SEPTEMBER 2020

Version 3

VOLUME 2

Standard Project Requirements

Queens Garage and Community Space

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Introduction

The following Volume 2, - Standard Project Requirements is intended to contain those Contract Requirements that must be followed by the Design-Builder with regard to the proper planning, design and construction of the Project. Specific scope and Technical Requirements are addressed under Volume 3 - Specific Project Requirements.

The Volume 2 requirements include guidelines, policies, procedural requirements, coordination requirements and management practices related to planning, scheduling, designing and the daily management and administration of the Project, in a manner that is most safe and most efficient.

The Standard Project Requirements provide a general overview to approaching project operations and documentations, environmental, sustainability and waste management, close out procedures, and commissioning requirements. Each article references other volumes of the Contract Document, which must be used for further detailed information.

Safety Requirements Procedures

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Article 1 Safety Requirements Procedures

1.1 Summary

This document serves as the Program Safety Guidelines for the Design-Builder as part of the NYC Borough Based Jails (BBJ) Program. These Program Safety Guidelines are supplementary to all government rules codes and regulations and do not negate, abrogate, alter, or otherwise change any provisions of these rules, codes and/or regulations. Nothing contained in these Program Safety Guidelines will relieve the Design-Builder of the sole and exclusive responsibility for safety in all phases of their work.

It is of the highest priority that all employees on this Project maintain a safe and healthy working environment in order to prevent any safety, health and environmental related incidents. All Program participants must treat health and safety at work as a matter of paramount importance.

1.2 Policy

The policy of the Program is to adhere to these Guidelines as well as Federal, State, and City rules and regulations. The goal of the Program is to eliminate injuries, illnesses, accidents, near misses, unsafe acts and unsafe conditions by adopting safe work practices. All Program participants must assure that safe work practices are communicated to and properly understood by everyone involved in the Program.

The objectives of this Program include the following:

a. Zero work-related injuries, illnesses, incidents.

b. Protecting the Public around the projects.

c. Preventing adverse impacts to the environment.

d. Securing all permits in a timely manner.

e. Delivering safe facilities to operate.

f. Staffing the project with fully trained and certified personnel

g. Timely and accurate reporting.

All Program participants must remain committed to a "Positive Culture of Safety" throughout the execution of the Program. The strategy to achieve this end is building a strong foundation with:

a. Adherence to Program Safety Guidelines.

b. Development and submittal of an acceptable Site-Specific Safety Plan.

c. Well-developed Job Hazard Analysis (JHA) for all work tasks.

d. Providing proper training.

e. Conducting daily job safety briefings.

f. Recognizing, minimizing and eliminating jobsite and public hazards through planning, inspection, verification, and corrective action processes.

1.3 Definitions

Accident: any fatality; any injury to a member of the general public; any work-related injury or illness to a DDC employee, a DDC Consultant Support Team employee, or a Design-Builder employee resulting in medical treatment beyond first aid; any collapse or other catastrophic failure of a building structure, trench, roadway or construction equipment regardless of injuries.

Competent Person: As defined by OSHA, an individual who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees or the general public, and who has authorization to take prompt corrective measures to eliminate them. This individual will have completed, at a minimum an authorized 30-hour OSHA Construction Safety Course. The Design-Builder may be required to provide more than one competent person due to construction operations and based on the number of active work sites.

DDC Construction Safety Auditor: A representative of the DDC Office of Construction Safety who provides inspection and assessment services to enhance health and safety on all the BBJ projects. The activities of the DDC Construction Safety Auditor may include performing site audits, reviewing safety plans, reviewing construction permits, drawings, verifying Design-Builder's compliance with applicable federal, state and city laws, rules, regulations, and Program Safety Guidelines.

Critical Safety Condition: An imminent safety hazardous condition, which may result in or could be expected to contribute towards personal injury, identified by Project Staff, general public, Design-Builder staff, NYC Department of Buildings (DOB), or other City, State or Federal Agency; Any hazardous spill which may include but are not limited to: chemicals, contaminated soil, water, waste and other environmental hazards; A Stop Work Order issued by NYC DOB, or other City, State, or Federal Agency; Any Federal Agency site inspection/visit.

Daily Safety Job Briefing: Daily safety job briefings are talks given to all jobsite personnel by the Design-Builder before work begins and/or if hazards are discovered while working, with the purpose of discussing the scheduled activities for the day, the hazards related to these activities, activity specific safety procedures and after, review of the Job Hazard Analysis associated with the construction work. Daily safety job briefings will be documented, available at the jobsite, and will include at a minimum, the topic(s) covered, name and signature of the person conducting the briefing session, names and signatures of attendants, name of the designated competent person, Design-Builder's name, project ID, date time and location.

Incident: Any work-related injury or illness to a DDC or Design-Builder employee requiring first aid; Property damage caused by a construction related activity.

Job Hazard Analysis (JHA): A process of identifying the major job steps and any potential site-specific hazards that may be present during construction and establishing the means and methods to eliminate or control those hazards. A JHA will be documented, available at the jobsite and will include at a minimum work tasks being performed, identified hazards, control methods for the identified hazards, Design-Builder's name, project ID, location, date, name and signature of certifying person. A JHA is a living document that will be re-evaluated and revised to address new hazards and tasks that may develop.

Qualified Person: As defined by OSHA, an individual who, by possession of a recognized degree, certificate, license or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his or her ability to solve problems relating to the subject matter, the work, or the project. Qualified Persons are required under regulation to address issues pertaining, but without limit, to fall protection, scaffold design and trenching and shoring, among others.

Project Safety Representative: As defined under Exhibit 9 – "Key Personnel/Key Subcontractors" of the Design-Build Agreement.

Safety Questionnaire: A DDC form to be completed by the Design-Builder as an aid to the DDC in evaluating the Design-Builder's current and past safety performance. It is required to be completed and submitted by the Design-Builders initially with its initial Site Safety Plan and updated annually, or more frequently as required by the DDC.

Site Safety Plan: A Site-specific Safety Plan must be developed by the Design-Builder for a Borough Based Jails project. The Site Safety Plan will identify hazards associated with the project and include specific safety procedures and training appropriate and necessary to complete the work. The Site Safety Plan must be submitted within 30 days from the Award Date or as otherwise directed and is subject to review and acceptance by the DDC prior to the commencement of work at the site. All accepted Design-Builder Site Safety Plans must be submitted to the DDC Office of Construction Safety. The DDC Office of Construction Safety reserves the right to review the accepted Site Safety Plans and request changes where required.

Unsafe or Unhealthy Condition: A condition that could be potentially hazardous to the health and safety of personnel or the public, and/or damaging to equipment, machinery, property or the environment.

Weekly Safety Meetings: Weekly jobsite safety meetings, given to all jobsite personnel by Design-Builder, with the purpose of discussing general safety topics and job specific requirements encountered at the work site. Weekly safety meetings are to be documented and will include at a minimum, topics, name and signature of the person conducting the meeting, names and signatures of attendees, Design-Builder's name, DDC project ID, date and location.

1.4 Regulatory Requirements

The Design-Builder and any of their subconsultants, contractors and suppliers will constantly and consistently enforce all applicable safety requirements of this Program along with all Federal, State, City and all other rules and regulations with specific attention to:

a. Program Safety Guidelines;

b. Code of Federal Regulations, Title 29, Part 1926 (29 CFR 1926) and applicable Sub-parts of Part 1910 – U.S. Occupational Safety and Health Administration (OSHA);

c. Federal Highway Administration - Manual on Uniform Traffic Control Devices (MUTCD);

d. New York codes, Rules and Regulations (NYCRR), Title 12, Part 23 – Protection in Construction, Demolition and Excavation Operations;

e. New York Codes, Rules and Regulations (NYCRR), Title 16, Part 753 – Protection of Underground Facilities;

f. New York City Administrative Code, Title 28 – New York City Construction Codes;

g. Rules of the City of New York, Title 15, Chapter 13 – Rules Pertaining to the Prevention of the Emission of Dust from Construction Related Activities;

h. Rules of the City of New York, Title 15, Chapter 28 – Citywide Construction Noise Mitigation;

i. Rules of the City of New York, Title 34, Chapter 2 – NYCDOT Highway Rules;

j. New York Building Code, Chapter 33;

k. New York City Fire Code.

The Design-Builder will be required to comply with all new and/or revised federal, state and city laws, rules and regulations, issued during the course of the project, at the expense of the Design-Builder without any additional costs to the DDC.

1.5 Responsibilities

All persons who manage, perform, and provide support for construction project will conduct operations in compliance with the requirements identified in this Program and all applicable governing regulatory agency requirements and guidelines pertaining to safety in construction.

