazite, or AWA Engineer approved equal. In all cases, the service connection box shall be large enough for proper placement and maintenance of contained appurtenances. Lids shall be made of polymer concrete as manufactured by Oldcastle (Fibrelyte) or Quazite, or AWA Engineer approved equal.

Boxes, vaults and lids shall be a minimum of ANSI 77 Tier 8 rated or better. Service Connections are not permitted in roads, parking areas, driveways, traveled ways, curbs, gutters, sidewalks or similar locations, unless specifically approved by the AWA Engineer. Boxes, vaults and lids permitted in sidewalks shall be ANSI 77 Tier 15 rated or better, with slip resistant lids (with a wet static coefficient of friction between 0.8 and 1.0 as determined by ASTM Designation C 1028-89) and meet ADA requirements. Boxes, vaults and lids permitted by AWA Engineer in roads, the traveled way, parking areas, driveways or where vehicle traffic may occur shall be AASHTO H-20 traffic rated.

Service Connections are normally located behind the back of the sidewalk and shall be easily accessible at all times, as determined by AWA. An accessible walking path, from the street to each Service Connection shall be provided with a maximum 10% slope. Service Connections shall not be located behind locked gates, shall not be otherwise inaccessible and shall be accessible to AWA staff at all times.

### **B2.05 Backflow Prevention**

Each property owner will be required to provide and maintain a backflow prevention device on the building sewer line, if any floor of the structure is at or below the tank riser rim elevation.

Building sewer line backflow prevention valves shall be PVC or ABS plastic with solvent cement connections. Valve shall be a swing check with removable flapper and self-lubricating hinge. Valve shall be watertight with a ten-foot (10') water column. The valve shall have a quick-open inspection cover and be installed in a valve access box for ease of inspection. Utility box shall be a minimum twenty-four inches by twelve inches (24" x 12") with extensions as required and a lid to be installed at grade. Box shall be pre-cast concrete.

### **B2.06 Pressure Testing**

The building sewer line shall be air or water tested for leakage. The internal pressure in the pipe shall be raised to five (5) psig and maintained for five minutes. Any pressure loss over the five-minute period is unacceptable.

## **B3. Septic Tanks**

### **B3.01 General**

This section describes the primary septic tank and the pumping septic tank as required for a single family residential service, with exemption to the special



provisions described hereof in Section B3.04. Each single-family dwelling shall have a separate septic and pump tank. This requirement also applies to a secondary dwelling, guest house, or Accessory Dwelling Unit (ADU). Additional volume and pumping capacity may be required by the Agency for commercial services and special circumstances.

All septic tanks shall be manufactured and furnished with two access openings eighteen inches (18") in diameter and of the configuration shown on the standard drawings. Tanks shall have a twenty-four inch (24") diameter by one inch (1") deep groove (see Standard Detail SS-4, SS-5, SS-6 & SS-7) formed in the top of the tank at the access opening for installation of twenty-four inch (24") diameter riser. Tanks shall be installed in strict accordance with the manufacturer's recommended installation instructions. Modification of completed tanks shall not be permitted unless approved in writing by AWA.

Fiberglass or plastic septic tanks shall NOT be allowed. Tanks shall be properly vented.

### **B3.02 Primary Septic Tank**

- a. Primary septic tank shall be a minimum of a nominal one-thousand five-hundred (1,500) gallon, two-compartment style septic tank. The size of the primary septic tank will be determined by the Agency Engineer as required for the capacity needed.
- b. The tank shall be pre-cast concrete, and shall have the floor and walls of the tank monolithically poured.
- c. The tank shall be sealed with a heavy cement-based waterproof coating, Thoroseal, on both the inside and outside surfaces.
- d. The inlet to the primary septic tank from the building sewer line shall penetrate eighteen inches (18") into the liquid from the inlet flow line.
- e. See standard drawing SS-4.
- f. For commercial facilities, the septic tank shall have a liquid capacity equal to at least one and one-half (1-1/2) day's sewage flow, or fifteen hundred (1,500) gallons, whichever is greater.
- g. Concrete joint sealant shall be used, Ramnek or equal, to provide a watertight seal between the tank and any penetrations, seams, lids, risers, inlets, or outlets, except where otherwise specified.

### **B3.03 Pump Tank**

- a. Pump tank shall be a minimum of a nominal one thousand (1,000) gallon, single chambered style septic tank. The size of the pump tank will be determined by the Agency Engineer as required for the capacity needed. Commercial pump tanks shall have a minimum of two redundant and alternating pumps, each able to handle the full design flow.
- b. The tank shall be pre-cast concrete, and shall have the floor and walls of the tank monolithically poured.

- c. The tank shall be sealed with a heavy cement-based waterproof coating, Thoroseal, on both the inside and outside surfaces.
- d. The inlet to the pump tank from the primary septic tank shall penetrate to twenty inches (20") from the bottom of the tank.
- e. The liquid level shall be a minimum of twenty-six inches (26") above the bottom of the tank to avoid pump cavitation.
- f. See standard drawing SS-5.
- g. For commercial facilities, the pump tank shall have a liquid capacity equal to at least one (1) day's sewage flow, or one thousand (1,000) gallons, whichever is greater.
- h. Concrete joint sealant shall be used, Ramnek or equal, to provide a watertight seal between the tank and any penetrations, seams, lids, risers, inlets, or outlets, except where otherwise specified.

### **B3.04 Special Provision**

Changes in regulatory conditions allow variations in single-family residential septic tank sizes for the Pine Grove and Jackson Pines wastewater systems.

- a. Pine Grove: The Pine Grove system collection system allows a single-family residential connection to install a 1,500- gallon, two-chamber septic tank in lieu of the two tank system described above. The second chamber shall contain the pump and serve as the pump tank for this system. See Figure SS-6 for the Pine Grove Only septic tank.
- b. Jackson Pines: The Jackson Pines collection system allows a single-family residential connection to install a 2,000- gallon, two-chamber septic tank in lieu of the two tank system described above. The second chamber shall contain the pump and serve as the pump tank for this system. See Figure SS-7 for Jackson Pines Only tank.

### **B3.05 Outlet Risers**

Two outlet risers shall be provided for each tank. Risers shall be at least twelve inches (12") high, shall have a minimum nominal diameter of twenty-four inches (24"). Grade around all risers shall be sloped to drain away from the risers. Outlet risers shall be provided for in the following locations.

