COUNTY OF SAN MATEO
DEPARTMENT OF PUBLIC WORKS

SANITARY SEWER STANDARD PROVISIONS

2026 EDITION

APPROVAL AND AUTHORIZATION

These Sanitary Sewer Standard Provisions establish uniform minimum requirements for the design, construction, modification, repair, inspection, and acceptance of sanitary sewer facilities within the jurisdiction of the County of San Mateo sewer maintenance and sanitation districts.

These provisions are approved for implementation and shall be used in conjunction with the applicable County Sanitary Sewer Standard Details, approved project plans, permit conditions, and other applicable requirements.

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SS-1 GENERAL REQUIREMENTS

SS-1.01 Scope

These Standard Provisions apply to furnishing, installation, modification, repair, replacement, rehabilitation, abandonment, testing, inspection, and acceptance of sanitary sewer mains, laterals, cleanouts, manholes, flushing inlets, connections, and appurtenances that connect to or may affect a sanitary sewer facility operated or maintained by a County sewer maintenance or sanitation district (District).

Work shall conform to the approved plans, these Standard Provisions, current County Sanitary Sewer Standard Details, applicable permit conditions, and written project-specific requirements issued by the District.

Notifications of residents and affected parties shall be in accordance with permit requirements determined by the governing agency or jurisdiction. District requires minimum of two (2) working days' notice for work under Sewer Inspection Permits.

SS-1.02 Authority and Approval

No person shall open, modify, connect to, discharge to, or perform work affecting a District sewer except as authorized by the Director of Public Works or authorized representative and in accordance with District requirements. Plan approval does not authorize construction until all required permits have been obtained.

SS-1.03 Order of Precedence

If a conflict is identified among approved project documents, the applicant or contractor shall stop the affected work and request written clarification from the District. Approved project-specific requirements and approved plan revisions govern when expressly identified. No deviation from an adopted County Standard Detail or these Standard Provisions is permitted without written approval.

SS-1.04 Definitions

District. The applicable County sewer maintenance or sanitation district.

District representative. The authorized District representative or inspector reviewing the applicable work.

Department. County of San Mateo Department of Public Works.

Engineer. The District Engineer or authorized representative responsible for the applicable work.

Sewer Main. A sanitary sewer pipeline operated or maintained by the District that receives flow from laterals or other sewer mains.

Sewer Lateral. The sanitary sewer pipe and appurtenances connecting private property plumbing to a District sewer main. The entire sewer lateral is the responsibility of the property owner per Ordinance 4.24.130.

Building Sewer / Upper Lateral. The private sewer upstream of the property/easement line cleanout.

Lower Lateral. The portion of the sewer lateral between the property/easement line cleanout and the District main or manhole. Where available, the District may provide limited maintenance assistance through an accessible District-standard cleanout. Such assistance is discretionary and does not transfer ownership or responsibility to the District.

Property/Easement Line Cleanout. The District-standard access point at or near the property or easement line, as approved by the District.

SIP. Sewer Inspection Permit issued by the District.

SS-1.05 Approved Plans and Changes

A complete set of approved plans and applicable permits shall be available at the job site while sewer work is in progress. Field changes affecting alignment, grade, material, size, connection location, cleanout or manhole location, utility clearance, easements, construction method, or other approved sewer features require prior District approval.

SS-1.06 Contractor Responsibility

The contractor is responsible for verifying field conditions, locating and protecting existing utilities and sewer facilities, maintaining sanitary sewer service, complying with applicable safety requirements, and constructing the work to the approved lines, grades, materials, details, and methods.

SS-1.07 Existing Conditions

Locations and elevations shown on plans or County records are approximate unless specifically identified as surveyed. Unknown facilities, differing elevations, damaged facilities, or conflicts shall be reported before affected work proceeds. Potholing or other verification shall be performed where necessary to establish constructability.

SS-1.08 Maintenance of Sewer Service

Sanitary sewer flows shall be maintained at all times during construction. Existing facilities required for emergency maintenance shall remain accessible. Temporary interruption of service is permitted only when specifically approved and coordinated with the District and affected users.

SS-1.09 Other Permits and Requirements

District approval is limited to sanitary sewer facilities within District jurisdiction. The applicant is responsible for obtaining all other required plumbing, building, encroachment, environmental, railroad, utility, or other agency permits and approvals.

SS-1.10 Standard Details and Substitutions

County Sanitary Sewer Standard Details are incorporated by reference. Materials or methods not specifically permitted shall not be used without prior written approval. Substitution requests shall include sufficient technical information to establish equivalency, compatibility, service life, maintainability, and suitability.

SS-2 MATERIALS

SS-2.01 General

Materials shall be new, free of defects, suitable for sanitary sewer service, and of the size, class, type, and manufacturer shown on the approved plans or accepted by the District. Materials shall be stored and handled to prevent contamination, distortion, cracking, ultraviolet degradation, gouging, or other damage.

SS-2.02 PVC Gravity Sewer Pipe

For County sewer-main construction, PVC pipe conforming to ASTM D3034, SDR 26, with bell-and-spigot elastomeric gasket joints conforming to ASTM F477 shall be used. Solvent-welded joints and band-type compression couplings are not permitted for new construction.

