2021 SUMMARY OF MAJOR CHANGES

Yellow highlighted sections are additions, Red highlighted strikethroughs are deletions

EFFECTIVE 4/1/20

1) SUBMERSIBLE WASTEWATER PUMPING STATIONS – SECTION 433

III.5 MATERIALS

III.5.3.1 Piping within and external of the wet well shall be 316 stainless steel: flanged, schedule 40. Butt-welding of any piping (except for the emergency suction pipe in the wet well) is not allowed. All bolts, washers and nuts shall be 316 stainless steel, threaded bolts and nuts shall be coated with “Never Seize” type coating.

III.5.3.2 Pipe outside of the wet well and above ground shall be 316 stainless steel, (schedule 40, one-piece construction all bolts, washers and nuts shall be 316 stainless steel, threaded bolts and nuts shall be coated with “Never Seize” type coating.

EFFECTIVE 4/10/20

IV.7. SOLID HANDLING PUMP CONSTRUCTION (WET-PIT AND DRY-PIT PUMPS)

IV.7.1 IMPELLER

The impeller shall be dynamically balanced and securely locked to the shaft by means of a key and self-locking bolt or nut. [25% chrome cast iron with leading edges hardened to RC 60]

IV.7.2 MECHANICAL SEALS (UPPER AND LOWER SEALS)

The top seal may be either carbon-ceramic, tungsten carbide or silicon carbide material. Adjustable wearing rings shall be provided for all pumps 25 HP and larger.

IV.7.5 MOTORS 1800 RPM

Cable sizing shall conform to NEC requirements. The cable shall enter the pump(s) through a heavy-duty Stainless steel cast iron assembly with grommet. An epoxy seal may be added to this cable entrance assembly to improve water tightness. The system used shall ensure a watertight submersible seal. The cable shall terminate in a junction chamber. Junction chamber shall be sealed from the motor by a compression seal.

EFFECTIVE 4/1/20

2) IN-LINE BOOSTER WASTEWATER PUMPING STATIONS – SECTION 435

III.4 MATERIALS

III.4.3.1 Piping within the in-line booster station site shall be flanged 316 stainless steel, (schedule 40, one-piece construction with no butt welds with exception of pump-out pipe). Fittings shall be flanged 316 stainless steel. All nuts, bolts and accessories within shall be 316 stainless steel.
III.4.3.2 Pipe and fittings above ground shall be 316 stainless steel (flanged, schedule 10 with no butt-welds). All bolts, washers, and nuts shall be 316 stainless steel, threaded and shall be coated with “Never Seize” type coating.

III.4.3.3 All piping within the in line booster station site shall be 316 stainless steel: flanged, schedule 40. Butt welding of any piping (except for the emergency suction pipes, if applicable) is not allowed. All bolts, washers and nuts shall be 316 stainless steel, threaded and shall be coated with “Never Seize” type coating.

EFFECTIVE 4/10/20
3) VACUUM PODS
Lined concrete vacuum pods have been approved for use within driveways and unpaved areas. Concrete pods shall not be used in roadways or heavy traffic loading areas. Details posted to JEA.com

Plate S-52. Material for venting to candy cane changed from DWV Schedule 40 to Schedule 40.

EFFECTIVE 4/13/20
4) EXCAVATION AND EARTHWORK – SECTION 408

XII. 3.7 COMPACTION OF BACKFILL FOR PIPE TRENCHES:
Pipe backfill densities of at least 100% of the Standard Proctor maximum density as determined by AASHTO T99, Method C shall be required except where the cover height 1) below the bottom of base under asphalt pavement, 2) below concrete pavement, or 3) below unpaved ground, exceeds 15 inches, then pipe backfill densities of at least 95% of the Standard Proctor maximum density (as determined by AASHTO T99, Method C) shall be required.

EFFECTIVE 4/10/20
5) SUBMERSIBLE WASTEWATER PUMPING STATION – SECTION 433

I.1.1. IMPELLER
The impeller casing shall have well-rounded water passages and smooth interior surfaces free from cracks, porosity, blowholes, or other irregularities. The impeller shall be a semi-open or enclosed one-piece casting with not more than two non-clog passages and must pass a minimum 3 inch solid (unless written approval from JEA’s Pump Station Committee). Screw impellers are not acceptable. The interior water passages shall have uniform sections and smooth surfaces and shall be free from cracks and porosity. The impeller shall be dynamically balanced and securely locked to the shaft by means of a key and self-locking bolt or nut (25% chrome cast iron with leading edges hardened to RC 60).

IV.7.2 MECHANICAL SEALS (UPPER AND LOWER SEALS)
Pumps shall have mechanical seals, which shall require neither maintenance nor adjustment and shall be readily accessible for inspection and replacement. The seals shall not rely upon the pumped media for lubrication and shall not be damaged if the pump is run un-submerged for extended periods while pumping under load. Mechanical seals shall be solid hard faced, (not laminated type). The bottom seal shall be tungsten carbide or silicon
carbide material. The top seal may be either carbon-ceramic, tungsten carbide or silicon carbide material. Adjustable wearing rings shall be provided for all pumps 25 HP and larger.

