

SOUTH SANTA ROSA UTILITY SYSTEM
DESIGN AND CONSTRUCTION STANDARDS

VERSION 5.0

FORWARD

The following standards are intended as a guide to the design engineer in the preparation of plans for water and wastewater improvements. While the design standards given are intended as minimum design criteria, it is recognized that there may be individual instances where a less stringent criteria may be approved without affecting the integrity of the system. An example would be the use of a water main less than 6-inches in diameter to serve a cul-de-sac where adequate fire protection is available. The Utility will consider deviations from these standards on a case-by-case basis.

Notwithstanding the above, all or any part of projected designs must meet current standards set by Utility, County and State, and at no time shall any construction be approved that fails to meet the standards in effect as set by the Florida Department of Environmental Protection (FDEP).

REVISIONS APPROVED ON MAY 15, 2007

PLAN PREPARATION STANDARDS

PART I: GENERAL

1. All plans submitted to Utility for review shall comply with these standards for preparation.
2. All work within existing or proposed public rights-of-way or easements dedicated to the Utility shall be performed by a Certified Underground Utility Contractor.
3. A copy of the preliminary plat shall be provided for review prior to plan approval.
4. The design shall be shown in sufficient detail to insure the intended construction, anticipate problems and design a solution. All work shall be constructed in accordance with the plans approved by Utility.
5. Two preliminary sets of clean and legible plans shall be submitted. Any plans which cannot easily be read will be rejected. All plan sheets shall be signed, dated and sealed. Three sets of final acceptable plans will be submitted, one set shall be returned stamped approved.
6. General Procedure for plan approval
 - a. Provide the required plans, specifications and review fee
 - b. City will comment and return for revisions
 - c. Provide completely revised sets unless otherwise requested
 - d. City will provide one approved set and developers agreement for signature. The developer's agreement will delineate the amount of the tap fees required to be paid.
 - i. Commercial Facilities are required to submit all tap fees and set up an account in order to be released for building permits.
 - ii. Residential subdivisions pay a 25% down payment on tap fees before the Utility will sign the FDEP permit.
 - e. The Utility will release the project for construction when the developer's agreement is executed and the tap fees have been paid.
7. Review and Inspection Fees Required

Large Subdivisions - 100 lots or more

Water & Sewer	\$2,200
Sewer Only	\$1,950
Reclaimed Irrigation	Add \$300

Small Subdivisions - Less than 100 lots

Water & Sewer	\$1,600
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Sewer Only	\$1,300
Reclaimed Irrigation	Add \$300
Multi-Unit Commercial	
Water & Sewer	\$1,700
Sewer Only	\$1,400
Reclaimed Irrigation	No charge
Single-Unit Commercial	
Water & Sewer	\$850
Sewer Only	\$600
Reclaimed Irrigation	No charge

8. Inspections

a. *Included Inspection Fees:*

The fees required for plan review and inspection cover a maximum amount of review and inspections per the table below.

Hours for Review and Inspection Tasks

	Subdivisions		Commercial Facilities	
	Large	Small	Multi-Unit	Single-Unit
Plan Review	24	12	8	6
Periodic Inspection (Utility's discretion)	No Limit	No Limit	No Limit	No Limit
Lift Station Start-up	4	4	N/A	N/A
Televising Gravity Sewer	24	16	4	4
Review of Owner Provide Inspection Reports	No Limit	No Limit	No Limit	No Limit

b. *Extra Fees*

Any hours required in excess of the above will be billed at \$100.00 per hour. All time wasted for set-up or no-show appointments will be billed at \$100.00 per hour.

c. *Owner's Inspector*

Failure of the Owner to provide weekly inspection reports to the Utility will result in a \$100.00 fee per missing report. All inspections must be performed by a person who is deemed qualified (i.e. engineer, certified contractor, etc.) and is not

employed by the contractor performing the work.

PART II: PLAN MAKEUP

1. General

- A. All plans shall be submitted on standard engineering sheets of 24 inch by 36 inch.
- B. Lettering shall be of appropriate size.
- C. Plan sets shall consist of:
 - 1. Cover sheet
 - 2. Location map
 - 3. Project map
 - 4. Design sheets
 - 5. Detail sheets
- D. All design and detail sheets shall have the following note: “All work shall be constructed in accordance with the requirements of South Santa Rosa Utility System Specifications.”
- E. A note shall be included that states “All work within the right-of-way or for ownership by SSRUS shall be performed by an Certified Underground Utility Contractor”.
- F. Title Block to be shown on all sheets except cover sheet, and shall include:
 - 1. Project name
 - 2. Sheet Title
 - 3. Engineer
 - 4. Date prepared
 - 5. Date revised
 - 6. Sheet number (sequential)

2. Cover Sheet to Include

- A. Project Title
- B. Developer and Engineer or Engineer
- C. Project Number or Identification
- D. Type of Project (if not clear in title)
- E. Date(s) or Design or Submittal and Subsequent Revisions

3. Location Map Shall Include:

- A. Map of project area and surrounding area to easily identify location of project

(minimum of ½ mile radius) at a scale of 1 inch = 1000 feet (minimum), shown graphically.