SS-2.03 PVC C900

PVC C900 may be required where minimum cover cannot be maintained or where loading/site conditions warrant higher-strength pipe. Pipe shall conform to the applicable AWWA standard and pressure class shown on approved plans.

SS-2.04 Ductile Iron Pipe

No new construction shall specify and install ductile iron pipe. For repairs to existing pipe, Class 50 ductile iron pipe shall be cement-lined, meeting ANSI/AWWA C151/A21.51 and C104/A21.4 requirements, using Class 250 fittings under A21.10, and using mechanical or rubber-gasket joints under A21.11 or equivalent. Buried transition couplings are specified as extra-heavy with stainless steel bolts and nuts and protective coating.

SS-2.05 Vitrified Clay Pipe

No new construction shall specify and install vitrified clay pipe. Where VCP is approved, extra-strength unglazed bell-and-spigot pipe conforming to ASTM C700 shall be used with flexible compression-type gasket joints made of plasticized polyvinyl or polyurethane conforming to ASTM C425 and band-seal transition couplings with an exterior stainless-steel shear ring.

SS-2.06 HDPE

HDPE may be used for approved trenchless installations. HDPE sewer pipe material shall comply with PE 4710. ASTM F714 pipe manufactured from material meeting ASTM D3350, DR 17 shall be used for the referenced sewer-main application with butt fusion in accordance with ASTM D2657 and manufacturer procedures and electrofusion for approved field closures.

SS-2.07 Fittings, Couplings and Gaskets

Fittings and gaskets shall be compatible with the pipe material and intended service. Manufactured fittings shall be used for permanent construction. Flexible transition couplings shall be shielded or otherwise specifically approved for the location and loading. Unapproved rubber-sleeve or band-type compression couplings shall not be used.

SS-2.08 Manhole Materials

Precast manhole sections, bases, frames, covers, mortar, grout, concrete, flexible connectors, water stops, and protective coatings shall conform to County Standard Details and approved project requirements. Precast sections and product submittals shall be approved before construction. Manhole covers shall be labeled in accordance with County requirements.

SS-2.09 Concrete, Mortar, Grout and Slurry

Concrete, mortar, non-shrink grout, and cementitious slurry used in sewer construction shall be suitable for the intended application. Materials placed in or adjacent to an active sewer shall be controlled so that no concrete, grout, slurry, or debris enters or obstructs the sewer.

SS-2.10 Certifications

When requested, manufacturer data, certifications, product markings, fusion qualifications, or affidavits of compliance shall be submitted before installation.

SS-3 SEWER LATERALS

SS-3.01 General

Laterals shall be installed at the locations, sizes, slopes, elevations, and connection points shown on approved plans.

SS-3.02 Number and Configuration

Unless otherwise approved, each legal parcel or residence shall be served by one sewer lateral connection. Multiple buildings on one parcel shall connect on private property in a configuration approved by the District. Accessory dwelling units or secondary units sharing a connection shall connect upstream of the property/easement line cleanout unless otherwise approved.

SS-3.03 Minimum Size

Minimum lateral size shall be four inches (4 in.) for typical residential service, six inches (6 in.) for residential service with three or more equivalent residential units (ERUs), and six inches (6 in.) for non-residential service unless special approval is obtained or a larger size is required by design calculations, plumbing requirements, or District direction.

SS-3.04 Slope

Gravity laterals shall have a minimum slope of two percent (2.0%) unless a different slope is specifically approved. Pipe shall be on uniform grade without unintended sags, reverse slope, or grade breaks.

SS-3.05 Cover and Loading

A minimum three feet (3 ft) of cover shall be maintained where a lateral is subject to roadway or vehicle loading unless otherwise approved. If three feet of cover cannot be maintained, PVC C900 or another specifically approved higher-strength pipe shall be used.

SS-3.06 Alignment and Access

Laterals shall be laid on straight horizontal and vertical alignment between approved fittings and access points to the extent practicable. Changes in alignment shall use approved fittings and shall not impair cleaning, CCTV inspection, or maintenance.

SS-3.07 Outdoor Fixtures and Stormwater

Uncovered outdoor fixtures that can receive stormwater shall not discharge to sanitary sewer. Outdoor fixtures proposed to discharge to sanitary sewer shall be covered with a permanent covering or otherwise protected from stormwater inflow and comply with applicable plumbing and District requirements.

SS-3.08 Pool Water

Pools shall not be permanently connected to sanitary sewer. Pool water shall not be discharged to the sanitary sewer without prior District approval. A Temporary Discharge Permit, discharge scheduling, flow controls, and applicable fees may be required.

SS-3.09 Owner Responsibility

The property owner is responsible for ownership, maintenance, repair, replacement, and serviceability of the sewer lateral and connection as provided by County Code. District courtesy service, where available for the lower lateral through a standard cleanout, does not transfer ownership or legal responsibility.

SS-3.10 Lateral Repair

Damage to existing laterals not part of the project scope shall be repaired at contractor’s expense. The broken portion of the existing lateral shall be cleanly saw-cut at both ends and removed before repairing the sewer lateral. Repaired sewer laterals shall be of the same material and diameter as existing. Pipe shall be carefully cleaned of all dirt and debris prior to installation. Couplings shall be bandseal type sewer repair couplings with outside stainless steel shear ring.

