

ATTACHMENT A

SPECIFICATIONS

ENTITLED

WOODBIDGE STATION EAST ELEVATOR
MODERNIZATION

DATED

SEPTEMBER 15, 2026



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MODERNIZATION**

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SECTION 01 11 00**SUMMARY OF WORK****PART 1 - GENERAL****1.1 SUMMARY**

- A. This section includes the following:
 - 1. Work included in Contract Documents
 - 2. Restrictions and Quality Control
 - 3. Damages and Pre-Existing Conditions
 - 4. Type of Contract
 - 5. Sequence of Work
 - 6. Work by Others
 - 7. Use of Premises
 - 8. Occupancy Requirements
 - 9. Utility Location, Protection and Relocation
 - 10. Utility Outages
 - 11. Days/Hours of Work
 - 12. Applicable Codes
 - 13. Permits

1.2 RELATED SECTIONS

- A. General Provisions
- B. General Conditions for Construction
- C. Special Provisions
- D. Other Division 01 Specifications apply to this Section

1.3 WORK INCLUDED IN CONTRACT DOCUMENTS

- A. This section includes requirements for the modernization of the Woodbridge Station East Elevator. The project consists of, but is not limited to, modernizing, furnishing and installing equipment as specified utilizing existing and/or modified hoistways and machine rooms.
 - 1. Project Location: 1040 Express Way, Woodbridge, VA 22191.
- B. Construction Manager (CM): The CM for this Project will serve as a representative for VRE and to provide assistance in administering the Contract for Construction between VRE and the Contractor, according to a separate contract between the VRE and the Construction Manager.
- C. Project Manager: When a Construction Manager has not been engaged, VRE will designate a Project Manager (PM) to represent VRE and assist in monitoring the work under the Contract. In these instances, any reference to the Construction Manager, where it occurs in the Technical Specification documents, shall be understood to mean the Project Manager.

- D. The delivered project shall:
1. Meet and/or exceed the requirements set forth elsewhere in the Contract Documents.
 2. Be capable of safe and reliable operation meeting and/or exceeding industry standards and practices.
- E. This Section outlines the main features of the Work to be performed under this Contract and is not a complete description. Work addressed in this Section but not addressed in other portions of the design shall still be considered part of the overall Work. The general details of the Work to be performed under this Contract are indicated more specifically in the other Specification sections, other documents of the design and other Contract Documents.
- F. The Work includes:
1. Mobilize and demobilize all labor and equipment necessary to complete the Work.
 2. Prepare and deliver all required submittals to the satisfaction of the Construction Manager (CM) and VRE.
 3. Identify, protect and avoid all onsite utilities.
 4. Establish temporary barriers and demolish and remove noted materials as necessary.
 5. Modernize components of the existing elevator, to include but not limited to:
 - Hoistway and pit.
 - Machine room and machinery spaces.
 - Electrical service, conductors and devices.
 - Standby power.
 - Door operation and protection.
 - Direct plunger.
 - Car enclosure.
 - Signal fixtures.
 - Operational and motor controls.
 - Firefighters' service components.
 - Hydraulic pump unit.
 - Sill support angles.
 - Hoistway door unlocking devices.
- G. Ownership of Materials:
1. Materials furnished by the Contractor under this Contract shall become the property of VRE.
 2. VRE-furnished materials shall remain the property of VRE.

1.4 RESTRICTIONS AND QUALITY CONTROL

- A. All site features and the facility shall be in accordance with Virginia Railway Express' requirements as defined herein.

1.5 DAMAGES AND PRE-EXISTING CONDITIONS

- A. The Contractor shall be responsible for all damages caused by the Contractor's construction activities. The Contractor shall provide all labor, materials, etc. to return any damaged areas, systems or equipment to their original condition at no additional cost to VRE.
- B. The Contractor shall perform a survey of pre-existing conditions in the vicinity of the Contractor's construction activities, utilizing photographs and other means as necessary to document existing damage or conditions. Submit two copies of this survey to the CM within 21 calendar days after Notice-To-Proceed. The survey shall be approved by VRE prior to submission of first invoice by the Contractor. This survey will assist in resolving any damage claims against the Contractor during and after construction.

- C. Unless noted otherwise, the Contractor shall preserve all facilities and portions thereof including but not limited to roadways, pedestrian and directional signage. The Contractor shall also deliver all removed facilities not required for reinstallation to VRE as directed by the CM.
- D. The Contractor shall replace or repair lost or damaged facilities or portion thereof, to the satisfaction of VRE, at no cost to VRE.

1.6 TYPE OF CONTRACT

- A. This project will be constructed under a general construction contract with predetermined pay items.

1.7 SEQUENCE OF WORK

- A. Conduct the Work in one continuous operation. If phased construction is required, the Contractor shall arrange the sequence of construction, unless noted otherwise in the Contract Documents.
- B. Work shall be performed in accordance with the Contractor's "CPM Construction Schedule" as specified in Division 01 Section "Construction Progress Documentation: and as approved by the Construction Manager.

1.8 WORK BY OTHERS

- A. General: Cooperate fully with other entities (e.g. Utility Owner) so their work may be performed without interfering or delaying work within this Contract. Coordinate the Work of this Contract with work performed by other entities with the CM.
- B. Preceding Work: VRE will award separate contract(s) for the following construction operations at the Project site. Those operations are scheduled to be substantially complete before work under this Contract begins.
 - 1. No separate contracts are known for work preceding this Contract.
- C. Concurrent Work: VRE may award separate contract(s) for various maintenance activities and other construction projects at the Project site. Those operations will be conducted simultaneously with work under this Contract.
 - 1. No concurrent contracts are known for work during this Contract.
- D. Future Work: VRE will award separate contract(s) for the following additional work to be performed at the Project site after Substantial Completion. Completion of that work will depend on successful completion of preparatory under this Contract.
 - 1. No separate contracts are known for work following this Contract.
- E. For additional requirements for Cooperation Among Contractors, see Division 01, Section 01 73 00 "Execution of Work."

1.9 USE OF PREMISES

- A. Use of Site: Confine use of premises to work in areas indicated. Do not disturb portions of site beyond limits of construction areas in which the Work is indicated.
 - 1. An equipment staging area designated by VRE will be available for use by the Contractor. The Contractor shall restrict usage to designated area and shall notify VRE prior to storing of any large equipment which will impose heavy concentrated loading on floor area. Do not store such equipment until approval is received.

2. The Contractor shall confine storage of materials on job site to limits approved by VRE and shall not unnecessarily encumber premises or overload any portion of building with materials to a greater extent than structure design load.
 3. VRE Access: Allow VRE and its designees to have unencumbered access to areas designated for VRE. Access to areas, restricted due to construction, shall be coordinated by the Construction Manager, for VRE personnel involved in the performance of the construction contract. The remainder of the site, including newly constructed areas, shall be restricted to only VRE personnel involved in the performance of the construction contract, as designated by the Construction Manager, until VRE establishes occupancy of the project site.
 4. The Contractor shall have full use of premises for construction operations within the areas designated by VRE during the hours indicated and as directed by the Construction Manager.
 5. Unless noted otherwise, the Contractor shall keep the site free from accumulation of waste materials. When the project is complete, the Contractor must remove from and about the project site, waste materials, tools, construction equipment, machinery and surplus materials. If a dispute arises regarding maintenance or clean-up of the premises, VRE may maintain and clean the site and assess actual damages to the Contractor.
- B. Use of Existing Facilities: Maintain existing facilities in a weather tight condition throughout construction period. Damage caused by construction operation is to be repaired or replaced at the sole discretion of VRE. Protect facilities and their occupants during construction period.
- C. Concurrent Modernization Work and Building Operation
1. This project is a major elevator modernization in an existing building which is open for public business and will continue to operate throughout all phases of required work. It is essential that Contractor give special attention and priority to all matters concerning project safety, protection from dust and loose materials, reduction of noise level, protection from water and air infiltration into building, and maintenance of neat, sightly conditions in and around work areas inside and outside of building. Packaging, scrap materials, and demolition debris shall be promptly removed from the building and site on a daily basis.
 2. At all times, Contractor shall provide clearly visible warning and directional signs, barricades, temporary lighting, overhead protection, and hazard-free walking surfaces throughout public areas. At all times, special attention must be given to building entrances, exits, and proper safe exiting through work areas as required by law. The Contractor shall consult VRE and other contractors to establish and maintain safe temporary routes including, but not limited to, proper barricades, walking surfaces, lighting, fire protection, exiting, warning and directional signs, and general protection of persons from all hazards in accordance with Occupational Safety and Health Administration (OSHA) Standards due wholly or partially to its operations.
- D. Protection of Work and Property
1. The Contractor shall continuously maintain adequate protection of all its work from damage and shall protect VRE property from injury or loss arising out of this Contract. Contractor shall make good any such damages, injury, or loss, except such as may be directly caused by agents, subcontractors, or employees of VRE. The Contractor shall provide all barricades required to protect open hoistways or shafts per OSHA regulations. Design of barricades in public areas shall be approved by VRE prior to fabrication and installation.
 2. If Contract includes work which would be disruptive during normal business operations or would be dangerous to building occupants said work shall be performed during hours as building management

dictates. Examples of such work include, without limitation, saw cutting of concrete, jack hammering, welding, metal cutting, pouring concrete, erecting steel or hoisting equipment over occupied portions of the building, or performing tests requiring all elevators in a group. Contractor shall perform such work during off-hours and shall include all costs in its Bid.

3. Portable fire extinguishers shall be provided throughout Contractor's area of work and shall be placed so as to be accessible at all times. Extinguishers shall be multi-purpose dry chemical type, provided on a basis of one 2A-20BC rated unit for each 3,000 square feet of floor area. Extinguishers to remain property of Contractor.
4. The Contractor shall at all times maintain work areas so that all portions are accessible to fire department personnel and apparatus. Fire hydrants and fire department connections to building sprinkler systems must be always kept free from obstruction.
5. The Contractor shall strictly supervise any welding, metal cutting or other operations employing open flame work. All welding and cutting equipment shall be safely arranged and all combustibles in vicinity of any work being performed shall either be removed or protected by a noncombustible cover. Welding or cutting shall be attended by an assistant or fire watchman who is equipped with at least one 2A-20BC rated multi-purpose dry chemical fire extinguisher. Fire watchman will maintain strict surveillance during entire welding or cutting operation and extinguish flying sparks or burning slag. After welding or cutting operation, fire watchman shall thoroughly search entire area for remnants of smoldering materials before he is released from his duty. Any welding or other operation employing open flame in any portion of building shall be scheduled with and receive approval of VRE.
6. The Contractor shall keep noise level below 80 db level during normal building hours. When it is necessary to produce noise above this level, the Contractor shall advise building management of such needs and times will be scheduled as directed. The Contractor shall anticipate and schedule excessive noise-generating procedures and include allowance for same in its quotation and schedule.

E. Use of Explosives: Explosives shall not be used on site, unless approved in writing by VRE.

1.10 OCCUPANCY REQUIREMENTS

- A. Partial VRE Occupancy: VRE reserves the right to occupy, use and/or to place and install equipment in any completed or partially completed areas of the site/building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work. Partial VRE occupancy requirements are as follows:
 1. Construction Manager will prepare a Certificate of Substantial Completion for each specified portion of the Work to be occupied before VRE occupancy.
 2. Before partial VRE occupancy, mechanical and electrical systems shall be fully operational and required tests and inspections shall be successfully completed. On occupancy, VRE will operate and maintain mechanical and electrical systems serving occupied portions of the building/site.
 3. On occupancy, VRE will assume responsibility for maintenance and custodial service for occupied portions of building.

1.11 UTILITY LOCATION, PROTECTION AND RELOCATION

- A. Coordinate utility location services to identify and mark the location of all utility lines, that may be impacted by construction activities, including but not limited to the following:
 1. Electric power lines

2. Natural gas lines
 3. Sanitary sewers
 4. Stormwater/drainage
 5. Water supplying piping
 6. Petroleum/Fuel lines
 7. Telephone lines
 8. Data and Communication/ Fiber Optic Lines
 9. Underground Storage Tanks
 10. Steam/water lines
 11. Underground utilities and lines abandoned in place
- B. The information in the Contract Documents concerning the type and location of utilities is neither guaranteed nor inclusive. The Contractor is responsible for determining the type and location of utilities, regardless of whether such utilities are indicated or not, so as to avoid damage thereto.
- C. Check and verify the horizontal and vertical location (coordinates and elevation) of all utility lines that may exist within the limits of new work, regardless of whether such utilities are indicated or not, by use of a Subsurface Utility Engineering company. Reconfirm such locations and verification of utilities discovered, regardless of whether such utilities are indicated or not, and submit to the Project Manager a dimensional survey with such notations.
- D. Test pits shall be accomplished by means of non-destructive testing in the vicinity of the discovered utilities, as indicated on the Contract Plans. Additional test pits may be performed by the Contractor, at their expense, in coordination with the CM and applicable utility.
- E. Repair any damage to discovered utility lines due to construction operations at no expense to VRE. VRE will assist the Contractor by making available any known information.
- F. If utilizing an independent subsurface utility engineering company, submit the name of firm and qualifications to the CM, for written approval.
- G. Within 60 consecutive calendar days of NTP, submit to the CM a survey of all utility location results.
- H. For additional requirements for Cooperation with Utility Companies, see Division 01, Section 01 73 00 "Execution of Work."

1.12 UTILITY OUTAGES

- A. Prior to any utility outage/interruption, prepare a schedule of such outage. Include in the outage schedule duration, identification of the service affected, temporary utility service to be provided, identification of available service alternative, and the action to be taken in the event of any emergency. Apply for all outages of utility systems in writing. Fully coordinate outage requests with the CM. Schedule shall include date, time, and duration of outage. Obtain approval in writing by the CM.

1.13 DAYS/HOURS OF WORK

- A. The Contractor shall confine work to the areas specified and not unreasonably impact the site with materials or equipment. The Contractor shall perform all work between the hours of 7:00 A.M. and 7:00 P.M. ET, Monday through Saturday (except Federal holidays) and nights and weekends as authorized in advance, in writing, by VRE.

- B. The Contractor must remain aware that the area of work is near active rail lines. Extreme caution and safety must be exercised at all times.

1.14 APPLICABLE CODES

- A. Compliance with Regulatory Agencies: Comply with most stringent applicable provisions of following codes, laws, and/or authorities, including revisions and changes in effect:
1. Safety Code for Elevators and Escalators, ASME A17.1
 2. Guide for Inspection of Elevators, Escalators, and Moving Walks, ASME A17.2
 3. Elevator and Escalator Electrical Equipment, ASME A17.5
 4. National Electrical Code, NFPA 70
 5. Americans with Disabilities Act, ADA
 6. Local Fire Authority
 7. Requirements of all other codes, ordinances and laws applicable within the governing jurisdiction
 8. Life Safety Code, NFPA 101
 9. Uniform Federal Accessibility Standard, UFAS

1.15 PERMITS

- A. Individual trade permits will be required from Prince William County (mechanical, electrical, fire protection, etc.). The Contractor shall obtain and pay for all permits required to complete required work. In addition, the Contractor shall arrange, schedule, and pay for all required final inspections by state, local, or independent certified inspecting authorities necessary for issuance of all required permits in regard to completed work.

PART 2 – PRODUCTS NOT USED

PART 3 – EXECUTION NOT USED

END OF SECTION

SECTION 01 22 00**UNIT PRICES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes administrative and procedural requirements for unit prices, measurements and non-conformance, and only applies to Unit Price contracts.

1.2 RELATED SECTIONS

- A. General Provisions
- B. General Conditions for Construction
- C. Special Provisions
- D. Section 01 26 00 – Change Order Procedures
- E. Section 01 29 00 – Payment Procedures

1.3 DEFINITIONS

Pay Item: A specifically described unit of work for which a Unit Price is provided in the Contract.

Unit Price: An amount proposed by Bidders, stated on the Bid Form, incorporated in the Contract and applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Value by appropriate modification, if the Scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary material, cost for delivery, installation, insurance, applicable taxes, overhead, and profit. The sum of all extended unit prices in the Bid Form, shall be deemed to include all work described in the Contract Documents including Contract Plans and Specification.
- B. Payments to the Contractor will be made for the actual quantities of Contract items performed in accordance with the plans and the requirements of the Specifications and other Contract Documents. If, upon completion of the Work, the actual quantities vary, either by an increase or decrease from the estimated quantities shown in the Contract, the Contract unit prices shall prevail and payment will be made for actual quantities performed at such unit prices, unless the unit prices have been modified by a Contract Amendment.
- C. No allowance or other adjustment will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting directly from such variance, or from the Contractor's unbalanced allocation among the Contract items of overhead expense and subsequent loss of expected reimbursements therefore, or from any other cause.

- D. In the event the actual quantity of Work performed exceeds or is below the estimated quantity by more than 10%, a Contract Amendment will be issued.
- E. When the accepted quantity of a unit price pay item increases or decreases more than 25% of the original Contract quantity, an equitable adjustment in the unit price may be negotiated if requested by the Contractor or VRE. The equitable adjustment shall be made upon any increase or decrease in cost due solely to the variation less than 75% or in excess of 125% of the estimated quantity and shall apply to the actual amount of work performed.
- F. If the quantity variation is such as to cause an increase in time necessary for completion, the Contractor may request, in writing, an extension of time, to be received by the CM within ten (10) consecutive calendar days from the beginning of the delay, or within such further period as may be granted by VRE before the date of final settlement of the Contract. Upon the receipt of a written request for an extension, VRE shall ascertain the facts and make an adjustment for extending the completion date as, if in the judgement of VRE, is warranted.
- G. The Contractor shall accept the compensation provided for in the Contract as full payment for the following:
1. Furnishing all materials, labor, tools, equipment, and incidentals necessary to complete the Work according to the Contract.
 2. Performing all work specified in the Contract.
 3. All loss or damage arising from the nature of the Work or from action of the elements or any other unforeseen difficulties that may be encountered during prosecution of the Work and until its final acceptance.
 4. Any license, use, or infringement of a patent, trademark, or copyright.
 5. The completion of the Work in accordance with the Contract requirements.
- H. The Contractor shall notify the CM when items of work are ready for measurement. The Contractor and CM or Inspector shall coordinate on site to measure the work in place for payment according to the requirements of this Specification Section. The CM may question or reject the Contractor's measurement of work-in-place if the Contractor and CM have not measured the work together or come to an agreement on the measured quantities. VRE reserves the right to reject the Contractor's measurement of work-in-place that involves the use of established unit prices and to have this work measured, at VRE's expense, by a qualified independent 3rd party acceptable to the Contractor.
- I. At the discretion of VRE, payment may be reduced for any Work which is not in full compliance with the Contract Documents or which has been damaged or repaired by the Contractor. Such action may be used when the end product may have a reduced service life or less than desirable aesthetic characteristics.

1.5 MEASUREMENT OF QUANTITIES

A. General

1. Work specified in the Contract will be measured by the CM in accordance with U.S. Standard Measure. The methods of measurement and computations to be used to determine quantities of material furnished and work performed will be those generally recognized as conforming to good engineering practice.
2. Specific methods of measurement shall be as indicated in the specific Section for the Contract item.
3. Longitudinal measurements for surface area computations will be made along the surface

(horizontally), and transverse measurements will be the surface measure shown on the plans or ordered in writing by the CM. Individual areas of obstructions with a surface area of 9 square feet or less will not be deducted from surface areas measured for payment.

4. Structures will be measured in accordance with the neat lines shown on the plans or as otherwise approved in writing.
5. Items that are measured by the linear foot will be measured parallel to the base or foundation upon which they are placed.
6. Allowance will not be made for surfaces placed over an area greater than that shown on the plans or for any material moved from outside the area of the cross-section and lines shown on the plans.
7. When standard manufactured items are specified, and are identified by weights or dimensions, such identification will be considered nominal. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.

B. Measurement by Weight

1. Materials that are measured or proportioned by weight shall be weighted on accurate scales as specified in this Section.
2. The Contractor shall have the weigh person perform the following:
 - a. Furnish a signed weigh ticket for each load that shows the date, load number, plant name, size and type of material, project number, schedule or purchase order number, and the weights specified herein.
 - b. Maintain sufficient documentation so that the accumulative tonnage and distribution of each lot of material, by Contract, can be readily identified.
 - c. Submit by the end of the next working day a summary of the number of loads and total weights for each type of material by Contract.
3. Trucks used to haul material shall be equipped with a cover suitable to protect the material and to protect the traveling public.
4. The truck tare to be used in the weighing operation shall be the weight of the empty truck determined with full tank(s) of fuel and the operator seated in the cab. The tare weight of trucks shall be recorded to the nearest 20 pounds. At the option of the Contractor, a new tare may be determined for each load. When a new tare is obtained for each load, the requirement for full tank(s) of fuel will be waived.
5. Net rail shipment weights may be used for pay quantities when evidenced by railroad bills of lading. However, such weights will not be accepted for pay quantities of materials that subsequently pass through a stationary mixing plant.
6. Scales shall conform to the requirements for accuracy and sensitivity as set forth in the National Institute of Standards and Technology Handbook No. 44 for Specification Tolerances and Requirements for Commercial and Weighing Devices. Scales used in the weighing of materials paid for on a tonnage basis shall be approved and sealed in accordance with the requirements of the policies of the Bureau of Weights and Measures of the Department of Agriculture and Consumer Services, or other approved agencies, at least once every six months and upon being moved. Hopper and truck scales shall be serviced and tested by a scale service representative at least once every six months. Hopper scales shall be checked with a minimum 500 pounds of test weights and truck scales shall be checked with a

minimum 20,000 pounds of test weights.

7. Copies of scale test reports shall be maintained on file at the scale location for at least 18 months, and copies of all scale service representative test reports shall be forwarded to VRE upon request.
8. The quantity of materials paid for on a tonnage basis shall be determined on scales equipped with an automatic printer. Truck scale printers shall print the net weight and either the gross or tare weight of each load. Hopper scale printers shall print the net weight of each load. The weigh ticket shall also show the legal gross weight for material weighed on truck scales and the legal net weight for material weighed on hopper scales.
9. If the automatic printer becomes inoperative, the weighing operation may continue for 48 hours provided satisfactory visual verification of weights can be made. The written permission of the VRE shall be required for the operation of scales after 48 hours.
10. If significant discrepancies are discovered in the printed weight, the ultimate weight for payment will be calculated on volume measurements of the materials in place and unit weights determined by the CM or by other methods deemed appropriate to protect the interests of VRE.

C. Measurement by Volume (e.g. Cubic Yard)

1. Material that is measured by the cubic yard, loose measurement or vehicular measurement, shall be hauled in approved vehicles and measured therein at the point of delivery. Material measured in vehicles, except streambed gravel, silt cleanout, or other self-consolidating material will be allowed at the rate of 2/3 the volume of the vehicle. The full volume of the vehicle will be allowed for streambed gravel. Such vehicles may be of any size or type acceptable to the Engineer provided the body is of such shape that the actual contents can be readily and accurately determined. Unless all approved vehicles are of uniform capacity, each vehicle shall bear a plainly legible identification mark indicating the specific approved capacity. Each vehicle shall be loaded to at least its water level capacity.
2. When approved by the CM in writing, material specified to be measured by the cubic yard may be weighed and such weights converted to cubic yards for payment purposes. Factors for conversion from weight to volume measurement will be determined by the CM and shall be agreed to by the Contractor before they are used.

D. Measurement by Lump Sum

1. When used as an item of payment, the term lump sum will mean full payment for completion of the corresponding item of work described in the Contract. When a complete structure or structural unit is specified as a Contract item, the unit of measurement will be lump sum, and shall include all necessary fittings and accessories. The quantities may be shown on the plans for items for which lump sum is the method of measurement. If shown, the quantities are approximate and are shown for estimating purposes only and no measurement of quantities will be made for payment. Items that are to be measured as complete units will be counted by the VRE Representative in the presence of a representative of the Contractor.

E. Measurement by Length (e.g. Linear Foot or Vertical Linear Foot)

1. When used as an item of payment, the term of length will mean full payment for completion of the corresponding item of work described in the Contract. When a pay item unit is specified as a Contract item, the unit of measurement designated as a unit of length shall include all necessary fittings and accessories. The quantities may be shown on the plans for items for which length is the method of measurement. Items that are to be measured as complete units will be counted by the Inspector in the

presence of a representative of the Contractor.

F. Measurement by Area (e.g. Square Feet)

1. When used as an item of payment, the term of area will mean full payment for completion of the corresponding item of work described in the Contract. When a pay item unit is specified as a Contract item, the unit of measurement designated as a unit of area shall include all necessary fittings and accessories. The quantities may be shown on the plans for items for which area is the method of measurement. Items that are to be measured as complete units will be counted by the Inspector in the presence of a representative of the Contractor.

G. Measurement by Item or Count (e.g. Each)

1. When used as an item of payment, the term of item or count will mean full payment for completion of the corresponding item of work described in the Contract. When a pay item unit is specified as a Contract item, the unit of measurement designated as a unit of item or count shall include all necessary fittings and accessories. The quantities may be shown on the plans for items for which item and count is the method of measurement. Items that are to be measured as complete units will be counted by the Inspector in the presence of a representative of the Contractor.

1.6 PLAN QUANTITIES

- A. When specified in the Contract, Contract items will be measured and paid for on the basis of plan quantities. The quantities allowed for compensation will be those shown on the plans with deductions from or authorized additions to such quantities resulting from authorized deviations from the plans.
- B. In the case of excavation, only excavation within the cross-section prism will be paid for on a plan quantity basis.
- C. If the Contractor believes that any plan quantity is incorrect, they may solicit, at their own expense, the aid of a Professional Engineer licensed to practice engineering in the State, Commonwealth, or District where the project is physically located to check the quantity or they may ask the CM in writing to check computations of the quantity. Written requests for a quantity check by the CM shall be accompanied by calculations, drawings, or other evidence indicating why the plan quantity is believed to be in error. If any item of the Contract is found to be in error and so verified by the CM, payment will be made in accordance with the corrected plan quantity.
- D. If the CM or VRE determines during construction that there is an error in the plan quantity, or that conditions vary from those anticipated in the design to the extent that an actual measurement of a plan quantity item is warranted, the CM will make such measurement and will notify the Contractor, in writing, of the rationale for adjustment. Payment will then be based on the measured quantity in lieu of the plan quantity.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 01 25 00**SUBSTITUTION PROCEDURES****PART 1 - GENERAL****1.1 SUMMARY**

Section includes administrative and procedural requirements for major material substitutions after Notice of Award of Contract.

1.2 RELATED SECTIONS

- A. General Conditions for Construction
- B. Section 01 33 00 – Submittal Procedures

1.3 GENERAL

- A. The Contract is based on the materials, equipment and methods described in the Contract documents that allow for compliance to all Federal, State, and Local rules and regulations. No substitutions or cancellations shall be permitted after award without the written approval of VRE. VRE will consider requests for substitutions of materials, equipment and methods only when requests are accompanied by full and complete technical data and all other information required to evaluate the proposed substitution.
- B. Substitutions, if approved, shall be without any additional compensation except when extension of contract time from VRE, unless approved otherwise.

1.4 SUBMITTALS

- A. Timing:
 - 1. Submit substitution requests within a maximum of forty-five (45) consecutive calendar days after Notice to Proceed or as otherwise necessary and coordinated with the CM. Requests received after that time may be considered or rejected at the sole discretion of VRE. Substitutions will not be considered if they cannot be procured and delivered within the approved construction schedule.
- B. Conditions:
 - 1. VRE will consider Contractor's request for substitution only when the following conditions are satisfied. If the following conditions are not satisfied, the CM will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution does not require extensive revisions to the Contract Documents.
 - b. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - c. Substitution request is fully documented and properly submitted.
 - d. Requested substitution will not adversely affect Contractor's Construction Schedule.

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- e. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - f. Requested substitution is compatible with other portions of the Work.
 - g. Requested substitution has been coordinated with other portions of the Work.
 - h. Requested substitution provides specified warranty.
 - i. If requested substitution involves more than one Contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all Contractors involved.
- C. Identify specified product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
- D. Show compliance with requirements for substitutions and the following, as applicable:
- 1. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - 2. Coordination information, including a list of changes or revisions needed to other parts of the Work that will be necessary to accommodate proposed substitution.
 - 3. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated.
 - 4. Indicate deviations, if any, from the Work as specified.
 - 5. Detailed information regarding any change in cost or contract time, including the cost of additional engineering required to properly incorporate proposed substitution.
 - 6. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - 7. Samples, where applicable or requested.
 - 8. Certificates and qualification data, where applicable or requested.
 - 9. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - 10. Drawings as required to demonstrate details of the proposed product.
 - 11. Technical specification for the proposed product, if not included in the original contract.
 - 12. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - 13. Contractor's certification waiving rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

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- E. If necessary, the CM will request additional information or documentation for evaluation within 15 consecutive calendar days of receipt of a request for substitution. The CM will provide written acceptance or rejection of proposed substitution within 30 calendar days of receipt of request, or 30 calendar days of receipt of additional information or documentation, whichever is later.
- F. Do not use the RFI process for submittal of Substitution Requests.
- G. Contractor's submittal and VRE's review or approval Shop Drawings, Product Data or Samples related to a substitution does not itself constitute a final approval of the requested substitution, nor does it relieve the Contractor from fulfilling existing Contract requirements.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 01 26 00

CHANGE ORDER PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes procedures and requirements related to handling and processing Change Orders to include:
1. Change Order Procedures
 2. Preparation of Proposed Change Orders
 3. Lump Sum Change Orders
 4. Unit Price Change Orders
 5. Time and Material Change Orders
 6. Contract Time Extensions
 7. Change Orders for Compensable Delay
 8. Differing Site Conditions
 9. Payment for Contract Amendment Work

1.2 RELATED SECTIONS

1. 01 22 00 Unit Prices
2. 01 29 00 Payment Procedures
3. 01 32 00 Construction Progress Documentation
4. General Conditions for Construction

1.3 MINOR CHANGES IN WORK

1. VRE shall have authority to make minor changes in the Work by supplemental instructions when such changes do not involve extra cost and are not inconsistent with the purpose of the Project. Otherwise, except in an emergency endangering life or property, no extra Work or change shall be made unless in pursuance of a written Construction Change Directive or Change Order and no claim for an addition to the Contract Amount or Contract Time shall be valid unless so ordered. If the Contractor believes a cost is associated with the supplemental instructions, the Contractor is to provide written notice to the CM within seven (7) consecutive calendar days of receipt of instructions.

1.4 CHANGE ORDER PROCEDURES

- A. Changes to the work can be by:
1. Change Order issued by VRE to the Contractor.
 2. Contractor proposing a Potential Change Order (PCO) to VRE.
 3. Time and Material as directed by the CM or VRE.
 4. Specific requirements for a VRE ordered change or preparation and submission of a Contractor POC are detailed in the following subsections of this specification.
- B. If any change causes an increase or decrease in the Contractor's cost of, or time required for, the performance of any part of the Work under the Contract, the Contracting Officer shall make an equitable adjustment and amend the Contract in writing. Approval may be contingent on funding agency or VRE Board authorization. VRE will issue a Contract Amendment all-inclusive of the terms of the Change Order(s) to the Contractor for signature. Once the Contract Amendment has been signed by the Contractor and VRE, it is considered executed.
1. VRE may require additional bond protection when a Contract price is increased. Such change will require notice to sureties and require that Performance and Payment Bonds be increased by the Contractor. The increase in protection shall generally equal one hundred percent (100%) of the increase in Contract price.
 2. A copy of the revised Payment and Performance Bonds shall be provided by the Contractor to the Purchasing and Contracts Office within 14 consecutive calendar days of VRE's approval of such change. The Contractor shall execute change orders with the consent of the surety or sureties on the Payment and Performance Bond unless otherwise directed by the sureties. All such work shall be executed under the conditions of the original Contract, except that modification of the Time for Completion caused thereby shall be made at the time of approving such change.
 3. Upon the Contractor's request, VRE may decrease bond amounts as deliverables are received.
- C. Work may be invoiced for payment only once the Contractor possesses a fully executed Contract Amendment.
- D. The Construction Manager is not authorized to approve Change Orders or authorize extra work without written concurrence of the VRE Contracting Officer.

1.5 VRE CHANGE ORDERS

- A. VRE, without invalidating the Contract, may order extra Work or make changes by addition, deletion or revision in the Work, with the total Contract Amount being adjusted accordingly if applicable. Changes shall include:
1. A detailed description of a proposed change.
 2. Supplementary or revised drawings and specifications.
 3. A change in Contract Time for executing the change work required.
 4. The period of time during which the requested price will be considered valid.
 5. Contractor will prepare and submit an estimate in a timely manner in order to not cause delay to the

project schedule. VRE may further issue a directive to proceed with additional work under Time and Material basis.

- B. The Contractor shall review any VRE requested or directed change and shall respond in writing within 14 consecutive calendar days after receipt of the proposed change stating the effect of the proposed change upon Contractor's work, including any increase or decrease in Contract time and price. The Contractor shall furnish VRE an itemized breakdown of the quantities and prices used in computing the proposed change. The Contractor shall also furnish any sketches, drawings, and/ or pictures to properly explain the change or impact to VRE. It is the sole responsibility of the Contractor to provide adequate change order backup to satisfy VRE.
1. The value of any such extra work or change shall be proposed by VRE in one or more of the following ways: (a) by estimate in a lump sum; (b) by cost and fixed fee; (c) by unit price additions or deletions of quantities stated in the Contract; or (d) any other method permitted under VRE's Procurement Manual.
 2. If none of the aforementioned methods is agreed upon the Contractor shall proceed with the work without delay under Time and Materials, provided the Contractor receives a Construction Change Directive. In such case, the Contractor shall keep and present in such form as the CM may direct, a correct account of the cost, together with vouchers. The CM shall be permitted to verify such records on a daily basis and may require such additional records as are necessary to determine the cost of the change to the Work. The CM shall include a firm Not-to-Exceed ceiling price that the Contractor may not exceed except at its own risk. A complete accounting of the extra cost shall be made within 14 consecutive calendar days after completion of the work involved in the claim. Refer to Time and Materials (Force Account) Change Orders, below for a description of allowable costs when work is performed under force account.
- C. Once the scope, cost and schedule impacts, if any, are agreed upon, the CM will prepare the Change Order, possibly combining with other approved Change Orders, and submit to VRE for Processing. Approval may be contingent on funding agency or VRE Board authorization. Once processed, a Contract Amendment will be issued for signature by the Contractor. Once the Contract Amendment has been signed by the Contractor and VRE, it is considered executed. VRE may require additional bond protection as described above.

