

Errata for the

2009

TOHOPEKALIGA WATER AUTHORITY Standards, Specifications and Details

The following changes are made to the existing standards and details to clarify or improve existing information.

- Definitions: added “DRI – Development of Regional Impact.”
- 11.1.1-After “Two sets of plans” added: “and soil boring reports”.
- 11.1.2-Added “sheet” after Master Plan in 1st sentence.
Whenever possible, the entire water, reuse and wastewater systems shall be shown on a single Master Plan sheet.
- 11.1.2-Added 2nd paragraph.
A Master Utility Plan report shall be submitted for all DRI and multi-phased projects.
- 11.1.3b-Added after “intervals”: intervals, “including finished grade,”
- 11.1.3o-Changed to become: “All walls, gates and other structures shall be shown on plan view.”
- 11.1.3p-New: “Other details and specific notes required to construct utilities.”
- 11.3.3-After representative in 1st sentence: A Preconstruction meeting with the owner or owner’s representative “and State of Florida Underground utility licensed” contractor is required to initiate construction.
- 11.3.4.1-Added after “prior to”: A gravity sewer slope survey provided by a surveyor licensed in THE STATE OF FLORIDA is required to be submitted and approved by the TWA prior to “low air testing, line lamping and” constructing pavement.
- 11.3.5-Deleted “excluding mechanical equipment”.
- 11.6- Deleted and replaced the entire section.
- 20.1.3-Added after “foundations” in 3rd sentence: Sewers shall not be located within 10’ of buildings or building foundations “and other permanent structures.”
- 20.3.2- Added in 1st sentence “and easements” after “rights-of-way”: “in existing Osceola County rights-of-ways and easements,”
- 20.3.3-1st sentence-change 20’ to 18’: Pump Station inverts may be required at depths of “18’ “or greater if necessary to provide pipe slopes to maintain adequate velocities.
- 20.3.6-1st sentence: remove “leachate drains”: Main pool drains and storm drain systems shall not connect to the gravity sewer system.
- 20.3.6-Added 2nd sentence: “Leachate drains and pool filter backwash drains shall be connected to the sanitary sewer system.

- 20.4.5-Second paragraph, 2nd sentence added “and Lift Station junction manholes”: “Manholes and Lift Station junction manholes that have drop connections or that receive the discharge of a force main and manholes that are within 400’ of the discharge MH shall require a wet well lining system.”
- 20.6.1-In table at the end of the section: changed gallons of waste per meal from 3.5 to 5.0.
- 20.7-Changed to 20.8.
- 20.7-New section: Trash Compactor and Dumpster Pad Drain Connections.
- 21.3.6-Changed GUARD to: Pedestrian Barriers
Appropriate “fan-type pedestrian barriers” shall be installed at both ends of the crossing to prevent pipe access to the public.
- 21.6-Added second paragraph: “Private force mains may connect to an existing TWA force main with a minimum of a 2” tapping saddle and a 2” resilient wedge gate valve. Green PE tubing shall be installed from the tapping valve to the property line. The private force main shall also have a 2” resilient wedge gate valve at the property line at the discretion of TWA Engineering to denote the end of TWA maintenance responsibility.
- 22.3.5-1st paragraph, deleted: “, or if 8’ or less in diameter” and replaced with “and”. “...engineer certified by the State of Florida and shall conform to specifications...”
- 22.7-Deleted entire section and replaced with new.
- 23.1.3-Added “or other structures” at the end of the 4th sentence: “Water mains shall not be located within 10’ of buildings, building foundations or other structures.”
- 23.3.3-Changed 2nd sentence to read: “As a minimum, hydrants shall be placed at a minimum of 2000 foot intervals and/or at high points as needed to remove air and to provide for proper flushing for all off-site mains.”
- 23.3.5-Last paragraph, changed “shall” to “may”. “Underground valves may be provided at both ends of a bore...”
- 23.4-2nd sentence, delete: “3” from service line size chart.
- 23.5.4-1st sentence after “Each”, added: “Each tenant space within the building shall be...”
- 23.5.4-2nd sentence after “located”, added: “in the easement adjacent to”.
- 23.5.4-Added paragraph: “The developer shall provide meter vaults with manifolds to accommodate the maximum number of actual or future tenant spaces.”
- 23.5.5-Section deleted
- 23.5.7-Changed 2nd 23.5.7 to 23.5.8 (Meter Sizing).
- 23.8.3-After “(PVB),” changed to: “, reduced pressure principle (RPZ) or double check valve (DCV) assemblies shall be utilized on all irrigation systems.”
- 24.1.2-Last sentence changed to, “A normal level of service is 40 psi.”

