

GENERAL CONSTRUCTION NOTES

1. All workmanship and materials will be in accordance with City of Pacific Standards, City of Pacific Municipal Code, Ordinances and City Council or Hearing Examiner conditions of Project Approval. These documents are supplemented by the most current edition of the *State of Washington Standard Specifications for Road, Bridge and Municipal Construction and Standard Plans*.
2. All materials used for construction shall be new and undamaged and shall be made available for inspection and approval by the City of Pacific prior to installation. The contractor shall provide the City of Pacific with a Certificate of Materials from the supplier, if requested. All work and materials that do not meet the above specifications must be removed as directed by the Project Inspector.
3. The contractor will be responsible for all traffic control in accordance with *U.S. Department of Transportation Manual on Uniform Traffic Control Devices* (MUTCD). Prior to disruption of any traffic, traffic control plans will be prepared and submitted to the City for approval. No work will commence until all approved traffic control is in place. All flaggers must have Flagging Certificates and must have attended a flagging course or an off duty police officer is required. The job will be shut down if any uncertified people are flagging. A stop work order will be given and work will not proceed until a certified person is flagging.
4. Temporary erosion/water pollution measures shall be required in accordance with Section 1-07.15 of the Standard Specifications and applicable requirements of the *King County Surface Water Design Manual*.
5. During construction, all public streets adjacent to the project shall be kept clean of material deposits resulting from on-site construction, and existing structures shall be protected.
6. The developer and the contractor shall comply with all other permits and other requirements by the City of Pacific or other governing authority or agency as may be applicable.
7. A pre-construction meeting shall be held with the City prior to the start of construction. The contractor shall provide the City with a construction schedule and a copy of all permits issued by Agencies other than the City.
8. A copy of the approved Plans shall be available on the site at all times during construction.
9. All project elements shall be staked by a licensed professional qualified to perform the work.
10. The contractor shall call underground locate line 1-800-424-5555 minimum 48 hours prior to any excavations. The location of underground utilities are shown in an approximate way only and have not been independently verified by the owner or it's representatives. The contractor shall determine the exact location of all utilities prior to commencing work, and agrees to be fully responsible for any damage which might be occasioned by the contractors failure to exactly locate preserve any and all underground utilities. The City, the owner, and the engineer shall be notified immediately if any conflict exists.
11. All utility trenches excavated in the right-of-way shall be backfilled with 5/8-inch crushed rock. The trenches shall be backfilled and compacted to 95% density in accordance with WSDOT 7-08.3(3).
12. The City of Pacific allows work from 7:00 A.M. to 7:00 P.M, seven days a week. If work is done on weekends, please inform the City of Pacific so that an Inspector can be available on site. Contractor will be billed for Overtime.

13. **INSPECTION:** All aspects of this project will be inspected including piping, backfill, sub-grade, concrete and asphalt, as well as forms, curb, gutter and sidewalk. If a portion gets backfilled before inspection, the contractor will dig up that portion for inspection. **24-HOUR NOTICE REQUIRED.** Know the schedule and let the City know. Call 48-hours before the following:

