

SECTION 01 78 40 (01725)

PROJECT AS-BUILT/RECORD DRAWINGS

PART 1 GENERAL

1.01 SCOPE

- A. This Section shall serve to set requirements for As-Built/Record Drawings submitted to Miami-Dade Water and Sewer Department (Department").
- B. As-Built/Record Drawings shall be submitted prior to placing any mains in service. The approved Final As-Built/Record Drawings are required for Substantial Completion and Conveyance of new water or sewer infrastructure. The infrastructure shall have As-Built/Record Drawings in the format and information specified herein, as recorded by a Professional Surveyor and Mapper (PSM) and prepared in accordance with these guidelines as part of the construction and inspection process.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. The work shall proceed in accordance with the following specification sections, bound herein:
 - 1. Section 01 31 19.13 (01150) – “Preconstruction Conference”
 - 2. Section 01 42 16 (01005) – “Defined Terms”
 - 3. Section 01 71 23 (01031) – “Grades, Lines and Levels”
 - 4. Section 01 77 00 (01700) – “Contract Closeout”

1.03 GENERAL

- A. The Contractor shall retain the services of a Florida Registered Professional Surveyor and Mapper as a prerequisite to receiving a Notice To Proceed (NTP).
 - 1. Prior to receiving the NTP the Contractor shall provide a letter from the PSM indicating that the Contractor has secured his services to perform all survey work for the duration of the Project, and to prepare final As-built/Record Drawings.
 - 2. Prior to receiving the NTP the Contractor shall provide a copy of the insurance policy declaration page of the surveying company, and the professional Liability insurance coverage.
 - 3. The Surveyor shall attend the Preconstruction Conference. It is the Contractor’s responsibility to have the services of the PSM by the Preconstruction Conference and the PSM in attendance.
 - 4. Donation projects require the Survey Company or PSM to carry professional liability insurance coverage. A copy of the insurance policy including the declaration page shall be provided with the Final As-Built/Record Drawings.

- B. The Florida Registered PSM shall maintain records of the installation, including all deviations from Plans and Specifications, and for the purposes of preparing and submitting to the Department an As-Built/Record Drawing in compliance with:
 - 1. Florida Statutes Chapter 472.027.
 - 2. Florida Administrative Code Chapter 5J-17.
 - 3. As further required by the Contract Documents.

1.04 AS-BUILT SUBMITTAL PACKAGE

- A. The Final As-Built/Record Drawing shall be submitted by the Contractor prior to performing the pressure test of the main to be placed into service. The Department is required to have as-built record documentation of all mains in operation.
- B. Donation Projects As-Built Package-Submittal Prior To Pressure Testing and Certification
 - 1. A set of signed and sealed As-Built/Record Drawings (DWFx or PDF file), signed and sealed field book information, electronic field raw data shall be submitted using the applicable Department's system.
 - 2. As-Built/Record Drawings in digital format DWG.
 - 3. Bill of Materials, Bill of Sale Sketch (completed and signed by the Contractor).
 - 4. Easement(s) legal description and sketch (signed by the owner if part of the project). All surveys for right-of-ways, easements, properties, topographical, boundaries and other special purposes.
- C. Monthly submittals (for WASD contract projects)
 - 1. A set of signed and sealed As-Built/Record Drawings (DWFx or PDF file), signed and sealed field book information, electronic field raw data shall be submitted using the applicable Department's system.
 - 2. As-Built/Record Drawings in digital format DWG.
 - 3. Final As-Built/Record Drawings shall be submitted as a prerequisite for the last progress payment.
 - 4. Easement(s) legal description and sketch (signed by the owner if part of the project). All surveys for right-of-ways, easements, properties, topographical, boundaries and other special purposes.
- D. **Final submittal** shall consist of corrected As-Built/Record Drawings and Documents in digital format (DWG and PDF files), to be submitted using the applicable Department's system and the following sets of signed and sealed hard copies:
 - 1. Two sets for water main projects,
 - 2. Two sets for gravity and force main sewer projects,
 - 3. For pump stations:
 - a. Five sets for donation projects.

