Attachment 1

Division 1- Specifications

SECTION 011000 – SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work performed by Owner.
4. Contractor's use of site and premises.
5. Coordination with occupants.
6. Work restrictions.
7. Specification and Drawing conventions.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.
2. Section 017300 "Execution" for coordination of Owner-installed products.

1.3 PROJECT INFORMATION

A. Project Identification: Francis J Myers Recreation Center Building & Site Improvements Project.

1. Project Location: 5800 Chester Avenue, Philadelphia, PA 19143

B. Owner: Philadelphia Parks & Recreation (PPR)

1. Owner's Representative: City of Philadelphia/ Rebuild
2. Rebuild Project Manager: Kara Medow; kara.medow@phila.gov
3. Rebuild Director of Construction: Luigi Sebastiani; luigi.sebastiani@phila.gov

C. Architect: DIGSAU; 340 N. 12th Street Suite 421 Philadelphia, PA 19107

1. Architect's Representative: Michael Goldberg; mgoldberg@digsau.com

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and includes, but is not limited to, the following:

1. Complete structural demolition of the existing 'Annex' (c1904), 'Gymnasium' (c1979), and 'Boiler' (c1979) additions of the existing building;
2. Construction of a new, 1-story +/-11,000GSF Gymnasium and Lobby Addition; and
3. Renovations of the 3-story (and full basement level) existing Recreation Center Building (c1902):

a. Exterior Envelope Improvements (Existing Rec Building):

i. Masonry cleaning, repairs, and repointing
ii. Window replacement, with security grilles and exterior door replacement
iii. Selective roof replacement with metal tile shingles to match existing at pitched roof areas.
iv. Selective repair and replacement of existing roof.
v. New exterior lighting and security camera system.

b. Interior Improvements (Existing Rec Building, Levels 1 and 2):

i. Selective demolition of existing partitions, ceilings, flooring, doors, casework, mechanical electrical, plumbing, and fire protection
ii. Hazmat Remediation
iii. Salvage and Relocation of items
iv. ADA upgrades, including new 4-stop Elevator
v. Reconfiguration of interior rooms and toilet rooms
vi. Casework and interior casework and millwork
vii. Interior signage and wayfinding
viii. Complete new power and lighting systems throughout
ix. Complete new Security, IT, and AV systems throughout
x. Complete new plumbing systems throughout
xi. Complete new electrical, mechanical fire alarm & fire protection systems throughout.
xii. Enhanced Commissioning: contractor will be required to coordinate and cooperate with the Commissioning Agent

c. Interior Improvements (Existing Rec Building, Levels B and 3):

i. Cleanout and stabilization throughout.
ii. Installation of new equipment.

d. Site Improvements within project boundary:

i. New playgrounds and sprayground
ii. New community garden
iii. Selective tree removal and new plantings
iv. New walkways, site furniture, & site lighting
v. Site re-grading within project boundary
vi. Select repair/ replacement of existing site fencing, stone retaining walls, asphalt driveways

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.5 WORK BY OWNER

A. Cooperate fully with Owner, so work may be carried out smoothly, without interfering with or delaying Work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

1.6 OWNER-FURNISHED/OWNER-INSTALLED (OFOI) PRODUCTS

A. The Owner will furnish and install products indicated.

1. Furniture procurement and installation

1.7 CONTRACTOR'S USE OF SITE AND PREMISES

A. Unrestricted Use of Site: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

B. Limits on Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1.8 WORK RESTRICTIONS

A. Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Contractor will set works as necessary for completion of the work, within the limitation of the authorities having jurisdiction, including Saturdays as necessary. No Sunday is permitted without prior approval by the Owner. Overtimes hours that may be required for the timely completion of the project shall be included as part of the base bid.

C. Existing Utility Interruptions: The Contractor shall provide his own equipment to detect, locate, and mark-out all existing utilities. The contractor is required to verify locations and all existing utilities to be connected or disconnected.

D. Smoking and Controlled Substance Restrictions: Use of tobacco products, alcoholic beverages, and other controlled substances on Project site is not permitted.

E. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

F. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.

1. Maintain list of approved screened personnel with Owner's representative.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.

C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 012100 – ALLOWANCES

PART 1 – GENERAL

1.1 DESCRIPTION OF WORK

A. This Section includes administrative and procedural requirements governing allowances

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Applicable provisions of Bidding Requirements, Contract Requirements in Division 0 and all applicable Division 1 sections.

B. Each section of the specifications including an allowance.

1.3 COORDINATION

A. Designate required selection and delivery dates for products under each allowance in the Contractor's Construction Schedule.

B. Designate each allowance with extensions based on estimated quantities for unit price allowances on Contractor's Schedule of Values.

1.4 DEFINITIONS

A. Refer to Section 007200.

1.5 ALLOWANCES

A. Include in Total Base Bid Amount, an amount equal to One Percent (1%) of the base bid amount for payment of permit fees. This is a direct cost; no mark-ups will be permitted.

B. Amount of each allowance (excluding 1.5.A above) shall include:

1. Net cost of product.
2. Delivery to site.
3. Applicable taxes.
4. Preparing submittals.

C. In addition to amounts of allowances (excluding 1.5.A above), include in the base bid amount, the Contractor's cost for:

1. Assisting in selection and obtaining proposals from suppliers and subcontractors.
2. Processing submittals.
3. Handling at site, including unloading, uncrating and storage.
4. Protection from elements and from damage.
5. Labor, installation and finishing.
6. Other expenses required to complete installation.
7. Overhead and profit.

1.6 SELECTION OF PRODUCTS

A. Design Professional shall issue by Change Order a full specification for the final selected product.

B. Contractor's Duties

1. Notify Design Professional of deadlines for specification of final products, allowing for Contractor's required submissions as required to meet Date of Completion.
2. Provide cost proposals for products being considered when requested by Design Professional.
3. Notify Design Professional of any effect anticipated by selection of product or supplier under consideration as it relates to:

a. Construction Schedule.
b. Contract Sum.
c. On notification of selection, enter into purchase agreement with designated supplier.

1.7 INSTALLATION

A. Comply with requirements of applicable specification section, including warranties/guarantees.

1.8 ADJUSTMENT OF COSTS

A. Should actual purchase cost be more or less than specified amount of allowance, Contract Sum shall be adjusted by Change Order equal to amount of difference. A percentage to cover Contractor's overhead and profit, as stated in Standard Contract Requirements, will be applied to difference in cost.

B. For products specified under unit cost allowance unit cost applies to quantity required to complete the Work as determined by the Contractor.

1. Submit invoices or other data to substantiate quantity actually used.

C. Submit request for other costs, claimed for additional work caused by increase over amount of allowance, prior to required submission for product.

1.9 SCHEDULE OF ALLOWANCES

A. Allowance No. 1: Quantity allowance: Include quantity of 10 LF of crack repair at limestone as shown on drawings and as specified in Section 040101 "Repair and Cleaning of Existing Masonry"

1. This allowance includes material cost receiving, handling, and installation and Contractor overhead and profit.
2. Coordinate quantity allowance adjustment with corresponding unit-price requirements in Section 012200 "Unit Prices".

B. Allowance No. 2: Quantity allowance: Include quantity of 25 LF of crack repair at granite as shown on drawings and as specified in Section 040101 "Repair and Cleaning of Existing Masonry"

1. This allowance includes material cost receiving, handling, and installation and Contractor overhead and profit.
2. Coordinate quantity allowance adjustment with corresponding unit-price requirements in Section 012200 “Unit Prices”.

C. Allowance No. 3: Quantity allowance: Include quantity of 10 pins placed to repair displaced stone as shown on drawings and as specified in Section 040101 “Repair and Cleaning of Existing Masonry”

1. This allowance includes material cost receiving, handling, and installation and Contractor overhead and profit.
2. Coordinate quantity allowance adjustment with corresponding unit-price requirements in Section 012200 “Unit Prices”.

D. Allowance No. 4: Quantity allowance: Include quantity of 5 locations of embedment removal and repair as shown on drawings and as specified in Section 040101 “Repair and Cleaning of Existing Masonry”

1. This allowance includes material cost receiving, handling, and installation and Contractor overhead and profit.
2. Coordinate quantity allowance adjustment with corresponding unit-price requirements in Section 012200 “Unit Prices”.

E. Allowance No. 5: Quantity allowance: Include quantity of 2,025 sq.ft of mortar joint repair at stone as shown on drawings and as specified in Section 040101 “Repair and Cleaning of Existing Masonry”

1. This allowance includes material cost receiving, handling, and installation and Contractor overhead and profit.
2. Coordinate quantity allowance adjustment with corresponding unit-price requirements in Section 012200 “Unit Prices”.

F. Allowance No. 6: Quantity allowance: Include quantity of 250 sq.ft of sealant joint repair at stone as shown on drawings and as specified in Section 040101 “Repair and Cleaning of Existing Masonry”

1. This allowance includes material cost receiving, handling, and installation and Contractor overhead and profit.
2. Coordinate quantity allowance adjustment with corresponding unit-price requirements in Section 012200 “Unit Prices”.

G. Allowance No. 7: Lump Sum Allowance: Include a sum of $7,000 for the provision of a custom printed, vinyl graphic artwork to be applied to the outer face of the Lobby pod millwork elements.

1. This allowance includes material cost receiving, handling, and installation and Contractor overhead and profit.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION – Not Used

END OF SECTION

SECTION 012200 - UNIT PRICES

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. List of unit prices, for use in preparing Bids.

B. Measurement and payment criteria applicable to Work performed under a unit price payment method.

C. Defect assessment and non-payment for rejected work.

1.2 RELATED REQUIREMENTS

A. Section 002113 “Instructions to Bidders” for instructions for preparation of pricing for Unit Prices

B. Section 004322 “Unit Prices Form” for List of Unit Prices as supplement to Bid Form

C. Section 012000 “Allowances” for procedures for using unit prices to adjust quantity allowances

D. Section 012600 “Contract Modification Procedures” for additional payment and modification procedures.

1.3 COSTS INCLUDED

A. Unit Prices included on the Bid Form shall include full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.4 UNIT QUANTITIES SPECIFIED

A. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements of actual Work will determine the payment amount.

1.5 MEASUREMENT OF QUANTITIES

A. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.

B. Owner will take all measurements and compute quantities accordingly.

C. Assist by providing necessary equipment, workers, and survey personnel as required.

1. Measurement Devices:

a. Weigh Scales: Inspected, tested and certified by the applicable state Weights and Measures department within the past year.
b. Platform Scales: Of sufficient size and capacity to accommodate the conveying vehicle.

c. Metering Devices: Inspected, tested and certified by the applicable state department within the past year.
d. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
e. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.
f. Measurement by Area: Measured by square dimension using mean length and width or radius.
g. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.
h. Stipulated Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed item or unit of the Work.
i. Perform surveys required to determine quantities, including control surveys to establish measurement reference lines. Notify Architect prior to starting work.
j. Contractor's Engineer Responsibilities: Sign surveyor's field notes or keep duplicate field notes, calculate and certify quantities for payment purposes.

1.6 PAYMENT

A. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work that is incorporated in or made necessary by the Work and accepted by the Architect, multiplied by the unit price.

B. Payment will not be made for any of the following:

1. Products wasted or disposed of in a manner that is not acceptable.
2. Products determined as unacceptable before or after placement.
3. Products not completely unloaded from the transporting vehicle.
4. Products placed beyond the lines and levels of the required Work.
5. Products remaining on hand after completion of the Work.
6. Loading hauling, and disposing of rejected Products.

1.7 DEFECT ASSESSMENT

A. Replace Work, or portions of the Work, not complying with specified requirements.

B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct one of the following remedies:

1. The defective Work may remain, but the unit price will be adjusted to a new unit price at the discretion of Architect.
2. The defective Work will be partially repaired to the instructions of the Architect, and the unit price will be adjusted to a new unit price at the discretion of Architect.

C. If, in the opinion of Owner, it is not practical to remove and replace the Work, Owner will direct one of the following remedies:

1. The defective Work may remain, but the unit price will be adjusted to a new unit price at the discretion of Owner.

2. The defective Work will be partially repaired to the instructions of the Owner, and the unit price will be adjusted to a new unit price at the discretion of Owner.

D. The individual specification sections may modify these options or may identify a specific formula or percentage price reduction.

E. The authority of Owner to assess the defect and identify payment adjustment is final.

1.8 SCHEDULES OF UNIT PRICES

A. Unit Price No. 1: Crack repair at limestone:

1. Description: Crack repair at limestone as shown on drawings and as specified in Section 040101 “Repair and Cleaning of Existing Masonry”
2. Unit of Measurement: Lineal foot of crack repaired.
3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 “Allowances”

B. Unit Price No. 2: Crack repair at granite stone:

1. Description: Crack repair at granite as shown on drawings and as specified in Section 040101 “Repair and Cleaning of Existing Masonry”
2. Unit of Measurement: Lineal foot of crack repaired.
3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 “Allowances”

C. Unit Price No. 3: Repair of displaced element with pins:

1. Description: Resetting and repair of displaced stone with pins and adhesive as shown on drawings and as specified in Section 040101 “Repair and Cleaning of Existing Masonry”"
2. Unit of Measurement: Each pin placed.
3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 “Allowances”

D. Unit Price No. 4: Repair of spalls

1. Description: Spall repair at stone as shown on drawings and as specified in Section 040101 “Repair and Cleaning of Existing Masonry”
2. Unit of Measurement: Square foot of wall surface repaired.
3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 “Allowances”

E. Unit Price No. 5: Stone Masonry Dutchman Repair

1. Description: Cut out deteriorated limestone and install stone dutchman with stone to match existing as shown on drawings and as specified in Section 040101 “Repair and Cleaning of Existing Masonry”
2. Unit of Measurement: Square foot of dutchman repair.
3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 “Allowances”

F. Unit Price No. 6: Embedment removal and repair of stone

1. Description: Embedment removal and repair at stone as shown on drawings and in according to Section 040101 “Repair and Cleaning of Existing Masonry”
2. Unit of Measurement: Each insert, with 4 cubic inches of patching material.
3. Confirm original unit prices have been separated into two (for patching stone & pointing joints).
4. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 “Allowances”

G. Unit Price No. 7: Mortar Joint Repair at Stone

1. Description: Cutting and raking out of existing mortar joints and repointing as shown on drawings and in according to Section 040101 “Repair and Cleaning of Existing Masonry”
2. Unit of Measurement: Linear Foot (LF)
3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 “Allowances”

H. Unit Price No. 8: Sealant Joint Repair at Stone

1. Description: Cutting and raking out of existing sealant joints and repointing as shown on drawings and in according to Section 040101 “Repair and Cleaning of Existing Masonry”
2. Unit of Measurement: Linear Foot (LF)
3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 “Allowances”

I. Unit Price No. 9: Steel Lintel Repair at Stone

1. Description: Steel lintel repair at stone as shown on drawings and as specified in Section 040101 “Repair and Cleaning of Existing Masonry”
2. Unit of Measurement: Linear Foot (LF)
3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 “Allowances”

J. Unit Price No. 10: Hazardous Materials Abatement

1. Description: Abatement of hazardous materials according to the Environmental Specifications and Supplemental Testing Reports included in Appendix D
2. Unit of Measurement: Refer to Unit Rate Sheet below
3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 “Allowances”

Hazardous Materials Abatement Unit Rate Sheet

Material	Units	Unit Cost (Add/Deduct)
Paper "Air Cell" Pipe Insulation	Linear Foot	$
Block "Mag" Pipe Insulation	Linear Foot	$
Mudded Pipe Fittings	Linear Foot	$
Paper Radiator Heat Shield	Square Foot	$
Paper Duct Insulation	Square Foot	$
Joint Compound	Square Foot	$
Wall/Ceiling Plaster (>1% Asbestos)	Square Foot	$
Wall/Ceiling Plaster (<1% Asbestos)	Square Foot	$
CMU/Stone Wall Parging/Waterproofing (Above Grade)	Square Foot	$
CMU/Stone Wall Parging/Waterproofing (Subgrade)	Square Foot	$
Ceiling Tile Adhesive	Square Foot	$
Asphalt/Vinyl Floor Tile (Single Layer)	Square Foot	$
Asphalt/Vinyl Floor Tile (2 Layer)	Square Foot	$
Asphalt/Vinyl Floor Tile (3 Layer)	Square Foot	$
Asphalt/Vinyl Floor Tile (4 Layer)	Square Foot	$
Flooring Mastic/Adhesive (Black)	Square Foot	$
Sheet Flooring	Square Foot	$
Flooring Mastic/Adhesive (Yellow/Brown)	Square Foot	$
Leveling Compound	Square Foot	$
Flooring Underlayment	Square Foot	$
Ceramic/Porcelain Tile Mortar	Square Foot	$
Ceramic/Porcelain Tile Grout	Square Foot	$
Ceramic/Porcelain Tile Adhesive	Square Foot	$
Blackboard/Wall Panel Adhesive	Square Foot	$
Stainless Sink Insulation Coating	Unit	$
Fire Door	Unit	$
Electrical Wire Insulation	Linear Foot	$
Cementitious Electrical Panel Components	Unit	$
Paper Electrical Panel Components	Square Foot	$
Exterior Caulk (Window, Door, Expansion, etc.) - 1st Floor	Linear Foot	$
Exterior Caulk (Window, Door, Expansion, etc.) - 2nd Floor	Linear Foot	$
Window Glaze	Linear Foot	$
Cementitious Panels	Square Foot	$
Additional Mobilization/Demobilization	Unit	$

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 012300 – ALTERNATES

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. This Section identifies each Alternate by number and describes the basic changes to be incorporated into the Work, if that Alternate is made part of the Contract.

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Applicable provisions of Bidding Requirements, Contract Requirements in Division 0 and all applicable Division 1 sections.

1.3 ADMINISTRATIVE PROCEDURES

A. Referenced Sections of Specifications stipulate pertinent requirements for products and methods to achieve the Work stipulated under each Alternate.

B. Coordinate pertinent related Work and modify surrounding Work as required to properly integrate the Work under each Alternate, and to provide the complete construction required by the Contract Documents.

C. Immediately following the award of the Contract, prepare and distribute to each party involved, notification of the status of each Alternate. Indicate whether Alternates have been accepted, rejected or deferred for consideration at a later date.

D. A "Schedule of Alternates" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials and methods necessary to achieve the Work described under each Alternate. Include as part of each Alternate, miscellaneous devices, accessory objects and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.

1.4 DEFINITIONS

A. Refer to Section 007200 Standard Contract Requirements.

PART 2 - PRODUCTS – Not Used

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. **Alternate No. 1: Site (Non-Building Mounted) Security Cameras**
   1. Base Scope: Exclude all site-related security work illustrated on T000 except for a single exterior security hand hole dedicated for future tie-in.
   2. Alternate: Provide trenching, conduit, and security cameras as documented on T100

B. **Alternate No. 2: Community Garden Raised Planters**
   1. Base Scope: Exclude all raised planters and tool locker shown on L2.1
   2. Alternate: Provide (7) raised planters (including planting soil), (3) accessible raised planters, (1) lockable tool locker per L2.1

C. **Alternate No. 3: Exterior Adult Fitness**
   1. Base Scope: Exclude all Adult Fitness work as shown on L/2.1. Provide lawn contiguous with adjacent area
   2. Alternate: Provide scope as documented on L/2.1 that includes, but is not limited to, +/- 775SF porous safety surface, fitness equipment and associated foundations, +/- 250SF concrete paving, and game tables.

D. **Alternate No. 4: Exterior Landscape Seat Wall**
   1. Base Scope: Provide cast-in-place concrete site/seat wall as shown on the L/2.0 and 6/L5.0
   2. Alternate: Provide salvaged granite stone-clad site wall per 5/L5.0

E. **Alternate No. 5: Classroom Room 201/202 Operable Partition**
   1. Base Scope: Provide a solid acoustical GWB partition (partition Type 0A3A) subdividing Classrooms 201 and 202
   2. Alternate: Provide scope as documented on the architectural and structural drawings that includes a manual operable partition and associated structural steel supports

F. **Alternate No. 6: Interior GWB Partition Assembly (Renovation)**
   1. Base Scope: Provide abuse-resistant type (AR) drywall with ½" plywood liner at all partitions as shown on A800
   2. Alternate: Exclude ½" plywood liner at all interior GWB partitions, unless required for typical blocking or architectural finishes as shown throughout the drawings.

END OF SECTION

SECTION 012500 – SUBSTITUTION PROCEDURES

PART 1 – GENERAL

1.1 DESCRIPTION OF WORK

A. This Section specifies the Contractor's administrative and procedural requirements for handling requests for substitutions made after award of the Contract. Procedural requirements governing the Contractor's selection of products and product options are included under Section 016001 "Products and Materials".

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Applicable provisions of Bidding Requirements, Contract Requirements in Division 0 and all applicable Division 1 sections.

1.3 DEFINITIONS

A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.

B. Substitutions - Requests for changes in products, materials, equipment, and construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions". The following shall not be considered substitutions:

1. Substitutions requested by Bidders during the bidding period, and accepted in Addenda prior to award of Contract.
2. Revisions to Contract Documents requested by the City or Design Professional.
3. Specified options of products and construction methods included in Contract Documents.
4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

C. "Or equal", "or equivalent", "approved equal", "approved equivalent", "equivalent substitution" and all other similar terms shall be interpreted as "substitution" as defined above.

1.4 SUBMITTALS

A. Submit three (3) copies of each request for substitution. Submit requests with the form attached at the end of this Section and in accordance with procedures required for Change Order proposals. Attach all other data and certification.

B. Identify the product, or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate.

C. Product Data, including Drawings and descriptions of products, fabrication and installation procedures.

D. Samples, where applicable or requested.

E. A detailed comparison of salient features and qualities of the proposed substitution with those of the Work specified. Salient features and qualities may include elements such as size, weight, durability, performance and visual effect as determined by the Design Professional. Submit documentation of salient features and qualities from independent testing agencies performing industry recognized tests. The manufacturer's claims of performance may or may not be used in evaluation of substitutions at the discretion of the Design Professional.

F. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the City and separate Contractors, that will become necessary to accommodate the proposed substitution.

G. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.

H. Cost information, including a proposal of the net change, if any in the Contract Sum. The Contractor shall certify that the cost data presented is complete and includes all related costs under this Contract, but excludes the Design Professional's redesign costs.

I. Certification by the Contractor that the substitution proposed is equal-to or better in every significant respect to that required by the Contract Documents, and that it will perform adequately in the application indicated. Include the Contractor's waiver of rights to additional payment or time, that may subsequently become necessary because of the failure of the substitution to perform adequately.

J. Certification that the Contractor will reimburse the City for all costs for additional services by the Design Professional and/or the Department of Parks & Recreation relating to any substitution that necessitates a design change and related documentation.

K. Design Professional's Action - The Design Professional will notify the Contractor of acceptance or rejection of the proposed substitution. The Design Professional will be the sole judge of the acceptability of the proposed substitution. Acceptance will be in the form of a Change Order. The Change Order will include a deduction from the Contract Sum for additional costs incurred by the City because of the substitution including, but not limited to, Design Professional's fees.

PART 2 PRODUCTS

2.1 SUBSTITUTIONS

A. Conditions - The Contractor's substitution request will be received and considered by the Design Professional when one or more of the following conditions are satisfied, as determined by the Design Professional; otherwise requests will be returned without action except to record noncompliance with these requirements.

1. Extensive revisions to Contract Documents are not required.
2. Proposed changes are in keeping with the general intent of Contract Documents.
3. The request is timely, fully documented and properly submitted.
4. The request is directly related to an "or approved substitution" clause or similar language in the Contract Documents.
5. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method

cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.

6. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
7. A substantial advantage is offered the City, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the City may be required to bear. Additional responsibilities for the City may include additional compensation to the Design Professional for redesign and evaluation services, increased cost of other construction by the City or separate Contractors, and similar considerations.

B. The specified product or construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.

C. The specified product or construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.

D. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty.

E. The Contractor's submittal and Design Professional acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

PART 3 EXECUTION Not Applicable

Attachment - Substitution Request Form (2 pages)

END OF SECTION

CITY OF PHILADELPHIA SUBSTITUTION REQUEST FORM

INSTRUCTIONS:

A. This request must be submitted and signed by the Contractor.
B. A request for each substitution must be exactly in this form, including all items. (One (1) item of substitution per form).
C. Attach complete information on changes to Drawings and Specifications that proposed substitution will require for its proper installation.
D. Submit with request, all necessary samples and substantiating data to prove quality and performance is equal to that which is specified. Clearly mark manufacturer's literature to indicate equality in performance

CONTRACT AWARD DATE: _____DATE OF REQUEST:_____

CONTRACTOR:_____

PROJECT:_____

We hereby submit for your consideration the following substitution in lieu of the specified item for the above project:

SPEC. SECTION NO.:_____PARAGRAPH:_____SPECIFIED ITEM:_____

PROPOSED SUBSTITUTION:_____

REASON FOR REQUEST:_____

_____

ITEMIZED COMPARISON OF SPECIFIED ITEM WITH THE PROPOSED SUBSTITUTION:
PERFORMANCE:_____

_____

APPEARANCE:_____

_____

REFERENCED STANDARDS:_____

DEDUCT CHANGE ORDER OFFERED FOR PROPOSED SUBSTITUTION:_____

MANUFACTURER'S WARRANTIES OF THE PROPOSED AND SPECIFIED ITEMS:

LENGTH OF WARRANTY: AS SPECIFIED [ ]. PROPOSED [ ]

MATERIALS COVERED:AS SPECIFIED [ ]. PROPOSED [ ]

LABOR COVERED:AS SPECIFIED [ ]. PROPOSED [ ]

OTHER TERMS: AS SPECIFIED:_____

PROPOSED SUBSTITUTION:_____

DESIGNATION OF MAINTENANCE SERVICES AND SOURCES:_____

_____

DOES SUBSTITUTION AFFECT DIMENSIONS OR CLEARANCES SHOWN ON THE DRAWINGS? YES[ ] NO[ ]

IF YES, CLEARLY INDICATE
CHANGES:_____

_____

WILL THE UNDERSIGNED PAY FOR CHANGES TO THE BUILDING DESIGN, INCLUDING ENGINEERING AND DETAILING COSTS CAUSED BY THE REQUESTED SUBSTITUTION? YES [ ] NO [ ].

IF NO, FULLY EXPLAIN:_____ _____

_____

WHAT EFFECT DOES SUBSTITUTION HAVE ON OTHER CONTRACTS OR TRADES?__

_____

WHAT EFFECT DOES SUBSTITUTION HAVE ON CONSTRUCTION SCHEDULE?_____

_____

CONTRACTORS CERTIFICATION OF EQUAL PERFORMANCE
The undersigned certifies that:

He/she has investigated the proposed substitution and has determined that it is equal to or better than the product specified.
He/she will guarantee the substitution in the same manner as the product specified.
He/she will coordinate and make other changes as required in the Work as a result of the substitution.
He/she waives all claims for additional costs as a result of the substitution, with the exception of those identified above under “cost data”.
He/she will reimburse the City for all costs for design change resulting from the substitution.

Submitted by:
Signature _____

Name:_____Title:_____

Firm:_____Date:_____

Street:_____

City_____State_____Zip Code_____

Telephone:_____

Signature shall be by person having authority to legally bind his firm to the above terms. Failure to provide legally binding signature will result in rejection without further review by Design Professional.

Design Professional's Action

Accepted [ ]
Accepted as noted [ ]
Not accepted [ ]
Received too late [ ]

Signature:_____

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.1 CHANGE ORDER PROCEDURE

A. If a change in the design of any portion of the work or the requirements of the Project Manual is deemed necessary by the City/PRA, they may order an alteration to, or a change in, the work covered by the Contract Documents, and the contractor shall comply with such orders. If such changes increase the cost of the work to the Contractor, the City/PRA will allow additional compensation. If such changes diminish the cost of the work to the Contractor the City/PRA may deduct the amount of the diminution. No consequential loss or profit due to reduction in the scope of work will be allowed the Contractor, but the Contractor may be entitled to an extension of time in these instances. No changes shall be made except upon a standard Change Order Form, signed and executed by the Contractor and the City/PRA authorizing the change and fixing the method of compensation or deduction. This Section specifies administrative and procedural requirements for handling and processing Change Orders.

B. The execution of a change order (increase or decrease) will require a proposal from the Contractor on company letterhead. Such proposal will include a complete description of the change and schedule impact and a complete cost breakdown including such items as Labor, Materials, Equipment, Crew Composition, Sub-Contractor costs, and associated Insurance and Bonding costs (if applicable). The contractor is entitled to percentage mark-ups on some of these items as stated in the Standard Contract Requirements. The proposal is to be submitted to the City/PRA. Upon review and approval by the City/PRA Project Team, a signed standard Change Order Form will be forwarded to the Contractor for final execution.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Applicable provisions of Bidding Requirements, Contract Requirements and other Division 1 sections of the Standard Contract Requirements (007200).

1.3 CONTRACTOR'S RESPONSIBILITY TO INFORM

A. Communication, either verbal or written, between the City/PRA or Design Professional and the Contractor, Subcontractors, or other parties involved, during the normal course of administration of the Contract, does not in any way constitute acceptance of a Change Order or direction to modify the Contract unless said communication is in the form of a written Change Order or Construction Change Directive as specified herein.

B. Communication from the City/PRA or Design Professional including, but not limited to the following, does not constitute approval of a Change Order:

1. Submittal review including submittals returned with notations and corrections;
2. Site observation, conversation and reports;
3. Participation in pre-construction, pre-installation, progress or other meetings;
4. Clarification sketches or drawings.

C. It is the responsibility of the Contractor to inform the City/PRA that any communication has, in the Contractor's opinion, caused reason to modify the Contract. The Contractor

shall not undertake work which, in his opinion, requires a Change Order without completing procedures outlined herein.

D. Work done without completing Change Order procedures is entirely at the Contractor's own risk, even if the Contractor believes that communications from the City/PRA or Design Professional contain instructions to do work outside of the Contract scope.

E. The City/PRA and Design Professional will not willfully instruct work to be done that differs from the contract except through the Change Order procedures contained herein.

1.4 MINOR CHANGES IN THE WORK

A. Supplemental instructions, not involving an adjustment to the Contract Sum or Contract Time, may be issued in writing by the PRA.

1.5 CHANGE ORDER PROPOSALS

A. City/PRA-Initiated Change Order Proposal - Proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time will be issued by the City/PRA, with a detailed description of the proposed change and supplemental or revised Drawings and Specifications, if necessary.

1. Change Order Proposal requests issued by the City/PRA are for information only. Do not consider them as instruction either to stop work in progress, accelerate the work or to execute the proposed change.
2. Unless otherwise indicated in the Change Order Proposal request, within 20 days of receipt of the Change Order Proposal request, submit to the City/PRA for review, an estimate of cost necessary to execute the proposed change.

a. Include a list of quantities of products to be purchased and unit costs, along with the total amount of purchases to be made. Separate labor and material charges. Where requested, furnish survey data to substantiate quantities.
b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time or any special efforts of the Contractor that will be employed to reduce the delay.
d. Indicate that the Change Order Proposal is in response to a City/PRA request and submit it to the City/PRA as stated in 1.1 (B) of this section.

B. Contractor-Initiated Change Order Proposal – When Contractor claims latent or other unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a Change Order Proposal.

1. Include a statement outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.

2. Include a list of quantities of products to be purchased and unit costs along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Comply with requirements in Section 012500 “Substitution Procedures” if the proposed change in the Work requires the substitution of one product or system for a product or system specified.
5. Submit the proposal to the City/PRA as stated in 1.1 (B) of this section.

1.6 ALLOWABLE MARKUPS

A. For change orders, overhead and profit shall be the aggregate total amount allowed to the Contractor and shall include the costs of the Project Manager, office personnel, small tools, among other things. The markup for overhead and profit shall be calculated as follows:

i. Cost between $0.00 and $25,000.00 - **12%**
ii. Cost between $25,001.00 and $50,000.00 - **10%**
iii. Cost over $50,000.00 - **8%**
iv. Contractor markup for Subcontractor, and lower tier contractors shall not exceed **8%**

B. Under no circumstances shall the total combined markup for overhead and profit by the Contractor exceed the percentages for markup for overhead and profit indicated in Subparagraphs (1), (2), (3) and (4) above. The Rebuild Office shall make the final determination as to net cost of labor and materials. All Change Orders relating to price and/or time are subject to prior acceptance or approval by the Rebuild Office, or express ratification of Change Order work already for the Rebuild Office.

1.7 ALLOWANCES

A. Refer to Section 012100, Allowances.

1.8 CONSTRUCTION CHANGE DIRECTIVE (Force Account)

A. When the City/PRA and Contractor are not in total agreement on the terms of a Change Order Proposal, the City/PRA may issue a Construction Change Directive instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

B. The Construction Change Directive will contain a complete description of the change in the Work.

C. Documentation - Maintain detailed records on a time and material basis of work required by the Construction Change Directive. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1. Contractor’s documentation will not, by itself, establish the final cost.
2. The City/PRA reserves the right to determine the value of the change in Work per the requirements of this Section.

1.9 DETERMINATION OF COST

A. City/PRA reserves the right to use established estimating methods (including but not limited to industry standards and unit prices listed in this manual) to determine a fair and reasonable cost for changes in the Work.

PART 2 PRODUCTS Not used.
PART 3 EXECUTION

3.1 Sample Change Order Form, contact Project Coordinator for actual document.

END OF SECTION

STANDARD COST BREAKDOWN/ PAYMENT APPLICATION	CITY OF PHILADELPHIA Department of Public Property CITY HALL, 1400 JOHN F KENNEDY BLVD, 7th FLR PHILADELPHIA, PA 19107	CONTRACTOR:

Project Title:	Project #:	Bid #	Date	Req #
Contract #:	PO #(s):			

ITEM NO.	DESCRIPTION	CONTRACT BID/COST BREAKDOWN						% COMP	PREVIOUSLY BILLED	CURRENT BILLING	TOTAL DUE
		QTY	UNIT	MATERIAL	LABOR	UNIT COST	TOTAL COST OF ITEM				
	TOTALS FOR PAGE:										
	GRAND TOTALS (Contract Amount):										
							COMMITTED AMOUNTS		PREVIOUS PAYMENT(S)	CURRENT PAYMENT	TOTAL PAYMENTS
	SUBCONTRACTORS			SUBCONTRACTOR #1		OEO (M/W/DS)					
				SUBCONTRACTOR #2		OEO (M/W/DS)					
				SUBCONTRACTOR #3		OEO (M/W/DS)					
				SUBCONTRACTOR #4		OEO (M/W/DS)					
				SUBCONTRACTOR #5		OEO (M/W/DS)					
				SUBCONTRACTOR #6		OEO (M/W/DS)					
				SUBCONTRACTOR #7		OEO (M/W/DS)					
	(Additional subcontractors to be added on next page)			SUBCONTRACTOR #8		OEO (M/W/DS)					

DEPARTMENT OF PUBLIC PROPERTY APPROVALS			CONTRACTOR SUBMITTAL	
PROJECT COORDINATOR:	DATE:	CONSTRUCTION ENGINEER/INSPECTOR: DATE:	AUTHORIZED SIGNATURE:	DATE:
Print Name		RETAINAGE: 10% 5% 2% 0% $_____		

SECTION 012900 - PAYMENT PROCEDURES

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. This Section specifies administrative and procedural requirements governing the Contractor's submission of invoices for Payment. These may also be referred to as "Current Estimates" in the Standard Contract Requirements (007200).

B. Coordinate the Contractor's Construction Schedule, List of Subcontracts, and Submittal Schedule with the Standard Cost Breakdown.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Applicable provisions of Bidding Requirements, Contract Requirements and other Division 1 of the Standard Contract Requirements (007200).

1.3 GENERAL REQUIREMENTS

A. Each invoice for payment shall be consistent with previous applications and payments.

B. The initial submission of the Standard Cost Breakdown at time of Substantial Completion, and the final Standard Cost Breakdown involve additional requirements.

C. Withholding Payment - Any payment may be withheld in accordance with the Contract Documents

1. Any payment may be withheld if the procedural requirements including submittal of current administrative items listed including Certificates of Insurance are incomplete or outdated.
2. Portions of payment requested for Work installed without approved submittals may be withheld.

D. Standard Cost Breakdown Preparation - Complete every entry on the Standard Cost Breakdown:

1. Contractor (name and address)
2. Contract number (from Notice to Proceed);
3. Requisition No. (sequential number);
4. Date Prepared;
5. Project (title of project);
6. STANDARD COST BREAKDOWN

    a. No. (sequentially numbering);
    b. Item (phases of scope of work);
    c. Unit (each, sq. ft., etc.);
    d. Material;
    e. Labor;
    f. Unit Cost;
    g. Total (total of Material and Labor).

7. PAYMENT APPLICATION

a. Previous Billing (as billed previous application);
b. Percent Complete (completed to date);
c. Total Completed (Total column under COST BREAKDOWN multiplied by Percent Complete column under PAYMENT APPLICATION.)

Incomplete Standard Cost Breakdowns will be returned without action.

E. Entries shall match data on the Contractor's Construction Schedule. Use updated schedules if revisions have been made.

F. Include amounts of Change Orders issued prior to the last day of the construction period covered by the Standard Cost Breakdown.

G. Submit original plus 2 copies of each Standard Cost Breakdown to the Robert LaBrum, Director, Design & Construction, PRA, 1234 Market Street, 16th Floor, Philadelphia, PA 19107

1.4 INITIAL STANDARD COST BREAKDOWN

A. Actions and submittals that shall precede or coincide with submittal of the first Standard Cost Breakdown include the following:

1. List of subcontractors.
2. List of principal suppliers and fabricators.
3. Schedule of Values.
4. Contractor's Construction Schedule (preliminary if not final).
5. Schedule of unit prices.
6. Submittal Schedule (preliminary if not final).
7. List of Contractor's staff assignments.
8. List of Contractor's principal consultants.
9. Copies of building permits.
10. Copies of authorizations and licenses from governing authorities for performance of the Work.
11. Report of pre-construction meeting.
12. Certificates of insurance.
13. Performance and payment bonds.
14. Complete Submittals for each product or system included in the Application.
15. Initial settlement survey and damage report.
16. Reference Point Survey.
17. Current Daily and Monthly Reports.
18. Initial Construction Photographs and/or videos.

1.5 STANDARD COST BREAKDOWN AT SUBSTANTIAL COMPLETION

A. This Standard Cost Breakdown shall reflect any Certificates of Partial Substantial Completion issued previously for City occupancy of designated portions of the Work.

B. Actions and submittals which shall proceed or coincide with this Standard Cost Breakdown include:

1. Occupancy permits and similar approvals.
2. Warranties (guarantees) and maintenance agreements.
3. Test/adjust/balance records.
4. Maintenance instructions.

5. Utility meter readings.
6. Start-up performance reports.
7. Certified improvement survey.
8. Change-over information related to City's occupancy, use, operation and maintenance.
9. Final cleaning.
10. Final progress photographs.
11. List of incomplete Work (punch list), recognized as exceptions to Certificate of Substantial Completion.
12. Record Documents.

1.6 FINAL STANDARD COST BREAKDOWN

A. Actions and submittals which shall precede or coincide with submittal of the final Standard Cost Breakdown include the following:

1. Project Closeout Form fully executed (signed).
2. Completion of items specified for completion after Substantial Completion (punch list).
3. Assurance that unsettled claims will be settled.
4. Assurance that Work not complete and accepted will be completed without undue delay.
5. Transmittal of required Project construction records to City/PRA.
6. Proof that taxes, fees and similar obligations have been paid.
7. Removal of temporary facilities and services.
8. Removal of surplus materials, rubbish and similar elements.
9. Change of door locks to City's access.

END OF SECTION

SECTION 012973 – SCHEDULE OF VALUES

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. This Section describes administrative requirements for the Contractor's Schedule of Values, referred to as "Current Estimate" in the Standard Contract requirements.

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Applicable provisions of Bidding Requirements, Contract Requirements in Division 0 and all applicable Division 1 sections.

1.3 COORDINATION

A. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:

1. Contractor's Construction Schedule.
2. Standard Cost Breakdown
3. List of subcontractors.
4. Schedule of allowances.
5. Schedule of alternates.
6. Schedule of submittals.

B. Submit the Schedule of Values to the City no later than ten (10) days after receipt of the Notice to Proceed. Submit six (6) copies.

1.4 FORMAT AND CONTENT

A. Arrange the Schedule of Values in a tabular form with separate columns to indicate the following for each item listed:

1. Generic name.
2. Related Specification Section.
3. Name of subcontractor.
4. Name of manufacturer or fabricator.
5. Name of supplier.
6. Change Orders (numbers) that have affected value.
7. Dollar value.
8. Percentage of Contract Sum to the nearest one-hundredth percent, adjusted to total 100 percent.
9. Margins of Cost - Show line items for indirect costs, and margins on actual costs, only to the extent that such items will be listed individually in Standard Cost Breakdown. Each item in the Schedule of Values and Standard Cost Breakdown shall be complete including its total cost and proportionate share of general overhead and profit margin unless otherwise indicated.
10. At the Contractor's option, temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown as separate line items in the Schedule of Values or distributed as general overhead expense.
11. Itemize separate line-item cost for the following items under Division 1:

    a. Field Engineering.

b. Construction Photographs.
c. Mock-up.

12. Itemize separate line item cost for each of the construction cost items under all applicable specification sections.
13. Itemize separate line item cost for each service contract.
14. Breakdown costs into:

a. Delivered cost of material, with taxes paid, with overhead and profit.
b. Installation cost, with overhead and profit.
c. If requested, break down high value line items to list major materials or operations.
d. Round off figures to nearest ten dollars.
e. Make sum total costs of all items listed in Schedule equal to Contract Limit.

1.5 UPDATING

A. After review by the City, revise and resubmit schedules as required.

B. Update and resubmit the Schedule of Values when change orders or construction change directions result in a change in the Contract Limit.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION – Not Used

END OF SECTION

SECTION 013100 - 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. Coordination drawings.
2. Requests for Information (RFIs).
3. Project meetings.

B. Related Requirements:

1. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.2 DEFINITIONS

A. RFI: Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.3 INFORMATIONAL SUBMITTALS

A. Subcontract List: 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:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

1.4 OBSERVATION OF WORK BY OTHERS

A. Observation of the Work by the City/PRA, Design Professional, Inspection and Testing Agencies or any other party shall not be interpreted as relieving the Contractor from responsibility for coordination of all Work, superintendence of the Work, and scheduling and direction of the Work or any other requirement of the Contract.

1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: 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.

1. 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.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.

3. Make adequate provisions to accommodate items scheduled for later installation.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for City/PRA, Design Professional, and separate contractors if coordination of their Work is required.

C. Maintain on the job-site at all times during the performance of the Work, a competent, English speaking superintendent.

D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

1.6 COORDINATION DRAWINGS

A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:

a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
b. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Drawing Organization: Organize coordination drawings as follows:

1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid.
2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings.
3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.

4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
6. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility.

C. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:

1. File Preparation Format: Same digital data software program, version, and operating system as original Drawings.
2. File Submittal Format: Submit or post coordination drawing files using format same as file preparation format.
3. Architect will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.

    a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
    b. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to Owner and Architect.

1.7 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified to the Architect and the Rebuild Project Manager.

1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Architect.
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect and Rebuild Project Manager

D. Architect's Action: Architect will review each RFI, recommend action required, and forward proposed response to Rebuild Project Manager for review. Allow seven (7) working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:

a. Requests for approval of submittals.
b. Requests for approval of substitutions.
c. Requests for coordination information already indicated in the Contract Documents.
d. Requests for adjustments in the Contract Time or the Contract Sum.
e. Requests for interpretation of Architect's actions on submittals.
f. Incomplete RFIs or inaccurately prepared RFIs.

2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.

3. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, refer to Section 012600 "Contract Modification Procedures."

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Use software log with not less than the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within 7 days if Contractor disagrees with response.

1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

G. On completion of Project, provide one complete archive copy of Project Web site files to Owner and to Architect in a digital storage format acceptable to Architect.

H. Contractor, subcontractors, and other parties granted access by Contractor to Project Web site shall execute a data licensing agreement in the form of Agreement acceptable to Owner and Architect.

1.8 PROJECT MEETINGS

A. General: The Philadelphia Redevelopment Authority (“PRA”) will schedule and administer the pre-construction meetings, periodic project meetings, pre-installation, coordination and other specially called meetings throughout the progress of the work. They will also:
1. Prepare agenda for meetings.

2. Distribute written notice of each meeting four (4) days in advance of meeting date.
3. Make physical arrangements for meetings.
4. Preside at meetings.

B. During the course of the pre-construction meetings, periodic project meetings, pre-installation, coordination and other specially called meetings throughout the progress of the work, the Design Professional will:

1. Record the minutes, including all significant proceedings and decisions.
2. Reproduce and distribute copies of minutes within three (3) days after each meeting to: all participants in the meeting; and all parties affected by decisions made at the meeting.

C. Representatives of the Contractor, subcontractors and suppliers attending the meetings shall be qualified and authorized to act on behalf of the entity each represents.

D. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.

1. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Tentative construction schedule.
    b. Phasing.
    c. Critical work sequencing and long-lead items.
    d. Designation of key personnel and their duties.
    e. Lines of communications.
    f. Procedures for processing field decisions and Change Orders.
    g. Procedures for RFIs.
    h. Procedures for testing and inspecting.
    i. Procedures for processing Applications for Payment.
    j. Distribution of the Contract Documents.
    k. Submittal procedures.
    l. Preparation of record documents.
    m. Use of the premises.
    n. Work restrictions.
    o. Working hours.
    p. Owner's occupancy requirements.
    q. Responsibility for temporary facilities and controls.
    r. Procedures for moisture and mold control.
    s. Procedures for disruptions and shutdowns.
    t. Construction waste management and recycling.
    u. Parking availability.
    v. Office, work, and storage areas.
    w. Equipment deliveries and priorities.
    x. First aid.
    y. Security.
    z. Progress cleaning.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

E. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect, and Owner's Commissioning Authority of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. Contract Documents.
    b. Options.
    c. Related RFIs.
    d. Related Change Orders.
    e. Purchases.
    f. Deliveries.
    g. Submittals.
    h. Review of mockups.
    i. Possible conflicts.
    j. Compatibility requirements.
    k. Time schedules.
    l. Weather limitations.
    m. Manufacturer's written instructions.
    n. Warranty requirements.
    o. Compatibility of materials.
    p. Acceptability of substrates.
    q. Temporary facilities and controls.
    r. Space and access limitations.
    s. Regulations of authorities having jurisdiction.
    t. Testing and inspecting requirements.
    u. Installation procedures.
    v. Coordination with other work.
    w. Required performance results.
    x. Protection of adjacent work.
    y. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

F. Progress Meetings: Conduct progress meetings at regular intervals.

1. Attendees: In addition to representatives of Owner, Owner's Commissioning Authority, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to

status of Project.

a. Contractor's Construction Schedule: Review progress since the 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.

