

SECTION 01151

MEASUREMENT AND PAYMENT

PART 1 - SCHEDULE OF VALUES

A. LUMP SUM ITEMS

When a Lump Sum Bid or bid items exists, the Contractor shall submit a Schedule of Values for the lump sum work, including quantities and unit prices aggregating the Lump Sum Price, for approval in accordance with the General Conditions. The Schedule of Values shall show component work and associated price of lump sum items in sufficient detail to allow evaluation of partial payment applications and must be approved by Engineer.

If any unit price in the approved Schedule of Values requires that the said unit price cover and be considered compensation for certain work or material essential to the item, this same work or material will not also be measured or paid for under any other pay item which may appear elsewhere in the Specifications.

B. UNIT PRICE ITEMS

When bid is per unit price, a Schedule of Values shall not be required since the scope of work and materials to be provided are adequately set forth in this measurement and payment section under respective bid item to allow evaluation of partial payment applications.

PART 2 - MEASUREMENT OF QUANTITIES

A. GENERAL

1. Payment for the work completed under this Contract will be made at the lump sum and unit prices bid, which lump sum and unit prices shall include the furnishing of all labor, tools, equipment, materials, overhead, profit, insurance, and the performance of all work required to complete the project as indicated and specified in accordance with all requirements of the Contract Documents and to the entire satisfaction of the Engineer.
2. All incidental minor and miscellaneous items, work, and materials for which no specific lump sum or unit price bid item is shown and which are necessary to complete the work and to maintain and/or repair the work, shall be done and furnished by the Contractor without extra charge.
3. It is intended that all work shown and stipulated in the Contract Documents is to be measured and paid for under the items listed in the Bid Form. The absence of specifically described or shown items from the Bid shall be interpreted as meaning that the quantity and cost of any such work contemplated by the Contract Documents shall be included in related items which are listed in the Bid Form. The Contractor shall not be entitled to receive additional compensation for anything furnished or done except as provided for in the General Conditions and Supplemental General Conditions.
4. Lump Sum items will not be measured.

B. MEASUREMENT

1. Square Yard: In figuring quantities for payment under the applicable items, the payment widths will be taken as not more than a width equal to the "specified pavement removal limits where additional pavement cut back is specified. Shoulder restoration will be measured to the limits specified and established by the Engineer.
2. Ton: In figuring quantities for payment of material placed in trenches, the payment widths will be taken as actual trench width not to exceed the "specified maximum trench width" where no cut back is specified or the specified pavement removal limits where additional pavement cut back is specified, the thickness of the material installed and a length measured horizontally along the centerline of the trench. The tonnage will be the product of the volume and the weight per cubic foot. The tonnage will be determined by duplicate certified weight slips furnished to the Engineer or his representative at the time of each truck delivery to the area of work. Engineer may compute tonnage in lieu of weight tickets, if so, tickets cannot be used to verify tonnage, using the following densities:
 - a. Bituminous Concrete Base and Surface Material: 148 pounds per cubic foot (13.5 cubic feet per ton).
 - b. Gravel for driveway trench or aggregate for streets: 125 pounds per cubic foot in place (16 cubic feet per ton).
3. Cubic Yard: In figuring quantities for payment under the applicable items, the payment widths will be taken as not more than a width equal to the specified maximum trench width as specified on the drawings. The depth will be the thickness installed and a length measured horizontally along the centerline of the trench.
4. Linear Foot: In figuring quantities for payment under the applicable items, measurement shall be along the centerline of the item as installed and measured in place by the Engineer.