SS-3.11 Lateral Connection Repair

Damage to existing lateral connections not part of the project scope shall be repaired at contractor's expense. New sewer lateral wye shall replace existing damaged wye. Repaired sewer laterals shall be of the same material and diameter as existing. Pipe shall be carefully cleaned of all dirt and debris prior to installation. Couplings shall be bandseal type sewer repair couplings with outside stainless steel shear ring.

SS-4 PROPERTY/EASEMENT LINE CLEANOUTS

SS-4.01 Required Cleanout

A District-standard cleanout shall be installed at or near the property/easement line for each lateral unless another configuration is approved.

SS-4.02 Accessibility

The cleanout shall be readily accessible to District maintenance equipment and outside buildings, locked enclosures, or permanent improvements that prevent reasonable access.

SS-4.03 Clearance from Structures

A minimum six-foot (6 ft) horizontal clearance shall be maintained between the cleanout and a permanent structure behind the cleanout unless otherwise approved.

SS-4.04 Size and Configuration

The cleanout shall be the same nominal size as the lateral and not less than four inches (4 in.) for residential service or six inches (6 in.) for non-residential service. Fittings, access angle, frame/box, cover, cap, riser, and surface treatment shall conform to the applicable County Standard Detail and permit effective cleaning and CCTV access toward the main.

SS-4.05 Finished Grade

Cleanout boxes and covers shall be set to finished grade, protected for anticipated loading, and constructed so surface drainage cannot enter the sanitary sewer.

SS-4.06 Backflow or Overflow Protection

Where required by County Code or approved plans, an overflow or backflow protection device shall be installed immediately upstream of the property/easement line cleanout and maintained by the property owner.

SS-5 CONNECTIONS TO EXISTING SEWER MAINS AND MANHOLES

SS-5.01 General

Connections shall be made only at approved locations and by approved methods and shall be inspected before concealment.

SS-5.02 Main Connections

Connections to existing mains shall use an approved wye, saddle, heat-fused saddle for approved HDPE applications, or other District-approved connection. Connections shall be watertight, structurally sound, flush with the pipe interior, and oriented to promote flow.

SS-5.03 Manhole Connections

Where connection to an existing manhole is approved, the opening shall be core drilled or otherwise neatly cut to the approved size. The pipe shall be sealed with approved grout/mortar and a flexible connector, manhole adapter, or water stop as applicable. The interior shall be neatly finished and the channel/bench restored to provide a smooth hydraulic transition.

SS-5.04 PVC/DIP/HDPE Water Stops

PVC entering or leaving a manhole shall use a manufacturer-approved water-stop gasket where required. HDPE shall use a manufacturer-supplied manhole adapter or water stop. Precast-base connections may use approved elastomeric gasket systems; poured-in-place connections shall use approved adapters or water stops.

SS-5.05 Special Main Connections

Connections to large-diameter, lined, rehabilitated, pressure-sensitive, or otherwise special sewer mains require a project-specific connection detail and written approval before cutting or penetration.

SS-5.06 Service Continuity and Debris Control

Sewer service shall be maintained at all times. Debris, cut pipe, mortar, grout, soil, or other material shall not enter the active sewer. If construction debris enters the system, the applicant may be required to clean and CCTV downstream facilities at the applicant's expense.

SS-6 EXISTING SEWER LATERALS AND REUSE

SS-6.01 Approval for Reuse

Reuse of an existing lower lateral is subject to District approval based on records, age, material, CCTV, field condition, connection condition, alignment, and compliance with current requirements.

SS-6.02 CCTV

When reuse is proposed, CCTV of the lateral from the property/easement line cleanout to the District main/manhole, including the connection, shall be submitted with the sewer plan when required by the District.

SS-6.03 Acceptable Condition

The lateral shall be free of significant cracks, fractures, roots, offsets, open joints, infiltration, obstructions, sags, deformation, illicit connections, or other defects that make it unsuitable for continued service.

SS-6.04 Repair or Replacement

Unacceptable laterals or connections shall be repaired or replaced at the property owner's expense. The limits of repair shall correct all defects identified by the District.

SS-6.05 Same-Location Replacement

Where replacement occurs substantially at the existing alignment and connection, the District may waive selected survey information if field conditions can be adequately verified. All material, size, slope, cleanout, inspection, and construction requirements still apply.

SS-6.06 Relocated Lateral

A relocated lateral or connection shall be supported by verified horizontal and vertical sewer information sufficient to demonstrate slope, cover, clearances, and constructability. Survey information shall be prepared by an appropriately licensed professional when required. Recorded legal documentation shall be provided to the District to verify easement locations when a lateral is proposed in an easement or on neighboring private property.

SS-7 ABANDONMENT AND REMOVAL OF EXISTING SEWER FACILITIES

SS-7.01 General

Facilities no longer in service shall be abandoned or removed in an approved manner that prevents infiltration, root intrusion, debris entry, structural weakness, and unintended future connection.

SS-7.02 Abandoned Lateral Connection

When an existing lateral connection is abandoned and a new connection is installed elsewhere, the existing wye, saddle, or connection shall be removed or eliminated as directed, and the District main restored.

SS-7.03 Lateral Plug

The abandoned lateral immediately upstream of the former connection shall be securely plugged with cement slurry or another approved material for a minimum length of twelve inches (12 in.), unless an adopted Standard Detail requires otherwise.