- A. For Inspection contact (253)929-1110.
 - B. Prior to work start-up
 - C. Prior to any utility construction in the right of way.
 - D. Prior to pouring cast-in-place concrete structures.
 - E. Prior to placing any crushed rock on roadway sub grade.
 - F. Prior to placing curb, gutters and sidewalks.
 - G. Prior to asphalt paving.
14. All compaction test shall be approved by the City of Pacific Engineer and/or Inspector prior to placing of crushed surfacing, asphalt, curb, gutter, sidewalk (Including trench restoration when test may be required in each lift).
- A. Items to be compaction tested will include the pipe bedding (Section 7-08.3(1)C), Backfill (Section 7-08.3(3) and sub-grade for surfacing (Section 2-06.3(2)) and asphalt (Section 5-04.3(10)B).
 - B. City of Pacific may require additional tests on sub-grade, trenches, concrete, or asphalt. The costs of testing shall be paid for by the developer.
 - C. Roadway embankment and subgrade construction:
 - i. Crushed Surfacing shall be compacted to 95% of maximum density. No recycled material allowed.
 - ii. Embankment and sub grade must be compacted to 95% of maximum density.
 - iii. Proper moisture must be maintained throughout placing and compacting.
 - iv. Compaction testing to be performed by an independent lab. Use a "Modified Proctor".
 - D. Trenches in developed right-of-way:
 - i. See City of Pacific Standard Construction Details and Section 7 of the current WSDOT Specifications for Road, Bridge and Municipal Construction.
 - ii. Pipe zone shall be compacted to 90% of maximum density.
 - iii. Trench zone shall be compacted to 95% of maximum density in 12-inch lifts.
 - iv. Crushed Surfacing shall be compacted to 95% of maximum density.

15. **RESTORATION OF RIGHT-OF-WAY:**

- A. Contractor must leave the right-of-way, equal to existing or better condition

- B. Place compacted topsoil (Section 9-14.1(1), (2) and (3)) and seed all areas disturbed by excavation. (Section 9-14.2). All drainage systems must be fully cleaned, restored and operational before final acceptance. (Section 7-07.3).

16. FINAL INSPECTION AND ACCEPTANCE:

- A. See Section 1-05.11.
- B. When Contractor has completed all of the work on the approved plans, the contractor will notify the City. The City Engineer, City Inspector, Contractor and other City of Pacific Departments will walk the site and create a punch list. The Contractor will complete the punch list and check off each item, then return it to the Inspector for re-inspection. The Inspector will verify that items on walk through are completed.
- C. The City will not make the final inspection until the physical work required by the contract and approved plans, including final cleanup and all work ordered by the City Engineer, has been completed.
- D. Final approval of the project will not be granted until “as built” drawings (both digital and hard copy) have been received and approved by the City.

EROSION AND SEDIMENT CONTROL NOTES

1. See the City of Pacific Standard Notes on Sheet ___.
2. See the Construction Sequence on Sheet ___.
3. A Certified Erosion and Sediment Control Supervisor is required. The ESC Supervisor must have attended and Erosion and Sediment Control class within past 3- years. Provide a copy of certification card.
4. The Certified Erosion and Sediment Control Supervisor will oversee and be responsible for all erosion control. The facilities shall be inspected daily and maintained to ensure proper functioning. Written records shall be kept of weekly reviews and after every significant storm event of the ESC facilities during the wet season (October 1 to April 30). Monthly reviews during the dry season (May 1 to September 30). Written records shall be provided to the Project Manager or Inspector upon request.
5. Provide a sign displaying a 24-hour contact number and name of the ESC Supervisor. The letter size shall be a minimum of 2” letters. This shall be in place prior to construction start.
6. In case erosion or sedimentation occurs to adjacent property, all construction work on the project that will aggravate the situation will cease and the contractor shall immediately commence restoration or mitigation measures. Restoration activity shall continue until such time as the problem is rectified.
7. Stabilized construction entrances and roads shall be installed at the beginning of construction and maintained during the duration of the project. Additional measures may be required such as wash pads to ensure that all paved areas are kept clean. No mud is allowed to enter onto City streets.
8. All necessary facilities shall be maintained on-site to prevent debris, and mud from accumulating on the public right-of-way.
9. In any area which has been stripped of vegetation and where no further work is anticipated for a period of 2-7 days or more, all disturbed areas must be immediately stabilized with mulching, grass planting, or other approved erosion control treatment applicable to the time of year in question. Grass seeding alone will be acceptable only during the months of April through September, inclusive. Seeding may proceed, however, whenever it is in the interest of the contractor, but must be augmented with mulching, netting, or other treatment.
10. All stock piled material (bedding, trench excavation, trench backfill) subject to erosion shall be covered with 0.06 mil plastic sheeting secured in place with sandbags or equivalent.
11. The storm drain system and existing ditches shall be cleaned daily (Section 7- 07.3). All drainage systems shall be cleaned to the acceptance of the City of Pacific prior to acceptance of the project.
12. Two (2) weeks prior to the beginning of the wet season (October 1), all disturbed areas shall be reviewed to identify which ones can be seeded in preparation for the winter rains. Disturbed areas shall be seeded within one (1) week of the beginning of the wet season. A sketch map of those areas to be seeded and those areas to remain uncovered shall be submitted to the Project Manager. The Project Manager can require seeding in additional areas in order to protect surface waters, adjacent properties or drainage facilities.
13. Penalties for an Erosion Control violation are subject to a \$250 fine under Chapter 24.08.360 – Civil Penalty. Each day is considered a different violation.