C. PAYMENT

1. No separate or additional payment will be made for removing existing pavement, whether asphalt or concrete. The Contractor shall, prior to bidding, perform tests and inspections as necessary to determine depth and type of existing pavement to be removed and include cost of same in unit bid price of other items.
2. Where the actual width of the existing pavement removed is less than the maximum payment width specified, payment will only be made for the actual quantity of pavement replaced.
3. No separate or additional payment will be made for removing and maintaining temporary paving required on paved roadways and pavement shoulders of roads and streets or for performing any additional excavation or any other work required to prepare the subgrade to receive the specified permanent pavement.
4. No separate or additional payment will be made for dust control.
5. The prices herein bid for the performance of the work shown and as specified shall be inclusive; that is, the said prices shall include not only the doing the work, but

also all costs in connection with the work and payment therefore; including the furnishing of all materials, equipment, supplies, and appurtenances; all construction, plant, tools, and other equipment; services; and the performance of all necessary labor, superintendence, and administration required to fully complete the work. No item of work that is required for the proper and successful completion of the work, whether shown or not, shall be paid for outside of or in addition to the prices submitted in the Proposal except as specifically provided for in the Contract Documents.

D. EXPLANATION OF BID ITEMS

1. ITEM 1 - MOBILIZATION

a. Measurement

The method of measurement will be a lump sum.

b. Payment

Basis of Payment - Total original contract amount including mobilization.

More Than	To and Including	
\$ 0	\$ 100,000	10 percent of total contract amount
\$ 100,000	\$ 500,000	\$10,000, plus three percent times (total contract minus \$100,000)
\$ 500,000	\$ 1,500,000	\$22,000, plus two percent times (total contract minus \$500,000)
\$ 1,500,000	More	\$42,000, plus one percent times (total contract minus \$1,500,000)

Partial payments will be as follows:

One-third of the amount established above as the total limit for partial payment, or one-third of the amount bid for mobilization, whichever is less, will be released to the Contractor as the first estimate.

The second one-third of the amount established above as the total limit for partial payment, or one-third of the amount bid for mobilization, whichever is less, shall be released with the second estimate.

The final one-third of the amount established above as the total limit for partial payment, or one-third of the amount bid for mobilization, whichever is less, shall be released with the third estimate.

Upon completion of all work on the project, payment of any amount bid for mobilization in excess of the total limit for partial payment will be released.

Nothing shall be construed to limit or preclude partial payments otherwise provided for the by contract.



No deduction will be made, nor will any increase be made, in the lump sum mobilization item amount regardless of decreases or increases in the final total contract amount or for any other cause.

2. ITEM 2 – INTAKE CHANNEL CLEANING

a. Measurement

The method of measurement will be on a cubic yard of material removed from intake channel as per the Contract Documents or directed by Engineer.

b. Payment

Payment for intake channel cleaning shall be made on the unit price bid. The unit price bid shall include, but is not necessarily limited to, all labor, tools, material, equipment, erosion and sediment control, stream diversions, dewatering, temporary construction entrance, removal and disposal of debris, stream revetment, seeding and mulching, inspection of intake screens, air lines, and slide gate, replacement of slide gate polymer guides, and all incidentals necessary to clean the water treatment plant's intake reservoir in Patterson Creek as contained in the plans and specifications for the project.

NOTE: Any additional repairs warranted upon inspection of the slide gate, intake screens, air lines, and piping as directed by Engineer shall be paid by change order.

3. ITEM 3 – ROCK RIPRAP

a. Measurement

Riprap shall be measured on a cubic yard basis for the dimensions shown on the plans or approved by the Engineer. At the direction of Engineer, cubic yards may be computed from tonnage weight tickets using 90 pcf for in place density of rip-rap.

b. Payment

Payment for furnishing and placing the rip rap at the unit price bid shall include labor, equipment, and material for grading, filter fabric, furnishing and placing rip rap, and necessary work to complete the item as shown on the drawings or approved by the Engineer. Specific size of rip-rap shall be approved by Engineer.

4. ITEM 4 – WATER TREATMENT PLANT BUILDING UPGRADES

a. Measurement

The method of measurement will be lump sum.

b. Payment

The lump sum price shall be full compensation for all labor, tools, material, equipment, and all incidentals necessary to:

Remove and dispose of doors, door hardware, door frames, structural frames connected to the doors (as needed), siding (if needed), install new structural frames (if removed), siding (if removed), install new doors, door hardware, door signage, door replacements, repair structural frames (as needed),

Install two (2) roof hatches including removal and disposal of roofing,

Complete HVAC upgrades including furnishing all equipment, mechanical and electrical components and wiring, conduit, duct work, siding work (if needed), testing and all incidentals necessary to complete the HVAC upgrades,

Complete lifting beam modifications and dispose of removed materials.