1.6 PREPARATION OF CONTRACTOR PROPOSED CHANGE ORDERS

- A. The Contractor may propose a change by submitting a Potential Change Order (PCO) commonly known as Request for Change (RFC) to the Construction Manager, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors.
- B. Contractor shall provide written notice of intent to claim additional cost or time within 14 consecutive calendar days of their knowledge of such. Failure to do so will result in automatic rejection of claims.
- C. Submit a description of work that is considered beyond the scope of the contract for review and approval prior to start of work. VRE must be allowed sufficient time to review and make a determination of entitlement for additional compensation or time. The Contractor's submittal shall be in sufficient detail to enable VRE to determine the basis of entitlement.
- D. PCO must be signed and dated by the Contractor in order to be accepted by VRE.
- E. Failure to furnish sufficient documentation or to qualify their reason for failure to do so may delay the project. If such delay occurs, it will in no way relieve the Contractor of their obligation to meet the time limits or other requirements established for the contract or constitute basis for a delay claim on part of the Contractor.

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- F. Maintain detailed records of related work performed, including photos if they help demonstrate the work. Provide complete information required for evaluation of proposed changes and to substantiate costs of changes in the Work.
- G. Document each quotation for a change in itemized cost or time with sufficient data to allow evaluation of the quotation. Provide itemized breakdown of cost.
- H. At a minimum, provide the following data and/or documentation to support computations:
1. Quantities of products, labor, and equipment.
 2. Insurance and bonds.
 3. Overhead and profit.
 4. Justification for any change in Contract Time and revision to project schedule to clearly identify critical path.
 5. Credit for deletions from Contract, similarly documented.
- I. Support each claim for additional costs, and for work performed under time and material basis, with additional information:
1. Origin and date of claim.
 2. Dates and times work was performed, and by whom reviewed and approved.
 3. Time records and wage rates paid.
 4. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
 5. Prior approval and signoff by VRE.
- J. VRE shall review the Contractor initiated change and respond in writing as follows:
1. Agree with Contractor's cost proposal;
 2. Request for additional information;
 3. Reject the Proposal;
- K. If additional information is requested by VRE, Contractor shall respond in writing within fourteen (14) consecutive calendar days of request.
- L. If the scope, cost, and schedule impacts, if any, are agreed upon, the PCO will be incorporated into a Change Order, possibly combined with other approved PCOs. The Change Order will be prepared by the CM with all required documentation from all included PCOs and submit to VRE for processing. Approval may be contingent on funding agency or VRE Board authorization. Once processed, a Contract Amendment will be issued for signature by the Contractor. Once the Contract Amendment has been signed by the Contractor and VRE, it is considered executed. VRE may require additional bond protection as described in paragraph above.

1.7 TERMS OF CHANGE ORDERS**A. Lump Sum Change Orders**

1. Based on Proposal Request and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by VRE.
2. A cost proposal for a change in the Work shall provide a complete breakdown itemizing the estimated quantities and costs of labor, materials, and equipment (base cost) required in addition to any markup used. The allowable percentage markups for overhead and profit for a change to the Work performed by the Contractor's own forces or performed by the Subcontractor shall not exceed the percentages for each category listed below.
 - a. Contractor's markup for overhead for work it performs in a change to the Work shall be ten percent (10%) of the Base Cost.
 - b. Subcontractor's markup for overhead for the work it performs in a change to the Work shall be a maximum of five percent (5%) of the Base Cost.
 - c. Contractor's markup for overhead for work performed by a Subcontractor in a change to the Work shall be a maximum of five percent (5%) of the Base Cost. The Contractor's 5% for overhead shall be calculated using the Base Cost only, and not calculated on top of the Subcontractor's overhead and profit.
 - d. The markup for overhead of a Sub-subcontractor at any tier on a change to the Work it performs shall be a maximum of five percent (5%).
 - e. Profit: The Contractor and sub-contractors shall be allowed up to a ten (10%) markup for profit on all properly documented and approved costs. Where profit is a negotiated element of price, a reasonable profit will be negotiated, for each Change Order, considering factors such as, but not limited to:
 - i. Degree of Risk
 - ii. Relative Difficulty of Work
 - iii. Size of Job
 - iv. Period of Performance
 - v. Subcontracting

B. Based on the circumstances of each Change Order, each of the above factors shall be weighted from 0.03 to 0.10 as indicated below. The value shall be obtained by multiplying the rate by the weight for each applicable factor. When totaled for all factors, a fair and reasonable profit can be determined under the circumstances of the Change Order.

1. Degree of risk: Where the modified work involves no risk or the degree of risk is very small, the weighting should be 0.03. As the degree of risk increases, the weighting should be increased up to a maximum of 0.10. Lump sum items will have generally a higher weighted value than unit price items for which quantities are provided. Other things to consider: The portion of the Work to be done by Subcontractors, nature of work, where work is to be performed, reasonableness of negotiated costs, amount of labor included in costs, and whether the negotiation is before or after performance of work.

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2. Relative difficulty of work: If the modified work is most difficult and complex, the weighting should be 0.10 and should be proportionately reduced to 0.03 on the simplest of jobs. This factor is tied to some extent with the degree of risk. Things to consider: The nature of the Work, by whom it is to be done, the location, and the time schedule.
 3. Size of job: All modified work not in excess of \$100,000 shall be weighted at 0.10. Work estimated between \$100,000 and \$5,000,000 shall be proportionately weighted from 0.10 to 0.05. Work from \$5,000,000 to \$10,000,000 shall be weighted at 0.04, and work in excess of \$10,000,000 at 0.03.
 4. Period of performance: Change Orders providing for an extension of time in excess of 30 Days shall be weighted at 0.10. Jobs of lesser duration shall be proportionately weighted to a minimum of 0.03 for jobs not to exceed 1 Day. No weight will be granted for this factor where there is no extension of the Project Schedule or interim dates due to work under the Change Order.
- C. Base Cost is defined as the total of labor, material, and equipment costs; it does not include markup for overhead and profit. The labor costs include only the costs of employees directly constructing or installing the change in the Work and exclude the costs of employees coordinating or managing the work.
1. The allowable percentage markups for overhead and profit stated above shall compensate the Contractor, Subcontractor, and Sub-subcontractor(s) for all other costs associated with or relating to the change to the Work including by way of illustration and not limitation, general conditions, field supervision, field engineering, coordination, insurance, bond(s), use of small tools, incidental job costs, and all other general and administrative home and field office expenses.
 2. Allowable costs for changes in the Work shall not include Home Office expenses including payroll costs for the Contractor's officers, executives, administrators, project managers, estimators, clerks, timekeepers, and other administrative personnel employed by the Contractor, whether at the Site or in the Contractor's principal or branch office for general administration of the Work. These costs are deemed overhead included in the percentage markups in Subsection 1.07.A.2.b.
- D. Unit Price Change Orders
1. This subsection only applies to Unit Price contracts.
 2. For pre-determined unit prices and quantities, the Change Order will be executed on a fixed unit price basis. VRE may elect to negotiate unit price based on revised item quantity.
 3. Overrun of estimated quantities will only be allowed as approved by VRE. See Section 01 22 00, "Unit Prices," for additional details regarding payment for unit price items and overrun of quantities. Contractor shall notify VRE, prior to performing the work, in writing for work that may occur beyond the item quantity provided in the contract.
 4. Confirm in-place quantities with the field representative on a daily basis as work is completed. Unless otherwise noted, work will be paid for based on in place quantities.
 5. For items which do not have unit prices pre-determined by the Contract, a PCO must be submitted in accordance with the requirements in this Section. New unit price items included in the PCO shall contain all labor, materials, and equipment necessary to perform the Work in accordance with the Contract Documents. The Contractor's and Subcontractor's overhead and profit, as defined above, shall be included in these unit prices.
- E. Time and Material Change Orders
1. Should circumstances dictate that changed work be started immediately, VRE may direct the Contractor

to proceed with the work on a Time and Material (T&M) basis pending a contract modification. T&M Change Orders may be used at VRE's discretion and only when either:

- a. Agreement on the valuation of a change cannot be made using the methods described in the preceding paragraphs; or
 - b. VRE cannot firmly establish an applicable and estimate for the cost of the work because the level of effort necessary to perform and complete the work cannot be reasonably estimated or anticipated but can only be determined by performing the work.
2. Because of the significant burden on VRE to monitor and control the work, T&M work is not a preferred method, and it shall be the responsibility of the Contractor to provide all necessary documentation and justification of costs. The rates for labor, equipment and materials to be used in cases of work performed on a T&M basis will be compensated as documented below. No costs other than those explicitly listed below shall be allowed.
 3. T&M contracts are only to be used after a documented determination that no other type of contract is suitable. When issuing a T&M change order, VRE shall include a firm Not-to-Exceed (NTE) ceiling price that the Contractor may not exceed except at its own risk.
 4. Upon request, VRE may require Contractor to submit an estimate of cost and time impacts on Time and Material work prior to authorizing the work.
 5. Contractor shall maintain detailed records of work performed on Time and Material basis. Confirm in-place quantities with the field representative on a daily basis as work is completed. Unless otherwise noted, work will be paid for based on in place quantities. Review Time and Material records with the field representative to obtain daily agreed upon quantities.
 - a. As the Work progresses, the Contractor is to monitor its costs. If their costs will exceed the NTE prior to completing the work, the Contractor is to stop work and notify the CM. A decision will be made by VRE to stop the change at the time or to authorize an increase in the NTE amount.
 6. The Contractor is not to proceed with the Work until a written T&M directive has been signed by the Contractor and VRE.
 7. The Contractor shall be paid for all labor, materials, equipment, services, supplies, taxes, overhead, profit, and miscellaneous costs or expenses for extra work performed on a Time and Materials basis in the following manner:
 - a. **Labor:** Labor costs shall be composed of direct labor cost plus labor burdens. Before any T&M work begins, the Contractor shall submit for approval to the CM the proposed hourly rates and associated labor costs (benefits and payroll burden) for all laborers and forepersons to be engaged in the work. The number of laborers and forepersons engaged in the work will be subject to approval by the CM as justified by the nature of the work. For all labor and forepersons in direct charge of the T&M work, excluding general superintendence, compensation as listed below. Direct labor cost shall not be higher than those regularly paid the employee. The Contractor shall provide certified payroll records for audit purposes.
 - i. **Certified Pay Rate:** Unless otherwise approved, the Contractor will receive the actual rate of wage or scale as set forth in their most recent payroll for each classification of laborers, and forepersons who are in direct charge of the specific operation. The time allowed for payment will be the number of hours such workers are actually engaged in the work. If overtime work is authorized by VRE, payment will be at the normal overtime rate set forth

in the Contractor's most recent payroll. If workers performing the class of labor needed have not been employed on the project, mutually agreed on rates will be established. However, the rates shall be not less than those predetermined for the project, if applicable.

- ii. **Benefits:** The Contractor will be entitled to receive the actual cost for any fringe benefits that are regularly provided to the classes of laborers and forepersons engaged in the work and that are not included in the certified pay rate.
- iii. **Payroll Burden:** The Contractor will be entitled to receive the actual cost for all costs associated with required payroll taxes and payroll benefits not covered in the previous paragraph including:
 - 1. Social Security Tax
 - 2. Medicare Tax
 - 3. Unemployment Tax
 - 4. Worker's Compensation Insurance
 - 5. Contractor's Public Liability Insurance
 - 6. Contractor's Property Damage Liability Insurance
 - 7. If the Contractor is unable to provide the necessary documentation for Benefits and Payroll Burden as identified above, the Contractor will be entitled to an additive of 20% of the Certified Hourly Pay Rate as full and final compensation for Benefits and Payroll Burdens.
- iv. **Overhead:** The Contractor shall be entitled to an additive of ten (10%) on all properly documented and approved costs established in paragraphs i, ii, and iii for all administrative overhead associated with labor costs.
- v. **Profit:** The Contractor shall be allowed up to a ten (10%) markup for profit on all properly documented and approved costs established in paragraphs i, ii, iii and iv above for all profit associated with labor costs. Where profit is a negotiated element of price, a reasonable profit will be negotiated taking into account factors such as, but not limited to:
 - 1. Degree of Risk
 - 2. Relative Difficulty of Work
 - 3. Size of Job
 - 4. Period of Performance
 - 5. Subcontracting
- b. **Materials:** The Contractor will receive the actual cost of materials accepted by VRE that are delivered and used for the work including taxes, transportation, and handling charges paid by the Contractor, not including labor and equipment rentals as herein set forth. The Contractor shall make every reasonable effort to take advantage of trade discounts offered by material suppliers. Any discount received shall pass through to the VRE. The appropriate salvage value of salvageable temporary construction materials shall be credited to VRE.

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- i. Vendor's and/or supplier's invoices accompanied by evidence of payment shall be provided to the CM to establish the Contractor's cost of materials. Payment will only be made for the material consumed during the performance of the Time & Material Work or for approved material which is incorporated as part of the finished work.
 - c. **Equipment:** The Contractor shall provide VRE a list of all equipment to be used in the work. For each piece of equipment, the list shall include the serial number; date of manufacture; location from which equipment will be transported; and, for rental equipment, the rental rate, and name of the company from which it is rented. The number and types of equipment engaged in the work will be subject to approval by the CM as justified by the nature of the Work. Compensation for equipment shall be as follows:
 - i. **Hourly Base Equipment Rental Rates (Owned Equipment):** For machinery, equipment, and attachments, necessary for prosecution of the work that are owned by the Contractor and approved for use by VRE, the Contractor will be paid an Hourly Base Rental Rate as detailed in the following paragraphs.
 - ii. **Equipment referenced in "Rental Rate Blue Book for Construction Equipment":** Equipment rental will be measured by time in hours of actual time engaged in the performance of the work and necessary traveling time of the equipment within the limits of the project or source of supply and the project. Hourly rates will not exceed 1/176 of the monthly rates of the schedule shown in the "Rental Rate Blue Book" modified in accordance with the "Rental Rate Blue Book" rate adjustment tables that are current at the time the Time and Materials work is authorized. Equipment rental rates not modified by the adjustment factors or rate modifications indicated in the "Rental Rate Blue Book" will not be considered unless submitted by the Contractor and approved by VRE.
 - iii. **Equipment not referenced in "Rental Rate Blue Book for Construction Equipment":** The rates for equipment not listed in the *Rental Rate Blue Book* schedule, a monthly rental rate may be computed on the basis of an amount that is equivalent of 6 percent of the manufacturer's list price of the sale (new) of such equipment. The hourly rate in such cases may be determined by dividing the monthly rate by 176 when actually operating.
 - iv. **Hourly Base Equipment Rental Rates (Rented Equipment):** If the Contractor does not possess or have readily available equipment necessary for performing the T&M work and such equipment is rented from a source other than a company that is an affiliate of the Contractor, payment will be based on actual invoice rates when the rates are reasonably in line with established rental rates for the equipment in question and are approved by the CM.
 - v. **Hourly Operating Rates:** – Hourly Operating Rates shall be as established in the Blue Book estimated operating cost per hour. This operating cost will be full compensation for fuel, lubricants, repairs, servicing (greasing, fueling, and oiling), small tools, and any and all incidentals. If rental rates for the equipment being used in the work are not listed in the Blue Book or otherwise readily available, the Hourly Operating Cost will be 15% of the established Hourly Base Rental Rate. If invoices for Rental Equipment include the furnishing of fuel, lubricants, repair, and servicing, then the Contractor will not be entitled to any Hourly Operating costs for that equipment.
 - vi. **Equipment Usage:** An amount, as described above, will be paid for all hours the equipment is engaged in performing the work. The Contractor shall be entitled to the applicable Hourly Base Equipment Rental Rate and Hourly Operating Rate for all approved equipment usage. No compensation will be paid for the use of machinery or equipment not

authorized by VRE.

- vii. **Equipment Standby:** For the purposes herein “standby time” is defined as the period of time equipment ordered to the jobsite by VRE is available on-site for the work but is idle for reasons not the fault of the Contractor or normally associated with the efficient and necessary use of that equipment in the overall operation of the work at hand. Hourly rates for equipment on standby will be at 50 percent (50%) of the rate paid for equipment performing work. Operating costs shall not be included in the standby rate.
- viii. Payment will be made for the total hours the equipment is performing work. When equipment is performing work less than 40 hours for any given week and is on standby, payment for standby time will be allowed for up to 40 hours, minus hours performing work. Payment for Standby will be allowed only for working days. Payment will not be made for the time that equipment is on the project in excess of 24 hours prior to its actual performance in the Time and Materials work.
- d. **Transportation Costs:** When it is necessary to obtain equipment exclusively for T&M work from sources beyond the Project limits and the CM authorizes the transporting of such equipment to the Project site, the cost of transporting the equipment will be allowed as an expense. The Contractor will be paid freight cost covering the moving of equipment to and from the specific Time and Materials operation provided such cost is supported by an invoice showing the actual cost to the Contractor.
 - i. Where the transport requires the use for a hauling unit, the allowable expense will consist only of the actual cost incurred for the use of the hauling equipment, or the applicable Blue Book cost, whichever is less.
 - ii. When equipment is transferred under its own power, the allowable Transporting cost shall be 50% of the Hourly Base Equipment Rental Rate.
 - iii. However, such payment will be limited to transportation from the nearest source of available equipment. If equipment is not returned to the nearest equipment storage lot but is moved to another location, the freight cost paid will not exceed the cost of return to the nearest storage lot.
- e. **Compensation:** The compensation as set forth in this Section shall be accepted by the Contractor as payment in full for work performed on a Time and Materials basis. At the end of each day, the Contractor’s representative and the Inspector shall compare and reconcile records of the hours of work and equipment, labor and materials used in the work as ordered on a Time and Materials basis. Such accounting may not include actual costs or labor rates where these are not available but shall be used to verify quantities, types of materials or labor, and number and types of equipment. No compensation will be allowed for equipment which is inoperable due to mechanical failure.
- f. **Overhead:** The Contractor shall be entitled to an additive of up to ten percent (10%) on all appropriate and approved Equipment Rental, Operating, and Transporting costs as defined above.
- g. **Profit:** The Contractor shall be allowed up to a ten (10%) markup for profit on all properly documented and approved Equipment Rental, Operating, and Transporting costs as defined above. Where profit is a negotiated element of price, a reasonable profit will be negotiated taking into account factors such as, but not limited to:
 - i. Degree of Risk

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- ii. Relative Difficulty of Work
 - iii. Size of Job
 - iv. Period of Performance
 - v. Subcontracting
- h. **Meals and Lodging Allowance:** Meals and lodging allowance may be allowed by the CM at the actual and documented costs for lodging and meals if the following conditions are met and the applicable rates and authorization for such costs are established prior to beginning the work. Lodging costs shall not exceed the applicable General Services Administration (GSA) per diem rates for the location where the work is being performed unless otherwise approved in writing by the CM. No additives for overhead, administrative, profit, or any other costs will be permitted for subsistence and lodging.
- i. The specific T&M work requires mobilization of a separate crew not intended to be used on the original contract, and the Contractor's base location is more than 50 miles from the work site, or
 - ii. Forces which have been working on the Contract will be used for the T&M work and have been routinely staying overnight during the life of the Project, and the T&M work will warrant an extension of the contract time, and the distance from the Contractor's base location to the work site is more than 50 miles.
- i. **Miscellaneous:** No additional allowance will be made for attachments that are common accessories for equipment as defined in the Rental Rate Blue Book, general superintendents, timekeepers and secretaries, or other costs for which no specific allowance is herein provided.
- i. Small Tools: No payment will be made for the use of small hand-held tools. Small tools are defined as any individual piece of equipment or tools having a new value \$1,000 or less.
 - ii. Insurance and Bonds: The Contractor will receive compensation equal to the cost of the bond and other additional costs necessary for the specific Time and Materials work as determined by the VRE. The Contractor shall supply documented evidence of such costs.
- j. **Subcontracting:** If all or a portion of the Time and Materials work is performed by an approved subcontractor, the sub-contractor shall receive the cost of work performed as determined in (a through i) above. In addition, the Contractor will be paid up to 10 percent of the subcontract net Time and Materials costs to cover the Contractor's profit and administrative cost per the schedule below.
- i. Total Cost of Subcontract Work: Rate Schedule

\$0 - \$10,000	10%
>\$10,000	\$1,000 + 5% above \$10,000
 - ii. The amount resulting will not be subject to any further additives. The itemized statements of costs as required below shall be submitted on a form that separates the subcontracted portions of the Time and Materials labor, materials, and equipment from the other Time and Materials costs.
- k. **Statements:** Payments will not be made for work performed on a Time and Materials basis until the Contractor has furnished VRE duplicate itemized statements of the cost of such work detailed as

follows:

- i. Payroll indicating name, classification, date, daily hours, total hours, rate, and extension of each laborer, foreperson. Contractor's superintendent and/or Project Manager shall not be included.
 - ii. Designation, dates, daily hours, total hours, rental rate, and extension for each unit of equipment.
 - iii. Quantities of materials, prices and extensions.
 - iv. Transportation of materials.
 - v. Statements shall be accompanied and supported by invoices for all materials used and transportation charges. However, if materials used on the T&M work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices, the Contractor shall furnish an affidavit certifying that such materials were taken from their stock; that the quantity claimed was actually used; and that the price, transportation, and handling claimed represented their actual cost.
8. Provide documentation for overall project schedule impacts in the form of Gantt Chart with clearly identified critical path items.
 9. Time and Materials work will be included in a subsequent Change Order.

1.8 CONTRACT TIME EXTENSIONS

A. Time Extensions Due to Weather Events

1. VRE may give consideration for extension of time when a delay occurs due to unforeseen causes beyond the control of or without the fault or negligence of the Contractor. However, consideration will not be given to extensions of time attributable to normal adverse weather conditions or conditions resulting from normal adverse weather. For the purposes of this Section, normal adverse weather is defined as that which is not considered extraordinary or catastrophic and is not reasonably conducive to the Contractor progressively prosecuting critical path work under the Contract. Weather events considered extraordinary or catastrophic include, but are not limited to, tornados, hurricanes, earthquakes, and floods that exceed a 25-year storm event as defined by National Oceanic and Atmospheric Administration (NOAA) for the NOAA data gathering location that is nearest the project site. The Contractor shall make the request within the written PCO in accordance with the applicable portions of this Section and 01 32 00 "Construction Progress Documentation."

B. Time Extensions Due to Additional Work

1. If the Contractor believes a particular scope of work associated with a PCO warrants a Contract time extension, the Contractor shall make the request within the written PCO in accordance with the applicable portions of this Section. The Contractor shall provide written supporting data for any request for extension of time due to additional Work.
2. The written supporting data shall include the particular construction operations affected, their criticality to project milestones or overall Contract completion, and the significant dates that encompass the period of the requested time extension. The Contractor shall furnish any additional information requested by the CM or VRE as necessary for VRE to make an adequate evaluation of the request.

1.9 CHANGE ORDERS FOR COMPENSABLE DELAY

- A. The Contractor may be entitled to compensation for a compensable delay. Compensable delays are critical delays that are not the Contractor's fault or responsibility and are VRE's fault or responsibility. The Contractor shall prepare and submit documentation and request for any such Change Order for review by the CM and VRE. Compensation may include extension of Contract term and not necessarily payment. Compensable delays may include, but are not limited to:
1. Delays due to alteration of quantities or character of work.
 2. Delays due to differing site conditions.
 3. Delays due to a VRE-ordered suspension not prompted by Contractor actions.
 4. Delays due to the acts or omissions of VRE or its failure to act in a timely manner.
- B. The following delays are not compensable:
1. Acts or omissions of the Contractor, its agents, employees, subcontractors or suppliers or causes within their control or conditions that the Contractor could reasonably have foreseen or avoided
 2. Floods, tidal waves, tornadoes, hurricanes, lightning strikes, earthquakes, fires, epidemics, or similar natural phenomena.
 3. Normal adverse weather.
 4. Extraordinary, unforeseen, and unavoidable delays in material deliveries.
 5. Acts of government entities other than VRE.
 6. Unforeseen and unavoidable industry-wide labor strikes affecting the Contractor or its subcontractors' or suppliers' workforce that are beyond the Contractor's control
 7. Actions of third parties that are not the responsibility of the Contractor or within it's or VRE's control.
 8. Civil disturbances or sovereign acts of the State, including but are not limited to states of emergency or epidemic or quarantine restrictions.
 9. Time period following Notice of Award to the Contractor and prior to Notice to Proceed to the Contractor.
- C. If Contractor requests compensable delays or an extension to the Time for Completion due to changes in the Work it must provide to the CM adequate documentation substantiating its entitlement for the time extension. The documentation must demonstrate an anticipated actual increase in the time required to complete the Work beyond that allowed by the Contract as adjusted by prior changes to the Work, not just an increase or decrease in the time needed to complete a portion of the total Work.
- D. No extension to the Time for Completion or compensable delay shall be granted unless the additional or change to the Work increases the length of the critical path beyond the Time for Completion as demonstrated on the approved CPM schedule or bar chart schedule. Any Float belongs to VRE. A written statement in addition to an Impact Analysis Schedule shall be prepared explaining how no other sequence of work activities could have been performed to decrease the impact or eliminate the impact altogether. If requested by the CM the Contractor must provide alternate documentation detailing the claim to VRE's satisfaction.

- E. To request payment for a compensable delay, the Contractor shall within 14 consecutive calendars days after the end date of a delay event, unless directed otherwise in writing by VRE, submit a written PCO to the CM, for review and approval. With the request, the Contractor shall submit an Impact Analysis Schedule and all supporting data to objectively substantiate its request. VRE will evaluate the Contractor's Impact Analysis Schedule and all supporting data to determine entitlement and the appropriate amount of compensation, according to the following Site direct overhead expenses:

1. Field Office Overhead (FOOH)

- a. FOOH is the extended project field office overhead and site costs and expenses that are not attributable to specific Contract pay items, but are incurred in support of the project as a result of a delay, which include:
 - i. Extended site supervision costs such as salaries for project field superintendent and administrative staff.
 - ii. Extended site office costs such as utilities (heat, electricity, water, heat, etc.), trailers, field office, office equipment, and sanitary and toilet facilities.
 - iii. Extended site costs that are not used for specific Contract pay items.
- b. All other direct and indirect overhead expenses are considered covered by and included in Section 1.07 above. In no case shall subcontractor extended overhead be submitted or considered. VRE does not have a direct contractual relationship with any subcontractor or supplier and therefore will not direct, discuss or negotiate with subcontractors employed by the Contractor.
- c. The Contractor is entitled to FOOH only for compensable delays for which VRE has granted a Contract time extension. The Contractor is not entitled to additional compensation for FOOH for delays that are caused by extra work performed on a Force Account (Time and Materials) basis or for increased quantities.
- d. The Contractor's agreed amount of compensation for FOOH shall be based on the project daily FOOH rate derived from the Contractor's Itemized Project FOOH Costs set out on VRE's form or other format acceptable to VRE. The Contractor shall submit the form to VRE no later than 30 days after the Notice to Proceed date or on a date approved by VRE. On the form, the Contractor shall list each project FOOH item, the total estimated costs or expenses for each FOOH item for the original Contract time, the total project FOOH, and the project daily FOOH rate based on the total project FOOH divided by the original Contract duration. The compensation for FOOH will be calculated as follows:

$$\begin{aligned} & \text{(Daily FOOH Rate)} \times \text{(No. of Days of Compensable Delay)} = \\ & \text{(Amount of FOOH)} \end{aligned}$$

2. Home Office Overhead (HOOH)

- a. HOOH is the Contractor's allowable home office overhead costs and expenses that cannot be attributed and are not billed to a particular project but are incurred in support of all of the Contractor's projects, including but not limited to rent, office equipment and furnishings, insurance, office supplies, depreciation, taxes, and utilities, as well as executive salaries, administrative, staff salaries, project support staff salaries, and accounting and payroll services.
- b. The Contractor is entitled to payment of HOOH only for compensable delays for which VRE has granted a Contract time extension and only when the Contractor could not reasonably recoup its

HOOH while its workforce was idled by the delay because the Contractor was required to remain on standby, ready to resume work, and unable to perform other work at the project or elsewhere during the delay.

- c. The Contractor is not entitled to compensation for HOOH for delays that are caused by extra work performed on a Force Account basis or by increased quantities.
- d. The agreed amount of compensation for extended or unabsorbed HOOH for a compensable delay will be determined as follows:

$$(A \times C) / B = D \text{ and } D \times E = F$$

Where:

A = Original total Contract amount

B = Original Contract duration (number of calendar days between and inclusive of the Contract Notice to Proceed (NTP) date and the original Contract Completion Date)

C = 6% (Agreed allowable HOOH percentage)

D = Daily allowable HOOH rate

E = Number of days of compensable delay

F = Agreed amount of compensation for HOOH

- e. In no case shall subcontractor extended overhead be submitted or considered. VRE does not have a direct contractual relationship with any subcontractor or supplier and therefore will not direct, discuss or negotiate with subcontractors employed by the Contractor.

3. When to Audit to Determine FOOH and HOOH

- a. The Contractor may propose a higher rate determined according to Federal Acquisition Regulations 48 CFR § 31 or other accounting standard if the Contractor determines that the agreed allowable HOOH percentage is insufficient.
- b. The Itemized Project FOOH Costs (IPFC) and FOOH shall be subject to field verification and VRE audit, at any time, as determined by VRE, if VRE determines that the rate the Contractor submits is not an accurate representation of the Contractor's actual FOOH at the time of occurrence of the delay. If VRE determines the daily FOOH rate is not an accurate representation of the Contractor's actual FOOH, the Contractor shall submit its actual project FOOH records at the time of occurrence of the delay, as requested by VRE. VRE may perform an audit of the Contractor's records as necessary to verify the Contractor's actual project FOOH. Adjustments to the daily FOOH rate may be made upon verification or VRE audit of the Contractor's actual project FOOH. The project daily FOOH rate will then be calculated utilizing the rate determined by the audit. VRE may also elect to perform an audit of the Contractor's actual project FOOH at the completion of the Contract, as determined by VRE, in which case the project FOOH paid previously by change order may be adjusted based on the rate determined by the audit.

- c. The Contractor's actual extended FOOH are defined to be those costs and expenses incurred from the original Contract time limit to the actual final acceptance of the project as documented by timesheets, payroll records, accounting records, contracts, invoices, bills, receipts, tickets, cancelled checks, and similar business records showing the costs and expenses actually incurred for the project field supervision and administrative staff, project field office, and overhead items submitted in accordance with this provision; and the records must be accurate and auditable.
- d. If the total sum of the extended project FOOH and unabsorbed or extended HOOH for all approved change orders exceeds 20 percent of the original Contract amount, VRE may at its option calculate the amount of FOOH and HOOH based on a VRE audit of the Contractor's actual project FOOH and HOOH records. In such event, VRE will perform the audit according to Section 103.08 at VRE's expense. The VRE audit may begin on 10-days notice to the Contractor, its subcontractors, and suppliers. The Contractor, subcontractors, and suppliers shall make a good faith effort to cooperate with the auditors.

1.10 DIFFERING SITE CONDITIONS

- A. VRE recognizes two types of Differing Site Conditions as defined below. Contractor is responsible for identifying the presumed type of differing site conditions when submitting a request for change. The type of differing site conditions shall be confirmed by the CM

1. Type I

- a. During the progress of the Work, if subsurface or latent physical conditions differing materially from those indicated in the Contract are encountered at the site, the Contractor shall promptly notify VRE in writing of the specific differing conditions before the site is disturbed further and before the affected work is performed.

2. Type II

- a. During the progress of the Work, if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the Contract, are encountered at the site the Contractor shall promptly notify VRE in writing of the specific differing conditions before the site is disturbed further and before the affected work is performed.

- B. Upon receipt of such written notification, VRE will acknowledge receipt and investigate the conditions. If it is determined by VRE that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the Contract, an equitable adjustment, excluding anticipated profits, will be made and the Contract may be modified in writing accordingly. VRE will notify the Contractor of the determination whether or not an equitable adjustment of the Contract is warranted.
- C. No equitable adjustment that results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice.

1.11 PAYMENT FOR CONTRACT AMENDMENT WORK

- A. Revise Schedule of Values and Application for Payment forms to record each executed Contract Amendment

as a separate category. Further define line items within each Contract Amendment category exactly as defined in the executed Contract Amendment and adjust the Contract Sum as shown on the Contract Amendment. Submit the revised Schedule of Values and related forms with the next Application for Payment following execution of the Contract Amendment.

- B. Revise progress schedules to reflect any change in Contract time, revise sub-schedules to adjust time for other items of work affected by the change. Submit the revised schedules on the next previously agreed upon submittal date following execution of the Contract Amendment.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01 29 00**PAYMENT PROCEDURES****PART 1 - GENERAL****1.1 SUMMARY**

- A. The Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment. Sub-sections include:
 - 1. Submittal Procedures
 - 2. Preparation of Application for Payment
 - 3. Supporting Documentation
 - 4. Payment for Mobilization
 - 5. Payment for Stored Materials
 - 6. Certified Payroll Records
 - 7. Application for Payment at Substantial Completion
 - 8. Final Application for Payment

1.2 RELATED SECTIONS

- A. General Provisions
- B. Special Provisions
- C. Section 01 22 00- Unit Prices
- D. Section 01 32 00- Construction Progress Documentation
- E. Section 01 77 00 – Closeout Procedures

1.3 DEFINITIONS

- A. **Schedule of Values:** A statement furnished by the Contractor allocating portions of the Contract Price to various portions of the Work and once accepted, to be used as the basis for reviewing the Contractor's Applications for Payment. In the event of a Unit Price Contract, the Schedule of Values shall contain pay items exactly as described in section 1.04 below.

1.4 SUBMITTALS**A. Coordination**

1. Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.

B. Schedule of Values

1. Submit draft Schedule of Values to the Construction Manager for review and approval within 7 consecutive calendar days following Notice to Proceed. The Schedule of Values shall be organized to the satisfaction of VRE so that line items contain specific areas of work based on physical location and what can be visually verified by the Contractor and the CM. Acceptance of the Schedule of Values shall not forfeit VRE's right to require substantiating data to verify the value of work delivered prior to processing payments.
2. Submit final approved Schedule of Values prior to submittal of first progress payment.
3. Provide a breakdown of the Contract Price in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide line items for principal subcontract amounts, where applicable. The value assigned to the total of the following line items, if applicable, shall be five percent (5%) of the Contract Price:
 - a. Testing and Commissioning Activities
 - b. Operation and Maintenance Manuals
 - c. Punch List Activities
 - d. Project Record Documents
 - e. Bonds and Warranties
 - f. Demonstration and Training
4. Round amounts to the nearest whole dollar. Total shall equal the Contract Price.
5. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion and for total installed value of that part of the Work.
6. Each item in the Schedule of Values and Application for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
7. VRE may elect to provide the Contractor with a Schedule of Values format based on the proposed construction and / or Pay Items, detailing the breakdown of payment for Work desired by VRE. If provided, the Contractor shall utilize the VRE format and fill in the cost for each line item. The draft with the costs included shall be returned to the CM for approval prior to the first monthly Application for Payment.

