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Section	Title	Revision Summary
6	Drawings, Record Drawings and Valve Guides	<p>Paragraph B.5.c. Revisions incorporated as follows:</p> <p>c. The use of x-referencing when preparing electronic drawings is acceptable. Prior to the submission of any electronic drawing to HRSD, each x-referenced dwg file associated with a drawing shall be bound to that file. Referenced images (TIFF, JPEG, etc.) within the electronic drawing must also be embedded. Unbound electronic drawings will be returned to the FIRM for revision. The final delivered bound AutoCAD files must be of a manageable size for use in Meridian (files should not exceed 20MB).</p>
6	Drawings, Record Drawings and Valve Guides	<p>Paragraph B.7.e.i.e). Revisions incorporated as follows:</p> <p>e) Provide layout information tied to the Virginia State Plane coordinate system. For pipeline projects a minimum of two Virginia State Plane coordinates should be indicated on the drawing. Horizontal datum including the realization (also known as the adjustment) used should be referenced on the cover sheet. (e.g. NAD83(CORS96)).</p>
8	PER, Design, and Construction Submittal Requirements	<p>Attachment A -Summary of Major Submittals to HRSD has been revised as listed below:</p> <p>Submittal Description: Infrastructure Condition Assessment Plan > Submittal Format: Incorporated into PER draft and final; or, for projects without a PER.</p> <p>Submittal Description: Interim Valve Guides (at Substantial Completion Stage), Including final version of digital spreadsheet containing X,Y,Z coordinates.</p>
9	Real Estate Acquisition and Plat Guidelines	<p>Paragraph C. has been revised as follows:</p> <p>1. The FIRM shall provide an editable list by project parcel number (1,2,3,4,...) of the names, addresses, contact numbers, GPIN, Tax Map number, desired use of parcel (Permanent, Temporary, Access Ingress/Egress) and size, of the current property owners for each plat utilizing the HRSD Project Acquisition Tracking log under Attachment A.</p>

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		<p>2. The FIRM shall prepare plats for all required easements, permanent temporary, and access ingress/egress in a manner to meet the needs of HRSD and to be in accordance with Virginia State Library and Archives Standards for Plats and be recordable in the appropriate jurisdiction.</p> <p>3. Plat – Refer to Attachment B for a plat template showing critical information required to meet HRSD needs.</p> <p>7. For plats, minimum permanent easement width shall be 30-feet with centerline of pipe at the one-third point. For pipelines in easements along the right of way, permanent easement shall provide a minimum of ten feet from centerline of pipe to the edge of easement away from the right of way. Provide temporary easement widths as required for construction purposes. Access Ingress/Egress easement widths shall be determined per project and future operation and maintenance requirements.</p> <p>8. An electronic copy of the plats shall be provided in AutoCAD (.DWG) format at the release indicated in the RFP, or otherwise approved format. Two Virginia State Plane Coordinates shall be provided to tie the easement and/or property boundary to the Virginia State Plane grid. A reference to the horizontal datum including the realization (e.g. NAD83(CORS96) shall be included on the plat.</p>
9	Real Estate Acquisition and Plat Guidelines	Exhibit A. Revision made to this exhibit to change reference from <i>65% Project Design</i> to <i>50% Project Design</i> .
13	Coordination with Virginia Department of Environmental Quality (DEQ) for Certificate to Construct and Certificate to Operate and Tax Exemptions for Qualifying Projects	<p>Paragraph E. The following revisions have been incorporated:</p> <p>E. <u>Relocation, Replacement-In-Kind, Maintenance or Emergency Projects</u> - The FIRM is to coordinate with the HRSD Contract Specialist if the construction project qualifies for state tax exempt status. Qualifying projects must be coordinated with DEQ for sales tax exempt status. The FIRM as an agent for HRSD will request a review exemption</p>