And all other incidentals to complete the water treatment plant building as contained in the plans and specifications for the project.

5. ITEM 5 – WATER TREATMENT PLANT UPGRADES

1. Measurement

The method of measurement will be a lump sum.

2. Payment

The lump sum price shall be full compensation for all labor, tools, demolition, equipment, material, and all incidentals to renovate and place in operation the raw water and grinder pump stations, provide and install raw water and finished water magnetic flow meters and displays, remove, provide new and installation of two (2) inline static mixers, to complete upgrades to the Chlorinator Room chlorine gas feed system, to complete mud and knife gate valve replacements, to replace two (2) depth gauge covers, to complete Motor Control Center (MCC) upgrades, to complete Plant Programmable Logic Control (PLC), to complete electrical lighting and wiring upgrades. Work shall include but is not limited to demolition, installation, flow meters, chlorine gas feed systems, piping, valves, MCC, Plant PLC, all mechanical and electrical components, wiring and conduits, testing, start-up and training and all other incidentals to complete the Water Treatment Plant Upgrades as contained in the plans and specifications for the project.

6. ITEM 6 – PACKAGED WATER TREATMENT PLANT FILTER UPGRADE

1. Measurement

The method of measurement will be a lump sum.

2. Payment

The lump sum price shall be full compensation for all labor, installation of equipment provided by filter manufacturer, providing and installing equipment that is not provided by filter manufacturer, material to renovate and place in operation two (2) existing package water treatment plant filters, and remove and dispose of two settled water pumps & motors.

Furnish and install conduit, electrical equipment, controls, and other electrical items as shown on drawings, place filters in operation, provide training, restore site, clean up complete as shown on plans and specifications. Work shall include but not limited to coordination with the Owner to minimize filter downtime, demolition, installation, pumps, piping, all mechanical and electrical components and wiring, testing, start-up and training as contained in the plans and specifications for the project, and all other incidentals to complete the Packaged Water Treatment Plant Filter Upgrades.

The Frankfort Public Service District (FPSD) has negotiated a lump sum price for filter equipment and materials listed in Appendix A that will be furnished for this project:

WesTech Engineering, Inc.: TR-210 A Filter

The price and list of materials and equipment is contained in Appendix A. This cost shall be included in the bid cost for this item.

7. ITEM 7 - WATER TREATMENT PLANT PAINTING

1. Measurement

The method of measurement will be a lump sum.

2. Payment

The lump sum price shall be full compensation for all labor, tools, temporary protection, material, and equipment necessary to complete painting of two (2) existing packaged water treatment plant filter tanks, plant process piping, labeling, valves, hangers, fittings, railings, catwalks, doors & door frames, and Chlorinator Room painting; test the paint surface; and all incidentals to complete the Water Treatment Plant Painting as contained in the plans and specifications for the project.

8. ITEM 8 – SEDIMENT BASIN UPGRADES

1. Measurement

The method of measurement will be a lump sum.

2. Payment

Payment for this item will be made at a lump sum price bid which shall include all labor, tools, material, equipment, and all incidentals necessary to provide and install the complete sediment basin cover, drain, clean, and inspect the sediment basin, remove, rebuild or replace, and return to service mud valves, knife gate valves, foot valves, provide and install two (2) Lightning flocculators. Work shall include but is not limited to installation, flocculators, piping, valves, sediment basin roof and sediment basin fencing, lighting, all mechanical and electrical components and wiring, testing, start-up and training and all other incidentals to complete the Sediment Basin Upgrades as contained in the plans and specifications for the project.