The Design-Builder:

a. Promotes full integration of these Program Safety Guidelines into their daily operations.

b. Complies with all provisions of these Program Safety Guidelines, federal, state and city environmental, safety and health rules and regulations.

c. Submits a completed Safety Questionnaire and other safety performance related documentation with its proposal.

d. Submits a Site Safety Plan within 30 days from the Award Date or as otherwise directed. The Site Safety Plan is subject to review and acceptance by the DDC prior to the commencement of work at the site. All accepted Design-Builder Site Safety Plans be submitted to the DDC Office of Construction Safety. The DDC Office of Construction Safety reserves the right to review the accepted Site Safety Plans and request changes where required. The Site Safety Plan will be revised and updated as necessary during the course of the project.

e. Designates and identifies in the Site Safety Plan the Project Safety Representative who, in addition to other certification requirements identified under Exhibit 9 of the Design-Build Agreement must be a NYC DOB Licensed Site Safety Manager as defined in NYC Construction Codes – Title 28,

f. Designates and identifies Competent Person(s) in the Site Safety Plan. The Design-Builder and their subcontractors may be required to provide more than one Competent Person due to construction operators and based on a number of work tasks/areas. DDC reserves the right to request the Design-Builder to replace a Competent Person or provide additional Competent Person(s) for any reason at any during the course of the Project. The Competent person must be present at the site during all work activities.

g. Develops written Job Hazard Analyses (JHAs) that identify safety hazards and control methods for project specific work tasks. Preliminary JHAs will be included in the Site Safety Plan. JHAs are living documents that will be re-evaluated and revised to address new hazards.

h. Ensures that all employees are aware of hazards associated with the project through documented formal and informal training and/or other communications. Conducts and documents new employee and site-specific safety orientation for all Design-Builder personnel, to review the hazards associated with the project as identified in the Site Safety Plan and the specific safety procedures and controls that will be used to protect workers, the general public and property. The Project Safety Representative will conduct

i. this training prior to mobilization and if necessary, during the course of the project. Documentation must be provided to the DDC in the Monthly Safety Reports and immediately as requested.

j. Conducts and documents weekly safety meetings and daily job briefing sessions for the duration of the project. Attendance at weekly safety meetings and daily job briefing sessions is mandatory. Written records of weekly safety meetings and daily job briefings must be made available for each trade to the DDC immediately upon request

k. As part of the Site Safety Plan, prepares site specific procedures, such as maintenance and protection of traffic plans, erection plans, confined space programs, fall protection plans, demolition plans, site specific emergency evacuation plans, etc., and comply with all of its provisions.

l. Have immediately available for review, at the project site where actual construction activities are being performed, all applicable documentation, including but not limited to: JHAs for work tasks being performed, all required training records, MPT plan, Noise and Dust Mitigation Plans, excavation protective system drawings, Emergency Action Plans, fall protection program, confined space program, all required permits, daily safety job briefing records, all required documentation for crane operations, daily inspection checklists, scaffold and sidewalk drawings, safety data sheets for chemicals in use.

m. Must comply with all federal, state, and local safety and health codes, laws, and regulations.

n. Must comply with all provisions of the Site Safety Plan.

o. Provides, replaces, and adequately maintains at or around the project site, suitable and sufficient signage, lights, barricades and enclosures (fences, sidewalk sheds, netting, bracing, etc.). The project specific MPT plan will be developed, implemented, and reviewed during the course of the project.

p. Must have the Project Safety Representative conduct daily safety inspections, document the inspection results, and implement corrective actions for the identified hazards. Maintain the inspection records and have them available upon request.

q. Reports unsafe or unhealthy conditions to the DDC as soon as practical, but no more than 24 hours after discovery, and take prompt actions to remove or abate such conditions. Should an imminent dangerous condition be discovered, the Design-Builder will stop all work in the area of danger until corrections are made. The DDC must be immediately notified of imminent dangerous conditions.

r. Report all accidents, incidents, near misses and property damage to the DDC within (1) hour.

Following an accident, must not remove or alter any equipment, structure, material, or evidence related to the accident. Exception: Immediate emergency procedures taken to secure structures, temporary construction, operations, or equipment that pose a continued imminent danger or facilitate assistance for persons who are trapped or who have sustained bodily injury.

a. Must notify the DDC immediately upon the start of an inspection by any outside regulatory agency personnel, including OSHA, NYC DOB or others.

b. Maintains all records pertaining to violations, accidents and injury reports.

c. Addresses DDC recommendations on safety, which will in no way relieve the Design-Builder of its responsibilities for safety on the project. The Design-Builder has sole responsibility for safety during the course of the project.

1.6 Safety Questionnaire

On an annual basis, or as requested by the DDC, the Design-Builder must provide information regarding their current and past safety performance and programs. This will be accomplished by use of the DDC Safety Questionnaire. As required or requested, the Design-Builder will submit a DDC Safety Questionnaire listing company workers' compensation experience modification rating and OSHA Incident Rate for the three (3) years prior to the date of bid opening. The DDC may request the Design-Builder to update its Questionnaire at any time or to provide more detailed information. The Design-Builder will provide the requested information within 15 days.

The following criteria will be used by DDC in reviewing the Design-Builder's responsibility, which will be based on the information provided on the questionnaire:

a. Criteria 1: OSHA Injury and Illness Rates are no greater than the average for the industry (based on the most current Bureau of Labor Statistics data for Design-Builders SIC Code; and

b. Criteria 2: Insurance workers compensation Experience Modification Rate (EMR) equal to or less than 1.0; and

c. Criteria 3: Any willful violation issued by OSHA or NYC DOB within the three (3) years, and

d. Criteria 4: A fatality (worker or member of public) and injuries, requiring OSHA notification, experienced on or near Design-Builder's worksite within the last three (3) years.

e. Criteria 5: Past safety performance on DDC projects (accidents; status of site safety plan submittals; etc.)

f. Criteria 6: OSHA violation history for the last three (3) years;

g. Criteria 7: Design-Builder will provide OSHA Injury and Illness Records (currently OSHA 300 and 300 A Logs) for the last three (3) years.

If the Design-Builder fails to meet the basic criteria listed above, the DDC and DDC may request more details concerning the Design-Builder's safety experience. The DDC and DDC may request the Design-Builder provide additional information including but not limited to copies of accident investigation reports, OSHA records, OSHA and NYC DOB citations, EPA citations and written corrective action plans.

1.7 Safety Staff

Project Safety Representative: Each project is required to have at least one Project Safety Representative who must possess a combination of safety and environmental skills needed to manage the hazards and issues presented by the project. See Exhibit 9 – "Key Personnel/Key Subcontractors" of the Design-Build Agreement for qualification requirements.

DDC retains the right to review the Design-Builder's proposed Project Safety Representative and can accept or deny the individual based on acceptable knowledge, skills, and ability.

Resumes, outlining the qualifications and experiences for the Project Safety Representative must be included in the Site Safety Plan and must be available upon request.

The Design-Builder must immediately notify the DDC of any permanent change to the designated Project Safety Representative. In the event the primary Project Safety Representative is temporarily unable to perform his or her duties, an alternate Project Safety Representative will be provided. The DDC must be notified of such change.

The Project Safety Representative must be present at the site during all work activities. No work is to be performed on site when a Project Safety Representative is not present

The Project Safety Representative must not have any other assigned duties.

The duties of the Project Safety Representative include the following:

a. Facilitate the daily job safety briefings.
b. Review Job Hazard Analysis.
c. Conduct training as necessary and/or verify training records.
d. Develop and conduct the new employee orientations program.
e. Develop and conduct the visitor orientations program.
f. Ensuring that staff on the project review and sign the project Site Safety Plan.
g. Walk the site daily to audit the site and identify hazards.
h. Place safety observations into a daily report.
i. Ensuring the inspection and testing programs for tools and equipment are established, implemented and routinely audited.

The Project Safety Representative Daily report must include the following:

a. Name of company

b. Name of Project Manager

c. Name of Competent Person

d. Weather, temperature, wind and humidity

e. Day of the week

f. Any Environmental, Safety or Health issues, observed violations, and corrective actions.

When the Project employs 100 or less employees on the Work site at any time, the Design-Builder must have at least one full-time site Project Safety Representative. The Project Safety Representative must have no other duties except those related to Safety on the Contract, and must not be the project manager, engineer, superintendent or have any other title or project role other than Project Safety Representative.

When the Project employs over 100 employees on the Work site at any time, the Design-Builder must have at least two full time Project Safety Representatives. These Safety Representatives must have no other duties except those related to safety on the Contract, and must not be project managers, engineers, superintendent, or have any other title or project role other than Project Safety Representative.

The Design-Builder must ensure that subcontractors who consistently employ over 100 employees for more than two weeks at a time under the Contract must have one full-time site Project Safety Representative. This Project Safety Representative must have no other duties except those related to safety on the Contract and must not be the Project Manager, Engineer, superintendent or have any other title or project role other than as Project Safety Representative.

If the Project has Work at more than one location, each location must be treated as a separate Project for purposes of determining the number(s) of necessary Project Safety Representatives.

The Design-Builder's safety staff must be provided an appropriate office on the Project Site to maintain and keep available safety records, up-to-date copies of all pertinent safety laws, rules, regulations and governing legislation, safety data sheets, and the Site Safety Plan.