- 24.1.3- Added “or other structures” at the end of the 4th sentence: “Reuse mains shall not be located within 10’ of buildings, building foundations or other structures.”
- 24.2.3-Deleted “flushing devices” and changed sentence to read: “Where dead-end mains occur, they shall be provided with a 2” blow off for flushing purposes.”
- 24.3-Added “,10” ” services.
- SECTION 25 added: Special design considerations and 25.1: Upper Floridian Recharge.
- 25.2-Added Florida Water Star Program section.
- 30.1-Added to 1st sentence: “Certified” before Underground Utility Contractor’s license.
- 30.2.1-Deleted this section in its entirety, changed 30.2.2 to 30.2.1 and 30.2.3 to 30.2.2.
- 30.2.2-Clarified monument dimension to: “set in 4”x4”x18” concrete monuments”.
- 30.17-Added in 1st sentence of 2nd paragraph the word “invoices”: “affidavits of compliance, invoices, test reports”.
- 30.17-Last paragraph changed sentence to read: “Materials installed without written TWA approval are installed at contractor’s risk and are subject to rejection.”
- 32.6.1-3rd paragraph after “appropriate regulatory agencies” added “Permits or exemptions must be obtained from, at least, the following agencies: FDEP for water quality; for quantity and duration the South Florida Water Management District, the Southwest Water Management District or the St. John’s Water Management district depending on the work area.”
- 36.2.1-1) and 2)-Changed DIP outside diameter to inside diameter.
- 36.4-3rd paragraph, changed sentence to read: “Recorded readings and plan profile information shall be submitted to the Engineer and Toho.”, and added readings at minimum intervals of 5’.
- 36.4-4th paragraph, added “when a design signed and sealed by an ENGINEER registered in THE STATE OF FLORIDA is submitted” after “case-by-case basis”.
- 40.2.1-Deleted last paragraph and replaced with recommendation from Tetra Tech HAI: “PVC piping with less than 15’ of cover shall be SDR35, 15’ to 20’ shall be SDR-26, and 20’ to 30’ shall be DR 18.”
- 40.2.2-Made reference to section 50.4 for DIP specifications.
- 40.4-Added at the end of the last sentence of the 1st paragraph “but shall be SDR 26 per ASTM 3034”.
- 40.5.1-Changed 3rd sentence to read: “Pipe which is not marked clearly is subject to rejection.”
- 41.1- Added to last sentence, “...and placement of road sub-base.”
- 41.5-3rd paragraph: Deleted “check” before “analysis”.

- 42.2.2-Added a 6th paragraph: “Manholes and Lift Station junction manholes that have drop connections or that receive the discharge of a force main and manholes that are within 400’ of the discharge MH shall require a wet well lining system.”
- 44.3-2nd sentence: changed to “At TWA’s discretion, a video of the gravity sewer...”
- 44.3-2nd paragraph: Added sentence, “Gravity sewers with cover 5’ or greater shall be inspected prior to placing road sub-base.”
- 44.3-2nd paragraph: “At TWA’s discretion, a video inspection of the gravity sewer...”
- 44.3-3rd paragraph: changed 1-1/2” to 1”.
- 45.3.1-Changed to, “16” to 24” PVC pipe shall comply to C905.”
- 45.4.2-Added 2nd paragraph: “Fittings with an angle more than 45 degrees will not be permitted.”
- 45.4.2-Added 3rd paragraph: “Compact fittings shall not be permitted.”
- 45.5-replaced “four (4)” with “two (2)”: “All polyethylene pipe of nominal diameter two (2) through twelve (12) inches...”
- 45.5.3-Added sentence:” Adapters connecting HDPE to DIP or PVC shall be butt-fused per ASTM D 3261, mechanical joint end only.”
- 45.8.1-Deleted 2nd paragraph that allowed plug valves.
- 45.12.1F-Added 2nd paragraph: “Should the pig exit the line being cleaned showing evidence of damage or in less than whole condition, a new pig shall be inserted at the beginning and the pigging process started again until the line is clear.”
- 46.5.4-Added “and Appendix ‘E’.”
- 46.6.2.1-2nd paragraph, 1st sentence: added: “to include a full tank of fuel”.
- 46.6.2.13-Added “The fuel storage capacity must be capable of running the pump station for 48 hours continuous operation.”
- 46.9-Added 2nd paragraph: “Provide a main breaker for the Odor Control System in the main Lift Station control panel.”
- 46.9-Deleted 3rd paragraph: “The Odor Control system shall be provided with sufficient chemicals to operate for 30 days beginning at Project Acceptance.”
- 46.10 -1. Changed “erection” to “structural”.
- 46.11.1-Changed list of grounding points to read:
 1. 4 corner posts.
 2. Gate posts, gate and fence.
 3. Water service.
 4. Control Panel.
 5. Wet well hatch and handrail.
 6. Discharge piping.
 7. All conduit entries (metal) into the Control Panel by means of grounding bushings.
 8. Generator.
 9. Odor control system.