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9. ITEM 9 – EMERGENCY GENERATOR - 250 kW
1. Measurement

The method of measurement will be a lump sum.
 2. Payment

Payment for furnishing all labor and material to construct concrete pad for generator, install 250 kW diesel generator, install automatic transfer switch in the Water Treatment Plant MCC, concrete duct banks, conduit, wiring, start-up, training, and all incidentals to complete the emergency generator as contained in the plans and specifications for the project.
10. ITEM 10 – STORAGE BUILDING (24-ft X 48-ft)
1. Measurement

The method of measurement will be a lump sum.
 2. Payment

The lump sum price shall be full compensation for all labor, tools, materials, equipment, excavation, site grading, removal / disposal of unsuitable material, tree cutting/removal necessary, concrete, gravel, fill, construction of access road including 20 tons of stone and fabric, and electrical service to provide the FPSD with a complete building as shown in the accompanying construction plans and specifications. Work shall include but not limited to demolition, installation, and all associated civil, structural, mechanical, electrical components and wiring, and all incidentals to complete the building as contained in the plans and specifications for the project.
11. ITEM 11 – CHAIN LINK FENCE WITH BARBED WIRE (6 ft.)
1. Measurement

Measurement for this item shall be per linear foot of fence including barbed wire installed, excluding gates. Chain link fence shall be six (6) feet in height with three (3) strands of barbed wire positioned above the fence.
 2. Payment

Payment for this item shall be at the unit price per linear foot of fence installed which shall include all labor, tools, materials, equipment, excavation, and concrete required to install the fence as described in plans and specifications. Clearing and grubbing, grading, seeding and mulching and sediment and erosion protection shall be part of work under this item.
12. ITEM 12 – CHAIN LINK GATE (3 ft. Wide)
1. Measurement

No measurement for this per each item will be required.

2. Payment

Basis of payment will be at per each price which shall include all labor, tools, equipment and materials to provide and install the gate and hardware per specifications and plans, which shall consist of gate with all appurtenances as shown on plans and specifications. Clearing and grubbing, grading, seeding and mulching, and sediment and erosion protection shall be part of work under this item.

END OF SECTION

SECTION 13122

POLE BUILDING

PART 1 - GENERAL

1.01 DESCRIPTION

A. The work of this Section includes building superstructure construction, including but not limited to:

1. Storage Building

B. Related Work Specified Elsewhere:

1. Earthwork: Section 02300

2. Concrete: Section 03300

3. Grout: Section 03600

4. Miscellaneous Metals: Section 05500

5. Painting: Section 09910

6. Fire Extinguishers Section 10522

7. Electrical Work: Division 16

C. Quality Assurance for Pole Buildings

1. ANSI/ASCE-7-05 "Building Code Requirement for Minimum Design Loads in Buildings and Other Structures".

2. 2006 International Building Code

3. US Department of Commerce, "American Softwood Lumber Standard PS 20-15"

4. Southern Pine Inspection Bureau, "Southern Pine Reference Design Values (Effective June 1, 2013)" & "Grading Rules".

5. American Wood Protection Association (AWPA), "U1 - Use Category System: User Specification for Treated Wood".

6. ASTM Specification A792/A792M-97a "Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process."

7. ASTM C578, "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation."

1.02 SUBMITTALS

- A. Submit manufacturer's Certificates of Compliance stating that the materials and equipment meet or exceed the specified requirements.
- B. Submit shop drawings for the following items:
 - 1. Building Framing Elevations & Details
 - 2. Trussed Rafters
 - 3. Metal Siding & Roofing
 - 4. Doors and Frames
- C. Submit manufacturer's latest publications of descriptive literature, product data, and installation instructions.
- D. Submit engineering calculations that are designed and sealed by a professional engineer registered in the State of West Virginia for the pre-engineered roof truss.

1.03 PRODUCT DELIVERY, HANDLING AND STORAGE

- A. Deliver products to the job site in their original unopened packages, including instructions, clearly labeled with the manufacturer's name and designation, type, class, and rating as applicable.
- B. Handle products in a manner that will prevent breakage of containers and damage to products.
- C. Store products in an approved dry area, protect from contact with soil and from exposure to the elements. Keep products dry at all times.

PART 2 - PRODUCTS

2.01 CONCRETE

Refer to Section 03300 – Cast-in-Place Concrete.

