

**Bay County Manual  
of  
Standards and Specifications  
for  
Wastewater and Water Construction**



**Board of County Commissioners  
Bay County, Florida**

**June 4, 1991  
Revised  
December 2017**

**Bay County Manual  
of  
Standards and Specifications  
for  
Wastewater and Water Construction**



**Board of County Commissioners  
Bay County, Florida**

**June 4, 1991  
Revised  
December 2017**

**Volume 1 – General Requirements**

### **Section 1**

Policies and Procedures

### **Section 2**

Applicable Water and Wastewater Standards

### **Section 3**

Water Supply, Treatment, and Distribution System - Design Requirements

### **Section 4**

Sanitary Sewerage System - Design Requirements

### **Section 5**

Wastewater Pumping System - Design Requirements



**1.01 Scope and Intent**

The intent of these revisions is to establish minimum requirements and guidelines for water and sanitary sewer projects constructed in Bay County. The procedures will apply to all water, sewer, and/or reclaimed water development and construction projects, both public and private, within the jurisdiction of Bay County. The procedures shall also apply to all existing water, sanitary sewer, and/or reclaimed water facilities within the jurisdiction of Bay County. The specifications, standards, drawings and other information included herein are intended as MINIMUM requirements acceptable for a County facility.

**1.02 Purpose**

The Bay County Board of County Commissioners recognizes that water is a natural resource of limited supply and sewage treatment and disposal is a necessity for public health. Thus, the water supply must be regulated and controlled and subjected only to reasonable and beneficial use to assure an adequate supply of water and adequate sewage treatment capacity for all members of the public served by Bay County Utility Services. Therefore, the supply of water and sewage disposal service by the Bay County Utility Services to any development is subject to regulation, prohibition, limitation and restriction by local, state and federal governmental agencies, including the board of health, as well as Bay County.

**1.03 Definitions**

- A. County: Board of County Commissioners, Bay County, Florida or its authorized representative.
- B. County Utility System: The Bay County public water and sewer system.
- C. Developer: Any person, firm, corporation, association or partnership or any agent thereof who undertakes or proposes to undertake the development of land so as to constitute a residential subdivision, apartment complex, condominium, or commercial, industrial, institutional establishment.
- D. Contractor: Agent of developer or developer that will construct water and/or sewer infrastructure.

**1.04 Variances**

Under special conditions with specific applications the procedures and policies may be altered to meet certain conditions that are beyond the control of the Developer, provided such alterations or deviations are acceptable to the County. Final decisions concerning such alterations shall be made by the Utility Services Director or his/her designee.

### **1.05 Pre-Design Conference**

It is recommended that each Developer initiate a pre-design conference between himself, his Engineer, and the County.

### **1.06 Connection to Existing System**

New connections to the existing County Utility System are subject to all County standards, specifications, codes, and ordinances as they pertain to water and sewer systems and/or facilities. Additionally, the Developer may be required to show the impact of existing infrastructure by hydraulic modeling the lines to the master lift stations.

### **1.07 Existing Subdivision Regulations**

The requirements of these Policies and Procedures for water and sewer systems shall be in addition to the requirements of the latest version of "The Bay County Land Development Regulations".

### **1.08 Conveyance of Extension to County Utility System**

The Developer shall construct and convey to the County, free and clear of all encumbrances and at no cost to the County, the extension to the County Utility System and the complete water, sewer, and/or reclaimed water system on the Developer's property. Developer shall submit to the County, engineering plans and specifications for the proposed extension prepared by the Developer's Engineer, which shall be approved in writing by the County prior to any construction work being done. Following conveyance by the Developer, the extension and any additions, repairs and replacements thereto shall at all times remain the sole, complete and exclusive property of and under the control of the County, and the Developer shall have no right or claim in or to the Developer's extension; provided, however, that the extension shall be used for providing service to the development.

### **1.09 Fees**

- A. Capacity and Other Fees: Water and/or sewer fees shall be charged for each establishment, structure and use added to the County Utility System. Prior to receiving final approval from the County, the Developer will pay the current fees presently charged for connections to the County Utility System as stipulated in the pertinent County code establishing rates, charges and regulations for water and/or sewer systems.
- B. Planning and Inspection Fees: The Developer shall pay a planning, inspection and review fee in order to defray all actual costs to the County, including any attorneys' fees, of:
  1. Conducting the review of the engineering plans and specifications;

2. Conducting the inspection and testing of the installation of the water and/or sewer extension; and all other administrative costs incident to either accepting the extension into the County Utility System or becoming trustee of a non-county-owned system.
- C. Fees shall be paid in full prior to receiving County approval of permits, plans, and specifications.

### **1.10 Grant of Easement Rights**

- A. Developer shall grant to County, its successors and assigns, the exclusive, perpetual right, privilege and easement to construct, reconstruct, operate, maintain, repair, replace, improve, alter, remove, relocate and inspect water transmission and distribution mains, sewage collection mains, sewage lift stations, water wells, water plants, sewage treatment plants, pipelines, lateral lines, valves, connections and appurtenant equipment over, across and under the strip of land wherein system lies on the Developer's property, together with the right of ingress and egress to each of the building sites on Developer's property which are to be served by the County Utility System. The easement rights granted with respect to public places shall be subject to the authority of the public authority having jurisdiction over such public places.
- B. Prior to the County Utility System providing service to the development, the Developer shall execute a grant or grants of easement, in recordable form to be approved by the County, specifically granting to the County the above rights necessary, in the discretion of the County to provide water and/or sewer utility service to the Developer's property. The developer shall have easements dedicated as "Utility Easements" and easements shall be filed at the time of platting. Easements shall be bordered by fencing (Figure G-12) to keep encroachments from occurring. The County shall not be obligated to furnish any water or sewer service to any building which may be built on Developer's property to which it does not have access.
- C. The County Utility System requires the following items to review and process instruments dedicating property to Bay County:
1. Current Ownership and Encumbrance Report, title policy or opinion of title from attorney covering the property to be conveyed. Include complete copy of owner's acquiring deed.
  2. A marked survey sketch depicting property to be conveyed to Bay County. (All information contained in the legal description must be verifiable by sketch.)
  3. If the grantor is an "individual or partnership, use form PUE (Perpetual Utility Easement) 1. If the grantor is a "corporation" use form PUE2.
  4. Please submit the above items to the County Utility System for their review and recommendation. Same will be forwarded to the County Attorney.

5. No privately owned structure, including decorative walls, driveways, or fences, shall be constructed in an easement that has been dedicated to the County.

### **1.11 Developer's Right To Connect**

Provided that the Developer has complied with the terms of these Policies and Procedures and provided that the Developer's extension is installed with the approval of the County and in compliance with the requirements of all public, governmental or other agencies having supervision, regulation, direction or control of such water and sewage utility systems, the County shall allow the Developer or its successor-in-title to connect the Developer's extension into the County Utility System.

