

SECTION 01725

FIELD SURVEYING

PART I: GENERAL

1.1 QUALITY CONTROL

- A. Conform to the State of Texas laws for surveys requiring licensed surveyors registered in the State of Texas. Employ a surveyor acceptable to the Project Manager if required by the Contract.

1.2 SUBMITTALS

- A. Conform to requirements of Section 01330 – Submittal Procedures.
- B. Submit name, address, and telephone number of the Surveyor to the Project Manager before starting survey work.
- C. Submit documentation verifying accuracy of survey work on request.
- D. Submit certificate signed by the Surveyor, that show elevations and locations of the Work are in conformance with the Contract.

1.3 PROJECT RECORD DOCUMENTS

- A. Maintain a complete and accurate log of control and survey work as it progresses.
- B. Prepare a certified survey setting forth dimensions, locations, angles, and elevations of construction and site work upon completion of foundation walls and major site improvements. Submit record documents under provisions of Section 01785 – Project Record Documents.

1.4 REFERENCES

- A. CFTS – City of Friendswood Technical Specifications.
 - 1. Section 00500 – General Conditions.
 - 2. Section 01330 – Submittal Procedures.
 - 3. Section 01785 – Project Record Documents.

1.5 EXAMINATION

- A. Verify locations of survey control points prior to starting the Work. Notify the Project Manager immediately if any discrepancies are discovered.

1.6 SURVEY REFERENCE POINTS

- A. The City will establish survey control datum as provided in Section 00500 – General Conditions and as indicated on the Drawings. Inform the Project Manager in advance of time horizontal and vertical control points will be established so verification deemed necessary by the Project Manager may be done with minimum inconvenience to the City or the Contractor.
- B. Locate and protect survey control points prior to starting site work; preserve permanent reference points during construction.
- C. Notify Project the Manager a minimum of forty-eight hours (48 Hrs) before relocation of reference points is needed due to changes in grades or other reasons.
- D. Promptly report loss or destruction of reference points to the Project Manager.
- E. Reimburse the City for cost of reestablishment of permanent reference points disturbed by construction operations.

1.7 SURVEY REQUIREMENTS

- A. Utilize recognized engineering survey practices.
- B. Establish a minimum of two (2) permanent benchmarks on site, referenced to established control points. Record horizontal and vertical location data in the Project Record Documents.
- C. Establish elevations, lines and levels to provide quantities required for measurement and payment and for appropriate controls for the Work. Locate and lay out the following with appropriate instruments:
 - 1. Site improvements including grading, fill and topsoil placement, utilities, and footings and slabs.
 - 2. Grid or axis for structures.
 - 3. Building foundation, column locations, and ground floor elevations.

D. Periodically verify layouts.

PART II: PRODUCTS – NOT USED.

PART III: EXECUTION – NOT USED.



SECTION 01730

CUTTING AND PATCHING

PART I: GENERAL

1.1 GENERAL REQUIREMENTS

- A. Cutting, patching and fitting of the Work or work under construction. Coordinating Installation or connection of the Work to existing facilities, or uncovering work for access, inspection or testing and related submittals.

1.2 CUTTING AND PATCHING

- A. Perform activities to avoid interference with facility operations and work of others in accordance with Section 00500 – General Conditions of Contract.
- B. Execute cutting and patching, including excavation, backfill and fitting to:
 - 1. Remove and replace defective work or work not conforming to the Drawings and Technical Specifications;
 - 2. Take samples of installed work as required for testing;
 - 3. Remove construction required to provide for specified alterations or additions to existing work;
 - 4. Uncover work to allow inspection or reinspection by the Project Manager or regulatory agencies having jurisdiction;
 - 5. Connect uninstalled work to completed work in proper sequence;
 - 6. Remove or relocate existing utilities and pipes that obstruct work;
 - 7. Make connections or alterations to existing or new facilities;
 - 8. Provide openings, channels, chases and flues and cut, patch, and finish; if required; or
 - 9. Provide protection for other portions of the Work.

