


PART TWO - MATERIALS	2-11 PRESSURE REDUCING STATION See Construction Drawings and Detail Sheet.	2-23 IMPORTED BACKFILL MATERIAL Imported backfill material shall be free from wood, bark, roots or other extraneous material and shall meet the following requirements: <table border="1" data-bbox="1144 132 1480 255"> <tr> <th>U.S. Standard Sieve Size</th> <th>% Passing By Weight</th> </tr> <tr> <td>2-1/2" Square Opening</td> <td>100</td> </tr> <tr> <td>1/4" Sieve</td> <td>25 Min.</td> </tr> <tr> <td>No. 200</td> <td>10 Max.</td> </tr> <tr> <td>Sand Equivalent</td> <td>35 Min.</td> </tr> </table> PEA GRAVEL WILL NOT BE ALLOWED AS BACKFILL MATERIAL.	U.S. Standard Sieve Size	% Passing By Weight	2-1/2" Square Opening	100	1/4" Sieve	25 Min.	No. 200	10 Max.	Sand Equivalent	35 Min.	3-8 BACKFILLING No backfilling shall be performed until after the District has inspected the installation of the pipe and bedding and approved backfilling. The initial backfill shall be hand placed select material spread evenly over the bedding material and compacted by hand up to an elevation of 12 inches above the top of the pipe. This shall be done in such a manner that subsequent backfilling will not disturb the pipe in any way. Subsequent lifts of not more than 12-inch thickness shall be placed as shown on the Standard Details and individually compacted to minimum 90 percent maximum density. Subsequent backfilling shall be performed by pushing material from the end of the trench along and directly over the pipe so that the material will be applied in the form of rolling slope, rather than by side filling. Backfilling from the sides of the trench will not be done until the District has determined that material has been carefully placed over the pipe to a sufficient depth.	3-16 CONCRETE BLOCKING Concrete blocking shall be cast from 1:3:6 mix with a slump of not more than six inches (6"). Concrete blocking shall be cast-in-place, (not mixed in trench) and have a minimum of 1/4 square foot bearing against the fitting and bearing area against undisturbed soil as shown in the Standard Details. Additional bearing area may be required by the District. Blocking shall bear against fittings only and shall be clear of joints to permit taking up or dismantling joints. All hydrants, bends, tees, and valves shall be blocked. The Developer shall install blocking that is adequate to withstand full test pressure as well as operating pressures under all conditions of service. Vertical blocking, when required, shall conform to that shown in the Standard Details.	3-22 CONNECTION TO EXISTING PIPE LINES No connections shall be made to the existing system until all hydrostatic and purity tests have been satisfactorily completed for the new sections of pipe. The two systems shall be completely isolated up to this point. Where cut-ins are to be made in existing pipes, the work shall be conducted at such a time and in such a manner as to minimize the interruption of service. Necessary pipe, fittings and gale valves shall be assembled at the site ready for installation prior to shutting off water in the existing main. Once the water has been cut off, the work shall be prosecuted vigorously and shall not be halted until the line is restored to service. All fittings required for the connection shall be thoroughly washed with chlorine solution prior to connection. Unless specifically provided for elsewhere in these Specifications, the Developer shall have the responsibility of giving at least 24 hours notice to the District of intention to disrupt service and shall give at least 24 hours notice to the affected water users. Developer shall not operate any valves, including fire hydrant valves, in any part of the existing water system, except in the presence of the District. Developer shall notify the District 24 hours in advance of the need to operate valves.																													