8. In the event of a Unit Price Contract, the Schedule of Values shall contain, at a minimum, all pay items exactly as shown on the Contractor's accepted bid sheet, part of the Agreement with VRE. Schedule of values shall incorporate the items 1-7 listed above.

C. Schedule Updating

1. Update and resubmit the Schedule of Values with the next Application for Payment when Contract Modifications result in a change in the Contract Price.

1.5 PREPARATION OF APPLICATION FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as paid by VRE.
- B. Format shall be AIA G702 (Application and Certificate for Payment) & AIA G703 (Continuation Sheet). The Schedule of Values shall be identical to the approved draft Schedule of Values.
- C. The payment period shall be based on the calendar month, starts on the day following the end of the preceding period and shall not exceed one calendar month, unless otherwise approved by the CM. Application for Payment shall coincide with CPM schedule monthly update or as otherwise indicated in the Agreement with VRE and the Contractor. Maintain payment schedule throughout duration of project.
- D. Five percent (5%) of monthly progress payments will be held as retainage by VRE.
- E. Application for Payment shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
- F. List each authorized Contract Amendment as an extension on the continuation sheet, listing the Contract Amendment number, a brief description, and the dollar amount as for an original item of Work. Break down Contract Amendment totals into separate line items as they are shown in the Contract Amendment to track separate work activities. Only include amounts of Contract Amendments issued before the last day of the construction period covered by the application.
- G. Each month, the Contractor shall prepare a draft Application for Payment and submit electronically to the CM for preliminary approval. The Contractor is not required to have draft version signed or notarized, but it must contain all supporting documentation. The draft Application for Payment will be returned and not reviewed by the CM if it is not accompanied by all required supporting documentation, which may result in delay of payment.
- H. The draft Application for Payment shall include a transmittal or cover letter, listing all documents attached to the Application submitted for preliminary approval by the CM.
- I. Submit the draft Application for Payment to the CM no later than the 10th calendar day of the following month.
- J. Preliminary approval by the CM does not guarantee approval for payment by VRE.
- K. Once preliminary approval is provided by the CM, the Contractor shall prepare the signed and notarized Application for Payment, including attachments such as release of liens or affidavit of payments, as required by VRE. The Application must be executed by notarized signature of the Contractor's authorized officer.

Application for Payment with original signatures and attachments shall be submitted directly to the VRE Project Manager (PM) for final review, approval, and payment. One (1) electronic copy (.pdf format) of the Application for Payment with signatures and attachments shall be submitted to the CM for record.

1.6 SUPPORTING DOCUMENTATION

- A. The following supporting documentation must be included with each Application for Payment or submitted separately prior to the Application for Payment:
1. Monthly CPM Schedule Update
 2. Certified Payroll Records
 3. Contractor Daily Construction Reports
 4. Contractor Monthly Construction Reports
 5. Monthly Safety Report (can be combined with item 4 above)
 6. Monthly Construction Photographs
 7. Delivery Tickets for Permanent Materials
 8. Inventory Statement and evidence of payment for on-site Stored Materials, if such reimbursement is being requested
 9. Subcontractor Payment Form
 10. Update of Construction Progress Documentation listed in other sections of Division 1 (i.e. 01 32 00, 01 35 23)
 11. Other Contract deliverables to be submitted on a monthly basis, as requested by the CM or VRE.
 12. Quality Manager's Quality Compliance Certification.

1.7 PAYMENT FOR MOBILIZATION

- A. Mobilization consists of moving personnel and equipment to the project site; and establishing the Contractor's offices, buildings, and other facilities necessary to allow work to begin on a substantial phase of the Contract.
- B. Mobilization will be paid for at the contract lump sum price for this pay item. This price shall include demobilization.
- C. Payment for mobilization will be made in two separate installments. The first installment of 50 percent of the contract lump sum price pay item will be made on the first monthly Application for Payment following partial mobilization and initiation of construction work. The second installment will be made on the next monthly Application for Payment following completion of substantial mobilization, including erection of the Contractor's offices and buildings. Completion of erection of processing plants, if any, will not be required as a condition for the release of the second installment.

1. The value assigned to Mobilization shall be as follows:

\$0 - \$200,000	10% of Total Contract Amount
\$200,000 - \$1,000,000	\$20,000 plus 7.5% (of total contract amount minus \$200,000)
Greater than \$1,000,000	\$80,000 plus 5% (of Total Contract Amount minus \$1,000,000)
- D. No additional payment will be made for demobilization and remobilization because of shutdowns, suspensions of work, or other mobilization activities.
- E. The Contractor may not submit their first monthly Application for Payment until the end of the first calendar month after receiving Notice to Proceed from VRE and mobilized to the project.

1.8 PAYMENT FOR INSURANCE PREMIUMS AND BONDS

- A. Insurance premiums and bonds will be paid not sooner than one month after the Contract is fully executed by both parties.

1.9 PAYMENT FOR STORED MATERIALS

- A. When requested in writing by the Contractor, partial payment allowances may be made for materials secured for use on the project and required to complete the project. Such material payments will be made for only those actual quantities of materials identified in the Contract, Specifications, executed Contract Amendments, or otherwise authorized and documented by the CM based on delivery tickets, bills of lading, or paid invoices. Materials shall be delivered to acceptable sites where the work is being performed or at other sites in the vicinity that are acceptable to VRE.
- B. Such delivered costs of stored or stockpiled materials may be included in the next payment application after the following conditions are met:
 1. CM accepts the manner in which the material has been stored at or on an approved site.
 2. Contractor provides the CM with acceptable evidence of quantity and quality of the materials.
 3. Contractor provides the CM with acceptable evidence that the material and transportation costs have been paid.
 4. Contractor provides VRE legal title, free of lines or encumbrances of any kind, to the material so store and stockpiled.
 5. Contractor provides VRE evidence that the material so stored or stockpiled is insured or bonded against loss by damage to or disappearance of such materials at any time before use in Work.
 6. Contractor provides VRE with manufacturer's installation and maintenance information.
- C. Such payments will only be made for materials scheduled for incorporation into the work within ninety (90) calendar days.
- D. It is understood and agreed that the transfer of title and VRE's payment for such stored or stockpiled materials shall in no way relieve the Contractor of responsibilities for furnishing and placing such materials according to the requirements of the Contract Documents.

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- E. In no case will the amount of payments of materials on hand exceed the Contract price for the materials or the Contract price for the Contract item in which the material is intended to be used.
- F. Contractor bears all costs associated with the payment for stored or stockpiled materials according to this Section.
- G. Additionally, all payments shall be in accordance with the following terms and conditions:
1. Structural Steel or Reinforcing Steel
 - a. An allowance of 100 percent of the cost to the Contractor for structural steel or reinforcing steel materials secured for fabrication not to exceed 60 percent of the Contract price may be made when such material is delivered to the fabricator and has been adequately identified for exclusive use on the project. The provisions of this section for steel reinforcement will only apply where the quantity of steel reinforcement is identified as a separate and distinct bid item for payment.
 - b. An allowance of 100 percent of the cost to the Contractor for structural steel and reinforcing steel, not to exceed 90 percent of the Contract price, may be made when fabrication is complete. Prior to the granting of such allowances, the materials and fabricated units shall have been tested or certified and found acceptable to the CM and shall have been stored in accordance with the requirements specified herein. Allowances will be based on invoices, bills, or the estimated value as approved by the CM and will be subject to the retainage requirements noted in Subsection 1.05.D above. For the purposes of this section, fabrication is defined as any manufacturing process such as bending, forming, welding, cutting, or coating with paint or anti-corrosive materials which alters, converts, or changes raw material for its use in the permanent finished work.
 2. Other Materials
 - a. For aggregate, pipe, guardrail, signs, sign assemblies, and other nonperishable material, an allowance of 100 percent of the cost to the Contractor for materials, not to exceed 90 percent of the Contract price, may be made when such material is delivered to the project and stockpiled or stored in accordance with the requirements specified herein. Prior to the granting of such allowances, the material shall have been tested and found acceptable to the CM. Allowances will be based on invoices, bills, or the estimated value of the material as approved by the CM and will be subject to the retainage requirements noted in Subsection 1.05.D above.
 3. Excluded Items
 - a. No allowance will be made for fuels, form lumber, falsework, temporary structures, or other work that will not become an integral part of the finished construction. Additionally, no allowance will be made for perishable material such as cement, seed, plants, or fertilizer.
 4. Storage
 - a. Contractor shall deliver, store and handle materials using means and methods that will prevent damage, deterioration, theft and other losses. Material for which payment allowance is requested shall be stored in an approved manner in areas where damage is not likely to occur. VRE accepts no responsibility for materials stored on or off site.

- b. If any of the stored materials are lost or become damaged, the Contractor shall repair or replace them at no additional cost to VRE. This damage can be, but not limited to, weather, oxidization, mold, mildew, warping and rust. Repair or replacement of such material will not be considered the basis for any extension of Contract time. If payment allowance has been made prior to such damage or loss, the amount so allowed or a proportionate part thereof will be deducted from the next monthly Application for Payment and withheld until satisfactory repair or replacement has been made.
 - c. When it is determined to be impractical to store materials within the limits of the project, the CM may approve storage on private property or, for structural units and reinforcing steel, on the manufacturer's or fabricator's yard. Contractor shall provide photographs of materials stored off site. Requests for payment allowance for such stored material shall be accompanied by a release from the owner or tenant of such property or yard agreeing to permit the removal of the materials from the property without cost to VRE. VRE must be allowed access to the materials for inspection during normal business hours.
5. Materials Inventory
- a. If the Contractor requests a payment allowance for properly stored material, they shall submit an itemized inventory statement to the CM along with the monthly Application for Payment. The statement shall be accompanied by supplier's or manufacturer's invoices or other documents that will verify the material's cost. The statement shall also include photos of the material in its stored location, marked with the Contractor's name and the project name.
 - b. With each subsequent monthly Application for Payment, the Contractor shall submit to the CM a monthly update of the itemized inventory statement. The updated inventory statement shall show additional materials received and stored with invoices or other documents and shall list materials removed from storage since the last certified inventory statement, with appropriate cost data reflecting the change in the inventory.

1.10 CERTIFIED PAYROLL RECORDS

- A. If this project is identified to be funded in whole or in part by federal grants, the Contractor is required to comply with the Davis Bacon requirements as described in the Contract Documents.
- B. These certified payroll records shall be submitted weekly to the CM for record. It is the responsibility of the Contractor and Subcontractors to submit electronic (.pdf format) certified payroll records directly to the CM no later than one week following the end of each pay period.
- C. Incorrect or incomplete certified payroll records may delay processing of the monthly Application for Payment.

1.11 APPLICATION FOR PAYMENT AT SUBSTANTIAL COMPLETION

- A. After issuance of the Certificate of Substantial Completion, Contractor may submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
 - 1. Include documentation supporting claim that the Work is substantially complete and statement showing an accounting of changes to the Contract Price.

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2. This application shall reflect any Certificates of Partial Substantial Completion that may have been issued previously by VRE.
- B. A list of required Contract substantial completion submittals can be found in Section 01 77 00, "Closeout Procedures."

1.12 FINAL APPLICATION FOR PAYMENT

- A. The Final Application for Payment shall be submitted in the same format as monthly Applications for Payment, as described in Subsection 1.05 above.
- B. Prior to submitting the Final Application for Payment, the Contractor must have provided all required Contract closeout submittals to the CM along with the signed VRE Contract Closeout Checklist. Checklist will be provided to the Contractor by the CM upon request.
- C. A list of required Contract closeout submittals can be found in Section 01 77 00, "Closeout Procedures."
- D. Other items which must be complete prior to final payment and release of retainage shall include, but not be limited to the following:
1. Project Punch List complete and accepted by the CM
 2. Demobilization and removal of temporary facilities
 3. Final cleaning
 4. Commissioning of new systems, as required
 5. Training and demonstration of new systems, as required
 6. Insurance certificates for products and completed operations where required and proof that taxes, fees and similar obligations were paid.
 7. Resolution and execution of final Contract Amendment, if necessary
- E. Contractor must complete all punch list items to the satisfaction of the CM and VRE before Final Completion. Retainage will be withheld until punch list is completed and all submittals have been received and approved. Failure to complete the punch list work within 60 calendar days of issuance, may result in VRE ordering the work to be completed by others at the cost to Contractor and deducting the value of such from retainage withheld.
- F. Release of retainage will be allowed once all Contract closeout submittals are received and accepted by VRE.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01 31 00**PROJECT MANAGEMENT AND COORDINATION****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Submittals
 - 2. Project Management Information System (PMIS)
 - 3. Authority of VRE Field Representatives
 - 4. General Coordination Procedures
 - 5. Requests for Information (RFIs)

1.2 RELATED SECTIONS

- A. General Conditions for Construction
- B. Section 01 26 00 – Change Order Procedures
- C. Section 01 32 00 – Construction Progress Documentation
- D. Section 01 33 00 – Submittal Procedures
- E. Section 01 35 23 – Safety and Security Requirements
- F. Section 01 45 00 – Quality Assurance and Quality Control
- G. Section 01 73 00 – Execution of Work
- H. Section 01 77 00 – Closeout Procedures

1.3 SUBMITTALS

- A. Coordination Drawings
 - 1. Before start of the Work, prepare Coordination Drawings, as needed and directed by the CM, for areas with limited space availability that necessitates maximum utilization of space for efficient installation of different components and areas requiring coordination for installation of products and materials fabricated by separate entities.

-
- a. Indicate relationship of components shown on separate Shop Drawings
 - b. Indicate all dimensions and make specific note of dimensions that appear to be in conflict with submitted equipment, minimum clearance requirements, amounts of equipment and material to be installed, or other requirements. Provide alternate sketches for resolution of such conflicts to CM for review.
 - c. Indicate required installation sequences.
 - d. Comply with requirements contained in Division 01 Section 01 33 00 "Submittals".
 - e. Prepare coordination drawings of involved trades in a scale of not less than $\frac{1}{4}$ inch = 1 foot or larger for integration of different construction elements. Show sequence and relationships of separate components to avoid conflicts in use of space. Any Work installed prior to review of coordination drawings will be at the Contractor's risk and subsequent relocation required to avoid interference shall be made at no additional cost to VRE.

B. Subcontract List

1. The Contractor shall prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - a. Name, address, and telephone number of entities performing subcontract or supplying products.
 - b. Description of Work to be performed
2. All subcontractors are subject to approval by the CM and VRE prior to such subcontractors performing any Work on the project. If subcontractors need to be added to the list as the project progresses, a revised list shall be submitted to the CM for approval, noting changes or additions.
3. Rejection of a subcontractor by the CM or VRE does not constitute grounds for additional monetary compensation to the Contractor.

C. Key Personnel Names

1. No later than 14 calendar days prior to the scheduled date of the Preconstruction Conference, the Contractor shall submit a list of key personnel assignments. Key personnel shall include but not necessarily be limited to Project Manager, Project Superintendent, Safety Manager (if applicable) and Quality Control Manager (if applicable). Identify individuals and their duties and responsibilities. For each person, list office address and telephone number, if applicable, mobile telephone number, and e-mail address. Provide names, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
2. Key personnel, whether initially proposed or the replacement thereof are subject to approval by VRE. It is expected that all key personnel are to remain on the project through completion.

1.4 PROJECT MANAGEMENT INFORMATION SYSTEM

- A. A Project Management Information System (PMIS) or Project Controls System is a generic term for a proprietary file management collaborative system intended for internet-connected device use. The intent of this application is to enable dispersed users access to shared documents for storage, organization, retrieval, editing, tracking, reporting, or other functions, with such access usually controlled by invitation and security protocols. More than one such application type or specific programs may be used, depending on VRE preferences.
- B. The Contractor will be required to utilize a Project Management Platform (e.g., Procore, e-Builder, or equivalent) for all project correspondence and coordination, including submittals, invoices, and other functions as directed by VRE. Use of the Project Management System will not replace or change any contractual responsibilities of the Contractor. The system has been implemented to enhance and expedite team communication.
- C. Contractor Responsibilities
 - 1. The Contractor shall provide, at the Contractor's Temporary Site Office, and home office if required, the computer hardware and software to provide access to a Project Management System (e.g., Procore, e-Builder or equivalent).
- D. VRE Responsibilities
 - 1. VRE has established the project document management database for this project. VRE will provide management, license(s), training, etc. of the database and interface with the system provider.
 - 2. Any required technical support regarding E-builder shall be directed to the VRE Project Manager.
- E. Project Correspondence
 - 1. All Contractor Project correspondence shall be either created electronically or digitized so that it can be issued, administered, stored and tracked by the E-builder Project Management System.
 - 2. The Contractor shall use the VRE provided web-based E-builder Project Management System to transmit, at a minimum, each of the following to the VRE Project Manager:
 - a. Requests for Information (RFI's) and attachments
 - b. Submittals
 - c. Request for Changes
 - d. Change Orders
 - e. Invoice Approval (Payment Applications)
 - 3. Responses of the VRE Project Manager's review and action, of the above documents, shall be transmitted to the Contractor through E-builder.

1.5 AUTHORITY OF VRE FIELD REPRESENTATIVES**A. Construction Manager**

1. During prosecution of the Work, the CM will answer all questions that may arise as to the quantity, quality, and acceptability of materials furnished and work performed; rate of progress of the Work; interpretation of the plans and Specifications; the Contractor's acceptable fulfillment of the Contract; disputes and mutual rights between contractors; and the Contractor's compensation.
2. The CM has the authority to suspend the Work wholly or in part if the Contractor has created conditions that are unsafe or fails to correct conditions that are unsafe for workers or the general public or fails to carry out the provisions of the Contract. The CM may also suspend the Work for such periods as they may deem necessary because of catastrophic or extraordinary weather as defined in Section 01 26 00, "Change Order Procedures," conditions considered unsuitable for prosecution of the Work, or any other condition or reason deemed to be in the public interest.
3. The CM may issue written clarifications or field directives that enhance or clarify the intent of the plans and/or specifications. The CM may offer guidance or issue written orders for such work as may be necessary to complete the Contract satisfactorily.
4. If guidance or directives, noted above, by the CM, result in a change to the Contract, VRE will provide written concurrence with the CM for Contract Changes. VRE concurrence must be provided prior to the Contractor performing any Work not in accordance with the Contract Documents.

B. Inspector

1. Inspectors representing VRE and/or the CM are authorized to inspect all work performed and materials furnished. Inspection may extend to all or any part of the Work and to the preparation, fabrication, and manufacture of the materials to be used. The Inspectors are not authorized to alter or waive the provisions of these Specifications or make changes in the plans.
2. The Inspectors are not authorized to make final acceptance of the project, approve any operation or item, or act as foreman for the Contractor. However, the Inspectors will have the authority to reject defective work and material and suspend work that is being improperly performed, subject to the concurrence of the CM. Such inspections shall not relieve the Contractor of any obligation to furnish acceptable materials or provide completed construction that is in accordance with the Contracts requirements.
3. The Inspector will exercise only such additional authority as the CM may delegate.

1.6 GENERAL COORDINATION PROCEDURES

- A. Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
- B. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.

- C. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
- D. Make adequate provisions to accommodate items scheduled for later installation.
- E. Administrative Procedures
 - 1. Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - a. Preparation of Contractor's construction schedule
 - b. Preparation of the schedule of values
 - c. Installation and removal of temporary facilities and controls
 - d. Delivery and processing of submittals
 - e. Progress meetings
 - f. Pre-activity meetings
 - g. Project closeout activities
 - h. Startup, adjustment and final acceptance of systems
- F. Conservation
 - 1. Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

1.7 REQUESTS FOR INFORMATION

- A. Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI electronically to the CM, either utilizing a PMIS if directed by VRE, or via email if a PMIS is not being utilized by VRE on the project.
- B. The CM will not accept RFIs submitted by other entities controlled by Contractor (subcontractors, suppliers, etc.). Subcontractor's RFI's shall first be reviewed by the Contractor prior to submission to the CM. All RFIs must be routed through the Contractor to the CM for proper documentation.
- C. The Contractor shall coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of Subcontractors.
- D. The CM will not receive or review RFIs submitted via fax or verbal requests.
- E. Preparation of RFI

1. Submit one (1) electronic (.pdf) version of the RFI to the CM for review and response.
2. Include a detailed, legible description of the item needing information or interpretation and the following:
 - a. Contract/Project name.
 - b. Contract/Project number.
 - c. Date.
 - d. Name of Contractor.
 - e. RFI number, numbered sequentially.
 - f. RFI subject.
 - g. Specification Section number and title and related paragraphs, as appropriate.
 - h. Field dimensions and conditions, as appropriate.
 - i. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 - j. Contractor's signature
 - k. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - i. Supplementary drawings/sketches prepared by the Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

F. Construction Manager Review and Response

1. The CM will review each RFI and, with the VRE Project Manager, determine action required, and respond. Allow seven (7) calendar days for the CM's response to each RFI. RFIs received by the CM after 5:00 p.m. will be considered as received the following business day.
2. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals
 - b. Requests for approval of substitutions
 - c. Requests for approval of Contractor's means and methods
 - d. Requests for coordination information already indicated in the Contract Documents
 - e. Requests for adjustments in the Contract Time or the Contract Sum

-
- f. Requests for interpretation of the CM's actions on submittals
 - g. Incomplete RFIs or inaccurately prepared RFIs
- 3. The CM's response may include a request for additional information, in which case the CM's time for response will date from time of receipt of additional information.
 - 4. The CM's response on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for the Contractor to submit a PCO according to Section 01 26 00 "Change Order Procedures."
 - 5. Upon receipt of the CM's response, the Contractor shall review the response and notify the CM within seven (7) calendar days if the Contractor disagrees with the response.
 - 6. VRE's response to an RFI, does not constitute a change in the Contract.
 - 7. If the Contractor thinks the RFI response warrants a change notify the CM, in writing, within 10 consecutive calendar days of receipt of the RFI response.
 - 8. Upon receipt of the CM's action, update the RFI log and immediately distribute the RFI response to affected parties.

G. RFI Log

- 1. A Project RFI Log will be maintained by the CM and distributed for review at regular Project Progress Meetings. The Contractor shall maintain an identical RFI Log utilized in assigning numbers to new RFIs and managing RFIs in review or in preparation. The following information will be included in the RFI Log:
 - a. Project name.
 - b. Name of Contractor.
 - c. RFI number including RFIs that were returned without action or withdrawn.
 - d. RFI description.
 - e. Date the RFI was submitted.
 - f. Date CM's response was received.
 - g. Status of RFI (In Review, Closed, etc.).
 - h. Identification of related Field Work, Work Change Directive and Proposal Request, as appropriate.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01 31 33

PROJECT MEETINGS

PART 1 – GENERAL

1.1 RELATED SECTIONS

- A. Special Provisions

1.2 PROJECT MEETINGS

- A. General Information for All Meetings

1. The Construction Manager will schedule and conduct meetings and conferences at Project Field Office unless otherwise indicated.
2. A safety briefing must be conducted prior to beginning all meetings.
3. The CM shall inform participants and others involved, and individuals whose presence is required, of date and time of each meeting.
4. The CM shall prepare the meeting agenda and distribute the agenda to all invited attendees, in advance of the meeting as necessary.
5. The CM shall be responsible for conducting the meeting and will record significant discussions and agreements achieved. The CM shall distribute the meeting minutes to everyone concerned within three business days of the meeting.

- B. Preconstruction Conference

1. Within thirty (30) calendar days after award of a contract or after notification of award, issued by the Purchasing Department, and prior to the Notice to Proceed date, the Contractor shall attend a preconstruction conference scheduled by VRE to discuss the Contractor's planned operations for prosecuting and completing the Work in accordance with the Contract. The meeting will review the parties' responsibilities and personnel assignments.
2. Submittals to be provided to the CM no later than fourteen (14) calendar days prior to the preconstruction conference include, but are not limited to, the following:
 - a. Preliminary Construction Schedule (see Section 01 32 00), "Construction Progress Documentation," for detailed submittal requirements)
 - b. Contractor's Safety Plan (see Section 01 35 23), "Safety and Security Requirements," for detailed submittal requirements)
 - c. Contractor's Quality Management Plan (see Section 01 45 00, "Quality Assurance and Quality

Control,” for detailed submittal requirements)

- d. Work Plan (see Section 01 32 00, “Construction Progress Documentation,” for detailed submittal requirements)
3. The Contractor, the CM, and VRE shall be prepared to discuss key issues and project specific requirements necessary for preparation and submittal of the Baseline Schedule.
4. The CM will be responsible for setting the conference agenda, conducting discussions, and ensuring that minutes of the conference are taken and later distributed to all attendees. The conference agenda may include, but not be limited to:
 - a. Safety and security briefing
 - b. Designation of responsible personnel representing VRE, the CM, Contractor, and others, as appropriate
 - c. Review of critical work sequencing and draft project schedule prepared by the Contractor
 - d. Designation of key personnel
 - e. Discussion of Construction Schedule, starting, ending and Milestone dates, damages, and bonus & penalty provisions, if any
 - f. Discussion of Construction Schedule, starting and draft project schedule prepared by the Contractor.
 - g. Project coordination
 - h. Use of premises
 - i. VRE requirements regarding ongoing operations.
 - ii. Office and storage areas.
 - iii. Temporary facilities and controls.
 - iv. Temporary utilities.
 - v. Contractor’s Work area.
 - vi. Contractor’s assess and parking.
 - vii. Work days and Work hours.
 - viii. Permits.
 - i. Procedures for:
 - i. Submittals.
 - ii. Substitutions and “or equal” Products.
 - iii. Maintaining record documents.
 - iv. Applications for payments.
 - v. Field Orders, Work Change Directives, Change Orders and Contract Amendments.
 - vi. Partial Utilizations.

- vii. Emergencies.
 - viii. Housekeeping.
 - ix. Safety and Security.
 - x. Testing and prior notification.
 - xi. Identify point of contact.
5. Attendance: Listed below are invited attendees. Contractor's required attendees are noted.
- a. VRE
 - b. Construction Manager
 - c. Contractor Project Manager (required)
 - d. Contractor Superintendent (required)
 - e. Contractor's Safety Representative (required)
 - f. Major Subcontractors and Suppliers (required)
 - g. Jurisdictional representative, as required
 - h. Funding partner representatives
 - i. Other major stakeholders, including utilities and impacted adjacent property owners, along with other interested parties as selected by VRE or the CM

C. Project Progress Meetings

1. Project Progress Meetings will be scheduled regularly throughout the duration of the project, or as directed otherwise by VRE. At a minimum, progress meetings shall be held monthly. Progress meetings are in addition to specific meetings held for other purposes, such as coordination and special pre-activity meetings. Additionally, discussion will address administrative and technical issues of concern, determining resolutions, and development of deadlines for resolution within allowable time frames.
2. Attendance required:
 - a. VRE
 - b. Construction Manager;
 - c. Contractor Project Manager;
 - d. Contractor Superintendent;
 - e. Subcontractors as pertinent to agenda;
 - f. Suppliers and/or manufacturers' representatives to agenda
3. Agenda:
 - a. Safety briefing
 - b. Review and approval of minutes of previous meetings
 - c. Review safety and security

- d. Review work progress and planned work
 - e. Discuss field observations, potential conflicts and decisions
 - f. Identification of problems which impede planned progress
 - g. Review of submittals schedule and status of submittals
 - h. Review of off-site fabrication and delivery schedules
 - i. Two Week Look-Ahead Schedule
 - j. Coordination of projected progress
 - k. Status of proposed changes and any effect on progress schedule and coordination
 - l. Other business relating to work
4. Minutes will be prepared by the CM and distributed to attendees. Should any attendee disagree with the contents of the minutes as prepared, they shall identify the information they feel is inaccurate and forward it, with corrections, to the author of the minutes, within seven (7) calendar days of receipt of the minutes.
 5. The Project Progress Meetings will be held at the Project Field Office, unless otherwise directed by the CM or VRE.
 6. Contractor's Construction Schedule: Review progress since last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 7. Two-Week Look Ahead Schedule: Contractor shall submit at the progress meeting, or as requested by the CM, a two-week look-ahead schedule. This schedule shall include a three-week period, one week showing actual progress from the previous week and two weeks showing planned work for the two weeks after the meeting date. Include in the schedule all activities in sufficient detail as approved by the CM. A two-week look ahead schedule format will be discussed at the pre- construction schedule.
 8. Schedule Update: Revise Contractor's Construction Schedule after each progress meetings where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

D. Pre-Activity Meetings

1. When required by individual specifications sections, or requested by the CM, the Contractor shall hold a pre-activity meeting at the site or field office prior to commencing work of the section. Work may or may not require coordination with other construction. Arrange sufficiently in advance to allow attendance by indicated parties.
2. Attendance:
 - a. VRE
 - b. Construction Manager
 - c. Contractors and subcontractors directly affecting or affected by the work of the section

-
- d. Material suppliers and/or manufacturer's representatives as required by the individual section
3. Agenda: Review progress of other construction activities and preparations for the particular activity under considerations, including requirements for the following:
 - a. Safety briefing
 - b. Contract Documents
 - c. Possible conflicts
 - d. Safety briefing
 - e. Review conditions of installation
 - f. Review preparation and installation procedures
 - g. Review coordination with related work
 - h. Where Coordination Drawings are required (See Section 1.03 above)
 - i. Time Schedules
 4. Do not proceed with installation if the meeting cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the meeting at the earliest feasible date.
- E. Project Closeout Meeting:
1. Schedule and conduct a Project closeout conference, at a time convenient to VRE , but no later than 30 days prior to the scheduled date of Final Completion. Conduct the meeting to review requirements and responsibilities related to Project closeout.
 2. Attendance:
 - a. VRE
 - b. Construction Manager;
 - c. Contractor Project Manager;
 - d. Contractor Superintendent;
 - e. Contractors, subcontractors and suppliers directly affecting or affected by the work of the section:
 - f. Participants at the meeting shall be familiar with the Project and authorized to conclude matter relating to the Work
 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including but not limited to the following:
 - a. Closeout Checklist
 - b. Preparation of record documents
 - c. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance

- d. Submittal of written warranties
- e. Requirements for preparing sustainable design documentation
- f. Requirements for preparation operations and maintenance data
- g. Requirement for demonstration and training
- h. Preparation of Contractor's punch list
- i. Procedures for processing Application for Payment at Final Completion and final payment
- j. Submittal procedures
- k. Owner's partial occupancy requirements
- l. Responsibility for removing temporary facilities and controls

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 01 32 00

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including but not limited to, the following:
 - 1. Construction Schedule
 - 2. Workplan (Narrative)
 - 3. Contractor Daily Reports
 - 4. Contractor Month Reports
 - 5. All costs incurred by Contractor to correctly implement and update the schedule shall be borne by the Contractor and are part of this Contract.

1.2 RELATED SECTIONS

- A. Section 01 26 00 – Change Order Procedures
- B. Section 01 29 00 – Payment Procedures
- C. Section 01 33 00 – Submittal Procedures
- D. Section 01 35 23 – Safety and Security Requirements
- E. Section 01 77 00 – Closeout Procedures

1.3 DEFINITIONS

Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources. Each activity is assigned a unique description, activity number and activity code .

Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.

Predecessor Activity: An activity that precedes another activity in the network.

Successor Activity: An activity that follows another activity in the network.

Calendar Day: Any day shown on the calendar, including Saturday and Sunday, beginning at 12:01 a.m. and ending at midnight.

CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be

performed and the critical path of Project.

Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project/Contract duration and contains no float.

Critical Path Work: Any work on the critical path. A delay to any critical path work is expected to delay completion of the project.

Day: A Calendar Day, unless specifically stated otherwise.

Event: The starting or ending point of an activity.

Final Completion: For the purpose of the Construction Schedule only, Final Completion shall be the date in which all Work at the site is complete, including punch list activities, final inspections, final cleaning, and demobilization.

Float: The measure of leeway in starting and completing an activity.

Free Float: The amount of time an activity can be delayed without adversely affecting the early start of the successor activity.

Total Float: The measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

Milestone: An event or a date that marks the start or completion of a specified portion of the Work. If provided for in the Contract, milestones are used to specify when the Work or a specified portion thereof must be completed in accordance with the Contract Documents. The Contract may provide for one or more Completion milestones.

Preliminary Schedule: A CPM schedule covering all Contractor activities to be started and/or completed within the first 30 calendar days of the Project/Contract duration.

Project/Contract Duration: The total time, in calendar days identified in the Contract Documents, representing the duration necessary for completion of all physical and administrative requirements under this Contract and any authorized extension thereof.

Record As-Built CPM Contract Schedule: A Record Contract Schedule accurately reflecting actual progress of Work and is submitted as part of this Contract's Record Documents. All activities shall have actual dates that are true and accurate.

1.4 PRELIMINARY CONSTRUCTION SCHEDULE

- A. The Contractor shall submit a Preliminary Construction Schedule to the CM for information no later than seven (7) calendar days prior to the scheduled date of the Preconstruction Conference. Within 7 calendar days, the CM will respond with approval or direction to change and the Contractor shall resubmit within 7 calendar days, if required.
- B. The preliminary schedule shall be utilized by the CM and VRE to coordinate initial work until a Baseline CPM Construction Schedule is submitted and approved. The preliminary schedule shall include all activities planned for the first 30 calendar days following Notice to Proceed and the format shall be horizontal bar-chart style (Gantt) and demonstrate the anticipated critical path.

- C. One electronic file copy of the working schedule which can be opened in the construction scheduling software used to prepare the schedule. For example, a “.xer” file for Primavera P6 and “.mpp” file for Microsoft Project. VRE employs Microsoft Project and generally prefers delivery in this format. The Contractor shall be prepared to discuss his/her planned operations relative to the Contract requirements at the Pre-Construction Conference.
- D. The preliminary schedule shall include, but not be limited to, the following:
 - 1. Mobilization
 - 2. Permitting
 - 3. Major construction activities
 - 4. Milestone events as required by the Contract Documents
- E. The Preliminary Construction Schedule is not required if the Baseline Construction Schedule is submitted for approval no later than seven (7) calendar days prior to the scheduled date of the Preconstruction Conference. It shall include the Contractor’s work plan (narrative) for mobilization, procurement and completion within the Contract Duration. The work plan shall elaborate on the basis for durations, production rates, major equipment to be used and shall identify all major assumptions used to develop the preliminary schedule.