STREET CONSTRUCTION NOTES

1. See the City of Pacific Standard Notes on Sheet ___.
2. See the Construction Sequence on Sheet ___.
3. All transportation system improvements shall be constructed in accordance with these approved plans. Any deviations from these plans shall require approval from the owner, engineer, and appropriate public agencies.
4. All curbs, street grades, sidewalk grades, and any other vertical and/or horizontal alignment will be staked by engineering or surveying firms capable of performing such work.
5. Where new asphalt joins existing, the existing asphalt will be cut to a neat vertical edge and tacked with Asphalt Emulsion Type CSS-1 in accordance with the standard specifications. The new asphalt will be feathered back over existing asphalt to provide for a seal at the saw cut location and the joint sealed with Grade AR-4000W paving asphalt.
6. Compaction of sub-grade, rock, and asphalt will be in accordance with the standard specifications.
7. All joint (contraction, construction, isolation, etc.) layout plans shall be approved one week before pouring concrete.
8. Form and sub-grade inspection by the City is required before pouring concrete. Twenty-four hours' notice is required for form inspection.
9. Testing and sampling frequencies will be as described in the Standards.
10. All asphalt to be removed must be saw cut. A jackhammer can be used if a nice even cut is made. Wheel cutting is not an approved method unless approved by the City of Pacific Engineer in advance. Any deviation from this specification shall be in writing 48-hours before saw cutting takes place.
11. Additional asphalt may be required for removal by the City of Pacific Engineer or Inspector.
12. All vertical drop-offs within the traveled way will be backfilled each night.
13. Abutting edges and curbs must be thoroughly cleaned
14. All asphalt edging will be tacked prior to asphaltting.
15. All asphalt patches must be a smooth transition. No bumps or high/low spots (Section 5-04.3(13)). Surface smoothness maximum variation in 10-feet parallel to the centerline is 1/8" and transverse 1/4".
16. Sub grade will be compacted and tested prior to asphaltting.
17. A minimum of 3-inch HMA CL 1/2" PG-64-22 asphalt patch to be compacted to 92% max rice density (Section 5-04.3(10)B).
18. All final joints and saw cuts to be sealed (Section 5-05.3(8)B) using a hot poured joint sealant (Section 9-04.2(1)). A preferred sealant is AR-4000.
19. On major streets where traffic congestion is a problem, the patch will be protected with a 1/4 inch steel plate until sufficiently cooled.
20. Call for a forms inspection before placing of concrete. Call (253)929-1110 to schedule.