- b. Three sets for contracts.
 - 4. PSM's signed and sealed copy of the Field Book.
 - 5. For donations, a copy of the insurance policy of the PSM, and the surveying company, including the declaration page.
- E. As-Built/Record Drawings signed and sealed by the Florida Registered Professional Surveyor and Mapper and/or Engineer of Record or designated Florida Registered Professional Engineer must comply with format requirements.
- F. Platted Lots Requirement
- 1. In lieu of recorded plats, 1 copy of a tentative plat signed by a representative of the Miami-Dade County, Department of Transportation and Public Works, Plats Division may be acceptable for As-Built/Record purposes. The Plats Division representative shall attest that the lot and block numbers, street names, easements, and other pertinent data shown are as will be recorded in the plat's final form. In this case, the submitter is responsible to provide a copy of the recorded plat to the Department's New Business office before any water meters are set on the Project.

1.05 AS-BUILT/RECORD DRAWINGS FORMAT AND GENERAL SUBMITTAL REQUIREMENTS

- A. Size shall be 24" X 36".
- 1. Preferred scales are 1"=20' for contracts and 1"=40' for donations horizontally, and 1"=2' for contracts and 1"=4' for donations vertically. Other scales may be permitted but must be approved by the Department prior to preparation of the drawings.
 - 2. Provide separate As-Built/Record Drawings and easements for water and sewer conveyances. Where water and sewer are shown on the sewer As-Built/Record Drawings, print dash the water on the sewer As-Built/Record Drawings and show only sewer As-Built information. The same applies for the water As-Built/Record Drawings.
 - 3. Any deviations from the design plans must be approved by the Department.
- B. Quality of As-Built/Record Drawings
- 1. To ensure that As-Built/Record Drawings may serve their intended purposes, they shall be prepared with consideration for quality. The Inspector and As-Built Reviewer will consider the following elements to ensure the quality of As-Built/Record Drawings:
 - a. Accuracy: The Contractor is required to have a survey crew record the field information as necessary when there is underground pipe installation. The Florida Registered Professional Surveyor and Mapper shall be responsible for providing measurements in accordance with the standard of practice established in Chapter 5J-17 of the Florida Administrative Code, pursuant to Section 427.027, Florida Statutes. The approved final As-Built/Record Drawing will be used as part of the Department's GIS and Record System. In addition, the horizontal

accuracy shall not exceed 1 foot in 7,500 feet, a commonly value accepted for suburban areas. The elevations shall be based on a closed level between two-benchmarks and shall not exceed the calculated value of a closure in feet of plus or minus 0.05 feet times the square root of the distance in miles.

- b. Appearance: As-Built/Record Drawing shall be prepared in a professional manner consistent with common drafting standards for layout, lettering and line work.
- c. Understandability: As-Built information shall be portrayed in a manner that is readily understandable by someone not familiar with the specific job.
- d. Clarity: Preparer shall endeavor to present As-Built information clearly without "cluttering" the drawing. Do not include or show trees, shrubs, traffic lights or signs, landscaping, etc.