1.5 WORK PLAN (NARRATIVE)

- A. The Contractor shall prepare a work plan, as indicated in this document, to complete the Work within the Contract Duration and complete those portions of works related to each intermediate milestone date, if applicable, and other Contract requirements.
- B. The Work Plan shall, at a minimum, include: an explanation of the basis for the Contractor’s determination of construction logic, estimated durations, hours per shift, workdays per week and types, numbers, capacities and placement of major construction equipment to be used, construction access, MOT for vehicles, pedestrians and trains, staging and laydown areas, parking for construction personnel, temporary field office location and security of these items. A listing of nonworking days and holidays incorporated into the schedule shall be provided.
- C. The Work Plan shall be reviewed and approved by the CM and Project Stakeholders, which may include Utility Owners, Local Jurisdiction or Adjacent Property Owners.
- D. Specific work activities (such as crane and steel erection or heavy equipment/load placement) may require specific submittals and approval along with applicable pre-activity coordination.

1.6 CPM CONSTRUCTION SCHEDULE, BASELINE

- A. The Contractor shall submit the Baseline Construction Schedule to the CM for review and acceptance within seven (7) calendar days following Notice to Proceed. Within fourteen (14) days, the CM will respond with approval or direction to change and the Contractor shall resubmit, if required. The Baseline Construction Schedule submittal shall be a computerized time-scaled CPM schedule in PDF format that includes the following:
 - 1. A transmittal letter to the CM listing the items, date, and number of copies of items being submitted.

2. One printed legible color copy of the schedule according to Early Start of all activities. The schedule shall be printed on 11"x17" paper or larger as required to display the entire schedule for the entire construction period in a legible manner.
 3. One electronic (.pdf) copy of a narrative (work plan) that presents the construction approaches and explains the schedule logic.
 4. One electronic (.pdf) copy of the schedule.
 5. One electronic file copy of the working schedule which can be opened in the construction scheduling software used to prepare the schedule. For example, a ".xer" file for Primavera P6 and ".mpp" file for Microsoft Project. VRE employs Microsoft Project and generally prefers delivery in this format.
- B. Each electronic file submittal shall have a unique file name indicating the Project name, submission type and number, and data date of the submission (e.g. ProjectName_Baseline01_2016.12.01.pdf).
- C. The Baseline Construction Schedule shall represent the Contractor's overall work plan to accomplish the entire scope of work in accordance with the requirements of the Contract. The Baseline Schedule shall include all work including, as applicable, the work to be performed by sub-contractors, VRE, or others.
- D. The Baseline Schedule shall employ CPM using retained logic for the planning, scheduling, and reporting of the work to be performed under the Contract. The Critical Path shall be shown clearly on the schedule.
- E. Each construction activity shall be part of a logic diagram. The logic diagram shall show a documentable critical path. Each activity should have a predecessor and a successor with the exception of NTP and Final Completion.
- F. The construction schedule shall show a detailed order of construction activities based on predecessor and successor activities and shall be developed using Primavera P6 or Microsoft Project.
- G. When preparing the Baseline Schedule, the Contractor shall consider all known constraints and restrictions such as holidays, seasonal, weather, traffic, utility, environmental, permits, or other known or specified limitations to the work. Schedule shall include work performed by VRE or utility agencies and other third parties that may affect or be affected by Contractor's activities.
- H. Extend schedule from date established for the Notice to Proceed to date of Final Completion.
- I. Contract completion date(s) shall not be changed by submission of a schedule that shows late completion date, unless specifically authorized by a Contract Amendment.
- J. Treat each Work element as a separate numbered activity. Grouping of activities is acceptable provided the items are closely related and will be constructed in conjunction with one another. Include the following as separate activities and milestones as shown:
1. Notice to Proceed (milestone)
 2. Mobilization
 3. Review Period for General Submittals
 4. Review Period for Major Material Submittals

5. Fabrication and Delivery of Major Materials
 6. Construction and Installation of Specific Work Items
 7. Work by Others that may affect Contractor Work
 8. Startup and Testing
 9. Commissioning
 10. Demonstration and Training
 11. Completion of Work Phases, as defined in the Contract
 12. Substantial Completion (milestone)
 13. Punch List
 14. Final Completion (milestone)
- K. Include a separate activity for each portion of the Work performed by VRE or Others. Dates and durations are to be inserted as directed by the CM or VRE.
- L. Each construction activity shall contain a start date, a finish date, and duration not in excess of fourteen (14) calendar days.
- M. The Baseline Schedule submittal shall include a written Workplan/Narrative to describe the Contractor's proposed general sequence to accomplish the work in terms of the major operations, routes, or segments of work as delineated in the Contract or in the absence of such delineations, as agreed to by the Contractor and VRE.
- N. Critical Path Activities
- O. The Contract CPM Schedule shall be prepared to include the data for the total Contract and the critical path activities shall be identified, including critical paths for interim completion dates. Scheduled start or completion dates imposed on the schedule by Contractor shall be consistent with Contract milestone dates. Milestone dates shall be the scheduled dates specified in the Contract Documents, if applicable, and shall be prominently identified. The Contract CPM Schedule shall accurately show all as-built activities completed from the issuance of the Notice to Proceed up to the submittal of this schedule. The use of lag time in activity relationships should be kept to a minimum and must be approved by VRE. The use of negative lag time in activity relationships is forbidden.
- P. Major procurement items.

1.7 CPM CONSTRUCTION SCHEDULE, MONTHLY UPDATE

- A. Following acceptance of the Baseline Construction Schedule by the CM, the Contractor shall submit the Monthly Update Construction Schedule every month to the CM for review and approval along with the Contractor's monthly Application for Payment. Approval of Contractor's monthly Application for Payment shall be contingent, among other factors, on the submittal of a satisfactory monthly schedule update. The Monthly Update Construction Schedule submittal shall include the following:
1. One printed legible color copy of the schedule according to Early Start of all activities. The schedule shall be printed on 11"x17" paper or larger as required to display the entire schedule for the entire

-
- construction period in a legible manner.
2. One electronic (.pdf) copy of a Narrative (Work Plan)
 3. One electronic (.pdf) copy of the schedule
 4. One electronic file copy of the working schedule which can be opened in the construction scheduling software used to prepare the schedule
- B. Each electronic file submittal shall have a unique file name indicating the Project name, submission type and number, and data date of the submission (e.g. ProjectName_Update01_2016.12.01.pdf).
- C. The Monthly Update Schedules shall be prepared in the same manner as the Baseline Schedule and shall reflect actual construction progress and activities. Monthly schedule updates shall be the product of joint review meetings, of a draft updated schedule, between the Contractor, CM and applicable active subcontractors. The joint review shall focus on actual progress for the preceding month, planned progress for the upcoming month supported a Contractor-prepared Two-Week Look-Ahead Schedule, impact to schedule if any due to change notices issued, adverse weather and any affect changes to the Construction CPM Schedule. The agreed-on progress, and changes, if any, shall be incorporated into the schedule update to be submitted. The update shall always represent the actual history of accomplishment of all activities and will form the basis for Contractor's Application for Payment.
- D. All requirements for the Baseline Schedule described above in this Specification section also apply to the Monthly Update Schedules.
- E. The Data Date for each Monthly Update Schedule shall be the first calendar day of every month.
- F. As the Work progresses, indicate completion percentage for each activity.
- G. The Monthly Update Schedule submittal shall include a written Narrative to:
1. List and describe schedule activities progressed during the previous calendar month
 2. List and describe schedule activities planned to be progressed during the upcoming calendar month
 3. Describe all changes to logic, durations, actual starts and finishes, and added or deleted activities
- H. Changes to schedule logic are subject to approval by the CM.
- I. Failure by the Contractor to include any element of work required for performance of the Contract shall not relieve the Contractor from completing all work within the Contract time. Such omission or error, when detected by the Contractor or the CM, shall be corrected prior to the next issue of the Monthly Update, without increasing the project's performance time.
- J. If critical activities of the schedule are delayed and such delay is not excusable as defined in this Section, the remaining sequence of activities and/or duration thereof shall be adjusted by Contractor through measures such as additional manpower, additional shifts or the implementation of concurrent operations until the schedule produced indicates Work will be completed on schedule. Except as provided elsewhere in the Contract, all costs incurred by Contractor to recover from inexcusable delays shall be borne by the Contractor.

- K. The monthly schedule update shall support the Contractor's Application for Payment. The progress payment for an activity shall be based on its agreed percentage of completion. On unit-priced contracts, the approval of Contractor's monthly requisition is contingent on the submittal of a satisfactory monthly schedule update; however, the basis of payment will be the actual measurement of CM-accepted, in-place units of work.

1.8 TWO WEEK LOOK-AHEAD SCHEDULE

- A. The Contractor shall submit a Two Week Look-Ahead Schedule in electronic (.pdf) format to the CM for information on a weekly basis. The submittal day shall be at the progress meeting, unless otherwise directed by the CM. The Two Week Look Ahead schedule may be a horizontal bar-chart style schedule, in lieu of a CPM schedule, if desired. The Contractor shall be prepared to discuss his planned operations for the upcoming two weeks at each Project Progress Meeting.
- B. The Two Week Look-Ahead Schedule shall provide a detailed list of operations to indicate the type of operation, locations of the work, proposed working days and hours, and the start and finish dates for any work planned, started, in progress, or scheduled for completion during the two-week period. The Two Week Look-Ahead Schedule shall also indicate any critical stages of work requiring VRE oversight or inspection.
- C. The Contractor may revise his Two Week Look-Ahead Schedule at his discretion. However, the Contractor shall notify the CM at least 24 working hours in advance of any changes in the Contractor's planned operations or critical stage work requiring VRE oversight or inspection. In the event of extenuating circumstances deemed by VRE to be beyond the Contractor's control, VRE may grant verbal concurrence of changes in the Contractor's planned operations with less advance notice, as the need arises.

1.9 CPM CONSTRUCTION SCHEDULE, REVISIONS

- A. The Contractor may revise his overall plan of operations at any time; however, the Contractor shall submit a Revised Baseline Schedule to reflect any changes in his overall sequence of operations or general schedule if directed by the CM.
- B. When required by the CM, the Revised Baseline Schedule shall be submitted within seven (7) calendar days of receipt of the CM's written request. The Revised Baseline Schedule shall be submitted in the form of the initial Baseline Schedule as defined in this Specification section, to reflect the changes in the Contractor's overall work plan. The accepted Revised Baseline Schedule will replace any previously accepted Baseline Schedule for the remainder of the work.

1.10 RECOVERY SCHEDULE

- A. If, in the opinion of the CM, the Contractor falls twenty-one (21) or more calendar days behind the approved Baseline Schedule, the Contractor shall take any and all steps necessary to improve progress. The CM may require the Contractor to submit a Recovery Schedule, for review and acceptance by the CM, detailing the specific operational changes to be instituted to regain the accepted Baseline Schedule, all without additional cost to VRE. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.

1.11 DELAYS AND REQUEST FOR TIME EXTENSION

- A. The determination for an extension of the Contract Time will be made by VRE. VRE will not allow time extensions for the normal and seasonal weather conditions considered typical for a given month in accordance

with the National Oceanic and Atmospheric Administration (NOAA) thirty year mean for Washington National Airport.

- B. Contractor acknowledges and agrees that delays in activities, irrespective of the party causing the delay, which does not affect any critical activity or milestone dates on the Critical Path, at the time of the delay, shall not become the basis for an extension of the Contract Time. The only basis for any extension of time will be the demonstrated impact of an excusable delay on the critical path. In demonstrating such impact, Contractor shall provide adequate detail as required by the Contract, and Contractor shall prove that:
1. An event occurred.
 2. Contractor was not responsible for the event in that the event was beyond the control of Contractor, and was without fault or negligence of Contractor, subcontractor, or supplier, and the event was unforeseeable.
 3. Activities on the Critical Path of the Work were delayed.
 4. The event in fact caused the delay of the Work.
 5. The requested additional time is an appropriate and reasonable extension of the Contract Time, given the actual delay encountered.
- C. Time Extensions for Unusually Severe Weather:
1. If unusually severe weather conditions are the basis for a request for an extension of the Contract Time, such request shall be documented by data substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated, and that weather conditions had an adverse effect on the Critical Path activities of the scheduled construction. The Contractor may request extension to the Time for Completion if it can demonstrate unusual and disruptive weather conditions per the requirements below:
 2. That one or more of the adverse weather conditions listed below was encountered.
 3. The occurrence of the adverse weather condition(s) resulted in an inability to prosecute critical work which would have otherwise been performed on the day(s) the Weather Condition(s) occurred.
 4. The work which was not able to be completed was on the Critical Path and could not be completed *only* due to the adverse weather condition(s) claimed.
 5. It shall be the Contractor's responsibility to provide the necessary documentation to satisfy the CM that the weather conditions claimed were encountered, which may include daily reports by the Contractor, copies of notification of weather days to the CM, NOAA backup, and pictures from each day claimed. due to the adverse weather condition(s) claimed.
 6. The Contractor must provide notice of delay to the CM no later than five (5) calendar days after the onset of the delay which satisfies the criteria listed above. A fully documented claim for a time extension under this section shall be submitted no later than thirty (30) calendar days after the cessation of the delay. It shall be the Contractor's responsibility solely to provide the necessary documentation to satisfy the CM that the Weather Condition(s) claimed were encountered.
 7. The schedule of anticipated monthly adverse weather condition(s) below will constitute the base line for monthly (or a prorated portion thereof) weather/time evaluation by the Contracting Officer. On issuance

of the Notice to Proceed and continuing throughout the Contract on a monthly basis, actual adverse weather days will be recorded by Contractor on a calendar day basis (include weekends and holidays) and compared to the monthly anticipated adverse weather days set forth below.

8. For purposes of this clause, the term "actual adverse weather days" shall include days that can be demonstrated to have been impacted by adverse weather.
9. The adverse weather conditions listed below will be the only basis for consideration by VRE, based upon the requirements listed above, as an extension of the Time for Completion due to inclement weather or weather-related site conditions.

D. Unusually Heavy Precipitation

1. The Monthly Anticipated Adverse Weather Calendar Days listed below illustrates anticipated monthly inclement weather due to precipitation (Rain and Snow Days). If the number of days with precipitation in excess of 0.10", as recorded at Washington Reagan National Airport, exceeds the Monthly Anticipated Adverse Weather Calendar Days, the Contractor will be entitled to an extension of one (1) day on the Time for Completion for every day in excess of the Monthly Anticipated Adverse Weather Calendar Days illustrated below. The anticipated value of Rain/Snow Days for partial months at the beginning and end of the Contract shall be evaluated on a pro-rated basis.
2. Weather days are not exclusive to the individual months that they represent in Monthly Anticipated Adverse Weather Calendar Days illustrated below. If weather days are not used in a previous month(s) they can be used to offset weather delays in subsequent months. This will be reviewed on a case by case basis and is subject to reconciliation.

E. Temperature

1. The Contractor may be entitled to an additional day for every day that the recorded high temperature at Washington Reagan National Airport is 32 degrees Fahrenheit or less, that has not already been incurred under Monthly Anticipated Adverse Weather Calendar Days listed below. This condition does not apply to vertical construction.
2. Monthly Anticipated Adverse Weather Calendar Days:

January – 7, February – 6, March – 7, April – 7, May – 8, June – 8, July – 8,

August – 7, September – 6, October – 6, November – 6, December – 7.
3. The number of actual adverse weather days shall be calculated chronologically from the first to the last day in each month. Contractor shall not be entitled to any claim for time extension based on adverse weather unless the number of actual adverse weather days exceeds the number of anticipated adverse weather days. In preparing the Contract Schedule, Contractor shall reflect the above anticipated adverse weather days on all weather-dependent activities. Weather-caused delays shall not result in any additional compensation to Contractor.
4. On days where adverse weather is encountered, Contractor shall list all critical activities under progress and shall indicate the impact adverse weather had, if any, on the progress of such activities. This information shall be presented at the end of the adverse weather day to the CM or its authorized

representative for its review and approval.

5. The CM will determine the Contractor's entitlement to an extension of the Time for Completion. A time extension of no more than one (1) day will be granted for one (1) day of lost work which satisfies the requirements above, regardless of the number of adverse Weather Conditions encountered. The Contractor's sole relief shall be an extension of the Time for Completion and no claim for an increase in Contract Amount will be allowed.
6. If Contractor is found eligible for an extension of the Contract Time, the Contracting Officer will issue a modification extending the time for Contract completion. The extension of time will be made on a calendar day basis.

1.12 IMPACT ANALYSIS SCHEDULE FOR TIME EXTENSION REQUEST

- A. The Contractor shall submit an Impact Analysis Schedule for all time extension requests in order to determine the impact on the project schedule of a change in the Work or condition, or of a delay event, for the purposes of quantifying and apportioning the effects to the party responsible for the impact.
- B. Time-impact analysis shall illustrate impact during update period in which event occurred, that event has been mitigated to greatest possible extent, and that event still impacts overall completion of Project. No extension to the Time for Completion shall be granted unless the additional or change to the Work increases the length of the critical path beyond the Time for Completion as demonstrated on the approved CPM schedule or bar chart schedule.
- C. Include with request, two copies of submittal of impacted schedule, in electronic format, and photocopies of all relevant documents that support the claim.
- D. Submit all required items within the following time periods:
 1. 14 calendar days of event occurrence.
 2. 14 calendar days of Contractor's knowledge of impact.
 3. 14 calendar days of written request by CM.
- E. Expiration of time periods without submittal shall constitute forfeiture of rights for these specific impacts.

1.13 FINAL AS-BUILT CPM CONSTRUCTION SCHEDULE

- A. Upon completion of the Project, the Contractor shall submit a Final As-Built CPM Construction Schedule. The As-Built CPM Construction Schedule shall include the following:
 1. One printed legible color copy of the schedule showing actual start and finish dates for all work activities and milestones, based on the accepted monthly updates. The schedule shall be printed on 11"x17" paper or larger as required to display the entire schedule for the entire construction period in a legible manner.
 2. One electronic (.pdf) copy of the schedule
 3. One electronic file copy of the working schedule which can be opened in the construction scheduling software used to prepare the schedule

- B. The As-Built Schedule shall be prepared in the same manner as the Baseline Schedule and Monthly Update Schedules and shall reflect actual start and finish dates of all activities through Substantial Completion, Punchlist, and Final Completion. All requirements for the Baseline Schedule and Monthly Update Schedules described above in this Specification section also apply to the As-Built Schedules.

1.14 SCHEDULE REVIEW AND ACCEPTANCE

- A. The CM will review the Baseline Schedule, Monthly Updates, and any Revised or Recovery Schedules submitted and provide a written response to the Contractor noting acceptance or rejection and applicable comments. Review and acceptance by the CM will be based on conformance with the requirements of this provision and the Contract.
- B. The accepted Baseline Schedule and subsequent Monthly Updates will be used by the CM and VRE for planning and coordination of VRE activities, resources, and expenditures, and for evaluation of the Contractor's rate of progress and the effects of time-related impacts on the project.
- C. Review and acceptance by the CM will not constitute a waiver of any Contract requirements and will in no way assign responsibilities of the work plan, scheduling assumptions, and validity of the work plan or schedule to VRE. Failure of the Contractor to include any element of work required by the Contract for timely completion of the Contract in the Construction Schedule shall not excuse the Contractor from his contractual obligations.
- D. If requested by the CM, the Contractor shall meet with the CM to present and discuss the Monthly Update Schedule.

1.15 FAILURE TO COMPLY WITH SCHEDULE SUBMISSION REQUIREMENTS

- A. If the Contractor fails to comply with any of the Construction Schedule submission requirements within the time and in the manner specified, VRE may withhold approval of the Contractor's ensuing monthly application for payment until the Contractor has satisfied the submission requirements. If the Contractor fails to submit the Final As-Built Schedule in the time and manner required, VRE may withhold approval of the final payment until the Contractor satisfies the submission requirement.
- B. VRE shall not be responsible for any delays, costs, or damages resulting from the Contractor's failure to submit the schedule submittals in accordance with the requirements of the Contract.
- C. Failure to include any work item required for performance of this Contract shall not excuse the Contractor from completing all work within applicable completion dates, regardless of CM approval of the Schedule.

1.16 DAILY CONSTRUCTION REPORTS

- A. The Contractor shall submit written Daily Reports in electronic (.pdf) format to the CM for information on a weekly basis. Submit copies to the CM by noon on the day following the date of actual progress, or as otherwise determined by the CM.
- B. The Contractor Daily Report format shall be acceptable to the CM. A standard VRE format will be provided to the Contractor by the CM, if required.
- C. Daily Reports shall include, at a minimum, the following information concerning events at Project site:

1. Approximate count of Contractor personnel at Project site (e.g. 1 Superintendent, 2 Foremen, 3 Carpenters, etc.)
2. List of Subcontractors at Project site
3. Approximate count of Subcontractor personnel
4. Beginning and ending time of Work
5. Equipment at Project site, noting whether in use or idle (include make and model of equipment as well as general description (e.g. John Deere 330 LC Excavator)
6. High and low temperatures and general weather conditions, including presence of precipitation
7. Locations of Work
8. Description of Work performed
9. Specific Tests or Inspections completed, including results (pass/fail)
10. Material deliveries
11. Meetings and significant decisions
12. Directives provided by VRE if differing from the Contract
13. Stoppages, delays, shortages, and losses
14. Accidents
15. Visitors to site (including VRE)
16. Safety compliance or issues
17. Other problems on site

1.17 MONTHLY CONSTRUCTION REPORTS

- A. The Contractor shall submit written Monthly Reports in electronic (.pdf) format to the CM for information along with each monthly Application for Payment.
- B. The Contractor Monthly Report format shall be acceptable to the CM. A standard VRE format will be provided to the Contractor by the CM, if required.
- C. Monthly Reports shall include, at a minimum, the following information:
 1. All basic project information
 2. A brief written summary of major construction performed or completed in the period.
 3. Construction photos showing before and after conditions during the period.
 4. Status of submittals
 5. RFIs
 6. Change order status

7. Safety
8. Quality Compliance Certification as specified in Section 01 45 00, "Quality Assurance and Quality Controls"
9. Issues and status of Contractor procurement items
10. Major upcoming activities
11. Monthly Schedule Updates

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01 33 00**SUBMITTAL PROCEDURES****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes general requirements and procedures for preparing and transmitting data to the Construction Manager for informational purposes or for review. Other requirements for submittals may be specified under applicable sections of these Specifications. This Section includes procedures for submittal of general items such as:
1. Shop Drawings
 2. Coordination Drawings
 3. Product Data
 4. Samples
 5. Material Certificates
 6. Welding Certificates
 7. Qualification Data
 8. Installer Certificates
 9. Manufacturer Certificates
 10. Test Reports
 11. Manufacturer's Instructions
 12. Manufacturer's Field Reports

1.2 RELATED SECTIONS

- A. Section 01 31 00 – Project Management and Coordination
- B. Section 01 32 00 – Construction Progress Documentation
- C. Section 01 77 00 – Closeout Procedures
- D. All Technical Specifications provided as part of the Contract Documents.

1.3 DEFINITIONS

Action Submittals: Written or graphic information and physical samples that require review and responsive action by either the CM or VRE.

Informational Submittals: Written or graphic information and physical samples that do not require review and responsive action by the CM or VRE. Informational Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL SCHEDULE

- A. The Contractor shall submit an electronic copy and/ or hard copy of the schedule of submittals, for review and approval by the CM, in tabular format arranged in chronological order by dates required per construction schedule within seven (7) days following Notice to Proceed, or prior to any other submittals being sent to the CM for review, whichever date is earlier. Each submittal item on the schedule shall include, but is not limited to, the following:
1. Specification Section number and title
 2. Submittal item number and descriptive title
 3. Submittal category (action or informational)
 4. Scheduled date for submittal
 5. Anticipated reviewer (CM or VRE)
 6. Scheduled date for final approval
- B. The Contractor may consult with the CM if additional information is needed to prepare the schedule of submittals.

1.5 GENERAL PROCEDURES

- A. Processing Time
1. Allow enough time for submittal review, including time for re-submittals, as follows. Time for review shall commence on CM's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.
 - a. Initial Review: Allow 30 calendar days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. CM will advise Contractor when a submittal processed must be delayed for coordination.
 - b. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 - c. Re-submittal Review: Allow 30 calendar days for review of each resubmittal.
 - d. No extension of the Contract Time will be authorized because of failure to transmit submittals to

CM enough in advance of the Work to permit processing. Processing of incomplete or unacceptable submission by the CM shall not reduce the number of calendar days specified above for CM review. Resubmissions shall be treated the same as initial submissions relative to review time. CM cost for processing a submittal requiring more than two submissions due to incomplete or unacceptable submissions by the Contractor shall be the responsibility of the Contractor.

- e. Notations on submittals that increase the Contract cost or time of completion shall be brought to the CM's attention before proceeding with the Work.
- B. Contractor's Responsibilities: Contractor is responsible for the scheduling and submission of all submittals. Submit to the CM all submittals, the CM will in turn forward submittals to the appropriate parties for review.
- C. Identification: Place a permanent label or title block on each submittal for identification.
 - 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 - 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by the CM and VRE.
 - 3. Include the following information on label for processing and recording action taken:
 - a. Contract name and number
 - b. Date
 - c. Name and address of Engineer
 - d. Name and address of Contractor
 - e. Name and address of subcontractor, if applicable
 - f. Name and address of supplier, if applicable
 - g. Name of manufacturer, if applicable
 - h. Submittal number or other unique identifier, including revision identifier
 - i. Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g. 06 10 00.01). Resubmittal shall include an alphabetic suffix after another decimal point (e.g., 06 10 00.01.A).
 - ii. Number and title of appropriate Specification Section.
 - iii. Drawing number and detail references, as appropriate.
 - iv. Location(s) where product is to be installed, as appropriate.
 - v. Transmittal number.
- D. Use for Construction: Use only final submittals with mark indicating "approved" by CM in connection with construction.

- E. Distribution: Contractor shall furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers and authorities having jurisdiction and others as necessary for performance of construction activities.
1. Contractor shall bear all costs incurred for such reproduction and distribution. Prints of all reviewed Shop Drawings may be made from transparencies that carry the appropriate review stamps.
- F. Submittal Preparation
1. Submit one (1) electronic (.pdf) version of all submittals, unless noted otherwise, required by individual Specification Sections and elsewhere in the Contract Documents to the CM.
 2. A Contractor's transmittal letter shall accompany each submittal. The Contractor's transmittal letter and submittal shall be consecutively numbered and shall clearly and completely describe any variation from the contract requirements.
 3. A sequential number (Submittal No. 1, 2, 3, etc.) shall be shown on each Shop Drawing submission. Re-submittals will be followed by a revision number (Submittal No. 1.1, 1.2, 2.1, etc.) and handled in the same manner as first submitted.
 4. Resubmittals shall be submitted in the same format at initial submittals.
 5. All submittals from subcontractors and suppliers shall be reviewed and approved by the Contractor prior to submittal to the CM. The Contractor's review and approval shall certify that the submittal has been reviewed by the Contractor and that based on his review, it conforms to the contract requirements. Further, the Contractor's approval shall certify that the intended product is compatible with all other products, to which it must integrate and to the overall project.
 6. If Contractor has not checked the submittals carefully, even though certified as reviewed and approved, submittals shall be returned to Contractor for proper checking before further processing or review by CM regardless of any urgency claimed by Contractor. In such a situation, Contractor will be responsible for any resulting delays to the scheduled Contract completion. Furthermore, VRE may hold Contractor responsible for increased VRE costs resulting from Contractor's failure to comply with the requirements set forth herein.
 7. Submittals not conforming to the requirements of this specification shall be similarly rejected.
 8. Coordinate preparation and processing of submittals with performance of construction activities. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 9. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 10. The CM reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
 11. Unless otherwise acceptable to the CM, submittals shall be submitted as one complete package for each specification section.

12. If submittals show variations from the Contract requirements because of standard shop practice or for other reasons, describe such variations in the letter of transmittal. If applicable, the CM may approve any or all such variations, subject to a proper adjustment in the Contract.

G. Review of Submittals

1. Prepare all submittals sufficiently in advance of construction requirements to permit no less than 30 calendar days for review and appropriate action by the CM.
 - a. The review of Shop Drawings and other submittals by the CM or the VRE will be for general conformance with the Contract only, and the review shall not be interpreted as a checking of detailed dimensions, quantities, or approval of deviations from the Contract Documents. CM or VRE review shall not relieve Contractor of its responsibility for accuracy of Shop Drawings nor for the furnishing and installation of materials or equipment according to the Contract requirements.
 - b. VRE review and acceptance of submittals shall not relieve the Contractor from their responsibility for accuracy of submittals, for conformity of submittals to requirements of Specifications, for compatibility of the described product with contiguous products and the rest of the system, or for protection of completion of the Contract in accordance with the and Specifications.

2. Action Submittals

The CM or VRE will review each submittal, make marks to indicate corrections or modifications required, and return it. The CM or VRE will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

- a. Reviewed: The Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents. Final payment depends on that compliance.
- b. Reviewed As Noted: The Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents. Final payment depends on that compliance.
- c. Revise And Resubmit: Do not proceed with Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal according to the notations; resubmit without delay.
- d. Rejected: The Engineer has not completed a full review, because it is clear that the submittal does not reflect the requirements of the Contract Documents. Do not proceed with work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal that complies with the Contract Documents.
- e. For Record Only: The submittal has been received and recorded for project documentation. No action is taken, and no response is required. The Work covered by the submittal is not subject to review or approval, and compliance with the Contract Documents remains the Contractor's responsibility.

3. Informational Submittals

- a. The CM will review each submittal and will not return it, or will reject and return it if it does not comply with Contract Document requirements.
- H. Partial submittals are not acceptable, will be considered non-responsive, and will be returned without review.
- I. All work in and on the property of VRE , which may affect operations, must be approved by VRE in advance. Where work involves VRE coordination, the Contractor shall submit a description of activities and impacts to VRE with a copy to the CM.
- J. The Contractor shall be responsible for and bear all cost of damages which may result from the ordering of any material or from proceeding with any part of the work prior to the approval by the CM or VRE of the necessary submittals. VRE may issue a Stop Work Order for noncompliant work or for work that has commenced without an approved submittal.
- K. The Contractor shall distribute copies of approved submittals to manufacturers, subcontractors, suppliers, fabricators, installers, and others as necessary for performance of construction activities.

1.6 SUBMITTAL LOG

- A. Prepare a log that contains a complete listing of all submittals required by Contract. Submit the log at the preconstruction meeting along with Contractor's 90-day preliminary schedule specified in Division 01 Section "Construction Progress Documentation." Organize the submittal log by Section number. Assign each submittal a sequential number for identification and tracking purposes.
 - 1. Coordinate the submittal log with Division 01 Section 01 32 00 "Construction Progress Documentation." The submittal log shall be submitted for CM's review. Include the following information:
 - a. Title of submittal/description
 - b. Submittal number (sequential)
 - c. Schedule date for the first submittal
 - d. Drawing number, if applicable
 - e. Applicable section number
 - f. Name of subcontractor/vendor
 - g. Schedule date of CM's final release or approval

1.7 ACTION SUBMITTALS

- A. Shop Drawings
 - 1. Shop Drawing Preparation
 - a. The Contractor shall prepare Shop Drawings as necessary or as required by the Contract to adequately perform the work.
 - b. Shop Drawings shall be treated as Submittals and prepared in accordance with the requirements of the General Procedures section of this Specification, unless noted otherwise.

-
- c. Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:
 - i. Dimensions
 - ii. Identification of products
 - iii. Fabrication and installation drawings
 - iv. Roughing-in and setting diagrams
 - v. Shop work manufacturing instructions
 - vi. Schedules
 - vii. Design calculations
 - viii. Compliance with specified standards
 - ix. Notation of coordination requirements
 - x. Notation of dimensions established by field measurement
 - xi. Relationship to adjoining construction clearly indicated
 - xii. Seal and signature of professional engineer if specified
 - d. Submit one (1) electronic (.pdf) version and one (1) printed color copy of Shop Drawings on 22" x 34" paper for review and approval by VRE.
 - e. All Shop Drawings shall be to scale on sheets measuring 22" x 34". Each drawing shall have a blank area five inches by five inches adjacent to the title block to provide space for Contractor and CM/VRE review stamps. The title block shall display the following:
 - i. Contract Number and Name
 - ii. Number and Title of the Drawing
 - iii. Date of Drawing or revision
 - iv. Name of Contractor and Subcontractor submitting drawing
 - v. Clear identification of contents and location of work
 - f. Check and coordinate drawings with the work of all trades involved before they are submitted for the approval of the CM or VRE. Each drawing shall bear the Contractor's stamp of approval as evidence of such checking and coordination. Drawing submitted without this stamp of approval will be returned to the Contractor for resubmittal.
2. CM or VRE Review of Shop Drawings
- a. If approved, or approved as noted, by the CM or VRE, each sheet of the drawing set will be identified as having received such approval by being stamped as such.
 - b. Drawings that require corrections will be returned to the Contractor for correction and resubmittal.

The Contractor shall make corrections required by the CM or VRE.

- c. Following approval from the CM or VRE, the Contractor shall provide one (1) electronic (.pdf) version and two (2) printed color copies of Shop Drawings to the CM or VRE on 22" x 34" paper for field use. Field Use Drawings shall be provided to the CM or VRE prior to commencement of Work related to the Shop Drawings.
- d. CM or VRE approval of Shop Drawings shall not be construed as:
 - i. Permitting any departure from the Contract requirements.
 - ii. Relieving the Contractor of the responsibility for any errors, including details, dimensions, and materials.
 - iii. Approving departures from details furnished by the CM or VRE, except as otherwise provided herein.
 - iv. Notice to Proceed on a change to the contract that would result in additional time or cost to VRE.

B. Coordination Drawings

- 1. Coordination Drawings are Shop Drawings prepared by Contractor that detail the relationship and integration of different construction elements that require careful coordination during fabrication or installation. Preparation of Coordination Drawings is specified in Division 01 Section 01 31 00 "Project Management and Coordination."
- 2. Submit Coordination Drawings for integration of different construction elements. Show sequences and relationships of separate components to avoid conflicts in use of space.