3. Review schedule for next period.

a. Review present and future needs of each entity present, including the following:
   1) Interface requirements.
   2) Sequence of operations.
   3) Status of submittals.
   4) Deliveries.
   5) Off-site fabrication.
   6) Access.
   7) Site utilization.
   8) Temporary facilities and controls.
   9) Progress cleaning.
   10) Quality and work standards.
   11) Status of correction of deficient items.
   12) Field observations.
   13) Status of RFIs.
   14) Status of proposal requests.
   15) Pending changes.
   16) Status of Change Orders.
   17) Pending claims and disputes.
   18) Documentation of information for payment requests.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Startup construction schedule.
2. Contractor's Construction Schedule.
3. Construction schedule updating reports.
4. Daily construction reports.
5. Material location reports.
6. Site condition reports.
7. Unusual event reports.

B. Related Requirements:

1. Section 014000 "Quality Requirements" for schedule of tests and inspections.
2. Section 012900 "Payment Procedures" for schedule of values and requirements for use of cost-loaded schedule for Applications for Payment.

1.3 DEFINITIONS

A. 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.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. Cost Loading: The allocation of the schedule of values for completing an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum.

C. 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 the critical path of Project and when activities can be performed.

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

E. Event: The starting or ending point of an activity.

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

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

G. Resource Loading: The allocation of manpower and equipment necessary for completing an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file.
2. PDF file.

B. Startup construction schedule.

1. Submittal of cost-loaded startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.

C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.

D. Construction Schedule Updating Reports: Submit with Applications for Payment.

E. Daily Construction Reports: Submit at weekly intervals.

F. Material Location Reports: Submit at monthly intervals.

G. Site Condition Reports: Submit at time of discovery of differing conditions.

H. Unusual Event Reports: Submit at time of unusual event.

I. Qualification Data: For scheduling consultant.

1.5 COORDINATION

A. Coordinate Contractor's Construction Schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities, and schedule them in proper sequence.

1.6 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

B. Time Frame: Extend schedule from date established for commencement of the Work to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities: Treat each floor or separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead-time items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with submittal schedule.
4. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
6. Punch List and Final Completion: Include not more than 10 days for completion of punch list items and Final Completion.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Work Restrictions: Show the effect of the following items on the schedule:

a. Coordination with existing construction.
b. Limitations of continued occupancies.
c. Uninterruptible services.
d. Partial occupancy before Substantial Completion.
e. Use-of-premises restrictions.
f. Provisions for future construction.
g. Seasonal variations.
h. Environmental control.

2. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:

a. Subcontract awards.
b. Submittals.
c. Purchases.
d. Mockups.
e. Fabrication.
f. Sample testing.

g. Deliveries.
h. Installation.
i. Tests and inspections.
j. Adjusting.
k. Curing.
l. Building flush-out.
m. Startup and placement into final use and operation.
n. Commissioning.

3. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:

a. Structural completion.
b. Temporary enclosure and space conditioning.
c. Permanent space enclosure.
d. Completion of mechanical installation.
e. Completion of electrical installation.
f. Substantial Completion.

E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.

F. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and the Contract Time.

G. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Final Completion percentage for each activity.

H. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.

1.7 STARTUP CONSTRUCTION SCHEDULE

A. Gantt-Chart Schedule: Submit startup, horizontal, Gantt-chart-type construction schedule within seven days of date established for commencement of the Work.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

1.8 GANTT-CHART SCHEDULE REQUIREMENTS

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for commencement of the Work.

1. Base schedule on the startup construction schedule and additional information received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

1.9 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Testing and inspection.
8. Accidents.
9. Meetings and significant decisions.
10. Unusual events.
11. Stoppages, delays, shortages, and losses.
12. Meter readings and similar recordings.
13. Emergency procedures.
14. Orders and requests of authorities having jurisdiction.
15. Change Orders received and implemented.
16. Construction Change Directives received and implemented.
17. Services connected and disconnected.
18. Equipment or system tests and startups.
19. Partial completions and occupancies.
20. Substantial Completions authorized.

B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:

1. Material stored prior to previous report and remaining in storage.
2. Material stored prior to previous report and since removed from storage and installed.
3. Material stored following previous report and remaining in storage.

C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013200

SECTION 013216 - CONSTRUCTION SCHEDULING

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. This Section specifies administrative and procedural requirements for schedules prepared by each Prime Contractor.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Applicable provisions of Bidding Requirements, Contract Requirements in Division 0 and all applicable Division 1 sections.

1.3 CONSTRUCTION SCHEDULE

A. Each Prime Contractor shall prepare a Contractor's Construction Schedule including all phases of work as follows:

1. Initial Construction Schedule - Within 10 (ten) calendar days after Notice to Proceed, submit an initial construction schedule. Break down at least by 16 Division Specification format for General Construction and into at least 12 operations for Electrical, Plumbing, or Mechanical Construction. This schedule must be in agreement with the time frame stated in the Bid Proposal. Coordinate schedule with the following:

a. Prepurchase products.
b. Allowances.
c. Application for Payments.
d. Mock-ups.
e. Schedule of Submittals.
f. Schedule of Values.

2. Final Construction Schedule - Within 20 (twenty) calendar days after Notice to Proceed, submit a complete detailed construction schedule showing each activity having impact upon the timely completion of the Project. Activities shall be broken down generally similar to the individual specification sections but not less than 20 separate operations. The schedule shall include, but not be limited to the following:

a. Schedule each activity with a time limit per activity not to exceed ten (20) working days.
b. Time frames for testing of materials.
c. Time frames for shop fabrication and delivery of all parts of the work. Identify by specification section number and title. Coordinate with Schedule of Submittals. Allow time for reviews, resubmissions, and approval.
d. Decision dates for selection of finishes and colors.
e. Decision dates for selection of products specified by allowances.
f. Deadlines for submissions of substitutions.
g. Identification for work of mock-ups, separate phases or other logically grouped activities.
h. Separate network for each trade or operation.

1.4 FORMAT

A. Initial Construction Schedule - Horizontal bar chart form divided vertically by weeks.

B. Final Construction Schedule - Horizontal bar chart form showing each trade or operation.

1.5 SCHEDULE OF SUBMITTALS

A. Submit a preliminary Schedule of Submittals within 30 days after the Notice to Proceed. Submit the final schedule with the final Contractor's Construction Schedule.

B. Coordinate submittal schedule with the list of subcontracts, schedule of values, submittal register and the Contractor's construction schedule.

C. Coordinate scheduling of interrelated submissions to allow for review of required data and to avoid delays in reviewing submittals caused by lack of coordinated submission.

D. Coordinate scheduling of submission to allow for approval of products prior to construction of mock-up.

E. Contractor shall estimate number of resubmissions required for each submittal based on complexity. However, the submittal schedule in no way binds the City to approve a submittal to meet the submittal schedule or construction schedule. It is the contractor's sole responsibility to prepare acceptable submissions in a timely fashion in order to maintain schedule.

F. Allow for City's and Design Professional's review of each submission and resubmission.

G. Prepare the schedule in chronological order. Provide the following information:

1. Related Section number.
2. Submittal category.
3. Name of subcontractor.
4. Description of the part of the Work covered.
5. Scheduled date for the first submittal.
6. Scheduled date for resubmittal or resubmittals.
7. Scheduled date the City's final release or approval.

H. Distribution - Following response to initial submittal, print and distribute copies to the City, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.

I. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.

1.6 COORDINATION

A. All Prime Contractors shall submit their schedules to the General Contractor.

B. The General Contractor shall prepare an overall schedule including all trades and contracts.

C. The City will resolve conflicts among schedules of various Prime Contractors.

D. The General Contractor shall distribute copies of the approved final Construction Schedule to other Prime Contractors involved.

1.7 UPDATING

A. Updating of the final Construction Schedule and Schedule of Submittals shall be required on a monthly basis.

B. Show all changes occurring since previous submission of updated schedules.

C. Indicate progress of each activity, show completion dates.

D. Include major changes in scope, activities modified since previous updating, revised projections due to changes and other identifiable changes.

1.8 DISTRIBUTION

A. Distribute copies of revised schedules to:

1. Project Coordinator.
2. Design Professional.
3. Other Prime Contractors.
4. Subcontractors.
5. Other Concerned Parties (surety, insurance, etc.).
6. Instruct recipients to report any inability to comply, and provide detailed explanation, with suggested remedies.

PART 2 PRODUCTS Not Used

PART 3 EXECUTION Not Used

END OF SECTION

SECTION 013233 CONSTRUCTION PHOTOGRAPHS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. This Section describes photographic services provided by the Contractor required to record the progress of the work.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Applicable provisions of Bidding Requirements, Contract Requirements in Division 0 and all applicable Division 1 sections.

1.3 SUBMITTALS

A. Digital images – color images of each view, containing accurate camera-generated date/time stamp embedded in image, and sufficient background image to orient view to overall site if possible. For close-up images, include an additional photograph showing the relationship of close-up area to overall site. Forward electronic copies to City and Design Professional and retain copy for Contractor's files. Each individual photograph's electronic file to be named using the following naming convention using the date image was taken:

YYYY-MM-DD[space]Projectname[space](specific or general description as needed)
For example: 2018-10-28 Torresdale wall footing

B. Submit hard copy images within text, or attached to end of, monthly progress reports.

PART 2 PRODUCTS

2.1 DIGITAL IMAGES (HARDCOPY INCLUDED IN MONTHLY REPORTS)

A. Color

B. 2 images maximum per 8.5" x 11" sheet.

C. Minimum image size shall be 3 inches by 5 inches.

D. Identify each image listing:

1. Name of project.
2. Orientation of view.
3. Date and time stamp automatically recorded by camera within image.
3. Name and address of photographer.

PART 3 EXECUTION

3.1 DIGITAL IMAGES (ELECTRONIC FILES)

A. Take 30 initial photographs and 30 photographs (minimum) once monthly from points designated by the Project Coordinator, for the length of the Contract. First photographs shall be taken prior to start of construction. Include additional images as needed to memorialize key stages in construction process.

B. Take photographs of installed subsurface features— especially underground utility locations — prior to backfilling or covering over, clearly showing orientation to overall site.

END OF SECTION

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Requirements:

1. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
2. Section 017700 "Closeout Procedures" for submitting operation and maintenance manuals and record Drawings.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action.

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 WORK WITHOUT APPROVED SUBMITTALS

A. City may withhold payment for the value of Work installed without first obtaining approved submittals, when submittal is required by individual specification sections. Refer to section 012900 “Payment Procedures”.

B.

1.4 ACTION SUBMITTALS

A. Sustainable Design Submittals: Provide Sustainable Design Submittals in Accordance with Section 018113.

B. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic copies of digital data files of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. 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.

    a. The City reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect'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 resubmittals.

1. Initial Review: Allow 10 business days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 10 business days for review of each resubmittal.

D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Name file with submittal number or other unique identifier, including revision identifier.
2. Transmittal Form for Electronic Submittals: Use software-generated form from electronic project management software or electronic form acceptable to Owner, containing the following information:

    a. Project name.
    b. City's project number.
    c. Date.
    d. Name and address of Architect.
    e. Name of Construction Manager.
    f. Name of Contractor.
    g. Name of firm or entity that prepared submittal.
    h. Names of subcontractor, manufacturer, and supplier.
    i. Category and type of submittal.
    j. Submittal purpose and description.
    k. Specification Section number and title.
    l. Specification paragraph number or drawing designation and generic name for each of multiple items.
    m. Drawing number and detail references, as appropriate.
    n. Location(s) where product is to be installed, as appropriate.
    o. Related physical samples submitted directly.
    p. Indication of full or partial submittal.
    q. Transmittal number, numbered consecutively.
    r. Submittal and transmittal distribution record.
    s. Other necessary identification.
    t. Remarks.

E. Options: Identify options requiring selection by Architect.

F. Deviations: Identify deviations from the Contract Documents on submittals.

G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements:

1. Post electronic submittals as PDF electronic files directly to Project Web site specifically established for Project.

a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

a. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.
b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's catalog cuts.
b. Manufacturer's product specifications.
c. Standard color charts.
d. Statement of compliance with specified referenced standards.
e. Testing by recognized testing agency.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.
h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

    a. Wiring diagrams showing factory-installed wiring.
    b. Printed performance curves.
    c. Operational range diagrams.
    d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:

    a. PDF electronic file.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

    a. Identification of products.
    b. Schedules.
    c. Compliance with specified standards.
    d. Notation of coordination requirements.
    e. Notation of dimensions established by field measurement.
    f. Relationship and attachment to adjoining construction clearly indicated.
    g. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm), but no larger than 30 by 42 inches (750 by 1067 mm).
3. Submit Shop Drawings in the following format:

    a. PDF electronic file.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

    a. Generic description of Sample.
    b. Product name and name of manufacturer.
    c. Sample source.
    d. Number and title of applicable Specification Section.

3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may

be used to determine final acceptance of construction associated with each set.

a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or 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.

a. Number of Samples: Submit three sets of Samples, unless otherwise indicated or directed. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.

1) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Field Samples and Mockups
a. Erect at project site in location as directed.
b. Construct each sample or mock-up complete, including work of all trades required in the finished work.
c. Remove mockup at conclusion of work or when directed by City.

F. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location.

1. Submit product schedule in the following format:

a. PDF electronic file.

G. Coordination Drawings Submittals: Comply with requirements specified in Section 013100 "Project Management and Coordination."

H. Contractor's Construction Schedule: Comply with requirements specified in Section 013216 "Construction Scheduling."

I. Application for Payment and Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures."

J. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014000 "Quality Requirements."

K. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."

L. Maintenance Data: Comply with requirements specified in Section 017700 "Closeout Procedures."

M. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

N. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

O. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

P. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

Q. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

R. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

S. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

T. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. 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.

U. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

V. Schedule of Tests and Inspections: Comply with requirements specified in Section 014000 "Quality Requirements."

W. Preconstruction Test Reports: Submit 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 in the Contract Documents.

X. Compatibility Test Reports: Submit 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.

Y. Field Test Reports: Submit written reports 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 in the Contract Documents.

Z. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. General:
1. Contractor shall review each submittal and indicate approval with a stamp, dated, initialed and/or signed. Review shall include but not be limited to; verification of field measurements, coordination with all trades involved and compliance with Contract Documents. The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the City’s or Design Professional's action on submittals unless the Contractor has given specific notice of deviation at the time of submission and written approval of the specific deviation is given. The Contractor shall not be relieved from responsibility for errors or omissions in submittals by the City’s or Design Professional's approval thereof.
2. If Contractor does not review submittals and provide the signed approval stamp before sending them to the Design Professional, they will be returned unchecked.

B. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

C. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."

D. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 SUBMISSION ROUTING

A. Forward submittal direct to Design Professional and fax copy of transmittal letter to Project Coordinator.

B. Design Professional will forward Submittals marked as “Approved” or “Approved as Noted” to Project Coordinator.

C. Design Professional will forward Submittals marked as “Revise and Resubmit” or “Rejected” back to Contractor and will fax copy of transmittal to Project Coordinator.

D. Project Coordinator will forward Submittals back to Contractor and will fax copy of transmittal to Design Professional.

3.3 DESIGN PROFESSIONAL'S DUTIES

A. Review submittals within 10 working days of receipt.

B. Review for conformance to design concept of Project and for compliance with information given in Contract Documents. Review of separate item does not constitute review of an assembly in which item functions.

C. Affix stamp and initials or signature certifying to review of submittal.

D. Design Professional's action on submittals will result in the making of one of the following notations with related meanings:

1. APPROVED: The work involved may proceed, and no further submission is required.
2. APPROVED AS NOTED: The work involved may proceed incorporating comments. Annotations do not authorize changes to Contract Sum.
3. REVISE AND RESUBMIT: The work involved may not proceed. Submittal must be corrected and resubmitted.
4. REJECTED: The submittal is not in accordance with the Contract Documents, and a completely new submittal is required.

E. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

F. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

G. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

H. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned

for resubmittal without review.

I. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

J. In the event any comment made to the Submittal results in a claim for a change in the Contract, the Project Coordinator shall be notified immediately and fabrication may not be undertaken until contract modification procedures are completed.

3.4 CITY'S RESPONSIBILITY

A. Review submittals within 5 working days of receipt.

B. Review for compliance Contract Documents. Review of separate item does not constitute review of an assembly in which item functions.

C. Affix stamp and initials or signature certifying to review of submittal.

D. City's action on submittals will result in the making of one of the following notations with related meanings:

1. NO EXCEPTION TAKEN: The work involved may proceed, and no further submission is required.
2. MAKE CORRECTIONS NOTED, RESUBMISSION NOT REQUIRED: The work involved may proceed by incorporating comments. Annotations do not authorize changes to Contract Sum.
3. REVISE AND RESUBMIT: The work involved may not proceed. Submittal must be corrected and resubmitted.
4. SUBMIT SPECIFIED ITEM: Substitution of specified item not permitted.
5. REJECTED: The work involved may not proceed. Submittal must be resubmitted.

3.5 RESUBMISSION REQUIREMENTS

A. Identification of Changes - Clearly identify changes made from the initial submittal other than those requested by the Design Professional. The Design Professional will review only those changes requested and those identified by the Contractor.

3.6 DISTRIBUTION OF APPROVED SUBMITTALS

A. Contractor shall reproduce and distribute copies of submittals having the Design Professional's and City's stamp ("Approved" or "Approved as Noted") as required to coordinate and complete the Work and to records documents file.

3.7 SUBSTITUTIONS

A. Substitutions submitted as a shop drawing, product data or sample will be returned without action.

END OF SECTION

SECTION 013513.18 – SPECIAL REQUIREMENTS FOR WORK WITHIN THE PHILADELPHIA PARKS & RECREATION SYSTEM

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. This section describes special administrative and procedural requirements for all contractors, subcontractors and their employees performing work within the Philadelphia Parks & Recreation System under the jurisdiction of Philadelphia Parks & Recreation.

1.2 DEFINITIONS

A. “Park Authorities” or “proper authorization” shall mean the Park Engineer or Project Manager unless specified otherwise.

B. “Personnel” shall mean all employees or related staff or associates of the contractors, subcontractors, suppliers, delivery services, consultants, testing or inspection agencies, or other group performing work or services required for completion of this contract.

1.3 ADMINISTRATION REQUIREMENTS

A. All Contractors must complete an Application for Permit (a form of which is attached to the end of this section). This Permit Application must be submitted to the Park Engineer and approved before the start of any work on Park property.

B. All work is to be coordinated with the Park Engineer or designated representative to minimize disruption to the Parks & Recreation's daily operations, programs, and special events.

1.4 ACCESS, STAGING, STORAGE AND PROPOSED WORK

A. All Contractors’ must provide a Logistic Plan including access, staging, storage and the proposed work to be reviewed and approved by the Park Engineer.

B. No parking of any vehicles or equipment on grass areas.

C. Trees within proximity of work, plant materials, and historic features are to be protected from injury.

D. Advise the Park Engineer of any hazardous materials proposed and provide all Material Safety Data Sheets for such materials.

E. Truck tires to be free from mud when leaving work site. All truck and debris containers must be covered tightly to prevent dust and spillage.

1.5 PERSONNEL ACTIVITY

A. The following items are prohibited from being brought into the Park areas and construction sites, any violation of these regulations may result in default of contract and may additionally be subject to prosecution:

1. Alcoholic beverages and drugs.

2. Explosives and firearms.
3. Inflammable material except as required for performance of work (with prior Parks & Recreation approval).

PART 2 PRODUCTS – Not Used
PART 3 EXECUTION – Not Used

END OF SECTION

PHILADELPHIA PARKS & RECREATION

APPLICATION FOR PERMIT

SEND TO:
PHILADELPHIA PARKS & RECREATION
ONE PARKWAY BUILDING, 10TH FLOOR
1515 ARCH STREET
PHILADELPHIA, PA. 19102

DATE OF APPLICATION

APPLICATION FOR PERMIT TO:

- ☐ ERECT POLES
- ☐ REMOVE POLES
  } *Submit plans, if required. If temporary, state when poles will be removed.*
- ☐ HAULING
- ☐ DUMPING
- ☐ CONTRACTUAL WORK IN PARK
- ☐ CONTRACTUAL WORK ON PRIVATE PROJECT *(Adjacent to Park)*
- ☐ TEST BORING
- ☐ TRUCK MOVEMENT ON PARK ROADS *(List truck numbers under "Equip. to be Used")*
- ☐ OTHER:

NAME OF COMPANY	TELEPHONE	PRINCIPAL TO CONTACT
ADDRESS	E-MAIL	PERSON IN CHARGE OF OPERATION

LOCATION *(Specify job site)*

LENGTH OF TIME TO COMPLETE *(Give intended completion date)*

WORK TO BE PERFORMED *(Give details; if City Contract, give number and date)*

EQUIPMENT TO BE USED *(Give loaded and tare weights)*

DO NOT WRITE BELOW - THIS AREA FOR PHILADELPHIA PARKS & RECREATION USE

☐ **PERMIT DISAPPROVED, REASON:**

☐ **PERMIT APPROVED:** **This permit is issued to the company for the purpose and conditions stated in the application above with the following qualifications and conditions:**

1. Permit is not valid for use by any subsidiary company unless listed below:
2. This permit is cancelled if any employee of the company uses it for purposes other than herein specified.
3. PP&R reserves the right to withdraw this permit and issue a "Stop Work Order," if work is being performed in an unsatisfactory manner.
4. Permittee will immediately stop work upon notification of PP&R Stop Work Order.
5. Permittee will restore any damage to turf, soils, sidewalks, or structures.
6. Permittee will restore areas of unauthorized damage to vegetation in accordance with "PPR/PWD – STANDARDS for NATIVE TREE, SHRUB PLANTING and HERBACEOUS SEEDING" specifications.
7. Permittee shall protect Site and nearby areas from vehicle's tires, track, etc. by using plywood or other weight distribution materials.

Permittee shall keep vehicles must stay off lawn, walks and trails. Must not block walks or trails.
Permittee shall remove and dispose of drill spoils in accordance with all applicable laws.
Permittee Shall clearly mark all well caps.
Permittee shall repair all damage that occurs in connection with Permittee's work.

12. Permittee shall secure excavted areas either by fencing or a cap over the area, with proper signage.
13. Permittee shall post signage for pedestrians stating that site is a work area , closed to pedestrians.
14. Once excavation site is filled and tamped, Permittee shall place stakes and caution tape around it.

INSURANCE: Permitee must submit with this application a "Certificate of Insurance" that lists the City of Philadelphia as additionally insured and that complies with the attached insurance requirements.

KEEP THIS PERMIT ON SITE AND WITH EACH VEHICLE AT ALL TIMES

Additional Notes Below: Permittee, intending to be llegally bound, agrees to comply with the attached provisisons.

Permittee shall cause each of its Contractors to comply with this Permit, including the attached provisions.
A Violation of this Permit by any of Permittee's contractors is deemed a violation of this Permit by Permittee.
This Permit is effective on date stated beneath the signature of the Park Manager (the " **Effective Date**").

TO:

Roger S Tenant Jr, Park Manager, Philadelphia Parks and Recreation

(Date)

Cc:

PPR.revised.08.03.2016

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Administrative and procedural requirements for quality assurance and quality control.

B. 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.

1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
2. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, Commissioning Authority, or authorities having jurisdiction are not limited by provisions of this Section.
3. Specific test and inspection requirements are not specified in this Section.

