SECTION 332000

WELLS

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***NOTE TO SPECIFIER***

*Use this Specification Section for Mail Processing Facilities.*

***This is a Type 1 Specification with completely editable text; therefore, any portion of the text can be modified by the A/E preparing the Solicitation Package to suit the project.***

*For Design/Build projects, do not delete the Notes to Specifier in this Section so that they may be available to Design/Build entity when preparing the Construction Documents.*

*For the Design/Build entity, this specification is intended as a guide for the Architect/Engineer preparing the Construction Documents.*

*The MPF specifications may also be used for Design/Bid/Build projects. In either case, it is the responsibility of the design professional to edit the Specifications Sections as appropriate for the project.*

*Text shown in brackets must be modified as needed for project specific requirements.* *See the “Using the USPS Guide Specifications” document in Folder C for more information.*

*The last date that USPS revised this standard specification section occurs in two places, at the end of this section and in the Table of Contents. If the date in this section matches the date in the Table of Contents, then you are using the latest version. Do not delete or revise the “last revised” date at the end of the section during the development of the Project Manual.*

*The footer in this section should be edited to replace the text, “USPS MPF SPECIFICATION” with the project name, and the blank date in the center should be replaced with the submission date, for interim design reviews, or the issue date of the completed Project Manual.*

***Use this section where Water Wells are part of the Work. Before editing this Section, obtain the "Report of Subsurface Investigation" prepared by the Geotechnical Engineer. Read the report and incorporate the recommendations included in the report into this Section.***

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1. GENERAL
   1. SUMMARY
      1. Section Includes:
         1. Drilling and casing water well.
         2. Pump and controller.
         3. Water and system testing and certification.
      2. Related Documents: The Contract Documents, as defined in Section 011000 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other Documents.
      3. Related Sections:
         1. Section 012200 - Unit Prices: Procedures related to Work performed under unit price method.
         2. Section 331100 - Water Utility Distribution Piping: Site water distribution piping.
      4. Unit Prices:
         1. Base bids on vertical foot of well depth indicated on Drawings.
         2. Determine change in well depth from depth indicated on Drawings by vertical foot of actual well depth change from Base Bid and recorded in Project Record Documents.
         3. Adjustment to price due to changes in depth of well will be based on unit prices established as specified in Section 012200 – Unit Prices.
   2. REFERENCES
      1. American Society for Testing and Materials (ASTM):
         1. ASTM A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc Coated, Welded and Seamless.
      2. American Water Works Association (AWWA):
         1. AWWA A100 - Water Wells.
         2. AWWA C900 - Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4 inch through 12 inch, for Water.
      3. American Society of Mechanical Engineers (ASME):
         1. ASME SEC. VIII - Pressure Vessels.
      4. National Electrical Manufacturers Association (NEMA):
         1. NEMA MG 1 - Motors and Generators.
   3. SYSTEM DESCRIPTION

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**NOTE TO SPECIFIER**

Edit for design requirements for specific Project. Do not include if this information is indicated on Drawings.

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* + 1. Design Requirements: Water well with the following characteristics:
       1. Upper Drill Hole: [ \_\_\_\_ ] inch diameter, [ \_\_\_\_ ] feet deep.
       2. Lower Drill Hole: [ \_\_\_\_ ] inch diameter, [ \_\_\_\_ ] feet deep.
       3. Casing Size: [ \_\_\_\_ ] inch outside diameter, [ \_\_\_\_ ] feet deep.
       4. Grout Seal: [ \_\_\_\_ ] feet deep.
       5. Total Well Depth: [ \_\_\_\_ ] feet deep.
       6. Pump Depth: [ \_\_\_\_ ] feet deep.

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**NOTE TO SPECIFIER**

Edit for required GPM and acceptable PPM for specific Project.

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* + 1. Performance Requirements:
       1. Water well capable of producing minimum [ \_\_\_\_\_ ] gallons of water per minute.
       2. Maximum Sand Suspended in Delivered Water: [ \_\_\_\_\_ ] parts per million.
  1. SUBMITTALS
     1. Section 013300 - Submittal Procedures: Procedures for submittals.
        1. Product Data: Indicate pump rated capacity, weight, accessories, electrical nameplate data, and wiring diagrams.
        2. Shop Drawings: Indicate layout of well pump system, including pumps, controls, related accessories, and piping.
        3. Assurance/Control Submittals:
           1. Test Reports: Submit the following water test reports directly to Contracting Officer from Testing Laboratory, with copy to Contractor.

Physical properties.

Inorganic chemicals and water quality.

Water quality.

Radiological.

Bacteriological contaminants.