- a. Traffic Rated Areas
  - 1. Risers shall be pre-cast concrete as manufactured by Jensen Pre-Cast or approved equal.
  - 2. Risers shall be installed on the septic tank with a watertight seal.
  - 3. A 6"x6" non-shrink concrete ring shall be poured around the joint between the outlet riser and the septic tank, for stabilization of the riser.
  - 4. Concrete joint sealant shall be used, Ramnek or equal, to provide a watertight seal between the tank, risers and grade rings.
- b. Non-Traffic Areas

1. Risers shall be ribbed PVC as manufactured by Orenco Systems, Inc. model RR2424 ribbed PVC riser or approved equal.
2. Risers shall be factory equipped with neoprene grommets; Two grommets, one for the splice box and one for the pump discharge, installed as shown on the drawing.
3. Install riser with Butyl tape and Orenco tank adapter FRTA24, PRTA24, or approved equal. All joints must be watertight.

### **B3.06 Lids**

One frame and lid shall be furnished with each riser. Traffic rated lids shall be 24" cast iron frame and cover with gas tight gasket. Non-traffic lids shall be Orenco Systems Model FL24GI4-4BU fiberglass with green aggregate finish, and provided neoprene gasket, stainless steel bolts and wrench or approved equal.

The riser and lid combination shall be able to support a two-thousand five-hundred pound (2,500 lb) wheel load.

### **B3.07 Installation**

All tank locations are to be a minimum of ten feet (10') from the dwelling or other structures. Tanks shall be set level and to uniform bearing on a minimum twelve inches (12") thick layer of bedding material compacted to 95 percent relative maximum density, over a firm and uniform base. Tank bedding material shall be a class 2 AB layer. Material shall be clean and free of vegetative matter, clay and other deleterious substances. Unstable or wet foundations shall be stabilized and cared for by over-excavation and backfill with select materials, or other means as required.

Backfill around the tank with Engineered Backfill material. Backfill for concrete tanks may be class 2 AB, or select native material with all rocks over three inches (3") removed and free from organic or deleterious material. Compact the backfill material to 95% of relative density from the base up to final grade or up to the bottom of the asphalt concrete support pavement section, over an area defined as being within a distance of 4 feet from the exterior walls of the vault.

The property owner shall be responsible for establishing the tank elevation. Tanks shall be placed at such depth to facilitate a minimum quarter inch ( $\frac{1}{4}$ ") per foot slope for the building sewer.

Soil cover over the top of the tank shall be a minimum of twelve inches (12") deep, with the top six inches (6") being replaced with salvaged topsoil. If the tank is located in a traffic area, then the tank shall have an H20 traffic rated lid and tank, or it shall be fenced or protected with bollards, and protected from traffic.

### **B3.08 Septic Tank Hydrostatic Testing**

The concrete septic tanks shall be tested with water for leakage. All tests shall be performed in the presence of an AWA inspector.

- a. Plug all inlets and outlets.
- b. Fill tank with water to full height, including two-inch (2") depth in lid.
- c. Allow water to stand for twenty-four (24) hours.
- d. Any loss of water or leakage in a twenty-four (24) hour period constitutes failure.
- e. Repair and retest all tanks that do not pass hydrostatic test.

## **B4. Effluent Pump and Appurtenances**

### **B4.01 High-Head Effluent Pump**

The effluent pump shall be of the submersible type capable of delivering a flow and total dynamic head (TDH) as determined for each installation, and shall be sufficient to pump effluent to the leachfield for elimination. The maximum pump shutoff head shall not exceed seventy-five percent (75%) of the working pressure of the pipe (150psi). Table 1 provides recommended pump assemblies for each wastewater system. Pump shall comply with the following:

- a. Pump shall be specifically designed and rated to pump sewage effluent into pressure wastewater collection systems.
- b. All residential effluent pumps shall be Orenco Systems pumps or approved equal.
- c. All pumps supplied must be constructed per (and bear the label of) an authorized testing authority such as Underwriter's Laboratories, Inc. (UL) or Canadian Standard Association (CSA) for effluent duty.
- d. Pumps shall have an eight-foot (8') long extra heavy-duty (SO) electrical cord with ground to motor plug.
- e. Pump shall be constructed of non-corrosive materials such as stainless steel and thermoplastic.

### **B4.02 Pump Motor**

- a. Pump motor shall be of the submersible type. Motor shall be horsepower specified: Single Phase, 115 or 230 Volts, 60 Hertz, 1750 or 3500 RPM minimum or equal.
- b. Single-phase motors shall be thermally protected with an automatic reset feature.

### **B4.03 Check Valves**

Pump discharge check valves shall be stainless steel 316 ball check valves designed for wastewater effluent pump applications and rated for one hundred fifty (150) PSI or one and a half times (1½) the working pressure of the line, whichever is greater.

#### **B4.04 Ball Valves**

Ball valves shall be stainless steel 316 ball, full port, quarter turn shut-off valves, one and a quarter inch (1.25") minimum. Valves shall be rated at one hundred fifty (150) PSI or one and a half times (1½) the working pressure of the line, whichever is greater.

Ball valves shall be located downstream of disconnect for pump removal. Ball valves shall be located where they can be easily operated from the ground surface.

#### **B4.05 Pump Vault and Screen Assembly**

- a. All pump vault and screen assemblies systems shall be Orenco Systems model PVU68-2419 or approved equal.
- b. Riser and Lids: As specified in Section 3.05 and 3.06.
- c. Screened Pump Vault: As specified in Table 1, fitted with one-eighth-inch ( $\frac{1}{8}$ ") mesh polyethylene screen and a four-inch (4") diameter PVC flow inducer for a high head pump or approved equal.

Installation shall be in accordance with these specifications and drawings and in accordance with the manufacturer's instructions.

#### **B4.06 Pump Discharge Pipe Assembly**

The rigid PVC pipe on pump and/or discharge shall be PVC Type 1, Grade 1, Schedule 80 and shall comply with ASTM D 1785. Fittings shall be PVC Type 1, Schedule 80 solvent weld fittings and comply with ASTM D 2467.

- a. Flexible discharge hoses shall be one and a quarter inch (1.25") Orenco Model HV125-HPHR or approved equal.
- b. Flex hose shall be made of Schedule 80 PVC with a rigid PVC inner helix and have a working pressure rating of two hundred fifty (250) PSI.
- c. SS316 ball valve shall be rated to two hundred fifty (250) PSI.
- d. Insert fittings and hose clamps shall not be used for discharge hose and valve assembly.
- e. Twelve inches (12") of the flex hose shall be installed outside the riser with an appropriate adapter for connection to the one and a quarter inch (1.25"), Schedule 80, sewer service lateral piping.

#### **B4.07 Pump Float Control Assembly**

The float switch assembly shall be Orenco Systems, Inc. Model MF3VX-YBRW mechanical type float switches hermetically sealed in a solid corrosion and shock resistant material or approved equal.

All float switches shall be UL and/or CSA listed and shall be rated as shown in Table 1.

A float switch support bracket shall be attached to the side of the pump vault. Switches shall not be attached to the pump discharge piping.