- C. Restore existing work to a condition equal to or better than that which existed prior to cutting and patching, and to standards required by the Technical Specifications.
- D. Support, anchor, attach, match, trim and seal materials to work of others. Unless otherwise specified, Furnish and Install sleeves, inserts, and hangers required for execution of the Work.
- E. Provide shoring, bracing and support necessary to maintain structural integrity and to protect adjacent work from damage during cutting and patching. Request written approval from the Project Manager, before cutting structural members such as beams, anchors, lintels, or other supports. Follow approved submittals, as applicable.
- F. Match new materials to existing materials by bonding, lapping, mechanically tying, anchoring or other effective means in order to prevent cracks and to minimize evidence of patching. Conceal effects of demolition and patching by blending new construction to existing surfaces. Avoid obvious breaks, joints or changes of surface appearance unless shown on the Drawings or authorized by the Project Manager.

1.3 SUBMITTALS

- A. Conform to requirements of Section 01330 – Submittal Procedures.
- B. Submit a written request to the Project Manager for consent to proceed, before conducting cutting operations that might affect structural integrity, design function, City operations, or work of another contractor.
- C. Include the following in submittal:
 - 1. Identification of Project.
 - 2. Description of affected work.
 - 3. Necessity for cutting.
 - 4. Effect on other work and on structural integrity.
 - 5. Describe the proposed work including:
 - a. Scope of cutting and patching.
 - b. Contractor, Subcontractor or Supplier who will execute the Work.

- c. Proposed Products.
 - d. Extent of refinishing.
 - e. Schedule of operations.
6. Alternatives to cutting and patching.
- D. When work conditions or schedules dictate the need for change of materials or methods, submit a written recommendation to the Project Manager that includes:
- 1. Conditions necessitating the change;
 - 2. Recommendations for alternative materials or methods; and
 - 3. Submittals required for proposed substitutions.
- E. Notify the Project Manager in writing when work will be uncovered for observation. Do not begin cutting or patching operations until authorized by the Project Manager.

1.4 REFERENCES

- A. CFTS – City of Friendswood Technical Specifications.
- 1. Section 00500 – General Conditions.
 - 2. Section 01330 – Submittal Procedures.

1.5 CONNECTIONS TO EXISTING FACILITIES

- A. Perform construction operations necessary to complete connections and tie-ins to existing facilities. Keep existing facilities in continuous operation unless otherwise permitted in the Technical Specifications or approved in writing by the Project Manager.
- B. Coordinate interruption of service requiring connection to existing facilities with the Project Manager. Do not bypass wastewater or sludge to waterways. Provide temporary pumping facilities to handle wastewater if necessary. Use temporary bulkheads to minimize disruption. Provide temporary power and piping to facilitate construction where necessary.
- C. Submit a detailed schedule of proposed connections, including shut-downs and tie-ins. Include proposed time and date as well as anticipated duration of work. Coordinate the connection schedule with

the construction schedule.

1. Submit specific times and dates to the Project Manager a minimum of forty-eight hours (48 Hrs) in advance of proposed work.

D. Procedures and Operations:

1. Operate existing pumps, valves and gates in required sequence under supervision of the Project Manager. Do not operate valves, gates or other items of equipment without the Project Manager's knowledge.
2. If possible, test equipment under operating conditions before making final tie-ins to connect equipment to existing facility.
3. Coordinate work and schedules: Notify the Project Manager a minimum of forty-eight hours (48 Hrs) before shutdowns or bypasses are required.

PART II: PRODUCTS – NOT USED.

PART III: EXECUTION – NOT USED.

END OF SECTION

SECTION 01735

PROCEDURE FOR VALVE ASSISTANCE

PART I: GENERAL

1.1 GENERAL REQUIREMENTS

- A. The City of Friendswood employees shall operate all existing valves. The Contractor's employees may operate new valves included in the Work prior to acceptance by the City.

1.2 PROCEDURE

- A. Perform activities listed in this Section. Utility Division personnel shall also follow these procedures when completing a service request, Document 01740 – Utility Division Assistance Request, from individual Contractors, through Project Manager, for operation of existing water valves.

1.3 SUBMITTALS

- A. Submit request for work order planning meetings in accordance with this Section.

1.4 REFERENCES

- A. CFTS – City of Friendswood Technical Specifications.
 - 1. Document 01740 – Utility Division Assistance Request.

1.5 CANCELLATION

- A. The Contractor, the Project Manager, or Utilities Division may cancel a scheduled valve assistance appointment at no extra cost or payment to the Contractor. The Contractor shall notify the Project Manager a minimum of twenty-four hours (24 Hrs) in advance of scheduled valve operation. The Project Manager shall notify the Department of Public Works immediately upon receipt of cancellation notice. Cancellation may be caused by bad weather, preparation work taking longer than anticipated or unforeseen delays by one (1) or more of the three (3) parties.