2.02 STRUCTURE

- A. Posts
 - 1. 6" x 6" posts shall be placed 8' O.C.
 - 2. Posts shall be treated in accordance with AWPA Standard U1 to the requirements of Use Category 4B (UC4B), i.e., Ground Contact, Heavy Duty.
- B. Band Board

1. Band board shall be 2" x 12".
2. Band board shall be treated in accordance with AWPA Standard U1 to the requirements of Use Category 4B (UC4B), i.e., Ground Contact, Heavy Duty.

C. Double Header Beam

1. Double header beam shall be 2" x 10", Southern Yellow Pine, to meet or exceed 2400f – 2.0E MSR grade as rated by the Southern Pine Inspection Bureau.
2. Double header beam shall consist of one 2400 MSR SYP 2" x 10" on the inside and one 2400 MSR SYP 2" x 10" on the outside of the support posts.
3. Double header beam shall be fastened to support posts with three (3) evenly spaced 5/16" x 5 1/8" GRK RSS structural screws (or equal).

D. Nailers, Purlins & Bracing

1. Nailers, Purlins and Bracing shall be 2"x 4", spruce, to meet or exceed #2 Common grade as rated by the Southern Pine Inspection Bureau.

E. Trussed Rafters

1. Shall be pre-fabricated wood, designed for a 40# snow load.
2. Shop drawings shall have the seal of an Engineer, registered in the State where the project is constructed.
3. The design shall be as indicated on the Contract Drawings.
4. Light-metal plate-connected wood trusses shall be designed in conformance with TPI Design Specification for Metal Plate-Connected Wood Trusses and fabricated in conformance with TPI Quality Control Manual.

F. Moisture Content:

1. All lumber either air-dried or kiln-dried with moisture content not exceeding 19%.
2. Interior finishing lumber shall be kiln-dried; and, at a time of delivery to the building site, the moisture shall not exceed 12% for material 1 inch or less in thickness and shall not exceed 15% for material over 1 inch in thickness.

2.02 METALS

A. Painted Metal Roofing, Siding, Soffit, & Trim

1. Meet or exceed the following:

- 26 Gauge thickness
- Galvalume Grade 80 sheet steel produced according to ASTM A792 / A792M-97a
- AKZO CERAM-A-STAR 1050 SMP High Performance Silicone Polyester Color-Coated Finish
- Classic Rib, ¾" trapezoidal ribs on 9" centers
- 36" panel coverage
- All metal fastened with painted screws (to match siding/roofing colors) with neoprene washers
- 40-year Paint Warranty

2.03 DOORS

A. Entry Door

1. Shall be 32" W x 6'-8" H, model 3100 manufactured by AJ Manufacturing Inc. or equal
2. Meet or exceed the following:
 - Prehung 4-way universal swing
 - 1-3/4" thick door panel
 - Pressure injected with 2.2 pounds of polyurethane foam per ft³
 - R-12 insulation value
 - Embossed white steel panel (series 3100)
 - White panel and frame or white panel and mill frame
 - Rolled edge door panel
 - Pre-painted with two coats of polyester paint
 - Door shall be mounted to the frame by three 12-gauge steel, 4 1/2" x 4" fixed pin hinges with 4"x4.5" Zinc Hinges
 - Door shall be Prehung
 - Designed for steel, masonry and wood construction
 - With a 22" x 22" Lite that is aluminum framed and foamed in place.

B. Garage Door

1. Shall be of 10'-0" tall x 16'-0" wide, Model 2240 manufactured by C.H.I. Overhead Doors, or equal.
2. Door Sections:
 - Panels: 18" or 21" high by width of door.
 - Panel Material: 24 gauge deep-draw quality steel. Hot dipped galvanized G40 coating.
 - Exterior: polyester primer and topcoat available in white, brown, almond, sandstone or evergreen.
 - Interior: white polyester primer and top coat.
 - Section Thickness: 2"
 - Panel Profile: Woodgrain textured, raised panel embossed.
 - Joint Design: Tongue and groove rails.
 - End Stiles: Wrap-around style, 20-gauge galvanized steel, full height of section. Secured to inside rails using Tab-Lock system and interlocked to face of section.