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NOTE: Developer in these specifications shall also signify "Contractor" for the purpose of District Financed Projects.	2-12 AIR AND VACUUM RELEASE VALVES See Standard Details.																																											
2-1 GENERAL All materials and equipment shall be new and undamaged. Where possible, the same manufacturer of each item shall be used throughout the job.	2-13 DETECTOR CHECK VALVE Detector check valves shall be U.L. approved, FEBCO Model 806 DDC or equal. See Standard Details.	PART THREE - CONSTRUCTION	3-1 GENERAL Except as otherwise noted herein, all work shall be accomplished as recommended in the latest revision of AWWA and APWA Specifications and according to the recommendations of the manufacturer of the material and equipment concerned.	3-17 AIR AND VACUUM RELEASE VALVE INSTALLATION See Plans. Location of the air release valves as shown on the Plans is approximate. The installation shall be set at the high point of the line.	3-23 WET TAPS The material requirements for wet or "hot" taps of existing pipe lines shall be as follows: TAPPING GATE VALVES Valves shall be of the resilient-seated variety and shall meet or exceed the requirements of AWWA C509. Valves shall be coated internally and externally with fusion bonded epoxy coating meeting or exceeding AWWA C550. Double metal disc or solid metal wedge valve designs are not acceptable. All valves shall be new and of current manufacture, and shall display a current casting date. For applications with working pressures exceeding 175 psi, a ductile iron valve rated for 250 psi or higher working pressure shall be used. The valve shall be U.S. Pipe "Metrosal 250" or approved equal. For applications with working pressures below 175 psi, valves of the following manufacture, or an approved equal, are acceptable: Clow, M & H, Mueller, U.S. Pipe. TAPPING SLEEVES All tapping sleeves shall be rated by their manufacturer for a working pressure of at least 200 psi. Acceptable sleeve types are as follows: "Mechanical Joint" Style. May be of either ductile or grey iron construction, although ductile iron is preferred. Acceptable for both size-on-size and non size-on-size applications on cast iron, ductile iron, and AC mains through 12" on 12" only. All mechanical joint sleeves shall be new and of current manufacture shall display a current casting date and be manufactured by Clow, Dresser, Mueller, Tyler, U.S. Pipe or approved equal. "Stainless Steel" Style. The District prefers all stainless construction in this style. However, stainless sleeves with ductile iron (but not carbon steel) flanges are also acceptable. These sleeves are acceptable for all applications on ductile iron, cast iron and AC mains through 12" on 12" only. Stainless sleeves shall be manufactured by JCI or Romac or be an approved equal.																																							
2-2 MATERIAL LISTS AND SPECIFICATIONS The Developer or his Contractor shall deliver to the Engineer a material list not less than ten (10) days before commencement of construction. The list shall contain the manufacturer and model number, if applicable, of the material and equipment to be installed as a part of the work so that the Engineer may determine whether such materials conform to the Plans and Specifications. Materials that are not included in the material list shall not be installed as a part of the work. The manufacturer's technical specifications for pipe, appurtenances and equipment to be incorporated into the work shall be submitted to the Engineer at least ten (10) days before commencement of construction with the materials listed.	2-14 HYDRANT GUARD POSTS Guard posts shall be precast concrete nine inches (9") in diameter by six feet (6') long constructed with concrete having minimum strength of 3,500 psi. Reinforcing shall consist of a minimum of four (4) #3 deformed steel bars. See Standard Detail #4 for placement.	3-2 ALIGNMENT Pipe shall be laid to the specified grade and alignment as staked in the field. Alignment deviation shall not exceed 0.5 feet. Replacement of stakes lost or destroyed shall be made at the Developer's expense and in accordance with Contract Plans, including modifications called for by the District.	3-9 COMPACTION OF BACKFILL Compaction of backfill and backfill procedures in public rights-of-way shall, at the minimum, conform to the requirements of the governmental agency having jurisdiction thereof. Backfilling shall be compacted to 95 percent of maximum theoretical density from the pipe crown to the surface. In all areas where paving will be placed over the backfill and in shoulder areas and to 90 percent of maximum theoretical density in all other areas. Measurement of compaction density shall be by the modified AASHTO method. Compaction of backfill shall be achieved by power operated tampers, or roller vibration equipment. Water settling will not be accepted as a means of compaction. If excavated material has a California Bearing Ratio for compacted and soaked sample of less than 7, or for any other reason in the judgement of the District cannot be compacted as specified, such excavated material shall be replaced with imported backfill material. No backfill shall be placed without immediate compaction according to these specifications.	