PART II: PRODUCTS – NOT USED.

PART III: EXECUTION

3.1 ROUTINE VALVE ASSISTANCE REQUEST

A. When notified by the Contractor, the Project Manager shall schedule a work order planning meeting by sending Document 01740 – Utility Division Assistance Request to the Department of Public Works and providing information shown below. The work order planning meeting shall be conducted a minimum of three days (3 D) prior to the date requested for valve operations; excluding weekends, holidays, inclement weather days, and the day of the call.

1. Project Name.
2. Project Number.
3. Location of the Work requested.
4. Date and time assistance requested.
5. Contractor's Name.
6. Superintendents Name.
7. Superintendents Phone Number.
8. Project Manager's Name.
9. Project Manager's Phone Number.

B. The Department of Public Works shall create a work order for each wet connection, cut and plug, etc.

C. The Department of Public Works shall give the Project Manager the work order number. This work order number must be used as a reference in all communications regarding this request for Valve Assistance.

D. Utility Division personnel must have the work order number on their route sheet. When Utility Division personnel arrive at the job site for the Work Order Planning Meeting between the Project Manager, the Contractor, and Utility Division personnel, they will verify the street intersection and work order number with the Project Manager before beginning Work Order Planning Meeting.

- E. During Work Order Planning Meeting, the work to be performed will be outlined and the actual date the work shall be performed will be mutually determined by the Project Manager, the Contractor and City's Utility Division personnel, based upon relevant factors such as preparatory work needed, customer requirements, etc.
- F. Utility Division personnel shall perform work specifically outlined in the work order requested. Also, Utility Division personnel shall operate only existing water valves. The Project Manager shall contact the Department of Public Works and request a new work order for additional work.
- G. Utility Division personnel will contact the dispatcher and advise when the job is complete. Utility Division personnel will list all appropriate information on the Crew Activity Report.
- H. Should Utility Division personnel not be able to keep an appointment to provide valve assistance, Utility Division shall provide notification to appropriate Project Manager by phone at least twenty-four hours prior (24 Hrs), with that fact and rescheduling information, if available.
- I. The Project Manager shall notify the Department of Public Works if Utility Division personnel have not arrived at the site within thirty minutes (30 Min) of scheduled appointment. If the Contractor is not ready when Utility Division personnel arrives to provide valve assistance, the City shall charge the Contractor sixty-five dollars (\$65.00) per hour, per employee, starting thirty minutes (30 Min) after the scheduled appointment time, minimum one hour (1 Hr) charge.
- J. The Contractor shall not be due delay claims or downtime if Utility Division has notified the Project Manager that they will not be able to provide valve assistance as scheduled.
- K. Test installed new valves in the presence of the Project Manager and the Utilities Supervisor during the substantial completion inspection. Place new valves in open position on or before the Date of Substantial Completion.
- L. The Project Manager shall notify, in writing, the Department of Public Works one month (1 Mo) before the one year (1 Yr) maintenance bond expires to report any problems they have with new water lines. The Project Manager shall notify the Contractor about these problems.

3.2 EMERGENCY REQUEST FOR VALVE ASSISTANCE PROCEDURE

- A. When notified by the Contractor, the Project Manager shall request emergency Valve Assistance due to a broken line/service, etc. by

calling the Department of Public Works at (281) 996-3382 and providing the following information:

1. Project Name.
 2. Project Number.
 3. Location of the Work requested.
 4. Nature of the emergency.
 5. Contractor's Name.
 6. Superintendents Name.
 7. Superintendents Phone Number.
 8. Project Manager's Name.
 9. Project Manager's Phone Number.
- B. The Department of Public Works shall create an emergency work order number and describe the work to be performed.
- C. The Department of Public Works shall give the Project Manager the emergency work order number. Reference work order number in all communications regarding request for Valve Assistance.
- D. The Department of Public Works shall contact Utility Division personnel and assign the emergency work order.
- E. Utility Division personnel must have the emergency work order number on the route sheet. When Utility Division personnel arrive at the job site for emergency work, they shall verify the street intersection and emergency work order number with the Project Manager prior to beginning the work requested for operating existing water valves. Utility Division personnel shall coordinate verification of street intersection and work order number with the Project Manager prior to performing work.