### **1.12 Underground Utility Contractor**

- A. All extensions and additions to the County Utility System shall be performed by a Florida Licensed Underground Utility and Excavation Contractor, or by the County's own work force.
- B. The County reserves the right to approve in writing the underground utility contractor and/or his subcontractor installing utility lines for the Developer under the terms of these Policies and Procedures.

### **1.13 Project Review and Acceptance Process**

- A. The Developer is encouraged to communicate regularly with staff in both the County Utility System and the Planning and Zoning Department to clarify the specific issues of the project and expedite the review process.
- B. This Section lists chronologically the steps that the County follows when reviewing a developer-installed project. A developer-installed project is defined as any project in which a private entity designs and constructs water, wastewater and/or reclaimed water facilities which will be owned, operated, and maintained by the County Utility System. Since each project may have conditions which are project specific, there may be additional requirements not listed in this Section.
  1. Application for Service
    - a. Every developer involved in the subdivision or real property or the construction of any residential, multi-family, commercial or industrial building within the unincorporated area of Bay County must submit a completed Application for Water, Wastewater, and/or Reclaimed Water Service to the Utility Permit Division and receive written notification of the County Utility System's determination that:
      - i. The County is currently able to provide permanent service to



- 
- the applicant or will be able to provide it in time to meet the applicant's building schedule; or
  - ii. The County is not able to provide permanent service in time to meet the applicant's building schedule, but future service is programmed in the current 5 year Capital Improvement Program (CIP), in which case interim service could be an alternative; or
  - iii. The project is located in the rural area and, therefore, the County will not be able to provide permanent water, wastewater, or reclaimed water, in which case permanent service by well, septic system or an interim package wastewater treatment plant could be alternatives; or
  - iv. The project is located in another municipality's utility service area and must submit a service application to that provider, and must submit a copy of their service commitment letter to Planning and the County Utility System, prior to Construction Plan approval.
- b. Construction plans may be submitted only after Service Application approval. Actual reservation of plant capacity will be effective upon payment of all impact fees
1. Master Plan

For residential or commercial developments constructed in multiple phases or for single-phase residential projects with more than one pump station, a Master Plan for water, wastewater, and/or reclaimed water is required. The Master Plan must be approved prior to the approval of construction plans.

    - a. Master Plans shall show the water & sewer calculations for the Master Plans of the development. Should adjacent parcels be developed, the water and sewer calculations will not be allowed to tie into the existing infrastructure without showing design calculations paying for any upgrades or reimbursement to the County for any additional capacity the County has paid for.
  2. Other Permits
    - a. The developer shall submit the partially completed Department of Environmental Protection water or wastewater construction permit application forms for the County Utility System to complete and return. The developer is responsible for processing any other permits which may be required.
    - b. The developer shall pay all FDOT/RR access fees for the initial bore and for the annual costs for those easement rights for 50% build out or 5 years (whichever occurs first).
    - c. The Developer's engineer shall take the initiative to determine all the other agencies with jurisdiction over his project, particularly agencies requiring permits for right-of-way use, such as Bay County Engineering, Florida D.O.T., Bay Water, CSX Railroad, Bayline

- Railroad, or any other appropriate authority. These determinations should be made during the preliminary design stage.
- d. If the Developer's engineer finds that the project involves a non-county right-of-way, the engineer should contact the appropriate local office, discuss the project with their Utility Coordinator and comply with that agency's design and permitting requirements.
  - e. The Developer's engineer should work simultaneously with the involved agency, the Planning and Zoning Department, and the County Utility System in finalizing the plans for submittal.
  - f. County Right-of-Way Use Permits, if required, will be issued upon plan approval by all reviewing agencies.
  - g. The Developer's engineer is responsible for the coordination of his design with other construction activity in the public rights-of-way and easements, i.e., State, County, and City highway and utility projects. The engineer shall verify that the project design is compatible with the design of any existing or proposed County CIP project that may impact development. If design conflicts are encountered, the design constructions imposed by the Capital Improvement project shall take precedence over the development's design constraints.
  - h. The County will review the plans and specifications to insure that the facilities proposed for construction are designed in accordance with the criteria in the latest "Bay County Manual of Standards and Specifications for Water and Wastewater System Construction" and the commitment letter. The hydraulic characteristics of the system will be analyzed by the County to establish that the proposed system will operate within any specified flow or demand limits.
  - i. If the plans, specifications, or hydraulics do not conform to the requirements of the "Bay County Manual of Standards and Specifications for Water and Wastewater System Construction", the County will notify the engineer and/or developer of corrections or modifications required. Once the County determines that the plans are in general conformance with the County's standards, the developer will be notified in writing that the plans have been approved for construction.
  - j. The Engineer of Record shall provide the County with a signed and sealed letter that the design conforms to the latest County design standards. The County will provide a courtesy review but, the Engineer of record responsibility for meeting the County's standards and specifications.
  - k. The approval-for-construction will run concurrent with terms of DEP permit. No extension from DEP will be allowed without County approval.
3. Construction
- a. The Contractor is required to work from a set of plans stamped "approved" by the County. All work must be inspected by County inspection personnel. The Contractor shall request an inspection

by the County a minimum of 48 hours prior to starting construction. The approved set of plans shall be located on the construction site at all times. The Contractor will notify Bay County Engineering 48 hours prior to construction in the county right-of-way.

- b. The developer, the Engineer of Record, and the Contractor shall comply with all requirements of the Federal, State, and County; and other laws, codes, ordinances, and regulations that in any way affect those engaged or employed in the proposed construction, the materials or equipment used in or upon the site, or the conduct of the work. The developer, or the engineer, or the contractor shall obtain all permits and licenses, pay all charges and fees, and provide all notices necessary and incidental to the due and lawful prosecution of the work prior to the start of any construction.
- c. The County shall not accept Developer's water, sewer, and/or reclaimed water systems and will not issue certifications until all manhole covers and valve boxes are exposed at proper finish grade and valves are operational and all other pertinent County generated punch list items are complete.
- d. County inspection personnel will inspect all construction, all materials, and may inspect preparation, fabrication or manufacture of equipment. The inspector is not authorized to revoke, alter, or waive any requirements of the specifications, but he is authorized to call to the attention of the Contractor and/or Engineer any failure of work or materials to conform to the engineering plans or specifications. The inspector will have the authority to reject materials and may suspend the work, especially if the public health or safety is involved. If any such rejection or suspension is contested by the Developer, the issue will be referred to and decided upon by the County Utility Services Director or their Designee. The inspector will not act as a foreman, perform other duties for the Contractor, or interfere with the management of the work. Any advice which the inspector may give will in no way be construed as binding or releasing the Contractor from carrying out the intent of the plans and Specifications.