SS-7.04 Closely Spaced Connections

Where a new connection is five feet (5 ft) or less from an existing connection being abandoned, the District requires replacement of the entire main segment between the connection points rather than two localized repairs.

SS-7.05 Abandoned Sewer Main

Where a sewer main is approved for abandonment in place, completely fill the abandoned pipe with two-sack concrete slurry and securely close the ends with tight-fitting plugs and concrete. Project-specific abandonment details shall identify the required material, limits, and restoration.

SS-7.06 Abandoned Manhole

An abandoned manhole shall be removed or abandoned as shown on approved plans. Openings shall be sealed, the structure filled with approved structural backfill or other approved material, compacted as required, and the surface restored.

SS-7.07 Demolition

Before building demolition, the lateral shall be capped or abandoned at the location required by the SIP and inspected before concealment.

SS-7.08 Verification

Repairs to a District main or manhole associated with abandonment may require post-construction CCTV or testing.

SS-8 EXCAVATION, BEDDING AND BACKFILL

SS-8.01 General

Excavation, trench safety, shoring, bedding, pipe-zone material, backfill, compaction, dewatering, and restoration shall protect workers, utilities, adjacent improvements, and the sewer installation and shall comply with applicable safety and right-of-way requirements.

SS-8.02 Trench Safety

Excavation and shoring shall comply with applicable California Labor Code, Cal/OSHA, and construction safety requirements. The contractor is solely responsible for excavation safety means and methods. Sewer pipes shall not be used as supports for trench bracing.

SS-8.03 Foundation

Rocky, soft, yielding, saturated, spongy, or otherwise unsuitable trench foundation material shall be removed or stabilized. Replacement material shall provide a firm and satisfactory foundation.

SS-8.04 Bedding

A minimum four inches (4 in.) of bedding below the pipe barrel unless otherwise indicated. Bedding shall be placed on a firm foundation, shaped around the barrel, and provide uniform support; bell holes shall be provided as needed.

SS-8.05 Initial Backfill / Pipe Zone

After pipe installation and required inspection, bedding and pipe-zone material shall be placed to at least twelve inches (12 in.) above the top of the pipe, unless otherwise shown on the approved plans or Standard Details. Bedding and pipe-zone material shall be drain rock. Material shall be placed in controlled lifts and compacted in a manner that provides uniform support and does not displace, deform, or damage the pipe.

Backfill material, lift thickness, and compaction requirements shall comply with the requirements of the agency having jurisdiction, the applicable encroachment permit, and the approved project requirements.

SS-8.06 Subsequent Backfill

Backfill above the pipe zone shall be placed and compacted in accordance with the requirements of the agency having jurisdiction, the applicable encroachment permit, and the approved project requirements.

Backfill shall be placed in controlled lifts suitable for achieving the required compaction without damaging or displacing the sewer installation. Jetting or flooding shall not be permitted unless specifically approved by the agency having jurisdiction.

SS-8.07 Compaction Testing

Testing shall be performed in accordance with the requirements of the agency having jurisdiction, the applicable encroachment permit, and the approved project requirements.

The Contractor shall provide required advance notice to the applicable inspecting agency when compacted material is ready for testing and shall submit compaction test reports prepared by the independent testing firm as required.

Failed areas shall be recompacted and retested at the Contractor's expense until the applicable requirements are satisfied.

Sewer District inspection is generally limited to sanitary sewer facilities and does not constitute inspection or acceptance of trench backfill, compaction, pavement restoration, or other right-of-way improvements. Such work is subject to inspection and acceptance by the agency having jurisdiction. The County may perform or require supplemental compaction testing when necessary to verify compliance.

SS-8.08 Dewatering

Excavations shall be kept sufficiently free of groundwater, stormwater, and sewage to permit proper installation and inspection, maintain a stable trench foundation, and prevent pipe flotation or displacement.

Dewatering operations shall not cause settlement, erosion, damage to adjacent improvements or utilities, sediment discharge, or unauthorized discharge to the sanitary sewer or storm drainage system. Dewatering and discharge activities shall comply with applicable permit requirements and the requirements of the agency having jurisdiction.

SS-8.09 Surface Restoration

Pavement, sidewalks, curbs, landscaping, and other improvements disturbed by sewer construction shall be restored in accordance with the requirements of the agency having jurisdiction, the applicable encroachment permit, and the approved project requirements.

Sewer District inspection or approval does not constitute acceptance of pavement restoration, trench backfill, compaction, or other right-of-way improvements. Acceptance of such work is subject to the requirements of the agency having jurisdiction.

SS-9 SEWER PIPE INSTALLATION

SS-9.01 Handling and Preparation

Pipe, fittings, bells, spigots, gaskets, linings, and coatings shall be protected from damage. Interiors and joint surfaces shall be clean before installation. Damaged material shall not be installed.

SS-9.02 Laying Pipe

Gravity sewer pipe shall be laid to approved line and grade, generally from downstream to upstream with bells oriented upstream unless the approved pipe system requires otherwise. Pipe shall be uniformly supported along the barrel.

SS-9.03 Line and Grade

Installed pipe shall not contain reverse grade, unintended sags, excessive joint deflection, horizontal misalignment, or uneven interior joints. Unacceptable conditions shall be corrected.