1.2 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

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

E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

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

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

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

I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

J. Experienced: 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.

1.3 CONFLICTING REQUIREMENTS

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

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 INFORMATIONAL SUBMITTALS

A. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:

1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Architect.
2. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Architect.

B. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article 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.

C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of test and inspection methods.

1.5 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Field Reports: Prepare written information documenting tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
5. Other required items indicated in individual Specification Sections.

C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Manufacturer's Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:

a. Provide test specimens representative of proposed products and construction.
b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
c. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
d. When testing is complete, remove test specimens, assemblies, and mockups; do not reuse products on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

J. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.

4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.

    a. Allow not less than seven days for initial review and each re-review of each mockup.

5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Demolish and remove mockups when directed unless otherwise indicated.

1.7 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a manufacturer's representative to observe and inspect the Work. Manufacturer's representative's services include examination of substrates and conditions, verification of materials, inspection of completed portions of the Work, and submittal of written reports.

D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the

Work during performance of its services.

2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.8 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Engage a qualified testing agency or special inspector, as applicable, to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include 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 Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's, Commissioning Authority's, reference during normal working hours.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching.

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 014100 – CODES, REGULATIONS AND STANDARDS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. This Section describes the Contractor's responsibilities regarding codes, regulations and standards included in the Contract Documents by reference.

1.2 RELATED REQUIREMENTS

A. Applicable provisions of Bidding Requirements, Contract Requirements in Division 0 and all applicable Division 1 sections.

B. All technical sections.

1.3 APPLICABLE CODES AND REGULATIONS

A. The following codes and regulations are applicable to the project. The list does not represent all codes, regulations and standards:

1. The Philadelphia Building Construction and Occupancy Code
    a. The Philadelphia Administrative Code
    b. The Philadelphia Building Code
    c. The Philadelphia Electrical Code
    d. The Philadelphia Fire Prevention Code
    e. The Philadelphia Mechanical Code
    f. The Philadelphia Plumbing Code
    g. The Philadelphia Property Management Code

B. It is not the intent of the Contract Documents to conflict with any Code, or Regulation. Report any conflicts to Design Professional for clarification.

1.4 REFERENCED STANDARDS

A. For products or workmanship specified by association, trade, or Federal Standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes or intended use.

B. The referenced standards shall 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. Should specified reference standards conflict with Contract Documents, request clarification from Design Professional before proceeding but generally the more stringent requirement shall apply.

D. In the absence of specific instructions in the specifications, materials, products, equipment, and their installation shall conform to the applicable codes, regulations and standards specified herein.

E. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any referenced document.

F. Dates of codes, regulations and standards specified shall be the latest date prior to the date of issue of this Project Manual, except where, prior to the date of issue of this Project Manual, modified or otherwise directed by the applicable codes and their supplements and amendments adopted by the code authorities having jurisdiction.

G. Each entity engaged in construction of the Project shall be familiar with industry standards applicable to its construction activity. If unfamiliar, obtain copies and review with all workers. Obtain copies of standards when required by individual specification sections. Maintain copy at job site until Substantial Completion.

1.5 ASSOCIATIONS, INSTITUTIONS AND SOCIETIES

A. Associations, Institutions, and Societies and their abbreviations if any, appearing in the Project Manual or elsewhere in the Contract Documents, shall be as generally recognized in the industry. Refer to the "Encyclopedia of Associations" published by Gale Research Company for abbreviations, addresses and phone numbers.

PART 2 PRODUCTS – Not Used

PART 3 PRODUCTS – Not Used

END OF SECTION

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

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

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

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

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

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

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.2 INDUSTRY STANDARDS

A. 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.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

1. ICC: International Code Council.
2. ICC-ES: ICC Evaluation Service, Inc.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 014516.13

CONTRACTOR'S QUALITY CONTROL

PART 1 – GENERAL

1.1 DESCRIPTION OF WORK

A. This section describes each Prime Contractor's requirements for quality assurance including:

1. Control of installation
2. Tolerances
3. Mockups
4. Inspection and Testing services
5. Manufacturer's field services

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Applicable provisions of Bidding Requirements, Contract Requirements in Division 0 and all applicable Division 1 sections.

B. Each technical section required for materials and products in mockup

C. Each technical section requiring independent inspection and testing.

1.3 QUALITY ASSURANCE – CONTROL OF INSTALLATION

A. Each Prime Contractor is responsible to deliver Work of quality specified regardless Contractor's sub-contracting or purchasing arrangements.

B. Monitor quality control over suppliers, manufacturer's products, services, site conditions and workmanship to produce Work of specified quality.

C. Comply with manufacturers written instructions, including preparation and each step in sequence.

1. Should manufacturer instructions differ from Contract Documents, request clarification but assume the more stringent will apply.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes or specified requirements indicate higher standards or more precise workmanship.

E. Perform work by persons qualified to produce workmanship of specified quality.

1.4 TOLERANCES

A. Monitor tolerance control of installed products to produce acceptable Work. Do not allow tolerances to accumulate.

B. Comply with manufacturers written tolerances.

1. Should manufacturer tolerances differ from Contract Documents, request clarification but assume the more stringent will apply.

C. Adjust products to appropriate dimensions; position before securing products in place.

1.5 INSPECTION AND TESTING SERVICES

A. Each Prime Contractor shall retain independent inspection and testing services when required by individual specification sections or by building code authority.

B. The independent agency shall perform inspection and testing services on and off site as required by individual specification sections and as required to comply with requirements of the building code authority.

C. Independent agency shall submit reports to Prime Contractor and direct to City indicating compliance or non-compliance. Notify City the same day of non-compliance.

D. Cooperate with independent agency; furnish samples, mix designs, equipment, tools, storage, safe access, and assistance by incidental labor.

E. Inspection and testing does not relieve Contractor to perform Work to contract requirements.

F. Retesting required because of non-conformance to specified requirements shall be performed by the original agency at no additional cost to City.

1.6 MANUFACTURERS FIELD SERVICES

A. When specified in individual specification sections, require manufacturer to provide qualified technical staff personnel to observe site conditions, quality of workmanship, start-up or training of City personnel as specified.

B. Technical staff shall not be the local sales staff or independent manufacturers sales representatives.

C. Manufacturers technical representative shall submit written reports of findings to Contractor and direct to City. Notify City the same day of non-compliance

PART 2 PRODUCTS Not Used

PART 3 EXECUTION Not Used

END

SECTION 015000 – TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. This Section describes the Contractor's construction facilities and services required for performance of the Work but not a permanent part of the finished construction. Included are temporary utilities, temporary construction and support facilities and security and protection services.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Applicable provisions of Bidding Requirements, Contract Requirements in Division 0 and all applicable Division 1 sections.

B. Environmental Controls: Division 1.

1.3 SUBMITTALS

A. Submit reports of tests, inspection, meter readings and similar procedures performed on temporary utilities.

1.4 INSPECTION

A. Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certificates and permits.

PART 2 PRODUCTS

2.1 TEMPORARY MATERIALS

A. Materials may be new or used, but must be adequate in capacity for the required usage and must not violate requirements of applicable codes and standards. Generally, temporary materials shall comply with related specification sections for materials to be incorporated into final work.

PART 3 EXECUTION

3.1 TEMPORARY UTILITIES

A. Provide temporary utilities including water, drainage, electrical power, communications, lighting, and steam where applicable.

B. Contractor shall pay all costs associated with temporary utilities.

3.2 TEMPORARY ELECTRICITY

A. Provide electrical service adequate for work of all trades, and terminate in fused safety switch and circuit breaker distribution panels.

B. For welding at site or electrical requirements beyond the capacity of temporary system, supply generator, fuel, maintenance, and other incidentals required.

3.3 TEMPORARY LIGHTING

A. Provide temporary lighting required for construction operations

B. Provide temporary lighting for exterior staging and storage areas for security purposes.

C. Provide temporary lighting in interior work areas after dark for security purposes.

D. Provide lighting at each landing of each stair or ladder run.

E. Permanent building lighting may [not] be utilized during construction.

3.4 HEATING AND VENTILATING

A. Provide temporary heat as required for construction operations. Temporary sources of heat shall be direct vented and thermostatically controlled. Open flame devices or solid fuels are not allowed.

B. Provide forced ventilation by portions of the permanent system or by portable units, to cure materials, to disperse humidity, and to prevent accumulations of dust, fumes, vapors, or gases. Provide ductwork with temporary filters to prevent the broadcasting of dust and debris.

C. In occupied facilities, while performing operations that generate fumes or dust, provide both fresh air intake and fan powered ventilation to control spread of fumes or dust to occupied areas of the building.

3.5 TEMPORARY TELEPHONE

A. City telephones on-site may not be used by Contractors.

3.6 TEMPORARY WATER SUPPLY

A. Provide temporary water service of adequate size as required for fire protection and construction operations.

B. Provide drinking water, paper cups, and waste receptacles for personnel.

3.7 SANITARY FACILITIES

A. Provide sanitary facilities according to law at locations approved by the City. Provide privacy enclosures, toilet paper, waste receptacles, and periodic janitorial services.

B. Enforce use of sanitary facilities. Evidence to the contrary shall require removal, disinfecting, and reconstruction of defaced work or landscape.

C. The use of the Owner's toilet facilities by construction personnel will not be permitted.

3.8 FIRE PROTECTION

A. Provide temporary fire protection and portable fire extinguishers according to law.

3.9 CONSTRUCTION AIDS

A. Provide construction aids required for execution of the work, including scaffolds, staging, ladders, stairs, ramps, runways, platforms, railings, hoists, cranes, chutes, and other facilities and equipment.

B. Provide and operate drainage and pumping equipment; maintain excavations and site free of standing water. Coordinate with Division 2.

3.10 STAIRS AND ELEVATORS

A. Designated existing stairs may be used by Construction personnel.

3.11 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas to allow for City's use of site, and to protect existing facilities and adjacent properties from damage from construction and demolition operations.

B. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

3.12 FENCING

A. Construction - Commercial grade chain link fence.

C. Provide 6 foot high (min.) fence around construction site; equip with vehicular gates with locks.

3.13 EXTERIOR ENCLOSURES

A. Provide temporary weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

B. Provide temporary tarps or other protection to roofs made open to weather by construction operations.

3.14 INTERIOR ENCLOSURES

A. Provide temporary partitions to separate work areas from City occupied areas, to prevent penetration of dust and moisture into City occupied areas, to prevent damage to existing materials and equipment and as indicated.

B. Construction - Steel stud framing and gypsum board with closed joints and sealed edges at intersections with existing surfaces.

3.15 PROTECTION OF INSTALLED WORK

A. Protect installed Work and provide special protection where specified in individual specification sections.

B. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

C. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by covering with durable sheet materials.

D. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

D. Prohibit traffic from landscaped areas.

3.16 SITE SECURITY

A. The City assumes no responsibility for loss, theft, or damage to the work, tools, equipment, and construction. In the instance of any such loss, theft, or damage, the Contractor shall be responsible to renew, restore, or remedy the work, tools, equipment, and construction in accordance with requirements of the Contract Documents without additional cost to the City.

B. The Contractor, at his own cost, may provide watchman services, and other means of site security.

C. Site parked equipment, operable machinery, and hazardous parts of the new construction subject to mischief and accidental operation, shall be inaccessible, locked, or otherwise made inoperable when left unattended.

D. Liability - The City is not responsible for damage, liability, theft, casualty, or other hazard to the automobiles or other vehicles, nor to injury including death to occupants of automobiles or other vehicles on the City's property. Provide signs to this effect in the designated parking area.

3.17 ACCESS ROADS AND PARKING AREAS

A. Access Roads

1. Use existing roads on Site for access. Protect roads from damage from extra heavy loading by use of timbers or other approved means.

B. Parking Areas

1. City will permit use of a designated area of the existing parking lot on the Site for exclusive parking of workmen's automobiles and of the automobiles of the Design Professional, Consultants, and other visitors having business at the Site.

3.18 PROJECT SIGN

A Provide project identification sign, and temporary information and direction signs as required and approved. See Specification section 015800 for requirements.

3.19 TERMINATION AND REMOVAL

A. Remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, but no later than Substantial Completion. Complete or restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.

B. Materials and facilities that constitute temporary facilities are property of the Contractor.

C. Remove temporary paving that is not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that does not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances which might impair growth of plant materials or lawns. Repair or replace street paving, curbs and sidewalks at the temporary entrances, as required by the governing authority.

END OF SECTION

SECTION 015639 - TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 STIPULATIONS

A. The specifications sections “General Conditions of Contract”, “Special Conditions” and “Division 1 General Requirements” form a part of this section by reference thereto and shall have the same force and effect as if printed herewith in full.

1.2 SUMMARY

A. Section includes general protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.

B. Related Sections:
1. Division 01 Section "Field Engineering" for field engineering and surveying.
2. Division 02 Section "Selective Demolition" for partial demolition of buildings or structures.
3. Division 31 Section "Site Clearing and Erosion Control".

1.3 DEFINITIONS

A. Caliper: Diameter of a trunk measured by a diameter tape at 6 inches above the ground for trees up to, and including, 6-inch size; and breast height (DBH) for trees larger than 6-inch size.

B. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and indicated on Drawings.

C. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and indicated on Drawings.

D. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Verification: For each type of the following:
1. Organic Mulch: One (1) gallon of organic mulch; in sealed plastic bags labeled with composition of materials by percentage of weight and source of mulch.
2. Protection-Zone Fencing: Manufacturer’s cut sheets
3. Protection-Zone Signage: Manufacturer’s cut sheets.

C. Arborist Report: Written report prepared by Certified Arborist for care and protection of trees affected by construction during and after completing the Work.

1. Report shall be submitted prior to any removals on site and shall include, but is not limited to: recommendations for soil amendments at existing trees to remain, watering (volume) during all work (at no additional cost to Owner), any required treatment for pests or disease, decompaction procedures within critical root zones, and any required root pruning. Soil amendment recommendations shall be coordinated with work of Section 329113 and shall include list of products, timing, and methodology.
2. Report shall include Tree Pruning Schedule with dates for such work. The written pruning schedule shall detail scope and extent of pruning for all trees to remain that interfere with or are affected by construction. Report shall include:
    a. Species and size of tree.
    b. Location on site plan. Include unique number identifier for each as shown in Contract Documents.
    c. Reason for pruning.
    d. Description of pruning to be performed.
    e. Timing of pruning to be performed.
    f. Description of maintenance by tree service firm following pruning.

D. Qualification Data: For qualified arborist and tree service firm.

E. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.

F. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work.

G. Existing Conditions: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.

1. Use sufficiently detailed photographs or videotape.
2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

1.5 QUALITY ASSURANCE

A. Arborist Qualifications: Certified Arborist as certified by ISA.
1. Responsibilities include:
    a. Preparation of report described above
    b. Endorsement of report, prepared by GC, listing conditions detrimental to tree and plant protection
    c. Oversight of tree protection installation and maintenance of protection measures including inspection reports
    d. Pre-approval of temporary access within the critical root zone protection areas for activities such as hand removal of pavers
    e. Oversight of root pruning, crown pruning, maintenance pruning, regrading;
    f. Direct repair scope for damaged trees
    g. Certification that trees indicated to remain have been protected during construction and were promptly/properly treated and repaired when damaged.

B. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed temporary tree and plant protection work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site during execution of the Work.

C. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to temporary tree and plant protection including, but not limited to, the following:

a. Construction schedule. Verify availability of materials, personnel, and equipment needed to make progress and avoid delays.
b. Enforcing requirements for protection zones.
c. Arborist's responsibilities.
d. Field quality control.
e. Tree-service firm's personnel and equipment needed to make progress and avoid delays.
f. Coordination of Work and equipment movement with the locations of protection zones.
g. Trenching by hand or with air spade within protected zones.

1.6 PROJECT CONDITIONS

A. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

B. Do not direct vehicle or equipment exhaust toward protection zones.

C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

D. Protection fencing must be approved by the Owner’s Representative prior to commencing with any demolition or construction work.

E. Install protection fencing before installing erosion and sedimentation controls. Trenched silt fence is prohibited within plant protection zones. Utilize tubular sediment control device, such as Filtrexx® Sediment Control or similar product in accordance with the manufacturers instructions, in lieu of silt fencing. Trenching is prohibited within plant protection zones.

F. Flows of water redirected from construction areas or generated by construction activity are prohibited from entering or crossing plant protection zones. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

G. Work within the plant protection zone must be approved by and supervised by Owner’s Representative.

H. The Owner’s Representative may require additional protection fencing or relocation of fencing as work progresses.

I. Bring any unforeseen site conditions, such as structural roots, that will impact new construction to the attention of the Owner's Representative. Do not proceed with work without written authorization.

J. Arborist may require crown pruning to compensate for root loss caused by damaging or cutting of the root system. Provide subsequent maintenance during contract period as recommended by arborist.

K. Campus care manager or his representative should be present when any work is done to or around campus plantings.

PART 2 - GENERAL

2.1 MATERIALS

A. Topsoil: Refer to 32 91 00 'Soil Preparation'.

B. Organic Mulch: Free from deleterious materials and suitable as a top dressing for trees and shrubs, consisting of one of the following:

1. Type: Shredded hardwood.
2. Size Range: 3 inches (76 mm) maximum, 1/2 inch (13 mm) minimum.
3. Color: Natural.

C. Protection-Zone Fencing: Fencing fixed in position and meeting the following requirements.

1. Safety Fence: 4' high plastic orange safety fence; 6' tall steel posts with tie wires, and other accessories for a complete fence system.

D. Protection-Zone Signage: Shop-fabricated, rigid plastic or metal sheet with attachment holes prepunched and reinforced; legibly printed with nonfading lettering and as follows:

1. Size and Text: TREE PROTECTION AREA – DO NOT ENTER
2. Lettering: 3-inch high minimum, white characters on red background.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

B. For the record, prepare written report, endorsed by arborist, listing conditions detrimental to tree and plant protection.

3.2 PREPARATION

A. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

3.3 TREE- AND PLANT-PROTECTION ZONES

A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin in a manner that will prevent people from easily entering protected area except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.

B. Protection-Zone Signage: Install protection-zone signage in visibly prominent locations in a manner approved by Architect. Install one sign spaced approximately every 35 feet on protection-zone fencing, but no fewer than four signs with each facing a different direction.

C. Maintain protection zones free of weeds and trash.

D. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

E. Maintain protection-zone fencing and signage in good condition as acceptable to Architect and remove when construction operations are complete and equipment has been removed from the site.

1. Do not remove protection-zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
2. Temporary access is permitted subject to preapproval in writing by arborist if a root buffer effective against soil compaction is constructed as directed by arborist. Maintain root buffer so long as access is permitted.

3.4 EXCAVATION

A. General: Excavate at edge of protection zones and for trenches indicated within protection zones according to requirements in Section 312000 "Earth Moving."

B. Trenching near Trees: Where utility trenches are required within protection zones, hand excavate and/or air-spade under or around tree roots or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning.

C. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3.5 ROOT PRUNING

A. Prune roots that are affected by temporary and permanent construction. Prune roots as follows:

1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
2. Cut Ends: Do not coat cut ends of roots with an emulsified asphalt or similar coatings.
3. Temporarily support and protect roots from damage until they are covered with soil.
4. Cover exposed roots with burlap and water regularly.
5. Backfill as soon as possible according to requirements in Section 312000 "Earth Moving."

B. Root Pruning at Edge of Protection Zone: Prune roots 6 inches inside of the protection zone, by cleanly cutting all roots to the depth of the required excavation.

C. Root Pruning within Protection Zone: Clear and excavate by hand to the depth of the required excavation to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.

3.6 CROWN PRUNING

A. Prune branches that are affected by temporary and permanent construction. Prune branches as follows:

1. Prune trees to remain to compensate for root loss caused by damaging or cutting root system. Provide subsequent maintenance during Contract period as recommended by arborist.
2. Pruning Standards: Prune trees according to ANSI A300 (Part 1) and the following:
   a. Type of Pruning: Cleaning, Thinning, and/or Reduction.
   b. Specialty Pruning: Restoration.
3. Cut branches with sharp pruning instruments; do not break or chop.
4. Do not apply pruning paint to wounds

B. Chip removed branches and dispose of off-site.

3.7 REGRADING

A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

B. Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots as required for root pruning.

1. Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots as required for root pruning.

C. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

D. Minor Fill within Protection Zone: Where existing grade is 2 inches or less below elevation of finish grade, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations.

3.8 FIELD QUALITY CONTROL

A. Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain and to prepare inspection reports.

3.9 REPAIR AND REPLACEMENT

A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

1. Submit details of proposed root cutting and tree and shrub repairs.
2. Have arborist perform the root cutting, branch pruning, and damage repair of trees and shrubs.
3. Treat damaged trunks, limbs, and roots according to arborist's written instructions.
4. Perform repairs within 24 hours.
5. Replace vegetation that cannot be repaired and restored to full-growth status, as determined by Architect.

B. Trees: Remove and replace trees indicated to remain that are more than 25 percent dead or in an unhealthy condition before the end of the corrections period or are damaged during construction operations that Landscape Architect determines are incapable of restoring to normal growth pattern.

1. Provide new trees of same size and species as those being replaced for each tree that measures 6 inches or smaller in caliper size.

2. Provide two new trees of 4-inch caliper size for each tree being replaced that measure between 6-inch caliper and 8-inch caliper in size at a location directed by the Owner or Owner’s Representative.

3. Provide 6-inch caliper size for each tree being replaced that measure greater than 8-inch caliper in size at a location directed by the Owner or Owner’s Representative. Quantity of trees shall equal the total diameter at breast height (DBH) size of the tree removed unless directed otherwise by the Owner. For example, a 32-inch DBH shall require five new trees.

4. Species: Species selected by Landscape Architect.

5. Plant and maintain new trees as specified in Section 32 93 00 ‘Plants’.

C. Soil Aeration: Where directed by Landscape Architect, aerate surface soil compacted during construction. Aerate to extent as directed by Landscape Architect beyond drip line and no closer than 36 inches to tree trunk. Drill 2-inch diameter holes a minimum of 12 inches deep at 24 inches o.c. Backfill holes with approved Compost.

3.10 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove excess excavated material, displaced trees, trash and debris, and legally dispose of them off Owner's property.

END OF SECTION

SECTION 015719 – ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. This Section describes the Contractors requirement for protection of the atmosphere, waterways, groundwater, plants, animal habitats, soils, etc., both on and off site.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Applicable provisions of Bidding Requirements, Contract Requirements in Division 0 and all applicable Division 1 sections.

B. Earthwork in Division 2.

1.3 REGULATORY AGENCIES AND CODES

A. Comply with the following in accordance with Division 1:

1. United States Department of Agriculture (USDA)
2. Urban Hydrology for Small Watersheds, Technical Release No. 55, Engineering Division, Soil Conservation Service.
3. National Engineering Handbooks, Section 4 (Hydrology); Section 5 (Hydraulics); Section 16 (Drainage), Soil Conservation Service.
4. City of Philadelphia

1.4 DEFINITIONS

A. Sediment - Soil that has been eroded and transported by runoff water.

B. Degradable Debris - Debris which can undergo biodegradation or combustion, or which can be dissolved in or suspended by water.

C. Nondegradable Debris - Inorganic debris which will not disintegrate nor dissolve when exposed to moisture or water.

D. Chemicals - Petroleum or cementitious products, bituminous materials, salts, acids, alkalis, herbicides and pesticides.

E. Waste - Sewage, including domestic sanitary sewage, garbage, and trash.

PART 2 PRODUCTS

2.1 MATERIALS

A. Compost Sock: 5mil photo-degradable HDPE fabric, in-filled with weed-free, well-decomposed organic compost. Fabric sock “Siltsoxx” as manufactured by MCS Inc. (www.mcsnjinc.ocm) or approved equal.