#### **1.14 Developer's Plans and Specifications**

- A. All engineering plans and specifications prepared by Developer's Engineer, as provided in Article 1.08 above, shall be reviewed and approved by the County prior to Developer submitting plans and specifications to any other governmental agencies. The Developer's Engineer shall include, explicitly or by reference, into the Developer's engineering design, plans and specifications, the applicable standards and specifications of Bay County.
- B. All water, wastewater, and reclaimed water facility plans must be signed and sealed by an Engineer registered in the State of Florida except for those

requirements for single family residences that are subject to review by the Architectural Plans Examiners. The County reserves the right to establish additional criteria by which to review and approve a given project. The proposed project will be inspected by County personnel during the construction phase. Final acceptance will be processed only after a determination has been made that the construction of the project is in compliance with all applicable regulations of the County and relevant agencies. Before final acceptance, the developer is responsible for providing the County with signed and sealed Record Drawings of the construction and electronic copies of all design files in accordance with Article 1.35 herein.

- C. As a minimum, for the following types of facilities, include the indicated information:
1. Gravity Sewers
    - a. Plan and Profile at a scale no smaller than 1 inch = 40 feet horizontal and 1 inch = 4feet vertical.
    - b. Stations on manholes or distances between manholes.
    - c. Deflection angles between manholes or coordinates of manholes.
  2. Force Mains
    - a. Plan and Profile at a scale no smaller than 1 inch = 40 feet horizontal and 1 inch = 4feet vertical.
    - b. Locations of air release valves.
  3. Water Mains
    - a. Plan at a scale no smaller than 1 inch = 40 feet.
    - b. Location of valves, hydrants and service lines.
  4. Pump Stations
    - a. Site Plan at scale no smaller than 1 inch = 20 feet.
    - b. Location of wet well, valve vault, generator, by-pass valve, access road, parking area, and fence.

### **1.15 Test of Developer's System**

The County will not accept Developer's water, sewer, and/or reclaimed water systems until new facilities have passed all pre-determined tests, including bacteriological tests for water systems, arranged by the Developer and witnessed by the County, or its representative, to determine whether the facilities are constructed in accordance with the approved engineering plans and specifications. The Developer shall bring all bacteriological samples to the Bay County Laboratory for analysis. The charge for the samples are at the current rates. Developer will pay all costs of bacteriological testing, locating leaks and their repairs deemed necessary by the County as a result of said tests.

### **1.16 Conditions Precedent to System Usage**

- A. Prior to the County accepting the water, sewer, and/or reclaimed water systems, Developer shall comply with all terms of these Policies and

Procedures and shall:

1. Provide to the County releases of liens received by the Developer, or its agent, in connection with the construction of the facilities.
2. Furnish the County with Record As-Built Drawings as specified in Article 1.35.
3. Furnish, in form and substance acceptable to the County, all of the following relating to the facilities:
  - a. All permits and governmental approvals obtained by the Developer, its contractors and agents.
  - b. Certification by Developer's Engineer that the facilities have been constructed substantially in accordance with approved plans and specifications.
  - c. As-constructed drawings and digital CAD files certified by the Developer's Engineer.

### **1.17 Construction Utility Service**

The County shall not provide water, sewer, and/or reclaimed water service for construction on an unmetered basis, and Developer agrees that all charges, including all minimum charges for water, sewer, and reclaimed water service, shall be paid from the date of meter installation in accordance with County's approved rate schedule.

### **1.18 Right of Termination of Service**

The County shall refuse to provide service and reserves the right to terminate service to any lot or building within Developer's property, in the event Developer defaults or fails to comply with any of the terms and conditions of these Policies and Procedures in a timely manner and fails to cure such default or fails to comply within 30 consecutive calendar days following the receipt by Developer of County's notice of such default or failure to comply.

### **1.19 Limitation of Liability of County**

The County shall not be liable or responsible to the Developer as a result of injury to property or person, which injury was created by acts of God, strikes, lockouts, or other industrial disturbances, acts of public enemy, wars, blockades, riots, acts of armed forces, epidemics, delays by carriers, inability to obtain materials or right-of-way on reasonable terms, acts of public authorities, acts of vandals or other third parties, or any other causes whether or not of the same kind as enumerated herein. In no event shall the County be liable to Developer or any customer for any consequential, incidental or punitive damages as a result of injury to property or person, regardless of whether said injury was the result of acts of or within the control of the County.

### **1.20 Approval by Governmental Agencies**

The County's obligations are contingent upon Developer obtaining all necessary

approvals for water, sewer, and/or reclaimed water systems from all concerned governmental agencies. Developer assumes the risk of loss as a result of the denial or withdrawal of the approval of any concerned governmental agency, or caused by an act of any governmental agency which affects the ability of the County to provide water, sewer, and/or reclaimed water service to Developer not within the sole control of the County and which, by exercise of due diligence, it is unable to overcome.

### **1.21 No Prohibition of Further Extension**

These Policies and Procedures shall not prohibit or prevent the County from extending the County Utility System in or to other areas to serve other Developers or customers, so long as extensions and the furnishing of services do not interfere with the furnishing of the services to the Developer's establishment.

### **1.22 Final Acceptance by County**

- A. Final acceptance of a water distribution system, water main extension, reclaimed water distribution system, reclaimed water main extension, and/or wastewater collection/force main system, including pump/lift stations, and release of the performance bond will be made only after a) all inspections have been made; b) the improvements are found to be in accordance with the applicable regulations of the County, the Department of Environmental Protection, the Bay County Health Department, and the standards contained herein; and c) the Planning and Zoning Site Plan and Subdivision Review Section is provided with the required Planning documentation. No Certification of Occupancy shall be given until all Planning Department inspections have been approved, and all applicable regulatory requirements have been satisfied along with confirmation of a final inspection of the improvements.
- B. All requirements of the Land Development Regulations constructed in existing road right of way depends upon the length of the utility line.
- C. Utilities require witness of hydrostatic tests by the County Inspector. The developer will submit a one year letter of warranty for all off-site utilities.
- D. The acceptance of improvement facilities within residential and commercial subdivisions is documented by Dedication in the Final Plat in conjunction with the Public Works Department. The Developer has several options in the acceptance process, as summarized below.
- E. In lieu of actual construction of all required, the Developer may provide a surety equal to 110% of the cost of constructing such improvements, as verified by the County Engineering Section. Such surety shall be in the form of an escrow account, irrevocable letter of credit, or performance bond. The

Developer shall provide a maintenance bond in the amount of 15% for three years, commencing upon acceptance of the improvements by the County.