3.3 AFTER HOURS EMERGENCY VALVE ASSISTANCE

- A. If, after normal working hours, it becomes necessary for valve assistance, the Contractor or the Project Manager shall call the Police Dispatcher at (281) 996-3300 and supply said dispatcher with the following information:
1. Caller's Name.

2. Caller's Title.
 3. Caller's Employer.
 4. Nature of the emergency.
 5. Location of the emergency.
- B. The Dispatcher shall follow standard procedures and notify the Utility Division Person On-call and relay this information.
- C. The Utility Division Person On-call shall notify the Project Manager of the emergency and both shall go to the location and assess the emergency situation.
- D. The Utility Division Person On-call shall determine if other personnel are needed, and procedure to call them in as needed. The Utility Division Person On-call shall document all activities, equipment, personnel and time used, and will send it to the Department of Public Works the following regular business day.

END OF SECTION

DOCUMENT 01740

UTILITY DIVISION ASSISTANCE REQUEST

DATE REQUESTED: {INSERT DATE}

TIME REQUESTED: {INSERT TIME}

Type of Assistance Required:

- Valve Operation Water and Sewer Utilities locate
 Bacterial Testing (BAC-T) Flushing Waterlines

Project Name: {INSERT PROJECT NAME}

Project Number: {INSERT PROJECT #}

Company Requesting Assistance: {INSERT CONTRACTOR NAME}

Company Contact Name: {INSERT CONTRACTOR CONTACT}

Company Telephone: {INSERT CONTACT PHONE #}

Company Fax: {INSERT CONTRACTOR FAX}

Type of Work: {INSERT CONTRACTOR WORK TYPE}

Location of Work: {INSERT ASSISTANCE LOCATION}

Nearest Cross Street: {INSERT NEAREST CROSS STREET}

Project Manager: {INSERT PROJECT MANAGER}

Project Manager Phone Number: {INSERT PM PHONE #}

DEPARTMENT OF PUBLIC WORKS USE ONLY

Received By: _____

Date Received: _____ Time Received: _____

END OF DOCUMENT

SECTION 01745

SITE RESTORATION

PART I: GENERAL

1.1 GENERAL REQUIREMENTS

- A. Restoration of site affected by the Work in public or private property, including pavement, esplanades, sidewalks, driveways, fences, lawns and landscaping.

1.2 MEASUREMENT AND PAYMENT

A. Unit Prices.

1. Payment for restoration of the Project site disturbed by utility construction operations is on a linear foot basis. Measurement will be as provided for corresponding utility in each Technical Specification section. No separate payment made for branch pipe, valves and, other associated work for utilities. Measurement for restoration with multiple utilities within the same right-of-way will be on a linear foot basis for only one (1) utility.
2. No separate payment made for facility or roadway projects. Include cost in the surface improvements associated with the facility or roadway construction.
3. Payment includes required site restoration within the right-of-way or easement regardless of size or type of pipe, method of construction, paved or unpaved areas or thickness and width of pavement.
4. No separate payment made for site restoration for service connections under this Section. Include cost in appropriate utility section.
5. Refer to Section 01270 – Measurement and Payment for Unit Price procedures.

B. Total Stipulated Price (Lump Sum) Contracts.

1. If Contract is Total Stipulated Price Contract, include payment for work under this section in Total Stipulated Price.

1.3 REFERENCES

- A. CFTS – City of Friendswood Technical Specifications.
 - 1. Section 01110 – Scope of Work.
 - 2. Section 01270 – Measurement and Payment.
 - 3. Section 01330 – Submittal Procedures.
 - 4. Section 01560 – Tree and Plant Protection.
 - 5. Section 01580 – Waste Disposal.
 - 6. Section 02455 – Disinfection of Water Lines.
 - 7. Section 02845 – Pavement Repair and Resurfacing.
 - 8. Section 02910 – Hydromulch Seeding.
 - 9. Section 02915 – Sodding.