B. Silt Fences: Three (3) foot wide fabric designed to filter sediment, as manufactured by Mirafi, Inc. Amoco, or Exxon.

C. Earth Stabilizer: Rye grass seed, hay, straw mulch, chemical stabilizer, or other devices approved by the environmental protection agency having jurisdiction and by the Design Professional.

D. RipRap: Sizes as shown on drawings.

PART 3 EXECUTION

3.1 GENERAL

A. Establish and enforce ecological preservation measures which will avoid pollution of the atmosphere, waterways, groundwater, plants, soils, animal habitats, landfills, wetlands, the site, adjacent sites, roadways, etc.

B. Prevent spilling of chemicals or waste. Provide emergency plans and methods for abatement of accidental spills of toxic substances.

3.2 SEDIMENT CONTROL

A. Until permanent work establishes sediment control, provide temporary control, using vegetative cover with seeding, mulch, and binder within [ten (10)] days after completion of grading of any given area.

B. As a temporary measure, provide silt fences, arranged along the toe of surface drainage ways and inlets, in such a manner that water will pass through the silt fences and filter the sediment. Embed silt fence in ground 6 inches deep and anchor to the ground with posts, as shown on the drawings. Replace silt fences when they become clogged and ineffective.

C. During pipe laying work, prevent silt from entering the piping systems by use of hay bales, silt fence, temporary closures of pipe ends, or other means as best suited to the conditions.

3.3 CONTROLS DURING EARTH MOVING

A. Perform earth moving in phases to minimize the area and extent of exposed land.

B. Control the rate of water runoff by diversion ditches, benches, berms, and other earth-formed shaping so that the rate of flow is retarded and silting shall be minimized. Reshape and restore conditions showing evidence of earth erosion.

3.4 DUST CONTROL

A. Keep dust down at all times, including non-working days, weekends, and holidays. Wet down or treat disturbed soil with dust suppressers as required and approved.

B. Do not leave areas of disturbed earth unworked for long periods of time. Provide temporary or permanent earth stabilization promptly.

C. In sandblasting operations, confine the dust.

D. Use wet-cutting methods for cutting concrete, asphalt, and masonry.

E. Do not shake out bags containing dust-causing substances.

3.5 NOISE CONTROL

A. Provide mufflers on internal combustion engine equipment. Maximum noise level shall be 90 dbA at 50 feet.

B. Where blasting is permitted, special permit and other requirements of the governing authorities regarding blasting shall govern.

C. Limit hours of operation of noisy construction to limits set by City ordinance.

3.6 DISPOSAL OF DEBRIS, CHEMICALS AND WASTE

A. Legally dispose of debris, chemicals, and waste off the site

B. Collect and contain materials before disposal in orderly fashion and by means which prevent contamination of air, water and soil.

C. Store chemicals in watertight containers.

D. Do not burn materials on the site.

3.7 TRUCKS

A. Dump trucks shall be tarpaulin-covered so that spillage does not occur.

B. Provide a gravel surfaced truck wheel washing area at entrances. Clean all truck wheels of mud and debris before the trucks leave the site

3.8 MAINTENANCE AND TERMINATION

A. Maintain in working order environmental protection measures until they are no longer required.

B. Terminate environmental control measures when there is no longer a threat of pollution. Remove temporary control measures. Complete or, if necessary, restore permanent construction that may have been delayed or damaged because of interference with environmental controls.

END OF SECTION

SECTION 015800 – PROJECT IDENTIFICATION AND SIGNS

PART 1 GENERAL

1.3 COORDINATION

A. Designate required selection and delivery dates for products under each allowance in the Contractor's Construction Schedule.

B. Designate each allowance with extensions based on estimated quantities for unit price allowances on Contractor's Schedule of Values.

1.1 DESCRIPTION OF WORK

A. Requirements include the following which shall be provided by the Contractor for General Construction:

1. Furnish, install and maintain project identification sign.
2. Provide temporary on-site information signs to identify Owner's temporary relocation.
3. Remove signs on completion of construction.
4. Allow no other signs to be displayed without approval of owner.

1.2 RELATED REQUIREMENTS

A. Section 011100 – Summary of Work

B. Section 015000 – Temporary Facilities and Controls

C. Section 0151719 – Environmental Controls

1.3 PROJECT IDENTIFICATION SIGN

A. Two (2) digitally printed signs, not less than 4 feet x 8 feet, with graphic content as shown on sample exhibit (1) on the next page of this section.

B. Erect/Fasten on the site at location shown on drawing or as directed by the owner.

1.4 INFORMATIONAL SIGNS

A. Provide at all public entrances, stairways and temporary gates digitally printed signs with lettering indicating Owner's relocated address. Each sign to be 3 feet by 3 feet and up to 100 letters, with graphic content as shown on sample exhibit (2) on the next page of this section. Allow for a total of eight [8] signs.

B. Erect/Install at appropriate locations to provide required information. Coordinate location with owner/owner's representative.

1.5 QUALITY ASSURANCE

A. Digital Sign Printer: Professional experience in type of work required.

B. Finishes: Adequate to resist weathering and fading for scheduled construction period.

PART 2 PRODUCTS

2.1 SIGN MATERIALS

A. Sign surfaces: Dibond material (aluminum sheets with plastic core).

1. Thickness: at least 3 millimeters

B. Hardware used to secure sign: Galvanized bolts with plastic fasteners.

PART 3 EXECUTION

3.1 PROJECT IDENTIFICATION SIGN

A. Sign should be printed/manufactured with style, sizes and colors shown on exhibit attached on page 3 of this section.

3.2 INFORMATION SIGNS

A. Signs should be printed/manufactured in style, sizes and colors as shown in Exhibit 2.

B. Install at a height for optimum visibility, on ground-mounted poles or attached to temporary structural surfaces.

3.3 MAINTENANCE

A. Maintain signs, fasteners, and hardware in a neat, clean condition; repair damaged sign if needed.

B. Relocate informational signs as required by progress of work.

3.4 REMOVAL

A. Remove signs, supports, fasteners at completion of project.

END OF SECTION

Sample – Exhibit 1 - PROJECT IDENTIFICATION SIGN

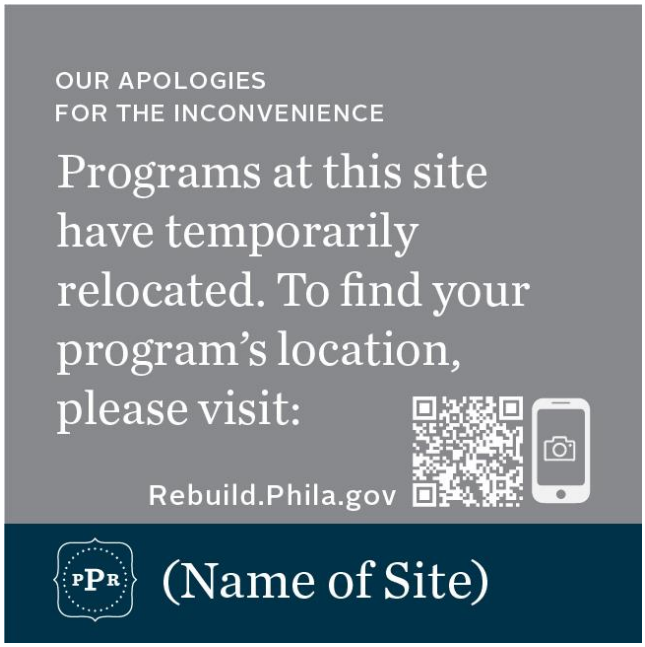
Note for Sample - Exhibit 1 –

City of Philadelphia and City Council logos are on ALL signs.

The following logos are dependent on project delivery and Owner (see below).

- PPR - only when site is a PPR site.
- FLP - only when site is a FLP site.
- PPR/FLP - need to show both when a co-located site exists.
- PHDC - logo used when project is being bid through PRA.
- Project User -logo used when project is bid through a Project User
- Funders – It may be required for funder logos to be included on the project sign. This will be at the direction of Rebuild.

Sample – Exhibit 2 - INFORMATION SIGNS (PPR & FLP)



Note for Sample - Exhibit 2

- PPR Info Sign - QR code to direct to the Rebuild.Phila.gov website
- FLP Info Sign – QR code to direct to the freelibrary.org website

SECTION 016001 – PRODUCTS AND MATERIALS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. This Section describes administrative procedures regarding the Contractor's selection of products, materials, and equipment required for the completion of the Work. Requirements for handling, storing and installing products are also included.

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Applicable provisions of Bidding Requirements, Contract Requirements in Division 0 and all applicable Division 1 sections.

1.3 DEFINITIONS

A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties", "structure", "finishes", "accessories", and similar terms. Such terms are self-explanatory and have well recognized meanings in the construction industry.

B. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material", "equipment", "system", and terms of similar intent.

C. "Named Products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature.

D. "Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.

E. "Equipment" is a product with operational parts, whether motorized or manually operated, that require service connections such as wiring or piping.

F. "System" is an integrated assembly of materials and/or equipment which when combined form an integral whole to serve a function.

1.4 QUALITY ASSURANCE

A. Source Limitations - To the fullest extent possible, provide products of the same kind, from a single source.

B. Compatibility of Options - When the Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

C. The Contractor is responsible for providing products and construction methods that are compatible with products and construction methods of other subcontractors.

D. If a dispute arises over concurrently selectable, but incompatible products, the Design Professional will determine which products shall be retained and which are incompatible and must be replaced.

E. Nameplates - Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view in occupied spaces or on the exterior.

F. Labels - Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface that is not conspicuous.

G. Equipment Nameplates - Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface that is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:

1. Name of product and manufacturer.
2. Model and serial number.
3. Capacity.
4. Speed.
5. Ratings.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.

B. Schedule delivery in accordance with the Construction Schedule and to minimize long-term storage at the site and to prevent overcrowding of construction spaces.

C. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damages, or sensitive to deterioration, theft and other losses.

D. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with legible labels and instructions for handling, storing, unpacking, protecting and installing.

E. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.

F. Store products at the site in a manner that will facilitate inspection and measurement of quantity of counting of units.

G. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.

H. Store product subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

1.6 OPERATION, MAINTENANCE, TRAINING AND CALIBRATION

A. Furnish manuals and services specified and as required to start-up, operate and maintain all equipment and systems.

PART 2 PRODUCTS

2.1 GENERAL PRODUCT REQUIREMENTS

A. Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation. All products shall be certified asbestos-free.

B. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.

C. Where the work requires testing for assurance of performance, that portion of the work shall not proceed until such testing has been completed and written test report has been approved.

D. Do not use material or equipment for any purpose other than for which it is designed or specified.

E. Certification of Compatibility: If indicated, the material and equipment manufacturers shall certify in writing that:

1. Other manufacturer's materials or equipment coming into contact with their product are compatible with their product in every way and that the intended performance of the system in which their product is incorporated will not be affected as a result of such contact. Also, physical breakdown of their product by chemical reaction or otherwise will not occur as a result of such contact.
2. The combination of products by one (1) manufacturer to make up the manufacturer's specified system, will contribute to the performance of the system as intended, and will remain operational, reliable and durable. The manufacturer will be the source of routine maintenance and replacement parts.

F. Reuse of Existing Material

1. Except where indicated or otherwise approved in writing, materials and equipment removed from an existing structure shall not be used in the work.
2. Where use of existing material is indicated or approved, use special care in removing, handling, storing, and reinstallation to assure proper function in the completed work.

2.2 PRODUCT SELECTION PROCEDURES

A. Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following:

B. Where products or manufacturers are specified by name, description, or performance accompanied by the term "or equivalent substitution", "or approved substitution", "or approved equal" or similar terms comply with the Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.

C. Proprietary Specification Requirements - Where products or manufacturers are named, provide the product indicated or submit a substitution request.

D. Descriptive Specification Requirements - Where Specifications describe a product or assembly, listing exact characteristics required, without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements. If descriptive specification also includes manufacturers or products, provide product indicated of submit a substitution request.

E. Performance Specification Requirements - Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. Compliance shall be certified by independent testing agencies furnished by manufacturer. General overall performance of a product is implied where the product is specified for a specific application.

F. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.

G. Compliance with Standards, Codes and Regulations - Where the Specifications require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified. Compliance shall be certified by independent testing agencies furnished by manufacturer.

H. Visual Matching - Where Specifications require matching an established sample or existing construction, the Design Professional's decision will be final on whether a proposed product matches satisfactorily.

I. Visual Selection - Where specified product requirements include the phrase "...as selected from manufacturer's standard colors, patterns, textures..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Design Professional will select the color, pattern and texture from the product line selected.

J. Allowances - Refer to individual Specification Sections and "Allowance" provisions in Division 1 for allowances that control product selection, and for procedures required for processing such selections.

PART 3 EXECUTION

3.1 ACCEPTABLE INSTALLERS

A. Installers shall be familiar with products and experienced in their installation. Comply with more stringent requirements of individual sections for installer qualifications.

3.2 EXAMINATION OF SUBSTRATE

A. Each installer shall examine substrate onto which the product will be installed. Inspect for any condition which would in any way reduce the quality, performance or durability of the product including but not limited to; dimensional or location tolerances, dampness, dryness, installation not meeting specified criteria for substrate, poor workmanship, etc. Do not proceed with installation over unacceptable substrates. Notify Contractor to have substrate repaired. Work installed over unacceptable substrates shall be redone after substrate is repaired at no cost to the City.

3.3 PREPARATION

A. Protect adjacent work from possible damage which installation could cause including but not limited to staining, overspray, denting, gouging, displacement, etc.

B. Clean and prepare substrates to receive products with primers, bonding agents, barrier coats, etc. as per manufacturer's instructions.

3.4 PASSAGE OF MATERIALS AND EQUIPMENT

A. Establish passage clearances required to deliver and install materials and equipment.

B. Where there will be insufficient clearance for passage of materials and equipment, deliver and protect such equipment before confining construction is installed.

C. If existing structures, equipment and systems must be altered to provide passage of new materials and equipment, engage those skilled in the respective trade to restore structures, equipment, and systems to their original condition at no additional cost. Do not alter structure, equipment, or systems without written approval.

D. In lieu of altering structures to provide passage of materials and equipment, provide materials and equipment that can be disassembled, brought into the building, and reassembled.

E. If exterior windows or doors must be removed to provide passage of materials and equipment into the building, store and protect removed work at the site and reinstall as soon as possible. If any damage occurs to the work during their removal, transit, storage or reinstallation, replace or repair the work to like new condition at no cost to Owner.

3.5 INSTALLATION

A. Comply with manufacturer's instructions and recommendations and requirements of individual specification sections in the applications indicated. If manufacturer's instructions and specifications indicate differing installation techniques, request clarification from Design Professional but generally comply with more stringent requirement.

B. Anchor each product securely in place accurately located and aligned with other Work.

C. Coordinate installation with surrounding Work to allow for optimum end product.

3.6 FIELD QUALITY CONTROL

A. Have manufacturer's technical representative on-site to observe crucial installation steps as required by individual specification sections or as required to meet manufacturer's warranty or to meet other indicated criteria.

3.7 ADJUSTING

A. Adjust installed products for proper operation and fit.

END OF SECTION

SECTION 017123 – FIELD ENGINEERING

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. The General Contractor shall engage the services of a Surveyor to establish grades, lines and levels.

1.2 RELATED REQUIREMENTS

A. Applicable provisions of Bidding Requirements, Contract Requirements in Division 0 and all applicable Division 1 sections.

1.3 QUALITY ASSURANCE

A. Surveyor shall be licensed in the Commonwealth of Pennsylvania.

1.4 SUBMITTALS

A. Submit name, address, and telephone number of Surveyor prior to starting survey work.

B. On request, submit documentation verifying accuracy of survey work.

C. Submit reference point survey including field notes for record.

D. Submit certification, signed and sealed by the Surveyor showing that elevations and locations of all improvements are or are not in conformance with Contract Documents.

1.5 PROJECT RECORD DOCUMENTS

A. Maintain complete, accurate log of control and survey work as it progresses.

B. Record on record documents all pertinent information under provisions of Division 1.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION

3.1 INSPECTION

A. Verify locations of survey control points prior to starting work. Promptly notify Design Professional of any discrepancies discovered.

3.2 SURVEY REFERENCE POINTS

A. Protect survey control points prior to starting site work; preserve permanent reference points during construction. Make no changes without prior written notice to Design Professional.

B. Promptly report to Project Coordinator destruction of any reference point or relocation required because of changes in grades or other reasons. Replace dislocated survey control points based on original survey control.

3.3 SURVEY REQUIREMENTS

A. Use instruments to establish a minimum of two (2) permanent bench marks on the site. Reference benchmarks to data established by survey control points. Record bench mark locations with horizontal and vertical data for Project Record Documents. Reference these benchmarks to finish floor lines. Provide accurate alignment and level of the work, and correct slope and curvatures as required.

B. Periodically verify layouts by same means. No extra charges will be allowed for differences between dimensions shown and actual measurements. Advise the Project Coordinator of any differences.

C. Prepare as-built site utility plan showing all utilities including stormwater, sanitary, water, gas and electric lines for permanent record.

END OF SECTION

SECTION 017300 - EXECUTION

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. Construction layout.
2. Field engineering and surveying.
3. Installation of the Work.
4. Progress cleaning.
5. Starting and adjusting.
6. Protection of installed construction.
7. Correction of the Work.

B. Related Requirements:

1. Section 011000 "Summary" for limits on use of Project site.
2. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents and for final cleaning.

1.2 INFORMATIONAL SUBMITTALS

A. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

B. Certified Surveys: Submit two copies signed by land surveyor.

C. Final Property Survey: Submit 10 copies showing the Work performed and record survey data.

1.3 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: 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. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with 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. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility and Owner 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.

B. Field Measurements: 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. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on 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 Architect according to requirements in Section 013100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish limits on use of Project site.
3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
4. Inform installers of lines and levels to which they must comply.

5. Check the location, level and plumb, of every major element as the Work progresses.
6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

D. Final Property Survey: Engage a land surveyor to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

A. General: 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.
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. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

G. Templates: 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. Attachment: 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 Architect.
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. Joints: 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.

J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. 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 days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize 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.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: 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. Installed Work: 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.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.

H. 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.

I. 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.

J. Limiting Exposures: 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.

3.7 STARTING AND ADJUSTING

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. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.8 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.

END OF SECTION

SECTION 017329 CUTTING, PATCHING, SLEEVES AND INSERTS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. This Section describes the Contractor's cutting, fitting, patching, sleeves, and inserts required to complete the Work and to:

1. Make the parts come together properly.
2. Uncover or remove portions of the Work to provide for installation of ill-timed work.
3. Remove and replace defective work.
4. Remove samples of installed work for testing as specified.
5. Provide penetrations for installation of piping and electrical conduit.
6. Repair surfaces shown to remain in the finished work, which are damaged in the process of demolition.
7. Coordinate penetrations, sleeves, and inserts that are specified in one specification section and installed by another.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Applicable provisions of Bidding Requirements, Contract Requirements in Division 0 and all applicable Division 1 sections.

1.3 REGULATORY REQUIREMENTS

A. All cutting, fitting and patching shall be performed in compliance with governing code regulations relative to firestopping and smoke penetration.

PART 2 PRODUCTS

2.1 MATERIALS

A. Use materials that exactly match materials being cut or patched. If exact materials are not available, match with new materials with installed performance matching or exceeding cut or patched material. Comply with specifications and standards for each material involved.

B. Sleeves and Inserts: as specified in the Trade Sections requiring inserts and sleeves for the installation of their work.

PART 3 EXECUTION

3.1 INSPECTION

A. Inspect existing conditions, including work subject to damage or movement during cutting and patching.

B. Report unsatisfactory conditions to the City. Do not proceed until directed.

3.2 PREPARATION

A. Provide temporary support as required to maintain the structural integrity of work.

B. Provide materials and methods to protect other work from damage, including exposure to the elements.

3.3 PERFORMANCE

A. Perform cutting of structural steel, structural concrete or load bearing unit masonry only after approval of the City.

B. Execute cutting and demolition by methods that will prevent damage to other work, and provide proper surfaces to receive installation of repairs.

C. Remove excess materials resulting from cutting and patching and dispose of legally off site.

D. Perform excavating and backfilling by methods that will prevent settlement or damage to other work. Maintain excavations free of water.

E. Where cutting and patching of materials provided under this Contract is required, employ the original installer or fabricator to perform cutting and patching of:

1. Structural steel and concrete.
2. Weather-exposed elements.
3. Moisture- or corrosion-resistant elements.
4. Sight-exposed finished surfaces.

F. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances and finishes.

G. Restore work to remain, or be reused, which has been cut or removed. Install new products to provide complete work in accordance with Contract Documents.

H. Refinish entire surface to provide an even finish to match adjacent surfaces. For continuous surfaces, refinish to nearest intersection. For an assembly, refinish the entire unit.

I. Furnish sleeves and inserts required under individual specification sections to Contractor installing the Work to be sleeved or to have insert embedded. Be responsible for their correct location and installation.

K. Penetrations required, but not shown on the Drawings, shall be cut into the work.

END OF SECTION

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Construction waste management goals, plan, and records.

1.02 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

G. Material Stream: A flow of materials coming from a job site into markets for building materials. A stream can be either of the following: a specific material category that is diverted in a specific way; or a mixture of several material categories that are diverted in a specific way. Examples of material streams include deconstructed materials sent to reuse markets, commingled waste sent to mixed-waste recycling facility, source separation where each material is sent to a specific facility, manufacturers' or suppliers' take-back of materials, and reuse of deconstructed materials on-site. Comingled waste may count as more than one waste stream if the waste-sorting facility provides waste diversion percentages for each material specific to the project's waste based on measurement (by weight) of each component waste material (visual inspection was not used as a method of evaluation for documenting this percentage). Alternatively, comingled waste may count as more than one waste stream if the project team uses the facility's average diversion rate, which must be regulated by the local or state authority and must exclude alternative daily cover (ADC). This system must be a closed system; shipping waste to another municipality to manage, thus burdening another system, does not count as diverting the waste.

1.03 WASTE MANAGEMENT GOALS

A. Contractor shall follow all applicable codes and requirements of local jurisdiction pertaining to construction waste management.

B. Reuse, salvage, or recycle non-hazardous waste materials.

C. Minimize waste sent to landfills and incinerators.

D. Prioritize non-hazardous construction waste management in following order:

1. Reduce amount of waste generated.
2. Reuse material through on-site reuse or off-site salvaging, including sale or donation.
3. Recycle material including diverting materials for secondary uses whenever economically feasible.
4. Dispose of materials with no practical use or economic benefit at landfill.

E. Divert a minimum of 75 percent of construction waste by weight (in tons) or volume (in cubic yards) from landfills and incinerators. The diverted material must include at least four material streams.

F. Calculations may be performed using weight or volume but must be consistent throughout Project.

G. Diverted materials must include at least four materials streams.

1. Separate dumpsters must be used for the four materials streams unless the comingled waste meets the requirements for comingled waste noted in the definition above (project specific diversion weights or regulated facility average diversion rate).

1.04 WASTE MANAGEMENT

A. Pro-actively manage construction and demolition waste:

1. Practice efficient waste management when sizing, cutting, and installing products.
2. Use all reasonable means to divert construction and demolition waste from landfills and incinerators, and to facilitate recycling and reuse.
3. Return unused products and overages to supplier, or donate to non-profit group.
4. Carefully install products; avoid removal of ill-timed and poorly installed products.
5. Use centralized cutting areas to facilitate waste collection.
6. Deliver, store, and handle products to prevent damage.