The float switch cables shall be terminated to a single "Quick-Connect" pin and sleeve connector for ease installation and service. "Quick-Connect" connection shall be properly sized and manufactured by Joy Cam Lock or equal.

Float assembly shall operate in a range of plus or minus six inches (6") for ON/OFF and plus or minus three-inches (3") above "pump on" for "alarm on."

The high level alarms and on/off function shall be adjusted and tested in the presence of the AWA inspector.

See standard drawings SS-5, SS-6 or SS-7 as appropriate.

#### **B4.08 Pump Control Panel**

The pump control panel shall be an Orenco System, Inc. Model S-1 or S-2 simplex pump control/alarm panel or approved equal with the following features:

- a. OFF/ON Relay: 115V, or 230V automatic, single pole.
- b. Audible Alarm: Panel mount with a minimum of 80 db sound pressure at twenty-four inches (24"). Continuous sound. Higher decibel alarm is available and should be used at remote pedestal installations or a second audible alarm should be provided at the house.
- c. Audio-Alarm Reset Relay: 115V, automatic, with DIN rail mount socket base.
- d. Toggle Switch: 15 amp minimum motor rated, single-pole, double-throw with three positions: Manual (MAN), (OFF) and automatic (AUTO).
- e. Fuse Disconnect: DIN rail mount socket base with 2 amp SLO BLOW fuse.
- f. Current-Limiting Circuit Breaker: Rated for 20 amps minimum OFF/ON switch, DIN rail mounting with thermal protection.
- g. Enclosure: NEMA-4 rated, fiberglass with stainless steel or nonmetallic hinges, stainless steel screws and padlockable latch.
- h. Alarm Circuit: Wired separately from the pump circuit so that, if the pump's internal overload switch or current-limiting circuit breaker is tripped, the alarm system remains functional.
- i. 'RO' - Redundant off relay
- j. 'ETM' - Elapsed Time Meter: 7-digit, non-resettable.
- k. 'CT' - Cycle Counter: 6-digit, non-resettable.

All wiring in the panel shall be MTW. Wiring shall be routed, bundled, and secured in a neat manner. The control enclosure shall be a fiberglass NEMA enclosure. The enclosure shall be furnished with a stainless steel hinge and padlockable latch.

The control panel and its components shall be assembled in accordance with the National Electric Code, and all state and local codes. The assembled control panel shall be constructed per (and bear the label of) Underwriter's Laboratories, Inc. (UL) or Canadian Standard Association (CSA).

All pumping systems shall be installed in accordance with the manufacturer's recommendations and the standard plans.

#### **B4.09 Pump Power Cable**

- a. Power cable motor-end terminations shall enter the submersible pump assembly by quick connect fittings that are watertight to assist in pump replacement.
- b. Cable shall be rated for NEC severe service "S."

#### **B4.10 Junction Boxes**

External Splice boxes shall be an Orenco System, Inc. model SBEX1-4 or approved equal. Splice boxes shall be external to and attached to the riser, watertight for prolonged submergence, large enough to allow multiple wiring configurations, resistant to cold and resistant to UV exposure. Splice boxes internal to the risers are not allowed.

Box shall be equipped with four (4) electrical cord grips and at least one ¾-inch outlet fitting. Cord grips shall be corrosion resistant. Water proof silicone grease shall be applied to the cords, plugs and cord grip plate to ensure a leak-proof seal. All wire connections shall use UL-listed heat shrink and butt connections. All conduits shall be sealed with EY conduit seal or equal.

### **B5. Sewer Service Lateral**

#### **B5.01 General**

Work under this section shall include furnishing all labor, materials, tools, and equipment necessary for the installation and pressure testing of the one and a quarter inch (1.25") diameter, Schedule 80, PVC sewer service lateral piping that connects the pumping septic tank and pump discharge pipe assembly to the main sewer line as shown on the plans and specified herein. 1.5" or 2" piping, adapters, reducers, valves, saddles, sleeves, etc. may be used as an alternative, with Agency Engineer approval. Contractor to supply all fittings, adapters and reducers, as needed at no additional cost. See especially SS-9.

#### **B5.02 Materials**

Lateral pipe and fittings shall be Schedule 80 PVC conforming to the requirements of Type I (PVC1120) per ASTM D 1785 and D 2467, respectively. Fittings shall be solvent weld type. Threaded PVC pipe shall not be permitted. Molded threaded adapter fittings may be used.

Service Saddles shall be tapping sleeves or saddles, shall be entirely Type 304/316 Stainless Steel, including the flange, nuts and bolts, as manufactured by Mueller, JCM, Ford, Smith-Blair, Romac or equivalent, and shall be rated at 150 psi minimum, or one and a half times (1½) the working pressure of the line, whichever is greater. In addition, Service Saddles in Pine Grove, which has 4" and 6" HDPE mains, or on HDPE mains shall only be tapping sleeves rated for

use on HDPE pipe and shall be rated at 225 psi minimum, all in accordance with manufacturers recommendations. For 2" and smaller taps on pipelines, the taps shall be spaced a minimum of 24" apart and installed 45 degrees apart. For 3" and larger taps on pipelines, the taps shall be spaced a minimum of 4' apart. No tapping sleeve or saddle shall be placed within 24" of any bell, fitting or cut end.

### **B5.03 Installation**

Trench depths shall provide a minimum cover over the pipe as shown in Figure SS-1. A minimum of thirty-six inches (36") cover is required for pipe installed on public land or within a traveled way. A minimum of twenty-four inches (24") of cover is acceptable on private property where the pipe is installed off the traveled way. In some instances, greater depths shall be required to provide continuous slope to the pipe, avoid obstructions, and utility conflicts, or comply with Title 22 regulations. When crossing water lines, the sewer service lateral shall be at a minimum of twelve inches (12") below the water line. When installed parallel to waterlines, sewer lines shall maintain a ten-foot (10') separation between the water and sewer pipe. The trench bottom shall be smooth and uniform.

The pipe shall be surrounded by, or bedded, with a minimum of six inches (6") of pipe zone backfill, as shown in Figure SS-1, which shall be approved sand or select native material free of stones, sticks or other deleterious material and having a maximum particle size of one half inch ( $\frac{1}{2}$ "). Placement shall provide a firm, smooth and uniform bottom for pipe support. Material excavated from the pipe trench that is unsuitable for backfill shall be removed and disposed of by the Installer, and suitable material imported. Jetting or puddling shall not be allowed.

Intermediate backfill shall be select native material free of stones, sticks or other deleterious material and having a maximum particle size of three inches (3") or per jurisdictional requirements. Placement shall provide a firm, smooth and uniform bottom for pipe support. Material excavated from the pipe trench that is unsuitable for backfill shall be removed and disposed of by the Installer, and suitable material imported. Jetting or puddling shall not be allowed.