C. Product Data

- 1. Submit one (1) electronic (.pdf) version of all Product Data submittals to the CM or VRE for review and approval.
- 2. Mark product data sheets to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.
- 3. Identify options requiring selection by the CM or VRE.
- 4. Catalog cuts (product data) shall highlight the actual equipment/component to be used. Generic catalog cuts will not be accepted.

D. Design Information

- 1. Indicate equipment lists, reactions, and design information on layouts.
- 2. Provide calculations verifying the following:
 - a. Adequacy of existing electrical provisions.
 - b. Machine room heat emissions in B.T.U.

-
- c. Adequacy of existing car platform structure for intended loading.
 - d. Adequacy of plunger wall thickness for intended loading.
 - E. Power Confirmation Information
 - 1. Design for existing conditions.
 - F. Product Samples
 - 1. The Contractor shall submit Samples as necessary or as required by the Contract to adequately perform the work.
 - 2. Samples shall be treated as Submittals and prepared in accordance with the requirements of the General Procedures section of this Specification, unless noted otherwise.
 - 3. Deliver two (2) identical samples to the Construction Manager or location designated by the Construction Manager, for review and approval. Enclose a printed copy of the submittal documentation with the shipment of samples and send one (1) electronic (.pdf) copy of the submittal package to the CM or VRE, including photographic documentation of the sample.
 - 4. Label each sample indicating:
 - a. Name of Project and Contract Number
 - b. Name of Contractor and Subcontractor
 - c. Material or equipment represented
 - d. Name of producer and brand; include model number, style, color name, etc. if applicable.
 - e. Specification Section, Article or Paragraph
 - f. Location in project where product is to be utilized
 - 5. Samples for Initial Selection
 - a. Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - 6. Samples for Verification
 - a. Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - 7. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
 - a. If variation in color, pattern, texture, or other characteristic is inherent in the product represented by a Sample, submit at least three sets of paired units that show approximate limits of the variations.

- b. Refer to individual Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, and details of assembly, connections, operation, and similar construction characteristics.
- c. Finish Material
 - i. Submit 3" x 12" samples of actual finished material for review of color, pattern, and texture. Compliance with other requirements is the exclusive responsibility of the Contractor. Include, if requested, signal fixtures, lights, graphics, Braille plates, and detail of mounting provisions.

1.8 INFORMATIONAL SUBMITTALS

- A. Submit one (1) electronic (.pdf) version of all Informational Submittals to the CM or VRE for information only, as required by individual Specification sections.
- B. Request for Information
 - 1. Refer to Division 1 Section 01 31 00, "Project Management and Coordination" for additional requirements.
- C. Material Certificates
 - 1. Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- D. Welding Certificates
 - 1. Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- E. Qualification Data
 - 1. Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of project owners, and other information specified.
- F. Installer Certificates
 - 1. Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- G. Written Maintenance Control Program (MCP)
 - 1. To be specifically designed for the equipment included under this contract.
 - 2. Include any unique or product specific procedures or methods required to inspect or test the equipment. In addition, identify weekly, bi-weekly, monthly, quarterly, and annual maintenance procedures, including statutory and other required equipment tests.

H. Manufacturer Certificates

1. Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.

I. Material Test Reports

1. Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.

J. Preconstruction Test Reports

1. Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.

K. Compatibility Test Reports

1. Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

L. Field Test Reports

1. Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

M. Product Test Reports

1. Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

N. Manufacturer's Instructions

1. Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
 - a. Preparation of substrates.
 - b. Required substrate tolerances.
 - c. Sequence of installation or erection.
 - d. Required installation tolerances
 - e. Required adjustments
 - f. Recommendations for cleaning and protection.
 - g. Conflicts between manufacturers' instructions and Contract Documents.

O. Manufacturer's Field Reports

1. Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
 - a. Name, address, and telephone number of factory-authorized service representative making report.
 - b. Statement on condition of substrates and their acceptability for installation of product.
 - c. Statement that products at Project site comply with requirements.
 - d. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - e. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - f. Statement whether conditions, products, and installation will affect warranty.
 - g. Other required items indicated in individual Specification Sections.

1.9 ADDITIONAL SUBMITTALS

- A. When additional submittals are required, by VRE, they shall be submitted within ten (10) days of receipt of written notification, unless otherwise requested by the Contractor and approved by the CM in writing.

PART 2 – PRODUCTS
NOT USED**PART 3 – EXECUTION**
NOT USED**END OF SECTION**

EXHIBIT A**WORK PLAN TEMPLATE**

Below is a sample Work Plan for reference. Contractor shall submit a Work Plan Template to the CM with the Construction Progress Schedule. The submitted Work Plan Template shall contain the information in this sample as a minimum.

Work Plans must be submitted a minimum of 14 calendar days before the scheduled start of the related activity.

Complete all sections thoroughly to ensure compliance with the project requirements. **Construction Work Plan for [Specific Task: E.g., "Foundation Construction"]**

Project Name: [Insert Project Name]

Location: [Insert Project Location]

Date: [Insert Date]

Prepared by: [Your Name/Company Name]

1. Task Overview**• Task Description:**

Example: *Excavation and laying of reinforced concrete foundation for a residential building.*

• Objective:

- Ensure a stable and properly aligned foundation ready for structural work.

2. Scope of Work**Activities Involved:****1. Site Preparation**

- Mark the foundation layout as per drawings.
- Clear the area of vegetation, debris, and obstacles.

2. Excavation

- Dig trenches as per specified dimensions.
- Monitor soil conditions to ensure suitability.

3. Base Preparation

- Level and compact the base.
- Add a layer of gravel or sand as specified.

4. Formwork and Reinforcement

- Install wooden or metal formwork.
- Place reinforcement bars as per design specifications.

5. Concrete Pouring

- Mix and pour concrete uniformly.
- Vibrate to remove air pockets and ensure compaction.

6. Curing and Inspection

- Keep concrete moist for curing.
- Inspect the foundation for alignment and quality.

3. Roles and Responsibilities**• Task Supervisor:** [Name and contact details]

Responsibilities: Oversee task completion, safety, and adherence to standards.

• Skilled Workers:

- Carpenter: [Insert Name] – Formwork setup
- Steelworker: [Insert Name] – Reinforcement placement

• Laborers:

- [Insert Number] for excavation and mixing.

• Equipment Operator: [Insert Name] – Operates machinery like excavators.**4. Resources****• Materials Required:**

- Reinforcement steel: [Insert quantity and grade]
- Concrete mix: [Specify mix ratio]
- Formwork material: [Insert type and quantity]

• Equipment Needed:

- Excavator, concrete mixer, vibrators, shovels.

5. Schedule**• Task Timeline:**

- Day 1: Site preparation and layout marking.
- Day 2–3: Excavation and base preparation.
- Day 4–5: Formwork and reinforcement installation.
- Day 6: Concrete pouring.
- Day 7–14: Curing and inspection.

6. Safety Measures

- Conduct toolbox talks before work begins each day.
- Ensure all workers wear PPE (helmets, gloves, boots, and high-visibility vests).
- Use proper signage around the site.
- Emergency contacts and first aid kits must be accessible.

7. Quality Control

- Inspect the layout and measurements before excavation.
- Verify reinforcement placement against design specifications.
- Monitor concrete pouring to prevent segregation.
- Conduct post-pour inspection for cracks or defects.

8. Risk Assessment**• Identified Risks:**

- Collapse of trenches during excavation.
- Improper curing leading to weak concrete.

• Mitigation Measures:

- Shore up trench walls as needed.
- Assign a curing supervisor to monitor moisture levels.

9. Communication Plan

- Task updates reported daily to the project manager.
- Immediate reporting of incidents or delays to the supervisor.

10. Completion and Handover

- Final inspection by the task supervisor and quality assurance team.
- Submit a complete report to the Project Manager.

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SECTION 01 35 23**SAFETY AND SECURITY REQUIREMENTS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes requirements for safety and security including, but not limited to, the following:
 - 1. VRE safety & security requirements
 - 2. General construction safety & security requirements

1.2 RELATED SECTIONS

- A. Section 01 33 00 – Submittal Procedures
- B. General Provisions
- C. Critical Safety Roles for VRE Projects

1.3 SAFETY AND SECURITY REQUIREMENTS

- A. The goal of VRE is to provide a safe and healthy worksite with zero accidents and injuries and no property damage or loss. In addition to the safety and security requirements included in this document, the Contractor shall abide by the Critical Safety Roles for VRE Projects included as an Attachment to the Invitation for Bid (IFB). Wherever conflicts or discrepancies exist between requirements, the more stringent requirement shall govern.
- B. The Contractor shall maintain a secure perimeter at all times for the duration of construction. All gates or points of entry shall be opened at the beginning of the workday and closed and locked at the end of the workday by the Contractor. Where openings in the perimeter are required due to construction, temporary fencing or other measures (such as additional guard) shall be employed.
- C. Movement of personnel and materials into the project site shall be monitored by VRE. All Contractor personnel, including delivery drivers, must present approved identification for entry. See Special Provisions for specific information. The Safety and Security Manager (SSM) shall provide VRE a list of approved personnel and/or companies on a weekly basis.
- D. The Contractor is responsible for security of all Project materials and equipment stored on the project site. Additional fencing and / or security agent(s) may be required. Any cost for such measures shall be borne by the Contractor.
- E. The SSM shall be responsible for coordinating and controlling: All safety and security measures on site.

- F. Issuing and maintaining Personal Protective Equipment (PPE).
- G. Safety and security compliance of all contracted and subcontracted personnel.

1.4 **SUBMITTALS**

A. Contractor's Site Specific Safety Plan

1. Contractor shall complete and submit one (1) electronic (.pdf) version of the Contractor's Site Specific Safety Plan, to VRE, for review and approval, no later than seven (7) calendar days prior to the scheduled date of the Preconstruction Conference. Once approved by VRE, the Contractor shall submit digital only unless required federal or local jurisdiction. Additionally, the Contractor shall provide original signature of Page 2, included in the "Rules to Live By" attachment for each employee who will access VRE property. VRE's Rules to Live By can be found at VRE Webpage <https://www.vre.org/about/safety-and-security/contractors/>.
2. The VRE Site Specific Safety Plan Template is included as an Attachment of the IFB.

B. Monthly Safety Reports

The Contractor shall provide monthly safety reports to VRE, for information only, written by the Contractor's Safety and Security Manager assigned to the project. The report shall be submitted to VRE along with the Contractor's monthly Application for Payment. The monthly safety report can be combined with the monthly Construction Report, if desired. The monthly safety report shall include, but not be limited to, the following information:

1. Project name & location (City/County and State)
2. VRE contract number
3. Contractor's name
4. Reporting period (shall always be the calendar month)
5. List of subcontractors that performed work on the project during the reporting period
6. Brief description of work performed during the reporting period, including specific locations on the project
7. A list of all safety incidents encountered during the reporting period, noting the type of incident, such as:
 - a. Recordable Injuries or Illnesses as defined by OSHA as death, loss of consciousness, days away from work (lost time), restricted work activity or job transfer (light duty), or medical treatment beyond first aid.
 - b. First Aid Injuries or Illnesses.
 - c. Near Miss Incident, defined by OSHA as an incident in which no property was damaged and no personal injury was sustained, but where, given a slight shift in time or position, damage or injury easily could have occurred.

8. The official reports prepared by the Contractor for each safety incident shown on the list
9. A list of all safety violations noted, or suggestions shared with Contractor employees and a description of actions taken to address the issue.
10. An update for any incidents/violations encountered in prior months but not yet closed out.

C. Contractor Safety Briefing Documentation

1. The Contractor shall submit to VRE, for information only, a record of daily safety briefings held at the site prior to beginning work each day. Written documentation of the daily safety briefings (VRE Jobs & Safety Briefing Guide) shall be submitted to VRE on a monthly basis along with the Contractor's monthly Application for Payment. A separate document shall be provided for each day the Contractor is on the site. The VRE Jobs & Safety Briefing Guide can be found at VRE Webpage-
<https://www.vre.org/about/safety-and-security/contractors/>

1.5 SAFETY PERSONNEL

- A. The Contractor shall provide, or cause to be provided, all technical expertise, qualified personnel, equipment, tools, and material to safely accomplish the Work specified to be performed by the Contractor and subcontractor(s).
- B. At a minimum, the Contractor shall provide the services of at least one full-time on-site Contractor Safety and Security Manager (SSM), per construction work shift, for the duration of this Contract, with no other duties assigned, whenever the overall project value exceeds \$5,000,000 or whenever work includes one or more of the following:
 1. Bridge work above tracks
 2. Tunnel work below tracks
 3. Cranes and rigging where required crane capacity is greater than 50-tons
 4. Confined space entry
 5. Excavations greater than 4-feet
- C. When the Project value is less than \$5,000,000 and whenever work includes one or more of the conditions enumerated above the Contractor shall provide an SSM to fulfill the duties as described herein. In such cases the SSM need not be full-time on-site and the role may be performed by other qualified Project personnel on-site such as a Superintendent or Project Manager. The SSM shall be on-site for the duration whenever the work includes one or more of the conditions noted above.
- D. The Contractor shall identify to VRE, a competent, qualified, and authorized Safety and Security Manager on the worksite and who is, by training or experience, familiar with policies, regulations and standards applicable to the work being performed.
- E. The Safety and Security Manager (SSM) shall be responsible for the safety and security requirements as indicated herein.

1. The competent, qualified and authorized person must be capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees, shall be capable of ensuring that applicable safety regulations are complied with, and shall have the authority and responsibility to take prompt corrective measures, which may include removal of the Contractor's personnel from the work site or holding or stopping specific work activities to remedy safety or security issues.
- F. The Contractor shall submit the résumés of individual(s) proposed to serve in the role of the Contractor's Safety and Security Manager to the CM for approval in writing. Résumés shall include but not be limited to such items as: work experience, education, safety and health training completed, memberships in professional associations, professional certifications, professional registrations and professional references confirming the qualifications and personal references of contacts for verification shall also be required.
1. The SSM will be interviewed by the VRE PM and the CM. The VRE PM and CM will assign written approval of the Safety Manager. Only qualified personnel will be approved. On-site work may not be performed until the Safety and Security Manager is approved and present on-site.
- G. Qualifications: The SSM must be a full-time on-site position with the following qualifications:
1. Minimum of ten years of safety management experience in managing safety programs on construction projects comparable to this Contract in scope and complexity.
- H. Prior to start of construction activities on Worksite, the Contractor's Safety Manager shall tour the portions of the worksite affected by this work with VRE's Safety and Security Manager, or designee.

PART 2 – PRODUCTS
NOT USED

PART 3 – EXECUTION
NOT USED

END OF SECTION

SECTION 01 42 00**REFERENCES, DEFINITIONS, ABBREVIATIONS, AND ACRONYMS****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes definitions of many of the general terms, abbreviations, and acronyms utilized in these Specifications and other Contract Documents. Additional definitions, specific to certain subjects, can be found in those subject specification sections.
- B. Abbreviations, where not defined in the Contract Documents, will be interpreted by VRE to mean the normal construction industry terminology.

1.2 RELATED SECTIONS

- A. 01 25 00 – Substitution Procedures
- B. 01 26 00 – Change Order Procedures
- C. 01 29 00 – Payment Procedures
- D. 01 31 00 – Project Management and Coordination
- E. 01 32 00 – Construction Progress Documentation
- F. 01 33 00 – Submittal Procedures
- G. 01 73 00 – Execution of Work
- H. 01 77 00 – Closeout Procedures
- I. All Technical Specifications provided as part of the Contract Documents.

1.3 DEFINITIONS

- A. Certain terms used in the Contract Documents are defined generally in this Specification and the Conditions of the Contract. Definitions and explanations contained in this Section are not necessarily either complete or exclusive but are general for the Work to the extent that they may not be stated more explicitly in another element of the Contract Documents.

Agreement: The completed and signed Form of Contract Agreement

Approve: The term "approved," where used in regard to the CM's action on Contractor's submittals, applications, and requests, is limited to CM's duties and responsibilities as delegated by the Contracting Officer in the Contract and Special Provisions.

Authority Having Jurisdiction (AHJ): An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure. For the majority of VRE projects, the local (County or City) government is the AHJ.

Change Order: A written order signed by VRE to incorporate changes, alterations, or other modifications to the Contract. A Change Order may be used to add, modify, or delete: pay items, Contract time, Contract Documents, or other terms of the Contract. Change Orders may be issued on a bilateral or unilateral basis. The term change order shall be understood as Bilateral Change Order, except where specifically noted as a Unilateral Change Order.

Bilateral Change Order: A written change order signed by both VRE and the Contractor where VRE and the Contractor agree upon the scope, the cost, and the time adjustment for the proposed change, alteration, or other modification to the Contract. This type of change order is what is typically meant when the term change order is used elsewhere in VRE publications.

Proposed Change Order (PCO): A document prepared by the Contractor requesting changes, alterations, or other modifications to the Contract, such as to add, modify, or delete: pay items, Contract time, Contract Documents, or other terms of the Contract. Once a PCO has been accepted by VRE, it becomes a Change Order and will be incorporated into the Contract via a Contract Amendment. Several PCOs may be combined into one Change Order, as determined by the Contract Manager.

Unilateral Change Order: A written change order signed only by VRE used to effect a change, alteration, or other modification to the Contract when VRE and the Contractor cannot agree upon the scope, the cost, or the time estimation of the proposed change, alteration, or other modification to the Contract or where due to issues of emergency, safety, environmental damage, or other similar critical factors VRE must act quickly and unilaterally to effect the change. In these cases, VRE must act unilaterally to establish a scope, cost, or time adjustment for, the change, alteration, or other modification to the Contract.

Claim: The Contractor's written request or demand for an adjustment to the Contractor's compensation or to the Contract time, for costs, expenses, or other damages, adjustment of the Contract terms, or for any entitlement available under the Contract, made within the time, in the form, and pursuant to the provisions for claims specified in the Contract Documents.

Construction Manager (CM): The firm or individual designated by VRE to manage the Contract on behalf of VRE. The Construction Manager is VRE's authorized representative for specific purposes to perform specified duties and responsibilities, and to have the rights and authorities as assigned in connection with completion of the Work in accordance with the Contract Documents, until such time as VRE may notify the Contractor otherwise. The Construction Manager, in conjunction with the Inspector, will monitor the Work for compliance with the Contract Documents.

Construction Schedule: See Section 01 32 00, "Construction Progress Documentation," for details and terms specific to the Construction Schedule.

Contract Amendment: A change order which has been accepted by VRE, processed, and executed by way of signature by both the Contractor and VRE.

Contract Documents: Documents containing the requirements of the Work. They include, the Agreement and all the documents and Exhibits identified therein which shall include the Invitation for Bid (IFB) Documents, Specifications, and all modifications including amendments and subsequent Change Orders thereto properly incorporated in the Contract. These include all Contract provisions and attachments made thereto or referenced therein.

Contractor: The business that has a direct contract with VRE, which is in writing and signed by VRE, to perform the prescribed Work as an independent contractor. The Contractor may also be referred to as the General Contractor or the Prime Contractor.

Final Completion: The condition when VRE agrees that all the Work has been fully completed in accordance with the Contract Documents, all punch list items have been addressed and accepted, final cleaning has been accomplished, all closeout submittals have been received in acceptable condition, demonstration and training of systems has taken place, the VRE Closeout Checklist has been completed, and the final Application for Payment from the Contractor has been reviewed and deemed acceptable by VRE. The date of Final Acceptance is the date of execution by the Contracting Officer of a Certificate of Final Acceptance.

Furnish: Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

Indicated: Requirements expressed by graphic representations or in written form, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

Inspector: The Construction Manager's authorized representative who is assigned to make detailed inspections of the quality and quantity of the work and its conformance to the requirements and provisions of the Contract.

Install: Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.

Notice of Award: The Date of Execution of the Agreement by the VRE Manager of Contract Administration.

Notice to Proceed (NTP): A written notice issued by VRE to the Contractor stating the Commencement Date, the date on which the Contract time will commence for the Contractor to begin the prosecution of the Work required under the Contract. The Notice to Proceed will specify the Period of Performance of the Contract.

Owner: The entity that solicits the work and ultimately possesses the completed work. Unless noted otherwise herein, Virginia Railway Express (VRE) shall be considered the Owner.

Period of Performance: The number of consecutive calendar days beginning on the Notice to Proceed date which the Contractor is allotted to complete all the Work required by the Contract. Day number one

(1) of the Contract is the date of NTP, unless noted otherwise.

Project Manager (PM): The VRE employee responsible for the management of the Contract. A Construction Manager may be designated by the Project Manager to act on behalf of VRE to perform construction services administration, project oversight, or other services as defined by VRE.

Project Site: Space available for performing construction activities. The extent of Project site is indicated in the . Specifications.

Provide: Furnish and install, complete and ready for the intended use.

Schedule of Values: A listing of the Contractor's total contract value by Construction Specifications Institute (CSI) divisions, Contract Pay Items, or other breakdown of items as required by VRE. See Section 01 29 00, "Payment Procedures," for details regarding the Schedule of Values.

Specifications: Technical Specifications, Special Provisions, and all written agreements and instructions pertaining to the performance of the Work.

Technical Specifications: The part of the Contract Documents that describe the quality of materials, method of installation, standard of workmanship, and the administrative and procedural requirements for the performance of the Work under the contract.

Special Provisions: The written statements modifying or supplementing the Technical Specifications or General Terms and Conditions for requirements or conditions peculiar to the Contract.

Subcontractor: An individual or business that holds a signed agreement with the Contractor to perform part or all of the Contractor's Work. A second-tier Subcontractor holds a signed agreement with a first-tier Subcontractor to perform part or all of the first-tier Subcontractor's Work.

Submittal: A deliverable required by the Contract Documents, specifically the Technical Specifications, to be prepared by the Contractor and approved by VRE or the CM to verify the Work will be installed utilizing the correct materials and procedures. See Section 01 33 00, "Submittal Procedures," for details and terms specific to Submittals.

Substantial Completion: The condition when VRE agrees that the Work, or a specific portion thereof, is sufficiently complete, in accordance with the Contract Documents, so that it can be utilized by VRE for the full use and function for which it was intended, including the issuance of a Certificate of Occupancy, if applicable. The date of Substantial Completion of the Work under the Contract is the milestone date on which Substantial Completion condition is accomplished. The only remaining physical work shall be the completion of punch list work prior to Final Acceptance.

Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.

Substitutions for Convenience: Changes proposed by Contractor or VRE that are not required in order to meet other Project requirements but may offer advantage to the Contractor or VRE but are not considered Value Engineering Proposals.

Superintendent: The Contractor's Project representative who is authorized to receive and fulfill instructions from the PM or CM and who supervises and directs the Work in the field on the Contractor's behalf.

Utilities: Private, county, city, municipal or public facility, structure, or infrastructure, designed, owned and maintained for public use or to provide a public service such as electricity, water, sanitary sewer, storm sewer, drainage culverts, telecommunications, conduits, gas, oil, fiber optics, or cable television.

Work: The services performed under this Contract including, but not limited to, furnishing labor, and furnishing and installing materials and equipment required to complete the project specified in the Contract Documents. Where "as shown," "as indicated," "as detailed," or words of similar import are used, it shall be understood that the direction, requirements, permission, or review of the PM or CM is intended unless stated otherwise. As used herein, "provide" shall be understood to mean "provide complete in place," that is, "furnish and install."

1.4 **INDUSTRY STANDARDS**

- A. All technical terms in these Contract Documents have their definition given in latest edition of American National Standard Safety Code for Elevators, Dumbwaiters, Escalators and Moving Walks ASME A17.1. and A17.2.
- B. **Applicability of Standards:** Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- C. **Publication Dates:** Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
- D. **Copies of Standards:** Each entity engaged in construction on Project shall be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source and make them available on request

1.5 **ABBREVIATIONS AND ACRONYMS**

- A. Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Website addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.
- B. Abbreviations are also noted on the Contract Plans. If any abbreviation is unknown or unclear the Contractor shall notify the CM or Owner.

INDUSTRY ORGANIZATIONS

1.7AIA	American Institute of Architects
ASTM	American Society for Testing and Materials International
ATSSA	American Traffic Safety Services Association
NECA	National Electric Contractor's Association
NEMA	National Electric Manufacturers Association
NFPA	National Fire Protection Association
NRTL	National Recognized Testing Laboratory

NVLAP	National Voluntary Laboratory Accreditation Program
UL	Underwriters Laboratories, Inc.

STANDARDS AND REGULATIONS

CFR	Code of Federal Regulations Available from Government Printing Office
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MUTCD	Manual on Uniform Traffic Control Devices Department of Transportation
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FHWA	Federal Highway Administration
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FEDERAL AGENCIES

FTA	Federal Transit Administration
NIST	National Institute of Standards and Technology U.S. Department of Commerce
OSHA	Occupational Safety & Health Administration

STATE/LOCAL GOVERNMENT AGENCIES

VDEQ	Virginia Department of Environmental Quality
VDOT	Virginia Department of Transportation
VPRA	Virginia Passenger Rail Authority

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 01 45 00**QUALITY ASSURANCE AND QUALITY CONTROL****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes general requirements and procedures for:
 - 1. Conflicting Requirements
 - 2. Submittals
 - 3. Quality Control
 - 4. Quality Assurance
 - 5. Test and Inspection Log
 - 6. Contractor's Quality Management Plan
 - 7. Notification of Non-Compliance
 - 8. Startup and Testing
- B. Testing as required by the Contract Documents shall be performed by the Contractor. The Contractor shall also provide quality assurance testing as required to ensure full and complete compliance with Contract requirements. Reliance on the Owner's third party testing agency's results will not relieve the Contractor from their contractual obligation to properly perform the Work in accordance with the Contract Documents. The Contractor shall not use the same testing company as employed by the Owner.
- C. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
- D. Specific Quality Assurance and Quality Control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
- E. Specified tests, inspections, and related actions do not limit Contractor's other Quality Assurance and Quality Control procedures that facilitate compliance with the Contract Document requirements.
- F. Requirements for Contractor to provide Quality Assurance and Quality Control services required by the CM or VRE, Owner, Commissioning Authority (if applicable), or authorities having jurisdiction (as applicable) are not limited by provisions of this Section.
- G. Specific test and inspection requirements are not specified in this Section.

1.2 RELATED SECTIONS

- A. Section 01 33 00 – Submittal Procedures

- B. All Technical Specifications provided as part of the Contract Documents.

1.3 **DEFINITIONS**

Quality Assurance (QA): The application of planned and systematic reviews which demonstrate that Quality Control practices are being effectively implemented.

Quality Control (QC): The continuous review, certification, inspection, and testing of project components, including persons, systems, services, materials, documents, techniques, and workmanship to determine whether or not such components conform to the plans, specifications, applicable standards, and project requirements. Services do not include contract enforcement activities performed by the Construction Manager.

Preconstruction Testing: Tests and inspections performed specifically for the project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

Source QC Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

Field QC Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

Installer: Contractor or another entity engaged by Contractor as an employee or Subcontractor to perform a particular construction operation, including installation, erection, application, and similar operations.

Experienced: Unless otherwise indicated in individual Specification sections, when used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 **CONFLICTING REQUIREMENTS**

- A. If compliance with two standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to the CM for a decision before proceeding.

1.5 **SUBMITTALS**

- A. Contractor's Quality Management (QM) Plan
1. The Contractor shall submit, for review and approval by VRE, a project specific plan detailing Quality Control and Quality Assurance activities and responsibilities for the Project. Submit one (1) electronic (.pdf) version of the plan. The plan shall be submitted no later than seven (7) calendar days prior to the scheduled date of the Preconstruction Conference. Once approved by VRE, the Contractor shall in pdf formats.
 - a. Any approval by the CM of the QM Plan shall be treated as "approved, predicated upon successful implementation." If the CM finds any portion of the QM plan is not being implemented as approved, CM may issue a stop work order, for any of the portion of work in question.

b. See detailed requirements for the Quality Management Plan in Article 1.9 of this section.

B. Qualification Data

1. The Contractor shall submit, for VRE review and approval, qualification data for the Contractor's Quality Control personnel, as specific QC personnel are required by Contract.

C. Testing Agency Qualifications

1. The Contractor shall submit, for review and approval by VRE, qualifications of the proposed Independent Testing Agency to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority. Rejection of an Independent Testing Agency by the CM or VRE does not constitute grounds for additional monetary compensation to the Contractor.

D. Test and Inspection Reports

1. Submit test and inspection reports as required in individual technical specification sections.

1.6 **QUALITY CONTROL**

A. Contractor Responsibilities

1. Perform Quality Control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
2. Perform tests and inspections not explicitly assigned to VRE or Others. Perform additional Quality Control activities required to verify that the Work complies with requirements, whether specified or not.
3. Unless otherwise indicated, provide Quality Control services specified and/or those required by the Authority Having Jurisdiction (AHJ.)
4. Cooperate with Independent Testing Agency and provide the following:
 - a. Access to the Work
 - b. Incidental labor, facilities, equipment, and tools necessary to facilitate tests and inspections
 - c. Adequate quantities of representative samples of materials that require testing and inspecting
 - d. Facilities for storage and field curing of test samples
 - e. Security and protection for samples and for testing and inspecting equipment at project site
5. Notify the Independent Testing Agency and the CM at least 48 hours prior to expected time for operations requiring testing and inspection services
6. Schedule jurisdictional inspections, including any special inspections, as required by associated permits or Prince William County building officials.
7. Obtain Certificates of Occupancy, if applicable.

- B. Should field conditions conflict with Contract Documents, request clarification from the CM before proceeding.

- C. If manufacturer's instructions conflict with Contract Documents, request clarification from the CM before proceeding.

1.7 **QUALITY ASSURANCE**

A. Independent Testing Agency

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these Quality Control services. Contractor shall employ and pay for the services of an independent firm approved by VRE to perform all inspection and testing.
2. The Contractor shall not use the same Testing Laboratory as retained by the Owner for Special Inspection Testing. The Contractor shall submit to the CM and Owner the name, address and qualifications of the Testing Laboratory he intends to use on this Project for the acceptance of the Owner and CM.
3. The Independent Testing Agency shall be a corporately and financially independent testing organization that can function as an unbiased testing authority, professionally independent of manufacturers, suppliers, and installers of equipment, or systems evaluated by the testing organization shall be contracted by the Contractor to perform the contractually required tests.
4. The Independent Testing Agency shall be a Nationally Recognized Testing Laboratories (NRTL), a National Voluntary Laboratory Accreditation Program (NVLAP), or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
 - a. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7
 - b. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program
5. VRE reserves the right to employ a separate Independent Testing Agency (ITA) at its own cost under separate contract. Contractor shall not employ same entity engaged by VRE, if applicable, unless agreed to in writing by VRE.
6. Testing Agency Responsibilities
 - a. Cooperate with VRE, the CM, and the Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - b. Perform inspections, tests, and other services specified in individual technical specification sections.
 - c. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 - i. Submit a certified written report of each test, inspection, and similar Quality Control service. Reports shall be submitted by the Independent Testing Agency directly to the CM indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
 - ii. Report shall cite applicable Contract requirements, tests or analytical procedures used. Provide actual results and include a statement that the item tested or analyzed conforms or fails to

conform to specified requirements. If the item fails to conform, notify CM immediately. Conspicuously stamp the cover sheet for each report in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements, whichever is applicable.

- iii. A testing laboratory representative authorized to sign certified test reports shall sign test results. Furnish the signed reports, certifications, and other documentation directly to the CM.
 - d. Retesting and reinspection required because of non-conformance to specified requirements shall be performed by the same Independent Testing Agency. The cost for retesting will be borne by the Contractor.
 - e. Notify the CM and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
- B. The Construction Manager has the authority to reject work due to non-compliance with Contract Documents.

1.8 TEST AND INSPECTION LOG

- A. Contractor shall prepare and maintain a record of tests and inspections. Report shall include, but not be limited, to the following:
- 1. Date test or inspection was conducted
 - 2. Description of the Work tested or inspected
 - 3. Date test or inspection results were transmitted to the CM
 - 4. Identification of testing agency or special inspector conducting test or inspection
- B. Contractor shall maintain a log for inspection by the CM, when requested.

1.9 CONTRACTOR'S QUALITY MANAGEMENT PLAN

- A. The Contractor shall prepare a Quality Management Plan for the project which will spell out the policies, processes, and procedures to be used in order to assure the quality of all work and products produced for the project. The Quality Management Plan shall include planned and systematic actions necessary to provide adequate confidence to VRE that construction will satisfy the given requirement for quality. The Federal Transit Administration (FTA) Quality Assurance and Quality Control Guidelines shall be referenced in the preparation of this plan, if the project is fully or partially funded by the FTA.
- 1. The only work that is authorized to proceed prior to the approval of the QM Plan is mobilization of storage and office trailers, temporary utilities, and surveying.
 - 2. Approval of the QM Plan is required prior to the start of any construction. The CM reserves the right to require changes in the QM Plan and operations as necessary, including but not limited to removal of personnel, to ensure the specified quality of work. The CM reserves the right to interview any member of the QC organization at any time in order to verify the submitted qualifications. All QC organizational personnel shall be subject to acceptance by the CM. The CM may require the removal of any individual for non-compliance with quality requirements specified in the contract.
- B. Notify the CM, in writing, of any proposed change, including changes in the QC organization personnel, a

minimum of seven calendar days prior to a proposed change. Proposed changes shall be subject to acceptance by the CM.