1.06 CERTIFICATION

- A. As-Built/Record Drawings shall include a signed, sealed and dated certification statement by the responsible Florida Registered Professional Surveyor and Mapper, that all measurements were recorded under his direction and that they are accurate.
- B. Final As-Built/Record Drawings that contain electrical, mechanical or structural work (pump stations, sewage flow meters, etc.), shall be signed and sealed by the Engineer of Record to indicate As-Built conditions.
- C. Certifier shall be fully responsible for the accuracy of the As-Built/Record Drawings. As-Built/Record Drawings shall not contain any statement that the information was obtained from another party other than a Professional Surveyor and Mapper under his direction (e.g. a statement such as "As-Built information provided by Contractor" shall not be permitted).
- D. The Contractor shall certify on the As-Built/Record Drawings that the As-Built/Record Drawings are correct and accurately depict what was constructed in the field, in addition that all As-Built field information submitted to the EOR or designated Florida Registered Professional Engineer and/or PSM reflects actual field As-Built project conditions, such as:
 - 1. Valves must be identified by size, type, and end condition. On valves 16-inch or larger, the manufacturer's name and number of turns required to open or close the valve.
 - 2. Pipeline must be identified by type of pipe material, manufacturer, type of joint and type of joint restraint.
 - 3. Types and sizes of sheeting and piling together with location, dimensional, and elevation data on any pile caps, tie backs, anchors, whalers or other appurtenant structures left in place.
 - 4. External wiring has been terminated inside the panel at the designated "terminal boxes" in accordance with the approved electrical schematic and/or shop drawings.

5. The electrical control panel has been installed and its components match approved shop drawings and are in compliance with the Department's Standards and Specifications.
 6. The electrical power and control diagrams are current and reflect all approved plans and/or field modifications made, if any.
 7. The electrical control panel and associated electrical equipment are safe to energize and operate.
- E. The electrical control panel manufacturer shall certify that:
1. The installed control panel has been inspected at the job site.
 2. The control panel and its components match approved shop drawings and are in compliance with project's plans and specifications.
 3. The control panel and its components have not been modified, changed or altered in any way, shape or form as to void the Underwriter Laboratory (UL) listing.
 4. The electrical control panel and its components are safe to energize and operate

1.07 QUALITY ASSURANCE

A. Contractor's Responsibility

1. As-Built/Record Drawing preparation and submittal shall be the responsibility of the Contractor. The final As-Built/Record Drawings shall be completed and submitted to the Department prior to pressure testing, pending to show only portions of the Project not authorized to be done before certification of the system, such as interconnections, abandonments, cut and plugs, etc.; those activities shall be reflected on the final As-Built/Record Drawing and resubmitted within ten (10) County calendar days after a successful test. Testing will not be considered complete until As-Built/Record Drawings, field book data and other record documents are submitted and approved by the Department.
2. As-Built/Record Drawings shall be checked by the Contractor for errors and omissions prior to submittal to the Department.
3. For Donation Projects: A Bill of Materials (on Department form) shall also be certified as correct by signature and presented at the time of As-Built submission. Quantities shown on the Bill of Materials shall match installed and As-Built quantities, not quantities proposed, bid or bought nor scaled distances or quantities.

B. Professional Surveyor and Mapper Responsibility

1. The PSM shall be responsible for all locations, measurements and associated information on the As-Built/Record Drawings.
2. Infrastructure being shown on As-Built/Record Drawings shall have been located under the direction of a Florida Registered Professional Surveyor and Mapper.

3. As-Built/Record Drawings shall meet the requirements established in these specifications.

1.08 PHASING

- A. Phasing of projects must be approved by the Department and such approval communicated to the Inspections Unit. Where phasing is approved the following additional requirements for As-Built/Record Drawings shall apply:
 1. The phase number must appear prominently on each sheet.
 2. A prominent phase line shall be drawn at the junctures of the submitted phase with any previous or subsequent phases. The phase line shall be labeled and the phase numbers on either side of it identified.
 3. Work in previous or subsequent phases shall be "hatched" out or dashed in plan and profile and labeled "Not a Part" to clearly eliminate it from the As-Built/Record Drawings.
 4. Clearly show what is part of the present phase and what is part of previous or subsequent phases at the tie-in points or phase lines. Make certain that this matches what was previously submitted with any earlier phases.
 5. Unless otherwise authorized, phases shall end at a valve for water and force mains, and at a manhole for gravity sewers.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 GENERAL

