PART 1 - GENERAL

1.1 SUMMARY:

A. This Section includes the following utility materials and methods to complement other Division __ Sections:

1. Concrete tank requirements for the Oil/Water Separator only.

2. Method and materials for the Separation of Oil and Water.

3. Aluminum hatch requirements of the Oil/Water Separator only.

4. Controls and alarm systems for the Oil/Water Separator only.

B. Exterior Pipe and pipe fitting materials are specified in Division __ piping Sections.

C. Related Sections include the following:

1. Division ____ Section "Earthwork" for excavating, trenching, and backfilling.

2. Division ____ Section "Sewerage and Drainage" for pre-cast manhole construction.

3. Division ____ Section "Utility Materials" for nameplate installation requirements.

4. Division ____ sections for Electrical for establish of electrical controls to the oil/water separator.

1.2 SUBMITTALS:

A. Product Data: Catalog Cuts with dimensions, specifications and installation instructions. Include one copy of manufacture's, contractor installation, operations and maintenance manual for informational purposes.

B. Performance: "EN858 and DIN 1999" (part 5) testing certificate for influent and effluent oil characteristics.

C. Accessory sensors and alarms: Schematic wiring diagrams and bill materials for each component of each sensor/alarm system.

D. Project Closeout Submittals: Provide two additional copies of manufacture's, contractor installation, operations, and maintenance manual with log.

1.3 QUALITY ASSURANCE:

A. The separator system shall be designed to perform as specified for variable and continuous flow rates up to ___ gallons per minute (__liters per second) and also include peak, intermittent flow rates up to and including ___ gallons per minute (-__liters per second).

B. The unit shall have a fore bay or grit chamber preceding the oil separators inlet for containing and dissipating turbulence in influent water. This grit chamber shall pre-treat the influent by separating grits and floatable debris from the waste stream prior to influent entering the oil separator.

C. The central portion of the unit shall enable the removal of fine and widely dispersed oil droplets by means of gravity displacement to a "dead" water layer in the unit itself and withstand subsequent detachment and re-entrainment into the flowing water by controlling the flow of influent into the vessel.

D. Accepted Manufacturers:

1. ecoSep Oil/Water Separator as designed by Royal Environmental Systems, Stacy, Minnesota 800-817-3240. Royal Environmental reserves the right to oversee and select a certified National Precast Concrete Association (http://www.precast.org/certification/index.htm) manufacturer.

2. Aluminum hatch covers manufactured by Syracuse Castings Company (or OWS manufacturer to approved equal).

3. GSE, "StudLiner", H.D.P.E. concrete embedment lining system.

E. Governing Standards for Concrete Tank:

1. ASTM C478-93 for precast water and wastewater structures

2. ACI 318-89 Building code requirements for reinforced structural concrete.

3. Tank shall meet AASHTO HS-20-44 vehicle loading.

4. Technology designed and tested to meet all "EN858 and DIN 1999" (part 4-6) requirements for oil/water separators.

1.5 SEQUENCING AND SCHEDULING:

A. Coordinate equipment installation with other components.

B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

C. Sequence, coordinate, and integrate installations of materials and equipment for efficient flow of the Work.

D. Coordinate connection of piping systems with other exterior underground utilities and services. Comply with requirements of authorities having jurisdiction, franchised service companies, and controlling agencies.

E. Coordinate installation of identifying devices after completing covering and painting, if devices are applied to surfaces.

PART 2 - PRODUCTS

2.1 OIL SEPARATOR:

A. HS-20 traffic loading underground precast concrete tank.

B. Standards: The oil/water separator shall be tested in accordance with "DIN 1999" (part 5).

C. Design standards:

1. Fernco coupled inlet and outlet connections.

2. Sediment Chamber, as indicated

3. Internal inlet velocity diffusion baffle on sediment chamber inlet.

4. Floatable solid baffle on sediment chamber outlet.

5. Oil separator shall have an inlet configured, non-electrical, mechanical automatic shutoff device to protect against a spill event or an oil buildup caused by a lack of routine maintenance. When shut, the device shall be certified to close against a head pressure to 16 feet of total dynamic head and remain liquid tight at 60 feet of total static head.

6. The oil water separator shall contain a removable "media pack" (polyether-polyurethane coalescer) designed to intercept oil globules greater than 20 microns for oils with a specific gravity of 0.95 or less. The oil water separator shall be tested and certified to achieve an oil removal efficiency of 5 ppm (5 mg/L) for effluent oil content of non-emulsified free oils, in fresh water, with a specific gravity of 0.86 or less at an influent concentration of 5000 ppm (5000 mg/L), dosed at peak intermittent flow for the specified flow outlined in 1.3.A. of this written specification.

7. The separator shall have an integral independent stainless steel oil recipient for the storage of separated free oil. Recipient will be equipped with an exterior "stand pipe" and a gasoline and pressure resistant hose that will facilitate the pumping of the recipient contents (from grade) when full.

8. All internal parts shall be manufactured from pickled stainless steel, PVC, and high-density polyethylene.

9. The interior of the separators base section shall be sealed with GSE, "StudLiner", H.D.P.E. concrete embedment lining system.

2.2 JOINING MATERIALS:

A. Refer to individual Division 2 piping Sections for special joining materials not specified otherwise.

2.3 ACCESSORIES:

A. (Optional) An automatic oil drawoff device (not a skimmer) shall be included in the independent stainless steel oil recipient. This automatic oil drawoff device draws oil and water into its separation compartment and through a series of weirs and floats, separates oil from the mixture and deposits the oil to the stainless steel oil recipient with water content of less than 1%. The water is then discharged back to the outlet effluent line.

B. Interface and level sensor: Intrinsically safe oil level controls to activate high-level alarm at a predetermined oil level as manufactured by ecoTECHNIC, Gmbh.

C. Alarm/Control panel (per manufacturer's recommendation): To monitor level sensor and trip a remote mounted visual and audible alarm configured to the system as manufactured by ecoTECHNIC, Gmbh.

1. Remote mounted audible alarm to have alarm silence switch but leave alarm light lit until problem has been corrected.

2. Separate alarm light for high oil level (red) self-test button.

3. Labeled identification for each light, switch, etc.

4. Nameplate identification for the alarm panel as follows, "OIL SEPARATOR - OIL LEVEL."

2.4 ALUMINUM HATCH COVERS:

A. Provide aluminum hatch covers for access to tank man ways suitable for HS-20 wheel loading.

1. Aluminum plate access door similar to type ECD-6HD single leaf hatch with automatic hold open arm, torsion bar counter balances, and removable key wrench.

2. Sized as recommended by the tank manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION:

A. Perform test as per manufacturer's recommendations.

B. Excavate and install tank in accordance with manufacturer's recommendations and specifications found elsewhere within this document.

C. Backfill per manufacturer's recommendations and specifications found elsewhere within this document.

D. Connect tank sensors to the control panel. Field locate the control panel in the area where directed. Provide new electrical service to the new control panel as directed. Electrical work to conform to the requirements of the National Electrical Code (NEC) and specifications found elsewhere in this document. The contract owner's representative will be the sole judge of the interpretation of these rules and requirements.

E. Install remote alarm panel where directed by the contract owner's representative. Provide one set of dry contacts connected to the "High Water Alarm" for connection to the Building Automation System (BAS).

END OF SECTION 02080