- C. The Quality Management Plan shall include a written quality policy, written plan, written procedures, and a management team that supports and takes responsibility for quality and personnel who undertake Quality Control activities. The procedures shall include, at a minimum, the following elements:

1. Management Responsibility
 - a. Personnel Matrix
 - b. Names and Qualifications
 - c. Duties, Responsibilities and Authority of QC Personnel
2. Document Control Procedures (using PMIS prescribed by VRE)
3. Subcontracting and Purchasing Procedures
4. Inspection and Testing
 - a. Testing Laboratory Information and Certifications
 - b. Special Inspections
5. Procedures for Verification of Materials at Delivery
6. Procedures for Control of Inspection, Measuring and Test Equipment
7. Procedures for Reporting, Review and Disposition of Nonconforming Product
8. Corrective Actions
9. Procedures for Control of Quality Records
10. Training

- D. Quality Control Personnel Qualifications

1. Provide sufficient qualified full-time quality control personnel trained and experienced in managing and executing Quality Assurance and Quality Control procedures similar in nature and extent to those required for Project. Personnel shall monitor work activity at all times. Scheduling and coordinating of all inspections shall match the type and pace of the work activity.
 - a. In cases where multiple trades, disciplines, or subcontractors are on site at same time, each activity shall be tested and inspected by personnel skilled in that portion of the work.
 - b. In cases where multiple shifts are employed, the quality-control staff shall be increased as required to monitor the work on each shift.
2. The Quality Control Manager (QCM) position is key personnel as defined by VRE in this and other Division 01 Specification Sections:

- a. Provide a QCM at the work site to implement and manage the Contractor's QC Program. The duties and responsibilities of the QCM is to ensure compliance with the QM Plan. The QCM shall not be designated as the safety competent person as defined by Division 01 Section 01 35 23 "Safety and Security Requirements".
 - b. The QCM is required to attend QC planning meetings, conduct the QC meetings, perform submittal review and approval, ensure testing is performed and provide QC certifications and documentation required in this contract. The QCM is responsible for documentation performed by Testing Laboratory personnel and any other inspection and testing personnel required by this Contract.
 - c. On Projects above \$5,000,000 the only duties and responsibilities of the QCM are to manage and implement the Contractors approved QC Plan on the Contract.
 - d. On Projects below \$5,000,000 the QCM may have other shared duties and responsibilities in addition to managing and implementing the Contractors approved QC Plan on the Contract.
3. Experience shall include a minimum of 5 years' experience as a superintendent, QCM, project manager, project engineer or construction manager on similar size and type construction contracts which included the major trades that are part of this Contract.
 4. The individual shall be familiar with VRE's Safety and Security Guidelines, and Quality Control Requirements and have experience in the areas of hazard identification and safety compliance.
 5. Certifications may include Construction Quality Management courses offered by agencies including but not limited to: Construction Management Association of America (CMAA), Associated General Contractors (AGC), Associated Builders and Contractors (ABC) and the Army Corps of Engineers.
 6. Submit the résumés of individuals proposed to serve in the role of Quality Control Manager to the CM. The QCM shall be interviewed by the CM. The VRE PM and CM will assign written approval to the QC Manager and their designee.
 7. Designate an alternate for the QCM at the work site to serve in the event of the designated QCM's absence. The period of absence may not exceed two weeks at one time, and not more than 30 workdays during a calendar year. The qualification requirements for the Alternate QCM shall be the same as for the QCM.
- E. Quality Control of Submittal Process
1. Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- F. Testing and Inspection
- In the Quality Management Plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:
1. Tests and inspections performed by the Independent Testing Agency
 2. Special inspections as required by authorities having jurisdiction
 3. Tests and inspections indicated in the Contract Documents as to be performed by VRE or Others
- QUALITY ASSURANCE AND QUALITY CONTROLS

G. Continuous Inspection of Workmanship

1. Describe the process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements.

H. Monitoring and Documentation

1. Maintain current and complete records of testing and inspection reports including log of approved and rejected results. Include work the Construction Manager has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.
 - a. Testing log shall be current and up-to-date and include supporting field test reports, arranged by specification section. Log shall be kept in a digital format that is readily available to the CM during normal business hours.
2. Contractor shall maintain current quality control records, on forms acceptable to VRE , of all control activities, production, tests and inspections performed. These records shall include factual evidence that required tests or inspections have been performed, including type and number of tests or inspections involved; results of tests or inspections; nature of defects, causes for rejection, etc.; proposed remedial action; and corrective actions taken. These records shall cover both conforming and defective or deficient features (non-conforming) and shall include a statement that all supplies and materials incorporated into the Work are in full compliance with terms of the Contract.
 - a. Legible copies of these records shall be furnished to CM monthly. The records shall cover all work placed subsequent to the previously furnished records and shall be verified by Contractor's QC Personnel. Contractor shall document tests and inspections as specified in the technical provisions of the Specifications, and these records shall be available for review by the CM throughout the life of the Contract.
3. At a minimum, the QC Personnel shall furnish digital copies of the reports, certifications, and a summary report of field tests at the end of each month to the CM.

1.10 NOTIFICATION OF NON-COMPLIANCE

- A. The CM will notify the Contractor of any detected non-compliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, VRE may:
 1. Issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall make no part of the time lost due to such stop orders the subject of a claim for extension of time for excess costs or damages.
 2. Repair, replace or otherwise remedy the defective work at the Contractor's expense. Cost incurred by VRE to correct defective work shall be deducted from the total amount due to the Contractor.

3. Withhold an amount from the payment due the Contractor as may be deemed necessary at the discretion of the CM.
 4. Terminate the Contractor's right to proceed for Default after providing required notice in accordance with the Termination for Default procedures described in the General Provisions.
- B. In cases where the Contractor fails to properly operate, maintain and comply with their Quality Management Plan or the Contract Provisions, VRE may:
1. Order the Contractor to replace ineffective or unqualified Quality Control Personnel or subcontractors.
 2. Issue an order stopping all or part of the work until acceptable personnel are on site and a new Quality Management Plan is approved by the CM. The Contractor shall make no part of the time lost due to such stop orders the subject of claim for extension of time for excess costs or damages.
 3. Take a credit from the contract for Quality Control Activities not performed.
 4. Terminate the Contractor's right to proceed for Default after providing required notice in accordance with the Termination for Default procedures described in the General Provisions.
- C. The Contractor shall maintain a detailed record of every non-compliance and corrective action taken.

PART 2 – PRODUCTS

NOT USED

PART 3 - EXECUTION**3.1 INSPECTIONS/TESTING**

- A. The CM shall employ one or more Independent Testing Laboratories to perform tests specifically for certain elements of the project that are declared critical.
- B. The Contractor is responsible for all other testing not covered by the Special Inspections Program as required by the contract documents.
- C. The Contractor shall furnish required notice and/or data to the Owner's Independent Testing Agency to perform its work in a proper and orderly manner. The Contractor shall notify the Owner's Testing Agency not less than 24 hours in advance of such required inspections or tests, and the Contractor will ensure that the work element is ready for inspections or testing. The Owner's Independent Testing Laboratory will only perform such inspections or tests as are required to ensure compliance with the provisions of the Special Inspections Program. The Contractor shall not proceed with subsequent work unless the required inspections or tests are performed and the results certified as compliant with contract requirements.
- D. The Owner's Independent Testing Laboratory is not responsible for securing or performing code required building inspections and is strictly limited by the scope of services above. The Independent Testing Laboratory has no authority and no authority should be assumed to control the means or methods of construction or to in any way intervene in the Contractor's prosecution of the work.

- E. In the event the work for which a test is scheduled is not reasonably ready for testing at the time indicated, the Contractor shall bear the Independent Testing Agency's cost for rescheduling the test. The Independent Testing Agency will advise the Contractor of the cost and provide a copy of such notice to the CM and Owner.
- F. In the event the work fails the test of the Independent Testing Agency, the Contractor shall bear the full cost of such retest, including CM's time spent in processing such retest information prior to acceptance by the owner.
- G. Any costs for retesting due to non-complying construction methods or failure of the initial test (regardless of results of retesting), any overtime costs of inspectors due to the Contractor's failure to have work ready for inspection, or any costs incurred for failure to give required notice of cancellation for inspections will be charged to the Contractor.
- H. In the event that work is determined by the CM to be nonconforming, the Contractor may request special or additional tests to determine the acceptability of the in-place product. Such tests are for the Contractor's convenience, and the Owner's decision either to accept the subject work or to require removal and replacement does not relieve the Contractor of paying for all such testing and review time of the CM.
- I. The Contractor shall take reasonable precautions to schedule work in a manner to minimize the number of concrete placements. Where large mass concrete placement is scheduled, sufficient notice should be given to the CM and the Independent Testing Agency to ensure that sufficient Independent Testing Agency personnel are available to test the work and that deficiencies can be corrected and retested, without delay to the work.

3.2 CONTRACTOR'S COORDINATION FOR TESTING FIRMS

- A. Cooperate with laboratory personnel and provide access to work.
- B. Provide to laboratory representative samples of materials to be tested in required quantities.
- C. Furnish copies of mill test reports.
- D. Furnish casual labor and facilities:
 - 1. To provide access to work to be tested
 - 2. To obtain and handle samples at the site
 - 3. To facilitate inspections and tests
 - 4. For laboratory's exclusive use for storage and curing of test samples
- E. Arrange with laboratory and pay for additional samples and tests required for Contractor's convenience.
- F. The Contractor shall notify the Owner's Independent Testing Agency a minimum of 24 hours in advance of such required tests, and the Contractor will ensure that the work element is ready for testing at the time requested. The Contractor shall not proceed with subsequent work unless the required test is performed and the results certified as compliant with contract requirements.

END OF SECTION

SECTION 01 50 00**TEMPORARY FACILITIES AND CONTROLS****PART 1 - GENERAL****1.1 SUMMARY**

- A. This section specifies the general requirements for furnishing, installing, and operating temporary facilities and controls. This Section includes:
1. Submittals
 2. Compliance
 3. Materials
 4. Equipment
 5. Installation
 6. Contractor Personnel Parking
 7. Temporary Sanitary Facilities
 8. Project Identification Signage
 9. Warning Signs and Instructional Safety Signs
 10. U.S. Department of Labor Signage
 11. Maintenance of Traffic (Roadway)
 12. Termination and Removal

1.2 RELATED SECTIONS

- A. Section 01 29 00 – Payment Procedures
- B. Section 01 33 00 – Submittal Procedures

1.3 SUBMITTALS

- A. Shop Drawings: Submit to CM, for VRE's review and approval, site plans indicating all temporary facilities, including support and security; and traffic flows. Provide detailed drawings of special facilities. Submittals shall include detailed list of materials for use and related specifications.

- B. Implementation and Termination Schedule: Within 15 calendar days of date established for submittal of Contractor's first Construction Schedule, submit a schedule indicating implementation and termination of each temporary facility.

1.4 COMPLIANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but are not limited to, the following:
1. Building Code requirements.
 2. Health and safety regulations.
 3. Police and Fire Department regulations.
 4. Environmental protection regulations.
 5. All temporary facilities shall be ADA compliant.

1.5 MATERIALS

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by CM. Provide materials suitable for use intended.

1.6 EQUIPMENT

- A. General: Provide new equipment suitable for use intended. If acceptable to CM, undamaged, previously used equipment in serviceable condition may be used.
- B. Self-Contained Toilet Units: Single-occupant units of chemical, aerated re-circulation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- C. Fire Extinguishers: Hand carried, portable, UL rated with class and extinguishing agent as required by locations and classes of fire exposures.
- D. Heating and Cooling Equipment: Unless CM authorizes use of permanent heating system, provide temporary heating units with individual space thermostatic control.
1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 2. Heating and Cooling Units: Listed and labeled, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use for type of fuel being consumed. If liquid fuel is used, provide under-unit containment in the event of leakage. Provide adequate ventilation or direct vent the units top the outside.

1.7 INSTALLATION, GENERAL

- A. Prior to installation of temporary facilities and utilities, submit to the CM a site layout providing locations and details of the facilities and utilities.
- B. Use qualified personnel for installation of temporary facilities.

- C. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

1.8 CONTRACTOR PERSONNEL PARKING

- A. VRE is not responsible for on or offsite parking. Parking facilities for Contractor's personnel shall be the Contractor's responsibility.
- B. Contractor is limited to the construction area as defined in the contract documents. If available, the on-site parking and staging of both company-owned and personal vehicles will be limited to the construction area as defined in the Contract documents. Do not under any circumstances, leave any vehicle unattended with motor running, or with ignition key in-place.
- C. Parking of company-owned and construction personnel's private vehicles at VRE parking lots is prohibited.
- D. If off-site parking is required, Contractor will be responsible for the maintenance, security, safety, and operation of its vehicles/equipment. This cost will be considered part of the Contractor's general conditions. Transportation of personnel to the Work site is the responsibility of the Contractor. Contractor is responsible for the payment of any parking charges or fines resulting from illegal parking at any work site(s). The Contractor shall monitor parking of construction personnel's private vehicles and ensure that the public has unobstructed access to and through parking areas.

1.9 TEMPORARY SANITARY FACILITIES

- A. The Contractor shall furnish for use of his work force the necessary temporary toilet conveniences, secluded from public observation, wash facilities and drinking-water fixtures. Keep in a clean, sanitary condition.
 - 1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
 - 2. Toilets: Install self-contained toilet units, located as approved by CM. Shield toilets to ensure privacy. Provide separate facilities for male and female personnel.
 - 3. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel who handle materials that require wash up. Dispose of drainage properly. Supply cleaning compounds appropriate for each type of material handled.
 - a. Provide safety showers, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel.
 - 4. Drinking-Water Facilities: Provide bottled-water, drinking-water units.
- B. Comply with the requirements and regulations of the local, state, and other agencies having jurisdiction.

1.10 PROJECT IDENTIFICATION SIGNAGE

- A. Contractor's Identification Signs: The Contractor may erect his own signs to identify himself and, if he wishes, his subcontractors. The overall size of the Contractor's identification signs shall not exceed four (4)

feet by eight (8) feet wide. The exact location, method of mounting and mounting height of the Contractor's identification signs will be subject to the approval of the Construction Manager.

- B. Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
- C. Provide temporary, directional signs for construction personnel and visitors.
- D. Maintain all signs throughout the course of construction until final acceptance, keeping them clean, in good repair, and free of obstructions.
- E. Upon final acceptance of the work, remove and dispose of all signs, unless otherwise directed by VRE.

1.11 U.S. DEPARTMENT OF LABOR SIGNAGE

- A. The following posters required by the U.S. Department of Labor shall be posted at the construction site, in English and Spanish, in a location visible to all workers:
 - 1. The Davis-Bacon Act, Poster WH-1321
 - 2. Equal Employment Opportunity Act, Poster EEOC-P/E-1
 - 3. Minimum Wage / Fair Labor Standards Act, Poster WH-1088
 - 4. OSHA Job Safety and Health Protection, Poster OSHA-3165
 - 5. The required posters can be downloaded and/or purchased from the U.S. Department of Labor website.

1.12 MAINTENANCE OF TRAFFIC (ROADWAY)

- A. If the project is located adjacent to a public street or highway, the Contractor shall have at least one person on the project site during all work operations who is currently verified either by VDOT's Intermediate Work Zone Traffic Control training or by the American Traffic Safety Services Association (ATSSA) Intermediate Traffic Control Supervisor (TCS) training. This person shall be responsible for the oversight of work zone traffic control within the project limits in compliance with the Contract requirements, the Virginia Work Area Protection Manual (VWAPM) if the Project is located in Virginia, and the Manual on Uniform Traffic Control Devices (MUTCD) or the specifications required by the jurisdiction where work is being performed. This person's duties shall include the supervision of the installation, adjustment (if necessary), inspection, maintenance, and removal when no longer required, of all work zone traffic control devices on the project.
- B. Certified flaggers shall be provided, by the Contractor, in sufficient number and locations as necessary for control and protection of vehicular and pedestrian traffic in accordance with the VWAPM and the MUTCD. Flaggers shall be able to communicate to the traveling public in English while performing the job duty as a flagger at the flagger station. Flaggers shall use sign paddles to regulate traffic in accordance with the VWAPM or MUTCD, as applicable.
- C. Employees performing flagging duties shall be certified for such activity by a certification course accepted by VDOT (or local jurisdiction as necessary). Certification cards shall be carried by flaggers while performing flagging duties and presented to the CM or VRE upon request.

- D. The Contractor shall conduct its operations in a manner that will ensure that traffic will be uninterrupted except as approved by VRE. At the close of each work day, the area of work shall be confined to the smallest area possible so that the maximum use of surrounding streets, parking lots, and passenger facilities will be restored and the hazard to pedestrian and vehicular traffic reduced to a minimum. No excavation shall remain open within the roadway, parking lot, or passenger facility without the approval of VRE except when the excavation can be safely bridged with the use of steel plates or other materials acceptable to VRE. When areas of excavation outside of the roadway do remain open, the area shall be barricaded to the satisfaction of VRE and warning signs shall be posted.
- E. At all times the Contractor shall use the personnel and traffic control signs and devices necessary to comply with Part VI of the MUTCD. During the progress of the work when the street may be obstructed to any extent by construction equipment or construction operations, in addition to the signs and barricades, special workers, equipped with "STOP/SLOW" double sided traffic control paddles, shall be designated by the Contractor to direct traffic. These workers so designated shall not be assigned to any other duties while engaged in directing traffic. The Contractor has sole responsibility for ensuring that its operations are conducted in a safe manner.
- F. All costs associated with contractor's personnel, signs, barricades, and any other items necessary for protection of the site and Work, as well as access in and out of the site, either temporary or permanent, shall be the responsibility of the Contractor and included in the base bid for the project.
- G. The MOT plan as implemented in the field during construction of this project shall be as directed, reviewed, and approved by VRE, the Construction Manager, and the AHJ (Authority Having Jurisdiction).
- H. The Contractor shall furnish, install, maintain, and remove when no longer required, all traffic control and protective devices required.

1.13 WORK, STAGING AND STORAGE AREAS

- A. VRE will provide parking spaces near the elevator. Drawings will for storage of project materials and for parking of project construction equipment. These areas will be provided to the Contractor for the duration of construction without charge. CM and Contractor will make a joint site visit to document condition of staging area prior to occupancy. Take photos for the record.
- B. The Contractor at their own expense, if necessary, shall provide additional work and storage space as approved by VRE.
- C. If off-site storage of materials and equipment is required, Contractor will be responsible for the maintenance, security, safety, and operation of these facilities. This cost will be considered part of the Contractor's general conditions. Transportation of materials and equipment to the Work site is the responsibility of the Contractor.
- D. Erect and maintain a 6-foot high chain link fence topped with 3-strands of barbed wire around perimeter of staging area. Protect all stored equipment from the weather. VRE accepts no responsibility for items stored in this area.
- E. Upon completion of Construction, remove all temporary staging area facilities and return the areas to their original condition.
- F. Do not stockpile construction materials, spoils, debris or refuse in any area other than that specifically approved for such purpose by the CM.

- G. Constrain stockpiled material in a manner to prevent its movement by wind or train slip stream or draft.
- H. Multiple roadway and parking lot cleanings may be required at various times during the day depending on the construction activities.

1.14 TERMINATION AND REMOVAL

- A. Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Properly recondition and restore those portions of the site occupied by temporary facilities and controls to condition acceptable to CM, at least equal to condition at time of start of Work, unless otherwise authorized in writing by CM.
 - 2. Materials and facilities that constitute temporary facilities are the property of Contractor. VRE reserves right to take possession of Project identification signs.
 - 3. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace roadway paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 - 4. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 01 Section 01 77 00 "Project Closeout."

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 01 61 00

COMMON PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Common requirements for materials and equipment.
 2. Compatibility of materials and equipment.

1.2 REQUIREMENTS FOR MATERIALS AND EQUIPMENT

- A. Unless otherwise indicated in the Contract Documents, furnish materials and equipment that:
1. Have not previously been incorporated into another project or facility;
 2. Have not changed ownership after initial shipment from the manufacturer's factory or facility;
 3. If stored since their manufacture or fabrication, have, while in storage, been properly maintained and serviced in accordance with the manufacturer's recommendations for long-term storage; submit documentation as required by VRE that such maintenance and service has been performed;
 4. The item(s) have not been subject to degradation or deterioration since manufacture;
 5. Are the current model(s) or type(s) furnished by the Supplier.
- B. To the extent possible, furnish from a single source those materials and equipment that are of the same generic kind.
- C. Furnish materials and equipment complete with accessories, trim, finish, fasteners, and other items shown, indicated, or required for a complete installation for the indicated use and performance.
- D. Standard Items: When available, and unless custom or nonstandard options are specified or indicated, furnish standard materials and equipment of types that have been produced and used successfully in similar situations on other projects.
- E. Visual Matching: Where required in the Contract Documents, furnish materials and equipment that match (as determined by Engineer of Record) referenced existing construction, and mock-ups and Sample(s) approved by VRE.
- F. Where the Contract Documents include the phrase "as selected" for color of materials, finish pattern, option, or similar phrase, furnish materials as selected by VRE as follows:
1. Standard Range: Where the Contract Documents include the phrase "standard range of colors, patterns, textures" or similar wording, furnish color, pattern, density, or texture selected by VRE from manufacturer's product line that does not include premium items.

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2. Full Range: Where the Contract Documents include the phrase “full range of colors, patterns, textures” or similar wording, VRE will select color, pattern, density, or texture from manufacturer’s entire product line, including standard and premium items.

1.3 COMPATIBILITY

- A. Similar materials and equipment by the same Supplier shall be compatible with each other, unless otherwise indicated in the Contract Documents or approved by Engineer of Record.
- B. Furnish materials and equipment compatible with items previously selected or installed on the Project

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 01 71 14**MOBILIZATION AND DEMOBILIZATION****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes:
 - 1. Construction mobilization and demobilization.
- B. Scope:
 - 1. Contractor shall provide all labor, materials, equipment, tools, services, and incidentals to perform mobilization and demobilization for the Work.
 - 2. This Section is general and does not necessarily indicate all activities required for mobilization and demobilization, which may be indicated in other parts of the Contract Documents.
- C. Related Requirements: Include, but are not necessarily limited to:
 - 1. Section 01 11 00 - Summary of Work.
 - 2. Section 01 22 00 - Unit Prices.
 - 3. Section 01 29 00 - Payment Procedures.
 - 4. Section 01 73 00 - Execution of Work.
 - 5. Section 01 77 00 - Closeout Procedures.

1.2 PRICE AND PAYMENT PROCEDURES

- A. Measurement and Payment:
 - 1. No measurement shall be made by the CM or designee.
 - 2. Mobilization will be paid for at the contract lump sum price.
 - 3. This price shall include demobilization.

1.3 MOBILIZATION AND DEMOBILIZATION - GENERAL

- A. Do not commence mobilization at the Site or other areas until:
 - 1. The Contract is signed by both parties and is effective.
 - 2. Required insurance documentation, performance bond, and payment bond have been submitted by Contractor and accepted by Owner, and builder's risk insurance, complying with the Contract Documents is furnished and in place, and documentation thereof accepted by the parties.
 - 3. Conditions, if any, of Owner-issued Notice to Proceed, if any, have been complied with by the applicable party.
 - 4. Preconstruction conference(s), including items on agenda for site mobilization matters, is completed.

5. Preconstruction photographic documentation is obtained and submitted in accordance with the Contract Documents.
6. Required permits for site disturbance are obtained and, where applicable, Contractor is properly established as co-permittee on Owner-obtained permits, in accordance with the Contract Documents.
7. Subcontractors and Suppliers proposed for mobilization Work are identified to the Owner and accepted by Owner in accordance with the contract Documents.

B. Mobilization Work includes, but is not limited to:

1. Establishing vehicular access and parking in accordance with the Contract Documents.
2. Establishing temporary controls and establishing initial compliance with security for the Site in accordance with the Contract Documents.
3. Establishing Contractor's staging and laydown areas in accordance with the Contract Documents.
4. Establishing temporary utilities and temporary facilities in accordance with the Contract Documents.
5. Establishing required and necessary temporary project signage.
6. Other mobilization Work required by the Contract Documents, including Section 01 22 00 - Unit Prices, and Section 01 29 00 - Payment Procedures, includes, but is not limited to:
 - a. Access to the project site.
 - b. Assembling and setting up for the project.
 - c. Contractor's general plant, including offices, shops, plants, storage areas, sanitary facilities, and other facilities.
 - d. Adhering to all environmental permits.

C. Demobilization Work includes, but is not limited to:

1. Removing from the Site and other areas Contractor's temporary utilities, temporary facilities, temporary signage, temporary security measures; construction equipment, machinery, and tools; unused items of materials and equipment; and all other temporary items.
2. Final restoration and repair of damage caused by Contractor in accordance with the Contract Documents.
3. Final cleaning in accordance with Section 01 77 00 - Closeout Procedures.
4. Other demobilization Work required by the Contract Documents, including Section 01 22 00 - Unit Prices, and Section 01 29 00 - Payment Procedures.

PART 2- PRODUCTS
NOT USED

PART 3 – EXECUTION
NOT USED

END OF SECTION

SECTION 01 73 00**EXECUTION OF WORK****PART 1 - GENERAL****1.1 SUMMARY**

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
1. Subcontracting
 2. Cooperation of Contractor
 3. Cooperation Among Contractors
 4. Cutting and Patching
 5. Existing Conditions
 6. Preparation
 7. Installation
 8. Correction of the Work
 9. Products Installed by VRE
 10. Salvage Materials and Owner Provided Materials
 11. Progress Cleaning
 12. Dust Control
 13. Starting and Testing
 14. Protection of installed construction
 15. Maintenance of Work
 16. Removal of Unacceptable and Unauthorized Work

1.2 RELATED SECTIONS

- A. General Conditions for Construction
- B. Section 01 26 00 – Change Order Procedures
- C. Section 01 31 00 – Project Management and Coordination

- D. Section 01 32 00 – Construction Progress Documentation
- E. Section 01 45 00 – Quality Assurance and Quality Control
- F. Section 01 50 00 – Temporary Facilities and Controls

1.3 SUBMITTALS

- A. Qualification Data: For licensed land surveyor
- B. Certificates: Submit certificate signed by licensed land surveyor or certifying that location and elevation of improvements comply with requirements.
- C. Certified Surveys: Submit two copies signed by licensed land surveyor.

1.4 QUALITY ASSURANCE

- A. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's recommendations and instructions for installation of products and equipment.

1.5 SUBCONTRACTING

- A. All subcontractors are subject to approval by the CM and VRE prior to such subcontractors performing any Work on the project. A subcontractor list shall be submitted to the CM for approval per Section 01 31 00, "Project Management and Coordination."

1.6 COOPERATION OF CONTRACTOR

- A. The Contractor shall give the Work the constant attention necessary to facilitate quality and progress, and shall fully cooperate with the CM, the Inspector, and other contractors involved in the prosecution of the Work. If any portion of a project is located within the limits of a municipality, military installation, or other federally owned property, the Contractor shall cooperate with the appropriate officials and their agents in the prosecution of the Work to the same extent as with VRE.
- B. The Contractor shall have on the project at all times during prosecution of the Work a competent Superintendent who is capable of reading and understanding the plans and Specifications, experienced in the type of work being performed, and who shall receive instructions from VRE, the CM, or their authorized representatives. The Superintendent shall have full authority to execute the orders and directions of the CM without delay and supply promptly such materials, equipment, tools, labor, and incidentals as may be required.

1.7 COOPERATION AMONG CONTRACTORS

- A. VRE may at any time contract or approve concurrent Contracts for performance of other work on, near, or within the same geographical area of the work specified in an existing Contract. Contractors shall not impede or limit access to such work by others.
- B. When separate Contracts are awarded within the limits of one project, contractors shall not hinder the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other. In the case of dispute, all Contractors shall proceed as directed by the CM.

- C. When Contracts are awarded to separate Contractors for known concurrent construction in a common area, the Contractors, in conference with the CM, shall establish a written joint schedule of operations. The schedule shall be based on the limitations of the individual Contracts and the joining of the work of one Contract with the others. The schedule shall set forth the approximate dates and sequences for the several items of work to be performed and shall ensure completion within the respective Contract time limit. The schedule shall be submitted to the CM for review and approval no later than 30 days after the award date of the later Contract and prior to the first monthly application for payment. The schedule shall be agreeable to, signed by, and binding on each Contractor. The CM may allow modifications of the schedule when benefit to the Contractors and VRE will result.
- D. Any modification of the schedule shall be in writing, mutually agreed to and signed by the contractors, and shall be binding on the contractors in the same manner as the original agreement.
- E. If the contractors fail to agree on a joint schedule of operations, they shall submit their individual schedules to the CM, who will prepare a schedule that will be binding on each Contractor.
- F. The joint schedule and any modification thereof shall become a part of each Contract involved. The failure of any Contractor to abide by the terms of the joint schedule will be justification for declaring the Contractor in default of their Contract.
- G. Each Contractor shall assume all liability, financial or otherwise, in connection with their Contract and shall protect and save harmless the Owner from any and all damages and claims that may arise because of any inconvenience, delay, or loss he experiences as a result of the presence and operations of other contractors working in or near the work covered by their Contract. They shall also assume all responsibility for any of their work not completed because of the presence or operation of other Contractors.
- H. VRE will not assume any responsibility for acts, failures, or omissions of one Contractor that delay the work of another except as provided herein.

PART 2 – PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 EXISTING CONDITIONS

- A. The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Subcontractor, Installer, or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
1. Description of the Work.
 2. List of detrimental conditions, including substrates.
 3. List of unacceptable installation tolerances.
 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions and the cost of any and all remedial work required due to installation on unacceptable surfaces and substrates or under improper conditions shall be borne by the Contractor.

3.2 PREPARATION

- A. Furnish information to local utility and/or VRE that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
1. Refer to Section 01 11 00, "Summary of Work," for utility information.
- B. Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Immediately upon discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to the CM according to requirements in Section 01 31 00, "Project Management and Coordination."

3.3 INSTALLATION

- A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

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3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
 - C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
 - D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
 - E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
 - F. Do not use tools or equipment that produce harmful noise levels. Noise ordinances issued by the Authority Having Jurisdiction must be followed.
 - G. Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
 - H. Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by VRE or the CM.
 2. Allow for building movement, including thermal expansion and contraction.
 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
 - I. Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

3.4 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in this Specification Section.
 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces in kind.

3.5 PRODUCTS INSTALLED BY VRE

- A. Provide access to Project site for VRE's construction personnel.
- B. Coordinate construction and operations of the Work with work performed by VRE construction personnel.
 - 1. Inform VRE of Contractor's preferred construction schedule for VRE's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify VRE if changes to schedule are required due to differences in actual construction progress.
 - 2. Include VRE's construction personnel at pre-activity meetings covering portions of the Work that are to receive VRE's work. Attend pre-activity meetings conducted by VRE's construction personnel if portions of the Work depend on VRE's construction.
- C. Contractor shall be responsible for maintaining any products that may be installed by VRE. The Contractor shall take all necessary precautions for safety of and shall provide reasonable protection to prevent damage, injury or loss to persons, properties, equipment and vehicles.
 - 1. Damage to products installed by VRE, caused by the Contractor, shall be repaired or replaced to the satisfaction of VRE at the expense of the Contractor.
 - 2. VRE, at its sole discretion, shall have the right to repair and/or replace damaged products. Such costs shall be deducted from Contractor invoices upon completion of the repair or replacement of the damage.

3.6 SALVAGE MATERIALS AND OWNER PROVIDED MATERIALS

- A. The Contractor shall maintain adequate property control records for materials and equipment specified to be salvaged. Contractor shall be responsible for the adequate storage and protection of salvaged materials and equipment. The Contractor shall replace, at no cost to VRE salvage materials and equipment that are broken or damaged during the salvage operations as the result of the Contractor's negligence. Salvage material not specified for reuse shall be the property of the Contractor and shall be removed from the site.
- B. Owner provided materials shall become the responsibility of the contractor upon mobilization to the site and shall be treated and secured typical to other material to be used on the project.

3.7 PROGRESS CLEANING

- A. Maintain and clean project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold waste materials more than seven calendar days during normal weather or three

calendar days if the temperature is expected to rise above 80 deg F.

3. Contain hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
5. Do not transport construction debris through occupied areas of existing facilities.
- B. Maintain project site free of waste materials and debris.
- C. Maintain and clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Public roads, driveways, and pedestrian areas shall be cleared of all mud, dust, debris, etc. on a daily basis or as directed by the CM.
- E. Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- F. Remove debris from concealed spaces before enclosing the space.
- G. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- H. Do not bury or burn waste materials on site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 50 00, "Temporary Facilities and Controls."
- I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- K. Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.
- L. Responsibilities of the Contractor:

1. Dumpsters shall be located at each site, accessible to building and roads. Each Contractor may legally load acceptable construction debris into the dumpsters from this project only. Cost of all disposal fees shall be by the Contractor and dumpsters shall remain on the project until project completion, or as directed by the CM. The Contractor shall secure dumpsters during off-hours. This excludes asbestos items.
2. The Contractor is responsible for clean-up and disposal of waste materials, debris and rubbish on a daily basis.
3. The Owner may issue written notification of insufficient cleaning relative to the requirements of this Section. Upon issuance of the cleaning notice:
 - a. All waste and accumulation of trash containing the Contractor's debris shall be removed from the Owner's premises within 24 hours of notification.
 - b. All designated project areas containing the Contractor's debris or requiring general housekeeping shall be left fine broom clean (interior) or raked clean (exterior or rough surface). Sweeping compound shall be used for all interior broom cleaning to control dust.
 - c. Failure by the Contractor to comply with the 24-hour requirement of the notice to the satisfaction of the Owner will result in a cleaning program directed by the Owner at the expense of the Contractor. Cost of clean-up performed by the Owner will be deducted from the Contractor's Request for Payment.
4. Maintain areas under Contractor's control free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
5. Daily clean interior areas to provide suitable conditions for work.
6. Broom clean interior areas prior to start of surface finishing and continue cleaning on an as-needed basis.
7. Control cleaning operations so that dust and other particles will not adhere to wet or newly coated surfaces.
8. Remove waste materials, debris, and rubbish from site or to a dumpster provided by the Contractor daily.
9. The Contractor shall provide end-of-day cleanup of all work on a daily basis, conforming to requirements above.

3.8 DUST CONTROL

- A. The Contractor shall, at all times, control the spread of dust and dirt during the execution of the work. Use water mist, temporary closures, and other suitable methods. Use wet saws for cutting. Provide walk-off mats at entrances and exits to construction areas.
 1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions.
 2. Wet mop floors to eliminate trackable dust and dirt and wipe down walls and doors of dust and dirt.

3.9 STARTUP AND TESTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment
- D. Comply with manufacturer field service requirements as noted in Section 01 45 00, "Quality Assurance and Quality Control."

3.10 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.
- C. Supervise construction operations to ensure that in progress work is not stored on and/or effects completed construction such as floors and walls, which are subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.
- D. Roof Areas:
 - 1. Construction traffic and storage of materials on completed roof surfaces is not allowed. Where work is required, the contractor shall submit a protection plan, 14 calendar days prior to scheduled commencement of the work. Protection plan to include the following:
 - a. Type of work to be performed.
 - b. Location of work areas.
 - c. Route of materials and workers to work area.
 - d. Materials and methods to be used.
 - 2. Proceed with work after owner's authorization. Damage to roof surfaces shall be repaired and the cost of any and all remedial work shall be borne by the Contractor.

3.11 MAINTENANCE OF WORK

- A. The Contractor shall maintain the Work, the project site, construction area, roadway, and passenger areas affected by construction from the beginning of construction operations until final acceptance with adequate equipment and forces to keep the roadway and structures in a safe and satisfactory condition at all times and to ensure the continuous and effective day by day prosecution of the Work.
- B. The Contractor shall bear all costs of performing maintenance work before final completion.