21. No monolithic pours allowed per the City Engineer. The sidewalk, curb & gutter, driveways, driveway aprons, wheelchair ramps, etc. are to be individual pours and separated by a fabric expansion joint.
22. Protecting the concrete is the responsibility of the contractor. No graffiti, footprints, finishing blemishes or other objectionable marks allowed. If any of this takes place, the section that is damaged will be replaced.
23. Concrete shall be a 5.5 sack mix with a 28-day strength of 3000 psi. Any deviation from this specification shall be in writing 48-hours before concrete is placed.
24. During the first 14-days of curing, the contractor must protect from freezing.
25. Curb/Gutter and sidewalk construction shall follow a true and uniform horizontal and vertical alignment.
26. The vertical and horizontal surfaces shall be a smooth broom finish with no detectable finishing blemishes, undulations, ripples, swells, waves, ruts, furrows, graffiti or other objectionable marks. The end result shall be a neat and professionally finished appearance.
27. The edge finish adjacent to the expansion joint material shall be clean and free of excess slurry. The expansion joint material shall be trimmed to a level even with the adjacent concrete resulting in a neat and professionally finished appearance.
28. The City Engineer, in his sole discretion reserves the authority to order the removal of sections of curb/gutter and sidewalk that do not meet the workmanship and aesthetic standards of the City of Pacific.
29. Sections of newly constructed curb/gutter and sidewalk, that exhibit cracking following curing, shall be subject to removal and replacement.
30. Cracking resulting from sub-base failure or construction site damage shall be immediately removed and replaced to the nearest expansion joint.
31. Minor hair line stress cracks may, at the discretion of the Project Manager, be monitored and re-evaluated for possible removal at the end of the maintenance period.

STORM DRAINAGE NOTES

1. See the City of Pacific Standard Notes on Sheet ___.
2. See the Construction Sequence on Sheet ____.
3. All storm drainage improvements shall be constructed in accordance with these approved plans. Any deviations from these plans shall require approval from the owner, engineer, and appropriate public agencies.
4. Storm drain pipe shall meet the following requirements:
 - A. Plain concrete pipe conforming to the requirements of AASHTO M 86, Class 2.
 - B. Reinforced concrete pipe conforming to the requirements of AASHTO M 170.
 - C. PVC pipe shall conform to ASTM D 3034-73 SDR 35 for 4" thru 15" diameter PVC pipe, and shall conform to ASTM F 679 for 18" thru 27" diameter PVC pipe, with joints and gaskets conforming to ASTM D 3212 and ASTM F 477.
 - D. Ductile iron pipe conforming to the requirements of ANSI A21.51, and AWWA C 151, thickness class as approved by City Engineer.
 - E. Polyethylene smooth wall pipe per Advanced Drainage Systems (ADS) N-12, bell and spigot, constructed per WSDOT Standard Specifications 7-04. Note: This type of pipe will only be approved with the City's specific written approval. Approval shall be based on site specific conditions and if additional on-site inspection time for witnessing proper pipe installation can be scheduled by the City.
5. All pipes shall be suitable for use as a gravity drain conduit.
6. The Contractor shall be required to place metallic tape over all non-metallic pipes. The metallic tape shall be a minimum of 2 inches in width and placed continuously the entire length of the storm drain trench.
7. All trenches for storm drains shall be in accordance with the Section 7 of the current WSDOT Specifications for Roads, Bridges and Municipal Construction.
8. All fittings shall be of like material as the pipe furnished by the pipe supplier.
9. Where connections require "field verifications", connection points will be exposed by contractor and fittings verified prior to disruption of flow.
10. Catch basins shall conform to Type I, Type II, or the Inlet Type as defined in said APWA Standards Specifications and Standard Plans with flat top frame and grate.
11. All storm drainage structures, such as catch basins and manholes, not located within a traveled, paved roadway or concrete sidewalk, shall have locking lids. All drainage structures associated with a permanent detention facility shall have locking lids. All drainage structures located within a bike or walking path shall have locking lids.
12. All catch basins grates shall include the stamping "Outfall to Stream, Dump No Pollutants".
13. The cast iron frame may be placed flange down on adjustment blocks in lieu of precast collar. The installation of catch basins shall include final adjustment as may be required to finish grade. Installation within the paved roadway shall be per the City of Pacific Type I catch basin with 18-inch barrier curb detail unless specified as a thru-curb inlet.
14. Catch basins must be set to line grade using no more than two (2) adjustment rings.
15. Cast iron frame for Type I catch basin shall accommodate a 20-inch x 24-inch grate.
16. Catch basins at the Curb line shall be recessed 0.1 feet.