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		from DEQ.
20	Condition Assessment Protocol	<p>Paragraph A. The following addition has been incorporated.</p> <p>HRSD also desires to collect condition information on existing treatment plant facilities to the extent possible during the course of construction activities. This section also details procedures for collecting information on such facilities.</p>
20	Condition Assessment Protocol	<p>Paragraph B. The following revisions have been incorporated.</p> <p>B. <u>Condition Assessment Plan during PER phase</u> – The FIRM will coordinate with HRSD’s Asset Management Division of the Engineering Department during the PER phase of a project to develop a Condition Assessment Plan for the existing HRSD infrastructure to be impacted by the rehabilitation, replacement, or new infrastructure project(s) This Condition Assessment Plan will be incorporated into the final PER. For projects without a PER (such as Design Build projects), incorporate this plan into the Basis of Design documents and/or Bridging Documents.</p>
24	Pipelines and Appurtenances	<p>Paragraph E.1.f.i.3). The following revisions have been incorporated.</p> <p><u>Eccentric Plug Valve</u> – Shall conform to AWWA C517 and shall have an exterior and interior coating of epoxy. Valve body and plugs shall be ASTM A 126 Class B cast iron or ASTM A-536 Grade 65-45-12 ductile iron with thickness in accordance with AWWA C-517.</p>
26	Checklist for Tie-Ins to Existing Interceptor Force Mains	<p>Attachment A. The following additional language has been incorporated under <u>Preparation Checklist</u>.</p> <p>If HDD or HDPE pipe bursting prior to tie-in, confirm relaxation time prior to cutting pull heads - TIME: _____</p>
29	Rehabilitation of Sanitary Sewer Systems	<p>Paragraph B.2. The following revisions have been incorporated.</p> <p>2. When sizing new piping or bypass systems, the FIRM should seek input from the HRSD Project</p>

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		<p>Manager who will contact appropriate personnel. HRSD has numerous resources available to aid in development of design calculations including both modeled and metered data. If HRSD does not have flow monitoring data, flow monitoring data collection should be considered to determine bypass sizing.</p>
29	Rehabilitation of Sanitary Sewer Systems	<p>Previous Paragraph B.7. referencing continuous liners through manholes has been removed from this section.</p>
29	Rehabilitation of Sanitary Sewer Systems	<p>Paragraph C.1.e. The following revisions have been incorporated.</p> <ul style="list-style-type: none"> e. Require close communication with HRSD and locality stakeholders who will be impacted by cleaning or lining operations.
29	Rehabilitation of Sanitary Sewer Systems	<p>Paragraph C.2. The following revisions have been incorporated.</p> <ul style="list-style-type: none"> a. Require videos immediately following cleaning and at the completion of the project. If lining is not installed immediately after cleaning, the pipe shall be inspected immediately prior to installation of liner with additional cleaning as required. Evaluate laterals and other points of concern per NASSCO requirements. b. Specify the maximum amount of water in the pipe when CCTV is performed. Determine if diversion pumping is required or alternate water removal/inspection method.
29	Rehabilitation of Sanitary Sewer Systems	<p>Paragraph C.4.a. The following revisions have been incorporated.</p> <ul style="list-style-type: none"> xiii. Continuous temperature monitoring system (Zia Systems or approved equal) and a redundant temperature monitoring system such as thermocouples, shall be utilized as an additional QA/QC measure during the curing process. xiv. Require final submittal of all temperature data.

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		<p>xv. Require inspection to be performed by an ITCP (Inspector Training and Certification Program) CIPP certified inspector.</p> <p>xvi. Require submission of all relevant CIPP submittal documents listed in the NASSCO ITCP CIPP documentation (latest version).</p>
29	Rehabilitation of Sanitary Sewer Systems	<p>Paragraph C.4.d. The following revisions have been incorporated.</p> <ul style="list-style-type: none"> i. To be considered on a case by case basis ii. Consultant should review all pipe material available for sliplining and make recommendatons iii. Require grouting of the annular space for all sliplining projects. Engineer to calculate theoretical volume of grout needed and to include in Bid Documents / Technical Specifications a means for the Contractor to measure quantity actually used. iv. Design and detail a watertight bulkhead between the slipliner and the host pipe at the manholes. v. Require certified fusion welder if HDPE or fusable PVC is used. Engineer recommendation is required for proposed material and joining method.
29	Rehabilitation of Sanitary Sewer Systems	<p>Paragraph C.5. The following revisions have been incorporated.</p> <p>5. Lateral Reinstatement – When external excavation is required, Insert–A-Tee is a good installation method which has been used on previous projects. When laterals are internally reinstated and lined, one piece main and lateral systems as manufactured by BLD or LMK (or approved equal) are a good method of reinstating</p>