1.8 Minimum Requirements for Personnel Protective Equipment (PPE)

The minimum PPE required to be worn on BBJ projects includes:

a. An ANSI/ISEA Z89.1 Hard Hat.

b. ANSI Z87.1 Eye Protection. Over the glasses or prescription protective eyewear is required.

c. High Vis Apparel - High visibility safety apparel" means personal protective safety clothing that is intended to provide conspicuity during both daytime and nighttime usage and that meets the Performance Class II or III requirements of ANSI/CSA standards.

d. ASTM F2412 or ASTM F2413 Protective Work Boots.

e. Full length trousers and shirts with sleeves.

The minimum PPE must be worn in all construction and operational areas, and in all other areas outside of office buildings and employee parking areas. Additional PPE may be required based on the task that is to be performed.

An employee's corporation affiliation must be readily identifiable by labeling on their hard hat or high vis vest, jacket or shirt.

Employees must inspect their required PPE prior to use. Defective equipment must be removed from service and replaced.

1.9 Job Hazard Analysis (JHA) Requirements

The JHA is a written document (s) to be prepared by the Design-Builder for all tasks on site, before the start of the work. The purpose of the JHA is to identify potential hazards before they occur, focusing on the relationship between the worker, the task, tools and the work environment. The Design-Builder must identify task steps and any potential safety health or environmental hazards related to performance of the work, eliminate or implement controls for the potential hazards, and identify proper personal protective equipment for the task. JHAs must be communicated to all personnel on site and be available at the work area for reference.

A JHA is a living document that must be re-evaluated and revised to address new hazards and tasks that may develop and must be present and produced upon request.

The JHA must include Name of Design-Builder, Activity, Location of Activity, Name of Person and signature of who Prepared the JHA, Start Date, details of Steps, Hazards, Controls, Equipment to be Used, PPE Required, and Training Requirements. All training documentation for employees working on the task must be attached to the JHA. Example of template including all requirements is as follows:

Design-Builder:	Activity:	Location:
JHA Prepared By:		
PPE Requirements:		
Equipment to be Used:		
Training Requirements:		
Steps to Perform Activity	Safety/Heath/Environmental Hazards	Controls
Place steps here	Place Hazards Here	Place Controls Here

JHAs for High Risk work must be submitted to the DDC for review at least one week before the start of the work. Medium to low risk JHAs must be made available upon request. If there is disagreement on risk level, the more stringent level will be followed.

1.10 Daily Job Safety Briefings

Daily jobsite safety briefing must be given to all jobsite personnel by the Design-Builder with the purpose of discussing project specific safety procedures for the scheduled construction work. The daily job safety briefing must occur prior to each shift or when new hazards are discovered while working.

At a minimum, the daily job site safety briefing will discuss the scheduled work activities for the day/shift, the hazards related to these activities, safety issues from the previous day and any applicable lessons learned.

Once the daily jobsite safety briefing is completed, the person conducting the briefing session must ask whether any staff have questions.

The daily jobsite safety briefing must be documented with the name of the Design-Builder, Project ID, date, time, location, information covered; name and signature of the presenter, name and signature of the designated competent person(s), printed name and signature of all attendees will be recorded.

A copy of the daily job safety briefing must be available at the jobsite.

A copy of all daily safety job briefing will be submitted to the DDC as part of the monthly safety report and immediately upon request.

If there are multiple shifts in a 24-hour period, daily job safety briefings are required prior to the start of each shift.

1.11 Site Specific Orientation

All employees working on the NYC Borough Based Jails (BBJ) projects must be provided with a Site-Specific Safety orientation session prior to the start of their work shift on the first day of employment on any BBJ project. Comprehension of the Site Specification Safety Orientation training must be appropriately verified (e.g., demonstration of skills, quiz, etc.).

If an employee is away from the project for longer than 60 consecutive calendar days, he or she must be required to repeat the orientation training.

Where non-English speaking personnel are employed on the project, they must be given the orientation in their native language.

All employees working on the project must be provided with and attend an annual refresher of the site orientation.

Adequate and appropriate facilities for supporting the training orientation must be provided including the following: sufficient space for all attendees to sit comfortably during instruction and equipment sufficient to support training via technology, such as during instructor presentations.

Items to be covered in the Site Orientation must include but not be limited to the following:

a. Program Safety Policy
b. Site Orientation Requirements, including Visitor Orientation
c. Training Requirements
d. Site Safety Plan requirements
e. Daily Job Safety Briefing Requirements
f. Job Hazard Analysis Requirements
g. Disciplinary Action Plan
h. Substance Abuse Policy
i. Daily Safety Audits, Inspections and Observations
j. Site Personal Protection Equipment (PPE) Requirements
k. Emergency Action Procedures
l. Incident Reporting Procedures
m. Project Security Plan

n. Fire Prevention Program

o. Confined Space Entry

p. Housekeeping and Housekeeping Inspection Program

q. Sanitation

r. Fall Protection Requirements

s. Public Protection Requirements

t. Excavation

u. Scaffolding

v. Ladders and Stairs

w. Underground Utilities

x. Control of Hazardous Energy/Lock Out Tag out

y. Electrical Safety

z. Hot Work

aa. Ladders

bb. Demolition

cc. Mobile Cranes and Hoisting Equipment

dd. Mobile Equipment

ee. Rigging and Rigging Inspection Program

ff. Hazard Communication

gg. Work Zone Traffic Control

hh. Add equipment use training and certifications.

A form acknowledging the training will be utilized as verification of this required safety training.

A copy of the orientation materials is to be sent to the DDC for review and acceptance at the same time of the Site Safety Plan submittal.

1.12 Visitor Orientation

Site visitors must be provided with an orientation to familiarize them with the current site hazards. The site visitor orientation must include at a minimum: site PPE requirements, security requirements, current site hazards and emergency action and incident reporting.

The Design-Builder must ensure visitors complete an orientation appropriate to the location or site they are to visit, supplemented by appropriate visual material (e.g., handout, iPad, etc.).

Visitors to the BBJ projects must be escorted by an employee who has attended the full site safety orientation.

Delivery truck drivers such as but not limited to dump trucks, waste haulers and concrete trucks that enter the project site must be given an orientation which could include a written communication to notify them of site PPE requirements, security requirements, current site hazards and emergency response and incident reporting.

1.13 Minimum Safety Training Requirements

The Design-Builder must ensure that all employees performing in the field are in compliance with NYC DOB Local Law 196 and have the applicable site safety trainings as required by this law. Copies of this training must be submitted to the DDC immediately upon request.

The Design-Builder must assure that each worker has received proper training and/or certification for the job that is assigned and that it has been provided in a language that is understood by the worker. Workers must demonstrate proficiency in their assigned tasks and be familiar with any rules or procedures for that job. The Design-Builder is responsible for immediately providing documentation that supports adequate training and proficiency of their workers, subconsultants and subcontractors upon request by the DDC.

Design-Build supervisors are responsible for ensuring that each employee within their direct control is competent to undertake their job as specified.

All employees are required to bring evidence of their prior training, certifications and qualifications relevant to their tasks on the BBJ project prior to the start of their work on the project. Management is to use employee training records and resumes to confirm potential employees have the required skills, knowledge, training and experience for the proposed tasks. These records are to be kept on the project site and made available to the DDC immediately upon request.

1.14 Safety Meetings

Kick-Off Safety Meeting:

a. The Design-Build Project Kick-off Meeting will include a significant portion of time dedicated to discussing Safety with a focus on the following requirements:

   i. The requirements of the Program Safety Guidelines

   ii. Program Safety Goals

   iii. Site Safety Plan Requirements

   iv. Job Hazard Analysis requirements

   v. Daily Safety Job Briefings

   vi. Training Requirements

   vii. Incident Reporting Requirements

   viii. Monthly Safety Reports

   ix. Discussing inspections and audits of the site including notification of findings

   x. Reviewing any new issues or information that was not previously addressed.

b. The DDC will invite the DDC Construction Safety Unit to the Project Kick-off Meeting. A DDC Construction Safety representative may participate in this meeting with the DDC and Design-Builder prior to the start of the Project.

Weekly Safety Meeting:

c. Weekly jobsite safety meetings are required to be given to all jobsite personnel by Design-Builder, with the purpose of discussing general safety topics and job specific requirements encountered at the work site. Weekly safety meetings are to be documented and will include at a minimum, topics, name and signature of the person conducting the meeting, names and signatures of attendees, Design-Builder's name, DDC project ID, date and location.

1.15 Safety Auditing and Observations

The Design-Builder must establish a protocol to be included in the Site Safety Plan for assessment and audits of the overall application and enforcement of safety on the Project as well as a process to identify and monitor trending safety issues and corrective actions.

All staff must be encouraged to report safety observations on a regular basis for tracking and trending and to evaluate observation reporting to identify strengths and areas to improve.

The Project Safety Representative must be on site at all times while work is in progress and walk the site daily to identify safety hazards. Observations must be placed into a daily report.

The Project Safety Representative Daily report must include the following:

a. Name of company
b. Name of Project Manager
c. Name of Competent Person
d. Weather, temperature, wind and humidity
e. Day of the week
f. All Environmental, Safety or Health issues, observed violations, and corrective actions.