17. Special structures, oil/water separators and outlet controls shall be installed per plans and manufacturers recommendations.
18. Minimum 1-foot separation between pipes in Type II catch basins.
19. All storm lines and catch basins will be high-velocity cleaned and pressure tested in accordance with Division 7 of the Standard Specifications prior to paving in conformance with the standard specifications. Hydrant flushing of lines is not an acceptable cleaning method.
20. All driveway culverts located within the Right-of-Way shall be of sufficient length to provide a minimum 3:1 slope from the edge of the driveway to the bottom of the ditch.
21. Clean-outs shall have cast iron cases.
22. Drainage outlets (Stub outs) shall be provided for each individual lot. Stub-outs shall conform to the following:
 - A. Each outlet shall be suitably located at the lowest elevation on the lot, so as to service all future roof downspouts, footing drains, driveways, yard drains, and any other surface or subsurface drains necessary to render lots suitable for their intended use. Each outlet shall have free-flowing, positive drainage to an approved storm water conveyance system or to an approved outfall location.
 - B. Minimum slope on roof and foundation drain stubs shall be 0.5% and have a minimum of 1 foot of cover. Roof drains and foundation drainpipes shall be constructed of PVC ASTM D3034 SDR 35, and ASTM F679.
 - C. Outlets on each lot shall be located with a section of PVC pipe marked "Storm" on the end of the pipe and shall extend 36 inches above the ground.
 - D. Drainage easements are required for drainage systems designed to convey flows through individual lots.
 - E. The Engineer/Contractor is responsible for coordinating the locations of all stub out conveyance lines with respect to utilities (e.g., Power, Gas, Telephone, Cable, etc.)
 - F. All individual stub outs shall be privately owned and maintained by the lot owner.
23. Overflow, spillways, gravel filter windows must be constructed per plans and specifications. No deviations. As-built for verification required.
24. Grass lined swale shall be constructed per the details provided. No deviations allowed. All swales must be operational before acceptance.
25. A low-pressure air test at 5 PSI for 15 minutes for sewer mains is required. 48-HOUR NOTICE REQUIRED. (Section 7-17.3(2)H).
26. Any permanent flow control facility used as a temporary settling basin shall be modified with the necessary erosion control measures and shall provide adequate storage capacity. If the facility is to function as an infiltration system, the temporary facility must be graded so that the bottom and sides are a least three (3) feet above the final grade of the permanent facility.