- A. If construction drawings are used to create the As-Built/Record Drawings, all "proposed" construction related information such as "equal to", "typical", "approximately", "shall", etc. shall be removed from As-Built/Record Drawings, leaving only "As-Built" information reflected on the drawing. Do not remove any information on materials installed. The construction drawings need to be adjusted accordingly to reflect constructed as-built information.
- B. Site location sketch shall be provided showing the Project site and surrounding area with all streets clearly named, its own north arrow and a readable scale. The section, township and range shall also be provided therein.
- C. Provide separate water and sewer profiles.
- D. When the main crosses a utility or structure, the two points providing the clearance shall be identified, measured and recorded. This shall apply to all utilities (water, sewer, sewer laterals, water services, gas, electric, storm, telecommunication, duct banks, etc.).

- E. All mains shall be stationed, and all facilities and infrastructure labeled. As-Built/Record Drawings shall show stations for all services. As-Built lengths and distances for service runs shall also be given.
- F. Stations shall run along the baseline.
- G. For water mains, force mains and gravity sewers use one continuous stationing system.
- H. Where different stationing systems cross, show the equation station.
- I. Label with station and offset all valves, fittings, services, outlets, manholes, deflection points and other components in the line. The labels, stations and offsets shall coincide, plan and profile.

3.02 REQUIRED INFORMATION AND MEASUREMENTS

A. Set-Up Verification

1. The Contractor's Florida Registered Professional Surveyor and Mapper is required to recover the design baseline and verify the elevations and coordinates on a regular basis as needed.
2. The Florida Registered Professional Surveyor and Mapper shall establish and maintain throughout the construction the property boundaries and easements of pump stations and any other Department's facilities and infrastructure. The PSM shall verify that the work of the Project does not encroach into adjacent (abutting) property. Property corners lost during construction shall be reset at the first opportunity to ensure that the work is done within the designated limits. The PSM shall note on As-Built/Record Drawings any Department approved encroachments into pump station site (fencing, driveways, etc.).
3. The Contractor is required to have a level instrument setup next to the construction site in order to control the vertical alignment of the pipe installation prior to trench backfilling. The level shall be setup daily for use by the PSM, Contractor's foreman and Department Engineer/Inspector.
4. The Contractor is required to have a survey crew record the field information on a daily basis when there is underground facilities and infrastructure installation. The survey crew shall be on-site as needed to record and verify the information before it is covered. Any underground construction work that does not have the information recorded by a survey crew will be stopped by the Department Engineer/Inspector. The Engineer/Inspector has the authority to order re-excavation of work that was covered without accurate survey measurements.

B. Field Book Information

1. The Florida Registered Professional Surveyor and Mapper is required to have his crews make daily visits to the Project site during underground pipe installation work to perform field measurements of the Contractor's daily installations. This information shall be recorded in field books. Copies of the field notes are required to be provided to the Construction Manager/Inspector

on a monthly basis. The PSM's field notes shall be submitted to the Department along with final As-Built/Record Drawings (signed and sealed) as a condition of conveyance (for donation projects), or monthly basis as a condition of payment and at substantial completion (for contract projects) before applying for final payment. Electronic field raw data is acceptable.

