SPECIFICATIONS

PRIMARY SETTLING TANKS
ROTARY SCUM SKIMMER EQUIPMENT

## PART 1 GENERAL

1.1. SUMMARY

A. Under this section the equipment manufacturer shall furnish and deliver ready for installation, Rotary Scum Skimming equipment suitable for installation in four (4) primary settling tanks, PST 1-4. Primary Settling Tanks are approximately 15 ft wide. Dimensions are as shown on the contract drawings.

B. Each tank shall include two rotary scum collector pipes with manual handwheel actuator

1.2. QUALITY ASSURANCE

A. The equipment covered by these specifications shall be furnished by a reputable and qualified manufacturer of proven ability that is regularly engaged in the manufacture and installation of complete rotary scum pipes with actuators.

B. Component suppliers or manufacturers without minimum 15 year integrated full-system design experience will not be considered acceptable. Full-system design is defined as a system that includes, scum trough, wall bearings, seals, support stand with handwheel actuator in a complete and integrated system design.

C. The design is based on equipment as manufactured by Guardian Environmental Products, Inc., West Chester, PA.

D. Alternate manufacturers will only be considered if they meet a minimum 15 year experience of design of similar complete systems. Alternate suppliers will only be considered after providing written certification indicating their ability and experience to meet the specifications detailed herein without exception.

1.3. SUBMITTALS

A. The following shall be submitted in accordance with the General and Special Provisions.

1. Shop Drawings

a. Dimensions.
b. Job specific layout.
c. Sectional assembly.
d. Location and identification mark.
e. Equipment locations and attachment anchors
f. Accessories, attachments, hardware.
g. Component details.

2. Manufacturer’s catalog data showing:

a. Dimensions, spacing, and construction details
b. Materials of construction.
c. Description.

3. Certificates

a. Submit Manufacturer’s certification that all materials furnished are in compliance with the applicable requirements of this specification.

4. Manufacturer’s Instructions

a. Submit complete information and instructions relating to the storage, handling, installation, and inspection of all equipment related to this Section.

1.2 SPARE PARTS

A. The following spare parts shall be provided:

1. Seals: 1-set for each pipe supplied. (8 pipes)

1.3 SERVICES

A. Provide the services of a factory trained service representative trained on the type and the size of the equipment specified. The man-days listed are exclusive of travel time and shall not limit or relieve the Contractor of the obligation to provide sufficient service necessary to place the equipment into full working order. If the equipment fails to operate as intended during the warranty period due to the manufacturer's design or fabrication (as determined by Engineer), additional services shall be provided at no cost to the Owner.

B. Provide the services of the factory representative for the following, on-site periods of time

1. Two, eight hour days

2. During installation: assist in location of Skimmer pipes, wall bearings and actuator, leveling and alignment.

3. Start-Up: Complete review of installation; provide written certification that the installation is complete and operable in all respects, and that no conditions exist which may affect the warranty.

4. Provide written report, summarizing inspection procedures, observations and any needed correction

5. Instruction on the operation and maintenance of the equipment, addressing start-up, shut-down, troubleshooting, lubrication, maintenance and safety

C. The Contractor shall be responsible for requesting and coordinating these services, including coordination with all affected trades.

## PART 2 PRODUCTS

### 2.1. MANUFACTURERS

A. The following manufacturer is named to establish a standard of quality necessary for the Project.

1. Guardian Environmental Products, Inc., West Chester, PA

2. Alternate manufacturers will only be considered after providing written certification indicating their experience detailed in Part 1 of these specifications and their ability to meet the specifications detailed herein without exception.

3. Contractor shall provide a written certification that the manufacture's equipment will be fully interchangeable with the existing secondary clarifier equipment including chain-to-chain interconnection, sprocket design, flight attachment, drive and drive components and accessories.

### 2.2 DESIGN CRITERIA

A. The Equipment Manufacturer shall select the collector components based upon design calculations incorporating the following criteria:

1. Operation under wet tank conditions

2. Friction factors - 0.20 to 0.30 (UHMW bearings)

3. Pipe deflection - not to exceed 0.033" per foot of pipe length.

B. Existing sludge collector flights shall skim the water surface to concentrate floated material in front of the scum pipes.

C. Scum skimmers shall manually rotate to allow floated material to overflow the slotted weir and enter the scum pipe. Material shall flow by gravity to the scum pit located adjacent to the settling tanks.

### 2.03 ROTARY SCUM SKIMMER

A. Scum Pipes shall be 8-inch diameter constructed of 304 stainless steel

1. Removal of floating materials conveyed to the effluent end of the tanks.

2. Scum pipe shall be handwheel actuated to rotate in either direction.

3. Scum pipe shall accommodate minor vertical and horizontal misalignment without binding.

B. The scum pipe system shall have the following design features.

1. Nominal 15 ft 0 in wide. Contractor shall field verify concrete wall dimensions before fabrication

2. 8-inch diameter.

3. Minimum wall thickness: 0.250 inch for stainless steel

4. Tipping angle: Approximately 21.12 degrees from vertical.

5. Provide longitudinal slots spaced no longer than 30 inches, with two-inch uncut bands between the slots to act as stiffeners to the scum pipe.

6. Furnish scum pipe with one open end and one blank end or open both ends as location requires

C. The design shall allow each of the scum pipes in each tank to be operated independently.

D. The scum troughs shall revolve in fabricated 304 stainless steel flange wall support bearing housings for stainless steel design.

1. These housings shall allow both vertical and horizontal misalignment without interfering with smooth operation of the scum pipes.

2. Each scum pipe bearing shall be manufactured of UHMW polyethylene. The UHMW bearing is to be of such design as to not require lubrication.

3. Each end of the scum pipe shall incorporate an adjustable seal to prevent water leakage.

4. The seal shall have adjustment bolts to tighten the retainer and maintain an effective seal.

E. Scum pipes shall have a manual handwheel actuator

1. Handwheel stem shall be fabricated 304 stainless steel pipe no less than 1-1/2” diameter

2. Handheel support pedistal shall extend to a minimum of 36 inches above the operating platform

3. Handwheel actuator stem shall attach via a yoke and pin connecting linkage to an actuator tab welded to the scum pipe.

F. Ensure that troughs and supports are installed plumb and true, free of warp or twist, within the tolerances specified by the manufacturer and as shown on the drawings.

G. After the manufacturer has approved the installation, and prior to startup, the Contractor shall clean all surfaces in accordance with the manufacturer’s instructions.

## PART 3 EXECUTION

3.1 INSTALLATION

A. Install the rotary scum skimmer components complete and operational in every respect as shown on the plans and specified herewith.

1. Verify correct alignment of all components and operate the unit dry to observe for alignment and smooth operation.

2. Provide the services of a factory representative for a total of two, eight hour days travel time excluded, to inspect the equipment, perform start-up, and instruct Owner's staff in operation and maintenance issues.

    a. Start-Up: Complete review of installation; provide written certification that the installation is complete and operable in all respects, and that no conditions exist which may affect the warranty.

    b. Provide written report, summarizing inspection procedures, observations and any needed correction

    c. Instruction on the operation and maintenance of the equipment, addressing start-up, shut-down, troubleshooting, lubrication, maintenance and safety

3. Operate the equipment after introduction of wastewater and check again for improper alignment and make necessary corrections.