SS-9.04 Jointing

Joints shall be assembled in accordance with manufacturer instructions and applicable material requirements. Spigots shall not be over-inserted. Solvent joints are not permitted for PVC gravity sewer where County requires gasketed bell-and-spigot joints.

SS-9.05 Open Ends and Cleaning

Open pipe ends shall be securely plugged whenever work is not active. Water shall not be intentionally routed through newly installed pipe before approval. Completed pipe shall be cleaned of earth, stones, construction debris, and other foreign material.

SS-9.06 Construction Loading

Construction equipment shall not operate over newly installed sewer pipe until adequate cover and compaction are provided for the pipe and loading condition.

SS-9.07 Connections and Damage

The contractor shall verify connection elevations before construction and shall repair damage to existing sewer facilities caused by its operations at its own expense.

SS-10 TRENCHLESS INSTALLATION

SS-10.01 Approval and Work Plan

Pipe bursting, horizontal directional drilling, boring, jacking, or other trenchless methods shall be used only when shown on approved plans or specifically approved. A detailed work plan may be required showing equipment, sequence, access pits, shoring, alignment/grade control, utility verification, bypassing, pipe joining, and correction of misalignment.

SS-10.02 Pipe Bursting

Pipe bursting shall maintain the approved alignment and shall not damage adjacent utilities or structures. Existing laterals shall be located and reconnected. Where field conditions prevent acceptable pipe bursting, an approved alternative method shall be used.

SS-10.03 Lateral Pipe-Bursting Evaluation

Before pipe bursting an existing private lateral, CCTV shall demonstrate suitability. Significant sags, severe offsets, collapsed sections, incompatible fittings, or other conditions preventing acceptable installation require correction or another approved method.

SS-10.04 HDPE Fusion

HDPE joints shall be butt fused in accordance with manufacturer requirements and applicable ASTM requirements, producing continuous leak-resistant joints with strength not less than the adjacent pipe. Fusion shall be performed by qualified personnel using suitable equipment. Electrofusion may be used for approved field closures.

SS-10.05 HDPE Insertion

HDPE shall be supported during insertion and shall not be dragged in a manner that damages the pipe. Pulling forces, bend radius, and insertion methods shall remain within manufacturer limits. The completed pipe shall not be buckled, crushed, twisted, excessively scored, or otherwise damaged.

SS-10.06 Directional Drilling

Directional drilling shall maintain required sewer slope and utility clearances. The contractor shall provide grade/alignment control and a method for correcting misalignment. Drilling fluid shall be contained and shall not enter the sanitary sewer, storm drainage system, waterway, or other utility.

SS-10.07 Access Pits

Access pits shall be located to minimize disruption, provide safe worker access, protect utilities, and avoid pipe damage. Excavations shall be shored, dewatered, backfilled, compacted, and restored in accordance with applicable trench requirements.

SS-10.08 Post-Installation CCTV

Completed trenchless installations shall be CCTV inspected. The completed sewer shall be free of damage, deformation, sags, obstructions, unacceptable joints, or other defects.

SS-11 SEWER MANHOLES

SS-11.01 Manhole Safety

Compliance with all applicable occupational safety and health (OSHA) standards, rules, regulations and orders established by Federal and State Agencies for construction is required.

SS-11.02 Adjust Manhole to Grade

Adjustment of sewer manholes shall be accomplished by removing the existing frame, cover, and concrete encasement, and adding up to three grade rings as necessary when possible to raise the manhole to the adjacent final pavement grade, pouring a new concrete encasement with reinforcing steel, resetting the existing frame and cover, and placing asphalt concrete as necessary. Total height of frame and grade rings shall be a maximum of 18-inches. Adjustment of sewer manholes shall be inspected and approved by the District representative. If there are an insufficient number of grade rings to lower the manhole to design grade, the manhole shall be reconstructed. The manhole base shall be covered during construction to prevent debris from entering the sewer system. Sewer service shall be maintained at all times.

SS-11.03 Rehabilitate or Reconstruct Manhole

For manhole rehabilitation, sewer manhole channels shall be modified and repaired to provide for a smooth transition of flows. Cracks greater than one-eighth of an inch (1/8-inch) on the inside of existing sanitary sewer manholes shall be sealed by chipping out a minimum depth and width of three-quarters of an inch (¾-inch). Pipe connections to existing sewer manholes shall be completely watertight and conform to requirements for new sewer manholes. Loose bricks or pieces thereof, mortar, or concrete shall be removed, and all voids and joints shall be filled with mixed and kneaded manhole patching compound such as product produced by Tremcrete Systems, Inc., or approved equal. Waterproof, non-shrink grout shall be applied in accordance with manufacturer's recommendations and shall adequately bond to the existing manhole surfacing. Epoxy liner shall be applied and shall be trowelable 100% solids, three-component system of epoxy resins and filler, initial cure time of four (4) hours.

For sewer manhole reconstruction, Class 2 concrete shall be used, and pipe openings shall be built into the manhole with outer ends of openings be sealed with a pre-cast concrete plug made watertight with mastic compound or elastomeric gasket. All PVC or HDPE pipes shall be connected to reconstructed manhole with manhole adapter rings per pipe manufacturer's recommendations. Existing foundations shall remain in place and channel modified and repaired to provide smooth transition of flows.