1.4 DEFINITIONS

- A. Phase: Locations identified on the plans and listed in Section 01110 – Summary of Work under Work Sequence.
- B. Site Restoration: Replacement or reconstruction of Site Improvements located in rights-of-way, easements, public property, and private property affected or altered by the Work.
 - 1. Disturbed areas outside easements, rights-of-way or other designation of the proposed Work Area shall be restored at the Contractors expense.
 - 2. Temporary construction Easements or any other areas used for the benefit of the Contractor is incidental to the Work and shall be restored at no cost to the City.
- C. Site Improvement: Includes pavement, curbs and gutters, esplanades, sidewalks, driveways, fences, lawns, irrigation systems, landscaping, and other improvements in existence at the Project site before commencement of construction operations.

1.5 SUBMITTALS

- A. Conform to requirements of Section 01330 -Submittal Procedures.

- B. Schedule of testing, service connections, abandonment, backfill, and site restoration.
- C. Sample of notices to residents outlining their responsibility for maintenance of site improvements adjacent to the Project that are not disturbed by construction operations.

1.6 SCHEDULING

- A. Schedule testing, service connections, abandonment, backfill and site restoration immediately following completion of pipe laying work or paving within each block or line segment.
- B. Phased Construction:
 - 1. Commencement of subsequent Phase will follow scheduling of site restoration of prior Phase. Limit work to a maximum of two (2) Phases of the project.
- C. Construction of Projects with no Phases listed in Section 01110 – Summary of Work:
 - 1. Complete site restoration prior to disturbing over fifty percent (50%) of total project linear feet or two thousand linear feet (2000 Lf), whichever is greater, of right-of-way or easement.
 - 2. Limit work to a maximum of fifty percent (50%) of total project linear feet or two thousand linear feet (2000 Lf), whichever is greater, of right-of-way and easement. Commence work in additional right-of-way or easement after completion of site restoration.

PART II: PRODUCTS

2.1 MATERIALS

- A. Pavement, Sidewalks and Driveways: Materials specified in Section 02845 – Pavement Repair and Resurfacing.
- B. Seeding and Sodding: Sod specified in Section 02915 – Sodding and Seed specified in Section 02910 – Hydromulch Seeding.
- C. Trees, Shrubs and Plantings: Conform to requirements of Section 01560 – Tree and Plant Protection.

PART III: EXECUTION

3.1 Preparatory Work

- A. Provide cleanup and restoration crews to work closely behind pipe laying and roadway construction crews, and where necessary, during testing, service restoration, abandonment, backfill and surface restoration.
- B. Water Lines: Unless otherwise approved by the Project Manager, comply with the following:
 - 1. Once the Project Manager approves work within a Phase, immediately begin preparatory work for disinfection effort.
 - 2. No later than three days (3 D) after completing disinfection preparatory work, submit to City appropriate request for disinfection.
 - 3. If City fails to perform initial disinfection of lines in accordance with Section 2455 – Disinfection of Water Lines, within seven days (7 D) from submission of appropriate request, and if approved by the Project Manager, pipe laying operations may continue beyond approved limits until the City responds.
 - 4. Immediately after transfer of services, begin abandonment of old water lines and site restoration.
- C. Wastewater Lines:
 - 1. Once the Project Manager approves work within a Line Segment, immediately begin preparatory work for testing effort.
 - 2. No later than three days (3 D) after completing preparatory work for testing, initiate testing work.
 - 3. Immediately after transfer of service connections, begin abandonment of old wastewater lines, and site restoration.
- D. Street Construction and Paving Projects.
 - 1. Once the Project Manager approves work within a block, immediately begin preparatory work for sidewalk construction, sodding and hydromulching and tree planting.
 - 2. No later than seven days (7 D) after completing preparatory work, initiate construction.

3.2 CLEANING

- A. Remove debris and trash to maintain a clean and orderly site in accordance with requirements of the General Conditions and Section 01580 – Waste Material Disposal.

3.3 LANDSCAPING AND FENCES

A. Seeding and Sodding.

1. Remove construction debris and level area with bank sand so that new grass surface matches level of existing grass and maintains pre-construction drainage patterns. Level and fill minor ruts or depressions caused by construction operations with bank sand, where grass is still viable.
2. Restore previously existing turfed areas with sod and fertilize in accordance with Section 02915 – Sodding. Sod to match existing turf.
3. Restore unpaved areas not requiring sodding with hydromulch seeding conforming to Section 02910 – Hydromulch Seeding.

B. Trees, Shrubbery and Plants.

1. Remove and replant trees, shrubs, and plants in accordance with requirements of Section 01560 – Tree and Plant Protection.