3.12 REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK

- A. Work that does not conform to the Contract requirements, whether the result of unacceptable workmanship, use of unacceptable materials, damage through carelessness, or any other cause within the Contractor's control, will be considered unacceptable work.
- B. Unacceptable work shall be remedied or removed as determined by the CM and replaced in an acceptable manner at the Contractor's expense. The CM may accept the unacceptable work at a reduced price when acceptance is considered to be in the best interest of the public.
- C. Work that is done contrary to the instructions of the CM, contrary to the requirements of the Contract, beyond the lines shown on the plans or as designated by the CM except as specified herein, or without authority will be considered unauthorized and will not be paid for. The CM may order the Contractor to remove or replace unauthorized work at the Contractor's expense
- D. The Contractor shall not perform destructive sampling or testing of the work without written authorization of the CM. Unauthorized destructive sampling or testing will cause the work to be considered unacceptable.
- E. In the event the Contractor is granted authorization to perform destructive sampling or testing, the Contractor shall obtain the approval of the CM for the method and location of each test prior to beginning such sampling or testing. In addition, destructive sampling and testing shall be performed in the presence

END OF SECTION

SECTION 01 73 10**CUTTING AND PATCHING****1.1 CUTTING AND PATCHING**

- A. Cutting: Removal of in-place construction necessary to permit installation of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.
- C. The Contractor is responsible for cutting, fitting, or patching as required. The Contractor shall not unnecessarily damage any portion of the project work by cutting, fitting, or patching. Any damages resulting from cutting, fitting, or patching in the project shall be borne by the Contractor.
- D. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
 - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
 - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
 - 3. Products: List products to be used for patching and firms or entities that will perform patching work.
 - 4. Dates: Indicate when cutting and patching will be performed.
 - 5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Closeout Submittals
 - 2. Substantial Completion Procedures
 - 3. Project Punchlist
 - 4. Final Completion Procedures
 - 5. Operation and Maintenance Manuals
 - 6. Warranties and Guarantees
 - 7. Project Record Documents
 - 8. Final Cleaning
 - 9. Repair of the Work

1.2 RELATED SECTIONS

- A. Section 01 29 00 – Payment Procedures
- B. Section 01 32 00 – Construction Progress Documentation
- C. Section 01 45 00 – Quality Assurance and Quality Control
- D. Section 01 73 00 – Execution of Work

1.3 DEFINITIONS

Substantial Completion: The condition when VRE agrees that the Work, or a specific portion thereof, is sufficiently complete, in accordance with the Contract Documents, so that it can be utilized by VRE for the full use and function for which it was intended, including the issuance of a Certificate of Occupancy, if applicable. . The date of Substantial Completion of the Work under the Contract is the milestone date on which Substantial Completion condition is accomplished. The only remaining physical work shall be the completion of punch list work prior to Final Acceptance.

Final Completion: The condition when VRE agrees that all the Work has been fully completed in accordance with the Contract Documents, all punch list items have been addressed and accepted, final cleaning has been accomplished, all closeout submittals have been received in acceptable condition, demonstration and training of systems has taken place, the VRE Closeout Checklist has been completed, and the final Application for Payment from the Contractor has been reviewed and deemed acceptable by VRE. The date of Final Acceptance is the date of execution by the Contracting Officer of a Certificate of Final Acceptance.

1.4 SUBMITTALS

- A. Closeout submittals shall include, but not be limited to, the following:
1. Certificate or Letter of Substantial Completion (provided to Contractor by CM)
 2. Certificate of Occupancy (or Certificate of Final Inspection) from the AHJ
 3. Project Record Documents
 - a. As-Built/Red Line Shop Drawings
 4. Operation and Maintenance Manual(s)
 5. Warranties
 6. Maintenance Bond (if applicable)
 7. Final Certified Payroll Records
 8. Spare Parts / Stock Materials (as required per Technical Specifications)
 9. Post-Construction Photos
 10. Affidavit of Payment of Debts and Claims (Contractor and Subcontractors)
 11. Releases of Liens (Contractor and Subcontractors)
 12. Consent of Surety to Final Payment
 13. Final DBE Utilization Statement (if applicable) Final Application for Payment
 14. Contractor Closeout Checklist, signed

1.5 SUBSTANTIAL COMPLETION PROCEDURES

- A. Substantial Completion Inspection
1. No less than five (5) calendar days prior to the date the Contractor plans to have the Work, or designated portions of the Work, Substantially Complete, the Contractor shall provide a written notice to VRE, requesting VRE review/inspect the Project for Substantial Completion. Attached to this request should be a list of items the Contractor has not yet completed.

2. Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
- a. Prepare list of items to be completed and corrected, indicating the value of each item on the list, the reasons why the Work is incomplete and a schedule for completing the work.
 - b. Ensure previously outstanding technical submittals and Shop Drawings have been submitted and approved.
 - c. Advise CM of pending insurance changeover requirements.
 - d. Obtain and submit releases permitting VRE unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - e. Prepare and submit Project Record Documents except Record Contract CPM Schedule; also prepare and submit Operation and Maintenance manuals, Substantial Completion construction photographs and damage or settlement surveys.
 - f. Prepare and submit proof that specified testing and code inspections have been completed, accepted and certified, including, but not limited to, structural work, fire alarm and FPS systems, and electrical system testing.
 - g. Deliver tools, spare parts, extra materials, and similar items to location designated by CM. Label with manufacturer's name and model number where applicable.
 - h. Complete startup testing of systems.
 - i. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - j. Advise VRE of changeover in utilities.
 - k. Submit changeover information related to VRE's occupancy, use, operation, and maintenance.
 - l. Instruct VRE's personnel in operation, adjustment, and maintenance of products, equipment, and systems, as required by Contract Documents. Submit demonstration and training videos
 - i. Assemble educational materials necessary for instruction, including documentation and training.
 - ii. Provide instruction at mutually agreed on times.
 - iii. Schedule training with CM with at least 15 calendar days' advance notice.
 - iv. Submit training agenda to CM for review and approval for each system/equipment no later than 15 calendar days prior to the scheduled system/equipment startup. After approving the agenda, CM shall provide a listing of dates, times and places of the training programs for Contractor coordination.

- v. VRE shall provide space with tables and chairs, if applicable, for conducting the classroom portion of all training.
 - vi. Provide instructional equipment at instruction location.
 - m. Complete final cleaning requirements.
 - n. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- 3. Inspection: Upon receipt of the notice, VRE or designee shall schedule an inspection of the Project in the form of a complete walkthrough with the Contractor's Project Manager, Superintendent or designated representative, to inspect the work and notify the Contractor of any deficiencies. When it has been determined the work is substantially complete, VRE will prepare a certificate of substantial completion listing minor deficiencies, if any, to be corrected.
 - a. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - b. Punch list work must be completed before final completion. Failure to complete the punch list work within 30 calendar days of issuance, may result in VRE ordering the work to be completed by others at the cost to Contractor and deducting the value of such from retainage withheld.
 - c. Results of completed inspection will form the basis of requirements for Final Acceptance.
- B. Certificate of Substantial Completion
 - 1. When it has been determined by VRE that Substantial Completion has been attained, VRE will prepare a Certificate of Substantial Completion and formally transmit it to the Contractor.

1.6 PROJECT PUNCH LIST (INCOMPLETE ITEMS)

- A. Following the Substantial Completion inspection, the Construction Manager will prepare and distribute a Project Punch List to the Contractor, VRE, and other parties as necessary.
- B. The Project Punch List will be in tabular format and include the following information:
 - 1. Sequential punch list item number
 - 2. Description of the item requiring correction
 - 3. Specific location on the Project of each item
 - 4. Name of contractor, subcontractor, or other party responsible for the correction
 - 5. Date item was originally recorded on the punch list
 - 6. Blank columns for date and person's initials to be used for acceptance of each item
 - 7. Name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

- C. Include the following information at the top of each page:
1. Contract name and number
 2. Date
 3. Name of CM
 4. Name of Contractor
 5. Page number
- D. Only the VRE Project Manager, the Construction Manager, or the Inspector can provide acceptance of punch list items.
- E. Final demobilization from the worksite is prohibited until punch list work is completed and accepted. Payment for demobilization will not be processed until punch list work is completed and accepted by VRE.

1.7 FINAL COMPLETION PROCEDURES

- A. When the Contractor believes the Project has reached Final Completion, as defined above, the Contractor shall provide a written notice to VRE, requesting VRE review the Project for Final Completion and release of retainage. The written notice shall indicate the following:
1. Contract documents have been reviewed and work has been inspected and found to be in compliance.
 2. Deficiencies listed in the certificate of substantial completion have been corrected.
 3. Equipment and systems have been tested, adjusted and balanced and are fully operational.
 4. Operations of systems have been demonstrated to VRE.
 5. Work is complete and is ready for final inspection and acceptance by VRE.
- B. Before requesting VRE review the Project for Final Completion, all closeout submittals as described in this Specification section and requirements detailed in other individual Specification Sections, shall be submitted and accepted by VRE.
1. The Contractor's final Application for Payment shall be attached to the request for Final Completion.
 2. Submit the final Application for Payment according to Section 01 29 00, "Payment Procedures." Submit certified copy of CM's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by CM. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Submit a Contractor/CM joint statement evidencing that all Record Documents such as , Operation and Maintenance Manuals, warranties, product data, survey records and similar required submittals have been approved.

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- a. Submit warranties required by Contract Documents, maintenance service agreements, final certifications, and similar documents.
 - b. Submit Contractor Warranty Letter, for review and approval, a minimum of 30 days before requesting inspection for Substantial Completion. The initiation date for all warranties and guarantees shall be the date of Final Completion.
 4. Complete demobilization and removal of temporary facilities from the site including construction equipment and facilities, mockups, and other similar elements. Restore areas to previously existing condition, if applicable.
 5. Execute final Contract Modification and submit final Subcontractor Payment Form
 6. Evidence of compliance with requirements of governing agencies, if applicable, to include but not limited to:
 - a. Certificates of inspection
 - b. Certificate of occupancy
 7. Evidence that claims have been settled.
 8. Evidence of payment and release of liens such as but not limited to:
 - a. Contractor's affidavit of payment of debts and claims
 - b. Contractor's Affidavit of Release of Liens
 - c. Subcontractor's Affidavit of Release of Liens
 - d. Consent of Surety to Final Payment
 9. Final adjustment of accounts
 10. Final, liquidated damages settlement statement, if applicable.
 11. Submit Record Contract CPM Schedule.
 12. Return of all VRE issued property.
 13. Spare Parts.
 14. Labor certification.
 15. Commissioning of new systems, as required
 16. Training and demonstration of new systems, as required
 17. Complete final cleaning requirements
 18. Submit pest-control final inspection report and warranty, if applicable.

19. Turn over all salvaged materials to VRE as indicated on the plans and specifications.
- C. Release of Liens: VRE, before making any payment including Final Payment, shall require the Contractor to furnish a complete release of all liens arising out of this Contract, or receipts in full in lieu thereof, and if required in either case, an affidavit that so far as the Contractor has knowledge or information, the releases and receipts include all the labor and material for which a lien could be filed.
- D. Inspection: On receipt of request, CM will either proceed with inspection or notify Contractor of unfulfilled requirements. CM will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 OPERATION AND MAINTENANCE MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize information by Division and then into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following in the order listed:
1. Title Page
 2. Table of Contents
 3. Manual Contents
- B. Include the following information on the Tittle Page:
1. Specific subject matter included in manual such as Division number and title, Specification Section number and title, equipment, systems and subsystems.
 2. Name and number of the Contract.
 3. Date of submittal.
 4. Name, address, telephone number, and contact person of Contractor, Subcontractor, and supplier.
 5. Cross-reference to related systems in other portions of the Operation and Maintenance Manuals.
- C. Table of Contents: Include a table of contents for each volume, arranged according to the specification format. List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in the Contract Documents.
1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents by Division then by system, subsystem, and equipment. If possible, consolidate instructions for subsystems, equipment, and components of one system into a single binder.

1. In addition to requirements in the sections below, include operation data required in individual Specification Sections.
2. Include copies of Warranties or Guarantees for specific products or equipment in the applicable section of the O&M Manual.
3. Manuals must be submitted as a high-quality, bookmarked PDF file. Binders:
 - a. Provide operations and maintenance material electronic version (USB Drive).

1.9 OPERATION AND MAINTENANCE MANUALS

- A. Operation and Maintenance Manuals Initial Submittal: Submit one draft copies of each Manual in the approved format at least 30 calendar days before requesting inspection for Final Completion or any required training. Include a complete Operations and Maintenance Directory. CM will return a copy of draft within 30 calendar days of receipt, and mark whether general scope and content of Manuals are acceptable.
- B. Operation and Maintenance Manuals Revised Submittals: Submit one revised electronic copy of each manual in final form, including 10 calendar days before final completion or training, whichever occurs first. CM will return feedback within 15 calendar days after receipt.
- C. At least 30 calendar days before Final or required training Completion, prepare and deliver to VRE one (1) electronic (.pdf) version (USB) and one (1) hard copy of a manual containing all information pertaining to the operation and maintenance (O&M) of all products and equipment provided under the Contract. The final version may be submitted via:
 1. Secure File Transfer Service: Upload the finalized manual to a secure file-sharing platform (e.g., SharePoint, Dropbox, or equivalent) and provide access to VRE.
 2. USB Drive: Submit the manual on password-protected USB drive, if necessary.
 3. Email Submissions: Email the electronic (pdf.) version directly to the designated VRE representative, ensuring, the total file size meets email limits.
 4. Project Management Platforms: Upload the finalized manual to a project management platform (e.g., Procore, e-Builder, or equivalent).
- D. For purposes of payment, O&M and Material and Finishes Manuals will be submitted and accepted by VRE prior to final payment
- E. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, the Contractor shall assemble and coordinate information furnished by representatives and prepare manuals.
- F. Operations and Maintenance Manual (Electronic Version)
 1. The O&M Manual shall consist of high-quality electronic files (or color prints of such files), legible, and not scanned from a hard copy. Include a table of contents and a cover sheet noting the project name, location, VRE contract number, and Substantial Completion date. Each document in the O&M Manual shall be preceded by an intermediate cover sheet containing the Specification section number and title,

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- the name of the product or equipment, and the location at the Project where the product or equipment can be found.
2. The electronic version of the O&M Manual shall contain “bookmarks” labeled with Specification section number and title, as well as sub-bookmarks within each Specification section noting the name of the product or equipment so that the document can be easily navigated by the user.
- G. The electronic version include al required information, warranties, and documents as outlined in the Specifications. Operations and Maintenance Manual (Electronic Copy)
1. Operations Content: Include requirements in this Section and other operation data and requirements detailed in individual Specification Sections. In addition, information will include, but not be limited to, the following information, if applicable. Organize manuals into separate and distinct volumes by Division.
 - a. System, subsystem and equipment descriptions.
 - b. Safety instruction and related issues.
 - c. Performance and design criteria if Contractor is delegated design responsibility.
 - d. Operating standards.
 - e. Operating procedures.
 - f. Operating logs.
 - g. Wiring diagrams, including color-coding and terminal designations. Include all factory present or field-set up dip switch and jumper settings for all electronic equipment.
 - h. Control diagrams.
 - i. Piped system diagrams.
 - j. Precautions against improper use.
 - k. License requirements including inspection and renewal dates.
 - l. Material Safety Data Sheets.
 2. Operating Procedures shall include, but not be limited, to the following, as applicable.
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Instructions on stopping.

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- f. Normal shutdown instructions.
 - g. Seasonal and weekend operating instructions.
 - h. Required sequences for electric or electronic systems.
 - i. Special operating instructions and procedures.
 - j. Procedures or operations that may void warranty.
3. System and Equipment Controls: Describe the sequence of operations, and diagram controls as installed.
4. Piped System: Diagram piping as installed and color-coding shall be used where required for identification.
5. Maintenance Content: Organize information into a separate section for each product, material, and finish. Include requirements in this Section and other maintenance data and requirements detailed in individual Specification Sections. Provide one section for architectural products, including applied materials and finishes, and a second for products designed for moisture protection and products exposed to the weather
- a. Include source information, product information, maintenance procedures, repair materials and sources, schedule of products, location of products and warranties, as described below.
 - b. List each product included in manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
 - i. Product Information shall include, but not be limited, to the following, as applicable:
 - ii. Product name and model number.
 - iii. Manufacturer's name.
 - iv. Color, pattern, and texture.
 - v. Material and chemical composition.
 - vi. Reordering information for specially manufactured products.
 - vii. Fire/flame-spread test certificates.
 - viii. Material Safety Data Sheets.
 - c. Maintenance Procedures shall include but not be limited to, manufacturer's written recommendations and the following, as applicable:
 - i. Inspection procedures
 - ii. Types of cleaning agents to be used and methods of cleaning

- iii. List of cleaning agents and methods of cleaning detrimental to product
- iv. Schedule for routine cleaning and maintenance
- v. Repair instructions
- vi. Preventative/predictive maintenance tasks and frequencies
- d. Repair Materials and Sources: Including a lists of materials and local sources of materials and related services.
- e. Schedule of Products and Locations: Provide complete information, including reference drawings, in the materials and finishes manual on all products specified in all applicable Divisions.
- f. Schedule of Products and Locations: Provide complete information, including reference drawings, in the materials and finishes manual on all products specified in all applicable Divisions.
 - i. Include procedures to follow and required notifications for warranty claims.
 - ii. Clearly indicate commencement and expiration dates.

1.10 WARRANTIES AND GUARANTEES

- A. Within 30 calendar days before requesting Final Completion or any required training, prepare and deliver to VRE one (1) electronic (.pdf) version and one (1) hard copy of all warranties and guarantees, made out to VRE, required by the Special Terms and Conditions, individual Specification sections, and other Contract Documents. Both versions shall be provided in color. Products and Equipment shall not be considered delivered (for payment purposes) until the approved warranties have been received.
- B. The initiation date for all warranties and guarantees shall be the date of Substantial Completion.
- C. Warranty Book/Manual: Organize warranty documents into an orderly sequence based on the table of the Contract Specifications. Warranty documents include Contractor and major Subcontractors warranty letters, special warranty documents, and manufacturer's warranties.
 - 1. Include a table of contents and a cover sheet noting the project name, location, VRE contract number, and Substantial Completion date.
 - a. The General Contractor's workmanship warranty shall be included as the first document in the warranty book.
 - 2. Include copies of warranties or guarantees for specific products or equipment in the applicable section of the O&M Manual.
- D. Electronic Version of Warranty Book/Manual: The electronic file containing warranties and guarantees shall contain "bookmarks" labeled with Specification section number and title, as well as sub-bookmarks within each Specification section noting the name of the product or equipment so that the document can be easily navigated by the user.

- E. Project Record Documents shall be the responsibility of the Contractor and shall consist of the following items.
1. As-Built Shop Drawings
 2. As-Built Specifications
 3. As-Built Construction Schedule
- F. Within 30 calendar days before requesting Final Completion or any required training, the Contractor shall submit one (1) electronic (.pdf) version of the Project Record Documents VRE for review and approval. It is acceptable to provide an annotated electronic (.pdf) document or scan the hard copy version in order to create the electronic file, provided all notes and sketches are legible. The electronic submission must be provided in color.
- G. Maintain one (1) copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur.
- H. Store Project Record Documents in the field office apart from the Contract Documents. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition protected from deterioration and loss. Repair or reproduce torn or dirty sheets. Provide access to Project Record Documents for CM's reference during normal working hours.
- I. As-Built Shop Drawings
1. A set of as-built shop drawings shall be provided for every set of shop drawings submitted and approved for use on the Project. Include electrical, mechanical, plumbing, structural steel, and other shop drawings as applicable to the Project.
 - a. Initial Submittal: Submit one set of complete, full-sized, As-Built Shop Drawings. Additional sets of drawings are not to be copied and submitted until after substantial completion to insure all changes are shown on the drawings. The CM will facilitate review of drawings and indicate whether the As-Built Shop Drawings are acceptable. The CM will return review comments indicating any corrections that need to be made to the drawings. The corrected As-Built Shop Drawings may then be reproduced, and organized into sets, printed, bound, and submitted as final submittal.
 - b. Final Submittal: After construction is complete and changes are recorded, submit three complete, full-sized, printed sets of As-Built Shop Drawings. Include each sheet, whether or not changes and additional information were recorded. Submit four copies of the As-Built Shop Drawings in the approved electronic format. In addition, submit the original set of marked-up record drawings onto which the mark-ups were made.
- J. As-Built Specifications
1. The Contractor shall mark up one set of Specifications to show all variations between the Work actually provided. Include the following items on the as-built specifications.
 - a. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

- b. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
- c. Record the name of manufacturer, supplier, installer, and other information necessary to provide a record of selections made.
- d. Note related Change Orders, Record Drawings, and Product Data where applicable.

K. As-Built Construction Schedule

- 1. See Section 01 32 00, "Construction Progress Documentation," for details regarding the As-Built Construction Schedule.

- L. If Project Record Documents are not submitted in accordance with this Specification section, and other Contract requirements, as applicable, the submittal will not be reviewed and will be returned to the Contractor for revision and resubmittal.

PART 2 - PRODUCTS

- A. Cleaning Agents: For final cleaning, use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
- B. Products - The Contractor shall turn over all salvaged materials to VRE, as necessary.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations. Final cleaning shall include removal of all waste and surplus materials and equipment caused by the work prior to final inspection. Progress cleaning during construction is included in Division 01 Section 01 73 00 "Execution of Work."
- B. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
- C. The following cleaning operations shall be completed before requesting VRE review the Project for Substantial Completion:
 - 1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - 2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - 3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - 4. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - 5. Remove snow and ice to provide safe access to public areas.

6. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 7. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 8. Sweep concrete floors broom clean in unoccupied spaces.
 9. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
 10. Remove labels that are not permanent.
 11. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 12. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 13. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 14. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
 15. Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.
 16. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
 17. Leave Project clean and ready for occupancy.
- D. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 73 00, "Execution of Work."
- E. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare and submit a report to CM.
- F. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on VRE property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting VRE review the Project for Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating

equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

- C. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
- D. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
- E. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
- F. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
- G. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION

SECTION 14 25 00

HYDRAULIC ELEVATORS

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Hydraulic elevator as follows:
 - 1. In-Ground Passenger Elevator. Car 1
- B. All engineering, equipment, labor, and permits required to satisfactorily complete elevator modernization required by Contract Documents.
- C. Applicable conditions of General, Special, and Supplemental Conditions, Division 1, and all sections listed in Contract Documents "Table of Contents."
- D. Additional equipment or finishes furnished under other sections, installed under this section:
 - 1. Car finish flooring
- E. Cartage and Hoisting: All required staging, hoisting and movement to, on, and from the site including new equipment, reused equipment, or dismantling and removal of existing equipment.
- F. Unless specifically identified as "Reuse," "Retain," or "Refurbish," provide new equipment.
- G. Protective barrier(s) between car(s) in normal operation and adjacent car(s) in the modernization process. Full depth and height of hoistway.
- H. Hoistway, pit and machine room barricades as required.

1.2 RELATED WORK PROVIDED UNDER OTHER SECTIONS

- A. See Section 01900, "Related Work" Provided Under Other Sections.

1.3 DEFINITIONS

- A. Terms used are defined in the latest edition of the Safety Code for Elevators and Escalators, ASME A17.1.
- B. Reference to a device or a part of the equipment applies to the number of devices or parts required to complete the installation.
- C. Provisions of this specification are applicable to all elevators unless identified otherwise.

1.4 MANUFACTURERS

- A. Subject to compliance with project requirements, provide products by one of the following:
1. Controllers:
 - a. GAL Galaxy
 - b. MCE
 - c. Smartrise
 2. Hoistway Entrances:
 - a. Columbia.
 - b. EDI-ECI.
 - c. National Elevator Cab and Doors.
 - d. Eklund's Inc.
 - e. Gunderlin.
 3. Passenger Elevator Door Equipment (Operators, Tracks, Hangers, and Closers):
 - a. GAL.
 4. Fixtures Vandal Resistant.
 - a. EPCO.
 - b. Monitor.
 - c. Innovation.
 - d. National Elevator Cab and Doors.
 5. Two-Way Communication Device:
 - a. RingComm.
 - b. EMS.
 - c. Rath.
- B. Compliance with Regulatory Agencies: See Section 01 11 00 Summary of Work, paragraph 1.13 Applicable Codes.
- C. Warranty:

1. Material and workmanship of installation shall comply in every respect with Contract Documents. Correct defective material or workmanship which develops within one year from date of final acceptance of all work to satisfaction of Architect, Purchaser and Consultant at no additional cost, unless due to ordinary wear and tear, or improper use or care by Purchaser. Perform maintenance in accordance with terms and conditions indicated in the Preventive Maintenance Agreement.
2. Defective is defined to include, but not be limited to: operation or control system failures, car performance below required minimum, excessive wear, unusual deterioration, or aging of materials or finishes, unsafe conditions, the need for excessive maintenance, abnormal noise, or vibration, and similar unsatisfactory conditions.
3. Retained Equipment: All retained components, parts, and materials shall be cleaned, checked, modified, repaired, or replaced, so each component and its parts are in like new operating condition. Retained equipment must be compatible for integration with new systems. All retained equipment shall be covered under the warranty provisions.
4. Make modifications, requirements, adjustments, and improvements to meet performance requirements of Sections 01700 and 14 25 00.

1.5 DOCUMENT AND SITE VERIFICATION

- A. In order to discover and resolve conflicts or lack of definition which might create problems, Contractor must review Contract Documents and site conditions for compatibility with its product prior to submittal of quotation. Review existing structural, electrical provisions, and mechanical provisions for compatibility with Contractor's products. Purchaser will not pay for change to structural, mechanical, electrical, or other systems required to accommodate Contractor's equipment.

1.6 SUBMITTALS

- A. See Section 01 33 00, Submittals, and Section 01700, Final Contract Compliance Review.

1.7 PERMIT, TEST, AND INSPECTION

- A. Obtain and pay for permit, license, and inspection fee necessary to complete installation.
- B. Perform test required by governing authority in accordance with procedure described in ASME A17.2 Guide for Inspection of Elevators, Escalators, and Moving Walks in the presence of Authorized Representative.
- C. Supply personnel and equipment for test and final review by Consultant, as required in Section

PART 2 PRODUCTS**2.1 SUMMARY**

A. Passenger Elevator

B. Unless specifically identified as “retain existing”, provide new equipment.

	Existing Equipment	Disposition
Number:	Car 1	Retain Existing
Capacity:	3,500 lbs.	Retain Existing
Class Loading:	Passenger Class A	Retain Existing
Contract Speed:	125 F.P.M.	Retain Existing
Machine:	Hydraulic Pump	Provide new
Machine Location:	20' remote at G	Retain Existing
Operational Control:	Selective Collective	Selective Collective Microprocessor-Based System
Motor Control:	Single Speed AC with Wye Delta Start	Electronic Soft Start with Closed Transition
Power Characteristics:	480 Volts, 3 Phase, 60 Hertz Field Verify	Retain Existing
Stops:	5 Front; 0 Rear	Retain Existing
Floors Served:	G, 1, 2, 3, 4 Front	Retain Existing
Travel:	40' ± Field Verify	Retain Existing
Minimum Clear Inside Car:	79.5" Wide X 54.5" Deep Field Verify	Retain Existing
Entrance Size:	3' – 6" Wide X 7' – 0" High Field Verify	Retain Existing
Entrance Type:	Center Opening	Retain Existing
Door Operation:	Medium Speed, Heavy-Duty, Door Operator, Minimum Opening Speed 1-1/2 F.P.S.	High Speed, Heavy-Duty, Door Operator, Minimum Opening Speed 2-1/2 F.P.S. Retain Existing
Door Protection:	Infrared, Full Screen Device	3-Dimensional Infrared, Full Screen Device, with Differential Timing Nudging and Interrupted Beam Time
Hydraulic Type:	Direct Plunger	Provide New Direct Plunger
Guide Rails:	Formed omega shape	Retain Existing
Buffers:	Spring	Retain Existing
Car Enclosure:		As Specified Battery Powered Emergency Car Lighting. Provide Separate Constant Pressure Test Button in Car Service Compartment. Illuminate Portion of Normal Car Lighting.

Signal Fixtures:		LED Illumination Vandal Resistant Assembly
Hall and Car Pushbutton Stations:		Single Hall Pushbutton Riser Single l Car Operating Panel. Vandal Resistant Car and Hall Pushbuttons.
Car Positions Indicators:		Single Vandal Resistant Assembly
	Existing Equipment	Disposition
In Car Lanterns:		Both Car Entrance Columns with Volume Adjustable Electronic Chime or Tone. Sound Twice for Down Direction. Vandal Resistant Assembly
Additional Features:		Car Swivel Slide Type Guides Car Top Inspection Station Firefighters' Service, Phase I And II, Including Alternate Floor Return Battery Pack Standby Power Provision Stationary Car Return Panel Arranged for Surface Applied Car Operating Panel Hoistway Access Switches Top and Bottom Floors Hoistway Door Unlocking Device All Floors Platform Isolation Jack to Platen Connection Independent Service Feature Hydraulic Pump Unit, and Controller Sound Isolation Tamper Resistant Fasteners for All Fastenings Exposed to the Public One Year Warranty Maintenance with 24-Hour Call-Back Service Sill Support Angles Jack Hole, Outer Casing and Watertight

		PVC Inner Casing with Secondary Containment Provisions No Visible Company Name or Logo Wiring Diagrams, Operating Instructions, and Parts Ordering Information System Diagnostic Means and Instructions
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2.2 **MATERIAL**

- A. See Section 01600, Material and Handling.

2.3 **CAR PERFORMANCE**

- A. Car Speed: +10%/-20% for standard hydraulic application.
- B. Car Capacity: Safely lower, stop and hold 125% of rated load.
- C. Car Stopping Zone: $\pm 1/4$ " under any loading condition.
- D. Door Opening Time: Seconds from start of opening to fully open:
1. Car 1: 1.7 seconds.
- E. Door Closing Time: Seconds from start of closing to fully closed:
1. Car 1: 2.4 seconds.
- F. Car Floor-to-Floor Performance Time: Seconds from start of doors closing until doors are 3/4 open (1/2 open for side opening doors) and car level and stopped at next successive floor under any loading condition or travel direction (10' typical floor height):
1. Car 1: 12.0 seconds.
- G. Pressure: Fluid system components shall be designed, and factory tested for 500 p.s.i. Maximum operating pressure shall be 400 p.s.i.
- H. Car Ride Quality:
1. Horizontal and vertical acceleration within car during all riding and door operating conditions. Not more than 20 mg peak to peak (adjacent peaks) in the 1 - 10 Hz range.
 2. Acceleration and Deceleration: Smooth constant and not less than initial ramp between 0.5 and

0.75 second.

3. Sustained Jerk: Not more than 6 feet/second³.
4. Measurement Standards: Measure and evaluate ride quality consistent with ISO 18738, using low pass cutoff frequency of 10 Hz and A95 peak-to-peak average calculations.

I. Noise and Vibration Control

1. Airborne Noise: Measured noise level of elevator equipment and its operation shall not exceed 60 dBA inside car under any condition including door operation and car ventilation exhaust blower on its highest speed. Limit noise level in the machine room relating to elevator equipment and its operation to no more than 80 dBA. All dBA readings to be taken 3'-0" off the floor and 3'-0" from the equipment using the "A" weighted scale.
2. Vibration Control: All elevator equipment provided under this contract, including power unit, controller, oil supply lines, and their support shall be mechanically isolated from the building structure and electrically isolated from the building power supply and to each other to minimize the possibility of objectionable noise and vibrations being transmitted to occupied areas of the building.

2.4 **OPERATION**

A. Single Automatic Pushbutton Microprocessor-Based, Car 1:

1. Operate car without attendant from pushbuttons in car and at each landing. When car is idle, automatically start car and dispatch it to appropriate floor when call is registered by pressing car or hall pushbutton.
2. Illuminate "in use" lights in each hall pushbutton station when car is responding to registered car or hall call. Prevent registration of another call until trip is complete including time for passenger transfer and registration of car call if car is responding to a hall call. Extinguish "in use" light to indicate system is available to respond to next hall call.

B. Other Items:

1. Low Oil Control: In the event oil level is insufficient for travel to the top floor, provide controls to return elevator to the main level and park until oil is added.
2. Independent Service: Provide controls for operation of each car from its pushbuttons only. Close doors by constant pressure on desired destination floor button or door close button. Open doors automatically upon arrival at selected floor.

C. Firefighters' Service: Provide equipment and operation in accordance with code requirements

D. Automatic Car Stopping Zone: Stop car withing ¼" above or below the landing sill. Maintain stopping zone regardless of load in car, direction of travel, distance between landings

- E. Motion Control: AC type with unit valve suitable for operation specified and capable of providing smooth, comfortable car accelerations and retardation. Limit the difference in care speed between full load and no load to not more than +10% of the contract speed.
- F. Door Operation: Automatically open doors when car arrives at main floor. At expiration of normal dwell time, close doors.
- G. Standby Lighting and Alarm: Car mounted battery unit with solid-state charger to operate alarm bell and car emergency lighting. Battery to be rechargeable with minimum 5-year life expectancy. Include required transformer. Provide constant pressure test button in service compartment of car operating panel. Provide lighting integral with portion of normal car lighting system.
- H. Battery Standby Power Transfer:
 - 1. Upon loss of normal power, provide controls to automatically lower the car(s) to the nearest lower landing. Upon arrival at the nearest landing, the elevator doors shall open automatically and remain open until regular door time has expired. The elevator shall then become deactivated. The standby power source shall be provided via 12-volt D.C. battery units installed in machine room, including solid-state charger and testing means mounted in a common metal container. Battery to be rechargeable lead acid or nickel cadmium with a 10-year life expectancy.
 - 2. Upon restoration of normal power, the elevator shall automatically resume normal operation

2.5 MACHINE ROOM EQUIPMENT Arrange equipment in existing machine room spaces.

- A. Pump Unit: Assembled unit consisting of dry positive displacement pump, induction motor, master-type control valves combining safety features, holding, direction, bypass, stopping, manual lowering functions, shut off valve, oil reservoir with protected vent opening, oil level gauge, outlet strainer, drip pan, muffler, all mounted on isolating pads.
 - 1. Oil Cooler:
 - a. Provide oil cooler with adjustable thermostat.
 - b. Installation of unit must be coordinated with Architect to allow ventilation of unit outside of the elevator machine room.
 - 2. Tanker Heater:
 - a. Provide an oil tank heater with adjustable thermostat to keep the oil tank temperature within the manufacturer's recommended operating range
 - 3. Enclose entire unit with removable sheet steel panels lined with sound-absorbing material.
 - 4. Submersible pump motor shall be permitted up to 50 HP.
- B. Landing Systems: Solid-state, magnetic, or optical type.