IV.7.5 MOTORS 1800 RPM
The cable shall enter the pump(s) through a heavy-duty stainless steel cast iron assembly with grommet. An epoxy seal may be added to this cable entrance assembly to improve water tightness. The system used shall ensure a watertight submersible seal. The cable shall terminate in a junction chamber. Junction chamber shall be sealed from the motor by a compression seal.

EFFECTIVE 6/8/20

6) SUBMERSIBLE WASTEWATER PUMPING STATIONS – SECTION 433

II.2. WET-WELL MANUFACTURER WARRANTY
The Manufacturer shall supply to JEA a fifty (50) year corrosion unconditional warranty. Current JEA approved Pre-cast Concrete manufacturers two (2) year warranty shall be grandfathered in for twelve (12) months. The warranty shall include materials and installation and shall constitute complete replacement and delivery to the site of materials and installation of same to replace defective materials or defective workmanship with new materials/workmanship conforming to the specification.

II.2. SELECTION OF PUMP STATION STANDARDS
JEA Pump Station Standards are available in Auto CAD format, on the jea.com website. The selection of a pump station type shall comply with the following:

<table>
<thead>
<tr>
<th>Pump Station Type</th>
<th>Pump Station Maximum Peak Flow</th>
<th>Pump Station Maximum ADF, &amp; EDU</th>
<th>Emergency Operating Requirements</th>
<th>Odor Control Requirements</th>
<th>Additional Design Requirements</th>
<th>Influent Solids Management System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I</td>
<td>0 – 440 GPM</td>
<td>174,999 GPD 499 EDU</td>
<td>Generator or Pump Engine*</td>
<td>Not required</td>
<td>Smart electric meter.</td>
<td></td>
</tr>
<tr>
<td>Class II</td>
<td>441 – 1000 GPM</td>
<td>175,000 – 436,450 GPD 500 - 1247 EDU</td>
<td>Generator or Pump Engine</td>
<td>Piping and Wiring Required</td>
<td>Flow meter and Smart electric meter</td>
<td></td>
</tr>
</tbody>
</table>
### III.7.7. BACK UP POWER REQUIREMENTS

#### III.7.2.1.
An emergency operating system shall be required for all pump stations. The emergency operating system shall be a Generator Receptacle, an Emergency Generator (see section 472, Emergency Generator) and/or Emergency Pump Engine (see section 470, Emergency Pump Engine).

#### III.7.2.2.
Refer to Chapter IV. 7. - Section 472, “Emergency Generator”, for technical specifications on automatic standby emergency generator with diesel engine drive and above ground fuel storage tank. All generators shall be sized to run all pumps at station.

#### III.7.2.3.
Refer to Chapter IV.6 – Section 407, “Emergency Pump Engines”, for technical specifications on standby emergency pump engine with fuel storage tank. All emergency pump engines shall be sized to run all pumps at station.

#### III.7.2.4.
Reference Appendix for Back Up Power Decision Matrix

#### III.7.2.5.
All pumping station emergency back-up systems, separate or combined, are to be sized to peak flow.

### 7) SUBMERSIBLE WASTEWATER PUMPING STATIONS – SECTION 433 DRAWINGS

Drawings have been revised to remove the requirement for a boom crane on Class III and Class IV stations, to remove the requirement for solids handling on Class III stations and note for back up diesel pumps revised to indicate 2nd pump required only when hydraulics dictate.
Pump Station Back Up Power Decision Tree

Class I and Class II Stations (0 - 1000 gpm PHF and less)

Flow > than 440 gpm Peak?

- Yes: Re-pumps other Pump Station?
  - Yes: 3 Hour Storage in Wetwell plus Gravity?
    - Yes: Back-Up Power Required
    - No: No Backup Power required
  - No: Required by FDEP

- No: Required by COJ EPB Rule 3

Re-pumps other Pump Station?

- Yes: Back-Up Power Required
  - Yes: Back Up Diesel Feasible?
    - Yes: Back Up Diesel Pump Required
    - No: Generator Required
  - No: Required by FDEP

- No: No Backup Power required

Note 1:
- Downstream Gravity can accommodate flow
- Minimum/Maximum Suction head is possible
Pump Station Back Up Power Decision Tree

Class III & Class IV Stations (1001 gpm PHF and greater)

Diagram:

1. **Back-Up Power Required**
   - 3 Hours Storage in Wetwell plus Gravity? (PHF)
     - No → **Redundant Back-Up Power Required**
     - Yes → **Back Up Generator Feasible?**
       - Yes → **Generator Required**
       - No → **Back Up Diesel Pump Required**

2. **Redundant Back-Up Power Required**
   - Yes → **Cost Compare Redundant Options**
   - No → **Generator and Dual Feed Electric Service Required**

3. **Back Up Generator Feasible?**
   - Yes → **Generator Required**
   - No → **Back Up Diesel Pump Required**

**Note 1:**
- Site size can accommodate a generator

**Note 2:** Redundant Back-Up power options
- Generator and Diesel Pump
- Generator and Dual Feed Electric Services (2 Separate Circuits)
- Diesel Pump and Dual Feed Electric Services (2 Separate Circuits)
- 3 hours storage volume plus Generator
- 3 hours storage volume plus Dual Feed Electric Services (2 Separate Circuits)
- 3 hours storage volume plus diesel pump