C. Fence Replacement.

1. Replace removed or damaged fencing to equal or better condition than existed prior to construction, including concrete footings and mow strips. Provide new wood posts, top and bottom railing and panels. Metal fencing material, not damaged by the Work, may be reused.
2. Remove and dispose of damaged or substandard material.

3.4 MAINTENANCE

- A. Maintain shrubs, plantings, sodded areas and seeded areas.
- B. Replace shrubs, plantings and seeded or sodded areas that fail to become established.

- C. Refer to Section 01560 – Tree and Plant Protection, Section 02915 – Hydromulch Seeding and Section 02910 – Sodding for maintenance requirements.

END OF SECTION



SECTION 01755

STARTING SYSTEMS

PART I: GENERAL

1.1 GENERAL REQUIREMENTS

- A. Starting systems.
- B. Demonstration and instructions.
- C. Testing, adjusting and balancing.

PART II: PRODUCTS – Not Used.

PART III: EXECUTION

3.1 PREPARATION

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify the Project Manager seven (7) days prior to startup of each item.
- C. Verify each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other damage-causing conditions.
- D. Verify tests, meter readings, and specified electrical characteristics agree with those required by equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision in accordance with manufacturer's instructions.
- G. When specified in individual Technical Specification sections, require manufacturer to provide an authorized representative to be present at the site to inspect, check and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit written report indicating that equipment or system has been properly installed and is functioning correctly.

3.2 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of Products to the Project Manager two (2) weeks prior to Date of Substantial Completion.
- B. Utilize O & M Manuals as the basis for instruction. Review contents of manual with the Project Manager in detail to explain aspects of operation and maintenance.
- C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times, at the equipment location.
- D. Prepare and insert additional data in O & M Manuals when the need for additional data becomes apparent during instruction.
- E. At a minimum, the Contractor will demonstrate the following:
 - 1. Products and procedures to be used in maintaining various surfaces, e.g., counter tops, toilet partitions, tile floors and carpeting;
 - 2. procedures to set and maintain landscape irrigation system;
 - 3. procedures to set and maintain security and fire alarm systems; and
 - 4. procedures to set and maintain HVAC systems.

3.3 TESTING, ADJUSTING AND BALANCING

- A. The Contractor shall appoint, employ and pay for the services of an independent firm to perform testing, adjusting and balancing.
- B. Submit reports by the independent firm to the Project Manager describing observations and results of tests and signifying compliance or non-compliance with specified requirements and requirements of the Contract.

END OF SECTION

SECTION 01770

CLOSEOUT PROCEDURES

PART I: GENERAL

1.1 GENERAL REQUIREMENTS

- A. Procedures to establish Date of Substantial Completion.
- B. Closeout procedures for final submittals, O & M data, warranties, spare parts and maintenance materials.
- C. Texas Department of Licensing and Regulation (TDLR) inspection for Texas Accessibility Standards (TAS) compliance.

1.2 SUBSTANTIAL COMPLETION

- A. Comply with Section 00500 -General Conditions regarding Date of Substantial Completion when Contractor considers the Work, or portion thereof designated by the Project Manager, to be substantially complete.
- B. Insure the following items have been completed when included in the Work, prior to presenting a list of items to be inspected by the Project Manager for issuance of a Certificate of Substantial Completion:
 1. Cutting, plugging, and abandoning of water, wastewater, and storm sewer lines, as required by the Contract Documents for each item;
 2. Construction of, and repairs to, pavement, driveways, sidewalks, and curbs and gutters;
 3. Sodding and hydromulch seeding, unless waived by the Project Manager in writing;
 4. General clean up including pavement markings, transfer of services, successful testing and landscape;
 5. Additional requirements contained in Section 01110 – Summary of Work.
- C. Assist the Project Manager with inspection of the Contractor's list of items and complete or correct the items, including items added by the Project Manager, within specified time period.

- D. Should the Project Manager's inspection show failure of the Contractor to comply with requirements to obtain Date of Substantial Completion, including those items in Paragraph 1.2.B. in this Section, the Contractor shall complete or correct the items, before requesting another inspection by the Project Manager.