- F. The submission of a plat may be deferred until construction, record drawings, and final inspections are complete. In this case, the plat and improvements are accepted at one Board meeting. For this meeting, the developer also submits the Subdivider's Agreement for Warranty of Required Improvements and the two-year Warranty Bond, Letter of Credit, or check for 10% of the cost of the improvements that the County is accepting for ownership and maintenance.
- G. The following is a list of documents or items that must be submitted to the County in the acceptance process for off-site utility improvements for commercial developments:
  - 1. O & M Manual
  - 2. Record (As-Built) Drawings
  - 3. CAD Files
  - 4. All clearance Permits
  - 5. Software
  - 6. Maintenance Bond
  - 7. Training
  - 8. Spare Parts
  - 9. Warranties and Contract Listings
  - 10. All test results
  - 11. Certification Letters
- H. Upon receipt of verification of the above documentation, the County will either administratively accept or will request the Board of County Commissioners acceptance of the Improvement Facilities (water, wastewater, reclaimed water) for maintenance and operation. Within three (3) days of action by the Board or through Administrative approval, the County shall notify the applicant in writing regarding the action taken by the Board.

### **1.23 Warranty and Security**

Developer shall warrant its extension and hold County harmless against all costs, expenses and losses, including, without limitation, incidental and consequential damages, resulting from any defects in the Developer's extension, including, without limitation, defects in material and workmanship, which are discovered or arise within a period of one year following the date of the final acceptance. As security for Developer's performance of this representation and warranty, simultaneously with the conveyance of the Developer's extension, Developer shall deliver to the County an executed contract bond in form and substance satisfactory to the County in the amount of 100 percent of total cost of the water, sewer, and/or reclaimed water construction. The contract bond shall have as the surety thereon such surety company, acceptable to County, as is authorized to write bonds of such character and amount under the

laws of the State of Florida. The attorney-in-fact, or other officer who signs a contract bond for a surety company, must file with such bond a certified copy of his power of attorney authorizing him to do so. Subject to the approval of the County, the Developer may elect to deliver to the County a contract bond in compliance with all requirements herein and in a form acceptable to the County from the Developer's contractors as the principal with the Developer and the County as co-obligees. The contract bond shall remain in force for one year following the date of final acceptance by County. Should the Developer fail to make or commence timely repairs or replacements of any defects in the Developer's extension discovered or arising within said one year period, the Developer or his surety shall be liable to the County for all costs arising there from.

#### **1.24 Developer's Liability for Damage**

Developer shall be responsible for, and make any repairs or replacement required as the result of, any breakage, vandalism or other damage caused to his extension, including, without limitation, meter boxes and meters, until final acceptance by the County. After the final acceptance the Developer shall indemnify and hold County harmless from the cost of any repairs for any breakage or other damage to his extension from time of completion of Developer's extension until completion of all buildings and houses, roads, paving, drainage, and other construction on Developer's property necessary to complete the development. If, within 10 days of the receipt of County notice of such breakage or other damage, Developer fails to make timely repairs and corrections, the County shall have the option to make such repairs or replacements at cost and seek reimbursement from the Developer.

#### **1.25 Alternate Water Source**

Developer shall not construct any well, pond, lake or source of water for the purposes of obtaining construction water, future domestic use, or fire protection without prior approval of the County. Any well, constructed for lawn sprinkling and irrigation, shall not be connected or cross-connected to domestic water supply.

#### **1.26 Limited Reservation of Treatment Capacity**

The reservation of water and/or sewage treatment capacity will be limited to the actual number of equivalent residential units (ERU's) committed by the County to the development by means of paid impact fees, contract, or another form of development agreement and/or a signed waiver of such reserve pursuant to preconstruction approval of the water and/or sewage system facilities. Failure to secure connections by prepaying impact fees could result in the Developer being denied connection to the County infrastructure

#### **1.27 Period of Construction**

- A. Developer must begin construction of water, sewer, and/or reclaimed water facilities within 180 consecutive calendar days from the date of final County



approval of drawings and specifications, and shall not cease for a continuing period of 365 consecutive calendar days or until final completion and acceptance of the constructed facilities, whichever is sooner. Should the Developer not strictly adhere to these time frames, then any obligations or duties of the County shall be null and void.

- B. No construction shall be done on/around Bay County infrastructure on County holidays, Fridays, Saturdays, or Sundays.

### **1.28 Modification of Development Plans**

Should the Developer modify his development plans which would require greater water usage, greater fire flows, additional water facilities, greater sewage flows, or additional sewage facilities than the water, reclaimed water, and sewage service demands designed and approved under the engineering plans and specifications, then Developer shall enter into a new agreement with the County providing for the construction of such additional water and/or sewer facilities meeting all County and governmental design requirements and shall pay all additional contributions and fees as may be required.

### **1.29 Notice of Connection to County Utility System**

Developer shall deliver to the County written notice that he will be connecting the water, sewer, and/or reclaimed water facilities to the County utility water or sewer system no less than 48 hours prior to said connection to allow time for County inspection. If Developer fails to provide timely written notice, the County may require Developer to uncover and expose connection for inspection, at the sole cost of Developer.

### **1.30 Interruption of Facility Operations**

- A. The Developer shall provide the County with written notice at least five days prior to any proposed interruption in facility operations required by construction activity. The notice shall include the date and time of the scheduled interruption; the length of time the interruption will be in effect; the procedures to be followed in effecting the interruption; a complete identification of all those processes, equipment and operations to be affected; and all other information the County may require. The Developer shall provide all equipment, piping, auxiliary power or other means necessary to sustain facility operations or function for the planned interruptions.
- B. The County must approve all proposed interruptions in facility operations. Such approval will be provided by the County to the Developer in writing.
- C. The Developer shall conduct operations in a manner and sequence which will provide for the continued transportation of wastewater flows during

construction of the Developer's project. The Developer shall take all actions required to prevent discharge of sewer flow from the system to the ground or stream. Any construction actions that impede or interrupt flow shall be carefully executed and monitored to prevent surcharging and overflow.

- D. Any damages resulting from surcharging, overflow or back-up caused by the Developer's operations shall be the Developer's responsibility. Fines charged to the County for overflows caused by the Developer shall be paid by the Developer.

### **1.31 Cross Connections**

There shall be no cross connections between the County Utility System water system and any possible source of contamination such as non-potable water system or non-permitted water system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture, sprinkler system, etc. In addition, there shall be no connection between the County Utility System water system and any privately owned water system.

### **1.32 Connection of Buildings**

The Developer shall at his sole cost and expense connect the private property water pipes and the private property sewer pipes of each dwelling or other building constructed on Developer's property to the meters and sewer laterals of Developer's extension as reflected in plans and specifications approved by the County. Any water line which serves a sprinkler fire line must have a backflow prevention device installed on the downstream side of the water meter. The backflow prevention device and its installation shall be as approved by the County.

### **1.33 Application for Service**

Developer, his successors, or the occupant(s) of the developer's property, shall make written application to the County for the opening of an account(s) for service. Application is to be made only after the payment of all water and/or sewer fees. At the time of making application for service, the applicant shall pay all service charges as set forth in the current County code(s) establishing rates, charges and regulations pertaining to the County water, sewer, and/or reclaimed water facilities.