WATER SYSTEM NOTES

1. See the City of Pacific Standard Notes on Sheet ___.
2. See the Construction Sequence on Sheet ____.
3. All water system improvements shall be constructed in accordance with these approved plans. Any deviations from these plans shall require approval from the owner, engineer, and appropriate public agencies.
4. Water mains 4-inch diameter and larger will be ductile iron cement mortar-lined thickened. Materials are to conform to the latest revision of the following standards:
 - Ductile Iron Pipe design (AWWA C150/A21.50)
 - Ductile Iron Pipe manufacturing process (AWWA C151/A21.51)
 - Cement Mortar Lining (AWWA C104/A21.4)
 - Ductile Iron Pipe joints (AWWA C111/A21.11)
 - Ductile Iron fittings (AWWA C153/A21.53 and C110/A21.10)
5. Water Main Installation shall conform to the latest revision of Ductile Iron Pipe installation (AWWA C600)
6. Maintain a minimum 1-foot vertical separation and a 30-inch horizontal separation between the waterline and all other Utilities except Sanitary Sewer, which is to be a 10-foot horizontal separation. Waterline trench is not to be shared with other Utilities.
7. Trench excavation, bedding and backfill for water mains shall be in accordance with section 7-10 of the current version of the Standard Specifications for Road, Bridge and Municipal Construction and the City of Pacific Development Guidelines for Public Works Standards trench details.
8. Maximum length of open trench shall be 100-feet.
9. The waterline shall be fitted with a watertight plug at any anytime work is delayed or stopped and overnight. If newly installed waterline is contaminated with ground water, the entire length of pipe affected shall be thoroughly cleaned prior to installing additional pipe.
10. All pipe and services will be installed with continuous tracer tape installed 12 inches to 18 inches under the final ground surface. The marker will be plastic non-biodegradable, metal core, or backing marked water, which can be detected by a standard metal detector. Tape will be Terra Tape D or approved equal. In addition to the tracer tape, blue toning (tracer) wire will be installed over all pipe and services. Toning wire will be UL listed, Type UF, 14-gauge coated copper taped to the top of the pipe to prevent stretching and damage. The wire will be brought up and tied off at valve body or meter setter with the end of the wire accessible to hook up to a locator (2 feet of slack). All toning wire splices and connections will join wires both mechanically and electrically and will employ epoxy resin or heat-shrink tape insulation. Toning wire will be tested prior to acceptance of the pipe system. A written notice from the contractor to the City two days prior to the test is required.
11. Water Valves shall conform to Ductile Iron Resilient Wedge Gate Valves (AWWA C515). Acceptable manufacturers: American Flow Control, Clow, Kennedy, M&H, Mueller, or City approved equal.
12. System valves will be operated by City employees only.

13. At any connection to an existing line where a new valve is not installed, the existing valve must be pressure tested to City standards by the contractor prior to connection. If an existing valve fails to pass the test, the contractor will make the necessary provisions to test the new line prior to connection to the existing system or install a new valve.
14. At any water main tap to existing city mains where the contractor encounters a coupling or existing assemblies, the contractor will provide a minimum of 18 inches of clearance from coupling or assemblies to edge of tapping sleeve.
15. Any connection to an asbestos cement (A/C) water main shall require the replacement of at least one length of A/C water main with ductile iron pipe per Standard Detail C1C.
16. No connection to the existing mains will be allowed except by means of an approved backflow prevention device prior to satisfactory flushing, testing, disinfections and receipt of satisfactory bacteriological test results.
17. Any persons performing Hot Taps shall be approved in advance by the City of Pacific. Spears Taps, Inc. at (425)485-4764 is an acceptable companies.
18. Fire Hydrants shall conform to the latest revision of Dry Barrel Fire Hydrants (AWWA C502). Acceptable manufacturers: AVK, M&H "Reliant" #929, Mueller, or City approved equal.
19. Fire hydrants will be bagged until system is approved. Hydrants will be painted with Parker Paint Marathon Enamel Safety Yellow paint or equal. All chains between caps and hydrants shall be cut and removed.
20. Fire Hydrants shall be set vertical plumb with the pumper port facing the street.
21. Fire Hydrants shall be set as such that the break away joint is no more than 6-inches above and no less than 3-inches above the finished grade.
22. There shall be 5-foot minimum clearance around the fire hydrants.
23. Fire Hydrants shall have a 5" Storz Rigid Female Adapter with cap and connecting cable.
24. The water services to the property line from the main line shall be 1-inch minimum copper and shall be installed in accordance with Section 7-15 of the current version of the Standard Specifications for Road, Bridge and Municipal Construction and the City of Pacific Development Guidelines for Public Works Standards.
25. Installation of Thrust Blocks shall conform to the City of Pacific Guidelines for Public Works Standards details, Thrust Block (TB). The Contractor shall use plastic sheeting to prevent contact between the concrete and the fittings. The City of Pacific Engineering Department shall inspect thrust Blocks prior to backfilling the trench.
26. The City will be given 10 working days' notice prior to scheduling a shutdown. The City of Pacific Water Section or City Inspector will perform the shutdown. Where connections require "field verification," connection points will be exposed by contractor and fittings verified two working days prior to scheduling City crews to distribute shutdown notices. The City will notify customers involved or affected of the water service interruption 48 hours in advance.
27. The City of Pacific Engineering Department must be notified at least 48-hours prior to commencing construction and for inspection requests. Inspections shall include pipe installation, pipe bedding, bagging, thrust blocking, pressure testing and trench backfill.