- B. North arrow (north to be between 0 degrees and 90 degrees) for all sheets.
 - C. Title Block
4. Project Map Shall Include:
- A. Map of project at 1 inch = 200 feet or other appropriate scale as approved by Utility. Show graphically.
 - B. Index of Design Sheets in an appropriate manner.
 - C. North arrow (north to be between 0 degrees and 90 degrees)
 - D. General notes needed by field crew
 - E. Title block
 - F. Location Map and Project Map may be combined on single sheet if project size permits.
5. Design Sheets Shall Include:
- A. North arrow (north to be between 0 degrees and 90 degrees)
 - B. Scale: show numerically and graphically, not less than 1 inch = 50 feet horizontal, 1 inch = 5 feet vertical
 - C. Title Block
 - D. The following items will be shown on both Plan and Profile:
 - 1. Pipe with size and material to be installed. Material “DR” or “Class” shall be indicated on the plans as well.
 - 2. Show and locate all appurtenances (bends, T’s, X’s, valves, hydrants, manholes, services, etc.)
 - 3. At all road or paving crossings, show if “open cut” will be allowed; if not, show length, depth and size of pipe or casing to be bored or jacked. All casings required shall be indicated on the plans, regardless of installation method.

4. Special notes for construction that are specific to that sheet.
5. Circle and reference items for which a detail is provided. Show on same sheet.
6. Bench mark: minimum -two per project.
7. Match line with station for continued sheets.

E. Plan View of Project Shall Also Include:

1. Stationing along centerline at 100 foot increments. May use survey baseline stationing if very close to pipeline.
2. Location of other utilities within right-of-way or project or that may otherwise conflict with project.
3. Property lines, ROW lines, easements (both temporary and permanent), which are existing and proposed.
4. Topographical features, such as ditches, embankments, etc.

F. Profile View of Project Shall Also Include:

1. Ground surface elevations as existing and as final if different.
2. Type and depth of underground utilities and other features that will be crossed or that might otherwise cause a problem.
3. Ground water elevations, if known.
4. Stream or water crossings with stream bed elevations and the normal and extreme high and low water levels.

6. Detail Sheets: Shall be used when necessary for clarity of work and will include:

- A. Appropriate scale
- B. Label
- C. Elevations
- D. Dimensions
- E. Other Information as Appropriate
- F. Title Block

PERMITS:

DOT permits shall be issued in the name of the Utility. Permits shall be applied for with APPROVED plans. Plans shall be stamped, dated and signed by the Utility prior to being submitted by the Engineer. Permits shall be signed by the Utility and returned to the Engineer for execution to the State. A copy of the approved permit shall be provided to the Engineer when issued. Proof of certification of all permits shall be required as part of the record drawings. All aspects of the Permit shall be adhered to by all Contractors. Proper notice shall be given to all parties prior to commencement of work within the State right-of-way. A pre-construction meeting shall be scheduled by the Engineer, and attended by the Certified Underground Utility Contractor, Engineer and the Utility representatives.

FDEP permit applications shall clearly indicate the party responsible for operations and maintenance after the facility is complete. All utilities to be owned by SSRUS will be strictly installed according to the plans.

PART III: SPECIAL REQUIREMENTS - WATER

1. Water plans shall also clearly identify the intended depth of cover at least twice on each sheet. 36" shall be standard depth of cover for all mains 6" or larger; all others, including laterals, 30". A maximum depth of 72" shall not be exceeded without written permission from the Utility. All PVC pipe shall bear the N.S.F. logo and shall meet all ANSI / AWWA C900-89 (or latest edition) standards for 4"-12" pipe.
2. All water distribution system valves shall be resilient seat type.
3. All water system hydrants shall have their own control gate valve.
4. All water services shall be 1" services reduced at shut-off to 3/4". Curb stops shall be Ford B43-342W-G, one inch compression by 3/4" meter coupling.
5. All water services will be laid at right (90 degree) angles from water mains, and be constructed to property line of lot to be served.
6. A minimum separation of 12" is required between SSRUS and other utilities unless governing regulations require larger separations.
7. Curb cuts are required for all water services. It shall be a single cut 3" long and 1/8" deep into the RIBBON portion of the curb identifying the location of the curb stop.
8. All corporation stops (at the main) shall be located from the sewer lateral and property corner.
9. Services shall be constructed within three feet of the side lot lines. And as much as feasible be within six feet of an adjacent meter.
10. All water services shall have at least 6' separation from all wastewater lines and 3' separation from a reuse line or provide proper protection from potential contamination.