### **1.34 Notice of Transfer of Developer's Property**

Developer agrees to provide proper written notice to County of the actual date of the legal transfer of water and/or sewer services from Developer to any third party. Developer shall remain responsible for all costs and expenses, including utility bills, which arise as a result of Developer's failure to notify or improper notification to the County.

### 1.35 Record (As-Built) Drawings

- A. Record (As-Built) Drawings shall be provided upon completion of the project. Information included on the Record Drawings shall include, but not be limited to, the following:
1. Sewer Project:
    - a. Location and rim elevation of all sanitary sewer manholes. (Including GPS coordinate data.)
    - b. Invert elevation, size, material type and slope of all pipes entering and exiting manholes.
    - c. Location of sanitary sewer service lateral connection points. (Including GPS coordinate data.)
    - d. Location size and material type of all sanitary sewer force mains including location and designation of all bends, valves, etc. The profile of the top of the pipe shall be provided. Elevations, not depths, shall be provided at a minimum 40-foot interval and at all bends, high points, low points, air valves, and where elevations are called out on the Drawings.
    - e. Detailed survey of all pumping station sites including location of fence, gates, wetwell, valve box, control panel, water service, backflow preventer, service pole, by-pass connection and any other surface features as may be present.
  2. Water Project:
    - a. Location, size and material type of all potable water mains including location of all bends, junctions, dead end sections, etc.
    - b. Location of all potable water service lines, valves, and meters. (Including GPS coordinate data.)
    - c. Location of all fire hydrants and flush valves.
    - d. Detailed survey of all water well sites including, but not limited to, location and size of well, well building, chlorine room, chlorine lines and injection points, service pole, fence gates, and any other surface features as may be present.
  3. Treatment Plant Facilities:
    - a. Top and inverts of all structures, including location of all access ways and hatches.
    - b. Location, invert and material type for all yard piping and pipes entering and leaving all structures, tanks, etc., including all junctions, bends and non-connecting crossings identified.
    - c. All building corners, finished floor elevations, sidewalks, roadways, driveways, fences, gates curbs, and sufficient cross sections and spot elevations to determine slope and direction of flow for stormwater runoff.
    - d. Locations shall be provided for all exposed and underground utilities and appurtenances, both new facilities constructed and those utilities encountered, referenced to permanent surface improvements.

- e. Changes made by Requests for Information (RFI), field order, clarification memorandums or by change order.
  - f. Details not on original Drawings.
  - g. The locations shall be referenced to at least two easily identifiable, permanent landmarks (e.g., power poles, valve markers, etc.) or benchmarks.
- B. The Contractor is advised to keep accurate records during the course of construction on all items of work and especially with regards to pipe size and/or material type changes, locations of bends, depth of cover, etc., that may be difficult to determine at the completion of the project. Written references to above ground features should be noted for these types of items to facilitate the inclusion on the final record drawings.
- C. Unless noted otherwise, Record (As Built) Drawings shall provide horizontal dimensions, elevations, distances and coordinates to the nearest 0.1 foot.
- D. For GPS coordinate data, horizontal and vertical coordinates of items noted shall be established based on North American Datum 1983, Florida North Zone & North American Vertical Datum 1988 respectively per published (N.G.S., F.D.O.T., County, etc.) control point(s) and/or approved GPS network.
- E. The final record drawings shall be prepared in AutoCAD latest format, in a professional manner, and be certified by a professional surveyor registered in the State of Florida. A printed copy of the final record drawings shall be provided to the County Utility Services for approval and verification that all required information has been provided. Upon approval of the final record drawings by the County Utility Services, the Contractor shall provide two (2) printed copies, signed and sealed by a professional surveyor licensed in the State of Florida, along with one electronic copy on CD or DVD to include any plot styles, text styles, line types, etc., required to open and print the final record drawings, as well as a copy in PDF format.

### **1.36 Standards and Specifications Revision Procedure**

- A. As material specifications and technical criteria change to meet new needs and changing technology, it will become necessary to revise and update this manual. These revisions will be handled administratively under the direction of the Utility Director.
- B. All revisions approved by the Utility Director will be noted on the Bay County website. The effective date of such changes shall be 30 days from the date of approval.
- C. The preparers of this manual have gone to great lengths to develop a manual

that is accurate, consistent, and free from errors and conflicts. However, there is no foolproof way to assure that a technical document of this type is totally free from imperfections. Therefore, in the unlikely event that an existing conflict is discovered or is created by an implementation of an approved revision to this manual, the County shall assume the responsibility for investigating the conflict and recommending a change to the Standards and Specifications pending the Utility Director's approval. The effective date of conflict resolution will be the date of the approval by the Utility Director. The resolution of all design problems directly related to criteria conflicts in this manual will be handled on a case-by-case basis by the Utility Director. Public health, safety and welfare, economic impact, and due diligence by the site designer will all be considered in the resolution of these design problems. Registered users of these Standards and Specifications will be notified by email in the event that a significant change has been made.

- D. Finally, correction of any typographical errors contained herein that do not materially and significantly affect criteria will not require approval by the Utility Director. All corrections of this nature will be handled by the County and will be effective as of date of notice on the Bay County website.

END OF SECTION



## 2.01 Applicable Standards

- A. It is intended that the Developer be responsible for the design of an adequate water, wastewater and/or reclaimed water facilities as necessary for the development. The methods of design and construction shall be governed by the applicable standards listed hereinafter. By reference, the standards are made a part of these specifications and standards.
1. Florida Department of Environmental Protection (DEP), Chapter 62-555 latest effective date. As noted: Permitting and Construction of Public Water Systems.
  2. Florida Department of Environmental Protection (DEP), Chapter 62-604, latest effective date. As noted: Collection System and Transmission Facilities.
  3. The Florida Department of Environmental Protection (FDEP) defines reclaimed water as water that has received at least secondary treatment and basic disinfection and is reused after flowing out of a domestic wastewater treatment facility to become available for reuse for a beneficial purpose.
  4. Water Environment Federation (WEF), Gravity Sanitary Sewer
  5. Design and Construction – MOP FD-5, 2<sup>nd</sup> Edition.
  6. Recommended Standards for Wastewater Facilities, latest edition, Policies for the Review and Approval of Plans and Specifications for Wastewater Facilities, A report of the Committee of the Great Lakes-Upper Mississippi River Board of State Public Health and Environmental Managers, generally referred to as the "Ten (10) States Standards for Sewage Works".
  7. Recommended Standards for Water Works, latest edition, Policies for the Review and Approval of Plans and Specifications for Public Water Supplies, A report of the Committee of the Great Lakes-Upper Mississippi River Board of Sanitary Engineers, generally referred to as the "Ten (10) States Standards for Water Works".
  8. Gravity Sanitary Sewer Design and Construction, WEF Manual of Practice FD-5.
  9. American Water works Association (AWWA) Standards, latest edition.
  10. American National Standards Institute (ANSI) Standards, latest edition.
  11. American Society for Testing and Materials (ASTM) Standards, latest edition.
  12. Bay County Public Works Utility Accommodation Manual.
  13. Design of Wastewater and Stormwater Pumping Stations, WEF Manual of Practice FD-4.