3-18 HYDROSTATIC PRESSURE TEST The hydrostatic pressure test shall be performed after the water system to be tested is initially filled, but before bacteriological sampling is conducted. Filling of mains from existing facilities shall be through an approved Reduced Pressure Backflow Device (RPBD) or Double Check Valve Assembly (DCVA). Hydrostatic pressure tests shall be performed on all related sections. The test shall be made at the high point of the section. Only District personnel shall operate valves. At no time shall the Developer's personnel operate valves during the testing procedures. The Developer shall provide all necessary equipment, including temporary blowoff assemblies and provisions for temporary thrust restraint, and shall perform all work connected with the tests. The installation shall be tested at 250 psi. All mains, valves, hydrants, service fittings, and thrust blocks are to be tested at 250 psi. All service lines shall be tested from the main to the curb stop, in conjunction with the main at the pressure stated above. Containers used during testing must be clean of debris and disinfected. A 300 p.s.i. pressure gauge is to be used during test.	3-24 BACKFLOW PREVENTION DEVICES Where the possibility of contamination of the water supply exists, the District will require certain services be equipped with a backflow prevention device. The only acceptable device is that which operates on the reduced pressure principle as indicated in the latest edition of the DOH approved list. The determination as to the need, size and location of a backflow device shall be determined solely by the District.																																							
2-3 GUARANTEE BY MANUFACTURER If requested by the District or the Engineer, a written guarantee made by the manufacturer of any materials to be incorporated into the work shall be furnished, guaranteeing to the District that such materials shall conform to these Specifications and any specifications otherwise applying to the work.	2-15 VALVE MARKER POSTS Valve marker posts shall be equal to Fog-Tite Meter Seal Company product 4" x 4" - 42" long. See Standard Details.	3-3 TRENCH Trenches shall be excavated to the line and grade designated by the District. Except for unusual circumstances where approved by the District, the trench sides shall be excavated vertical and the trench shall be excavated to only such widths as are necessary for adequate working space. The maximum trench width at the top of the pipe shall normally be the outside diameter of the pipe barrel plus 18 inches. The trench shall be kept free from water until joining material has set. Surface water shall be diverted so as to not enter the trench. The Developer shall maintain sufficient pumping equipment on the job to insure that these provisions are carried out. Boulders, rocks, roots and other obstructions shall be entirely removed or cut out to the width of the trench and to a depth of 6 inches below water main grade. Where material is removed from below a water main grade, the trench shall be backfilled to grade with material satisfactory to the District and thoroughly compacted. Trenching operations shall not proceed until pipe laying is ready to commence and not more than 300 feet of trench shall be opened in advance of pipe laying operations without written approval of the District. All work on County right-of-way shall be backfilled in its entirety each day.	3-10 POLYETHYLENE ENCASEMENT Where the District determines that the pipe will be installed in corrosive soils, the Developer will protect the pipe with a polyethylene encasement as per AWWA/CWA C105/A 21.5-82. No holes or repairs in the polyethylene encasement are allowed. Taping is required - poly wrap tape.	3-19 STERILIZATION AND FLUSHING OF WATER MAIN Sterilization shall be by chlorine-bearing compound placed in each pipe length or capsules secured to the top of the barrel of each pipe length. Chlorine residual shall not be less than 50 parts per million. Sterilization shall include all pipe mains, all pipe runs to hydrants and all service lines to the curb stop. Contact period shall be for a minimum of 24 hours during which time all valves shall be opened and closed. After the contact period, all mains, services and pipe runs to hydrants shall be thoroughly flushed and dechlorinated. A pressure test will be taken; then a water sample taken for testing and approval by the Washington State Department of Health. Flushing water drawn from pipe or hydrant shall pass through an approved RPBD or DCVA. No pressure testing is allowed during contact period.	3-25 TRAFFIC CONTROL All traffic control shall be according to the Manual of Uniform Traffic Control Devices and/or the agency with local jurisdiction. During construction, traffic shall not be delayed for more than 5 minutes unless previously approved by the District and the agency of jurisdiction.																																							