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		<p>linings. The lining system should include a method of providing a permanent seal between the host pipe and liner at both the lateral to main connection, and the upstream portion of the lateral. This is a developing area and considerable research should be performed before making recommendations.</p>
29	Rehabilitation of Sanitary Sewer Systems	<p>Paragraph C.6.h. The following language <u>has been removed</u> from this paragraph.</p> <p>HRSD has had success with cementitious coatings, both Portland based and calcium aluminates, and various epoxies. If severe structural degradation has taken place, the use of Cast-In-Place rehabilitation has been successful, as well as the procedures for restoring structural integrity. An anti-microbial additive, such as Conshield, should be considered for any type of cementitious rehabilitation.</p>
30	Pump Stations	<p>Paragraph A.3. The following revisions have been incorporated.</p> <p>3. Submersible Pump Station – The pumps are located in a wet well. HRSD does own, operate, and maintain several submersible pump stations, although these are typically for small locality served systems. Refer to Section 36 - Standard Details, Series 400 in this standards manual for guidance.</p>
30	Pump Stations	<p>Paragraph C.3. The following revisions have been incorporated.</p> <p>a. Initial operating range pressures</p> <ul style="list-style-type: none"> i. Dry weather minimum ii. Dry weather maximum iii. Wet weather maximum <p>b. Future operating range pressures</p> <ul style="list-style-type: none"> i. Dry weather minimum ii. Dry weather maximum iii. Wet weather maximum

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30	Pump Stations	<p>Paragraph D.5. The following revisions have been incorporated.</p> <p>5. Provide concrete entrance and a paved driveway for off-street parking, access to building and provision to turn around a crew truck. During design, use visualization tools to solicit feedback from stakeholders regarding proper access and turnaround space at site.</p>
30	Pump Stations	<p>Paragraph D.9. The following revisions have been incorporated.</p> <p>9. Provide a separate conditioned space to accommodate sensitive electrical equipment, such as the switchgear, motor control center, and variable frequency drives as applicable with site and space limitations.</p>
30	Pump Stations	<p>Paragraph F.3. The following revisions have been incorporated.</p> <p>b. 3D modeling of the station must be completed and shared with stakeholders during the design phase to confirm maintenance access.</p> <p>c. If the contractor suggests an “equal” substitution to major equipment during the bid or construction phase, the maintenance access must be reconfirmed through 3D modeling. Major equipment to be defined by Engineer in the bid documents.</p>
30	Pump Stations	<p>Paragraph F.8. The following new language has been incorporated.</p> <p>8. All pumps shall have a one-inch tap on the volute with a ball valve and flexible hosing so that the employee servicing the pump can monitor the air venting process while also safely directing any air or water away from the work area.</p>
30	Pump Stations	<p>Paragraph F.9.a. The following revisions have been incorporated.</p> <p>iv. One spare set of mechanical seals</p>