- Center Stiles: 20-gauge galvanized steel full height of section. Secured to inside rails using Tab-Lock system and secured to face of section with industrial adhesive.
3. Tracks:
- Vertical Tracks: Roll-formed 17-gauge galvanized steel for doors through 8'-0" in height. Doors over 8'-0" through 10'-0" will be 16-gauge track. Doors exceeding 10'-0" in height will be 14-gauge track. Tracks to be mounted with track brackets (bolted or riveted to track) and lag-bolted to jamb. Tracks are adjustable (if bolted) to ensure weather-tight fit.
 - Horizontal Tracks: Roll-formed 16-gauge galvanized steel for doors through 10'-0" in height. Doors over 10'-0" will be 14-gauge track. Tracks are reinforced with angle (min 14 gauge) according to door size and weight.
4. Hardware:
- Graduated heavy duty hinges (min 14 gauge), top fixtures (min 14 gauge) and bottom fixtures (min 13 gauge) are made of galvanized steel. Rollers have 10 ball bearings with casehardened steel tire on a solid steel shaft.
5. Spring Counterbalance:
- Oil tempered torsion springs are mounted on a cross-header shaft supported by galvanized steel ball bearing end plates and center bracket(s). Springs are custom designed for exact door weight, size and trajectory in accordance with current ANSI 102 standards for a minimum of 10,000 cycles. Counterbalance is transferred through galvanized air craft quality cables secured to bottom of door.
6. Trussing:
- Galvanized trussing provided according to door size and design.
7. Weather-seal:
- Double contact vinyl floor seal full width of door. Vinyl single contact header and jamb seals.
8. Locking:
- Inside side lock, outside center lock with automatic latch.
9. Window Lites:
- 1/8" single pane DSB, polycarbonate
10. Installation:
- All installation quality and workmanship is responsibility of Contractor and is to be executed in accordance with garage door manufacturer's installation instructions, local and state building codes and work site safety regulations.

2.04 INSULATION

A. Roof Insulation / Underlayment

1. Shall be Fanfold ½ inch thick Roof Underlayment / EPS Insulation with Foil, 1.25 Density Type VIII, white faced one side, foil on the other, UL Listed.
2. The core of insulation shall meet or exceed the requirements of ASTM C578, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
3. Extruded polystyrene foam insulation; square edges; 2" thick x 24" wide x length required.
4. The R value shall be 5.0 per inch of thickness (5-year aged value), ASTM C518.
5. Water absorption shall not exceed 0.1% by volume, in accordance with ASTM C272.
6. Density shall be nominal 2#/cu. ft.
7. Comply with ASTM C578, Type IV.
8. Shall be "Styrofoam SM" as manufactured by Dow Chemical, U.S. Industries or equal.

2.05 SHEET METAL WORK

A. Gutter and Downspouts:

1. Gutters shall be box shape, constructed of 0.032" thick aluminum.
2. Gutters shall be supported at not more than 18" o.c. with 1/8" x 1" bar straps, formed to shape of gutter and finished to match.
3. Gutters shall have slip joints every 20' in length for contraction and expansion.
4. Caulk all joints with sealant of matching color.
5. Downspouts (3" x 4" rectangular) shall be firmly secured to building with adjustable hangers spaced not more than 6' o.c.
6. Downspouts shall spill on the reinforced precast concrete splash blocks.

2.06 PAINTING

Refer to Section 09900 – "Painting"

PART 3 - EXECUTION

3.01 CONCRETE

Refer to Section 03300 – Cast-in-Place Concrete.

3.02 CARPENTRY

- A. Install rough carpentry vertical, level and true, and in a first-class workmanlike manner according to dimensions and details; make cuts square and plumb, joints tight without wedges or chips.
- B. Trussed Rafters
 - 1. Exercise care to keep out-of-plane bending of trusses to minimum.
 - 2. Install temporary horizontal and cross bracing to hold trusses plumb and in safe condition until permanent bracing is installed.
 - 3. Install permanent bracing and related components prior to application of loads to trusses.
 - 4. Tighten loose connectors.
 - 5. Restrict construction loads to prevent overstressing of truss members.
 - 6. Do not cut or remove truss members.
 - 7. Provide hurricane clips at both ends of each truss member.
- C. Miscellaneous: Provide and set all wood plates, nailing strips, etc., required for the completion of the structure.