When in the trench, pipe ends shall be effectively plugged and kept free from debris at all times. Pipe ends shall be open only when installation is actively undertaken. Two-inch wide detectable tape reading "CAUTION, BURIED SEWER LINE BELOW" as manufactured by CALTICO shall be buried four inches to six inches (4"-6") above the top of the pipe.

Pipe backfill shall contain proper moisture for compaction and shall be installed as described below and as shown in Figure SS-1.

- a. Class "A: Backfill: Within paved areas, backfill materials, pavement removal, disposal, and replacement, installation and compaction shall be per jurisdictional requirements (i.e. Caltrans, County, etc.).



- b. Class "B" Backfill: Within graveled areas, backfill shall be compacted native material, if suitable, otherwise imported select backfill. Replacement of surfacing shall be three fourths of an inch ( $\frac{3}{4}$ " ) minus crushed rock, compacted to ninety-five percent (95%) relative maximum density and shall be placed to a minimum compacted thickness of six inches (6") or the thickness of the removed surfacing, whichever is greater.
- c. Class "C" Backfill: Outside of traveled areas, backfill shall be native material if suitable, otherwise imported select backfill and shall be compacted to 85% relative maximum density.

#### **B5.04 Pressure Testing**

Pipe, services and laterals shall be tested with water for leakage in the presence of an AWA inspector. Test pressure shall be sixty (60) PSIG, or one and a half times ( $1\frac{1}{2}$ ) the working pressure of the line, whichever is greater. Test duration shall be one hour. Any pressure loss over the one hour period is unacceptable and must be repaired. All leaks, regardless of size, must be repaired.

**TABLE 1  
 RESIDENTIAL WASTEWATER SYSTEM PUMPING REQUIREMENTS**

<b>WASTEWATER SYSTEM BY LOCATION</b>	<b>RECOMMENDED PUMP W/CK VALVE</b>	<b>RECOMMENDED PUMP VAULT SCREEN</b>	<b>REQUIRED CONCRETE SEPTIC TANK</b>	<b>REQUIRED CONTROL PANEL</b>	<b>REQUIRED FLOATS</b>
<b>Eagles Nest</b>	OSI PF200511	Model: Orenco Model No: PVU68-2419	1,500 Gal Septic Tank PLUS 1,000 Gal Pump Tank	Type: S-1, 110 V	High Alarm AND On/Off
<b>Fairway Pines</b>	As Required	As Required	As Required	As Required	As Required
<b>Gayla Manor</b>	As Required	As Required	As Required	As Required	As Required
<b>Jackson Pines</b>	OSI PF100511	Model: Orenco Model No: PVU68-2419	2,000 Gal Septic Tank OR 1,500 Gal Septic Tank PLUS 1,000 Gal Pump Tank	Type: S-1, 110 V	High Alarm AND On/Off
<b>Pine Grove</b>	OSI PF100511	Model: Orenco Model No: PVU68-2419	1,500 Gal Septic Tank	Type: S-1, 110 V	High Alarm AND On/Off
<b>Surrey Junction</b>	As Required	As Required	As Required	As Required	As Required
<b>View Point</b>	OSI PF300712	Model: Orenco Model No: PVU68-2419	1,500 Gal Septic Tank PLUS 1,000 Gal Pump Tank	Type: S-2, 220 V	High Alarm AND On/Off
<b>Wildwood</b>	As Required	As Required	As Required	As Required	As Required

**Note:**

- ⊕ All equipment and model numbers are as manufactured by Orenco Systems Incorporated.
- ⊕ Flow controller valve shall be required for all pump systems with less than 100 feet of static head.

## **Appendix A - Material Suppliers**

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### **Effluent Sewer Equipment:**

Orenco Systems (503) 673-0165  
814 Airway Ave  
Sutherlin, OR 97479

General Wholesale Supply of Auburn (530) 823-3100  
153 Borland Ave  
Auburn, CA 95603

Senders Market (209) 754-1074  
8111 Garibaldi Street  
Mountain Ranch, CA 95246

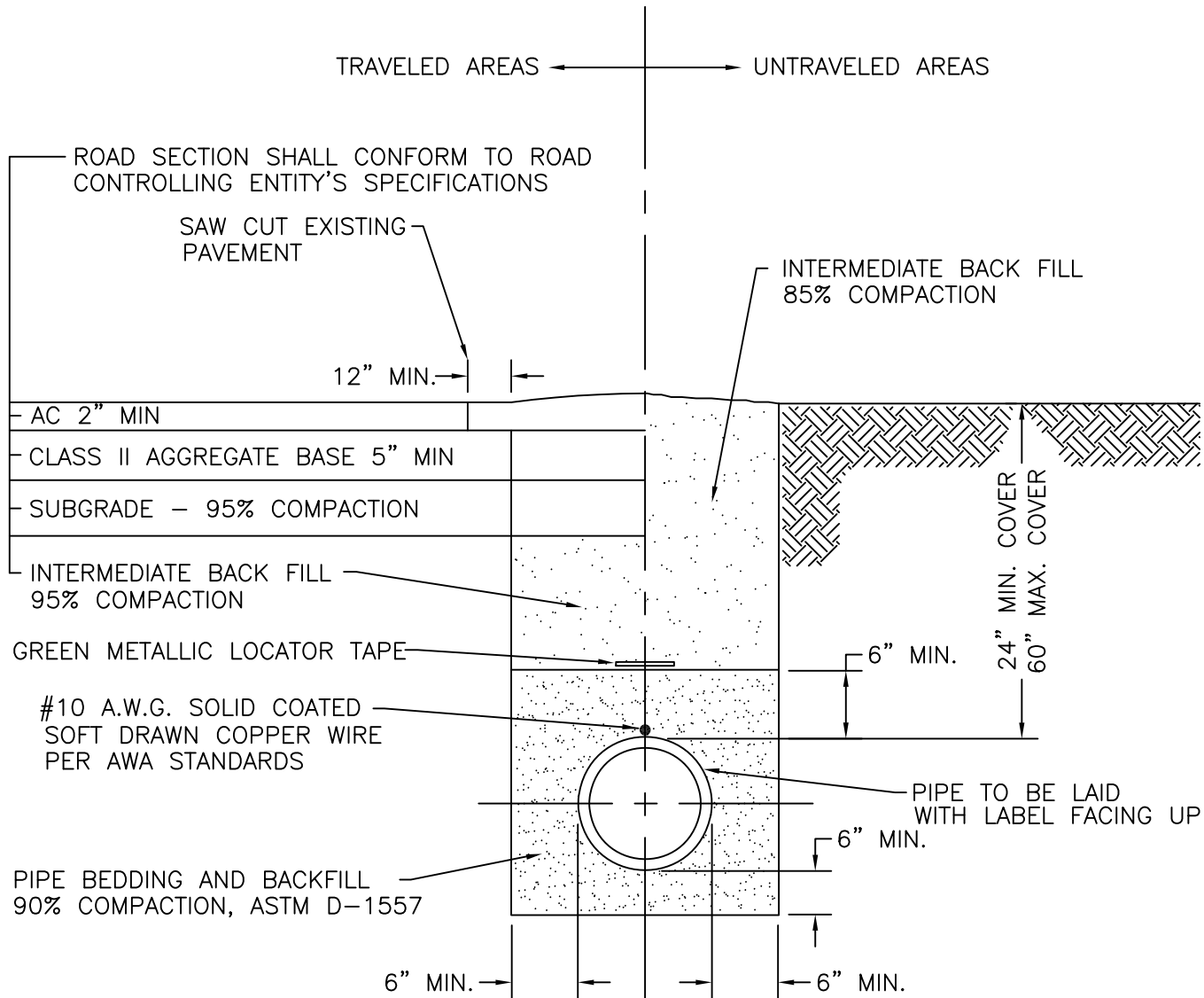
Ferguson Pipe Supply (209) 223-4545  
12690 Kennedy Flat Rd  
Jackson, CA 95642