10. Main Disconnect Switch.
11. Utility Company Transformer.
- 46.13-1st paragraph: added “concrete” before paved access.
 - 46.13-Changed last bullet point to read: “Concrete surface (300 PSI, Type 2 cement) a minimum of 6” thick, reinforced with 6’ x 6” wire mesh, H-20 traffic loading.”
 - 48.2-Added to the first paragraph: “The enclosure shall be provided with a sun shield across the panel top. This shield shall be of 14 gauge minimum stainless steel and be elevated above the panel top by one inch with stainless steel rods and hardware.”
 - 48.3-2nd paragraph, 2nd sentence: changed fusible to non-fusible.
 - 48.9-Added “with a sealing lid that can be secured” at the end of the second sentence.
 - 48.10.4-Added last sentence “LED power available indicators shall be supplied on all legs.”
 - 48.10.8-Added “area light” after “elapsed time meters”.
 - 48.10.12-Changed first sentence to include area light fuse protection.
 - 48.10.13-Added an explanatory paragraph at the beginning of the Telemetry section followed by detail numbers for the various applications.
 - 50.3.1-Changed to, “...4” through 24”.
 - 50.4-Added 4 sub-paragraphs defining ductile iron pipe, its manufacture and handling as well as a “full gauge” chart showing allowable ID and OD.
 - 50.5.3-Added:” Adapters connecting HDPE to DIP or PVC shall be butt-fused per ASTM D 3261, mechanical joint end only.”
 - 50.6.2-Separated paragraph into 2 sections:
 - “A. Corporation stops shall be 1”, 1-1/2” or 2” brass, lockable, equipped with connections compatible with the polyethylene tubing and threaded (CC Tapered) in accordance with specifications in AWWA C800. Insert stiffeners are not allowed.
 - B. Curb stops shall be 1” and 2”, lockable, equipped with connections compatible with the polyethylene tubing and threaded (CC Tapered) in accordance with the specifications in AWWA C800 and AWWA C901. Larger services shall have resilient wedge gate valves as specified in section 52.2. Insert stiffeners are not allowed.”
 - 51.6.2-1st paragraph added after “...2.5 feet per second in the main.”: “Any discharge from the cleaning of the piping systems shall be to upland bermed areas or retention areas with no discharge to surface waters or wetlands wherever possible.”
 - 52.2.2-Deleted last sentence requiring that operating nuts be bolted to the shafts and that drift pins shall not be allowed.
 - 52.5.2-1st paragraph, 3rd sentence added “of paint” after “coats”: “shall be covered with two coats of paint...”

- 52.5.2-2nd paragraph: deleted all reference to paint colors and added “as per applicable codes.”
- 52.5.4-Changed 3rd sentence to read: “A 7’-6” clear area shall be maintained in front of and on each side of the fire hydrant and a minimum of 4’ at the back side of the fire hydrant shall be maintained.”
- 52.6- Added at the end of the paragraph: “(See detail TWA23)”.
- 60.1- Changed PVCP to PVC.
- 60.4.1- Made reference to section 50.4 for DIP specifications.
- 60.5.1-Changed O.D. to I.D.
- 60.5.3-Added sentence:” Adapters connecting HDPE to DIP or PVC shall be butt-fused per ASTM D 3261, mechanical joint end only.”
- 60.6.4- Added last sentence “For taps larger than 2”, refer to section 35.”
- 61.5.2- Changed 2nd sentence to read: “The duration of each pressure test shall be for a minimum period of 2 hours.”
- 61.6.2-End of 1st paragraph added: “Any discharge from the cleaning of the piping systems shall be to upland bermed areas or retention areas with no discharge to surface waters or wetlands wherever possible.”
- 61.6.3-Added “Cleaning of reuse mains 12” and larger...”
- 61.6.8- Changed 25 mg/l to 15 mg/l.
- 62.3- Added “representative” before TWA in 4th sentence.
- Appendix A
Renamed the section “Rates and Fees” and added the note: “The following table was compiled using City of Kissimmee Ordinances, Toho Water Authority Resolutions, and Toho Water Authority Policies as approved by the City of Kissimmee City Commission and/or the Toho Water Authority Board of Directors.”
- Deleted PDF. Format and replaced with a table containing all fees.
- Appendix B
- Added “2007” to Title page and to first page of the body.
- Water Testing: added sentence before last sentence- “No leakage shall be allowed.”
- Changed 4., 2nd sentence to read “Larger service pipe shall be C-900 PVC or DIP.
- Water Materials: deleted paragraph 7 requiring air relief valves.
- Water Materials: new paragraph 7, change the 2nd and 3rd sentences to read : “All meters 2” and less in size will be installed underground in an approved meter box. Meters larger than 2” shall be installed above ground.”
- Gravity Sewer Materials: changed 4 through 15 inches to 4 through 12 inches in 1st paragraph and changed 18” to 15” in second paragraph..
- Gravity Sewer Materials 3rd paragraph: added PBV pipe with less than 15’ of cover shall be SDR-35, 15’ – 20’ shall be SDR-26 and 20’ – 30’ shall be SDR-18.
- Sewer Testing: added a sentence after the title –“Prior to any testing to be witnessed, all passing soil density tests and slope surveys shall be submitted to the TWA Engineer and to the TWA Inspector.
- Sewer Force Main Testing: added sentence before last sentence- “No leakage shall be allowed.”