2-4 DUCTILE IRON PIPE AND FITTINGS (a) Ductile iron pipe shall conform to AWWA Standard C-151. Pipe shall be thickness class 52 or as indicated on the Drawings. Pipe and fittings shall have cement mortar lining conforming to AWWA Standard C-104. Joints shall be mechanical joint or push-on joint and shall conform to AWWA Standard C-111. (b) Cast iron fittings shall conform to AWWA Standard C-110 or C-153. Mechanical or push-on joints shall conform to AWWA Standard C-111. Flanged joints shall conform to ASA Standard B-161, class 125. Flange gaskets shall be ring type, cloth insert rubber, 1/16-inch thick, equal to Rainbow or Durable Gasket.	2-16 CONCRETE BEDDING AND BLOCKING Bedding and blocking concrete shall be Portland cement concrete containing four sacks of cement per cubic yard and a maximum aggregate size of 1-1/2 inches. Maximum slump shall be 3-1/2 inches.	3-4 TRENCH FOUNDATION If, in the judgement of the District, the native trench bottoms will provide a firm base for the subsequent placement of bedding, pipe and backfill, such native trench bottom may be used if the bottom is leveled and smoothed so that the entire length of pipe will rest on a well-compacted base. Trench bottoms shall be over-excavated as necessary to remove all unstable soil and eliminate "belling" or "quick" conditions to such a depth as to provide a firm base. Over-excavated materials shall be replaced with trench foundation material as specified in Section 2-19. Foundation material shall be placed when ordered by the District.	3-11 JACKED OR BORED CROSSING All work shall be done in accordance with the requirements of the agency in control of the facility being bored or jacked. See highway crossings and railroad crossings (Section 3-12) for further details.	3-20 REPLACING ROAD SURFACING The Developer shall restore all roadway and driveway surfaces excavated or disturbed to a condition acceptable to the District and to the governmental agency having control of the road. Before replacing asphalt surfacing, the edges of the existing asphalt shall be trimmed, as necessary, to make a smooth joint. Where concrete must be broken out prior to trench excavation, the cut in the concrete shall be made by sawing square and straight with a concrete saw to a depth of not less than 1 inch.	3-26 ASBESTOS CEMENT PIPE All pipe work and procedures are to be followed as set forth in WAC-296-62-077 thru 296-62-0776, including appendix A thru J.																																							
2-5 COPPER PIPE AND FITTINGS (a) Copper pipe shall conform to ASTM B 88, type K, annealed. (b) Fittings shall be brass conforming to ASTM B 82 for compression style connections. See Standard Details.	2-18 BEDDING MATERIALS Bedding material shall be well-graded, clean, granular sand and shall meet the following requirements: <table border="1" data-bbox="656 664 991 807"> <tr> <th>U.S. Standard Sieve Size</th> <th>% Passing By Weight</th> </tr> <tr> <td>3/8" square opening</td> <td>100</td> </tr> <tr> <td>1/4" square opening</td> <td>90-100</td> </tr> <tr> <td>#10 sieve</td> <td>40-75</td> </tr> <tr> <td>#40 sieve</td> <td>15-40</td> </tr> <tr> <td>#200 sieve</td> <td>0-15</td> </tr> </table>	U.S. Standard Sieve Size	% Passing By Weight	3/8" square opening	100	1/4" square opening	90-100	#10 sieve	40-75	#40 sieve	15-40	#200 sieve	0-15	3-5 TIMBERING AND SHEETING The Developer shall provide and install timbering and sheeting as necessary to protect workers, the work, existing buildings, utilities and other properties, and shall meet all OSHA and WISHA requirements.	3-12 HIGHWAY CROSSINGS AND RAILROAD CROSSINGS This item applies only to rigid surface pavements. The Developer may use any method that provides satisfactory results and is acceptable to the governmental agency having control of the road and to the District, provided that the Developer restores the roadway to its original condition. Normally, highway crossings require the placing of a steel casing by jacking or tunneling and laying the water mains within this casing. For steel casing specifications - see Plans. For District Standards for boring or tunneling see "Water or Sewer Casing Detail" on separate sheet.	3-21 SERVICE CONNECTION (a) Ductile Iron Pipe: Connections into ductile iron pipe shall be by single strap saddles for 1-inch or smaller services and shall be made with double strap saddles for 1-1/2-inch and larger. Connections larger than 1-1/2-inch shall be made as required by the District. All saddles shall be epoxy coated and have stainless steel straps. (b) Service saddles, corporation stops, tees, curb stops and reducers shall be as manufactured by Ford or equivalent. (c) Taps to be made using tapping machine.	3-27 NEW WATER SERVICE LINES All new water service lines shall be marked with a 2" x 4" board which is to be located at meter box and the top of which shall be painted white and extended 4 feet above the ground labeled "WATER" in 2" high blue stenciled letters.																											