### **Pre-cast Concrete Septic Tanks:**

Jensen Precast (209) 727-0505  
12418 Locke Rd  
Lockeford, CA 95237

Georgetown Precast (916) 333-4404  
P.O. Box 65  
2420 Georgia Slide Road  
Georgetown, CA 95634

K & K Precast (209) 754-4611  
P.O. Box 702  
806 Poole Station Road  
San Andreas, CA 95249



**NOTES:**

1. MINE TAILINGS ARE UN-ACCEPTABLE FOR ANY TRENCH BACKFILLING.
2. GREEN LOCATOR TAPE AT TOP OF SAND TO BE MARKED: CAUTION - SEWER LINE BURIED BELOW".
3. LOCATING WIRE NOT REQUIRED ON PIPE SECTIONS LINEAR BETWEEN TWO MANHOLES.

PIPE BEDDING: COMPLY WITH A.W.A. STANDARD SPECIFICATION 7.5

INTERMEDIATE BACK FILL: IMPORTED OR NATIVE MATERIAL WITH ALL ROCKS OVER 3" REMOVED AND FREE OF VEGETATIVE MATERIAL.

**TRENCH BACKFILL DETAILS**

DATE: 08/31/20	DRWN BY: BMC	FILE: A0031	FIGURE: SS-1
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**AMADOR WATER AGENCY**