END OF SECTION





---

Water Supply, Treatment, and Distribution System - Design Requirements

**3.01 General**

- A. The Developer shall be responsible for the design of an adequate system of water supply, treatment, transmission, and distribution facilities as necessary for the development. The methods of design and construction shall be in accordance with all County codes, accepted engineering practices, and this Section.
- B. A public water system shall be provided in each new development; however, the County may determine that conditions are such that an individual well is acceptable. It is the Developer's responsibility to contact the County to request this determination. The County will advise the Developer as to the proper procedures for connecting to the County Utility System.

**3.02 Design Flows**

- A. All new water systems shall be designed to meet AWWA service pressure criteria (P.S.I.) as follows:
  - 1. Maximum pressure: 65-75 psi
  - 2. Minimum pressure during max hour: 30-40 psi
  - 3. Minimum pressure during peak hours: 25-35 psi
  - 4. Minimum pressure during fires: 20 psi
- B. Average Residential Demand Rates: In the absence of data to the contrary, the following shall be used:
  - 1. 110 gallons per capita per day (gpcd).
  - 2. 350 gallons per day (gpd) per connection (single-family) for design standards and 350 gpd for capacity purposes.
  - 3. Basis for design flows must be clearly stated in the Developer's submittal to the County.
- C. Commercial and Industrial: Actual flow or estimated for each individual case in accordance with the Water and Sewer Code of Bay County, Florida. Basis for design estimate must be clearly stated in the Developer's submittal to the County.
- D. Peak Demand Rates: In the absence of data to the contrary, peak demand rates for domestic usage by residential, commercial and industrial users shall be taken as follows:
  - 1. Maximum Day Demand Rate: 175 percent of average day demand rate. Provide water supply and treatment capacity adequate to meet maximum day demand.
  - 2. Maximum Hour Demand Rate: 350 percent of average day demand rate.

Provide combination of water supply, treatment and storage capacities adequate to maintain, for four hours, the greater of:

- a. Maximum hour demand; or
- b. Average day demand plus fire flow (as established in Paragraph E. below).

#### E. Fire Flows

1. Residential: Fire flows of at least 500 gpm in single-family residential developments and at least 1,500 gpm from at least two fire hydrants in multi-family residential developments at a residual pressure of at least 20 psi at the hydrant shall be provided.
2. Commercial and Industrial: Fire flow minimum requirements are the same as for multi-family residential requirements.
3. Fire flows must meet all applicable ISO, NFPA, and AWWA standards.

### 3.03 Design Period

All transmission and distribution lines shall be sized for the ultimate population density (50 years); pumping stations and storage facilities may be designed on a 20-year population prediction, with expansion by modules considered.

### 3.04 Hydraulic Design

- A. Velocities: Velocities shall normally be less than 5 fps.
- B. "C" Factors: The following Hazen-Williams roughness coefficients shall be used for new construction:
  1. 16-Inch Diameter and Larger Cement-Lined Ductile Iron Pipe: 140
  2. Less than 16-Inch Diameter Cement-Lined Ductile Iron Pipe: 130
  3. PVC Pipe (All Sizes): 150
- C. Review Submittal Requirements: Include with submittal hydraulic analyses of the planned water transmission/principal distribution main system. Either manual (Hardy Cross Method) or computerized analyses will be acceptable. Balance heads to within 1 psi. As a minimum, submit:
  1. Analysis at maximum hour demand rate demonstrating maintenance of residual pressure not less than 30-40 psi at each junction or node for four (4) hours.
  2. Analysis at average day demand rate plus fire flow (at one or more locations located remotely with respect to water source) demonstrating maintenance of residual pressure not less than 25 psi at each junction or node (which will be accepted as assurance that 20 psi minimum is maintained at all hydrants, per Article 3.02, Paragraph E.) for four (4) hours.
- D. Pipe Size: Mains shall be 8-inch minimum nominal diameter pipe, with the

following exceptions if approved by the County:

1. Short cul-de-sac streets may be served with a 6-inch main.
2. Cul-de-sacs may be served with a 6-inch loop beyond the last fire hydrant.
3. A 2-inch loop may be utilized in subdivisions to provide services on the side of the street opposite the larger water main.
4. All other water mains shall be a minimum of 8”.

### **3.05 Location Criteria**

- A. Mains: Water mains within County rights-of-way, private roads and easement shall not be located under pavement if at all possible.
- B. Water Main Separation Requirements: Water main separation requirements shall be in accordance with the current FDEP regulations and requirements noted in Volume 2 of the Bay County Standards Specifications.
- C. Fire Hydrants: Fire hydrants in single-family residential areas shall be not more than 600 feet apart when measured along streets or acceptable access ways, except in a cul-de-sac or dead-end street where a fire hydrant shall be located not more than 600 feet from the center of the turnaround. Fire hydrants in commercial, industrial, and multi-family residential areas shall be not more than 500 feet apart when measured along streets or acceptable access ways. All fire hydrants and independent valves shall be located within the street rights-of-way or easements.
- D. Meters: Each commercial, industrial and single family customer shall be provided with a meter. All RV parks, campgrounds, mobile home parks, and multi-family residences, except duplexes, shall be provided with only a single master meter.
- E. Valves: Valves shall be installed at a maximum spacing of 1,200 feet on long extensions in single-family residential areas, and 1,000 feet in multi-family residential, industrial and commercial areas. There shall be a sufficient number of valves so that single lines in the network may be isolated from the remainder of the system. Valves shall be installed in two directions on a tee; three directions on a cross.
- F. Flushing Hydrants: Flushing hydrants shall be installed where requested by the County.

### **3.06 Services**

- A. A separate service connection shall be provided for each lot. The minimum

size service allowable for new single-family residences shall be 3/4-inch.

#### B. Service Line Sizing

1. For Single Family, Residential Service, pipe size shall be 1".
2. All street crossings shall be encased in 2" conduit.
3. For Remaining Services:

<b>Meter Size</b>	<b>Corporation Cock Size</b>	<b>Service Line Size</b>	<b>Curb Stop Size</b>
1"	1"	1"	1"
2"	2"	2"	2"

### 3.07 Water Treatment Plants

Water treatment plants to be dedicated to the County will be considered on an individual basis. It is the Developer's responsibility to contact the County early in the planning stage for direction.