1.3 REFERENCES

- A. CFTS – City of Friendswood Technical Specifications.
 - 1. Section 00500 – General Conditions.
 - 2. Section 01110 – Summary of Work.
 - 3. Section 01330 – Submittal Procedures.
 - 4. Section 01785 – Project Record Documents.
- B. TAS – Texas Accessibility Standards.
- C. TDLR – Texas Department of Licensing and Regulation.

1.4 CLOSEOUT PROCEDURES

- A. Comply with Section 00500 – General Conditions regarding final completion and final payment when the Work is complete and ready for the Project Manager's final inspection.
- B. Provide Project Record Documents in accordance with Section 01785 – Project Record Documents.
- C. Complete or correct items on punch list, with no new items added. Address new items during warranty period.
- D. The City will occupy portions of the Work as specified in other sections.

1.5 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. For facilities, clean interior and exterior glass and surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Clean equipment and fixtures to sanitary condition.

- D. Clean or replace filters of operating equipment.
- E. Clean debris from roofs, gutters, down spouts, and drainage systems.
- F. Clean site; sweep paved areas, and rake clean landscaped surfaces.
- G. Remove waste and surplus materials, rubbish, and temporary construction facilities from site following final test of utilities and completion of the Work.

1.6 ADJUSTING

- A. Adjust operating equipment to ensure smooth and unhindered operation. Value of this testing and adjusting is five percent (5%) of Lump Sum Price in the Schedule of Values for item being tested.

1.7 OPERATION AND MAINTENANCE DATA

- A. Submit O & M data as noted in Section 01330 – Submittal Procedures.
- B. Five percent (5%) of lump sum amount of each piece of equipment as indicated in Schedule of Unit Price Work or Schedule of Values will be paid after the required O & M data submittals are received and approved by the Project Manager.

1.8 WARRANTIES

- A. Provide one (1) original of each warranty from Subcontractors, Suppliers, and Manufacturers.
- B. Provide Table of Contents and assemble warranties in a 3-ring/D binder with durable plastic cover.
- C. Submit warranties prior to final progress payment.
- D. Warranties shall commence in accordance with the requirements in Section 00500 – General Conditions.

1.9 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide Products, spare parts, maintenance and extra materials in quantities specified in individual Technical Specification sections.
- B. Deliver to a location within the City limits as directed by the Project Manager. Applicable items must be delivered prior to issuance of a final Certificate for Payment.

PART II: PRODUCTS – NOT USED.

PART III: EXECUTION – NOT USED.

END OF SECTION



SECTION 01780

OPERATIONS AND MAINTENANCE DATA

PART I: GENERAL

1.1 GENERAL REQUIREMENTS

- A. Submittal requirements for equipment and facility Operations and Maintenance (O & M) Manuals.

1.2 MEASUREMENT AND PAYMENT

- A. Measurement for equipment O & M Manuals is on a lump sum basis equal to five percent (5%) of the individual equipment value contained in Schedule of Unit Prices or Schedule of Values. The lump sum amount may be included in the first (1st) Progress Payment following approval of the O & M Manuals by the Project Manager.

1.3 REFERENCES

- A. CFTS – City of Friendswood Technical Specifications.
 - 1. Section 00005 – Table of Contents.
 - 2. Section 01330 – Submittal Procedures.

1.4 SUBMITTALS

- A. Conform to requirements of Section 01330 – Submittal Procedures. Submit a list of O & M Manuals and parts manuals for equipment to be incorporated into the Work.
- B. Submit documents with eight and one-half inch by eleven inch (8-1/2 In x 11 In) text pages, bound in three (3) ringed binders with durable plastic covers.
- C. Print "OPERATION AND MAINTENANCE INSTRUCTIONS; Project name, and subject matter of binder on covers when multiple binders are required.
- D. Subdivide contents with permanent page dividers, logically organized according to the Section 00005 – Table of Contents, with tab titling clearly printed under reinforced laminated plastic tabs.
- E. O & M Manual contents: Prepare a Table of Contents for each volume,

with each Product or system description identified.