- Sewer Force Main Materials: added sentence to paragraph 2 “Compact fittings shall not be allowed.”
- Reuse Materials 3. 2nd paragraph: added “, or ductile iron compact fittings” after pressure rating.
- Reuse Materials 5. Changed PVCP to PVC.
- Reuse Materials: DIP: added “thickness” to Class 50.
- Miscellaneous: to # 4, added at the end of the sentence: “and if encountered shall be replaced with approved materials.”
- Miscellaneous: added “10. All trees and shrubs shall be placed with a minimum of 5’ horizontal separation from Toho maintained utilities.”
- Miscellaneous: #7 changed to, “Only rigid adapters permitted unless transitioning to clay pipe.”
- Lift Station: deleted section
- Appendix ‘B’-Separation Requirements: removed all wording and replaced with “Per F.D.E.P. requirements and subject to TWA approval.”
- Appendix C
- 13 – Changed to, “...all paving must be constructed including...”
- 17 – Changed to, “passing is 98% or 95% AASTHO”.
- Appendix E
- Changed 1st paragraph to, “...as to define materials and products approved by the Authority.”
- Removed references to paint color for fire hydrants.
- Deleted McWane as an accepted D.I. pipe manufacturer.
- B-3: -7. added at the beginning of the first sentence: Unless entering into the “Developer Meter Installation Agreement”,.
- B-5: Changed Class 50 to pressure class 150 for DIP under Reuse-Materials.
- B-7: changed edge to edge to outside to outside in the first paragraph under Utility Separation-Horizontal Separation.
- E-2: added “Pipe Fittings (PVC), Gravity..... SDR 26 Minimum”.
- E-2 & E-7-Changed water and force main tapping sleeve straps to cadmium plated and added full-bodied SS sleeves.
- E-2: Added “Service Saddles (for individual grinder pumps)” with manufacturers and description.
- E-2: Tapping Sleeves, fabricated steel: changed description to read “Fusion bond, epoxy coated w/ SS bolts and nuts”.
- E-2: Tapping Sleeves, DIMJ: added “w/ Protecto 401 interior coating”.
- E-3: Added SW Services non-pop valve boxes-green.
- E-3/E-4: Deleted Ebara pumps and replaced with EMU pumps.
- E-4: Added: “Ground Test Enclosure”.
- E-4: Added separate model number for generator receptacle in 460V.
- E-4: Under Control Panel added ITT Flyght.
- E-5: Deleted Peterson & Assoc for Odor Control and added “Siemens / US Filter –ZABOCS Bio filter”.
- E-5: added specification details for control panel safety mat.

- E-5: added "Interior Panel Light".
- E-5/6: Added Mueller models for corporation stops, curb stops, meter branch and deleted wye branch
- E-6: Deleted "(non-reuse)" from Ford Meter Branch model number.
- E-7: Added service saddles for HDPE-Ford, Smith-Blair, JCM and Romac.
- E-7: Added EPDM coated gate for Gate Valves.
- E-8: Added Romac tapping sleeves and service saddles.
- E-9: Added SW Services non-pop valve boxes-blue for water and purple for reuse.
- E-9: Added: normal manhole coating material: Trueglaze primer and waterborne acrylic epoxy coating and Pro-Tech Coatings EW-1.
- E-9: Corrected topcoat for wet well piping and fittings to "Sewergard 210G".
- Appendix 'I' added this appendix "Record Drawing Accuracy"
- Added "Record Drawing Checklist".
- Added "Record Drawing Accuracy Table".
- Appendix 'J' added this appendix "Coordinate Asset Table" with table.
- Appendix 'K' added this appendix "Florida Water Star Points List" with a copy of the St John's River Water Management District document.