1.16 Accident, Incident, and/or Critical Safety Condition

All employees on the project must call 911, as necessary, and report any incident, accident, near misses, property damage, security incident and/or critical safety condition to their supervisor immediately. The supervisor must notify the Design-Builder Project Safety Representative who is to then immediately notify the DDC.

The DDC will notify the Construction Safety Unit as per DDC's Construction Accident/Incident Notification and Response Procedure.

All site personnel must receive training and education on the project Emergency Action Plan (EAP) and be aware of their role(s) in the EAP. It is crucial and a priority over the notification requirements of this section that injured personnel receive necessary medical care, emergency services are contacted, regulatory agencies are notified, etc.

Following an accident, the employees must not remove or alter any equipment, structure, material, or evidence related to the accident. Exception: Immediate emergency procedures taken to secure structures, temporary construction, operations, or equipment that pose a continued imminent danger or facilitate assistance for persons who are trapped or who have sustained bodily injury.

1.17 Accident, Incident and/or Critical Safety Reports and Lessons Learned

An initial/completed DDC Construction Accident/Incident Report must be submitted within 24 hours to the DDC. A Final Incident Report including Lessons Learned will be generated for all incidents, accidents, and near misses on the Program. The Design-Builder will at a minimum submit to the DDC Program Safety Manager a final incident report to include "Lessons Learned" within seven (7) days after occurrence. The final incident report is to include the following sections with associated information.

Sections	Information that Must be Included
Investigation Team Member	• Leader, Assistant (s), Interviewees (titles/roles)
Brief Project Description / Scope of Work	• Overall objective of job • Main tasks • Duration/ Frequency of work • Number of Design-Builder personnel on site and roles
Incident Summary – Overview	• Date: • Time: • Location on site: • Incident Type: • Worker type: • Brief description of incident (short paragraph describing incident) • Photos and/or Sketches • Re-enactment if applicable • Timeline • Response and Care Management
Investigation	• Contributing Factors including what were the circumstances, decisions, actions, etc. which led to the incident? • Root Cause(s) including what underlying system or organizational failure/ deficiency led to the circumstances creating the incident?
Corrective Actions	• Include findings, action items, responsibility and due date.
Lessons Learned	• Bullet list the lessons.

Lessons Learned must be shared with all personnel on the Program to foster safety awareness. The Lessons Learned will not contain any specific employee or company name.

1.18 Monthly Safety Report

The Design-Builder is to submit to the DDC Program Safety Manager by the 12th of each month, the Monthly Safety Report. The Monthly Safety Report Minimum requirements are as follows:

1	Cover page must be signed by the Design-Builder's Manager and Project Safety Representative and must have a confirmation that undersigned reviewed the enclosed document and found it accurate and completed for the month reviewed.
2	Contract work overview: The report must include a summary of the work completed by all trades during the reporting period.
3	Safety Metrics Table: Performance indicators (Metrics table) should be included in every report and must include the number of hours worked, average number of employees, number of first aid incidents, number incidents, of medical incidents, number of lost time incidents, number of environmental incidents, number of properly damage incidents, number of near misses, number of observations, and number of findings.
4	Injury and illness report for the reporting month Provide OSHA 300 recordable occurrences. If there were no reportable occurrences, the form must indicate that there were none.
5	Accident/Incident investigations with root causes and corrective action taken Include copies of all accident/incident investigations including root cause analysis with corrective actions.
6	Safety Data Sheet/Chemical Inventory Log
7	Documentation of safety training held: The attendance sheets should be provided along with the description of training held, dates and time of the training, and the name, title, and signature of the trainer.
8	Records of area inspections, audits and regulatory visits and citations, i.e. Daily safety audits Corrective actions for mitigation of health and safety hazards
9	Additional Reports as needed
10	Site Safety Plan evaluation The Design-Builders Project Safety Representative must periodically review and if necessary, update the Site Safety Plan. The explanation of the changes must be included in the report.

The DDC Safety Manager will review the Monthly Safety Report for deficiencies. In the event where the Design-Builder has not correctly reported information on the Monthly Safety Report, the DDC Safety Manager will notify the Design-Builder to correct the inaccurate information. The DDC will provide the DDC Office of Construction Safety with a copy of the Monthly Safety Report.

1.19 Safety Performance Evaluation

The Design-Builder's record, including accident/incident history and the DDC Safety inspection results, will be considered as part of the Design-Builder's performance evaluation at the conclusion of the Program. Poor safety performance during the course of the Program will be a reason to rate a Design-Builders unsatisfactory which may be reflected in the City's PASSport system and will be considered for future procurement actions as set forth in the City's Procurement Policy Board Rules.

1.20 Site Safety Plan Submittal Requirements

Within thirty (30) days from the Notice to Proceed, or as otherwise directed, the Design-Builder must submit the Site Safety Plan to the DDC. The DDC will review and accept the documents for conformance with the Program Safety Guidelines. No Work on site will be permitted until the Design-Builder receives notification from the DDC of document acceptance. All accepted Design-Builder Site Safety Plans must be submitted to the DDC. The Site Safety Plan is subject to review and audit by DDC at any time as requested by the DDC. The Safety Program Site Safety Plan must be revised and updated as necessary.

Note: Acceptance of the Site Safety Plan by the DDC will not impose or imply on the DDC any ownership of the Design-Builder duties nor does it relieve the Design-Builder from any of its regulatory or contractual responsibilities.

1.21 Site Safety Plan Requirements

The Site Safety Plan must be a written document and must apply to all project specific Design-Builder and subcontractor operations, and must have at a minimum, the following elements with each element described in a separate section. All Site Safety Plan sections will be in the order listed below. The Site Safety Plan must include the Design-Builder name, project ID, project location(s), development and revision dates. All pages of the Site Safety Plan will be numbered.

Part 1 of the Site Safety Plan

a. Signature Sheet – Title, signature, date, and phone number of the following:
   i. Plan Preparer;
   ii. Senior Manager authorized to obligate the company;
   iii. Project Management staff including Project Manager and Project Superintendent.
b. Statement of Environmental Health and Safety Policy.
c. Project Work Scope/Background information – Detailed information regarding work tasks that will be performed by Design-Builder and subcontractors under the project.
d. Responsibility and Organization – Organization chart with responsible staff for the project, including titles, names, contact information, roles and responsibilities and lines of authorities.
e. Sub consultants, Subcontractors, and Suppliers:
   i. Procedures for assuring compliance;
   ii. Safety Responsibilities of Sub consultants, Subcontractors, and Suppliers;
   iii. Process for coordinating safety activities with other employers on the job site.
f. Safety Training and Education – Training, requirements for daily safety briefings and weekly safety meetings, any work task specific training, responsible staff for implementation of training Program for the project.
g. Job Hazard Analysis (JHA) – Initial project specific Job Hazard Analysis including work tasks, identified hazards, hazard control methods (administrative, engineering, PPE), Design-Builder name, project ID, location, name and signature of a certifying person, and hazard assessment date.
h. Protection of Public – Project specific procedures covering safety of the general public during all project construction activities.

i. Hazard Corrective Actions – Procedures for hazard identification, responsible staff, frequency of safety inspections, criteria for safety inspections, identification of safety non-compliances, implementation and verification of corrective actions, and forms to document safety inspections results.

j. Accident/Exposure Investigation – Project specific procedures for accident investigation and implementation of corrective actions. Accident/incident/near miss notification procedure of DDC staff.

k. Recording and Reporting Injuries – Procedures to meet 29 CFR 1904 requirements, responsible staff, reporting and recording criteria, OSHA 300 and 300A form completion, etc.

l. First Aid and Medical Attention – Responsible staff, location and inspection of First Aid kit, directions to local hospitals; emergency telephone numbers.

m. Substance Abuse Program/Plan - The DDC has a zero-tolerance policy with respect to the consumption of alcohol or use of drugs. Use of alcohol or controlled substance will result in immediate removal from the site and permanent loss of access.

n. Progressive Disciplinary Policy.

o. Name of Project Safety Representative including resume and copy of credentials.

p. Name a Competent Person(s) - The Design-Builder is required to identify a Competent Person(s) on the Site.

q. Health and Safety Plan Signature Sheet for all employees on the project.