28. The Contactor shall notify and coordinate with the City of Pacific Water Department prior to the start of construction and prior to any water shut off or turn on that will affect the water system.
- Scheduled waterline shut downs: 72-hours notice required. Contact Jim Schunke at (253)929-1116 or (253)261-5044 for scheduling. Water Department personnel will operate distribution valves.
 - Emergency waterline shut downs: Contact Jim Schunke at (253)929-1116 or (253)261-5044 or on call public works personnel at (253)333-4522. The Water Department will be notified.
29. All mains will be disinfected conforming to Disinfections (AWWA C651).
30. All lines will be pressure and water quality tested in the presence of and under the supervision of the City of Pacific in conformance with the Specification 7-09.3. The contractor shall furnish all labor, equipment and material to disinfect, flush and conduct a pressure test of the completed waterline(s).
31. Dechlorinization will be required of all disinfection water flushed from waterlines which cannot be conveyed to existing Sanitary Sewer Systems.

SANITARY SEWER CONSTRUCTION NOTES

1. See the City of Pacific Standard Notes on Sheet ___.
2. See the Construction Sequence on Sheet ____.
3. All sewer system improvements shall be constructed in accordance with these approved plans. Any deviations from these plans shall require approval from the owner, engineer, and appropriate public agencies.
4. All pipe and services will be installed with continuous tracer tape installed 12 inches to 18 inches below the proposed finished sub-grade. The marker will be plastic non-biodegradable metal core or backing, marked "sewer" that can be detected by a standard metal detector. Tape will be Terra Tape "D" or approved equal. The tape will be furnished and installed by the contractor.
5. If visibility cannot be maintained between structures along the straight alignment of a sewer, toning wire will be installed above the sewer line at a depth no greater than 48 inches. Toning wire will be UL listed, Type UF, 14-gauge copper taped to the top of the pipe to prevent movement during backfilling. The wire will be laid loosely enough to prevent stretching and damage. The wire will be wrapped to manhole or cleanout rings on gravity sewers. A 1-pound magnesium anode will be buried with the pipe every 1,000 linear feet maximum for cathodic protection of the wire. Toning wire splices and connections to anodes will join wires both mechanically and electrically and will employ epoxy resin or heat-shrink tape insulation. Toning wire will be tested prior to acceptance of the pipe system. A written notice from the contractor to the City two days prior to the test is required.
6. Bedding of the sewer main and compaction of the backfill material will be required.
7. All manholes or cleanouts outside the paved area will be installed with a concrete collar in accordance with Standard Plans.
8. After backfilling, but prior to paving, all mains and appurtenances will be inspected and approved by the City of Pacific Construction Inspector. Approval does not constitute final acceptance of the sewer line. The contractor will retain the responsibility to repair all deficiencies and failures revealed during all required testing for acceptance and through the duration of the warranty. It will be the contractor's responsibility to notify the City of Pacific for the required inspections. Any main or appurtenance backfilled prior to inspection will be re-excavated for inspection.
9. All lines will be high-velocity cleaned and subjected to a low-pressure air test pursuant to current WSDOT/APWA Specifications after backfilling, but prior to paving (see General Note 1). Hydrant flushing of lines is not an acceptable cleaning method. Testing of the sanitary sewer main will include television inspecting of the main by and at the expense of the contractor under the direct supervision of the City. Immediately prior to television inspecting, enough water will be run down the line so it comes out the lower manhole and the line is flushed clean. Acceptance of the line will be made after the television inspection tape has been reviewed and approved by the inspector.
10. A vacuum test of all manholes in accordance with Pacific standards is also required. Testing will take place after all underground utilities are installed and compaction of the roadway sub-grade is completed.
11. Television inspection of existing lines shall be required when there are multiple sewer taps of existing mains for a single project.