11. All non-metallic mains and services shall be constructed with 12 ga. wire and warning tape.
12. Standard plastic meter boxes shall be provided for all services. Protective stakes shall be placed at each to help protect and located services.
13. All APPURTENANCES shall be field measured and shown on the record drawings.
14. All mains shall be laid in casing where they cross under any proposed paved areas. Casing shall be DOT rated and constructed with plastic spacers and end caps.
15. All projects requiring a backflow device shall be tested once installed. A copy of the satisfactory test shall be provided as part of the record drawings. This test shall be preformed by a certified backflow tester.
16. All main line taps shall be witnessed by a Utility representative. A minimum notice of 48 hours shall be provided to the Utility. Tests shall be at 150 psi for a period of two hours. Test time may be reduced if all fittings valves or other appurtenances are open for inspection. Tapping valves shall be supported with a concrete pad (thrust block).
17. All mains shall be tested at 150 psi for two hours. This shall be in addition to any requirements required by AWWA or FDEP standards.
18. Commercial meters 2" and larger shall be installed by the Developer. They shall be Sensus, touch read SRH Compound reading in 1,000 gallons. They shall be housed within a CDR box with the touch pad set in place. Additionally, the Developer will include an MXU radio by Sensus.

PART IV: SPECIAL REQUIREMENTS - SEWER

1. Wastewater plans shall also clearly identify:
 - A The invert of each pipe in each manhole.
 - B The calculated slope of each section
 - C The final rim elevation of each manhole and the type rim if other than standard (locking, waterproof, etc.).
 - D The size (inside diameter) of each manhole, if different than standard.
2. All gravity mains shall have a minimum five (5) feet of cover.
3. Services shall be run to the property lines and are to be stubbed up for inspection during the construction period. Once inspected and accepted by the Utility, they shall be capped and field measured from the back of curb and made part of the record drawings.

4. For as-built records, all sewer laterals will be located from the nearest downstream manhole. The distance between sewer lateral and the water and reclaimed services shall also be marked on the as-built records.
5. All service laterals shall be constructed in such a way that no more than 70' of pipe make up the distance from main tie-in to proposed property line.
6. Services shall be constructed near the center of the lot to be served.
7. Gravity mains and services will not be accepted with any repair couplings.
8. A minimum separation of 12" is required between SSRUS and other utilities unless governing regulations require larger separations.
9. All sewer collection systems to be accepted for maintenance are to be TV recorded and measured. The main lines shall be inspected with a pan-and-tilt type camera. A full circle view of all services shall be made as part of the main line inspection. All (100%) of the sewer services will be inspected with a push type camera. The Utility shall witness all main and service inspections. The Contractor shall provide a minimum 48 hour notice for all inspections. All lines are to be flushed with water just prior to these inspections with the Utility present. Services or mains holding water at the time of inspection may not be accepted by the Utility.
10. The sub-base shall be installed and compacted to Engineer's requirements prior to any video inspections of mains and services.
11. See Standard Lift Station Specification sheets for details and standards governing lift station construction.
12. All connections of pipes or tubes to a force main shall be four inches minimum and shall be done with a tapping sleeve and valve. The valve shall be resilient seat wedge type conforming to AWWA C509 for a working pressure of 200 psi. A 4" flapper check valve shall be installed directly after the tapping valve. Valves shall be made of cast or ductile iron. All sleeves shall be stainless steel. An adjustable cast iron valve box (properly marked)shall be placed over the gate valve and flush with the finished grade. All joints will be mechanical joints with Megalug restraints. All pipe shall be ductile iron. All tapping valves shall be supported with a concrete pad and boxes shall be constructed with a concrete collar. An iron body gate valve shall be placed at the property line for Utility use.
13. All tapping sleeves and valves will be tested at 100 psi for a period of 1 hour with Utility present.
14. All lift stations to be owned, operated or maintained by the Utility shall undergo a formal start up. A 48-hour notice is required by the Utility, not to include weekends or Utility observed holidays. The engineer-of-record, contractor, electrical and pump representatives must be present at all start ups. The Utility will attend all start ups and will make one follow up site visit to inspect any punch list items at no additional cost to

the Developer.