Part II of the Site Safety Plan

a. Layout and Site Mobilization Plan.

b. Protection of Public:

   i. Requirements of NYC DOB Chapter 33 for Safeguards During Construction or Demolition must be followed.

c. Illumination Procedure.

d. Personal Protective Equipment (PPE) – Company policy for the use of head protection, foot protection, hearing protection, eye and face protection, protective clothing, and any additional protective equipment based on work tasks; PPE inspection and replacement policy. Hazard Communication Program – Responsible staff; training; SDS records, project specific list of chemical; location of the program and SDS records.

e. Protection of Underground Facilities and Utilities, including responsible staff.

f. Material Handling, Storage, Use and Disposal – Project specific information regarding material storage and disposal.

g. Signs, Signals, and Barricades – Use of danger/warning signs, sidewalk closure, safety instruction signs, pedestrian fencing and barricades, etc.

h. Scaffold – Project specific scaffold types, installation, use, inspections, dismantling, training, scaffold drawings, competent person, criteria for project specific scaffold, falling object protection and general safety requirements.

i. Welding and Cutting – Project specific procedure for welding and cutting, including all necessary safety requirements such as fire prevention, personal protective equipment, hot work permits, FDNY certificate requirements, etc.

j. Fall Protection:

   i. Fall Protection Plan;

   ii. Training requirements;

   iii. Rescue plan and procedures.

k. Cranes, Derrick, Hoists, Elevators, Conveyors – project specific equipment information including type, rated load capacity, manufacture specification requirements, competent person, exposure to falling load, inspection, recordkeeping, clearance requirements, communication procedure, ground lines, permits.

l. Excavation Safety – Competent person, project specific protective system.

m. Maintenance and Protection of Traffic Plan – Project specific MPT plan, flagmen training.

n. Steel Erection – Site specific erection plan, requirements for applicable written notifications, competent person.

o. Demolition – Engineering survey, including written evidence, disconnection of all effected utilities, identification of all hazardous chemicals, materials, gases, etc., floor openings, chutes, inspection and maintenance of all stairs/passageways, removal of materials/debris/structural elements, lock out/tag out, competent person.

p. Blasting and the Use of Explosives – Project specific safety procedures, warning signs, training/qualification, transportation, storage and use of explosives, and inspection.

q. Construction Vehicles/Heavy Equipment – Type of construction vehicles/heavy equipment to be used on site.

r. Tools – Hand and Power.

s. Electrical Safety.

t. Work Zone Traffic Control.

u. Concrete and Masonry Construction.

v. Steel Erection.

w. Stairways and Ladders.

x. Confined Space Program:

i. Training requirements and records;

ii. Responsible staff including daily evaluations and classifications by a competent person;

iii. Atmospheric testing procedures;

iv. Rescue procedures.

Part III

a. Site Sanitation Procedures including number of toilets per worker; distance requirements; graffiti Control; daily and weekly inspection for inspection process; designation of area for eating and drinking; clean and sanitary toilet facilities in good repair will be available for site and office staff and visitors; means for washing hands next to or near toilet areas.

b. Rodents and Vermin including measures for protection against vermin, insects, and rodents.

c. Toxic and Hazardous Substances – Safety procedures for substances to be used on project.

d. Noise Mitigation Plan – Completed project specific Noise Mitigation Plan.

e. Occupational Noise Exposure.

f. Dust Mitigation Plan and control procedures– Completed project specific Dust Mitigation Plan.

g. Housekeeping including requirements for keeping work areas clean and free of debris; daily inspection process; procedures for keeping work areas will be kept free of debris and unused materials, tools and equipment that may affect the safety of employees and visitors; recycling program; containers maintained outdoors must be provided with lids that are kept closed; contents must be removed at appropriate intervals (e.g. garbage weekly, garbage daily in areas with wildlife, monthly recyclable cardboard, etc.).

h. Ionizing/Nonionizing Radiation – Competent person, license and qualification requirements, type of radiation employees' exposure and protection, etc.

i. Medical Monitoring and Surveillance.

j. Hazard Communication Program – Design-Builder's Hazard Communication Program, responsible staff; training; SDS records; project list of chemicals; location of the program and SDS records.

Part IV Site Safety Plan

a. Fire Protection and Prevention Program.

b. Emergency Action Plan

i. Responsible staff - Defined roles and responsibilities in the event of an emergency.

ii. Contact List - A contact list that includes, as applicable, fire, police, ambulance, poison control, first aid providers on location, fire wardens on location, site safety personnel, security, project management and other required emergency contacts.

iii. Emergency Communication Trees, (e.g., established to ensure appropriate notifications of all interested parties of emergency status, such as site closure).

iv. Procedures appropriate to the potential emergency situations including fire, bomb threat, security threats, tornadoes, hurricanes,

1) Maps to appropriate services, such as hospital or medical clinic.

2) Emergency alarm systems.

3) Procedures to account for employees after evacuation.

4) Drill schedule - The Emergency Action Plan must be tested for deficiencies through announced drills at least quarterly.

5) Information regarding free and unobstructed egress from all parts of the building or structure.

6) Exit marking and maintenance of means of egress, etc.

7) Project specific evacuation plan (drawing/scheme) with exists and evacuation routes.

8) Process for accounting for visitors.

9) Plans for dispersing staff to meet emergency responders at the entrance to the site and along the path to direct them to the emergency.

All employees working on the project must review the Site Safety Plan prior to working on the project.

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Project Management and Coordination

2

Article 2 Project Management and Coordination

2.1 Coordination

Administrative Procedures: The Design-Builder must coordinate scheduling and timing of required administrative procedures with design and construction activities to ensure orderly progress of the Work. Such administrative activities include without limitation the following:

a. Preparation, updates and maintenance of Design-Builder's Progress Schedule.

b. Installation and removal of temporary facilities and controls.

c. Delivery and processing of Submittals.

d. Progress meetings.

e. Pre-installation conferences.

f. Startup and commissioning of systems.

g. Project closeout activities.

Coordination: The Design-Builder is responsible for coordinating its construction operations, including those of its sub-contractors, with other entities to ensure the efficient and orderly installation of each part of the Work.

Project Management and Execution Plan: The Design-Builder must expand upon and amend as necessary the Project Management and Execution Plan that it previously submitted as part of its Proposal. The Plan will continue to identify the Design-Builder's managerial approach, strategy and quality procedures to design and construct the Project in order to meet all of the Contract Requirements as well as support long term maintenance and operational requirements.

The Project Management and Execution Plan must be amended and updated as necessary throughout the performance of the Work.

The Project Management and Execution Plan must include the following elements as a minimum:

a. description of the Design-Builder's overall approach to management necessary for implementing the Project;

b. description of the progress reporting and coordination processes that the Design-Builder will utilize during performance of the Work;

c. the Design Builder's Coordination Plan must include the DB's approach for managing physical and technical interfaces where there is an interface between Work for the Project and work by the DDC and other contractors on other related work; and

d. In addition, the Project Management and Execution Plan must:

   i. discuss the proposed members of the Design-Build Team (including each of the Key Personnel and the Architect-of-Record);

   ii. describe the organization structure of the Design-Build Team, including an organizational chart identifying the Design-Build Team (including construction, construction management and inspection teams);

   iii. address procedures for implementing the entire design, including how the Design-Builder will divide the Work into construction packages;

   iv. address the Design-Builder's preliminary schedule of design submittals for a minimum of the first [180 Days] following the Closing Date, that must:

      1) describe how the Design-Builder plans to comply with different versions of the building codes that may be applicable during various phases of construction of the Project; and

      2) demonstrate that the Design-Builder understands both (i) the design submittals Project Requirements and (ii) any of the DDCs comments to the Design-Builder in connection with the Design-Builder's design submittals;

e. procedures for implementing the entire scope of Work for each element of the Project;

f. details of the Design-Builder's approach to integrating the design and construction, quality control, quality assurance and DDC's oversight of the design;

g. an explanation of the proposed construction management tools;

h. a description of the Design-Builder's approach to change management and project communications;

i. outlines of the Design-Builder's method to management of construction;

j. a description of the Design-Builder's plan for interface between design and construction and the DDC and its contractors;

k. a description of the Proposer's construction management approach to:

   i. scheduling;

   ii. materials management;

   iii. procurement;

   iv. resource management (labor and equipment);

   v. subcontractor management;

i. construction claims management;

ii. coordination and reporting;

iii. safety management;

iv. internal governance;

v. coordination and reporting;

vi. safety management;

vii. internal governance;

viii. integration of design and construction activities; and LEED Gold certification.