B. Require subcontractors and suppliers to participate in waste management efforts.

C. Construction waste includes:

1. Products from demolition and removal, excluding abatement waste, excavated soil, and land-clearing debris.
2. Excess and unusable construction products.
3. Packaging materials for construction products.
4. Other materials generated during construction process but not incorporated into the Work.

D. Give consideration to:

1. Availability of viable recycling markets.
2. Condition of materials.
3. Ability to provide material in suitable condition and in quantities acceptable to available markets.
4. Time constraints imposed by internal project completion mandates.

E. Be responsible for implementation of special programs involving rebates and similar incentives related to recycling of waste.

F. Revenues and other savings obtained for salvage and recycling accrue to Contractor.

G. Ensure that firms and facilities used for recycling, reuse, and disposal have legal permits for intended uses.

1.05 SUBMITTALS

A. Waste Management Plan:

1. Submit waste management plan within ten days after Notice to Proceed and prior to initiating site preparation.
2. Include:

    a. Name of individual on Contractor's staff responsible for waste prevention and management.
    b. Actions proposed to reduce solid waste generation and achieve waste management goal.
    c. Description of proposed methods for recycling and reuse of materials generated, including areas and equipment for processing, sorting, and temporary storage.
    d. Estimated types and quantities of waste to be generated.
    e. Name of landfills and incinerators to be used.
    f. Identification of local and regional reuse programs that will accept waste materials.
    g. List of waste materials to be salvaged for resale, salvaged and reused, or recycled. Identify recycling facilities to be used.
    h. Identification of materials that cannot be recycled or reused, with justification.

3. Submit electronically in Adobe PDF format.
4. If required, revise and resubmit plan within ten days after receipt of comments.
5. Distribute copies of approved Waste Management Plan to concerned parties.
6. Update Waste Management Plan periodically through duration of Project to reflect changed conditions.

B. Sustainable Design Record Documents:

1. Maintain records to document:

    a. Quantities of waste generated, in tons or cubic yards.
    b. Types and quantities of materials diverted through sale, reuse, or recycling, in tons or cubic yards, and diversion location.

        1) Excavated soil, land-clearing debris, and alternative daily cover (ADC) must be tracked and excluded from diverted materials.

    c. Quantities of waste sent to landfill or incinerator, in tons or cubic yards.

2. Submit summary of waste disposal and diversion to date along with each Application for Payment.

    a. For comingled waste, submit diversion percentages for each waste type specific to the project's waste based on measurement of each component waste material.

3. Submit hauling receipts or certificates for diverted and recycled materials including material description, hauler name and location, and quantity (by weight) of diverted and recycled materials.
4. Deliver final summary of solid waste disposal and diversion to Architect upon completion of project.
5. Submit electronically in Adobe PDF format.
6. Comingled Waste Diversion:

    a. Written confirmation from the waste-sorting facility that the waste-sorting facility provides waste diversion percentages specific to the project's waste based on measurement of each component waste material and that visual inspection was not used as a method of evaluation for documenting this percentage.

1.06 QUALITY ASSURANCE

A. Review and discuss waste management plan implementation and progress at Preconstruction Conference and Progress Meetings.

1.07 DELIVERY, STORAGE AND HANDLING

A. Designate separate areas to facilitate separation of materials for potential recycling, salvage, reuse and return.

B. Clearly identify areas and receptacles.

C. Keep storage areas and receptacles clean and orderly; prevent contamination of materials.

D. Monitor storage areas; correct problems and implement preventative measures.

1.08 TRAINING

A. Provide training of waste management methods to be used at appropriate stages of Project.

B. Require participation of all subcontractors.

PART 2 – PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 WASTE COLLECTION

A. Provide containers and storage areas to facilitate waste management, clearly identified.

B. Handle recyclable materials to prevent contamination by incompatible products and materials.

C. Separate materials by:

1. Placing into marked separate containers, then transporting to recycling facility.
2. Placing into single container, then transporting to recycling facility for separation.

3.2 DISPOSAL

A. Dispose of nonhazardous waste materials that cannot be reused, recycled, or salvaged at licensed landfill or incinerator.

B. Handle, store, and dispose of hazardous wastes in accordance with applicable codes, ordinances, rules, and regulations.

END OF SECTION

SECTION 017423 CLEANING

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. This Section specifies the Contractor's cleaning of the Work during construction and before completion.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Applicable provisions of Bidding Requirements, Contract Requirements in Division 0 and all applicable Division 1 sections.

B. Additional cleaning is specified under the technical sections for that work.

PART 2 PRODUCTS

2.1 MATERIALS

A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 EXECUTION

3.1 PERIODIC CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Broom clean paved surfaces. Rake clean other surfaces of grounds. Remove snow and ice from access to building.

C. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

D. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

E. Collect and remove waste materials, debris, and rubbish from site at least weekly and dispose of legally off-site.

F. Open free-fall chutes not permitted. Terminate closed chutes into appropriate containers with lids.

G. Clean mechanical equipment, ductwork and replace filters as specified under Division 23.

H. Clean electrical work including lighting fixtures as specified under Division 26.

I. Maintain cleaning until Project or portion thereof is accepted by Certificate of Substantial Completion. If minor work is required after Substantial Completion, clean affected areas afterwards.

3.2 FINAL CLEANING

A. Immediately before observation of the Work for Substantial Completion, clean all sight-exposed surfaces. Clean all ledges and other horizontal or near horizontal surfaces that may not be sight-exposed but are contiguous to finished spaces.

B. At Substantial Completion, clean and renovate permanent facilities that have been used during the construction period, including but not limited to:

1. Replace significantly worn parts and parts that have been subject to unusual operating conditions.
2. Replace lamps that are burned out or noticeably dimmed by substantial hours of use.

END OF SECTION

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. This Section specifies the Contractor's administrative and procedural requirements for project closeout.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Applicable provisions of Bidding Requirements, Contract Requirements in Division 0 and all applicable Division 1 sections.

1.3 SUBSTANTIAL COMPLETION

A. When the work is considered substantially complete, submit a written notice to the PRA that the Work, or a designated portion thereof, is substantially complete. Include a list of all items that require completion or correction.

B. Within a reasonable time after receipt of such notice, an inspection by the PRA/City will be made to determine the status of completion.

C. If the Work is not considered substantially complete; the Contractor will be notified in writing, giving the reasons therefore.

D. Contractor shall remedy the deficiencies in the Work, and send a second written notice of substantial completion. This notice shall include a statement of action taken on each item noted as requiring correction or completion to achieve "Substantial Completion" status.

E. The Work will be inspected a second time and if not considered substantially complete, the two steps in paragraphs A and B above will be repeated.

F. When the PRA/City concurs that the Work is substantially complete, they will:

1. Prepare a Certificate of Substantial Completion, accompanied by Contractor's list of items to be completed or corrected, as verified and amended by the PRA.
2. Submit the Certificate to Contractor for written notice of the responsibilities assigned in the Certificate.

G. Contractor shall prepare Application for Payment at Substantial Completion and complete administrative and submittal requirements per Section 012900 Payment Procedures.

1.4 FINAL OBSERVATION

A. When the Work is considered complete, submit written certification that:

1. Contract Documents have been reviewed.
2. Work has been inspected by the Contractor and has been completed in compliance with Contract Documents.
3. Equipment and systems have been tested in the presence of the Project Coordinator and are operational.

4. Work is ready for final observation.

B. Inspection by the PRA/City will be made to verify the status of completion with reasonable promptness after receipt of such certification.

C. If the Work is not considered complete; the Contractor will be notified in writing, listing the incomplete or defective Work.

D. Contractor shall take immediate steps to remedy the stated deficiencies, and, after correcting deficiencies, he shall send a second written certification that the Work is complete. This certification shall itemize each deficiency noted and a statement of action taken to remedy or complete the Work.

E. The Work will be observed a second time and if not considered substantially complete, the two steps in paragraphs A and B above will be repeated.

F. When the Work is acceptable under the Contract Documents, the Contractor shall be requested to make closeout submittals.

1.5 ADDITIONAL OBSERVATION FEES

A. Should more than two observations at substantial or final completion and/or for required mock ups be required due to failure of the Work to comply with the claims of status of completion made by the Contractor:

1. PRA will compensate the Design Professional for such additional services.
2. PRA will deduct the amount of such compensation from the final payment to the Contractor.

1.6 CLOSEOUT SUBMITTALS

A. When the Work is complete submit the following:

1. Evidence of compliance with requirement of governing authorities as follows:

   a. Certificate of Occupancy.
   b. Certificates of Inspection for Work requiring Certificate of Inspection by governing authority.
   c. Certificate and Reports of Inspection, Testing and Approval.

2. Project Record Documents as specified under Division 1.
3. Operation and Maintenance Manuals as specified under Division 1.
4. Warranties as specified under Division 1.
5. Keys and Keying Schedule as specified under Finish Hardware - Division 8.
6. Spare Parts and Maintenance Materials as specified.
7. Evidence of Payment and Release of Liens to the requirements of General and Supplementary Conditions.
8. Requirements for Final Payment Application per Section 012900 Payment Procedures, Division 1.
9. Consent of Surety.

1.7 SPARE PARTS AND MAINTENANCE MATERIALS

A. Furnish spare parts and maintenance materials as specified under various Sections of the Specifications.

B. Package and label parts and materials as directed and store in area of the building where directed by the PRA.

1.8 FINAL ADJUSTMENT OF ACCOUNTS

A. Submit a final statement of accounting.

B. Statement shall reflect all adjustments to the Contract Sum:

1. The original Contract Sum.
2. Additions and deductions resulting from:

    a. Previous Change Orders.
    b. Change Orders caused by substitutions including deductions for review.

3. Deductions for uncorrected Work.
4. Deductions for re-inspection payments.
5. Other adjustments.
6. Total Contract Sum, as adjusted.
7. Previous payments.
8. Sum remaining due.

C. The PRA will prepare a final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.

1.9 FINAL APPLICATION FOR PAYMENT

A. Submit the final Application for Payment in accordance with procedures and requirements stated herein.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION

3.1 Sample Certificate of Substantial Completion Form, see Project Coordinator for actual form.

END OF SECTION

SECTION 017823 – OPERATION AND MAINTENANCE MANUALS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. This Section describes the Contractor's procedural requirements for compiling and submitting operation and maintenance data.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Applicable provisions of Bidding Requirements, Contract Requirements in Division 0 and all applicable Division 1 sections.

B. Individual Specifications Sections: Specific requirements for operation and maintenance data.

1.3 QUALITY ASSURANCE

A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

1.4 FORMAT

A. Prepare data in the form of an instructional manual.

B. Binders: Commercial quality, 8-1/2 by 11 inch three ring binders with plastic covers. When multiple binders are used, correlate data into related consistent groupings.

C. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

D. Provide tabbed flyleaf, indexed for each separate product and system, with typed description of product and major component parts of equipment.

E. Text: Manufacturer's printed data or typewritten data.

F. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

G. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, in three parts as follows:

1. Part 1: Directory, listing names, addresses, and telephone numbers of Design Professional, Contractor, Subcontractors, and major equipment suppliers.
2. Part 2: Operation and maintenance instructions arranged by system and subdivided by specification section. For each category, identify names, addresses and telephone numbers of Subcontractors and suppliers. Identify the following:

    a. Significant design criteria.
    b. List of equipment.
    c. Parts list for each component.
    d. Operating instructions.

e. Maintenance equipment for equipment and systems.
f. Maintenance instructions for [special] finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.

3. Part 3 - Project documents and certificates, including the following:

a. Shop drawings and product data.
b. Air and water balance reports.
c. Certificates.
d. Photocopies of warranties and bonds.

H. Data

1. For Each Product or System - List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
2. Product Data - Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
3. Drawings - Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawing.

1.5 MANUAL FOR MATERIALS AND FINISHES

A. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Provide information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

C. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

D. Additional Requirements: As specified in individual Product Specification sections.

1.6 MANUAL FOR EQUIPMENT AND SYSTEMS

A. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.

B. Panelboard Circuit Directories - Provide electrical service characteristics, controls, and communications.

C. Include color-coded wiring diagrams as installed.

D. Operating Procedures - Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown and

emergency instructions. Include summer, winter, and any special operating instructions.

E. Maintenance Requirements: Include routine procedures and guide for disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

F. Troubleshooting: Include step-by-step chart listing common problems with appropriate repairs.

G. Provide servicing and lubrication schedule, and list of lubricants required.

H. Include manufacturer's printed operation and maintenance instructions.

I. Include sequences of operation by controls manufacturer.

J. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

K. Provide control diagrams by controls manufacturer as installed.

L. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

M. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

N. Include test and balancing reports as specified.

O. Additional Requirements - As specified in individual Product specification sections.

P. Where the complexity of machinery is such that regular maintenance by a specialty service company is normal, or may be required by law, give notice thereof in writing.

1.7 INSTRUCTION OF CITY PERSONNEL

A. Before final inspection, instruct City's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times.

B. For equipment requiring seasonal operation, perform instructions for other seasons within two (2) months.

C. Use operation and maintenance manuals as basis for instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

D. Prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.

1.8 SUBMITTALS

A. For equipment, or component parts of equipment put into service during construction and operated by City, submit documents within ten days after acceptance.

B. Submit 2 copies of completed volumes fifteen (15) days prior to final inspection. This copy will be reviewed and returned after final observation, with comments. Revise content of all document sets as required prior to final submission.

C. Submit six (6) sets of revised final volumes in final form prior to or coincidental with Final Application for Payment.

PART 2 – PRODUCTS – Not Used
PART 3 – EXECUTION – Not Used

END OF SECTION

SECTION 017836 - WARRANTIES

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. This Section describes the Contractor's procedural requirements for executing, assembling and submitting warranties.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Applicable provisions of Bidding Requirements, Contract Requirements in Division 0 and all applicable Division 1 sections.

B. Individual Specification sections requiring warranties or service/maintenance contracts.

1.3 SUBMITTAL REQUIREMENTS

A. Submit two (2) sets of original signed copies of warranties, bonds, service and maintenance contracts, executed by the respective manufacturers, suppliers, and subcontractors.

B. Contents - Neatly type, in orderly sequence, the following information for each item.

1. Product or work item.
2. Subcontractor supplier and manufacturers names, addresses, and telephone numbers.
3. Date of beginning and duration time of warranty, bond, or service and maintenance contract.
4. Proper procedure in case of failure.
5. Instances which might affect the validity of warranty or bond.

C. Bind each set in 8 1/2 inch by 11 inch commercial quality, three-ring binders with plastic covers. Identify each binder with typed or printed title "Warranties" with title of project and location.

1.4 TIME OF SUBMITTALS

A. For equipment or component parts of equipment placed into service during progress of construction, submit documents within ten (10) days after inspection and acceptance.

B. Make other submittals within ten (10) days after Date of Substantial Completion, prior to final request for payment.

C. For items of work, where acceptance is delayed materially beyond the Date of Substantial Completion, provide updated submittal within ten (10) days after acceptance, listing the date of acceptance as the start of the warranty period.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION – Not Used

END OF SECTION

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record specifications.
3. Record Product Data.
4. Record Shop Drawings
5. Miscellaneous record submittals.

B. Related Requirements:

1. Section 017700 "Closeout Procedures" for general closeout procedures.
2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.2 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit copies of Record Drawings as follows:

a. Initial Submittal:

1) Submit PDF electronic files of scanned record prints.
2) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

b. Final Submittal:

1) Submit PDF electronic files of scanned Record Prints.

B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and Contract modifications.

C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.

1.3 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation, where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

    a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    b. Accurately record information in an acceptable drawing technique.
    c. Record data as soon as possible after obtaining it.
    d. Record and check the markup before enclosing concealed installations.

2. Content: Types of items requiring marking include, but are not limited to, the following:

    a. Dimensional changes to Drawings.
    b. Revisions to details shown on Drawings.
    c. Locations and depths of underground utilities.
    d. Revisions to routing of piping and conduits.
    e. Actual equipment locations.
    f. Duct size and routing.
    g. Locations of concealed internal utilities.
    h. Changes made by Change Order.
    i. Changes made following Architect's written orders.
    j. Details not on the original Contract Drawings.
    k. Field records for variable and concealed conditions.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.

4. Mark record prints with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.

5. Mark important additional information that was either shown schematically or omitted from original Drawings.

6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:

1. Format: Annotated PDF electronic file[with comment function enabled].
2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
3. Refer instances of uncertainty to Architect for resolution.

C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Format: Annotated PDF electronic file.
2. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.

3. Identification: As follows:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Architect [and Construction Manager].
    e. Name of Contractor.

1.4 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation, where installation varies from that indicated in Specifications, addenda, and Contract modifications.

    1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
    2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
    3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
    4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
    5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

B. Format: Submit record specifications as annotated PDF electronic file.

1.5 RECORD PRODUCT DATA

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and revisions to Project Record Documents as they occur; do not wait until end of Project.

B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

    1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
    2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
    3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

C. Format: Submit Record Product Data as annotated PDF electronic file.

    1. Include Record Product Data directory organized by Specification Section number and title, electronically linked to each item of Record Product Data.

1.6 RECORD SHOP DRAWINGS

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

B. Format: Submit Record Product Data as annotated PDF electronic file.

1.7 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as PDF electronic file.

1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

1.8 MAINTENANCE OF RECORD DOCUMENTS

A. Maintenance of Record Documents: Store Record Documents in the field office apart from the Contract Documents used for construction. 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. Provide access to Project Record Documents for Architect's reference during normal working hours.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 018113 - SUSTAINABLE DESIGN REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section includes general requirements and procedures for compliance with certain prerequisites and credits needed for Project to obtain "LEED Version 4 for Building Design and Construction" (LEED v4 BD+C) Gold certification based on USGBC's LEED v4 BD+C.

1. Specific requirements for LEED are also included in other Sections.
2. Some LEED prerequisites and credits needed to obtain LEED certification depend on product selections and may not be specifically identified as LEED requirements.
3. Compliance with requirements needed to obtain LEED prerequisites and credits may be used as one criterion to evaluate substitution requests and comparable product requests.
4. A copy of the LEED Project checklist is attached at the end of this Section.

    a. Some LEED prerequisites and credits needed to obtain the indicated LEED certification depend on Architect's design and other aspects of Project that are not part of the Work of the Contract.

1.03 REFERENCES

1. ASTM D7612 – 10, Standard Practice for Categorizing Wood and Wood-Based Products According to Their Fiber Sources.

2. California Department of Public Health Standard Method V1.2 2017, CA Section 01350.

3. ENERGY STAR Qualified Low Slope Roofs (https://www.energystar.gov/products/building_products/roof_products).

4. EPA WaterSense (https://www.epa.gov/watersense/product-specifications).

5. LEED for New Construction v4 Checklist.

1.04 DEFINITIONS

A. LEED: USGBC's "LEED Version 4 for Building Design and Construction."

1. Definitions that are a part of "LEED Version 4 for Building Design and Construction" (LEED v4 BD+C) apply to this Section.

B. Chain-of-Custody Certificates: Certificates signed by manufacturers certifying that wood used to make products was obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001. Certificates shall include evidence that manufacturer is certified for chain of custody by an FSC-accredited certification body.

C. Regional Materials: Materials that have been extracted, harvested, or recovered, as well as manufactured, within 100 miles (160 km) of Project site. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value.

D. Recycled Content: The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value.

1. "Post-consumer" material is defined as waste material generated by households or by commercial, industrial, and institutional facilities in their role as end users of the product, which can no longer be used for its intended purpose.

2. "Pre-consumer" material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials, such as rework, regrind, or scrap, generated in a process and capable of being reclaimed within the same process that generated it.

1.05 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site. Review LEED requirements and action plans for meeting requirements.

1.06 ADMINISTRATIVE REQUIREMENTS AND COORDINATION

A. General: Provide construction coordination and related administrative services as required to achieve LEED project goals.

B. Respond to questions and requests from Architect and the USGBC regarding LEED credits that are the responsibility of the Contractor, that depend on product selection or product qualities, or that depend on Contractor's procedures until the USGBC has made its determination on the Project's LEED certification application. Document responses as informational submittals.

C. Submit documentation to USGBC and respond to questions and requests from USGBC regarding LEED credits that are the responsibility of the Contractor, that depend on product selection or product qualities, or that depend on Contractor's procedures until the USGBC has made its determination on the Project's LEED certification application.

1. Document correspondence with USGBC as informational submittals.

1.07 ACTION SUBMITTALS

A. General: Submit additional sustainable design submittals required by other Specification Sections.

B. Sustainable design submittals are in addition to other submittals.

1. If submitted item is identical to that submitted to comply with other requirements, include an additional copy with other submittal as a record copy of compliance with indicated LEED requirements instead of separate sustainable design submittal. Mark additional copy "Sustainable design submittal."

C. Sustainable Design Documentation Submittals:

1. Heat Island Reduction
   a. Roofing Materials
      1) Initial solar reflectance index (SRI).
      2) Three-year aged solar reflectance (SRI).
   b. Paving Materials: Product data including the following:
      1) Initial solar reflectance index (SRI).
      2) Three-year aged solar reflectance (SRI).

2. Environmental Product Declarations (EPDs) complying with LEED requirements.
3. Documentation for products that comply with LEED requirements for leadership extraction practices. Include the following:

   a. Product data and certification letter from product manufacturers, indicating participation in an extended producer responsibility program and statement of costs.
   b. Product data and certification for bio-based materials, indicating that they comply with requirements. Include statement of costs.
   c. Product data and chain-of-custody certificates for products containing certified wood. Include statement of costs.
   d. Receipts for salvaged and refurbished materials used for Project, indicating sources and costs.
   e. Product data and certification letter from product manufacturers, indicating percentages by weight of postconsumer and preconsumer recycled content for products having recycled content. Include statement of costs.

   f. Documentation for regional materials, indicating location and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw material and costs of regional materials.

   g. Include documentation for regional materials, indicating location and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw material and costs of regional materials.

4. Sustainability reports for products that comply with LEED requirements for raw material and source extraction reporting.

5. Material ingredient reports for products that comply with LEED requirements for material ingredient reporting.
6. Documentation for products that comply with LEED requirements for material ingredient optimization.

7. Product data for adhesives and sealants used inside the weatherproofing system, indicating VOC content and laboratory test reports showing VOC emissions testing compliance with requirements for low-emitting materials.
8. Product data for paints and coatings used inside the weatherproofing system, indicating VOC content and laboratory test reports showing VOC emissions testing compliance with requirements for low-emitting materials.
9. Laboratory test reports for flooring, indicating compliance with requirements for low-emitting materials.
10. Laboratory test reports for products containing composite wood or agrifiber products or wood glues, indicating compliance with requirements for low-emitting materials.
11. Laboratory test reports for ceilings, walls, and thermal insulation, indicating compliance with requirements for low-emitting materials.
12. Construction Indoor-Air-Quality (IAQ) Management:

    a. Construction IAQ management plan.
    b. Product data for temporary filtration media.
    c. Product data for filtration media used during occupancy.
    d. Construction Documentation: Six photographs at three different times during the construction period, along with a brief description of the SMACNA approach employed, documenting implementation of the IAQ management measures, such as protection of ducts and on-site stored or installed absorptive materials.

13. IAQ Assessment:

    a. Signed statement describing the building air flush-out procedures, including the dates when flush-out was begun and completed and statement that filtration media was replaced after flush-out.
    b. Product data for filtration media used during flush-out and occupancy.
    c. Report from testing and inspecting agency indicating results of IAQ testing and documentation showing compliance with IAQ testing procedures and requirements.

14. Water Metering:

    a. Product data for installed water meters.