### 3.08 Water Wells

Water wells will be considered on an individual basis. It is the Developer's responsibility to contact the County early in the planning stage for direction. All new water wells must be approved by the appropriate reviewing agency (The Florida Department of Environmental Protection or The Northwest Florida Water Management District) and shall meet the requirements of American Water Works Association (AWWA) A100, latest edition, The Ten States Standards for Water Works, and all applicable standards listed in Volume 2 of these Specifications. The Bay County Health Department regulates all water wells.

### 3.09 Fire Protection Requirements

All water systems shall be capable of maintaining fire flows in accordance with Article 3.04 of this Section. The system shall consist of, but not be limited to, an 8-inch minimum size main; fire hydrants; isolation valves; etc. The fire main and water main shall be a common pipeline. A hydro-pneumatic tank shall not be used to meet fire flow protection.

### 3.10 Record (As-Built) Drawings

When completed, Record Drawings shall be submitted to the County for all systems, whether public or private, for review and approval.

END OF SECTION

---

 Sanitary Sewerage System - Design Requirements
**4.01 General**

The Developer shall be responsible for the design of an adequate sewage collection system and/or treatment facilities where necessary. The methods of design and construction shall be in accordance with all county codes, accepted engineering practices, and this Section. When the Developer of a parcel of land desires to connect to the County Utility System, it shall be their responsibility to contact the County. The Developer is responsible for the coordination of connection to a privately owned system. Public systems shall be located entirely within public rights-of-way or dedicated easements.

**4.02 Design Flows**

- A. Average Residential Flow Rates, Single-Family and Multi-Family: In the absence of data to the contrary, the following shall be used:
1. 100 gallons per capita per day (gpcd)
  2. 250 GPD/per connection
  3. 1,500 GPD/per acre (based on 15 persons per acre), multi-family
- B. All Others: Actual flow or estimated for each individual case in accordance with the Water and Sewer Code of Bay County, Florida.
- C. Design Wastewater Peak Flow Factors

<b>Tributary Population</b>	<b>Ratio of Peak Instantaneous Flow Rate to Average Daily Flow Rate</b>
< 3,000	4.0
3,000 - 4,000	3.8
4,000 - 6,000	3.6
6,000 - 8,000	3.4
8,000 - 10,000	3.2
10,000 - 15,000	3.0
15,000 - 20,000	2.8
20,000 - 30,000	2.6

- D. Design all sewers to carry peak design flow when flowing full (no hydraulic head (manhole surcharging) shall be allowed).

**4.03 Design Period**

- A. Gravity Sewers: 50 years minimum.

- B. Force Mains: 50 years.
- C. Pumping Stations: 20 years for equipment. 50 years for structures.
- D. Treatment Facilities: 20 years for equipment. 50 years for structures.

#### **4.04 Hydraulic Design**

- A. Mains, submains and lateral sewers, 8-inch pipe, minimum; actual as based on hydraulic computations.
- B. House service connection, 6-inch pipe, minimum.
- C. When increasing size of gravity sewer piping, pipe crown elevations shall be matched at manholes.
- D. Force Main Manifolding: Force main shall not be manifolded with new or existing force mains.

#### **4.05 Location**

- A. Mains and Submains: On centerline of street or easement.
- B. Force Mains: Outside of pavement and on opposite side of street or easement from water main.
- C. Easements: Minimum 20-foot width for sewer only; minimum 30-foot width for water, sewer, and reclaimed water. Easements will be allowed only when there is no other way to service development. Easement requirements subject to change based on line size and depth.
- D. Pumping Stations: Located outside of street or easement right-of-way on a parcel of land no smaller than 30 x 30 feet. If the pumping station is not located adjacent to the street or easement right-of-way, then an access easement shall be included.

#### **4.06 Service Connections**

- A. All sewer service connections shall be 6-inch minimum size with a separate service connection to each lot.
- B. Service connections are not permitted to connect directly to 24-inch diameter or larger trunk sewers.

- C. No service connections will be made within a manhole unless the Manhole terminates the line (ie Cul-de-Sac).
- D. Vertical risers are not permitted within street rights-of-way.
- E. Clean-outs are not permitted within street rights-of-way, except for service laterals; in such case the clean-out shall be located at the right-of-way line. Clean-outs shall be ground level with a 16" concrete collar, as shown in the Standard Details.
- F. Connection to an existing manhole shall be made by mechanically coring into the wall structure of the manhole. Cored opening shall be sized to properly accommodate a rubber boot seal. All manholes must be sealed and properly protected for corrosion if connecting a force main. Manhole shall be tested for leakage after the connection is made.

#### 4.07 Velocities

- A. Gravity Sewers: When flow is one-half full, minimum velocity shall be 2.0 feet per second; maximum velocity shall be 4.0 feet per second.
- B. Force Mains: Minimum velocity shall be 2.0 feet per second; maximum velocity shall be 5.0 feet per second.

#### 4.08 Minimum Gravity Sewer Pipe Slope

Diameter, Inches	Slopes, %
8	0.40
10	0.28
12	0.22
15	0.15
16	0.14
18	0.12
21	0.11
24	0.08

#### 4.09 Manholes

- A. Location: At all changes in pipe grade, pipe size, alignment, intersections, and at the end of a pipe run.
- B. Spacing:

1. Pipe 15-Inches and Smaller: 400 feet maximum.
  2. Pipe 18 to 30-Inches: 500 feet maximum, except with approval, 600 feet.
  3. Pipe larger than 30-Inches: As approved by DEP and the County.
- C. Steps and rungs are not allowed in manholes.
- D. Linings and Coatings: Manholes shall be lined on the interior and coated on the exterior in accordance with the requirements in the Standard Specifications for Wastewater Construction. If the force main dumps into the manhole or has turbulent flow, the manhole must either be lined with an HDPE liner, or one of the following sprayed on epoxy coatings: S-301 (Warren Environmental), ARC S1HB (A. W. Chesterton Co.), or an approved equivalent. Approval must come from Bay County Utilities prior to construction. Armorock precast polymer concrete manholes/bases may be provided as an alternative to lined precast manholes with cast-in-place bases.
- E. An outside drop pipe shall be provided at manholes where the influent sewer enters the manhole at a height of two pipe diameters plus 12 inches or greater above the outgoing pipe.
- F. All holes for discharge pipes coming into manholes must be cored in accordance to details shown on the drawing (WW-16) and 4.06(F).

