Part 1 General

1.1 REFERENCES

.1 American Society of Mechanical Engineers (ASME).

- .1 ASME B16.1, Cast Iron Pipe Flanges and Flanged Fittings.
- .2 ASME B16.3, Malleable Iron Threaded Fittings.
- .3 ASME B16.5, Pipe Flanges and Flanged Fittings.
- .4 ASME B16.9, Factory-Made Wrought Buttwelding Fittings.
- .5 ASME B18.2.1, Square and Hex Bolts and Screws (Inch Series).
- .6 ASME B18.2.2, Square and Hex Nuts (Inch Series).

.2 American Society for Testing and Materials International, (ASTM).

- .1 ASTM A47/A47M, Standard Specification for Ferritic Malleable Iron Castings.
- .2 ASTM A53/A53M, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc Coated Welded and Seamless.
- .3 ASTM A536-[84(1999)e1], Standard Specification for Ductile Iron Castings.
- .4 ASTM B61-[02], Standard Specification for Steam or Valve Br onze Castings.
- .5 ASTM B62, Standard Specification for Composition Bronze or Ounce Metal Castings.

.3 American Water Works Association (AWWA).

- .1 AWWA C111, Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

.4 Manufacturer's Standardization of the Valv e and Fittings Industry (MSS).

- .1 MSS-SP-67, Butterfly Valves.
- .2 MSS-SP-70, Cast Iron Gate Valves, Flanged and Threaded Ends.
- .3 MSS-SP-71, Cast Iron Swing Check Valves Flanged and Threaded Ends.
- .4 MSS-SP-80, Bronze Gate, Globe, Angle and Check Valves.
- .5 MSS-SP-85, Cast Iron Globe and Angle Valves, Flanged and Threaded Ends.

1.2 SUBMITTALS

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.2 Closeout Submittals.

- .1 Provide maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals and include following:

1.3 QUALITY ASSURANCE

.1 Health and Safety.

- .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Waste Management and Disposal.

1.5 MAINTENANCE

.1 Extra Materials.

.1 Provide following spare parts:

.1 Valve seats: one for every ten valves, each size. Minimum one.

.2 Discs: one for every ten valves, each size. Minimum one.

.3 Stem packing: one for every ten valves, each size. Minimum one.

.4 Valve handles: two of each size.

.5 Gaskets for flanges: one for every ten flanges.

Part 2 Products

2.1 PIPE

.1 Steel pipe: to ASTM A53/A53M, Grade B, as follows:

.1 To NPS6:

2.2 PIPE JOINTS

.1 NPS2 and under: screwed fittings with PTFE tape or lead-free pipe dope.

.2 Pipe thread: taper.

2.3 FITTINGS

.1 Screwed fittings: malleable iron, to ASME B16.3, Class 150.

.2 Unions: malleable iron, to ASTM A47/A47M and ASME B16.3.

2.4 VALVES

.1 Connections:

.1 NPS2 and smaller: screwed ends.

.2 Gate valves: to MSS-SP-70 Application: Isolating equipment, control valves, pipelines.

.1 NPS2 and under:

.1 Mechanical Rooms. Class 125, rising stem, split wedge disc, as specified Section 23 05 23.01 - Valves - Bronze.

.3 Balancing, for TAB:

.1 Sizes: Calibrated balancing valves, as specified this section.

.2 NPS2 and under:

.1 Mechanical Rooms: Globe, with plug disc as specified Section 23 05 23.01 - Valves - Bronze.

.4 Drain valves: Gate, Class 125, non-rising stem, solid wedge disc, as specified Section 23 05 23.01 - Valves - Bronze.

.5 Swing check valves: to MSS-SP-71.

.1 NPS2 and under:

.1 Class 125, swing, with composition disc, as specified Section 23 05 23.01 - Valves - Bronze.

.2 NPS21/2 and over:

.6 Silent check valves:

.1 NPS2 and under:

.1 As specified Section 23 05 23.01 - Valves - Bronze.

.7 Ball valves:

.1 NPS2 and under: as specified Section 23 05 23.01 - Valves - Bronze.

Part 3 Execution

3.1 PIPING INSTALLATION

.1 Install pipework in accordance with Section 23 05 01 - Installation of Pipe Work.

3.2 CLEANING, FLUSHING AND START-UP

.1 In accordance with Section 23 08 02 - Cleaning and Start-Up of Mechanical Piping Systems.

3.3 TESTING

.1 Test system in accordance with Section 21 05 01 - Common Work Results for Mechanical.

3.4 BALANCING

.1 Balance water systems to within plus or minus 5% of design output.

.2 Refer to Section 23 05 93 - Testing, Adjusting and Balancing for HVAC for applicable procedures.

END OF SECTION