SECTION 402423 - THIXOTROPIC LIQUID PIPING

Note that this section has only been edited for NYSOGS standardization and has not been technically edited. The designer shall make all technical edits specific to the project for this section.

This Section includes requirements for process piping systems transporting sludge (or other thixotropic substance) in a water-treatment plant or a wastewater-treatment plant.

Pipe size for sludge piping is typically not smaller than 6 inches, although glass-lined pipe has been used for smaller-diameter sludge piping. Cleanouts are typically recommended for water flushing, air pressure flushing, or rodding. It is often recommended that, where possible, sludge should be piped by a single-purpose pipeline.

Piping for site utilities are specified in applicable site utilities Sections in Division 33, and plumbing piping and appurtenances are specified Division 22. Sludge pumps are specified in Division 43. Common items applicable to process pumping systems are specified in Section 430520.

In process industries such as water and wastewater treatment, piping is typically specified by pipe material. Individual piping systems (e.g., sanitary, raw water, drainage) may be defined on the Drawings by way of a pipe schedule, which describes the piping components required for that system as well as provides other relevant data such as pressure-testing requirements and applicable valve types.

Piping, as well as fittings, joints, accessories, and other appurtenances, should be indicated on the pipe schedule and specified by pipe material in Division 40, based on service.

Valving, including appurtenances and accessories, also should be indicated on the pipe schedule and specified by valve type in Division 40, based on service.

1. GENERAL
	* + 1. SUMMARY
				1. Section Includes:

Sludge pipe, fittings, and appurtenances.

Valves and appurtenances for sludge piping.

<**\_\_\_\_\_\_\_\_**>.

* + - * 1. Related Requirements:

List other Sections directly related to or affecting Work of this Section. Include Sections specifying information expected to be found in this Section as well as Sections required to describe complete system or assembly requirements.

Section 033000 - Cast-In-Place Concrete: Execution requirements for placement of concrete as required by this Section.

Section 055000 - Metal Fabrications: Miscellaneous metalwork and fasteners as required by this Section.

Section 220523 - General-Duty Valves for Plumbing Piping: Miscellaneous plumbing valves as required by Project.

Section 331416 - Site Water Utility Distribution Piping: Valve boxes, covers, extensions, and valve extensions as required by this Section.

Section 400523 - Stainless Steel Process Pipe and Tubing: Pipe and tubing for process systems.

Section 400553 - Identification for Process Piping: Labeling and tagging of sludge piping and components.

* + - 1. DEFINITIONS

Limit list of definitions to terms unique to this Section and not provided elsewhere.

* + - * 1. THIXOTROPIC: A description of fluids with a time-dependent change in viscosity; the longer the fluid undergoes shear stress, the lower its viscosity. Also referred to as "non-Newtonian" (i.e., fluids with plastic properties that are changed by stirring and turbulence).
			1. REFERENCE STANDARDS

List reference standards included within text of this Section, with designations, numbers, and complete document titles.

* + - * 1. American Society of Mechanical Engineers:

ASME B31.3 - Process Piping.

* + - 1. QUALITY ASSURANCE

Include this Article to specify compliance with overall reference standards affecting products and installation included in this Section.

In following Paragraph insert "State of New York Department of Transportation," "Municipality of \_\_\_\_\_\_\_\_ Department of Public Works," or other agency as appropriate.

* + - * 1. Perform Work according to <**\_\_\_\_\_\_\_\_**> standards.

Include following Paragraph only when cost of acquiring specified standards is justified.

* + - * 1. Maintain <**\_\_\_\_\_\_\_\_**> [**copy**] [**copies**] of each standard affecting the Work of this Section on-Site.
1. PRODUCTS
	* + 1. SLUDGE PIPING
				1. Furnish pipes, fittings, appurtenances, and accessories [**as indicated on pipe schedule and**] as specified by pipe material in Division 40 - Process Interconnections.

\*\*\*\*\*\* [O\*R] \*\*\*\*\*

In following Paragraph insert "State of New York Department of Transportation," "Municipality of \_\_\_\_\_\_\_\_ Department of Public Works," or other agency as appropriate.

* + - * 1. Furnish materials according to <**\_\_\_\_\_\_\_\_**> standards.
			1. SLUDGE VALVES
				1. Furnish valves, appurtenances, and accessories as specified in Section 400523 - Stainless Steel Process Pipe and Tubing [**, as indicated on pipe schedule,**] and as specified by valve type in Division 40 - Process Interconnections.

\*\*\*\*\*\* [OR] \*\*\*\*\*\*

In following Paragraph insert "State of New York Department of Transportation," "Municipality of \_\_\_\_\_\_\_\_ Department of Public Works," or other agency as appropriate.

* + - * 1. Furnish materials according to <**\_\_\_\_\_\_\_\_**> standards.
				2. Furnish [**shutoff**] [**and**] [**drain**] valves at locations as indicated on Drawings and according to this Section.
1. EXECUTION
	* + 1. EXAMINATION
				1. Verify conditions as specified in Section 400523 - Stainless Steel Process Pipe and Tubing.
			2. PREPARATION
				1. Protect equipment from intrusion of water and other materials and from damage.
				2. Repair damaged coatings with material [**equal to the original coating**] [**as specified in Section 099000 - Painting and Coating**].
			3. INSTALLATION
				1. Install piping and appurtenances as indicated on [**Drawings**] [**Shop Drawings**] using minimum number of joints and according to manufacturer's instructions and ASME B31.3.
				2. In locations where pipe expansion joints are indicated, install pipe alignment guides adjacent to and within [**four**] <**\_\_\_\_\_\_\_\_**> pipe diameters of joint.
				3. Field Fabrication: Fabricate fittings according to manufacturer's instructions.
				4. Provide thrust restraints as required.
				5. Provide flexible couplings and expansion joints at connections to equipment and where indicated on [**Drawings**] [**Shop Drawings**].
				6. Install couplings, service saddles, and anchors according to manufacturer's instructions.
				7. Provide upstream and downstream clearances [**as indicated on Drawings**] [**according to component manufacturer's recommendations**].
				8. Local Indicators:

Install direct-reading indicator devices, such as thermometers and pressure gauges, to be read from floor level and accessible for maintenance and service.

Install according to manufacturer's instructions.

* + - * 1. Orientate valves to permit operation and maintenance access to the valve operator and to avoid interferences with other equipment.

\*\*\*\*\*\* [OR] \*\*\*\*\*\*

In following Paragraph insert "State of New York Department of Transportation," "Municipality of \_\_\_\_\_\_\_\_ Department of Public Works," or other agency as appropriate.

* + - * 1. Installation Standards: Install Work according to <**\_\_\_\_\_\_\_\_**> standards.
			1. ADJUSTING
				1. Field-calibrate local indicators at time of piping installation.

END OF SECTION 402423