15. Indoor Water Use

    a. Plumbing Fixtures: Submit product data for the following installed fixtures. Include WaterSense labels.

        1) Lavatory faucets, and/or aerators. Include average rated flow volume (gpm).
        2) Kitchen faucets, and/or aerators. Include average rated flow volume (gpm).
        3) Showerhead fixtures and fittings. Include average rated flow volume (gpm).
        4) Toilet fixtures and fittings. Include average rated flush volume (gpf).

16. Energy Metering:

    a. Product data for installed energy (electric and gas) meters.

17. Air Filtering:

    a. Product data for filters installed on forced air heating and cooling systems, and supply ventilation systems. Include MERV ratings. Minimum MERV 13 required.

1.08 INFORMATIONAL SUBMITTALS

A. Qualification Data: For LEED coordinator.

B. Project Materials Cost Data: Provide statement indicating total cost for materials used for Project. Costs exclude labor, overhead, and profit. Include breakout of costs for the following categories of items:

1. Plumbing.
2. Mechanical.
3. Electrical.
4. Specialty items, such as elevators and equipment.

C. Sustainable Design Action Plans: Provide preliminary submittals within 30 days of date established for commencement of the Work, indicating how the following requirements will be met:

1. Erosion and Sedimentation Control Plan complying with the 2012 U.S. Environmental Protection Agency Construction General Permit or local equivalent, whichever are more stringent.
2. List of proposed products with Environmental Product Declarations.
3. List of proposed products complying with requirements for leadership extraction practices (extended producer responsibility, bio-based materials, wood products, materials reuse, and recycled content).
4. List of proposed products complying with requirements for material ingredient optimization (Health Product Declaration, Cradle to Cradle, etc).
5. List of proposed products complying with requirements for material ingredient reporting.
6. List of proposed products meeting the low-emitting materials criteria.
7. Waste management plan complying with Section 017419 "Construction Waste Management and Disposal."
8. Construction IAQ management plan.

D. Sustainable Design Progress Reports: Concurrent with each Application for Payment, submit reports comparing actual construction and purchasing activities with sustainable design action plans for the following:
1. Photographs documenting Erosion and Sedimentation Control Plan implementation.
2. Building Product Disclosure and Optimization Calculator updated with product information from submittals.
3. Low-emitting Materials Calculator updated with product information from submittals.
4. Waste reduction progress reports complying with Section 017419 – Construction Waste Management.
5. Photographs documenting the Construction IAQ management plan implementation.

1.09 QUALITY ASSURANCE

A. LEED Coordinator: Engage an experienced LEED-accredited professional to coordinate LEED requirements. LEED coordinator may also serve as waste management coordinator.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Provide products and procedures necessary to obtain LEED credits required in this Section. Although other Sections may specify some requirements that contribute to these LEED credits, the Contractor shall provide additional materials and procedures necessary to obtain LEED credits indicated.

B. Roofing materials shall have an initial solar reflectance index (SRI) of 82 or a 3-year aged SRI of 64 for low-sloped roofs and an initial solar reflectance index (SRI) of 39 or a 3-year aged SRI of 32 for steep-sloped roofs.

C. Paving materials shall have an initial solar reflectance (SR) of at least 0.33 or a three-year aged SR value of at least 0.28.

D. At least 40 different permanently installed products from at least five different manufacturers shall have Environmental Product Declarations that comply with LEED requirements. Industry-wide (generic) Environmental Product Declarations shall be valued as one-whole of a product. Product-specific Type III Environmental Product Declarations shall be valued as 1.5 products.

E. At least 30 percent, by cost, for products from at least five different manufacturers shall have publicly released reports that comply with LEED requirements for sourcing of raw materials.

F. At least 20 different permanently products from at least five different manufacturers shall comply with LEED requirements for material ingredient reporting.

G. At least five permanently installed products from at least three different manufactures for the Project shall comply with LEED requirements for material ingredient optimization.

2.02 LOW-EMITTING MATERIALS

A. Paints and Coatings: For field applications that are inside the weatherproofing system, paints and coatings shall comply with VOC content limits of authorities having jurisdiction and the following VOC content limits:

1. Flat Paints and Coatings: 50 g/L.
2. Non-flat Paints and Coatings: 50 g/L.
3. Dry-Fog Coatings: 50 g/L.
4. Primers, Sealers, and Undercoats: 100 g/L.
5. Rust-Preventive Coatings: 100 g/L.
6. Zinc-Rich Industrial Maintenance Primers: 100 g/L.
7. Pretreatment Wash Primers: 420 g/L.
8. Clear Wood Finishes, Varnishes: 275 g/L.

9. Clear Wood Finishes, Lacquers: 275 g/L.
10. Floor Coatings: 50 g/L.
11. Shellacs, Clear: 730 g/L.
12. Shellacs, Pigmented: 550 g/L.
13. Stains: 100 g/L.

B. Paints and Coatings: For field applications that are inside the weatherproofing system, 75 percent of paints and coatings, by volume or surface area shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers. v1.2 - 2017 and complies with the VOC limits in Table 4-1 of the method" and 100 percent of paints and coatings shall comply with the requirements of the South Coast Air Quality Management District (SCAQMD) Rule 1113 2015, effective February 5, 2016."

C. Adhesives and Sealants: For field applications that are inside the weatherproofing system, adhesives and sealants shall comply with VOC content limits of authorities having jurisdiction and the following VOC content limits:

1. Wood Glues: 30 g/L.
2. Metal-to-Metal Adhesives: 30 g/L.
3. Adhesives for Porous Materials (Except Wood): 50 g/L.
4. Subfloor Adhesives: 50 g/L.
5. Plastic Foam Adhesives: 50 g/L.
6. Indoor Carpet Adhesives: 50 g/L.
7. Carpet Pad Adhesives: 50 g/L.
8. VCT and Asphalt Tile Adhesives: 50 g/L.
9. Cove Base Adhesives: 50 g/L.
10. Gypsum Board and Panel Adhesives: 50 g/L.
11. Rubber Floor Adhesives: 60 g/L.
12. Ceramic Tile Adhesives: 65 g/L.
13. Multipurpose Construction Adhesives: 70 g/L.
14. Fiberglass Adhesives: 80 g/L.
15. Contact Adhesives: 80 g/L.
16. Structural Glazing Adhesives: 100 g/L.
17. Wood Flooring Adhesives: 100 g/L.
18. Structural Wood Member Adhesives: 140 g/L.
19. Single-Ply Roof Membrane Adhesives: 250 g/L.
20. Special-Purpose Contact Adhesives (That Are Used to Bond Melamine-Covered Board, Metal, Unsupported Vinyl, Rubber, or Wood Veneer 1/16 Inch or Less in Thickness to Any Surface): 250 g/L.
21. Top and Trim Adhesives: 250 g/L.
22. Plastic Cement Welding Compounds: 100 g/L.
23. ABS Welding Compounds: 325 g/L.
24. CPVC Welding Compounds: 490 g/L.
25. PVC Welding Compounds: 510 g/L.
26. Adhesive Primer for Plastic: 550 g/L.
27. Sheet-Applied Rubber Lining Adhesives: 850 g/L.
28. Aerosol Adhesive, General-Purpose Mist Spray: 65 percent by weight.
29. Aerosol Adhesive, General-Purpose Web Spray: 55 percent by weight.
30. Special-Purpose Aerosol Adhesives (All Types): 70 percent by weight.
31. Other Adhesives: 250 g/L.

32. Architectural Sealants: 50 g/L.
33. Nonmembrane Roof Sealants: 300 g/L.
34. Single-Ply Roof Membrane Sealants: 450 g/L.
35. Other Sealants: 420 g/L.
36. Sealant Primers for Nonporous Substrates: 250 g/L.
37. Sealant Primers for Porous Substrates: 775 g/L.
38. Modified Bituminous Sealant Primers: 500 g/L.
39. Other Sealant Primers: 750 g/L.

D. Adhesives and Sealants: For field applications that are inside the weatherproofing system, 75 percent of all adhesives and sealants, by volume or surface area, shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers v1.2 – 2017 and complies with the VOC limits in Table 4-1 of the method" and 100 percent of all adhesives and sealants shall comply with the requirements of the "South Coast Air Quality Management District (SCAQMD) Rule 1168 2017, effective October 6, 2017."

E. Flooring: At least 90% of all flooring, by cost or surface area, shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers v1.2 – 2017 and complies with the VOC limits in Table 4-1 of the method."

F. Wall Panels: At least 75% of all wall panels, by cost or surface area, comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers v1.2. – 2017 and complies with the VOC limits in Table 4-1 of the method.""

G. Ceilings: At least 90% of all ceilings, by cost or surface area, shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers v1.2. – 2017 and complies with the VOC limits in Table 4-1 of the method."

H. Insulation: At least 75% of all insulation, by cost or surface area, shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers v1.2. – 2017 and complies with the VOC limits in Table 4-1 of the method."

PART 3 - EXECUTION

3.01 NONSMOKING BUILDING

A. Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor-air intakes.

3.02 CONSTRUCTION IAQ MANAGEMENT

A. Comply with SMACNA's "SMACNA IAQ Guideline for Occupied Buildings under Construction, 2nd edition, 2007, ANSI/SMACNA 008-2008, Chapter 3."

1. If Owner authorizes use of permanent heating, cooling, and ventilating systems during construction period as specified in Section 015000 "Temporary Facilities and Controls," install MERV 8 filter media, as determined by ASHRAE 52.2 – 2017, at each return-air inlet for the air-handling system used during construction.
2. Replace air filters immediately prior to occupancy.

3.03 IAQ ASSESSMENT

A. Flush-Out, if pursued:

1. After construction ends, prior to occupancy and with all interior finishes installed, perform a building flush-out by supplying a total volume of 14,000 cu. ft. of outdoor air per sq. ft. of floor area while maintaining an internal temperature of at least 60 deg F and no higher than 80 deg F and a relative humidity no higher than 60 percent.

2. If occupancy is desired prior to flush-out completion, the space may be occupied following delivery of a minimum of 3500 cu. ft. of outdoor air per sq. ft. of floor area to the space while maintaining an internal temperature of at least 60 deg F and no higher than 80 deg F and a relative humidity no higher than 60 percent... Once a space is occupied, it shall be ventilated at a minimum rate of 0.30 cfm per sq. ft. of outside air or the design minimum outside-air rate, whichever is greater. During each day of the flush-out period, ventilation shall begin a minimum of three hours prior to occupancy and continue during occupancy. These conditions shall be maintained until a total of 14,000 cu. ft./sq. ft. of outside air has been delivered to the space.

B. Air-Quality Testing: Engage testing agency to perform the following, if pursued:

1. Conduct baseline IAQ testing, after construction ends and prior to occupancy, using testing protocols consistent with the EPA's "Compendium of Methods for the Determination of Air Pollutants in Indoor Air," and as additionally detailed in the USGBC's "LEED Reference Guide for Building Design and Construction."
2. Demonstrate that the contaminant maximum concentrations listed below are not exceeded:

    a. Formaldehyde: 16 ppb.
    b. Particulates (PM10): 50 micrograms/cu. m.
    c. PM2.5: 12 micrograms/cu. m.
    d. Ozone: 0.07 ppm, according to ASTM D 5149.
    e. Total Volatile Organic Compounds: 500 micrograms/cu. m.
    f. 4-Phenylcyclohexene (4-PH): 6.5 micrograms/cu. m.
    g. Carbon Monoxide: 9 ppm and no greater than 2 ppm above outdoor levels.
    h. Acetaldehyde 75-07-0: 140 micrograms/cu. m
    i. Benzene 71-42-2: 3 micrograms/cu. m

j. Hexene (n-) 110-54-3: 7000 micrograms/cu. m
k. Naphthalene 91-20-3: 9 micrograms/cu. m
l. Phenol 108-95-2: 200 micrograms/cu. m
m. Styrene 100-42-5: 900 micrograms/cu. m
n. Tetrachloroethylene 127-18-4: 35 micrograms/cu. m
o. Toluene 108-88-3: 300 micrograms/cu. m
p. Vinyl acetate 108-05-4: 200 micrograms/cu. m
q. Dichlorobenzene (1,4-) 106-46-7: 800 micrograms/cu. m
r. Xylenes-total108-38-3, 95-47-6 and 106-42-3: 700 micrograms/cu. m
s. Target Chemicals in California Department of Public Health "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers v1,2 - 2017,," Table 4-1: Allowable concentrations in California Department of Public Health "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers v1.2 - 2017," Table 4-1.

3. For each sampling point where the maximum concentration limits are exceeded, take corrective action until requirements have been met.
4. Air-sample testing shall be conducted as follows:

a. All measurements shall be conducted prior to occupancy but during normal occupied hours, and with building ventilation system starting at the normal daily start time and operated at the minimum outside-air flow rate for the occupied mode throughout the duration of the air testing.
b. Building shall have all interior finishes installed, including, but not limited to, millwork, doors, paint, carpet, and acoustic tiles. Nonfixed furnishings, such as workstations and partitions, are encouraged, but not required, to be in place for the testing.
c. Number of sampling locations varies depending on the size of building and number of ventilation systems. For each portion of building served by a separate ventilation system, the number of sampling points shall not be less than one per 5000 sq. ft.
d. Air samples shall be collected between 3 and 6 feet from the floor to represent the breathing zone of occupants, and over a minimum four-hour period.

3.04 COMMISSIONING

A. Comply with section 01 91 13 “GENERAL COMMISSIONING REQUIREMENTS.”

END OF SECTION

SECTION 01 8119 - INDOOR AIR QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the development of an Indoor Air Quality (IAQ) Management Plan in order to meet the requirements of LEED for New Construction IEQ Credit 3.1.

1.3 STANDARDS AND QUALITY ASSURANCE

A. Comply with all relevant requirements of Construction IAQ Management Plan During Construction as set forth in the LEED Version 4 for Building Design and Construction (LEED v4 BD+C).

1.4 SUBMITTALS

A. Within 14 days of date established for commencement of the Work, submit an IAQ Management Plan for review and comment.

B. Product Data for temporary filtration media.

C. Product Data for filtration media used during occupancy.

D. Construction Documentation: Six photographs at each of three different times during the construction period, along with a brief description of the SMACNA approach employed, documenting implementation of the indoor-air-quality management measures, such as protection of ducts and on-site stored or installed absorptive materials.

1.5 PROJECT CONDITIONS

A. Partial Owner Occupancy: Owner may occupy completed areas of building before Substantial Completion.

1.6 COORDINATION

A. Coordinate the efforts of factory-authorized service representatives for systems and equipment, HVAC controls installers, and other mechanics to operate HVAC systems and equipment to support and assist TAB activities.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 IAQ MANAGEMENT DURING CONSTRUCTION

A. Comply with SMACNA standards and the requirements of the referenced documents.

B. Maintain records including photographic records of the steps taken to implement the plan.

C. Compete LEED online template and provide required supplemental documentation for LEED IEQ Credit "Construction Indoor Air Quality Management Plan".

END OF SECTION

SECTION 019113

GENERAL COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all other Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

A. Work Includes:

1. General Contractor shall coordinate Work of employees and each relevant subcontractor to facilitate the complete commissioning of the building, as organized and guided by the Owner-hired Commissioning Provider (CxP).

    a. Commissioning of the facility includes:
        1) HVAC Systems.
        2) Electrical Systems.
        3) Plumbing Systems.

2. General Contractor shall assist the commissioning process via the organization of preconstruction meetings, mock-up and first-in-place work reviews, regular open issues review meetings, and others as determined mutually beneficial to the project. Commissioning-required meetings are described in this section; other required meetings are described in other specification sections relevant to the commissioning systems.

3. General Contractor shall interface regularly with the Commissioning Provider's online platform, facilitating regular tracking and communication relating to construction issues. Contractor shall require similar access and participation from its subcontractors.

4. General Contractor shall make the work accessible to the Commissioning Provider, including providing general site access, safety training, and specific access to systems for review and testing, as described within this section.

5. General Contractor shall review and understand agreed resolutions and rework to issues identified by the Commissioning Provider. The General Contractor shall take appropriate steps to ensure the implementation of the agreed resolution, including appropriate documentation on the Commissioning Provider's online platform.

6. General Contractor shall assume responsibility for the cost of certain commissioning actions, as described further in this section:

    a. Review of submittals and other construction contract administration documents requiring rereview more than established limits.

b. Failed testing, and additional required retesting, as specified.
c. Wasted trips and other expenditures of the CxP that result due to unacceptable notification or improper scheduling.

B. Related Work: The Work of this section applies to all commissioned systems in the facility. Numerous sections therefore are related. In particular, the reader shall reference the following:

1. 22 08 00 – Commissioning of Plumbing Systems.
2. 23 05 93 – Testing, Adjusting and Balancing for HVAC.
3. 23 08 00 – Commissioning of HVAC Systems.
4. 26 08 00 – Commissioning of Electrical Systems.

1.3 SUMMARY

A. The Commissioning (Cx) process requires the active involvement of the General Contractor and the affected Division contractors (Subcontractors) and assigns work and responsibilities that are specified here.

B. The commissioning process is led by the Commissioning Provider (CxP) hired on behalf of Union Square Station Associates LLC ("Owner").

C. Become familiar and ensure that affected Division subcontractors become familiar with the following:

1. All parts of the commissioning plan issued by the Commissioning Provider (CxP)
2. The Owner's Project Requirements (OPR)

D. Commissioning: Commissioning (Cx) is a systematic documented process of verifying that building systems perform interactively according to the design intent and the Owner's operational needs. Commissioning during the construction phase is intended to achieve the following specific objectives:

1. Verify that applicable equipment and systems are installed according to the manufacturer's recommendations and to industry accepted minimum standards and that they receive adequate operational checkout by installing contractors.
2. Verify that systems are installed in accordance with the Owner's Project Requirements (OPR)
3. Verify and document proper performance of equipment and systems.
4. Verify that operating and maintenance (O&M) documentation is complete.
5. Verify that the Owner's operating personnel are adequately trained.

E. Commissioning shall comply with and follow ASHRAE Guideline 0 and 1.

F. The goal of this project is to achieve LEED Gold certification.

G. Systems to be commissioned: Refer to related sections for a listing of the commissioned systems.

H. Commissioning Team: The members of the commissioning team consist of the following

1. Commissioning Provider (CxP)
2. The designated representative(s) of the Owner
3. The General Contractor (GC)

4. The Subcontractor (Sub)
5. The Architect (A/E)
6. The design engineers or Engineer of Record (EOR), particularly the mechanical engineer
7. The Mechanical Contractor (MC)
8. The Electrical Contractor (EC)
9. The Testing, Adjusting, and Balancing (TAB) representative
10. The Controls Contractor (CC) installing the DDC Control System
11. Any other installing subcontractors or suppliers of equipment
12. The Owner's building or plant operator/engineer

1.4 DEFINITIONS AND ABBREVIATIONS

A. Terms used in this section shall have the following meanings:

1. "As Built" drawings – Fully dimensioned, to-scale, drawings that present an accurate representation of the components and assemblies as they exist in the built Work; where allowed by other Division 1 specification sections these can be legible hand marks on hard copies of drawings kept on the job site.

2. "Basis of Design" (BOD) – A document developed by the design team that details all assumptions made during the creation of the construction documents in order to meet the Owner's Project Requirements (OPR).

3. "Commissioning" – A quality assurance process to provide documented verification that the building equipment and systems function in compliance with criteria established in the project documents to satisfy the Owner's operational needs. Commissioning begins prior to the design phase and is continuous through the life of the facility.

4. "Equipment" or "Systems" – Collectively or separately these are part of the Work consisting of materials, systems, components, and assemblies intended or designed to be part of the building and include any labor or process required by the Contract Documents related to that part.

5. "Contractor's Equipment" – All or any apparatus, machinery, equipment, vehicles, materials, plant, tools and all other items required for the Work, design services, procurement activities, or the remedying of defects but not to become part of the finished Work.

6. "Contractor Start-up" – The original check by the contractor and/or manufacturer's representative of the installation and operation of a component or system. This is often completed with the aid of checklists provided by the installing contractor or manufacturer.

7. "Corrective Action" – An activity intended to correct a non-conforming item or action, or to prevent further recurrences of non-conformities.

8. "Functional Performance Testing" – Tests to confirm the proper operation of a fully installed system for operation. Tests verify operation both individually and in conjunction with other systems.

9. "Inspection" – Any activity taken in accordance with project documents to formally or officially view, examine, measure, test, or gauge one or more characteristics of an approved material, procedure, product, or service against the specified requirements.

10. “Material Test Certificate” – An approved test result’s document from either the source of materials or directly from the manufacturer or an independent agency.

11. “Non-Destructive Test” means any test whereby the integrity or conformity of a material item can be assessed without resorting to a destructive procedure for analysis.

12. “Owner’s Project Requirements” (OPR) – A document developed by the Design team that details all assumptions made during the creation of the construction documents in order to meet the Owner Requirements.

13. “Pre-Functional Checklist (Construction Checklist)” – On-site verification of the existence and installation of equipment, materials, and or systems as required in the contract documents. The checklists serve as written notification from the contractor to the CxP that the related piece of equipment is ready for functional testing.

14. “Review” – Verification of documents, reports, work, or any item submitted for approval in accordance with Technical Specifications Schedule 6 [Review Procedure] as called for in the Contract or as Owner's Representative may require.

15. “Sampling Rate” – The percentage or quantity of components, equipment, or systems that will be witnessed by the Owner, and/or Commissioning Provider to ensure compliance with the Owner’s Project Requirements and contract documents.

16. “Short-Term Diagnostic Testing” – The use of short term or temporary testing to verifying system operation through sampling a systems ability to perform as designed.

17. “Third Party Inspection” – A service provided by a recognized independent agency employed by the Owner, or project team to oversee inspections and tests of materials, as required by the customer or his representative.

18. “Witness” – The authorized and/or nominated personnel from the Subcontractor, Contractor, CDB, Third Party Inspector, or vendor representative who observes or participates in the inspection and/or testing of an item to determine acceptability, in accordance with the Accepted and Endorsed Inspection & Test Procedure (ITP).

B. The following is list of abbreviations:

1. BOD: Basis of Design
2. CxP: Commissioning Provider
3. Cx: Commissioning
4. EOR: Engineer of Record
5. FPT: Functional Performance Test
6. FTS: Functional (Performance) Test Script
7. GC: General Contractor
8. O&M: Operations and Maintenance
9. OPR: Owner’s Project Requirements
10. PFC: Pre-Functional Checklist
11. SOR: Site Observation Report
12. TAB: Testing, Adjusting, and Balancing
13. TS: Technical Specifications

1.5 REFERENCE STANDARDS: The referenced sections of the following publications form a part of these Specifications; comply with provisions of these publications except as otherwise indicated or specified:

A. ASHRAE Guideline 0 and Guideline 1

B. Green Building Design and Construction; LEED Reference Guide for Green Building Design and Construction, published by the U.S. Green Building Council.

1.6 COMMISSIONING PROVIDER (CxP)

A. The Commissioning Provider and/or agency will be selected and employed by the Owner. The commissioning provider shall not be associated with or be employed by the Architect, the GC, or a sub-contractor

B. The Commissioning Provider for this project is dbHMS.

C. The CxP will create the following deliverables:

1. A Commissioning Plan
2. Pre-functional Checklists for specific systems and equipment
3. Functional Performance Test Procedures for specific systems and equipment.
4. Field Observation Reports (18 site visits prior to functional testing)
5. Issues Log in on-line or other form
6. Current Facilities Requirements & Operations & Maintenance Plan
7. Final Commissioning Report

D. The primary role of the CxP is to write a commissioning plan and coordinate the execution of it. In doing so the CxP will observe and document equipment installation and performance and note when systems are not functioning in accordance with the OPR and in accordance with the Contract Documents.