3.03 INSULATION

- A. Roof Insulation
 - 1. Adhere insulation to roof purlins and within layers as instructed by manufacturer.

3.03 METALS

- A. Coordinate placement of metal work with the work of other trades; set metal items level, plumb, and in true alignment with adjoining work.
- B. Provide anchors and inserts in sufficient number for proper fastening of metal items; embed anchors in concrete so as to accurately align metal work at proper level.
- C. Drill holes as required for bolts and screws in supports and in metal work; conceal fasteners where possible.
- D. For fabricated items, use fastenings and anchors of size and type shown on shop drawings or manufacturer's standard drawings.
- E. Set built-up parts true to line and without sharp bends, twists or kinks.
- F. Provide caulking as required to set, seal and secure metal items.

- G. Where shop coat is abraded or burned by welding, clean and touch-up.
- H. Field paint in accordance with the requirements of Section 09900.

3.08 DOORS

A. INSTALLATION

1. Door shall be delivered at job site individually crated. Each crate to be clearly marked with the specific opening information for quick and easy identification.
2. All single doors to be shipped completely assembled in the frame with hardware installed. Double doors to be prehung at the factory to ensure a proper fit and that hardware functions properly, then broken down for shipping purposes.
3. Install door opening assemblies in accordance with shop drawings and manufacturer's printed installation instructions, using installation methods and materials specified in installation instructions.
4. Field alteration of doors or frames to accommodate field conditions is strictly prohibited.
5. Site tolerances: Maintain plumb and level tolerance specified in manufacturer's printed installation instructions.
6. Fire labeled doors and frames must be installed in strict accordance with manufacturer's instructions and the latest revision of NFPA 80.

B. ADJUSTING

1. Adjust doors in accordance with door manufacturer's maintenance instructions to swing open and shut without binding and to remain in place at any angle without being moved by gravitational influence.
2. Adjust door hardware to operate correctly in accordance with hardware manufacturer's maintenance instruction.

3.09 CAULKING - SEALING

A. Preparation of Surfaces and Joints

1. Caulking in masonry joints minimum 1/4" deep.
2. Where adequate grooves for caulking have not been provided, prepare grooves by cutting and cleaning out mortar to minimum depth, clean out all particles of mortar, dust, and other foreign matter, and coat joint grooves with a primer.
3. Where suitable mortar backstop has not been provided, tightly pack the back of joint grooves with specified back-up material.

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4. Joint depth shall be same as joint width.
 5. Clean metal work so that caulking and sealant will adhere.
- B. Application
1. Apply caulking-sealant by gun method using nozzles of proper sizes to fit widths of joints.
 2. Install to fully seal all exposed joints.

END OF SECTION

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**FORT ASHBY WATER TREATMENT PLANT REHABILITATION
CONTRACT NO. 3**

ELECTRICAL ITEMS for ADDENDUM NO. 3

(January 6, 2017)

MODIFICATIONS TO THE DRAWINGS

DWG. NO. 48 – EMERGENCY GENERATOR ELECTRICAL PLAN AND ELECTRICAL DUCT BANKS

1. DELETE "in Biomag Building" from Wiring Legend Note 6.
2. CHANGE the conduit size for Conduit Nos. 5 and 6 from 4" to **2"**.

DWG. NO. 57 – STORAGE BUILDING ELECTRICAL PLAN

1. CHANGE the wiring in Wiring Legend Note 1 from 3#8, #10 Grd. to **3#6, #8 Grd.**

DWG. NO. 58 – PANELBOARD SCHEDULES

1. CHANGE Circuits 49-54 in the Panelboard "L" Schedule from Spaces to **six (6) 20A-1P Spare circuit breakers.**

MODIFICATIONS TO THE SPECIFICATIONS

SECTION 16050 – BASIC MATERIALS AND METHODS

1. On Page 16050-4, REVISE PARAGRAPH 2.01.1.2 to read as follows:
 2. Transformers shall have aluminum windings, and shall be energy efficient, DOE2016 compliant.