12800 RIDGE ROAD, SUTTER CREEK, CA 95685

(209) 223-3018

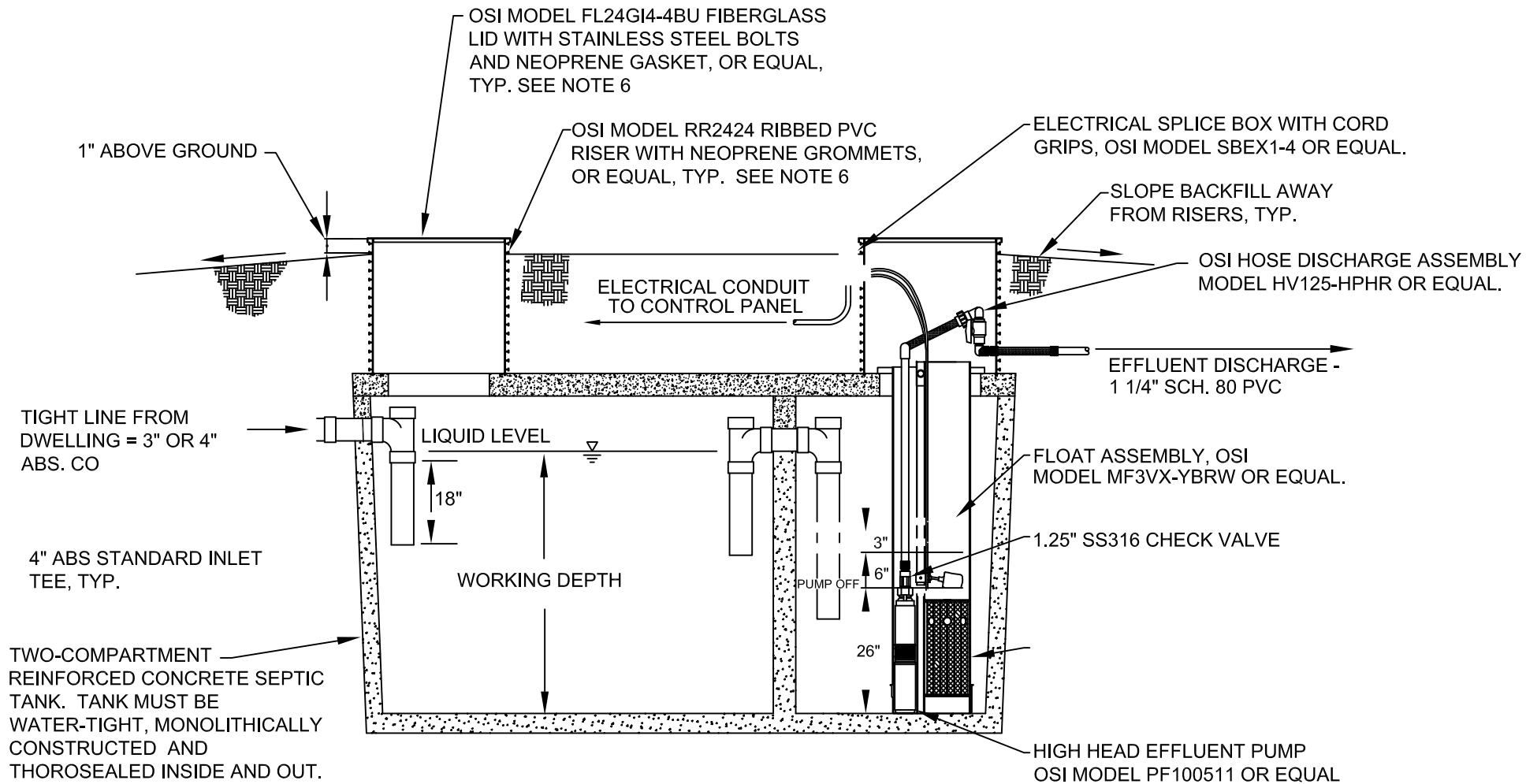


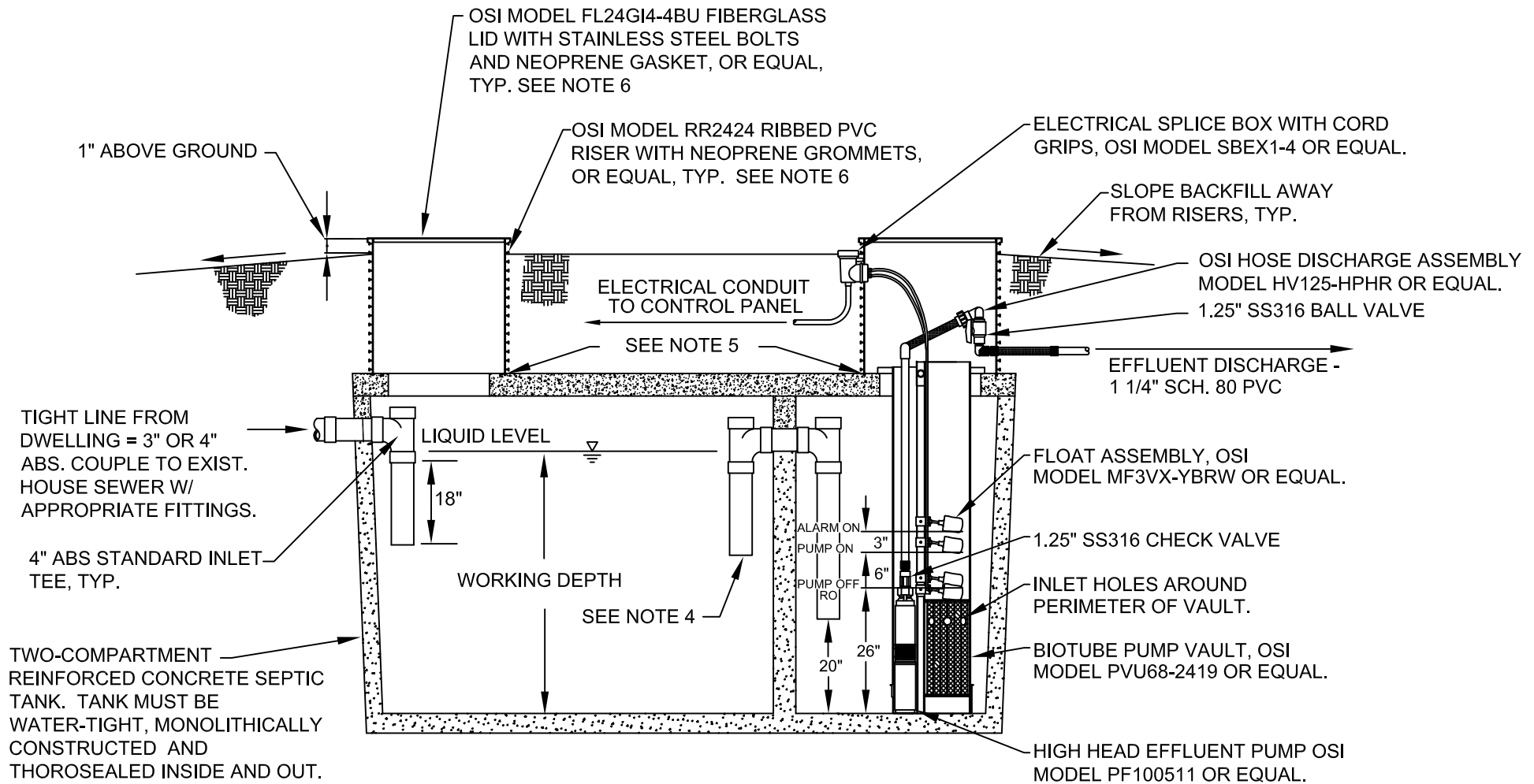












**NOTES:**

1. SHALL COMPLY WITH ALL AWA STEP AND WASTEWATER STANDARDS.
2. CONTROL PANEL TO BE OSI MODEL S1RO-ETMCT OR APPROVED EQUAL. PANEL SHALL BE VISIBLE FROM STREET/FRONT AND MOUNTED AT LEAST 48" HIGH.
2. TANK BEDDING MATERIAL SHALL BE 12" OF CLASS 2 AB COMPACTED TO 95% RELATIVE COMPACTION.
3. THE BOTTOM OF THE RISER BETWEEN THE PRIMARY AND SECONDARY SIDES OF THE TANK SHALL BE AT THE MID POINT OF THE WORKING DEPTH.
4. INSTALL RISER WITH BUTYL TAPE AND ORENCO TANK ADAPTER FRTA24, PRTA24, OR APPROVED EQUAL. ALL JOINTS MUST BE WATER TIGHT.
5. TRAFFIC LIDS AND RISERS REQUIRED FOR ALL TRAFFIC RATED AREAS. SEE FIGURE SS-11.
6. MAY SUBSTITUTE 2,000 GALLON TANK WITH 1,500 GALLON 2 CHAMBER SEPTIC TANK AND 1,000 GALLON PUMP TANK.