C. As-Built/Record Drawings Content Requirements and Procedures

1. The following shall be made a part of any As-Built submittal for water or sewer, where applicable:
 - a. Project name, Project identification number and the words "As-Built/Record Water" or "Record Drawing Water" or "As-Built/Record Sewer" or "Record Drawing Sewer", all prominently displayed. PMS's or Engineer's name, company, address, phone number and certification statement shall also be displayed.
 - b. All applicable permit numbers for the Project shall be shown on the cover sheet.
 - c. Graphic and numeric scale, north arrow and any symbol legend needed.
 - d. All involved streets shown with centerlines, right-of-way lines, widths and names, with matching plat, if applicable, subdivision name, phase line and number. (Phasing to be nearest valve and manhole in limits of phase area). Show station at all intersecting streets.
 - e. All involved lots and blocks shown and correctly designated (to match plat).
 - f. All control lines identified (i.e. centerline, section line, monument line, property line, etc.). Identify all streets by name or number.
 - g. Baseline shall be tied to centerlines, boundary lines, section corners, or to monument lines or to right-of-way lines. Baselines must show bearings or deflection angles, or delta, radius, chord and arc length for curves.
 - h. Pipeline shall be tied to a baseline that is easily identified on the existing or proposed right-of-way. Baseline shall not be on top of the main except for gravity sewers installed on centerlines.
 - i. Show all horizontal curve data, including point of curvature (PC) and point of tangency (PT) stations or radial bearing.
 - j. Stationing shall proceed from south to north and/or from west to east. Stationing shall be the same as shown on construction drawings and must be tied to section corners, centerline intersections and all other pertinent control points within the Project. All such pertinent points shall have their stationing shown and where there is dual stationing for a point, both stations shall be called out.
 - k. Horizontal Control
 - 1) The PSM shall show on the As-Built/Record Drawings the Florida State Plane Coordinate (current readjustment - NAD 83,

FLA East Zone 901) with at least two physically located horizontal control points within the Project limits.

- 2) For As-Built/Record Drawings within Department facilities with relative coordinates, a coordinate conversion equation needs to be included on every sheet.

I. Vertical Control

- 1) As-Built/Record Drawing shall use the same datum as per approved design plans.
- 2) Nationwide, surveys and As-Built/Record Drawings are in the process of conversion to NAVD 88 from the NGVD 1929. The Department will accept NAVD 88 datum with a conversion factor to NGVD 1929 on each page.
- 3) For projects using City of Miami datum provide a conversion factor on each page to NGVD 1929 datum.

m. Easements

- 1) Easements, if any, shall be clearly shown with size, coordinates for each corner and tied to the property line. The easements shall be separate for water, sewer, force main and pump stations.
- 2) Existing easements with Official Record Book (ORB) information must be shown.
- 3) Easements are required for any infrastructure not in the public right-of-way. An easement may also be required for a main in the public right of way if there is insufficient side clearance to the right-of-way line to permit maintenance of the pipeline (usually 6' for water and 7.5' for force mains and gravity sewer mains on each side measured from the center of the pipe). For pipelines larger than 16-inches in diameter the easement size shall be determined by the Department.
- 4) Easement lines shall be tied to the centerline of the main.
- 5) Show easement released with Miami Dade County Clerk of the Court Official Record Book (ORB) and page.

n. Tie-in Points

- 1) All tie-in points, water or sewer shall be tied to the baseline.
- 2) In instances where this is impractical such as for service installations, the tie-in location may be referenced to a known Department facility such as a valve or manhole. This facility must be fully identified with atlas page, Department As-Built/Record Drawing number and page and its designation and station as given therein. Approval for this method of location shall be secured with the As-Built Reviewer/Inspector.
- 3) All locations for future connections or tie-ins shall be left unburied and uncovered until the Contractor's Florida

Registered Professional Surveyor and Mapper measures and records the As-Built information.