SECTION 17010 – PROCESS CONTROL SYSTEM GENERAL REQUIREMENTS

1. Add the following to 1.01 A.2:

Optimum Controls
1301 Rosemont Avenue
Reading, PA 19605
610-375-0990
Contact: Bill Verona

SECTION 17100 – MOTOR CONTROL CENTER

1. On Page 17100-9, ADD PARAGRAPHS 2.01.DD and 2.01.EE as follows:

DD. Automatic Transfer Switch:

1. Furnish an 800 amp, 480 volt, 3-pole, 4-wire automatic transfer switch in the Motor Control Center for utility and generator service. The transfer switch shall be suitable for continuous operation and shall consist of a double throw power transfer mechanism and a microprocessor controller.
2. The transfer switch shall be arranged to close a contact for remote starting of the diesel generator, after a time delay of 0-6 seconds, after power failure or drop in any phase voltage to 70 percent of line voltage. During the delay period, the load circuits shall not be disconnected from the normal service lines.
3. When the generator is delivering not less than 95 percent of rated voltage and frequency, the load circuits shall be transferred. Retransfer to normal service shall be automatic when full line voltage and phase are restored after a time delay of 0 to 5 minutes, set for 3 minutes. Provisions shall also be made for manual transfer to the generator. After transfer to normal source, the generator shall continue to run for 5 minutes (adjustable 0 to 25 minutes) unloaded, shall shut down and shall be ready to start upon the next failure of the normal source or for manual start-up. If the generator should fail while carrying the load, retransfer to the normal source after a short delay shall be made upon restoration of the normal power. The pick-up and drop-out settings of the phase voltage-sensing relays shall be completely adjustable in the field from 70 percent to 100 percent pick-up and drop-out.
4. The transfer switch shall be double-throw switch operated by a single coil mechanism momentarily and electrically. Operating current for transfer shall be obtained from the source to which the load is to be transferred. Failure of any coil or disarrangement of any parts shall not permit a neutral position. The switch shall be positively locked mechanically on either source without the use of hooks, latches, semi-permanent magnets, or contacts. All contacts and coils shall be readily accessible for replacement from the front of the panel without major disassembly of associated parts.
5. The transfer switch shall be equipped with a test button, and auxiliary contacts as required to show that the switch is in the normal or emergency position. Provide pilot lights on the enclosure door to indicate the switch position.
6. Auxiliary contacts shall be provided for remote indication of the transfer switch position. The contacts shall be wired to a terminal block in the transfer switch enclosure.
7. The transfer switch shall have a load test switch to simulate normal power failure.
8. The transfer switch shall be furnished with an in-phase monitor.
9. Provide a 7-day solid-state exercise clock to set the day, time and duration of the generator exercise period. Furnish a selector switch to enable the generator to be exercised with or without load.

10. Minimum withstand and closing ratings shall be in accordance with UL 1008.
 11. The automatic transfer switch shall be ASCO 7000 Series.
 12. The automatic transfer switch shall be furnished with all software, programs and cables necessary for maintenance and adjustment of the transfer switch.
- EE. Solid State Reduced Voltage Motor Starters:
1. Solid state reduced voltage starters shall provide a soft start and shall limit the current during motor starting. The solid state starters shall have an electronic overload and a built-in SCR bypass to bypass the SCRs when the motor is up to full speed.
 2. The solid state starters shall have a LCD display and a keypad for programming and configuring the starter.
 3. Provide protective modules containing metal oxide varistors for each starter to protect the power components from electrical transients.
 4. Provide an isolation contactor for each starter.
 5. The solid state reduced voltage starters shall be Allen-Bradley SMC Flex, or equal by Square D. Starters shall be sized for the full load amps of the motor load.

SECTION 17110 – VARIABLE FREQUENCY DRIVES

1. On Page 17110-4, DELETE PARAGRAPH 2.02.B, Passive Harmonic Filters, in its entirety.

SECTION 17400 – PROGRAMMABLE CONTROLLER SYSTEM

1. On Page 17400-4, REVISE the last sentence in PARAGRAPH 1.04.A.1 to read as follows:

"The meeting will be held at the **Fort Ashby Water Treatment Plant.**"