JACKSON PINES RESIDENTIAL ONLY

2,000 GALLON PRE-CAST CONCRETE  
SEPTIC & PUMP TANK

DATE: 2/14/23	DRWN BY: LC	FILE: A0036	FIGURE: SS-7
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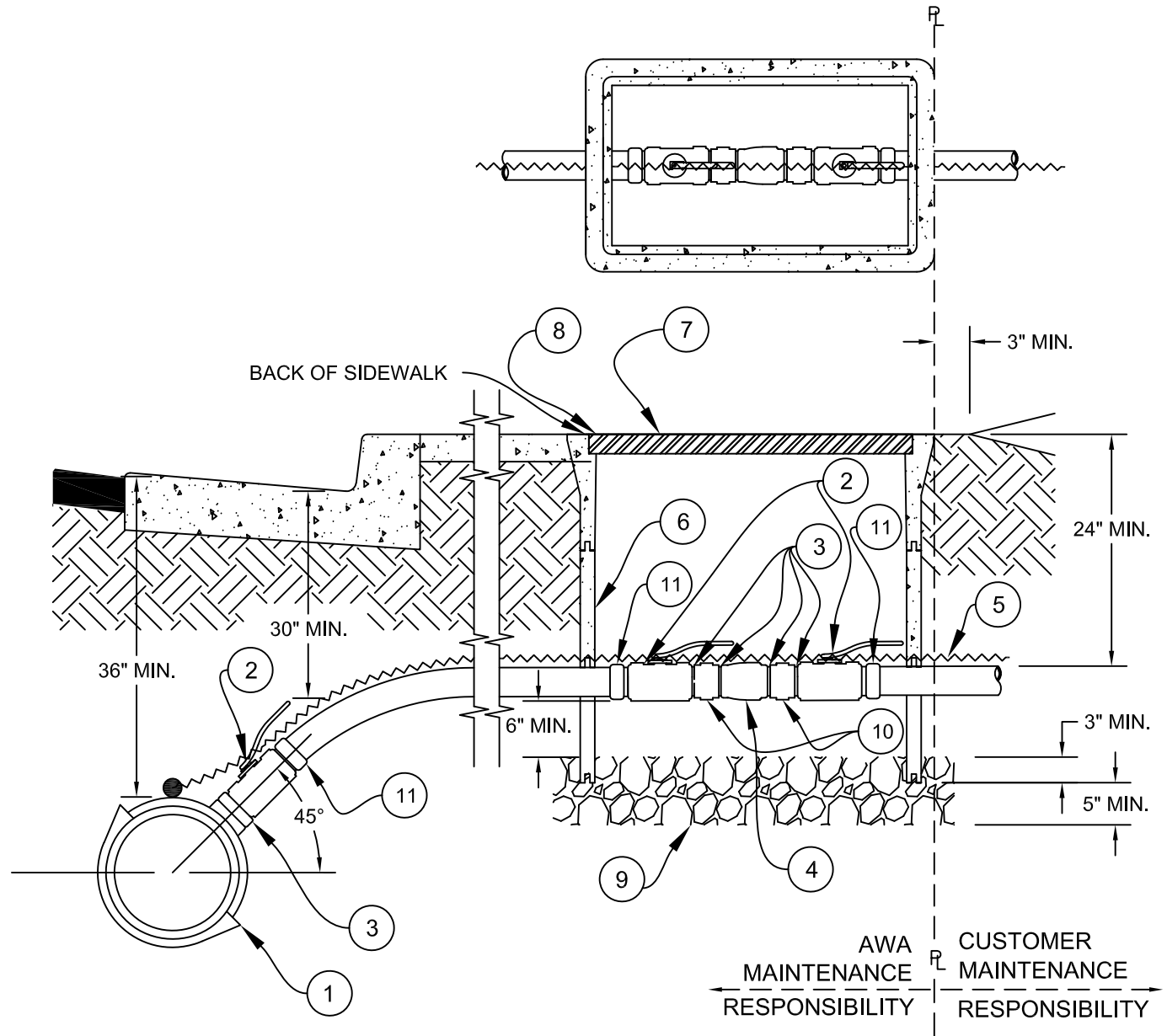
AMADOR WATER AGENCY

12800 RIDGE ROAD, SUTTER CREEK, CA 95685

(209) 223-3018

**NOTES:**

1. SERVICE LATERALS SHALL BE SCHEDULE 80 OR RATED 150 PSI OR 1.5 TIMES THE WORKING PRESSURE OF THE MAIN, WHICHEVER IS GREATER.
2. SEWER SERVICE CONNECTION SHALL BE LOCATED AT PROPERTY LINE.
3. BOXES SHALL BE POLYMER CONCRETE FIBRELYTE FL36 OR EQUAL. LID SHALL BE POLYMER CONCRETE AND MARKED "SEWER". BOXES AND LIDS IN SIDEWALKS OR AREAS WHERE VEHICLE TRAFFIC MAY OCCUR SHALL BE TRAFFIC RATED.
4. BRASS & BRONZE ARE NOT ALLOWED IN WASTEWATER APPLICATIONS. SEE STANDARDS FOR ALLOWABLE PIPING, VALVE, COMPONENT, ETC., TYPES AND MATERIALS.
5. SERVICE AND PIPE SHALL NOT BE IN DRIVEWAY, SIDEWALK, CURB, GUTTER OR AREAS WITH VEHICLE TRAFFIC.
6. DUAL SERVICES SHALL NOT BE PERMITTED.
7. LOCATION VARIANCES SHALL BE APPROVED BY AWA ENGINEER.
8. BEDDING & BACK FILL REQUIRED ALONG SERVICE LINE PER STANDARD DETAIL DWG. SS-1.
9. SLOPE BACKFILL AWAY FROM BOX. WHERE THERE IS NO SIDEWALK SET ABOVE GRADE AT PROPERTY LINE.



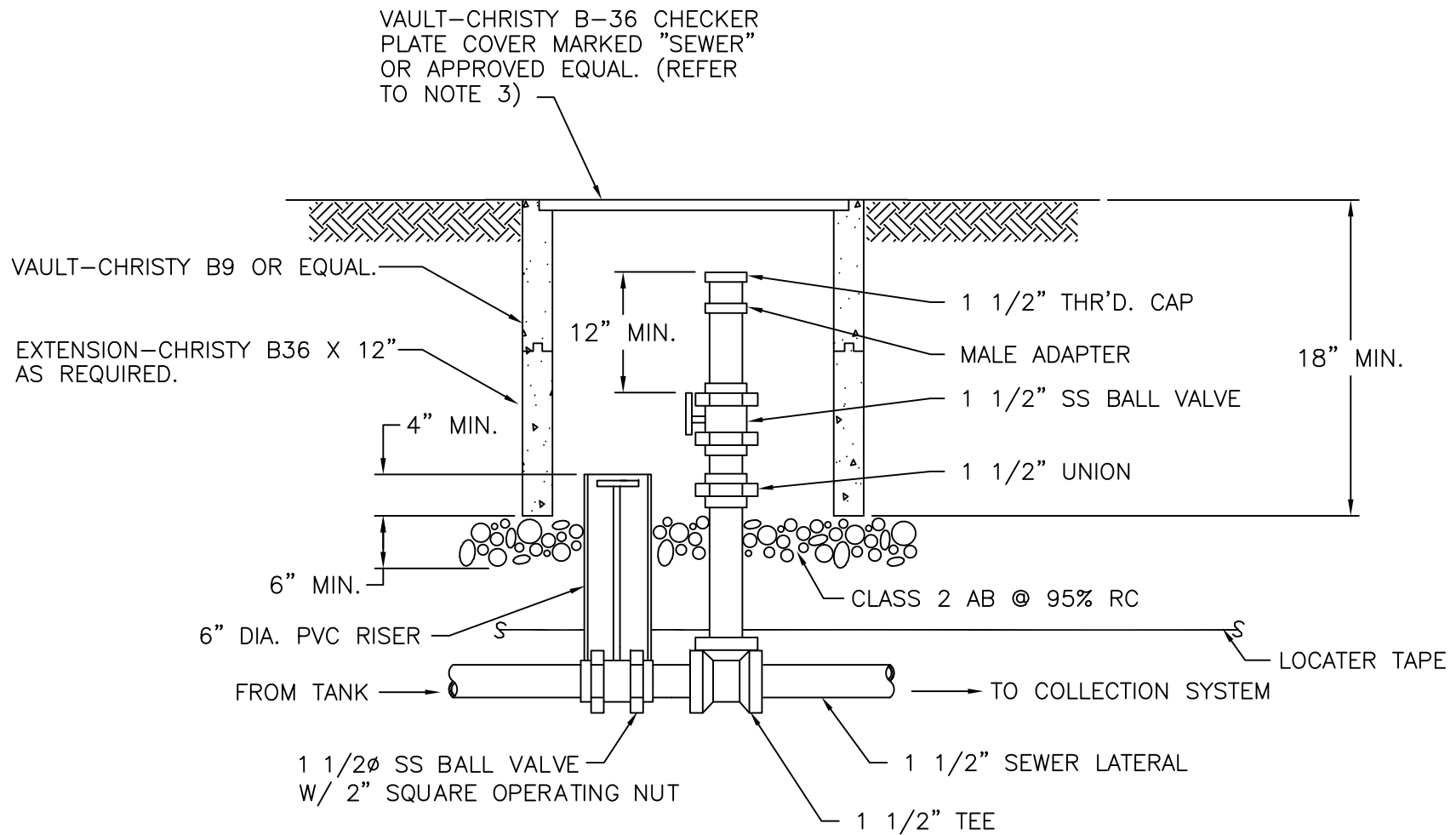
ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	SERVICE SADDLE OR TAPPING SLEEVE	7	FIBRELYTE FL36 MARKED "SEWER"
2	SS316 BALL VALVE	8	FIBRELYTE FL36 UTILITY BOX
3	SS316 CLOSE NIPPLE	9	3/4" CLASS 2 A.B. @ 95% RC.
4	SS316 BALL CHECK VALVE	10	SS316 UNION
5	LOCATOR WIRE - COATED #10 AWG COPPER WIRE SOFT DRAWN.	11	MPT SCH80 ADAPTER
6	FL36 BOX EXTENSION, AS NEEDED		