- 4) Clearly show and label what is new and what is existing at the tie-in points with the WASD As-Built/Record Drawing number identified on the existing main.
 - o. The ends of all services and laterals shall be fully located by reference to the main and the nearest property line(s).
 - p. Show all outlets, stub-outs, sewer lateral, water service and any other relevant information. Identify the size, material, length, direction and elevation (top of pipe for water and force main, invert for gravity sewer).
 - q. On all pipe fittings of 36-inches diameter or larger, including tees, bends, crosses, wyes and bevels, station and elevation shall be taken at the end and center points to reflect the true elevation and orientation of the fitting.
 - r. Elevations of natural ground or pavement over pipelines shall be shown at each position where the pipe elevation is shown at least every 100 feet on profile view.
 - s. Show profile view of the main pipeline installation on the same sheet as the plan view. Stationing on both views shall be aligned to facilitate As-Built review.
 - t. Manhole rim and valve box rim elevations shall be shown.
 - u. Show all invert and bottom elevations in manholes and valve vaults or boxes.
 - v. Show all invert and bottom elevations together with pipe size, and where it can be determined, pipe material, for existing structures having pipes which cross the pipe line being constructed within 250 feet of point of crossing.
 - w. Location, elevation, material and size of all casings shall be shown. Launching and receiving pits location and dimensions shall be shown in case of jack and boring or micro tunneling used for casing installation.
 - x. Types, sizes of sheeting and piling together with measured and complete locations with dimensions, top and bottom elevations of all sheeting and pile caps, tie backs, anchors, whalers or other appurtenant structures including sheeting left in-place, shall be shown.
 - y. Where service is not at a right angle (90 degrees) to main line, tie service with length of offset to nearest property line.
 - z. For Horizontal Directional Drilling installations, in addition to the applicable items already mentioned on this section, As-Built/Record Drawings shall include:
 - 1) Equipment used.
 - 2) Angles at entry and exit and radius.
 - 3) Bore path report to include detection method used, location for both entry and exit referenced to a permanent structure,

information of the company collecting the data, such as company name, address, date, staff information who collected the data.

- 4) The Department shall be provided with As-Built/Record Drawing for any failed bore path.
 - aa. Provide State Plane Coordinate values and elevations for all visible features such as valves, fittings, service lines, manholes, fire hydrants, water sampling points, water meters, cleanouts and backflow preventers, utility poles, adjacent to the main, overhead wires crossing the main and other appurtenances along the main. Also provide State Plane Coordinate values for existing valves and manholes at points of connection or closest to the point of connection and the point of connection itself.
 - bb. Lines that are abandoned in place, placed out of service or removed shall be clearly identified (dashed and bold line type) on the As-Built/Record Drawings to include cut and plug locations, pipe material and existing As-Built location. Include the existing As-Built/Record Drawing numbers. State whether cut and plug was performed by Department forces.
 - cc. Include a statement showing work performed by the Contractor under Department's licensed operator supervision.
 - dd. Mechanical restraints shall be identified on the As-Built/Record Drawing. The restraint system used shall be identified (gland restrained, joint restrained or gasket restrained). If thrust blocks are constructed, the top elevation, outer dimension, thickness of the block, length and location of any sheet piling, if used, shall be recorded by the Contractor's PSM.
 - ee. Large diameter concrete transmission mains 42-inches and larger shall show each pipe joint with station and pipe length.
 - ff. Restrained pipe, end line valves, thrust blocks shall be left uncovered for the last complete length. In line valves and tees shall be left exposed for one length on both sides plus the face end. Measure and record the elevation, horizontal and vertical alignment, and inclination for these items.
 - gg. For pipeline projects, provide dimensions and elevations of ground and top of pipe every one-hundred feet maximum, or portion thereof along the pipeline, at every significant change on ground elevation, at every horizontal and vertical change in direction and at all fittings, with stations.
 - hh. If an asset is authorized to be reused, clearly show that asset, such as a fire hydrant, is being reused.
 - ii. Pipeline must be identified by type of pipe material, manufacturer, type of joint and type of joint restraint.
 - jj. The identity, dimension, location and elevation of any existing utilities crossing the proposed line and so immediately adjacent to the new line

as to be exposed by the excavation shall also be recorded. Locate, excavate, expose and record the same data for any utility shown in the plans whose proximity to the proposed pipeline could affect the certification requirements of the new installation. Note that in instances of a very wide ditch due to ground conditions the recording of data for adjacent, paralleling, utilities shall only be required for lines which come within three feet of the outside (but not less than the minimum required per FAC 62-555.314) of the pipe being installed unless otherwise ordered by the Department whose decision shall be final.