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2-6 VALVES (a) Gate valves shall be resilient seated, non-rising stem, conforming to AWWA Standard C-515. Valves to have S.S. nuts and bolts. Valves shall be open by turning counterclockwise. Joints shall be as indicated on the Plans. (b) Butterfly valves shall conform to AWWA Standard C-504 as supplemented herein. Valves shall be Class 150B with flanged, mechanical joint, or flanged x M.J. end connections. Valves in chambers shall be handwheel operated with integral position indicators. Buried valves shall have a stem extension with AWWA 2-inch operating nut and suitable valve box. Buried valves 14 inches or larger and other valves that may be designated "critical" shall be provided with a ground level position indicator and valve box adaptor. Rubber seats may be either body or disc-mounted. Valves using hardware to retain the seat shall positively secure all internal fasteners with lockwires or equivalent means.	2-19 TRENCH FOUNDATION MATERIAL Over-excavated material shall be replaced with trench foundation material conforming to one of the following gradations as specified: <table border="1" data-bbox="656 868 991 1011"> <tr> <th rowspan="2">U.S. Standard Sieve Size</th> <th colspan="2">Class "A"</th> <th colspan="2">Class "B"</th> </tr> <tr> <th>Min.</th> <th>Max.</th> <th>Min.</th> <th>Max.</th> </tr> <tr> <td>2-1/2" square opening</td> <td>98%</td> <td>100%</td> <td>95%</td> <td>100%</td> </tr> <tr> <td>2" square opening</td> <td>92</td> <td>100</td> <td>75</td> <td>100</td> </tr> <tr> <td>1-1/2" square opening</td> <td>72</td> <td>87</td> <td>30</td> <td>80</td> </tr> <tr> <td>1-1/4" square opening</td> <td>58</td> <td>75</td> <td>0</td> <td>15</td> </tr> <tr> <td>3/4" square opening</td> <td>27</td> <td>47</td> <td>0</td> <td>1</td> </tr> <tr> <td>No. 4 sieve</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> </tr> </table>	U.S. Standard Sieve Size	Class "A"		Class "B"		Min.	Max.	Min.	Max.	2-1/2" square opening	98%	100%	95%	100%	2" square opening	92	100	75	100	1-1/2" square opening	72	87	30	80	1-1/4" square opening	58	75	0	15	3/4" square opening	27	47	0	1	No. 4 sieve	0	1	0	0	3-6 DUCTILE IRON Pipe laying shall in general conform to AWWA Standard C-600 and the manufacturer's recommendations unless specifically contradicted by these Specifications. Special care shall be taken in handling pipe to avoid damaging ends, coatings and linings. Pipe shall be carried in slings and shall not be rolled or dragged. The pipe shall be cleaned of all foreign material and examined for defects before lowering into the trench. Whenever the pipe laying is not in process, the last section of pipe shall be tightly capped or plugged. No pipe cutting will be allowed except by means of a cutter or other device approved by the District. The trench shall be over-excavated 4 inches and a sand bedding shall be placed and compacted under and around to the spring line of the pipe. After approval by the District, the backfilling shall then be completed in conformance with the section on backfilling of this Specification.	3-13 FIRE HYDRANT INSTALLATION Hydrant installation shall generally conform to AWWA Standard C-600 and the Standard Detail "Fire Hydrant Assembly". The concrete guard posts as shown on the Standard Detail Drawing shall be installed where required by the District. Shackle rods shall receive two coats of cold tar or asphalt prior to installation. Pumper nozzle shall face the road after installation is completed.	3-22 ASPHALTIC CONCRETE Asphalt concrete pavement shall conform to the technical requirements for Class B Asphalt in the latest edition of the State of Washington Standard Specifications for Road, Bridge and Municipal Construction.	3-28 STREAMGUARD CATCH BASIN INSERTS All catch basins located along project shall have a streamguard sediment catch basin insert model 9226 as manufactured by Ultra-Drain Guard, model 3003 as manufactured by Foss Environmental or approved equal. Inserts are to be cleaned and replaced by Contractor per manufacturer's recommendations or by District direction.