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		v. One spare set of bearings
30	Pump Stations	<p>Paragraph I.4. The following revisions have been incorporated.</p> <p>4. Require Contractor to install wiring for the intrusion alarm system from all required doors and their associated monitoring devices, back to the pump station control panel. The OIT on the control panel will display door entry information. Alarm points to be determined by HRSD.</p>
30	Pump Stations	<p>Paragraph I.5.a.ii. The following revisions have been incorporated.</p> <p>ii. Provide two pressure sensors (one 0 – XX.XX psi and one 0-XX.XX psi) on the suction piping and one pressure sensor (0-XX.XX psi), on the discharge piping. Transmitter span will be provided by HRSD for the location. All transmitters to be mounted on 4- inch Red Valve Annular Seal. Refer to Section 36 - Standard Details, Series 300 in this standards manual.</p>
30	Pump Stations	<p>Paragraph I.5.b. The following revisions have been incorporated.</p> <p>ii. On the pump discharge header, provide a 4" Red Valve Annular Seal and pressure sensor or approved equal. Provide a tee with a 4" branch and install a 4" gate valve on the branch prior to the pressure sensor and install a blind flange on the outside of the pressure sensor. Provide two ¾" pipe nipples with valves for flushing and calibration purposes.</p> <p>iii. Wet well levels to be monitored by means of level sensors or bubbler system. If level sensors are utilized, two level sensors shall be installed, one for SCADA and one for control. If a bubbler system is used, provide a maintenance port for the level transmitter used to measure level in the wet well.</p>
30	Pump Stations	<p>Paragraph I.7. The following revisions have been incorporated.</p> <p>7. Include a flow meter and pressure sensor sized based on the design flow rate for the pump station. Location of the flow meter shall be downstream of</p>

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		<p>the emergency pump connection. Flow meters must be installed per manufacturers specifications or as directed by HRSD in any case where the manufacturers specifications cannot be met. For all pressure sensors installed, an elevation measurement must be taken and provided to the Project Manager prior to start-up of the facility.</p>
30	Pump Stations	<p>Paragraph I.13. The following new language has been incorporated.</p> <p>13. Refer to Attachments C and D in this standards section for the Wet Well Pump Station and Pressure Reducing Station functional descriptions templates. These documents should be submitted to HRSD in tracked changes.</p>
31	Treatment Plants	<p>Figure 31-1. The previous figure for <i>Calibration Column Detail</i> has been eliminated from this section.</p>
32	Electrical and Instrumentation	<p>Pump Station, Paragraph II.B.2.u. The following new language has been added.</p> <p>u. Provide separate room for indoor generator to reduce heat and noise.</p>
32	Electrical and Instrumentation	<p>Pump Station, Paragraph II.C.2. The following revisions have been incorporated:</p> <ul style="list-style-type: none"> g. Engine manufacturers shall provide fuel separators h. The heavy-duty air filter is to be a dry type with a restriction indicator i. Provide a Racor heavy duty crankcase vapor coalescer j. Provide a battery charging alternator 12V/65 amp, 24v/35amp minimum – negative ground) k. Skid-mounted radiator sized to prevent overheating in the most severe conditions (122°F ambient) l. Exhaust system and muffler shall be residential grade muffler (lowest DB reductions available). All insulation must be blanket type (non-asbestos), removable for servicing of exhaust system

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32	Electrical and Instrumentation	Pump Station, Paragraph II.H.1.a. The following revisions have been incorporated: a. Veeder Root TLS450
32	Electrical and Instrumentation	Pump Station, Paragraph VI.A.1. The following revisions have been incorporated: a. YASKAWA b. Allen Bradley
32	Electrical and Instrumentation	Pump Station, Paragraph VI.A.3.s. The following revisions have been incorporated: a. Provide VFD Cable with copper shielding, XLPE insulation manufacture by Belden or equal. 1) Consider these factors when designing motor HP, motor voltage and motor full load current, ambient temperature, VFD cable and connector ratings, and number of cables in raceway.
32	Electrical and Instrumentation	Pump Station, Paragraph IX.A.2. The following revisions have been incorporated: d. Belt drive not acceptable unless approved by Owner (Air detection is required if approved).
32	Electrical and Instrumentation	Pump Station, Paragraph XXI.D.2. The following revisions have been incorporated: 2. Provide explosion proof sump pump in Class 1 division 1 areas.
32	Electrical and Instrumentation	Treatment Plant, Paragraph III.A.2. The following revisions have been incorporated: j. Provide separate room for indoor generator to reduce heat and noise.
32	Electrical and Instrumentation	Treatment Plant, Paragraph III.C.2. The following revisions have been incorporated: i. Engine manufacturers shall provide fuel water separators