Stakeholder Coordination Plan: The Design-Builder must expand upon and amend as necessary the Stakeholder Coordination Plan that it previously submitted as part of its Proposal. The Plan will present the Design-Builder's engagement and management approach to coordinating and interfacing with Key Stakeholders and DDC and its contractors and Associates. The Coordination Plan must include the Design-Builder's approach for managing physical and technical interfaces where there is an interface between Work for the Project and work by the DDC and other contractors on other related as well as non-related work within the vicinity of the Project. For this specific Project, the Stakeholder Coordination Plan must include but not be limited to the following entities:

a. NYC Department of Transportation: regarding the management of street closures, revised traffic patterns, design and implementation of modifications to the Municipal Parking Facility during construction.

b. The DDC regarding adjacent street work involving water main work in the vicinity of the Garage construction.

c. The NYS DOT regarding adjacent work on the Van Wyck Expressway.

d. The NYC Department of Environmental Protection regarding the installation of adjacent street work involving underground water mains, storm water mains and sewer mains.

e. The New York City Department of Correction (DOC)

f. The New York City Public Design Commission. For protocol and procedural requirements for engagement with the Public Design Commission see below Article 21, Public Design Commission Review Process

g. The Mayor's Office of Criminal Justice (MOCJ)

h. the New York City Office of Management and Budget

i. The Metropolitan Transportation Authority

j. Con Edison

2.2 Project Meetings

Kick-off-Meeting: The DDC will schedule a kick-off meeting at a location to be determined to review responsibilities, protocol, procedures and personnel assignments and clarify the role of each participant and to ensure that all pre-requisites for construction have been met by the Design-Builder. Unless otherwise directed the PMC will record and distribute meeting minutes within established timeframe. The meeting must be attended by authorized representatives of the DDC and PMC; the Design-Builder and its design engineer, construction superintendents, sub-contractor(s) and their superintendent(s); LEED sub-consultant and Commissioning Authority /Agent (CxA) as applicable and other concerned parties. All participants at the meeting must be familiar with the Project and authorized to conclude matters relating to the Contract Work

With the Design-Builder, subconsultants and DDC

a. Progress Meetings: The DDC will schedule and conduct progress meetings at weekly intervals or as otherwise determined with the Design-Builder. Its subconsultants and sub-contractors must have their representatives present to discuss all details relative to the execution of the Work. All participants at the meeting must be familiar with the Project and authorized to conclude matters relating to the Work. Unless otherwise directed the PMC will record and distribute the meeting minutes. Agenda: Prior to each meeting, the DDC and the Design-Builder will develop an agenda of items to be discussed 48 hours prior to meetings.

b. Agenda: Includes without limitation the following:

i. Review the Progress Schedule and progress of the Work. Determine if the Work is on time, ahead of schedule or behind schedule. Determine actions to be taken to maintain or accelerate the schedule

ii. Review and approve prior meeting minutes and follow up open issues

iii. Development of site investigations.

iv. Development of related design packages.

v. Progress with permitting applications and interface with permitting authorities.

vi. Coordinate work between respective subconsultants and sub-contractors

vii. Sequence of Operations

viii. Status of Submittals, deliveries and off-site fabrication

ix. Status of inspections and approvals by governing agencies

x. Temporary facilities and controls

xi. Review Site Safety

xii. Quality and Work standards

xiii. Field observations

xiv. Status of correction of deficient items

xv. RFI's

xvi. Pending changes

xvii. Status of outstanding Contract Administration Amounts, Progress Payments and Change Orders

xviii. Progress of requirements related to LEED, Park Smart, Construction Waste Management, and Commissioning.

Coordination: In addition to construction progress meetings called by the PMC, the Design-Builder must preside over regularly scheduled design and construction meetings for the purpose of coordinating; expediting and scheduling the Work in accordance with the Project Schedule. The Design-Builder and its sub-contractors, material suppliers or vendors whose presence is necessary, are required to attend. Minutes of these meetings must be recorded, typed and printed by the Design-Builder and distributed to all Parties concerned.

2.3 Document Control – Project Management Information System

The DDC will utilize a secure, web-based Portal for its Project Management Information System (PMIS) and is where the DDCs document management will occur for this Project. The Portal is the designated means of electronic distribution and exchange of official documents and information by the Design Builder (DB) to the DDC and by the DDC to the DB. Examples of such information include but are not limited to: Requests for Information (RFI) and responses, Contract Submittals (including Design Packages, Project Plans, Reports, etc.) and comments, Transmittals, and Correspondence. The PMIS Portal is exclusive to the DDC and will not serve as the DB/Contractor's internal document management system.

The Design Builder must provide the DDC with a list of key personnel who will use and interface with the PMIS. The list must include the names, Project roles, email addresses, and telephone numbers of the proposed users.

The Design-Builder must employ at a minimum a full-time qualified document control lead and a senior document controller at NTP of the Project. Each must have a minimum of 7 years' experience in related projects.

Training, training materials, Document Control Guide, and general support will be provided upon award of the contract and as deemed necessary throughout the life of the Project. The Design-Builder must appoint a minimum of one person to be trained as an expert user to address issues internally to the greatest extent possible.

High Speed Internet access and a two-factor authentication is required to log into the PMIS.

All documents uploaded to the PMIS must be uploaded as PDF. Final as built documents must be in the original editable format with PDF of the same.

All documents uploaded to the PMIS must follow an accepted naming convention to be provided to the DDC.

2.4 Requests for Information (RFI)

Procedure: Immediately on discovery of the need for information or interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, the Design-Builder must prepare and submit an RFI in the designated RFI application within the Project's Program Management Information System.

a. RFI must originate with the Design-Builder. RFIs submitted by entities other than Design-Builder will be returned with no response.

b. Coordinate and submit RFI in a prompt manner as defined by DDC so as to avoid delays in Design-Builder's work or work of its sub-contractor.

RFI Log: The Design-Builder must prepare, maintain, and submit a tabular log of RFIs organized by the RFI number monthly to the PMC in one simple agreed format.

c. On receipt of responses and action to the RFI, the Design-Builder must update the RFI log and immediately distribute the RFI response to affected parties. Review response(s) and notify the PMC immediately if the Design-Builder disagrees with response(s). In no case will DDC's response to an RFI alter or change any term of the Design-Build Agreement, including any aspect of the Project Requirement.

2.5 Correspondence

Correspondence to DDC must be transmitted through the designated Correspondence application within the DDC Program Management Information System.

2.6 Design – Builder's Daily Reports

For any work occurring on the project site following the Agreement Date, the Design-Builder must prepare, file and submit Daily Construction Progress Reports.

Community Engagement Requirements

3

Article 3 Community Engagement Requirements

3.1 Summary

Throughout the course of construction, the City of New York will provide one or more Community Construction Liaison individuals on site, who will serve as a neighborhood outreach to the community for any and all concerns and questions that individuals may have in relation to specific construction activities or the Program in general.

The Design-Builder will be required to provide ongoing support and Project information to the Community Construction Liaison (CCL) for community engagement activities as part of the BBJ Program.

As part of this initiative, the Design Builder is required to provide and maintain facilities on site that will enable the CCL to perform its outreach to the Community within the immediate vicinity of the work site but without the Community having to access the limits of construction work zone.

3.2 CCL Neighborhood Office Space

The Design-Builder will be required to provide the necessary materials and working environment to allow the CCL and supporting staff member(s) to conduct all activities as needed. Storefront/Office Requirements include:

a. A visible and publicly accessible storefront location serving as an office for the CCL near the construction site,

b. An open welcome/reception area to display project information for public knowledge, Provide bulletin board and lockable clear display case (sizes TBD)

c. An office space, not less than 120SF in floor area, to accommodate two individuals each with desk, office chair, 2-drawer legal-sized file cabinet, and bookshelf.

d. A conference room suitable for weekly briefings meetings and small community meetings, capable of accommodating up to 20 individuals with corresponding chairs, conference table, conference phone, smart screen and 4-foot -(12-m-) square tack and marker board.

e. Access to the space as well as the space itself must be ADA compliant. Provide an induction loop or similar assistive listening system for the hearing impaired, if necessary, as required by ADA criteria or Local Law.

f. Telephone service: Two phone lines total, including one 24-hour telephone number with a designated line equipped with answering machine and broad translation service. Three phones (two lines for the office plus conference room).

g. Internet service.

h. Drinking water.

i. Private toilet.

j. Coffee machine and supplies.

k. Multi-scan, multi-print copier/printer.

l. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F (20 to 22 deg C).

m. Lighting fixtures capable of maintaining average illumination of 20 fc (215 lx) at desk height.

Maintenance:

a. The Design Builder must provide and pay all costs for regular weekly janitor service and furnish toilet paper, sanitary seat covers, cloth towels, and soap and maintain the CCL Field Office in first-class condition, including all repairs.

b. Supplies: The Design Builder will be responsible for providing (a) all office supplies, including without limitation, pens, pencils, stationery, filtered drinking water and sanitary supplies, and (b) all supplies in connection with required computers and printers, including paper and toner cartridges for the printer/copier.

c. Risk of Loss: The entire risk of loss with respect to the CCL Neighborhood Office and equipment will remain solely and completely with the Design Builder. The Design Builder will be responsible for the cost of any insurance coverage determined by the Design Builder to be necessary for the Field Office.

d. The Design-Builder will be responsible for the provision and maintenance of the CCL office space until forty-five (45) days after the date of substantial completion, or sooner as directed by the DDC.

Shared rented space: Subject to the review and approval of the DDC, the Design-Builder may be permitted to consolidate the requirements of the CCL Field Office with all or some of the requirements of the DDC/PMC Field Office facilities. If such a concept can be accommodated to the satisfaction of the DDC, the CCL office must retain its own separate entrance, and reception area.

Risk Management

4

Article 4 Risk Management

4.1 Summary

From NTP through substantial completion, the Design Builder (DB) will be required to perform a proactive and regular approach to both risk assessment and risk management. The intent would be to do as follows:

a. Identify, with as much advance notice as possible, potential risks to both cost and schedule related to accomplishing both the design and construction as intended.

b. Propose one or more options for each situation that would either avoid, if possible, or mitigate the adverse impact of the identified risk(s).