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2-7 FIRE HYDRANTS Hydrants shall have a 5-1/4-inch main valve opening (MVO), 6-inch M.J. connections, two 2-1/2-inch hose connections, ASA (National) standard thread and a 4-inch pumper connection with City of Seattle standard threads 4-875. They shall have 36 inches of ground cover unless otherwise required, and be flanged at the ground line. Hydrants shall be constructed that the direction of the pumper connection may be related to face the roadway. Hydrant shackles and straps shall be as shown on the Standard Details. Hydrants shall be EHW Watermaster 5CD250 W/ Dust cap, Mueller, M & H, or Waterous Pacer model WB-87-250. See Standard Details.	2-20 ASPHALTIC CONCRETE Asphalt concrete pavement shall conform to the technical requirements for Class B Asphalt in the latest edition of the State of Washington Standard Specifications for Road, Bridge and Municipal Construction.	3-7 BEDDING MATERIAL PLACEMENT All right pipe shall be placed in bedding material of the type specified in Section 2-18. The bedding shall be placed from a minimum of four (4) inches below the pipe barrel to the spring line of the pipe as shown on the Standard Details. Bedding material shall be worked and compacted by hand under, around and over the pipe to the depths required for the full width of the trench. Bedding shall be placed in more than one lift. The first lift, to provide at least 4-inch thickness under any portion of the pipe, shall be placed before the pipe is installed and shall be spread smoothly so that the pipe is uniformly supported along the barrel. Subsequent lifts of not more than 6-inch thickness shall be placed as shown on the Standard Details and individually compacted to minimum 90 percent of maximum density.	3-14 GATE VALVE INSTALLATION Before installation, gate valves shall be cleaned of all foreign material as earlier specified for installation of pipe. Such blocking as the District may deem necessary shall be provided. The valve and valve box shall be set plumb with the valve box centered on the valve. The top of the valve box shall be set to the grade indicated by the District. If the valve nut is over 3 feet deep, operating nut extensions shall be used. Valve markers shall be set where required by the District. The marker shall be set on a line through the valve at a right angle to the centerline of the road. The marker shall be generally set on the property line unless the District decides another location is safer or more conspicuous. Operating nut extensions shall be used if the nut is over 3 feet deep.	3-23 REPLACING ROAD SURFACING The Developer shall restore all roadway and driveway surfaces excavated or disturbed to a condition acceptable to the District and to the governmental agency having control of the road. Before replacing asphalt surfacing, the edges of the existing asphalt shall be trimmed, as necessary, to make a smooth joint. Where concrete must be broken out prior to trench excavation, the cut in the concrete shall be made by sawing square and straight with a concrete saw to a depth of not less than 1 inch.	3-29 TAPPING GATE VALVES Valves shall be of the resilient-seated variety and shall meet or exceed the requirements of AWWA C509. Valves shall be coated internally and externally with fusion bonded epoxy coating meeting or exceeding AWWA C550. Double metal disc or solid metal wedge valve designs are not acceptable. All valves shall be new and of current manufacture, and shall display a current casting date. For applications with working pressures exceeding 175 psi, a ductile iron valve rated for 250 psi or higher working pressure shall be used. The valve shall be U.S. Pipe "Metrosal 250" or approved equal. For applications with working pressures below 175 psi, valves of the following manufacture, or an approved equal, are acceptable: Clow, M & H, Mueller, U.S. Pipe. TAPPING SLEEVES All tapping sleeves shall be rated by their manufacturer for a working pressure of at least 200 psi. Acceptable sleeve types are as follows: "Mechanical Joint" Style. May be of either ductile or grey iron construction, although ductile iron is preferred. Acceptable for both size-on-size and non size-on-size