**STANDARD SEWER SERVICE CONNECTION**

DATE: 2/14/23	DRWN BY: L.C.	FILE: A0039	FIGURE: SS-9
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**AMADOR WATER AGENCY**

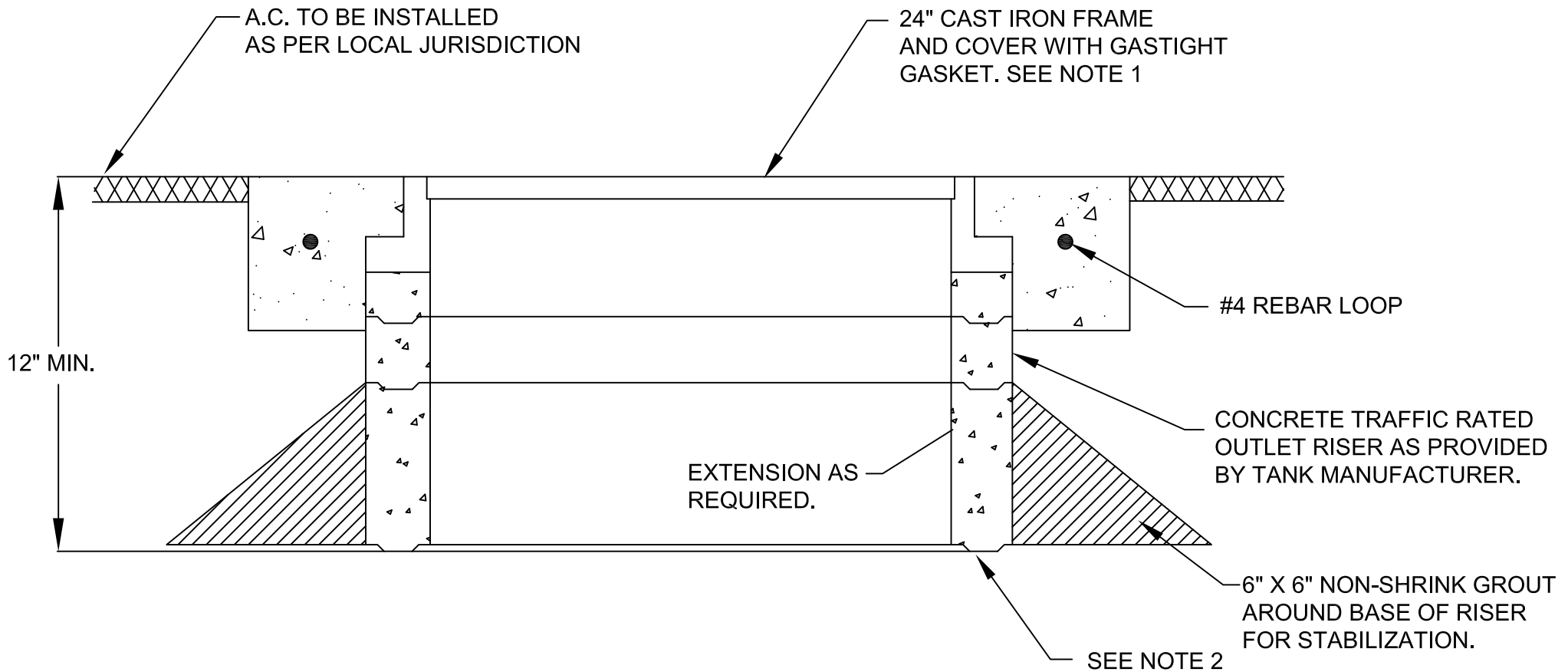
12800 RIDGE ROAD, SUTTER CREEK, CA 95685      (209) 223-3018



NOTES:

1. FLUSHING INLETS SHALL BE PLACED ON THE SEWER LATERAL EVERY 250'.
2. MATERIAL SHALL BE SCH-80 PVC PIPE W/ SOLVENT WELDED JOINTS.
3. 24"Ø RIBBED PVC RISER W/ FIBERGLASS LID, SS BOLTS AND NEOPRENE GASKET (IN UNTRAVELED AREAS).
4. BRONZE & BRASS SHALL NOT BE USED IN WASTEWATER APPLICATIONS.

FLUSHING INLET			
DATE: 2/14/23	DRWN BY: LC	FILE: A0040	FIGURE: SS-10
AMADOR WATER AGENCY			
12800 RIDGE ROAD, SUTTER CREEK, CA 95685		(209) 223-3018	



**NOTES:**

1. MANHOLE FRAME AND COVER SHALL BE PLACED AT GRADE AND LEVEL WITH EXISTING ROADWAY.
2. ASPHALTIC SEALANT SHALL BE USED, RAMNEK OR EQUAL, TO PROVIDE WATERTIGHT SEAL BETWEEN TANK AND RISER AND GRADE RINGS.
3. 12" WIDE BY 8" THICK STEEL REINFORCED CONCRETE COLLAR INSTALLED AROUND RISERS IN ALL TRAFFIC RATED AREAS.

<p>TRAFFIC RATED OUTLET RISER AND LID</p>			
DATE: 12/11/09	DRWN BY: BMC	FILE: A0041	FIGURE: SS-11
<p>AMADOR WATER AGENCY</p>			
12800 RIDGE ROAD, SUTTER CREEK, CA 95685		(209) 223-3018	