SS-11.04 Remove and Replace Manhole

Class 2 concrete shall be used, and pipe openings shall be built into the manhole with outer ends of openings be sealed with a pre-cast concrete plug made watertight with mastic compound or elastomeric gasket. All PVC or HDPE pipes shall be connected to reconstructed manhole with manhole adapter rings per pipe manufacturer's recommendations. Foundations shall be poured against a firm and dry base such that the pipe is continuous through the manhole. The top half of the pipe shall then be cut out and the face of the manhole mortared to provide a smooth, uniform manhole wall. Manhole covers shall be labeled in per District Standard Details and steel bar for steps, if necessary, shall be fabricated from steel conforming to ASTM A36 or A575, Grade 1020.

SS-11.05 Manhole Frame and Cover

Frame and cover shall be Phoenix Iron Works P-1090 or approved equal.

SS-12 UTILITY CROSSINGS, CLEARANCES AND EASEMENTS

SS-12.01 General

Sewer facilities shall be located to permit safe construction, inspection, maintenance, repair, and replacement and to minimize conflicts with existing and proposed utilities.

SS-12.02 Utility Crossings

Private utility lines crossing District sewer mains shall maintain a minimum twelve-inch (12 in.) vertical clearance unless a greater separation is required. Plans shall show crossing locations and profiles, and actual elevations shall be verified where necessary.

SS-12.03 Parallel Utilities

Private utilities should not run parallel within sanitary sewer easements. Where proposed work is within or adjacent to an easement, alternatives outside the easement shall be evaluated.

SS-12.04 Horizontal Separation

A minimum horizontal separation of five feet (5 ft), measured edge-to-edge, shall be maintained between District sewer facilities and other utilities, unless otherwise approved by the District.

A minimum horizontal separation of ten feet (10 ft), measured edge-to-edge, shall be maintained between sanitary sewer and storm drain facilities.

Where the required separation cannot be maintained, the proposed configuration shall be submitted to the District for review and approval. The District may require additional protection, relocation, or other mitigation based on site conditions, accessibility, and the ability to maintain, repair, or replace the sewer facility.

SS-12.05 Water and Sewer Separation

Separation between sanitary sewer and potable water facilities shall comply with applicable State requirements and water-purveyor requirements. Nonstandard crossings or separations require a specific approved design.

SS-12.06 Easement Access

Permanent structures, retaining walls, enclosed parking, or other improvements shall not be placed where they prevent District access, maintenance, repair, or replacement. Fences crossing an easement shall include gates sized to preserve required access. Improvements within an easement may be removed for sewer work at the owner's expense.

SS-12.07 Landscaping

Trees and deep-rooted landscaping should be located away from sewer facilities. The District is not responsible for replacement of landscaping removed to access or repair District facilities.

SS-13 SEWER MAIN EXTENSIONS

SS-13.01 General

Main extensions require District approval, required permits, and compliance with these Standard Provisions, Standard Details, project-specific design criteria, and applicable County Code.

SS-13.02 Design Submittal

Plans shall show pipe size, material, length, slope, invert elevations, manhole rim/invert elevations, utility crossings and clearances, construction method, easements/right-of-way, service connections, and other information required by the District.

SS-13.03 Hydraulic Capacity

Where development causes a significant increase in sewage flow, the District may require evaluation of downstream capacity before approval. Projects that increase by ten (10) ERUs or more trigger a capacity analysis by the District and are estimated to discharge 160 gallons per day per ERU in preliminary calculations.

SS-13.04 District Ownership Eligibility

The District may consider accepting a privately constructed main extension when it is located within public road right-of-way, serves two or more individual legal parcels/connections, is constructed to District standards, and is formally dedicated and accepted by the Board of Supervisors acting as the governing body of the District.

SS-13.05 Private Main Extensions

A sewer line not accepted by the District remains privately owned. The private owner is responsible for operation, maintenance, repair, replacement, access rights, service continuity, and agreements necessary to serve affected properties.

SS-13.06 Ownership Before Acceptance

Inspection, approval, connection, or use does not by itself transfer ownership. Until formal acceptance, the extension remains the responsibility of the property owner or other private owner.

SS-13.07 Easements and Legal Rights

Before connection or acceptance, required easements, access rights, private-main agreements, owner approvals, and offers of dedication shall be provided in a form acceptable to the County.

SS-13.08 Testing and CCTV

Main extensions shall be cleaned, air tested where applicable, deflection tested for PVC where applicable, CCTV inspected, and manholes tested before acceptance in accordance with SS-15.

SS-13.09 District-Specific Requirements

Historical assessment-district, capacity, treatment, dedication, or downstream-agency requirements may vary by District and shall be identified during plan review.

SS-14 SEWAGE EJECTOR AND PUMP SYSTEMS

SS-14.01 General

Private sewage ejector or pump systems may be used only where necessary to convey sewage from private property to an approved gravity sewer connection and where the configuration is acceptable to the District.

SS-14.02 Private Ownership

The pump, basin/wet well, controls, alarms, force main, valves, electrical service, and other pumping-system components upstream of the approved gravity lateral connection remain privately owned, operated, maintained, repaired, and replaced unless expressly accepted by the District.