4.2 Risk Management Plan

Within 30 days following NTP, the Design-Builder must expand upon and amend as necessary the Risk Management Plan that it previously submitted as part of its proposal. which will include the following sections:

a. Overall Tiered Approach to Risk Management

b. Initial Risk Assessment and Planning

c. Risk Register

Overall approach to risk management: The Design Builder (DB) must provide a narrative that outlines the DB's risk management approach. The narrative must address, but not be limited to, the following:

d. How risks will be assessed and classified/selected for strategic responses;

e. When and how often a Risk Assessment (RA) will be conducted, goal and type of RA for each; Tools and techniques to be used for treatment of risks;

f. How contingency and/or treatment plans will be developed, implemented, monitored, and reported to the DDC; and

g. How the Design-Builder's risk management process will be integrated among all activities performed by DB's team members.

Initial risk assessment and planning: The DB must provide a narrative that outlines its understanding of the risks and challenges specific to the project. The DB must identify and describe features of its approach towards both the design and construction phases that it considers unique and/or innovative relative to reducing or eliminating project risk. The narrative must include but not be limited to how risks will be identified, assessed, responded to, monitored, and reported throughout the project including methods for:

a. Establishing context.

b. Risk identification.

c. Risk ownership

d. Risk categorization.

e. Risk analysis.

f. Risk evaluation.

g. Risk assessment output/reports.

Risk Register: The DB must provide a detailed risk register that identifies:

a. Specific project risks.

b. Probability/likelihood of such risks manifesting in the project.

c. Potential impact to project should such risks occur.

d. Triggering events or root causes.

e. Ability to predict or control occurrence.

f. Timeline horizon (i.e., near-term, mid-term, or long-term).

g. Response strategy and plans for managing each risk.

h. Residual risk assessment after implementation of response plan.

Periodic Risk Reviews

a. Following submission of the original Risk Management Plan, the DB must submit quarterly updates for the duration of design and construction through achievement of substantial completion of the project.

b. Each quarterly update must follow the format specified above under Items 1.2A through 1.2C, with the Risk register offering an update on any and all risks addressed in the prior report and specifically identifying any new potential project risks that have since been realized.

BIM Coordination

5

Article 5 BIM Coordination

5.1 Summary

The Design-Builder, in conjunction with its Trade and Non-Trade subcontractors must provide 3-Dimensional system models of the contract documents in a computer program that is based on the concepts/principles of Building Information Modeling (BIM) and Virtual Design and Construction (VDC).

The system models must be prepared using software that allows 2-D drawing sheets to be extracted from the model so that the production of these sheets will not require a special or duplicated CAD/BIM effort. The system model and any drawings produced from the coordination process must be used for coordination purposes only. The Design-Builder is still responsible to verify that its systems are being installed per the contract documents, RFI's, changes, etc. System models which comprise the overall BIM effort will include but not be limited to the following as is appropriate for the specific project:

a. Structural steel non- trade.

b. HVAC trade.

c. Electrical trade (including communications and security as applicable).

d. Plumbing trade

e. Fire protection non-trade

All relevant models will be incorporated into one review file for use during coordination meetings. This 3D Coordination Model will provide an electronic 3D geometric representation which will combine all trades involved in the coordination process. The Design-Builder will utilize approved software as the primary means of model review, conflict identification, management, and resolution. All Design-Builder Models must be submitted in a format that is compatible with approved software.

All software and processes will be documented through a BEP (BIM Execution Plan) prepared by the Design-Builder, which must be approved by the DDC.

5.2 Submittals

3D Coordination Model: The Design Builder must submit an electronic 3D geometric representation, which will combine all Trade and Non-Trade components of the project that are involved in the coordination process. The Coordination Model will be reconciled by each non-trade and trade Design-Build subcontractor to find the best collective solution to the coordination of all items.

a. Each trade and non-trade subcontractor will supply a corresponding model for their own scope of work separated by areas as directed by the Design Builder.

b. Each trade and non-trade subcontractor will be responsible for working in harmony with the other Trade and Non-Trade subcontractors to resolve coordination issues.

c. Trade and non-trade models will be color coded to provide delineation between systems.

d. 2D coordination drawings will still be required as directed by DDC and required for shop drawing approvals.

Electronic copies of models:

e. Submit to the DDC progress and final models when requested and periodically at an agreed interval, including a model at the end of the Project.

f. Submit monthly to the DDC an updated 4D Model.

5.3 Models

3D Trade and Non-Trade Design-Builder Model - computer generated 3D drawings used for coordination, conflict resolution, fabrication, and as-built documentation.

a. Each trade and non-trade subcontractor will be responsible for producing a model/models to represent its portion of the work in accordance with the Work breakdown structure to be provided by the Design-Builder.

b. If a trade and non-trade subcontractor does not have the in-house capability to produce the required model/models, the subcontractor or the Design Builder may utilize the service of an outside entity to provide this service. The BIM Production Modeler must have experience on projects of similar size, scope and complexity.

c. All elements must be drawn to scale and must be a true representation of what is to be installed in the field in all three dimensions.

d. System models must be provided in approved native application file formats.

e. System models must be a solid surface model (not wire frame), when viewed in approved software.

f. File origin or project insertion point (x, y, z) and geo-location must be agreed upon by the project team per approved BEP system models must be elevated so that when merged with the base model the system model is at the correct height above the finished floor elevation. Any conflicts that arise due to non-adherence with the insertion point must be the responsibility of the noncompliant Trade and Non-Trade Design-Builder.

g. System models and all associated data must be structured by approved BEP (BIM Execution Plan), For example: floor by floor, phase by phase etc.

h. The file naming convention must be documented in BEP and broken down as follows: trade, level zone, date:

   i. Example “MECH_LV1N_070109.dwg” where “MECH” designates the mechanical trade Design-Builder, “LV1N” is building level 1 and North zone, and “070109” indicates the date the file is posted.

   ii. The trade and non-trade Design-Builders may modify naming scheme based on system break-down (e.g. HVAC Duct or HVAC pipe. A separate file upload would accompany this change and would be formatted as “MECH_PIPE_LV1N_070109.dwg” This must be approved by the DDC.

i. Model coordination files will be saved to the project approved CDE (Common Data Environment) for access by all Design-Builder trades, and the PMC. The trade and non-trade Design-Builder is responsible for maintaining the appropriate models in the correct file at all times.

j. System models must accurately represent all elements in the contract documents and at the same level of precision required for shop drawings.

k. Models must be purged of all non-essential information; All 2D reference information or "scratch" work should be deleted prior to submission to the DDC. This includes, but is not limited to the following: text, leaders, symbols, architectural references or backgrounds, construction geometry, etc.

l. When an update to a model has been posted, each trade and non-trade Design-Builder must issue a notification via email to each of the other coordination team members notifying them that new information is available. Email, however, must not be the primary method of delivering model or drawing updates.

m. Working units, unless otherwise specified, must be Imperial Units vs. Metric Units.

n. All trades must use a separate color as agreed upon. Colors and/or textures per standards must be provided by the Construction Manager VDC Modeling Manager and documented in BEP.

o. Each Trade and Non-Trade Design-Builder must maintain their own model files as sole author. Trade and Non-Trade Design-Builders are responsible for providing the team with approved software compatible files for their respective scopes of work, which will be used for coordination. In some cases, separate files will be requested for specific systems within a trade in order to provide the DDC with greater functionality in the record model.

p. In the event that changes to the project occur, which will result in changes in the model/models, it is the responsibility of the Design-Builder and its subcontractors to make any and all changes required for coordination and compliance with the design and submit modified model within agreed timeframe. The Design-Builder may include the cost of modeling and coordination if warranted into their request for change authorization.

5.4 Model Coordination Process

Coordination Meetings

a. The Design-Builder and each of its trade and non-trade subcontractors is required to take part in regular coordination review meetings. The time and place for these meetings will be established by the DDC.

b. The purpose of the coordination meetings is to identify and resolve probable interferences between building systems.

c. The Design-Builder and its subcontractors must supply a Modeling Manager or person authorized to act and make decisions on behalf of their organization.

d. If conflicts are identified and a resolution is agreed upon, it is the Design-Builder's responsibility to have the necessary changes made in the model and republish said model to the project intranet site in time for the next meeting unless another timeframe is agreed upon.

e. Meeting information must be documented in the BIM Execution Plan (BEP).

Coordination Process

a. Step 1: The Design-Builder and its subcontractors are to identify conflicts between their system model and the base model and resolve prior to an initial MEP (Mechanical Electrical Plumbing) coordination meeting.

b. Step 2: The Design-Builder and its subcontractors are to identify any required penetrations in architectural and structural elements for their work prior to a MEP coordination meeting.

c. Step 3: The Design-Builder and its subcontractors are to provide a system model to the DDC, which will integrate system model with base model in an approved software format to create a "coordination model".

d. Step 4: The Design-Builder and its subcontractors and the DDC will meet to review and resolve clashes/conflicts within the coordination model.

e. Step 5: The Design-Builder and its subcontractors will make changes to their system model per resolutions from MEP coordination meeting and associated published coordination model.

f. Step 6: Repeat steps 3 through 5 until all clashes/conflicts have been resolved in the coordination model.

g. Coordination Process must be documented in the BIM Execution Plan.