applications on cast iron, ductile iron, and AC mains through 12" on 12" only. All mechanical joint sleeves shall be new and of current manufacture shall display a current casting date and be manufactured by Clow, Dresser, Mueller, Tyler, U.S. Pipe or approved equal. "Stainless Steel" Style. The District prefers all stainless construction in this style. However, stainless sleeves with ductile iron (but not carbon steel) flanges are also acceptable. These sleeves are acceptable for all applications on ductile iron, cast iron and AC mains through 12" on 12" only. Stainless sleeves shall be manufactured by JCI or Romac or be an approved equal.																																							
2-8 VALVE BOXES Valve boxes shall be cast iron, two-piece, suitable for installation required, equal to Rich Co. style 045 with drop in handle or approved equal. Locking lids of approved design shall be used where designated on plans.	2-21 TOP COURSE AND KEYSTONE MATERIAL For use in restoration of excavated areas, Top Course and Keystone material shall be manufactured from ledge or talus rock, be free from wood, roots, bark and other extraneous material and shall conform to the following requirements: <table border="1" data-bbox="656 1195 991 1297"> <tr> <th>U.S. Standard Sieve Size</th> <th>% Passing By Weight</th> </tr> <tr> <td>5/8" square opening</td> <td>100</td> </tr> <tr> <td>1/4" square opening</td> <td>55-75</td> </tr> <tr> <td>U.S. No. 40 sieve</td> <td>8-24</td> </tr> <tr> <td>U.S. No. 200 sieve</td> <td>10 Max.</td> </tr> <tr> <td>Sand Equivalent</td> <td>40 Min.</td> </tr> </table>	U.S. Standard Sieve Size	% Passing By Weight	5/8" square opening	100	1/4" square opening	55-75	U.S. No. 40 sieve	8-24	U.S. No. 200 sieve	10 Max.	Sand Equivalent	40 Min.	3-8 DUCTILE IRON All pipe installed at slopes 15% or greater shall incorporate "Field Lok" gaskets and/or mechanical restrained joint glands.	3-15 VALVE BOX INSTALLATION Valve boxes shall be set flush in pavement. If placed in gravel areas, an asphalt pad 2 inches thick and three feet in diameter shall be placed around the box. No valve boxes shall be installed in the curb and gutter areas.	3-30 TAPPING GATE VALVES Valves shall be of the resilient-seated variety and shall meet or exceed the requirements of AWWA C509. Valves shall be coated internally and externally with fusion bonded epoxy coating meeting or exceeding AWWA C550. Double metal disc or solid metal wedge valve designs are not acceptable. All valves shall be new and of current manufacture, and shall display a current casting date. For applications with working pressures exceeding 175 psi, a ductile iron valve rated for 250 psi or higher working pressure shall be used. The valve shall be U.S. Pipe "Metrosal 250" or approved equal. For applications with working pressures below 175 psi, valves of the following manufacture, or an approved equal, are acceptable: Clow, M & H, Mueller, U.S. Pipe. TAPPING SLEEVES All tapping sleeves shall be rated by their manufacturer for a working pressure of at least 200 psi. Acceptable sleeve types are as follows: "Mechanical Joint" Style. May be of either ductile or grey iron construction, although ductile iron is preferred. Acceptable for both size-on-size and non size-on-size applications on cast iron, ductile iron, and AC mains through 12" on 12" only. All mechanical joint sleeves shall be new and of current manufacture shall display a current casting date and be manufactured by Clow, Dresser, Mueller, Tyler, U.S. Pipe or approved equal. "Stainless Steel" Style. The District prefers all stainless construction in this style. However, stainless sleeves with ductile iron (but not carbon steel) flanges are also acceptable. These sleeves are acceptable for all applications on ductile iron, cast iron and AC mains through 12" on 12" only. Stainless sleeves shall be manufactured by JCI or Romac or be an approved equal.	3-31 TRAFFIC CONTROL All traffic control shall be according to the Manual of Uniform Traffic Control Devices and/or the agency with local jurisdiction. During construction, traffic shall not be delayed for more than 5 minutes unless previously approved by the District and the agency of jurisdiction.																											