- kk. Specific location and elevation of equipment, buildings and miscellaneous items installed inside the buildings shall be recorded as applicable and as required by the Department.
 - ll. Without exception, where the substitution of a piece of equipment for that shown on the Plans has been allowed, the footprint, clearance and elevation dimensions shall be recorded by the Contractor's PSM and these changes shall be accurately and thoroughly portrayed on the As-Built/Record Drawings.
2. As-Built/Record Drawings for **water and sewer force mains** shall additionally include the following:
- a. Plan view showing size, material, offset of main, deflections (if any), stations and offsets of services, hydrants and fittings at the main; and at main, deflections (if any) and the end of the service line.
 - b. Profile showing ground and top of pipe elevation every 100 feet, maximum, and at any change in grade (with corresponding station) and at every fitting. Show size and material of pipe, all fittings and extend of restrained pipe with stations. Stationing system shall be the same as that used in the plan view.
 - c. Distances from main to all valves, fire hydrants and meter boxes shall be shown. Tie hydrants to right-of-way. In established areas, the PSM shall run-out right-of-way lines.
 - d. All "Assembly Detail" shall be provided for all turbo meter installations and for all meters greater than four (4) inches.
 - e. Label water service as either double, single, irrigation, and so on, based on type of service, including diameter and material.
 - f. When meter banks are used, show typical detail with size of service line, material and type of services.
 - g. Location of all air release valves and top of pipe elevation, identifying if the air release valves are automatic or manual.
 - h. Valves must be identified by size, type, and end condition. Manufacturer's name and number of turns required to open or close the valve shall be provided for valves 16 inch or larger.
3. Gravity sewer As-Built/Record Drawings shall additionally include the following:
- a. Plan showing manhole numbers and stations, size and material of pipe,

manhole to manhole length and slope in percentage. The size, material, station and lengths of laterals shall also be shown. Stationing shall be in accordance with the approved permit Plans.

- b. Profile showing manhole numbers (as per plan), rim elevations, invert elevations in and out of each manhole with directions, length and slope of line. Pipes with a slope less than the minimum recommended by RER (formerly Department of Environmental Resource Management) minimum for a particular size of pipe shall not be accepted.
 - c. Stations and offsets of all wyes and tees for laterals and location of cleanouts with distance to property line.
 - d. Connections to existing sewer collection systems with flow direction shown.
 - e. Show profile for sewer laterals crossing utilities, with invert elevations at main, at crossings, at change in direction and at clean out, including slope, clearance at crossing and station.
 - f. When connecting a new main or lateral to an existing main, the As-Built/Record Drawing shall show distance and invert elevations of downstream and upstream existing manholes.
4. The following shall also be included on As-Built/Record Drawings for sewer pump stations and other infrastructure:
- a. A complete topographic and boundary survey for the pump station and/or other facilities signed and sealed by the Florida Registered Professional Surveyor and Mapper as part of the As-Built/Record Drawings. All information required of a boundary survey, such as property corners, setbacks, dimensions of the structure and appurtenances, etc. shall be contained on the As-Built/Record Drawings to include the legal description of pump station site and/or other facilities, easements and rights-of-way abutting the pump station site and location of all surface facilities recorded by a PSM. All utilities within pump station property shall be properly shown, along with their associated elevation and clearance.
 - b. Horizontal and vertical locations of all fittings, deflections, or at any significant change of direction, and at a maximum 25- foot intervals for on-site (e.g. on a facility such as a pump station or plant work).
 - c. Plan and vertical cross-section of the station showing and identifying the piping and mechanical layout. Show elevations for top of wet and dry wells, bottom of wet well, pipe inverts, finish floor elevation, etc.
 - d. FEMA flood zone and elevation shall be shown on the cover sheet.
 - e. Electrical As-Built/Record Drawing control and riser/one-line power schematic diagrams, RTU wiring diagram and all other elevation and any other electrical details.
 - f. Engineering Report as to the pump manufacturer, size, capacity (TDH), peak design capacity (in GPM) and Bill of Materials (for donation projects).