12. All side sewers shall be extended to property lines. Pipe plugs will be required for side sewer if immediate connection is not to be made.
13. The new sanitary sewer line shall be plugged and not put into service until all lines have been cleaned, flushed and tested. All sanitary lines shall be inspected by the City of Pacific and all testing shall be done in the presence of the City of Pacific Representative.
14. All PVC Sewer Pipe and fittings shall conform to and meet the requirements of the latest ASTM specifications D3034. Also,
 - A. Pipe and fittings shall meet Standard Dimension Ratio 35.
 - B. All sanitary sewer pipes shall bear the mark of the National Sanitation Foundation.
 - C. All pipes shall be suitable for use as a gravity sewer conduit.
 - D. Pipe shall have flexible joints.
15. All fittings and accessories shall be manufactured and furnished by the pipe supplier or be an approved equivalent and have bell and/or spigot configuration identical to that of the pipe. Manhole couplings corresponding to the size of the sewer pipe shall be used.
16. 6-inch PVC sanitary sewer pipe shall be used for side sewers. Side sewers will be constructed at a minimum slope of 2% at the locations shown on the plans and have a 6 inch test wye at the extremity, plugged and blocked for testing and future use. Side sewers wye shall be factory made with matched ends for rubber gasket fittings, no cut in tees shall be permitted. *A side sewer grade that is less than 2% may be approved only by the Engineer and the City of Pacific upon written request.*
17. The end of each sanitary sewer stub shall be marked with a pressure treated 2x4. It shall be placed at the flow line of the stub and extend 4 feet above finished grade. There shall be a permanent mark labeled "SEWER" with a depth to the flow line shown on the 2x4.
18. Rubber gasket shall be installed properly to avoid water infiltration into the manhole.
19. When connecting the pipe to manholes, use A-LOK flexible connector, KOR-NSEAL by NP, Inc., or approved equivalent. The pipe to manhole connections require flexible connectors, see WSDOT/APWA Specifications Section 7-05.3.
20. Pick holes shall be grouted from the inside and outside and are to be inspected prior to backfill of the manhole by the City Inspector.
21. Manhole frames and lids shall be sloped to conform to the street grades.
22. Tops of manholes within the Public Right-of-Ways shall not be adjusted to final grade until just prior to paving.
23. All manholes and clean-outs in unpaved areas shall include a concrete collar around the adjustment rings per the current Pacific standard detail ____, "Structure Adjustment and Perimeter Seal".
24. All manholes shall be protected from intrusion of rocks, gravel, water and other debris during construction. The Contractor shall install, at all connections to existing down stream manholes, screens or plugs to prevent foreign material from entering existing sanitary sewer system. Screens or plugs shall remain in place throughout the duration of construction and shall be removed along with the collected debris at the time of final inspection and in the presence of a designated representative of the City of Pacific. Call (253)929-1110 to schedule an inspection. Allow 24-hours notice.

25. The flow channel inside each manhole shall be formed of cast-in-place Portland cement concrete. Channel shall have a semi-circular cross-section and smooth, uniform slope from inlet to outlet. Where three or more pipes are connected to one manhole, the flow channel shall be formed to smoothly direct flow from inlets to outlet.
26. Steps consisting of one (1) inch diameter hot bent and galvanized deformed bars shall be installed at one (1) foot centers.
27. All testing and connections to the existing mains shall be done in the presence of a designated representative of the City of Pacific. Call (253)929-1110 to schedule an inspection. Allow 24-hours notice.
28. A low-pressure air test at 5 PSI for 15 minutes for sewer mains is required. Pretesting is required. Rescheduling a failed test may result in several days delay due to conflicts with other projects. Call (253)929-1110 to schedule an inspection. Allow 24-hours notice.