15. A separate overall plan sheet for sewer (24"X36") shall be provided and shall list:
 - A All manhole numbers, with top and all invert elevations.
 - B All lots and blocks number/lettered.
 - C Measured distance from the nearest downstream manhole.
14. Curb cuts are required for all sewer services. There shall be two parallel cuts approximately 3" long and 1/8" deep into the RIBBON portion of the curb. They shall mark the area and direction where the service exits the pavement.
15. All sewer services will be constructed to run perpendicular to the main. All services that can not be constructed in this manner will be tied directly into the manholes, without any change in direction. A TEE-WYE (G X S X G) is required for all services. No additional fittings will be allowed between the main and the property line to be served. Except for a single 45 degree fitting where the depth of the main line would dictate. All 45 degree fittings shall be (G X G) type.
16. All force mains shall be tested at 100 psi for one hour. The Utility will be notified at least 48 hours in advance and will witness the test. No leakage will be accepted on force main tests. Force mains shall be constructed with 12 ga. wire and warning tape. Pipe shall be rated SDR 26.
17. Infiltration or exfiltration testing when required by either the Engineer or the Utility, shall not exceed 50 gallons per inch of pipe diameter per mile per day.
18. Gravity mains not constructed under paved areas require warning tape and wire.
19. A note must be added to all manhole details that states "No steps will be allowed in the manholes."
20. SSRUS may require that manholes be installed with stainless steel inflow prevention devices (rain guards) in low lying or flood prone areas.
21. All force main pipes shall be laid with casing where they cross under any paved areas. Casing shall be DOT rated and constructed with plastic spacers and end caps.
22. Force mains constructed with P.E. pipe shall meet a minimum rating of SDR 11.
23. All APPURTENANCES shall be field measured and shown on the record drawings. Force mains shall be located at least every 100' and at all change of direction.

PART V: SPECIAL REQUIREMENTS FOR RECLAIMED WATER PROJECTS:

1. Plans shall clearly identify the intended depth of cover at least twice on each sheet. 36" shall be standard on 6" mains or larger; all others, including laterals, 30".
2. System valves shall be resilient seat type.
3. A minimum separation of 12" is required between SSRUS and other utilities unless governing regulations require larger separations.
4. Flushing stations shall have their own control gate valves.
5. Services shall be 3/4", Ford curb stops with compression by female pipe thread.(B41-333W-G).
6. Services shall have their own meter box color coded for reclaimed water.
7. Services shall be laid at a right (90 degree) angle from the main, and be constructed to the property line of the lot to be served.
8. Services shall be field measured from at least two property lines or other utility service lines.
9. Mains and services shall have at least 3' separation from any potable water lines.
10. A 12" minimum separation from all other utilities is required.
11. Mains and services shall be color coded.
12. All non-metallic mains and service shall have 12 ga. wire and warning tape installed.
13. All APPURTENANCES shall be field measured and located on the record drawings.
14. All tapping sleeves and valves shall be tested at 100 psi for one hour. The time may be reduced if all valves, fittings and appurtenances are open for inspection.
15. All tapping valves shall be provided with a concrete pad (thrust block) to support the valve.
16. All mains shall be laid with casing where they cross under any paved areas. Casing shall be DOT rated and constructed with plastic spacers and end caps.
17. All main line taps shall be witnessed by a Utility representative. A minimum of 48 hours notice shall be provided for all tests. The test period shall be one hour at 100 psi. Test period may be shortened if all fittings, valves and appurtenances are open for inspection.
18. Services shall be constructed near the center of the lot and within three feet of the sewer service.

19. Curb cuts are required for all re-use services. Cut shall be in the shape of an X, 3” long and 1/8” deep into the RIBBON portion of the curb identifying the location of the curb stop.
20. All reclaimed water systems shall be hydrostatically tested for one (1) hour @100 psi.
21. All services shall be flow tested.
22. All gate valves shall be tested and operated.

PART VI: COMPLETION OF PROJECTS

1. A certification of completion form shall be presented to the Utility for execution on all projects, when a F.D.E.P. permit is required.
2. Copies of all on site construction inspection reports shall be provided. They shall be in standard form and are required as part of the record drawings and certification process.
3. One full set of signed, sealed and dated plans shall be provided. Marked as record drawings or as-built.
4. Six (6) reduced size sets shall be provided showing only those Utilities being given to the Utility.
5. Two (2) full size sets shall be provided showing only those Utilities being given to the Utility.
6. Certification of Developer form shall be executed as part of the record drawings. This form shall be provided for all construction to be given to the Utility for ownership and maintenance, and shall include the cost of all such utilities.
7. Record drawings shall not have any statement that restricts the Utility’s ability to reproduce the documents.
8. A copy of the recorded plat shall be provided as part of the record drawings.
9. A CAD disk shall be provided as part of the record drawings. The CAD file shall contain the following layers: SEWER, SEWERTXT, SEWERMH, SEWERFM, LIFTSTA, WATER, WATERTXT, FIREHYD, LOTS, ROW, and OTHER. The OTHER layer can be used for any utility information that does not fall into the other categories. All utility as-builts shall be on one of these layers in model space only.
10. All directional drills shall be profiled as part of the record drawings.
11. A copy of the sewer inspection video shall be provided on CD or DVD_as part of the record drawings.