* + - * 1. Qualification Documentation: Submit documentation of experience indicating compliance with specified qualification requirements.
    1. Section 017704 - Closeout Procedures and Training: Procedures for closeout submittals.
       1. Project Record Documents: Accurately record the following:
          1. Actual location of well.
          2. Well depth.
          3. Subsoil strata.
          4. Drilling difficulties encountered.
          5. Signed copy of driller's log book statements.
          6. Executed certification of well pump after performance testing.
  1. QUALITY ASSURANCE
     1. Perform Work in accordance with AWWA A 100.
     2. Drilling Firm Qualifications: Company specializing in performing the Work of this Section with minimum 5 years documented experience, licensed in State where Project is located.
     3. Regulatory Requirements:
        1. Conform to State regulatory authority or regulations for water well flow capabilities and water quality.
        2. Provide certificate for authority having jurisdiction indicating suitability of water for human consumption.

1. PRODUCTS
   1. MATERIALS

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**NOTE TO SPECIFIER**

Edit for Well Casing pipe diameter required for this Project.

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* + 1. Well Casing: ASTM A 120 [ \_\_\_\_ ] inch diameter seamless steel pipe and couplings and threaded joints, with pitless adapter and ventilated well cap. Casing diameter as indicated on Drawings.
    2. Grout: Portland cement type, no admixtures.

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**NOTE TO SPECIFIER**

Edit bracketed items below for Pump type required for this Project.

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* 1. PUMP
     1. Type: Vertical shaft, multiple stage, close coupled, for insertion in [ \_\_\_\_ ] diameter pipe.
     2. Casing: [Cast iron] [Bronze] casting with stainless steel housing and intake screen, check valve with stainless steel stem and valve seat with rubber seal built into discharge casting.
     3. Impellers and Diffusers: [Bronze.] [Glass reinforced thermoplastic with stainless steel wear rings.]
     4. Shaft: Stainless steel with stainless steel shaft sleeve.
     5. Motor: NEMA MG 1, submersible type:
        1. Characteristics: [\_\_\_\_] hp; [[115] [230] volt, single phase 60 Hertz [[200] [230] [460] [575] volt, three phase 60 Hertz].
     6. Pump: Submersible type for deep well pump, [water lubricated] [oil filled]:
        1. Operating Performance: [\_\_\_\_] gpm flow capacity, [\_\_\_\_] feet total dynamic head, [\_\_\_\_] hp motor.
        2. Pump Capacity: [[\_\_\_\_] gpm ] [[[\_\_\_\_] gph ].
     7. Pump Controller: NEMA 250 Type [1] [3R] enclosure with main disconnect interlocked with door, containing across-the-line electric motor starter with starting relay [and ambient compensate quick trip overloads in each phase with manual trip button and reset button]; circuit breaker, control transformer, hand-off-automatic selector switches, pilot light.
     8. Disconnect: NEMA 250 Type [1] [3R] enclosure.
     9. Pressure Sensing Switch: Low voltage relay type, [fixed] [adjustable] settings to start at [20] [30] [\_\_\_] psig and shut-off at [40] [50] [\_\_\_] psig [and low pressure cutoff set at [20] [\_\_\_\_] psig .
     10. Control Voltage: [120 VAC.] [24 VDC.]
     11. Pump Lift Cable: Stainless steel, multi-stranded aircraft cable, high tensile strength; cable ends fitted with closed loop fittings; length of cable equals depth of shaft plus [20] [\_\_\_\_] feet.
     12. Screens: Stainless steel type.
  2. TANK
     1. Galvanized steel, tested and stamped in accordance with ASME SEC. VIII; Pressurized diaphragm type with integral floor stand; tapping for installation of piping and accessories:
        1. Tank Volume: Indicated on Drawings.

1. EXECUTION
   1. EXAMINATION
      1. Section 017300 - Execution: Verification of existing conditions before starting work.
      2. Verification of Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.
         1. Verify that site conditions will support equipment for performing drilling operations and testing.
      3. Report in writing to Contracting Officer prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.
      4. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the United States Postal Service.
   2. DRILLING
      1. Drill concentric well shaft to diameters and depths required.
      2. Place well casing immediately after drilling. Set firmly in place.
      3. Clean shaft bottom of loose material.
      4. Allow inspection of casing prior to placement of grout.
      5. Place grout tight to surrounding work.
      6. Maintain well opening and casing free of contaminating materials.
      7. Cut off shaft top 24 inches above grade. Do not permit metal cuttings to enter casing.
      8. Disinfect well.
   3. INSTALLATION - PUMP
      1. Install pump and accessories in accordance with manufacturer's instructions.
      2. Electrical Connections: Refer to Section 260500.
   4. CONSTRUCTION
      1. Site Tolerances:
         1. Maximum Variation From Plumb: In accordance with AWWA A100.
         2. Maximum Offset From True Position: 1 inch.
   5. FIELD QUALITY CONTROL
      1. Section 014000 - Quality Requirements: Field testing and inspection.
      2. Test flow rate and certify.
      3. Test Water Quality.
      4. Test for sand content.
   6. CLEANING
      1. Clean piping in preparation for disinfecting and testing.

END OF SECTION

USPS MPF Specification Last Revised: 10/1/2022