- g. The mechanical, structural and electrical record drawings are to be prepared by the Engineer of Record or a designated Florida Registered Professional Engineer, each sheet of the record drawings must be signed and sealed by the Engineer of Record or a designated Florida Registered Professional Engineer. The cover sheet is to be signed and sealed by the Engineer of Record or a designated Florida Registered Professional Engineer and shall include the following statement:
 - 1) "I certify that these record drawings have been reviewed by me or by individual(s) under my direct supervision and that these drawings incorporate the information contained in the certified As-Built/Record Drawings. To the best of my knowledge and belief these record drawings substantially reflect the sanitary sewer pump station and/or other infrastructure as constructed, and as depicted on the permit plans including any Department approved deviations, if any. The accuracy of these record drawings is reliant on the accuracy applied by the PSM that prepared the certified As-Built/Record Drawings, which was [include the PSM's name, business name, PSM number, address and telephone number]. The PSM has certified to me in writing, that the As-Built location information of the sanitary sewer pump station and/or other infrastructure conforms to the standards of practice for land surveying, Chapter 5J-17 of the Florida Administrative Code."

3.03 DEPARTMENT PROCESSING

- A. The Department will require 10 County calendar days to perform the As-Built review.
- B. As-Built/Record Drawings will be initially reviewed, commented and/or recommended to be approved, from construction perspective, by the responsible Field Inspector, who shall verify that they are an accurate representation of the work as installed and that the job as shown is complete and in accordance with the permitted plans.
- C. Following the Field Inspector's review, As-Built/Record Drawings will be reviewed in depth by the As-Built Reviewer to ensure compliance with these specifications. The Reviewer will also check the complete package which for donation projects shall include the Bill of Materials.
- D. The complete submittal package as defined above shall be delivered using the applicable Department's system.
- E. Cause for Non-Review
 - 1. If review by the As-Built Reviewers reveals excessive errors or omissions, the As-Built/Record Drawings shall be deemed "non reviewable". As-Built/Record Drawings containing excessive errors or omissions shall include those with omission of major sections of the installation, water and sewer As-Built/Record Drawings on same sheet, those lacking large amounts of information and other

rrors or omissions that are considered excessive in the opinion of the As-Built Reviewer.

2. In cases when an As-Built/Record Drawing is considered "non-reviewable", it shall be marked "Not Reviewable", the reviewer shall note comments regarding obvious problem(s) and shall be returned to submitter. Such As-Built/Record Drawings will not be considered as having been reviewed for the purposes of Sub-section F, Punch List, below.

F. Punch List (for donation projects only)

1. Punch List items may be generated from the Department initial review. Successive reviews are solely for the purpose of ensuring that original punch list items are completely and correctly done to obtain a final As-Built/Record Drawing acceptable to the Department.
2. Successive punch list items may only be added to correct a problem resulting from submitter's efforts to comply with the original punch list. The Department will prevent adding new punch list item(s). Submitter shall be required to make these successive changes.
3. In the case of a major oversight on the part of the As-Built Reviewer, punch list items may be added to the list or requested to the submitter after the valid time for such items. The Department requires that all corrections be made as a condition of accepting the final As-Built/Record Drawings.

G. Acquisition and Resubmittal

1. After notification from the Department, DWFX and/or PDF file with markups along with the As-Built punch list (donation projects only) can be obtained from the applicable Department's System.
2. After making the corrections requested on the As-Built/Record Drawing set and punch list, upload the revised package to the applicable Department's System. On contracts, contractor shall resubmit corrected As-Built/Record Drawings to the Department within 10 County calendar days for contracts
3. The Department will require 10 County calendar days to perform the As-Built/Record Drawing review.

H. Disputes or Interpretation

1. Resolution of disputes and interpretation of these requirements is the responsibility of the As-Built Reviewer. Submitting parties are urged to work with him to resolve any problems of this nature.
2. Where necessary, the submitting party may request a hearing with the Department's PSM in matters of dispute or interpretation. The Department's PSM's decisions shall be final.

END OF SECTION