SS-14.03 Connection

A private pressurized sewage discharge shall transition to an approved gravity lateral before connection to the District main unless a different configuration is specifically approved.

SS-14.04 Covenant

When required, the property owner shall execute, notarize, and record a covenant or other agreement acknowledging private ownership and responsibility for the pump system. A recorded copy shall be provided before final SIP signoff.

SS-14.05 Design and Plumbing

The District's review is limited to the proposed connection to the District sewer and protection of District facilities. Approval of the private pump system, plumbing, electrical components, and related private improvements is the responsibility of the applicable building and plumbing authorities.

SS-14.06 Failure and Overflow

The system shall be designed and operated so that pump failure does not cause unauthorized discharge to the environment or damage to District facilities.

SS-14.07 Post-Construction Inspection

Where a remodeling or site project could affect an existing sewage pump system, the District may require inspection of the system after construction. Damage shall be reported, repaired to applicable standards, and inspected.

SS-15 TESTING, CLEANING AND CCTV INSPECTION

SS-15.01 General

Completed sewer work shall be clean, unobstructed, watertight as required, structurally sound, and free of defects before acceptance. Required testing and CCTV shall be performed after construction and before final approval.

Test Method	Purpose	Pipe Testing	Manhole Testing
Air Test	Leakage in pipe	All materials except HDPE	Not applicable
Mandrel Test	Deflection in pipe	PVC	Not applicable
CCTV	Defects in pipe	All materials	Not applicable
Vacuum or Water Test	Leakage in manhole	Not applicable	Yes

SS-15.02 Cleaning

New or replaced sewer mains shall be cleaned before testing and CCTV. High-speed jet cleaning before main testing is required. Cleaning shall remove sediment, grout, debris, roots, and material that could obscure inspection or impair operation.

SS-15.03 Test Sequence

For sewer-main replacement, testing before final asphalt paving is required; air and deflection testing precede CCTV; and open-trench testing occurs after trench backfill and compaction except for an optional preliminary air test.

SS-15.04 Air Pressure Test

Each main reach is tested between successive manholes with openings plugged and braced, when applicable. For the final test, increases line pressure to 4 psi, allows a two-minute stabilization period, requires not less than 3.5 psi at the start of the test, uses a fifteen-minute test duration, and permits a maximum pressure loss of 1.0 psi. Leaks shall be corrected and the test repeated.

SS-15.05 PVC Deflection Test

PVC mains shall be mandrel tested after trench backfill. A hand-pulled go/no-go mandrel with at least nine ribs, minimum length equal to its diameter, and mandrel diameter equal to ninety-five percent (95%) of the pipe's average inside diameter.

SS-15.06 Manhole Leakage Testing

New manholes shall be tested for leakage. County allows water or vacuum testing.

For water testing, inlets/outlets are plugged, the manhole is filled to six inches below the frame, allowed at least one hour for absorption, and tested for at least fifteen minutes. The allowable leakage of $Em = 0.0002 \times L \times \sqrt{H}$ is allowed where Em is the amount of allowable leakage in gallons per minute, L is the depth of manhole from top to bottom in feet, and H is the head of water in feet as measured from the sewer line invert or from prevailing ground water against outside of manhole barrel to a point six inches below the base of the manhole frame with the lesser height governing. Excess leakage or visible leakage shall be repaired and retested.

For vacuum testing, after completion of the manhole barrels but prior to backfilling, sealing of liner seams and installing grade rings, all openings in the manhole are sealed with plugs and a rubber ring "donut" type plug inserted

inside the opening of the cone. Four (4) psi (8 inches Hg) of vacuum applied from a small vacuum pump attached to a hose connected to the plug and stabilized at 3.5 psi (7 inches Hg) for one (1) minute before beginning test. A vacuum regulator shall be provided to ensure no greater than 10 psi (20 inches Hg) can be applied to the manhole during the test, and manhole must maintain vacuum such that no greater than 0.50 psi (1 inch Hg) of vacuum is lost during specified test period of 4.5 minutes for manhole depths of 0-5 feet or 5.5 minutes for manhole depths of 5-10 feet. All manholes that do not meet the leakage test or are unsatisfactory from visual inspection, shall be repaired and retested to the satisfaction of the Engineer.

SS-15.07 CCTV of New or Repaired District Main

Post-construction CCTV shall be required where a new lateral connection, abandoned connection/main repair, new main, trenchless work, utility work, or other construction could affect a District main, as directed by the District. Main CCTV shall extend manhole to manhole unless otherwise approved.

SS-15.08 CCTV of Private Laterals

Private lateral CCTV shall comply with the County's applicable CCTV special provisions. Reuse evaluations shall show the connection and the entire lower lateral. Horizontal boring and other trenchless lateral installations require post-installation CCTV when directed.

SS-15.09 CCTV Acceptance

Video shall clearly show the pipe interior, joints, alignment, connection, and defects and include required identifying information. Breaks, leaks at joints, unacceptable sags, deformation, protrusions, debris, and other defects are not acceptable. Defects shall be repaired and the affected reach re-inspected.

SS-15.10 Costs of Correction

Repair, retesting, reinspection, and additional CCTV required because of defective work shall be at the applicant's or contractor's expense.