E. The CxP is not responsible for design concepts, design criteria, compliance with codes, design or general construction scheduling, cost estimating, or construction management.

F. The CxP may assist with problem solving, non-conformance or deficiencies, but ultimately the responsibility to clarify the design intent lies with the EOR and the responsibility to solve deficiencies or non-conformance with the Contract Documents resides with the GC.

G. The CxP shall attend and record results for up to two (2) FPTs for any given system or piece of equipment. The cost for the CxP's time for attending and recording results for tests beyond two tests shall be charged to the GC by Change Order when those costs meet the criteria set forth in Part 3 of this specification under "Cost of Re-testing".

H. Limits to the responsibility of the CxP:

1. Nothing stated in this section shall be construed to transfer responsibility for the design of the building to the CxP nor to relieve the EOR of responsibility for the design.
2. Nothing stated in this section shall be construed to relieve the General Contractor of responsibility for the means and methods of construction, scheduling and coordination of construction activates, and on-the-job safety.

1.7 COMMISSIONING PLAN

A. The commissioning plan is prepared by CxP and expands and makes more specific the information contained here. The commissioning plan is issued by the CxP prior to or at the Kickoff Meeting. Contractor and sub-contractors shall comply with the provisions of the Commission Plan. In the event of a conflict between the Commissioning Plan and these specifications, the Specifications shall govern.

B. Schedule dates provided in the Commissioning Plan are tentative and shall be confirmed by the General Contractor and the responsible sub-contractors by inclusion in the project master schedule.

1.8 SUBMITTALS

A. Comply with the Division One Submittals section of these specifications.

B. Obtain from the CxP a list of submittals required by the CxP for review

C. The CxP will review submittals related to the commissioned systems only, and only with regard to the following aspects:

1. Conformance to the contract Documents as they relate to the commissioning process.
2. The functional performance of the systems as they relate to the OPR.
3. The adequacy of the components and arrangements for developing test procedures for the commissioning process.

D. The review by the CxP of submittals is intended only to aid in verifying compliance with the OPR and for the development of functional testing procedures. The review by the CxP does not verify compliance with the EOR's design intent, the specifications, or Contract Documents. The CxP will not stamp, sign or return hard copies of submittals but will mark submittals showing any items missing, any issues found, or areas that are not adequate for commission purposes and which require resubmission and will return electronic copies through the established channels.

E. Maintain a submittal log and copy the CxP on the log at least once every two weeks.

F. Provide submittals that are specific to this Work and that are marked to show actual materials, methods, options, dimensions, formulas, and other characteristics to be provided. "Generic" web-based PDF files without the appropriate marks and un-edited sales brochures, etc. will be returned by the CxP with the recommendation that they be rejected.

G. Ensure concurrent submittals for related equipment; that is, equipment that relies on controls or interaction with other equipment shall be submitted for review at the same time as that equipment. In that way, the CxP and the EOR can review each component while having access to information for related systems.

H. For re-submittals comply with the following. (Re-Submittals that do not comply will be returned by the CxP with the recommendation that they be rejected.):

1. "Bubble" or "cloud" all changes from the previous submittal to clearly indicate what has changed.
2. Keep all sheet numbers the same
3. It is permitted to omit sheets that have not changed but do not re-number sheets.
4. Keep all drawing, schedules, and detail numbers the same

5. Keep all drawings and details on the same sheet as they were originally issued.

I. Submit Installation Instructions and O & M manuals for the commissioned components within 60 days of their acceptance by the EOR, not at the end of the project. (These are necessary for system commissioning) Provide the following:

1. Full warranty information, including clear identification of the Owner's responsibilities to keep the warranty in force.
2. The installation instructions and safety sheets that are actually shipped with the equipment or systems.

J. O&M manual required as submittals do not replace final O&M manual documentation requirements listed in Part 3 of these specifications

PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

A. All standard testing equipment required to perform startup and initial checkout and required functional performance testing shall be provided by the Division contractor for the equipment being tested.

B. Special equipment, tools and instruments (only available from vendor, specific to a piece of equipment) required for testing equipment, according to these Contract Documents shall be included in the base bid price to the Contractor and left on site.

C. All testing equipment shall be of sufficient quality and accuracy to test and/or measure system performance within the tolerances specified in the Owner's Project Requirements document. If not otherwise noted, the following minimum requirements apply: Temperature sensors and digital thermometers shall have resolution of 0.1 degrees F and calibration within 6 months of use to an accuracy of ±0.5 degrees F. Pressure sensors shall have been calibrated within 6 months of use to an accuracy of ±3.0% of the value being measured (not full range of device).

1. All calibration shall be to NIST traceable standards. (National Institute of Standards and Technology - www.nist.gov, 301-975-6478).
2. All equipment shall be calibrated according to the manufacturer's recommended intervals and immediately after being dropped or damaged.
3. Calibration tags shall be affixed or certificates readily available.

2.2 EQUIPMENT FOR ACCESS

A. Provide means for the CxP to access, observe, touch, and visually confirm proper operation of all equipment and systems. These means shall be in compliance with all OSHA and job-site safety regulations.

PART 3 - EXECUTION

3.1 GENERAL

A. Execute the Work of this section and allocate work to GC, sub-contractors, and suppliers as appropriate and at the discretion of the GC understanding that ultimate responsibility lies with the GC.

B. Provide coordination between all construction and supply entities so as to provide a complete and functional commissioning as required here and in conformance with the referenced standards.

C. Any References to “sub-contractor” or “supplier” responsibilities are for convenience in dividing and organizing language and are not intended to allocate Work and shall not remove ultimate responsibility from the GC

3.2 SCHEDULING COMMISSIONING

A. Maintain a master project schedule as specified in other Division One sections and ensure, in coordination with the Cx Plan and CxP, that Cx activities are included in detail. Inform the CxP of discrepancies between the project schedule and the Cx Plan.

B. Integrate all commissioning activities into the master schedule. Obtain sufficient notice of schedule changes from the CxP to update the commissioning activities schedule.

C. At least once a month, publish an overall project schedule with the commissioning milestones included.

1. Ensure that the schedule includes the steps that must proceed and follow the system installation.
2. Ensure that all systems tests are included in the schedule.

D. Notify the CxP when commissioning activities, not yet performed or scheduled, will delay construction.

E. Inform the CxP in writing on a weekly basis of the status of activities that affect the commissioning process; this may be accomplished by copying the CxP on job minutes provided they have the necessary detail.

3.3 GENERAL REQUIREMENTS

A. General Contractor (GC)

1. Include the cost of assisting with the commissioning process in the contract price.
2. Ensure that sub-contractors perform their commissioning responsibilities.
3. Furnish a copy of all construction documents, addenda, change orders and approved submittals and shop drawings related to commissioned equipment to the CxP.
4. In each purchase order or subcontract written, include the requirements for submittal data, O&M data, commissioning tasks and training.
5. Ensure that all subs execute their commissioning responsibilities according to the Contract Documents and schedule.
6. Prepare O&M manuals, according to the Contract Documents, including clarifying and updating the original sequences of operation to as-built conditions.
7. Submit O&M manuals to the CxP for review within 60 days of acceptance of equipment submittals by EOR.
8. Designate a representative who shall attend a commissioning kickoff meeting and other necessary meetings scheduled by the CxP to facilitate the Commissioning process.
9. Change Orders for Commissioning Costs: Prepare a deduct Change Order for the cost incurred by the CxP for attending and recording results of field testing when those costs meet the criteria set forth in Part 3 of this specification under “Cost of Re-testing”.

B. Division Sub-Contractors

1. The commissioning responsibilities applicable to each of the subcontractors are generally as follows (all references apply to commissioned equipment only). Specific requirements may be shown in the appropriate Divisions.
2. Construction and Acceptance Phases

    a. Attend a commissioning kickoff meeting and other meetings necessary to facilitate the Commissioning process.
    b. Assist, along with the EOR, in defining the operation and control of commissioned equipment in areas where the specifications, control drawings or equipment documentation are not sufficient for writing detailed testing procedures.
    c. Review test procedures prepared by the CxP to ensure feasibility, safety and equipment protection and provide necessary written alarm limits to be used during the tests.
    d. Develop a full start-up and initial checkout plan using manufacturer's start-up procedures and the pre-functional checklists from the CxP for all commissioned equipment. Submit the plan to CxP for review prior to startup.
    e. During the startup and initial checkout process, execute the pre-functional checklists for all commissioned equipment. Submit Construction (Pre-functional) checklists a minimum of five days prior to the start of functional performance testing.
    f. Perform and clearly document the completed startup and system operational checkout procedures, providing a copy to the CxP.
    g. Deliver factory representative test result reports to the CxP.
    h. Address current A/E punch list items before functional testing.
    i. Provide skilled technicians to execute starting the equipment and to execute the functional performance tests. Ensure that the individuals are available and present during the agreed-upon schedules and for sufficient duration to complete the necessary tests, adjustments and problem solving.
    j. Provide all tools or the use of tools to start, checkout and functionally test equipment and systems, except for testing equipment supplied and installed by the CxP.
    k. Correct deficiencies, differences between specified and observed performance, as reported by the CxP or as directed by the Owner's representative. Retest the equipment.
    l. Update O&M manuals, according to the Contract Documents, including clarifying and updating the original sequences of operation to as-built conditions. Submit a copy of the complete O&M manual to the CxP for review and approval prior to the final submission to the Owner.
    m. Prepare redline as-built drawings for all design drawings and final as-builds for contractor-generated coordination drawings.

3.4 FLUSH AND FILL PLAN VERIFICATION

A. Develop a Flush & Fill plan identifying the method and schedule for the process completion. Items within the plan include locations, techniques, and required corrective actions taken should unexpected results occur. The plan submitted to the Owner and CxP for review 60 days before proceeding with the process.

3.5 TEST AND BALANCE VERIFICATION

A. Submit TAB plan to the Owner and CxP for review 60 days prior to task occurring. Review the TAB plan and mark it with a GC stamp indicating your comments and acceptance of the plan and forward to the Owner and CxP at least 60 days prior to the first TAB tasks. Include TAB actions in the overall project schedule. The TAB Plan includes expected method of progression, balancing techniques, corrective actions, and other items of significance.

B. Become familiar with the Test and Balance procedures and requirements specified in Division 23.

C. Provide the labor and test equipment necessary to demonstrate to the CxP that the air and water systems have been properly balanced.

D. The CxP will randomly select devices, equipment and systems for verification purposes.

E. The GC shall regard this verification process as a functional performance test for purposes of time allowed to correct deficiencies and requirements regarding retesting if major problems are discovered.

F. Verify that Test and Balance has been completed in accordance with Division 23 specifications and obtain a copy of the test and balance report from the TAB contractor. Forward the report to the EOR and CxP for review.

3.6 START-UP AND PRE-FUNCTIONAL CHECK LISTS

A. Prepare a start-up plan for each piece of equipment including the following:

1. The manufacturer's standard start-up and check out procedures copied from the installation instructions.
2. The subcontractor's standard start-up and check out procedures.
3. Pre-functional checklists provided by the CxP.
4. Checklists and procedures with specific spaces for recording and documenting the inspection of each procedure and a summary block for deficiencies and explanations.

B. Submit startup plan to CxP for review and obtain approval before proceeding. Include final startup report signature block provided by CxP.

C. Incorporate this equipment start-up date in overall start-up schedule for the project.

D. Perform start-up testing for each piece of equipment to ensure that the equipment and systems are properly installed and ready for turnover to the Owner.

E. The CxP and/or Owner may be present for the start-up of the equipment. For lower-level components of equipment or for similar equipment present in large quantities, the CxP may observe a sampling of the pre-functional and start-up procedures. The sampling procedures are identified in the commissioning plan.

F. Identify individuals that have direct knowledge of, and have witnessed, that a line item task on the pre-functional checklist was actually performed. Ensure that these individuals, and only these individuals, are the ones to initial or check-off that item on the pre-functional checklist.

G. Ensure that start-up and pre-functional checklists are completed on the job-site concurrent with the activities being documented. Checklists that are found to have undergone remedial documentation either off-site or after the procedures have been completed will be rejected by the CxP.

H. Ensure that checklists are complete, accurate, and fully legible to the CxP's satisfaction.

I. Where checklists are rejected by the CxP due to non-compliance with "G" and "H" above, repeat the procedure or test and prepare new checklists at no additional cost to the Owner.

J. Submit the completed start-up checklists, reports and equipment pre-functional checklists to the CxP for review. Note all noncompliance items on these checklists. Notify the CxP when outstanding items have been corrected.

K. Submit satisfactory completed start-up checklists to the CxP a minimum of five working days prior to the start of functional performance testing.

3.7 FUNCTIONAL TESTING PREPARATION

A. GC's signature on the final start-up checklists signature block shall constitute certification by the GC that:

1. Commissioned systems, subsystems, and equipment have been installed, calibrated, and started and are operating according to the Contract Documents.
2. Commissioned instrumentation and control systems have been completed and calibrated, that they are operating according to the Contract Documents, and that pretest set points have been recorded.
3. Testing, adjusting, and balancing procedures have been completed and reports of same have been submitted, discrepancies corrected, and corrective work approved.
4. GC agrees to a deduct change order as follows:

    a. In the event that the CxP arrives on site and determines that equipment and systems are not in the condition certified, the CxP shall inform the Contractor of a wasted trip and provide an itemized list of expenses associated with the trip. The Contractor shall prepare a deduct Change Order to the Contract for costs incurred by the CxP and execute it under the provisions of other Division One sections.

5. GC agrees to commencement of procedures listed below under "Cost of Retesting"

3.8 FUNCTIONAL PERFORMANCE TESTING

A. Provide all documentation as requested to the CxP for development of functional performance testing procedures. This documentation shall include, at a minimum, manufacturer's installation, start-up, operation and maintenance procedures. The CxP may request further documentation as necessary for the development of functional performance tests.

B. Review the functional performance test scripts developed by the CxP.

1. Respond in writing to the CxP regarding the acceptability of the proposed test scripts
2. Note any necessary modifications to the scripts due to the actual equipment/systems or safety concerns and submit these to the CxP for consideration.

C. Place equipment and systems into operation and continue the operation as required during each working day of the testing activities.

D. Accomplish the functional performance testing of equipment based on scripts developed by the CxP and as reviewed by the GC.

1. Provide access to the equipment in compliance with OSHA regulations.
2. Provide, to the CxP, access to The Building Automation System by way of passwords, web-based access, and access on site via temporary or permanent front-end computer and equipment.
3. Provide skilled technicians to operate the systems during functional performance testing.

4. Correct any deficiencies identified during testing and retest equipment as required.
5. For lower-level components of equipment or for similar equipment present in large quantities, the CxP may perform functional testing of a sampling of equipment. The sampling procedures are identified in the commissioning plan.

E. Functional performance testing is intended to begin upon completion of a system. Functional testing may proceed prior to the completion of the system at the discretion of the CxP only.

F. Verify all sequences of operation defined in the Contract Documents for the commissioned equipment and systems.

1. Perform testing by overriding set points or sensor readings at the DDC System or by other means mutually agreed to by the Contractor, the CxP and the Owner, to initiate sequences of operation and verifying the response of the system.

G. Upon successful completion of all functional performance tests, perform Integrated Systems Testing. The testing shall document and verify the proper response of the overall HVAC systems.

H. Provide technicians, instrumentation, and tools to perform commissioning test at the direction of the CxP.

I. Scope of HVAC&R testing shall include entire HVAC&R installation, from central equipment for heat generation and refrigeration through distribution systems to each conditioned space. Testing shall include measuring capacities and effectiveness of operational and control functions.

J. Test all operating modes, interlocks, control responses, and responses to abnormal or emergency conditions, and verify proper response of building automation system controllers and sensors.

K. The CxP along with the HVAC&R Contractor, testing and balancing [Subcontractor], and HVAC&R Instrumentation and Control Subcontractor shall prepare detailed testing plans, procedures, and checklists for HVAC&R systems, subsystems, and equipment.

L. Tests will be performed using design conditions whenever possible.

M. Simulated conditions may need to be imposed using an artificial load when it is not practical to test under design conditions. Before simulating conditions, calibrate testing instruments. Provide equipment to simulate loads. Set simulated conditions as directed by the CxP and document simulated conditions and methods of simulation. After tests, return settings to normal operating conditions.

N. The CxP may direct that set points be altered when simulating conditions is not practical.

O. The CxP may direct that sensor values be altered with a signal generator when design or simulating conditions and altering set points are not practical.

P. If tests cannot be completed because of a deficiency outside the scope of the HVAC&R system, document the deficiency and report it to the Owner. After deficiencies are resolved, reschedule tests.

Q. If the testing plan indicates specific seasonal testing, complete appropriate initial performance tests and documentation and schedule seasonal tests.

3.9 DOCUMENTATION, NON-CONFORMANCE AND APPROVAL OF TESTS

A. Documentation. The CxP shall witness and document the results of functional tests using the specific Functional Test Scripts (FTS) developed for that purpose. Prior to testing, these scripts are provided to the GC for review and approval and to the Subs for review. The CxP will include the filled out scripts in the Commissioning Report.

B. Non-Conformance.

1. The CxP will record the results of the functional test on the FTS form. All issues of non-conformance shall be noted.
2. Corrections of minor issues of non-conformance identified may be made during the tests at the discretion of the CxP. In such cases the issues of non-conformance and resolution will be documented on the FTS form.
3. Make every effort to expedite the testing process and minimize unnecessary delays, while not compromising the integrity of the procedures.
4. As tests progress and non-conformance issues are identified, the CxP will discuss and log issues.

    a. When there is no dispute on the non-conformance issue and the Sub accepts responsibility to correct it:
        1) The CxP documents the deficiency and the Sub's response and intentions and they go on to another test or sequence.

    b. If there is a dispute about a non-conformance issue, regarding whether it is a non-conformance issue or who is responsible:
        1) The non-conformance issue shall be documented as an issue and assigned to a assumed responsible party.
        2) Resolutions shall be made at the lowest management level possible. Other parties are brought into the discussions as needed. Final interpretive provider is with the A/E. Final acceptance provider is with the Owner.
        3) The CxP documents the resolution process in the Issues Log.
        4) Once the interpretation and resolution have been decided, the appropriate party corrects the deficiency and provides a written response in the Issues Log documenting the resolution. The CxP reschedules the test and the test is repeated until satisfactory performance is achieved.

5. Provide written response to each issue recorded in the Issue Log provided by the CxP. Update these responses at least as often as commissioning meetings are being scheduled. Outline the status of each apparent outstanding discrepancy identified during commissioning. Discussion shall cover explanations of any disagreements and proposals for their resolution.
6. The CxP retains the original FTS forms until the end of the project.

C. Failure Due to Manufacturer Defect. If 10%, or three, whichever is greater, of identical pieces (size alone does not constitute a difference) of equipment fail to perform to the Contract Documents (mechanically or substantively) due to manufacturing defect, not allowing it to meet its submitted performance spec, all identical units may be considered unacceptable. In such case, the GC shall provide the Owner with the following:

1. Within one week of notification, the GC or manufacturer's representative shall examine all other identical units making a record of the findings. The findings shall be provided within two weeks of the original notice.

2. Within two weeks of the original notification, the GC or manufacturer shall provide a signed and dated, written explanation of the problem, cause of failures, etc. and all proposed solutions which shall include full equipment submittals. The proposed solutions shall not significantly differ from the specification requirements of the original installation.
3. The Owner will determine whether a replacement of all identical units or a repair is acceptable.
4. Upon acceptance, the GC and/or manufacturer shall replace or repair all identical items, at their expense and extend the warranty accordingly, if the original equipment warranty had begun. The replacement/repair work shall proceed with reasonable speed beginning within one week from when parts can be obtained.

D. Approval. The CxP notes each satisfactorily demonstrated function recommends acceptance of each test on the FTS form. The Owner gives final approval on each test using the same form, providing a signed copy to the CxP and the Contractor.

3.10 TRACKING OF ISSUES – ISSUES LOG

A. The CxP will create and maintain a log of issues related to the building systems in an on-line web site or other means that allows all members of the team to:

1. View the issues and related photos and documents
2. Read any responses
3. Write responses when the issue is assigned to them

B. All issues will be assigned to a member (or members) of the team by the CxP in a way that will allow them to respond in writing to the issue and provide photos and documents as part of their response.

C. For those issues assigned to the GC, sub-contractor or supplier:

1. Respond in writing to the issue, as a minimum, within 10 working days of its published date or the date of any subsequent comment by the CxP.
2. If work on resolving an issue is in progress, indicate this in writing
3. Ensure the sub-contractors provide information required to solve the issue.

D. Periodically, all issues open and not responded to within 10 working days will be submitted to the Owner as delinquent. The CxP reserves sole discretion in determining the status of issues, e.g. “open”, “ready for verification”, or “closed”.

E. The Owner may increase the retainage percentage for sub-contractors with an unacceptable number of open issues where written responses are not up-to-date.

3.11 COST OF RETESTING

A. The cost for the Subcontractor to retest a pre-functional or functional test, if they are responsible for the non-conformance issue, shall be theirs.

B. First two functional tests: The CxP shall attend and record results for up to two (2) functional tests for any given piece of equipment as part of the CxP’s normal scope.

C. Beyond two tests: The cost for the CxP’s time for attending and recording results for tests beyond two tests shall be charged to the General Contractor by Change Order when:

1. The deficiency is due to deficient work by responsible contractors and

2. That work has been recorded as deficient by the CxP and
3. That work remains uncorrected or the contractor has failed to adequately respond to commissioning comments after the first two tests.

3.12 CURRENT FACILITIES REQUIREMENTS & OPERATIONS & MAINTENANCE PLAN

A. The following O&M manual requirements do not replace O&M manual documentation requirements elsewhere in these specifications.

B. For each Division compile and prepare documentation for all equipment and systems covered in that Division for inclusion in the final O&M manuals.

1. Field checkout sheets and logs should be provided to the CxP.
2. All documentation shall be made specific to this project by permanently marking "generic" manufacturer's O&M manuals to indicate exactly which models and options are included in the Work of this project.

C. Deliver the final O&M manuals to the CxP for review at least 60 days prior to scheduled training.

D. Review and Approvals. Review of the commissioning-related sections of the O&M manuals shall be made by the A/E and by the CxP.

3.13 TRAINING OF OWNER PERSONNEL

A. Prepare a training outline and submit to CxP for comment and approval.

3.14 DEFERRED FUNCTIONAL PERFORMANCE TESTING

A. Perform any deferred testing as required to properly demonstrate successful operation to the Owner.

1. Some test conditions may not be able to be simulated and thus require these actual conditions to be present to implement and test.
2. A mutually convenient time to Owner, CxP and Contractor will be scheduled when these test conditions will be present to conduct this deferred testing.
3. Perform these tests as indicated in the functional performance test procedures.

B. Correct any deficiencies or failures identified in the process of performing these tests.

3.15 WARRANTY PERIOD

A. Execute seasonal or deferred functional performance testing, witnessed by the CxP, when specified as part of the commissioning process or called for in the Commissioning Plan.

B. Correct issues of non-compliance and make necessary adjustments to O&M manuals and as-built drawings for applicable issues identified in any seasonal testing.

C. Ensure that Subs correct items of non-compliance and make necessary adjustments to O&M manuals and as-built drawings for applicable issues identified in any seasonal testing or the 10-month review as required by the LEED Enhanced Commissioning guidelines.

END OF SECTION

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