C. Controller: UL/CSA labeled

1. Compartment: Securely mount all assemblies, power supplies, chassis switches, relays, etc., on a substantial, self-supporting steel frame. Completely enclose equipment with covers. Provide means to prevent overheating.
2. Relay Design: Magnet operated with contacts of design and material to insure maximum conductivity, long life, and reliable operation without overheating or excessive wear. Provide wiping action and means to prevent sticking due to fusion. Contacts carrying high inductive currents shall be provided with arc deflectors or suppressors.
3. Microprocessor-Related Hardware
 - a. Provide built-in noise suppression devices which provide a high level of noise immunity on all solid-state hardware and devices.
 - b. Provide power supplies with noise suppression devices.
 - c. Isolate inputs from external devices, such as pushbuttons, with opto-isolation modules.
 - d. Design control circuits with one leg of power supply grounded.
 - e. Safety circuits shall not be affected by accidental grounding of any part of the system.
 - f. System shall automatically restart when power is restored.
 - g. System memory shall be retained in the event of power failure or disturbance.
 - h. Equipment shall be provided with Electro Magnetic Interference (EMI) shielding within FCC guidelines.
4. Wiring: CSA labeled copper for factory wiring. Neatly route all wiring interconnections and securely attach wiring connections to studs or terminals.
5. Permanently mark components, relays, fuses, PC boards, etc., with symbols shown on wiring diagrams
6. Provide controller or pump unit mounted auxiliary lockable "open," disconnect if mainline disconnect is not in sight of controller and/or pump unit.

D. Muffler: Provide in discharge oil line near pump unit. Design shall dampen and absorb pulsation and noise in the flow of hydraulic fluid.

E. Piping and Oil: Provide piping, connections, and oil for the system. Buried piping shall be secondarily contained with watertight Schedule 40 PVC sleeves between elevator machine room and pit. A minimum of two (2) sound isolation couplings shall be provided between the pump unit and oil line and the oil line and jack unit. Provide isolated pipe stands or hangers as required.

- F. Shutoff Valve: Manual valve in line adjacent to pump unit. Provide second valve in pit adjacent to jack unit

2.6 HOISTWAY EQUIPMENT

- A. Guide Rails: Retain guide rails in place.
 - 1. Clean rails and brackets. Remove rust and paint.
 - 2. Check all rail and bracket fastenings and tighten.
 - 3. Provide supplemental rail brackets and/or backing as required by code or to enhance car ride quality.
- B. Buffers: Retain existing.
 - 1. Rebuild as required and paint.
- C. Hydraulic Jack Assembly:
 - 1. Cylinder(s): Seamless steel pipe. Design head to receive unit-type packing and provide means to collect oil at cylinder head and return automatically to oil reservoir. Provide secondary containment/cylinder protection.
 - 2. Plunger(s): Polished seamless steel tubing or pipe. If plunger length exceeds 24 feet, provide two or more sections not exceeding 16 feet in length, or coordinate installation of longer unit at the jobsite. Join sections by internal threaded couplings. Multiple section jack units shall be factory polished while assembled and marked for proper future reassembly. Isolate plunger from car frame.
- D. Jack Support and Fluid Shut-Off Valve(s): Provide steel pit channels to support jack assembly and transmit loads to building structure. Provide intermediate stabilizers as required. Provide manual on/off valve(s) in oil line(s) adjacent to pump unit and jack unit(s) in pit adjacent to jack unit(s).
- E. Terminal Stopping: Provide normal and final devices.
- F. Electrical Wiring and Wiring Connections
 - 1. Conductors and Connections: Copper throughout with individual wires coded and connections on identified studs or terminal blocks. Use no splices or similar connections in wiring except at terminal blocks, control compartments, or junction boxes. Provide 10% spare conductors throughout. Run spare wires from car connection points to individual elevator controllers in the machine room.
 - 2. Conduit: Painted or galvanized steel conduit, EMT, or duct. Conduit size, 1/2". Flexible heavy-duty service cord may be used between fixed car wiring and car door switches for door protective devices.

3. Traveling Cables: Flame and moisture-resistant outer cover. Prevent traveling cable from rubbing or chafing against hoistway or equipment within hoistway.
 4. Auxiliary Wiring: Connect fire alarm initiating devices, emergency two-way communication system, in machine room.
- G. Entrance Equipment:
1. Door Hangers: Two-point hanger roller with neoprene roller surface and suspension with eccentric upthrust roller adjustment. **Water resistant equipment.**
 2. Door Tracks: Bar or formed, cold-drawn removable steel tracks with smooth roller contact surface. **Water resistant equipment.**
 3. Door Interlocks: Operable without retiring cam. Water resistant equipment.
 4. Door Closers: Spring, spirator, or jamb/strut mounted counterweight type. Design and adjust to insure smooth, quiet mechanical close of doors. **Water resistant equipment.**
- H. Hoistway Door Unlocking Device: Provide unlocking device with a locking escutcheon in door panel at all floors, with finish to match adjacent surface.
- I. Hoistway Access Switches: Mount in entrance frame side jamb at top and bottom floors. Provide switch with **NEMA 4 faceplate.**
- J. Floor Numbers: Stencil paint 4" high floor designations in contrasting color on inside face of hoistway doors or hoistway fascia in location visible from within car.

2.7 HOISTWAY ENTRANCES

- A. Frames: 14-gauge hollow metal at all floors. Bolted and lapped head to jamb assembly at all floors. Provide Arabic floor designation/Braille plates, centered at 60" above finished floor, on both side jambs of all entrances. Provide plates at main egress landing with "Star" designation. For designated emergency car, provide "Star of Life" designation plates at height of 78" – 84" above finished floor on both side jambs at all floors. Braille indications shall be below Arabic floor designation. Provide cast floor designation/Braille plates as manufactured by SCS Elevator Products, Inc. or Vision Mark.
- B. Door Panels: 16-gauge steel, sandwich construction without binder angles. Provide leading edges of center-opening doors with rubber astragals. Provide a minimum of two (2) gibs per panel, one at leading and one at trailing edge with gibs in the sill groove entire length of door travel. Construct door panels with interlocking, stiffening ribs.
- C. Sight Guards: 14-gauge, same material and finish as hoistway entrance door panels. Construct without sharp edges.
- D. Sills: Extruded nickel silver.

- E. Sill Supports: Structural or formed steel designed to support door sill based upon car loading classification. Mount to eliminate need for grout under the sill.
- F. Fascia, Toe Guards and Hanger Covers: 14-gauge furniture steel with black enamel. Provide hoistway width fascia, toe guards, and hanger covers.
- G. Struts and Headers: Provide for vertical support of entrances and related material. Provide door open bumpers on entrances equipped with vertical struts.
- H. Finish of Frames and Doors: satin finish stainless steel.

2.8 CAR EQUIPMENT

- A. Frame: Retain Existing. Check and tighten all fastenings.
- B. Platform: Retain existing. Reinforce if required. Check and tighten all fastenings.
- C. Platform Apron: Retain existing. Check and tighten all fastenings. Replace damaged or missing sections.
- D. Guide Shoes: Swivel type with renewable oilless inserts to accommodate freight loading classification.
- E. Cab Steadying Plates:
 - 1. Provide and install top of car steadying plates.
 - 2. Emphasis shall be placed on proper tension to car styles allowing minimal lateral movement of the cab.
 - 3. Steadying plates shall be isolated using rubber or non-metallic guides or rollers
- F. Finish Floor Covering:
 - 1. Rubber tile 1/8" thick with 1" diameter by 0.025 high, raised circular pattern. Color selected by Architect.
- G. Sills: One piece extrusion with extruded extension between car entrance columns to face of car front return. Extruded extension to match finish of sill.
 - 1. nickel silver
- H. Doors: Provide as specified for hoistway entrance doors.
- I. Door Hangers: Two-point hanger roller with neoprene roller surface and suspension with eccentric upthrust roller adjustment. **Water resistant equipment.**
- J. Door Track: Bar or formed, cold-drawn removable steel track with smooth roller contact surface. **Water resistant equipment.**

- K. Door Header: Construct of minimum 12-gauge steel, shape to provide stiffening flanges.
- L. Door Electrical Contact: Prohibit car operation unless car door is closed. **Water resistant equipment**
- M. Door Clutch: Heavy-duty clutch, linkage arms, drive blocks and pickup rollers or cams to provide positive, smooth, quiet door operation. Design clutch so car doors can be closed, while hoistway doors remain open. **Water resistant equipment**
- N. Restricted Opening Device: Provide car-door interlock per code to prevent opening of car door(s) outside unlocking zone. Plunger type restrictors not acceptable.
- O. Door Operator: High speed, heavy-duty door operator capable of opening doors at no less than 2-1/2 f.p.s. Accomplish reversal in no more than 2-1/2" of door movement. Provide solid-state door control with closed loop circuitry to constantly monitor and automatically adjust door operation based upon velocity, position, and motor current. Provide a minimum of four (4) controller-activated motion profiles, per floor, per door, to maintain consistent, smooth, and quiet door operation at all floors, regardless of door weight or varying air pressure. Acceptable closed-loop door operators:
 - 1. G.A.L. - MOVFR **Water resistant equipment**
- P. Door Control Device: **Water resistant equipment**
 - 1. Infrared Reopening Device: Black, fully enclosed device with full screen infrared matrix or multiple beams extending vertically along leading edge of each door panel to minimum height of 7'-0" above finished floor. Device shall prevent doors from closing and reverse doors at normal opening speed if beams are obstructed while doors are closing, except during nudging operation. In event of device failure, provide for automatic shutdown of car at floor level with doors open.
 - 1) Gatekeeper by Adams Water resistant equipment
 - 2. Nudging Operation: After beams of door control device are obstructed for a predetermined time interval (minimum 20.0 - 25.0 seconds), warning signal shall sound, and doors shall attempt to close with a maximum of 2.5-foot pounds kinetic energy. Activation of the door open button shall override nudging operation and reopen doors.
 - 3. Interrupted Beam Time: When beams are interrupted during initial door opening, hold door open a minimum of 3.0 seconds. When beams are interrupted after the initial 3.0 second hold open time, reduce time doors remain open to an adjustable time of approximately 1.0 - 1.5 seconds after beams are reestablished
- Q. Car Operating Panel: **NEMA 4**
 - 1. One car operating panel with faceplate, consisting of a metal box containing vandal resistant operating fixtures, mounted behind the car stationary front return panel. Faceplate shall be

- hinged and constructed of stainless steel, satin finish.
2. Suitably identify floor buttons, alarm button, door open button, door close button, and emergency push-to-call button with SCS Elevator Products, Inc. or Visionmark cast tactile symbols rear mounted. Configure plates per local building code accessibility standards including Braille. Locate operating controls no higher than 48" above the car floor; no lower than 35" for emergency push-to-call button and alarm button.
 3. Provide minimum 3/4" diameter raised or flush floor pushbuttons which illuminate to indicate call registration.
 4. Provide alarm button to ring bell located on car. Illuminate button when actuated.
 5. Provide keyed stop switch at bottom of car operating panel in locked car service compartment. Mark device to indicate "run" and "stop" positions.
 6. Provide "door open" button to stop and reopen doors or hold doors in open position.
 7. Provide "door close" button to activate door close cycle. Cycle shall not begin until normal door dwell time for a car or hall call has expired, except firefighters' operation.
 8. Provide firefighters' Phase II key switch with engraved instructions filled red. Include light jewel, audible signal, and call cancel button.
 9. Provide lockable service compartment with recessed flush door. Door material and finish shall match car return panel or car operating panel faceplate.
 10. Include the following controls in lockable service cabinet with function and operating positions identified by permanent signage or engraved legend.
 - a. Inspection switch
 - b. Light switch.
 - c. Three-position exhaust blower switch.
 - d. Independent service switch.
 - e. Constant pressure test button for battery pack emergency lighting.
 - f. 120-volt, AC, GFCI protected electrical convenience outlet.
 - g. Card reader override switch.
 - h. Stop switch.
 - i. Switch to select either floor voice annunciation, floor passing tone, or chime
 11. Provide black paint filled (except as noted), engraved, or approved etched signage as follows

- with approved size and font:
- a. Phase II firefighters' operating instructions on main operating panel above corresponding keyswitch filled red.
 - b. Car number on main car operating panel.
 - c. "No Smoking" on car operating panel.
 - d. Car capacity in pounds on service compartment door.
- R. Car Top Control Station: Mount to provide safe access and utilization while standing in an upright position on car top. **NEMA 4**
- S. Work Light and Duplex Plug Receptacle: GFCI protected outlet at top and bottom of car. Include on/off switch and lamp guard. **NEMA 4.**
- T. Car Communication System:
- 1. Hands-Free Phone System: **NEMA 4**
 - a. Two-way communication instrument in car with automatic dialing, tracking, and recall features, with shielded wiring to car controller in machine room.
 - b. Provide dialer with automatic rollover capability with minimum two numbers:
 - 1) Actuate two-way communication via "Help" button.
 - 2) Button or adjacent light jewel shall illuminate and flash when call is acknowledged.
 - 3) Button shall match car operating panel pushbutton design.
 - 4) Provide "Help" button tactile symbol, engraved signage, and Tactile marking adjacent to button mounted integral with car front return panel.
 - 2. Emergency Personnel Communication: **NEMA 4**
 - a. Communication system shall be provided allowing emergency personnel to establish communications with each elevator individually.
 - b. Emergency Personnel Communication shall override any existing connection outside of building.
 - c. Adjacent light jewel shall illuminate and flash when call is acknowledged.
 - d. Provide operating instructions.
 - e. On the same car operating panel as the phone push button, provide capability to communicate with and obtain responses from passengers.

- f. Provide display video capability for entrapment assessment
- 3. Communication for deaf, hearing and speech impaired: **NEMA 4**
 - a. On the same car operating panel as the phone push button, provide capability to communicate visually with and obtain responses from passengers, including those passengers who cannot communicate verbally or hear.

2.9 CAR ENCLOSURE

- A. Car Enclosure Passenger/Service Elevator: Retain existing. Modify as required for application of new signal and pushbutton fixtures. Check and tighten all fasteners.
 - 1. Clad entire front of elevator (front, return, transom, entrance columns) with satin stainless steel.
 - 2. Ventilation: two-speed exhaust blower mounted to car canopy on isolated rubber grommets. Exhaust blower shall meet requirements of Item 2.03, I. Ventilation shall shut off after adjustable period (60 – 180 seconds) of no elevator demand. **NEMA 4.**
 - 3. Provide LED fixtures with wiring and hookup. Coordinate with emergency lighting requirements. Provide new ceiling panels where broken or missing. **NEMA 4.**

2.10 HALL CONTROL STATIONS NEMA 4

- A. Provide 1 riser with flush mounted faceplates. Include pushbuttons for each direction of travel which illuminate to indicate call registration. Include approved engraved message and pictorial representation prohibiting use of elevator during fire or other emergency situation as part of faceplate. Pushbutton design shall match car operating panel pushbuttons. Provide vandal resistant pushbutton and light assemblies. Provide any cutting and patching required.

2.11 SIGNALS NEMA 4

- A. Car Direction Lanterns: Provide flush-mounted car lantern in both car entrance columns. Illuminate up or down LED lights and sound electronic tone once for up and twice for down direction travel as doors open. Sound tone once for up direction and twice for down direction. Sound level shall be adjustable from 0 - 80 dBA measured at 5'-0" in front of hall control station and 3'-0" off floor. Provide adjustable car door dwell time to comply with ADA requirements relative to hall call notification time. Car direction lenses shall be arrow shaped with faceplates. Lenses shall be minimum 2-1/2" in their smallest dimension. Provide vandal resistant lantern and light assemblies consisting of series of dots or lines for maximum visibility.
- B. Car Position Indicator: Alpha-numeric indicator containing floor designations and direction arrows a minimum of 1/2" high to indicate floor served and direction of car travel. Locate in car operating panel. When a car leaves or passes a floor, illuminate indication representing position of car in hoistway. Illuminate proper direction arrow to indicate direction of travel. Provide multi-numeral vandal resistant indicator and light assemblies.

- C. Faceplate Material and Finish: Stainless steel Satin finish all fixtures.
- D. Floor Passing Tone: Provide an audible tone of no less than 20 decibels and frequency of no higher than 1500 Hz, to sound as the car passes or stops at a floor served.
- E. Voice Synthesizer: Provide electronic device with easily reprogrammable message and female voice to announce car direction, floor, emergency exiting instructions, etc.
- F. Firefighters' Key Box: Flush-mounted box with lockable hinged cover. Engrave instructions for use on cover per Local Fire Authority requirements.

PART 3 EXECUTION

3.1 SITE CONDITION INSPECTION

- A. Prior to beginning installation of equipment, examine hoistway and machine room areas. Verify no irregularities exist which affect execution of work specified.
- B. Do not proceed with installation until work in place conforms to project requirements.

3.2 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver material in Contractor's original, unopened protective packaging.
- B. Store material in original protective packaging. Prevent soiling, physical damage, or moisture damage.
- C. Protect equipment and exposed finishes from damage and stains during transportation, erection, and construction.

3.3 INSTALLATION

- A. Install all equipment in accordance with Contractor's instructions, referenced codes, specification, and approved submittals.
- B. Install machine room equipment with clearances in accordance with referenced codes and specification.
- C. Install all equipment so it may be easily removed for maintenance and repair.
- D. Install all equipment for ease of maintenance.
- E. Install all equipment to afford maximum accessibility, safety, and continuity of operation.
- F. Remove oil, grease, scale, and other foreign matter from the following equipment and apply one coat of field-applied machinery enamel.
 - 1. All exposed equipment and metal work installed as part of this work which does not have architectural finish.

2. Neatly touch up damaged factory-painted surfaces with original paint color. Protect machine-finish surfaces against corrosion.

3.4 FIELD QUALITY CONTROL

- A. Work at jobsite will be checked during course of installation. Full cooperation with reviewing personnel is mandatory. Accomplish corrective work required prior to performing further installation.
- B. Have Code Authority acceptance inspection performed and complete corrective work.

3.5 ADJUSTMENTS

- A. Install hydraulic jack assembly and guide rails plumb and align vertically with tolerance of 1/16" in 100'-0". Secure guide rail joints without gaps and file any irregularities to a smooth surface.
- B. Static balance car to equalize pressure of guide shoes on guide rails.
- C. Lubricate all equipment in accordance with Contractor's instructions.
- D. Adjust motors, valves, controllers, leveling switches, limit switches, stopping switches, door operators, interlocks, and safety devices to achieve required performance levels.

3.6 CLEANUP

- A. Keep work areas orderly and free from debris during progress of project. Remove packaging materials on a daily basis.
- B. Remove all loose materials and filings resulting from work.
- C. Clean machine room equipment and floor.
- D. Clean hoistways, car, car enclosure, entrances, operating and signal fixtures.

3.7 ACCEPTANCE REVIEW AND TESTS

- A. See Section 01700, Final Contract Compliance Review.

3.8 PURCHASER'S INFORMATION

- A. See Section 01700, Final Contract Compliance Review.

END OF SECTION

SECTION 01600**MATERIAL AND HANDLING****PART 1 - GENERAL****1.0 SITE CONDITION INSPECTION**

- A. Prior to beginning installation of equipment, examine hoistway and machine room areas. Verify no irregularities exist which affect execution of work specified.
- B. Do not proceed with installation until work in place conforms to project requirements.

1.1 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver material in Contractor's original, unopened protective packaging.
- B. Store material in original protective packaging. Prevent soiling, physical damage, or moisture damage.
- C. Protect equipment and exposed finishes from damage and stains during transportation, erection, and construction.
- D. Allocate available site storage areas and coordinate their use with Purchaser and other Contractors.
- E. Provide suitable temporary weather-tight storage facilities as may be required for materials which will be stored in the open.

1.2 INSTALLATION REQUIREMENTS

- A. Install all equipment in accordance with Contractor's instructions, referenced codes, specification, and approved submittals.
- B. Install machine room equipment with clearances in accordance with referenced codes and specifications.
- C. Install all equipment so it may be easily removed for maintenance and repair.
- D. Install all equipment for ease of maintenance.
- E. Install all equipment to afford maximum accessibility, safety, and continuity of operation.
- F. Remove oil, grease, scale, and other foreign matter from the following equipment and apply one coat of field-applied machinery enamel.
 - 1. All exposed equipment and metal work installed as part of this work which does not have architectural finish.

2. Machine room equipment, and pit equipment.
3. Hoistway equipment including guide rails, guide rail brackets, and pit equipment.
4. Neatly touch up damaged factory-painted surface

1.3 MANUFACTURER'S NAMEPLATES

- A. Manufacturer's name plates and other identifying markings shall not be affixed on surfaces exposed to public view. This requirement does not apply to Underwriter's Laboratories and code required labels.
- B. Each major component of mechanical and electrical equipment shall have identification plate with the Manufacturer's name, address, model number, rating, and any other information required by governing codes.

1.4 COLORS OF FACTORY-FINISHED EQUIPMENT

- A. All colors will be selected from the Manufacturer's standard range unless custom colors are specified herein.
- B. Submit samples of all standard colors available and/or specified custom colors for review and approval. See Section 01 33 00, Submittals.

1.5 MATERIALS AND FINISHES

- A. Steel
 1. Sheet Steel (Furniture Steel for Exposed Work): Stretcher-leveled, cold-rolled, commercial quality carbon steel, complying with ASTM A366, matte finish.
 2. Sheet Steel (for Unexposed Work): Hot-rolled, commercial quality carbon steel, pickled and oiled, complying with ASTM A568/A568M-03.
 3. Structural Steel Shapes and Plates: ASTM A36.
- B. Stainless Steel: Type 302 or 304 complying with ASTM A240, with standard tempers and hardness required for fabrication, strength, and durability. Apply mechanical finish on fabricated work in the locations shown or specified, Federal Standard and NAAMM nomenclature, with texture and reflectivity required to match Architect's sample. Protect with adhesive paper covering.
 1. No. 4 Satin: Directional polish finish. Graining directions as shown or, if not shown, in vertical dimension.
 2. No. 8 Mirror: Reflective polish finish with no visible graining.
 3. Textured: 5WL as manufactured by Rigidized Metals or Windsor pattern as manufactured by Rimex Metals or approved equal with .050 inches mean pattern depth with bright directional

- polish (satin finish).
4. Burnished: Non-directional, random abrasion pattern.
- C. Bronze: Stretcher-leveled, re-squared sheets composed of 60% copper and 40% zinc similar to Muntz Metal, Alloy Group 2, with standard temper and hardness required for fabrication, strength, and durability. Clean and treat bronze surfaces before mechanical finish. After completion of the final mechanical finish on the fabricated work, use a chemical cleaner to produce finish, Federal Standard, and NAAMM nomenclature, matching Architect's sample.
1. No. 4 Satin: Directional polish finish, fine-satin, clear-coated with clear-organic coating recommended by Fabricator. Provide graining direction as shown or, if not shown, in vertical dimension.
 2. No. 8 Mirror: Reflective polish finish with no visible graining, bright-polished, clear-coated finish with clear-organic lacquer coating recommended by Fabricator.
 3. Acid-Etched Pattern: Provide a No. 8 mirror reflective-polished background with selectively acid-etched, matte-textured, custom pattern as shown. Acid selection and dilution, if required, as recommended by Fabricator. After final finishing, coat bronze with clear-organic lacquer coating recommended by Fabricator
- D. Aluminum: Extrusions per ASTM B221; sheet and plate per ASTM B209.
- E. Plastic Laminate: ASTM E84 Class A and NEMA LD3.1, Fire-Rated Grade (GP-50), Type 7, 0.050" $\pm$ 0.005" thick, color and texture as follows:
1. Exposed Surfaces: Color and texture selected by Architect.
 2. Concealed Surfaces: Contractor's standard color and finish.
- F. Fire-Retardant Treated Particle Board Panels: Minimum $\frac{3}{4}$ " thick backup for natural finished wood and plastic laminate veneered panels, edged and faced as shown, provided with suitable anti-warp backing; meet ASTM E84 Class "I" rating with a flame-spread rating of 25 or less, registered with local authorities for elevator finish materials.
- G. Natural Finish Wood Veneer: Standard thickness, 1/40" thoroughly dried conforming to ASME/HPMA HP-1983, Premium Grade. Place veneer, tapeless spliced with grain running in direction shown, belt and polish sanded, book matched. Species and finish designated and approved by Architect.
- H. Paint: Clean exposed metal parts and assemblies of oil, grease, scale, and other foreign matter and factory paint one shop coat of standard rust-resistant primer. After erection, provide one finish coat of industrial enamel paint. Galvanized metal need not be painted.

- I. Prime Finish: Clean all metal surfaces receiving a baked enamel paint finish of oil, grease, and scale. Apply one coat of rust-resistant primer followed by a filler coat over uneven surfaces. Sand smooth and apply final coat of primer.
- J. Baked Enamel Finish: Prime finish per above. Unless specified "prime finish" only, apply and bake three (3) additional coats of enamel in the selected solid color
- K. Glass: Laminated safety glass, minimum 9/16" thick, conforming to ANSI Z97.1 and CPSC 16 CFR Part 1201.

END OF SECTION

SECTION 01700**FINAL CONTRACT COMPLIANCE REVIEW****PART 1 - GENERAL****1.0 FINAL CLEANING**

- A. See Section 01 73 00, Execution of Work, for contractual requirements governing site cleaning. As a minimum:
1. Elevator hoistways and all equipment therein shall be cleaned and left free of rust, filings, welding slag, rubbish, loose plaster, mortar drippings, extraneous construction materials, dirt, and dust. Include walls, building beams, sill ledges, and hoistway divider beams.
 2. Care shall be taken by work persons not to mark, soil, or otherwise deface existing or new surfaces. Clean and restore such surfaces to their original condition.
 3. Clean down surfaces and areas which require final painting and finishing work. Cleaning includes removal of rubbish, broom cleaning of floors, removal of any loose plaster or mortar, dust, and other extraneous materials from finish surfaces, and surfaces that will remain visible after the work is complete

1.2 CONSULTANT'S FINAL OBSERVATION AND REVIEW REQUIREMENTS

- A. Review procedure shall apply for individual elevators, portions of groups of elevators and completed groups of elevators accepted on an interim basis, or elevators and groups of elevators completed, accepted, and placed in operation.
- B. Contractor shall perform review and evaluation of all aspects of its work prior to requesting Consultant's final review. Work shall be considered ready for Consultant's final contract compliance review when all Contractor's tests are complete and all elements of work or a designated portion thereof are in place and elevator, or group of elevators are deemed ready for service as intended.
- C. Furnish labor, materials, and equipment necessary for Consultant's review. Notify Consultant five (5) working days in advance when ready for final review of elevator or group of elevators.
- D. Consultant's written list of observed deficiencies of materials, equipment, and operating systems will be submitted to Contractor for corrective action. Consultant's review shall include as a minimum:
1. Workmanship and equipment compliance with Contract Documents
 2. Contract speed, capacity, floor-to-floor, and door performance comply with Contract Documents.

3. Performance of following is satisfactory
 - a. Starting, accelerating, running
 - b. Decelerating and stopping accuracy
 - c. Door operation and closing force
 - d. Equipment noise levels
 - e. Signal fixture utility
 - f. Overall ride quality
 - g. Performance of door control devices
 - h. Operations of emergency two-way communication device
 - i. Operations of firefighters' service
4. Test Results:
 - a. In all test conditions, obtain specified contract speed, performance times, stopping accuracy without re-leveling, and ride quality to satisfaction of Purchaser and Consultant. Tests shall be conducted under both no load and full load condition.
 - b. Temperature rise in motor windings limited to 50° Celsius above ambient. A full-capacity one (1) hour running test, stopping at each floor for ten (10) seconds in up and down
- E. Performance Guarantee: Should Consultant's review identify defects, poor workmanship, variance or noncompliance with requirements of specified codes and/or ordinances, or variance or noncompliance with the requirements of Contract Documents, Contractor shall complete corrective work in an expedient manner to satisfaction of Purchaser and Consultant at no cost as follows:
 1. Replace equipment that does not meet code or Contract Document requirements.
 2. Perform work and furnish labor, materials, and equipment necessary to meet specified operation and performance.
 3. Perform retesting required by Governing Code Authority, Purchaser, and Consultant.
- F. A follow-up final contract compliance review shall be performed by Consultant after notification by Contractor that all deficiencies have been corrected. Provide Consultant with copies of the initial deficiency report marked to indicate items which Contractor considers complete.

1.3 PURCHASER'S INFORMATION

- A. Provide three sets of neatly bound written information necessary for proper maintenance and adjustment of equipment within 30 days following final acceptance. Final retention will be withheld until data is received by Purchaser and reviewed by Consultant. Include the following as minimums:
1. Straight-line wiring diagrams of "as-installed" elevator circuits with index of location and function of components. Provide one set reproducible master. Mount one set wiring diagrams on panels, racked, or similarly protected, in elevator machine room. Provide remaining set rolled and in a protective drawing tube. Maintain all drawing sets with addition of all subsequent changes. These diagrams are Purchaser's property.
 2. Written Maintenance Control Program (MCP) specifically designed for the equipment included under this contract. Include any unique or product specific procedures or methods required to inspect or test the equipment. In addition, identify weekly, bi-weekly, monthly, quarterly, and annual maintenance procedures, including statutory and other required equipment tests.
 3. Provide any necessary interface cards required for equipment maintenance, code mandated testing, and troubleshooting.
 4. Lubrication instructions including recommended grade of lubricants.
 5. Parts catalogs for all replaceable parts including ordering forms and instructions.
 6. Four sets of keys for all switches and control features properly tagged and marked.
 7. Neatly bound instructions explaining all operating features including all apparatus in the car and lobby control panels.
 8. Neatly bound maintenance and adjustment instructions explaining areas to be addressed, methods and procedures to be used, and specified tolerances to be maintained for all equipment.
 9. Diagnostic equipment complete with access codes, adjusters manuals and set-up manuals for adjustment, diagnosis and troubleshooting of elevator system, and performance of routine safety tests.
- B. Acceptance of such records by Purchaser/Consultant shall not be a waiver of any Contractor deviation from Contract Documents or shop drawings or in any way relieve Contractor from his responsibility to perform work in accordance with Contract Documents

END OF SECTION

SECTION 01800**MAINTENANCE****PART 1 - GENERAL****1.0 WARRANTY MAINTENANCE**

- A. Provide preventive maintenance and 24-hour emergency callback service for one year commencing on date of final acceptance by Purchaser. Systematically examine, adjust, clean, and lubricate all equipment. Repair or replace defective parts using parts produced by the Contractor of installed equipment. Maintain elevator machine room, hoistway, and pit in clean condition.
- B. Use competent personnel, acceptable to the Purchaser, supervised and employed by Contractor.
- C. Purchaser retains the option to delete cost of warranty maintenance from new equipment contract and remit twelve (12) equal installments directly to Contractor during period in which maintenance is being performed.

END OF SECTION

SECTION 01900**RELATED WORK****PART 1 - GENERAL****1.1 RELATED WORK BY CONTRACTOR****A. Hoistway and Pit:**

1. Cutting and patching walls and floors.
2. Opening in hoistway wall or pit wall for hydraulic piping.
3. Erect front hoistway wall after elevator entrances are installed.
4. Grout floor up to hoistway sills and around new hoistway entrances.
5. Pit access stationary ladder for each elevator. Retractable ladder if provided shall include an electrical contact conforming to ASME A17.1, Rule 2.2.2.4.2.7.
6. Waterproof pit. Indirect waste drain or sump with flush grate and pump. Sump pump/drain capacity minimum 3000 gallons per hour, per elevator.
7. Protect open hoistways and entrances during construction per OSHA Regulations.
8. Protect car enclosure, hoistway entrance assemblies, and special metal finishes from damage.
9. Hoistway venting, clean existing modify for code compliance.
10. Glass enclosed hoistways clean existing modify for code compliance.
11. Patch any open spaces / holes for code compliant hoistway.
12. Remove all unused equipment from hoistway.

B. Machine Room and Machinery Spaces:

1. Fire rated enclosure with access.
2. Self-closing and locking access door.
3. Ventilation and heating. Maintain minimum temperature of 55° F, maximum 90° F. Maintain maximum 80% relative humidity, non-condensing.
4. Paint walls, floor and ceiling.
5. Class "ABC" fire extinguisher in each elevator machine room.

6. Seal fireproofing to prevent flaking.
7. Fire sprinklers where required.
8. Remove existing vents, louvers, exhaust fans, etc. and infill for a code compliant machine room.
9. Remove, relocate or separate all non-elevator related components (conduit, wiring, etc.) running through the machine room.

C. Electrical Service, Conductors, and Devices:

1. Lighting and GFCI convenience outlets in pit, machine room, and overhead machinery spaces. Provide one additional non-GFCI convenience outlet in pit for sump pump and oil return pump.
2. Three-phase mainline copper power feeder with true earthen grounding to terminals of each elevator controller in the machine room with protected, lockable "open" disconnecting means with auxiliary contacts to allow Elevator Contractor to electronically interlock battery power lowering unit.
3. Single-phase copper power feeder to each elevator controller for car lighting and exhaust blower with individual protected, lockable "open" disconnecting means located in machine room.
4. Emergency telephone line elevator control panel in elevator machine room.
5. Fire alarm initiating devices in each elevator lobby for each group of elevators or single elevator and each machine room to initiate firefighters' return feature. Device at top of hoistway if sprinklered. Provide alarm initiating signal wiring from hoistway or machine room connection point to elevator controller terminals. Device in machine room and at top of hoistway to provide signal for general alarm and discrete signal for Phase II firefighters' operation.
6. Means to automatically disconnect power to affected elevator pump unit and controller prior to activation of machine room fire sprinkler system and/or hoistway fire sprinkler system. Manual shut-off means shall be located outside bounds of machine room.
7. When sprinklers are provided in the hoistway all electrical equipment located less than 4'-0" above the pit floor shall be identified for use in wet locations. Exception: seismic protection devices.

D. Standby Power Provision

1. Standby single-phase power to group controller, and each elevator controller for car lighting, exhaust blower, emergency signaling device.
2. Standby power to machine room, and pit lighting.
3. Standby power to machine room ventilation or air conditioning.

4. Standby power to emergency communications device.

END OF SECTION