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2-9 CORPORATION STOP, SERVICE CLAMP, CURB STOP See Service Connections in Standard Details.	2-22 BASE COURSE MATERIAL Base course material shall conform to the following requirements: <table border="1" data-bbox="656 1359 991 1461"> <tr> <th>U.S. Standard Sieve Size</th> <th>% Passing By Weight</th> </tr> <tr> <td>1-1/2" square opening</td> <td>100</td> </tr> <tr> <td>5/8" square opening</td> <td>50-80</td> </tr> <tr> <td>1/4" square opening</td> <td>30-50</td> </tr> <tr> <td>U.S. No. 40 sieve</td> <td>3-18</td> </tr> <tr> <td>U.S. No. 200 sieve</td> <td>7.5 Max.</td> </tr> <tr> <td>Sand Equivalent</td> <td>40 Min.</td> </tr> </table>	U.S. Standard Sieve Size	% Passing By Weight	1-1/2" square opening	100	5/8" square opening	50-80	1/4" square opening	30-50	U.S. No. 40 sieve	3-18	U.S. No. 200 sieve	7.5 Max.	Sand Equivalent	40 Min.			3-32 TAPPING GATE VALVES Valves shall be of the resilient-seated variety and shall meet or exceed the requirements of AWWA C509. Valves shall be coated internally and externally with fusion bonded epoxy coating meeting or exceeding AWWA C550. Double metal disc or solid metal wedge valve designs are not acceptable. All valves shall be new and of current manufacture, and shall display a current casting date. For applications with working pressures exceeding 175 psi, a ductile iron valve rated for 250 psi or higher working pressure shall be used. The valve shall be U.S. Pipe "Metrosal 250" or approved equal. For applications with working pressures below 175 psi, valves of the following manufacture, or an approved equal, are acceptable: Clow, M & H, Mueller, U.S. Pipe. TAPPING SLEEVES All tapping sleeves shall be rated by their manufacturer for a working pressure of at least 200 psi. Acceptable sleeve types are as follows: "Mechanical Joint" Style. May be of either ductile or grey iron construction, although ductile iron is preferred. Acceptable for both size-on-size and non size-on-size applications on cast iron, ductile iron, and AC mains through 12" on 12" only. All mechanical joint sleeves shall be new and of current manufacture shall display a current casting date and be manufactured by Clow, Dresser, Mueller, Tyler, U.S. Pipe or approved equal. "Stainless Steel" Style. The District prefers all stainless construction in this style. However, stainless sleeves with ductile iron (but not carbon steel) flanges are also acceptable. These sleeves are acceptable for all applications on ductile iron, cast iron and AC mains through 12" on 12" only. Stainless sleeves shall be manufactured by JCI or Romac or be an approved equal.	3-33 TAPPING GATE VALVES Valves shall be of the resilient-seated variety and shall meet or exceed the requirements of AWWA C509. Valves shall be coated internally and externally with fusion bonded epoxy coating meeting or exceeding AWWA C550. Double metal disc or solid metal wedge valve designs are not acceptable. All valves shall be new and of current manufacture, and shall display a current casting date. For applications with working pressures exceeding 175 psi, a ductile iron valve rated for 250 psi or higher working pressure shall be used. The valve shall be U.S. Pipe "Metrosal 250" or approved equal. For applications with working pressures below 175 psi, valves of the following manufacture, or an approved equal, are acceptable: Clow, M & H, Mueller, U.S. Pipe. TAPPING SLEEVES All tapping sleeves shall be rated by their manufacturer for a working pressure of at least 200 psi. Acceptable sleeve types are as follows: "Mechanical Joint" Style. May be of either ductile or grey iron construction, although ductile iron is preferred. Acceptable for both size-on-size and non size-on-size applications on cast iron, ductile iron, and AC mains through 12" on 12" only. All mechanical joint sleeves shall be new and of current manufacture shall display a current casting date and be manufactured by Clow, Dresser, Mueller, Tyler, U.S. Pipe or approved equal. "Stainless Steel" Style. The District prefers all stainless construction in this style. However, stainless sleeves with ductile iron (but not carbon steel) flanges are also acceptable. These sleeves are acceptable for all applications on ductile iron, cast iron and AC mains through 12" on 12" only. Stainless sleeves shall be manufactured by JCI or Romac or be an approved equal.																									
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2-10 TWO-INCH BLOW OFF See Standard Details.																																												

FILE NAME (UPDATED BY) _____

DESIGNED					
DRAWN	TLR				
CHECKED	JMCSO				
	SM	REVISE WATER PER COAL CREEK UTILITY DISTRICT COMMENTS	08/21/08	JCC	DGS
		REVISION	DATE	BY	APP'D



15445 53RD AVE. S, SEATTLE, WA 98188
PHONE: (206) 431-7970 FAX: (206) 388-1648 WEB SITE: PACENG.COM
Civil Engineering and Planning Consultants



COAL CREEK UTILITY DISTRICT
6801 132ND PLACE S.E.
NEWCASTLE, WASHINGTON 98059

REFERENCE INFORMATION	DATE
FIELD BOOK:	JULY 26, 2007
SURV. CPU FILE:	SCALE
DATUM: NGVD29	NOTED

**VARNEY SUBDIVISION
STANDARD NOTES**

JOB NUMBER	07019.00
DWG. NO. 06015/NOTES-P2.DWG	
SHEET	2 OF 3