SS-16 INSPECTION AND PERMITS

SS-16.01 Sewer Inspection Permit

A SIP shall be obtained when required for capping/abandonment, cleanout installation, lateral construction, connection to a District main/manhole, lower-lateral work, reconnection, repair of a District main/manhole, pump-system inspection, mitigation work, or other sewer work identified by the District.

SS-16.02 Inspection Required

Work subject to District jurisdiction shall be inspected by a District representative. Required work shall remain exposed and accessible until accepted for the applicable stage.

SS-16.03 District Presence

Sanitary sewer connections and required testing shall be performed in the presence of a District representative unless the District expressly authorizes otherwise.

SS-16.04 Scheduling

Current County Utilities practice requires sewer inspections to be scheduled at least two (2) working days in advance.

SS-16.05 Work Without Inspection

Work concealed or performed without required permits or inspection may be required to be exposed, tested, CCTV inspected, removed, or reconstructed as necessary to establish compliance.

SS-16.06 Other Permits

A SIP does not authorize excavation within County right-of-way or work under another agency's jurisdiction. Applicable encroachment, plumbing, building, environmental, railroad, utility, or other permits shall be obtained separately.

SS-16.07 Inspector Authority

The District representative may reject defective material or workmanship, require correction, and require reasonable access to verify compliance. Inspection does not relieve the applicant, owner, or contractor of responsibility for the work.

SS-17 PROTECTION OF EXISTING SEWER FACILITIES

SS-17.01 General

Existing District mains, manholes, laterals, cleanouts, flushing inlets, and appurtenances shall be protected from damage, settlement, loading, contamination, obstruction, and loss of access.

SS-17.02 Locating and Potholing

The contractor shall locate existing facilities that could be affected and shall pothole or otherwise verify critical locations/elevations before excavation or trenchless construction.

SS-17.03 Damage

Damage caused by project activity shall be immediately reported and repaired at the applicant's expense using a District-approved method. Repairs shall be inspected.

SS-17.04 Emergency Conditions

A condition causing or threatening sanitary sewer overflow, service interruption, collapse, blockage, or uncontrolled discharge shall be reported immediately. The contractor shall take safe interim measures to limit damage and maintain service.

SS-17.05 Bypassing During Construction

Where work requires bypassing, the bypass system shall have adequate capacity and be approved before use. County requires at least one working backup pump on site during bypass operations and requires the contractor to be equipped to contain, clean up, disinfect, and properly dispose of sewage released by an accidental spill or overflow.

SS-17.06 Access

Materials, fencing, landscaping, structures, vehicles, or equipment shall not block required access to manholes, cleanouts, easements, or other District facilities.

SS-17.07 Adjacent Construction / CCTV

Where utility or other construction occurs near District facilities, the District may require pre- and post-construction CCTV to document condition and verify that damage has not occurred. Current Utilities review practice uses proximity/crossing criteria to trigger such inspections.

SS-17.08 Structures Near Sewers

Where proposed improvements could impose loads on a sewer, restrict access, or interfere with future excavation, the District may require relocation, structural protection, increased clearance, or other mitigation. A minimum of 12” vertical clearance shall be maintained from proposed improvements to sewer mains. Whenever possible, a 10’ horizontal clearance from proposed improvements to District facilities shall be maintained. Proposed improvements shall be relocated if they do not meet a minimum 5’ horizontal clearance.

SS-18 FINAL ACCEPTANCE AND RECORD DOCUMENTATION

SS-18.01 Conditions of Final Acceptance

Sewer work is not complete until applicable construction, inspections, cleaning, testing, CCTV, corrections, permits, fees, covenants, easements, dedication documents, and record documentation are complete to the District's satisfaction.

SS-18.02 Final Inspection

A final inspection may be required after work is complete and accessible. Deficiencies shall be corrected before SIP signoff or final sewer approval.

SS-18.03 Record Drawings / As-Builts

For capital improvement projects, main extensions, relocated facilities, significant private-development sewer improvements, and other designated work, record drawings shall show final location, size, material, elevations, connection points, manholes, cleanouts, easements, and other requested information.

SS-18.04 CCTV and Test Records

Required CCTV files, reports, air/deflection/manhole test results, and related records shall be submitted in the format specified by the District and clearly identify the project and inspected facility.

SS-18.05 Legal Documents

Required covenants, easements, private-main agreements, offers of dedication, lateral maintenance agreements, and owner approvals shall be fully executed, recorded, and provided to the Sewer District when required.

SS-18.06 Fees and Charges

Applicable District fees, charges, deposits, and reimbursable costs shall be paid at the milestone required by County Code, permit conditions, or written District direction.

SS-18.07 District Ownership

No privately constructed facility becomes District-owned solely because it has been inspected, approved, connected, or used. District ownership begins only after completion of the applicable dedication and formal acceptance process. The District would consider ownership if, at a minimum, the sewer facility complies with District standards, includes two or more connections, and is located in the right-of-way.

SS-18.08 Final Approval

Final sewer approval is limited to sewer facilities within District jurisdiction and does not approve unrelated project elements or relieve owners/contractors of responsibility for private facilities or latent defects.

SS-18.09 Revisions After Approval

Material changes after approval require District review and may require revised plans, permits, fees, inspections, testing, CCTV, or record documentation.