1. Part I – Directory: Listing of names, addresses, and telephone numbers of Design Consultant, Contractor, Subcontractors, and major equipment Suppliers.
 2. Part II – O & M instructions arranged by system. For each category, identify names, addresses, and telephone numbers of Subcontractors and Suppliers and include the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.
 - f. Maintenance instructions for special finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.
 3. Part III: Project documents and certificates including:
 - a. Shop Drawings and relevant data.
 - b. Air and water balance reports.
 - c. Certificates.
 - d. Photocopies of warranties.
- F. Submit two (2) copies of O & M Manuals and parts manuals, for review, within one month (1 Mo) prior to placing the equipment or facility in service.
- G. Submit one (1) copy of completed volumes in final form ten days (10 D) prior to final inspection. One (1) copy with the Project Manager comments will be returned after final inspection. Revise content of documents based on the Project Manager's comments prior to final submittal.
- H. Revise and resubmit three (3) final volumes within ten days (10 D) after final inspection.

1.5 EQUIPMENT O & M DATA

A. Furnish O & M Manuals, prepared by manufacturers for all equipment. Manuals must contain, as a minimum, the following:

1. Equipment functions, normal operating characteristics, and limiting conditions.
2. Assembly, Installation, alignment, adjustment, and checking instructions.
3. Operating instructions for start-up, normal operation, regulation and control, normal shutdown, and emergency shutdown.
4. Detailed drawings showing the location of each maintainable part and lubrication point with detailed instructions on disassembly and reassembly of the equipment.
5. Troubleshooting guide.
6. Spare parts list, predicted life of parts subject to wear, lists of spare parts recommended to be on hand for both initial start-up and for normal operating inventory, and local or nearest source of spare parts availability.
7. Outline, cross-section, and assembly drawings with engineering data and wiring diagrams.
8. Test data and performance curves.

B. Furnish parts manuals for all equipment, prepared by the equipment manufacturer, which contain, as a minimum, the following:

1. Detailed drawings giving the location of each maintainable part.
2. Spare parts list with predicted life of parts subject to wear, lists of spare parts recommended on hand for both initial start-up and for normal operating inventory and local or nearest source of spare parts availability.

PART II: PRODUCTS – NOT USED.

PART III: EXECUTION – NOT USED.

END OF SECTION

01780-3

SECTION 01785

PROJECT RECORD DOCUMENTS

PART I: GENERAL

1.1 GENERAL REQUIREMENTS

- A. Maintenance and submittal of record documents and Samples.

1.2 REFERENCES

- A. CFTS – City of Friendswood Technical Specifications.
 - 1. Section 00500 – General Conditions.

1.3 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Maintain one (1) record copy of documents at the site in accordance with Section 00500 – General Conditions.
- B. Store record documents and Samples in field office, if a field office is required by the Contract, or in a secure location. Provide files, racks, and secure storage for record documents and Samples.
- C. Label each document "PROJECT RECORD" in neat, large, printed letters.
- D. Maintain record documents in a clean, dry, and legible condition. Do not use record documents for construction purposes. Do not use permit drawings to record Modifications to the Work.
- E. Keep record documents and Samples available for inspection by the Project Manager.
- F. Bring record documents to progress review meetings for viewing by the Project Manager and, if applicable, the Design Consultant.

1.4 RECORDING

- A. Record information legibly with red ink pen on a set of blue-line opaque drawings, concurrently with construction progress. Maintain an instrument on site at all times for measuring elevations accurately. Do not conceal work until required information is recorded.
- B. The Contract Drawings and Shop Drawings: Mark each item to record

completed Modifications, or when minor deviations exist, the actual construction including:

1. Measured depths of elements of foundation in relation to finish first (1st) floor datum.
 2. Measured horizontal locations and elevations of Underground Facilities and appurtenances, referenced to permanent surface improvements.
 3. Elevations of Underground Facilities referenced to the City of Friendswood benchmark utilized for the Work.
 4. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 5. Dimensions and details of field changes.
 6. Changes made by Modifications.
 7. Details not on original Drawings.
 8. References to related Shop Drawings and Modifications.
- C. Survey all joints of water mains at the time of construction. Record on the Drawings, water main invert elevation, elevation top of manway, and centerline horizontal location relative to baseline.
- D. For large diameter water mains, mark specifications and addenda to record:
1. Manufacturer, trade name, catalog number and Supplier of each Product actually installed.
 2. Changes made by Modification or field order.
 3. Other matters not originally specified.
- E. Annotate Shop Drawings to record changes made after review.

1.5 SUBMITTALS

- A. At closeout of the Contract, deliver the Project Record Documents to the Project Manager.

PART II: PRODUCTS – NOT USED.

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PART III: EXECUTION – NOT USED.

END OF SECTION