#### **4.10 Liquid Waste Interceptors**

- A. Grease, oil, flammable liquid, and/or sand interceptors shall be provided at all vehicle service stations, commercial or industrial food-handling establishments, and at any other commercial or industrial establishment or institution at which such devices are necessary for the proper handling of liquid wastes containing grease, oil, flammable liquids, or sand.
- B. Such interceptors shall be of a type and size approved by the County and shall be located as to be readily and easily accessible for cleaning and inspection.
- C. Such interceptor shall be properly maintained by the sewer service customer. Maintenance shall include periodic removal of the contents of the interceptor with no reintroduction of any portion of the waste into the interceptor or introduction into the County's sewer system. The County may require interceptor maintenance records based upon the observation of material build-up in the interceptor.
- D. Food-handling establishments with no inside cooking may install an inside/under-the-counter type interceptor. All other establishments where interceptors are required shall install an outside interceptor with a capacity of at least 1,000 gallons. The County may require interceptor maintenance records



based upon the observation of material build-up in the interceptor.

#### **4.11 Design Requirements for Interim Wastewater Treatment Plants**

- A. For those projects that fall under the conditions specified in Section 1, Policies and Procedures, Article 1.13.B.1.a.iii, the County will review interim wastewater treatment plants on a case by case basis. The manufacturer shall provide the Engineer with a signed and sealed statement that the facility will meet all permit limits.
- B. Because of the unique nature of privately constructed wastewater treatment plants, it is the Developer's responsibility to contact the County Utility System early in the planning stage for direction. The County will not operate or assume ownership of any package plant. Should the Developer desire to have the County operate or own the facility, it shall be site specifically designed to BNT specifications and come with a structural warranty of 40 years
- C. All equipment associated with the Wastewater Treatment Plants shall be products of a well-established and reliable manufacturer of factory pre-fabricated, field erected treatment plants similar in every respect in design and of capacity equal to the equipment submitted. The manufacturer of the factory pre-fabricated, field erected treatment plant shall submit, to the County, evidence of a minimum of five years experience manufacturing units in design and capacity similar to the equipment submitted.
- D. The treatment plant shall be a factory fabricated, field erected, (approved) structure providing components for extended aeration, clarification, aerobic sludge digestion, filtration, and disinfection with a 45 days aerobic digestion. Only UV disinfection shall be used.
- E. The treatment plant shall be manufactured by Evoqua Water Technologies - Davco Product Line, Sanitaire, Infilco Degremont, or Enviroquip.
- F. Four (4) hard copies and a digital copy of the operation and maintenance manuals shall be submitted for County review and approved prior to final acceptance.

#### **4.12 Record (As-Built) Drawings**

When completed, Record Drawings shall be submitted for all systems, whether public or private, for review and approval.

END OF SECTION



---

## Wastewater Pumping System – Design Requirements

### 5.01 General

- A. Sewage liftstations shall be a triplex or duplex submersible type. Pumping stations shall have an access road located between the adjacent public road and the pumping station with turnaround. The Station drive shall allow for a F550 Boom Long Bed truck to completely clear the road, with gate closed. All radius turns shall accommodate for said truck. The station drive shall also provide a minimum of 35 ft. between the Pump Station gate and the adjacent public road. For details, see Standard Details WW-11 and 12.
- B. The method of design and construction shall be in accordance with Standard Specifications for Wastewater System Construction and Article 5.02 below. The system shall be designed with considerations for future expansion and maintenance.
- C. Pump manufacturers shall be in accordance with Standard Specifications for Wastewater System Construction. Selection of pump manufacturers shall be reviewed with the County and approved by the County prior to the start of project design.
- D. Lift Stations shall not be located near water bodies. If the design precludes this, containment volume of the wetwell will be provided. A dry stormwater feature, with overflow, can serve as a containment.
- E. All Lift Stations ground elevation shall be above the 100 year flood zone and shall be above the storm surge elevation of a Cat. 5 Hurricane.

### 5.02 Pumping System Equipment and Appurtenances

- A. Pumps: Triplex or Duplex system mounted on stainless steel (316L) guide rails.
- B. Emergency Power
  - 1. For those pump stations that will service an ultimate build-out area of 50 or more homes, a permanent on-site diesel-run/natural gas/diesel pump or a gen set generator, at the County's discretion, capable of sustaining operation of pumping station with automatic transfer switch is required. A double walled fuel tank with a minimum of 24-hour fuel capacity is required onsite. If natural gas is available it shall be used instead of diesel. The generator or fuel powered pump, capable of handling the total station design flow, will be based upon Bay County Utilities discretion.
  - 2. For all other pump stations, a standard electrical connection shall be furnished and installed. The type of connection shall be dictated by the County.

- C. Controls: Controls shall meet the requirements of Standard Specifications for Wastewater System Construction.
- D. Air and Vacuum Release Valves: As required before check valves and at high points in force main, and at locations specified on the contract drawings.
- E. Force Main Marker Posts: Fiberglass force main marker posts are to be placed at all air valve manholes as required in the Standard Specifications for Wastewater System Construction.
- F. Piping: Meet requirements of Standard Specifications for Wastewater System Construction.
- G. Valves: Located outside of wetwell in valve vaults with aluminum covers. Discharge line for each pump station shall have either a magnetic flow meter, or an ultrasonic flowmeter, check valve(s) and plug valve(s). If a magnetic flowmeter is installed, then a bypass line with valves must be installed to inable replacement or repair.
- H. A potable water source for wash down service shall be provided to include water meter (if connected to County water system), reduced pressure zone backflow preventer, and non-freeze yard hydrant.
- I. Ancillary components include:
  - 1. Emergency by-pass connection with valve
  - 2. Mercury level switches or pressure transducer (4-20 Ma)
  - 3. Combustible gas detector
  - 4. Audible alarm with silencer
  - 5. Telemetry system: MDS 4710A or current model (SD-4)
  - 6. Visual alarm
  - 7. Gauges on discharge piping
  - 8. Site lighting and control panel lighting, LED site lights
  - 9. Elapsed time meter, each pump
  - 10. Odor Control System: TriMed

### **5.03 Wetwells and Valve Vaults**

- A. Construction: Precast reinforced concrete in accordance with Standard Specifications for Wastewater System Construction.
- B. Access Cover: Aluminum, lockable access hatch with stainless steel hardware and safety grate.
- C. Vent: Wetwells require a vent pipe in accordance with Standard Specifications

for Wastewater Construction.

- D. High Water Level: High water level within the wetwell shall be a minimum of five feet below the lowest floor slab of all houses, apartments, buildings, businesses, etc. being served.
- E. Linings and Coatings: Wetwells and valve vaults shall be lined on the interior and coated on the exterior in accordance with the requirements in the Standard Specifications for Wastewater Construction. Wetwell Pump Stations shall be lined with HDPE or Structural Epoxy unless Armorock precast polymer concrete wet wells are provided.

#### **5.04 Security Fence**

Provide green vinyl coated chain link fence, with green slats, in accordance with Standard Specifications for Wastewater System Construction Specifications.

#### **5.05 Parking Facility**

Provide driveway and parking facility for maintenance vehicles. Driveway and parking areas shall be paved with a minimum of 2" of Type 9.5 TL-C asphalt and a minimum of 6" graded aggregate base course or approved equal.

END OF SECTION