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		<ul style="list-style-type: none"> j. The air filter is to be a dry type with a restriction indicator k. Provide RTD's for monitoring bearing and winding temperatures l. Add vibration monitoring if > 1000 KW m. Provide a Racor heavy duty crankcase vapor coalesce n. All radiators and supporting appurtenances are to be galvanized steel o. The radiator core shall have solder coated fins to prevent corrosion by hydrogen sulfide gas p. Size radiator to prevent overheating in the most severe conditions (122°F ambient) q. Exhaust system and muffler shall be residential grade muffler (lowest DB reduction available). All insulation must be blanket type (non-asbestos), removable for servicing of exhaust system.
32	Electrical and Instrumentation	<p>Treatment Plant, Paragraph III.H.1. The following revisions have been incorporated:</p> <ul style="list-style-type: none"> a. Veeder Root TLS450
32	Electrical and Instrumentation	<p>Treatment Plant, Paragraph III.I. The following new paragraph has been incorporated:</p> <ul style="list-style-type: none"> I. Sub-base Fuel Tanks <ul style="list-style-type: none"> 1. Provided by Generator Manufacturer. 2. Must meet all UL-142 requirements for double-walled fuel tanks (Site Specific). 3. Must provide generator 48 hours of runtime at 100% load. 4. Must include high level, low level and leak detection alarms. J. Enclosure <ul style="list-style-type: none"> 1. Sound level is site specific. Must not exceed 75dBA @ 23 ft. 2. Must have full access to engine, generator and controls. 3. Must be able to operate at 100% load in all weather conditions.
32	Electrical and Instrumentation	<p>Treatment Plant, Paragraph III.M.1. The following new paragraph has been incorporated:</p>

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		<p style="text-align: center;">g. Monitor temporary generator master control panel connect to DCS for monitoring.</p>
32	Electrical and Instrumentation	<p>Treatment Plant, Paragraph VII.A.1. The following revisions have been incorporated:</p> <ul style="list-style-type: none"> a. Yaskawa b. Allen Bradley
32	Electrical and Instrumentation	<p>Treatment Plant, Paragraph VII.A.3. The following revisions have been incorporated:</p> <ul style="list-style-type: none"> t. Provide VFD Cable with copper shielding, XLPE insulation manufacture by Belden or equal. <ul style="list-style-type: none"> 1) Consider these factors when designing motor HP, motor voltage and motor full load current, ambient temperature, VFD cable and connector ratings, and number of cables in raceway.
32	Electrical and Instrumentation	<p>Treatment Plant, Paragraph X.A.2. The following revisions have been incorporated:</p> <ul style="list-style-type: none"> c. Direct Drive <ul style="list-style-type: none"> 1) Belt drive not acceptable unless approved by Owner (Air detection is required if approved).
32	Electrical and Instrumentation	<p>Treatment Plant, Paragraph XXII.A.1. The following revisions have been incorporated:</p> <ul style="list-style-type: none"> c. Provide explosion proof sump pump in Class 1 division 1 areas.
33	Information Technology Infrastructure Hardware	<p>Paragraph C.10. The following revisions have been incorporated:</p> <p>10. Switches, routers, and other active components making up the network infrastructure shall be manufactured by Cisco, be no less than five (5) years to end of life (EOL) and be capable of remote management. Under no circumstances shall a non-Cisco device or otherwise unmanageable network device be employed for</p>

