This master should be used by designers working on Port of Portland construction projects and by designers working for PDX tenants (“Tenants”). Usage notes highlight a few specific editing choices, however the entire section should be evaluated and edited to fit specific project needs.

SECTION 331233 – WATER UTILITY METERS

1. GENERAL
	* + 1. DESCRIPTION
				1. This section describes provision of water meters used for water utility cost allocation.
			2. RELATED WORK SPECIFIED ELSEWHERE
				1. Section 330900, Tenant Metering System
				2. Section 335133, Natural Gas Utility Meters
				3. Section 337173, Electric Utility Meters
			3. REFERENCES
				1. AWWA: America Water Works Association
			4. SUBMITTALS
				1. Submit technical data sheets, installation manuals, and/or user documentation manuals that describe product installation, operation and maintenance, physical data, capacities (minimum and maximum flow rate), signal output (cubic feet/pulse), and connection requirements.
			5. WARRANTY
				1. Provide manufacturer’s standard one year warranty against defects in materials, fabrication, finishes, and installation commencing on date of substantial completion.
2. PRODUCTS
	* + 1. WATER METERS

For Tenant projects, keep Paragraph A and delete B.

For Port projects, keep Paragraph B and delete A.

* + - * 1. Acceptable Manufacturer and Model: Badger Meter, Recordall Models M120, 70, and 35, no substitutions. Meter and meter output shall be furnished through Johnson Controls, Inc., local branch office located at 4011 SE International Way, Milwaukie, Oregon 97222.
				2. Acceptable Manufacturer and Model: Badger Meter, Recordall Models M120, 70, and 35, or pre-bid approved equal.
				3. Meter Description:

Nutating disc type meter, lead-free bronze alloy housing, lead-free construction, stainless steel trim, disc, and magnet spindles.

Comply with AWWA performance standards.

Line 3 is for Tenant use only. Delete entirely for Port projects.

Use Model M120 for service connections at 1 1/2", Model 70 for connections at 1" and 1 1/4", or Model 35 for connections at 3/4".

* + - * 1. Meter Output Description:

Provide meter with pulse output capability, Badger Recordall Transmitter Register (RTR).

Pulse output shall be measured in cubic feet.

RTR shall have dial and odometer read out with cubic feet registers.

RTR shall have two conductor output for field connection.

RTR shall be provided with the meter base.

Provide meter with pulse output capability, Badger HR-LCD Pulse.

Pulse output shall be measured in cubic feet.

Shall have LCD display read out with cubic feet registers.

Shall have two-conductor output for field connection.

Shall be provided with the meter base.

Shall have low-voltage control power connection.

1. EXECUTION
	* + 1. INSTALLATION
				1. Install all devices as required by code and the Authority Having Jurisdiction, and as recommended by the equipment manufacturer.
				2. Location: Set meter in an accessible, unobstructed location. Coordinate meter location with the Port prior to installation.
				3. Elevation: Top of meter shall be no more than 54 inches above finished floor.
				4. Orientation: Place meter in horizontal piping with the display in the horizontal plane at the top of the meter.
			2. STARTUP AND TESTING
				1. After installation is complete, test meter operation by flowing water and verifying that the RTR pulse output and register are functioning properly. Identify any leaks and make necessary repairs.

END OF SECTION 331233