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		any purpose.
34	Miscellaneous	Paragraph H.2. This former paragraph entitled “Piping and Equipment Identifications” was eliminated as this information is included in Master Specification 09900 Protective Coatings.
34	Miscellaneous	Paragraph H.3.d. The following revision has been incorporated; 1. Do not paint electrical conduit.
36	Standard Details	The detail formerly titled “101 - Easement Plat” has been revised and moved out of this section and into Section 9 – Real Estate Acquisition and Plat Guidelines under Attachment B – Plat Template.
36	Standard Details	The following new details have been incorporated into this section: 332 - Tracer Wire Locator Box 355 - Standard Air Vent Detail for Future Automatic Air Release Valves 508B – Typical Royston Handy Cap IP™ Installation 510 – Typical Bonding Plate 511 – Copper Wire to Pipe Pin Brazing Procedures
37	Suggested Division 1 Items	Paragraph A – Introduction. The following revision has been incorporated: HRSD has created the Master Technical Specifications in Section 40 under the Construction Specifications Institute (CSI), 2004 Master Format comprised of 16 Divisions, however the use of the newer 50 Divisions with approval of the HRSD Project Manager.
40	Master Specification Sections Overview	Specification Section 02530 – High Density Polyethylene (HPDE) Pipe and Fittings is a new technical section to the Standards.
40	01060 – Special Conditions	Paragraph 1.10.A. The following revisions have been incorporated: 1. The following are legal holidays for the Owner: <i>{review each calendar year}</i> a. New Year’s Day (January 1 st) b. Martin Luther King, Jr. Day (3 rd Monday in January). c. George Washington Day (3 rd Monday in February).

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		<ul style="list-style-type: none"> d. Memorial Day (Last Monday in May). e. Juneteenth (June 19th). f. Independence Day (July 4th). g. Labor Day (1st Monday in September). h. Election Day (1st Tuesday in November) i. Veteran’s Day (November 11th). j. Thanksgiving Day (4th Thursday in November). k. Friday after Thanksgiving Day. l. Christmas Day (December 25th).
40	02610 – Valves	<p>Paragraph 2.3.D.2. The following revision has been incorporated:</p> <ul style="list-style-type: none"> 2. Valve body and plugs shall be ASTM A126 Class B cast iron or ASTM A-536 Grade 65-45-12 ductile iron with thickness in accordance with AWWA C-517.
40	02610 – Valves	<p>Paragraph 3.2.A. The following revisions have been incorporated:</p> <ul style="list-style-type: none"> A. Valve Turn Count Verification and Inspection Procedures <ul style="list-style-type: none"> 1. Provide notification to HRSD Interceptors 48-hrs prior to the installation of all valves. 2. Contractor must stage valves near the point of installation to allow the construction inspector, a member of Interceptor Operations (if deemed necessary), and the contractor to verify turn counts and to inspect both the interior and exterior of the value during operation. 3. Prior to inspection, contractor must label each valve with the proposed stationing of the installation location. 4. Once a valve is staged at the installation site but prior to installation, valve turn counts must be verified and recorded by the construction inspector. The station labelling must also be confirmed by the construction inspector. No valve shall be installed if deviations in turn counts or station labelling are observed. HRSD, at its discretion, will witness the process. 5. Prior to the installation of a valve, it must be physically inspected by the construction inspector and the contractor during the valve open & close operations to ensure proper operation & seating. Torque measurements of the full operation must also be measured and recorded. Photographs shall be taken in the fully open, partially closed, and fully closed position prior to installation. 6. All documentation, including photographs, torque measurements, actual stationing, and number of turns must be provided to HRSD 48 hours after the valve has been installed. 7. A formal draft valve guide listing verified turn counts and all other required information must be submitted

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		<p>and approved by HRSD prior to the testing of any piping or valve assemblies.</p> <p>8. Any deviations to these procedures will be cause for the contractor to excavate and potentially replace the valves at Contractor cost.</p>
40	09900 - Protective Coatings	<p>Paragraph 3.8, Table 2. The following revisions have been incorporated into this table Color Shade and Paint Color Number.</p> <p>Gray, Dark 26132 Gray, Light 16473</p>
40	09900 - Protective Coatings	<p>Paragraph 3.8, Table 3. Numerous revisions have been incorporated into this table for Unit Process, Flow, Color, and Abbreviation. A careful review of this table is warranted.</p>