Equipment Models: All equipment specified and intended to be installed must be represented in the coordination model as a fully functional 3D component with the following characteristics:

a. Create models in a software application (Autodesk, Revit, Bentley MicroStation, SolidWorks, etc.) format compatible with approved software and capable of embedding all information specific to that equipment

which would typically be available in the required shop drawings and submittals. Construct the models to accurately identify all of the physical components including:

i. Length, width and height of equipment.

ii. Weight of equipment.

iii. Accurate location of all facility connection points.

iv. Proper identification of required supports whether provided by the Design-Builder or others.

v. Access for maintenance and/or filter changes locations.

vi. Clearances required for proper ventilation and/or maintenance.

vii. OSHA clearances.

b. Include all clearance requirements for the equipment as outlined by the equipment manufacturer and all applicable building codes. Identify clearances on a specific layer that can be turned off for coordination purposes. Identify clearances as solid planes ("no fly zones") which will register as clashes during the coordination effort.

c. Provide equipment model information to the DDC in its native approved format as well as IFC and COBie format (IFC format describes the behavior, relationship, and identity of a component object within a model).

Record Information

a. Upon completion of coordination activities for a floor area as deemed appropriate by DDC, a 2D drawing or series of drawings representing the floor or area will be printed for review by the Construction Manager and all members participating in the coordination. This will become the record coordination document.

b. The Design-Builder and its subcontractors must maintain their models during construction to match the 'as-built' condition of their installed work.

c. The Design-Builder will deliver to the DDC, at the completion of the project, a record construction model in approved software that incorporates all of the trade models, fabrication models and updated design models. The native files from each trade must also be provided. In addition, the Design-Builder will deliver to the DDC an updated model in approved format.

Change Conditions

a. In that design changes are issued by bulletin, CCD or other method the applicable Trade and Non-Trade Design-Builders will make the changes required in their model/models to support the coordination process without delay.

5.5 3D Modeling

Order of Modeling:

a. Unless otherwise noted in the contract documents, the sheet metal Design-Builder must publish a base model with the major trunk lines which will serve as the basis for the other trades to begin their individual models. The Design-Builder BIM Coordination process in many respects follows a traditional sequence of drawing/modeling those systems with the most constraints in their routing and then following with those trades that have more flexibility in their placement.

b. All BIM related content needs to be documented in the BEP.

Stratification:

a. The Design-Builder will assign specific work zone elevations (top and bottom) to run racks and mains. The assigned trades will take precedence in these areas, when traveling outside of these areas the following order of importance rules apply. Additional rules may be instituted at the first coordination meeting.

i. Immovable objects (equipment pads, hoods, shafts).

ii. Graded piping routed throughout floors (waste, storm drainage, high purity).

iii. Item coordinated with structure (duct penetrations shown on structural).

iv. Items located in their designated area (piping zone, pipe rack, cable tray).

v. Items that require access (VAV's, shut off valves, fire/smoke dampers, and similar items).

System Models and Level of Detail:

a. The level of detail defined in each section below (Modeling Standards) is the minimum level of detail required in the model. Greater detail than the minimum should be incorporated in the model whenever inclusion of such detail will improve spatial or sequencing coordination of the work.

b. To the extent that location can be determined from the construction documents, the model will reflect that location. The intent of this model is to show the ductwork and piping and similar items in as true representation of the actual condition at construction completion.

c. Pre-purchased equipment must be the responsibility of the Trade and Non-Trade Design-Builder assigned to receive, install and coordinate the equipment, and they must be fully responsible for layout, 3D drawings and coordination of the pre-purchased equipment.

d. Each Design-Builder subcontractor is responsible for modeling protected access zones. Access zones should be drawn at 60% shading as not to obscure the main fixture or element being protected or must have another similar identifying characteristic.

e. Individual model elements (such as VAV boxes, pumps, and similar items) described in further detail below must each contain the specific and individual name assigned to it as per the design documents, following the approved naming conventions established by the Architect in concert with the Construction Manager VDC.

Modeling Standards:

a. HVAC Sheet Metal Standards

i. All ducts, related accessories (including but not limited to standard dampers, fire dampers, VAV boxes, diffusers, turning vanes, etc.) and HVAC equipment will be modeled.

ii. Ducts will be modeled to the outside face dimension of duct or duct insulation. Hangers must be modeled where necessary to coordinate with the work of other trades.

iii. Access zones must be modeled for all elements requiring access including but not limited to equipment, fixtures, standard dampers, fire dampers, VAV boxes, diffusers, turning vanes, and similar items.

iv. All equipment must be modeled to its overall height, width, and depth.

v. All access panels must be modeled, including access zones above and below.

vi. If seismic bracing for suspended elements is required by code, such bracing must be included in the model.

b. HVAC Piping Standards

i. All piping, related accessories (valves, air vents, drain valves, flow meters, etc.) and HVAC equipment will be modeled.

ii. Pipes will be modeled to the outside diameter of the pipe or pipe insulation. Hangers must be modeled where necessary to coordinate with the work of other trades.

iii. Equipment will be modeled to its overall height, width and depth.

iv. Access zones must be modeled for all elements requiring access including but not limited to equipment, fixtures and valves.

v. All access panels must be modeled, including access zones above and below.

vi. If seismic bracing for suspended elements is required by code, such bracing must be included in the model.

c. Plumbing and Specialty Piping Standards

i. All plumbing, specialty piping, related accessories (valves, air vents, drain valves, flow meters etc.) and equipment will be modeled (piping 1-1/2" diameter or larger). Process piping 2" diameter or larger must be modeled.

ii. Pipes will be modeled to the outside diameter of the pipe or the pipe insulation. Pipe slope will be incorporated in the model. Hangers must be modeled where necessary to coordinate with the work of other trades.

iii. Equipment will be modeled to its overall height, width, and depth.

iv. Access zones must be modeled for all elements requiring access including but not limited to equipment, fixtures, valves, and cleanouts.

v. All access panels must be modeled, including access zones above and below.

vi. If seismic bracing for suspended elements is required by code, such bracing must be included in the model.

d. Electrical Standards

i. All conduit/MC cabling (1- 1/2" diameter and larger), power feeds to equipment, switch gear, panels, junction box and pull station locations will be modeled. Where groups of smaller conduits totaling 1- 1/2" diameter or larger are located, a graphic representation of the overall dimension of the grouped conduit may be substituted.

ii. Light fixtures with above-ceiling space requirements are to be included in the model and coordinated with reflected ceiling plan. All access zones or clearances to maintain light fixtures will also be modeled.

iii. Equipment and cable tray with access zones to be included in the model along with uni-strut supports. Equipment will be modeled to its overall height, width and depth.

iv. Equipment and junction box access zones per specification and code (whichever is greater) must be modeled.

v. All access panels must be modeled, including access zones above and below.

vi. In the event that seismic bracing for suspended elements is required by code, such bracing must be included in the model.

e. Fire Protection (Sprinkler, Fire Alarm)

i. All components of the fire protection system will be modeled.

ii. Access zones must be modeled for all elements requiring access including but not limited to equipment, fixtures, valves and controllers.

iii. Locate all piping, valves, fire pump, sprinkler heads, heat and smoke detectors.

iv. All access panels must be modeled, including access zones above and below.

v. If seismic bracing for suspended elements is required by code, such bracing must be included in the model.

f. Structural Steel

i. All structural steel must be modeled, including but not limited to columns, beams, braces, gusset plates, connections, reinforcing plates and angles, pour stops, metal grating, seismic or secondary supports and beam penetrations.

ii. The model elements must contain non-graphic information that associates each element with its erection sequence as appropriate and identifies the size of the structural element.

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Progress Documentation - CPM

6

Article 6 Progress Documentation - CPM

6.1 Summary – Project Schedule

This attachment includes administrative and procedural requirements to plan, schedule, and document the progress of the Design-Build work; realize boundaries and expectations for schedule development and management; and predict and prevent delays to established sequences and milestones during performance of the Design-Build work, including the following:

a. Critical Path Method schedule and reports.

b. Material location and delivery reports.

c. Field condition reports.

d. Special reports.

e. Change management.

f. Time Impact Recognition and Time Impact Analysis.

g. As-Planned vs. As-Updated

The Design-Builder must prepare and maintain a baseline Project Schedule ("Baseline Project Schedule") in accordance with the requirements of this Article, to plan, organize and execute design and construction Work, to record and report actual performance and progress, to show plans to complete all remaining activities as of the end of each progress report period, and to enable the DDC to monitor and evaluate work progress.

Latest Oracle Primavera P6© software must be used for all scheduling requirements described in this Article. All activities must be cost, and resource loaded, and activity descriptions must be brief but must clearly convey the scope of work described. Durations for review activities by the DDC must be consistent with the timeframes as indicated in the Project Schedule. Unless otherwise approved by the DDC, construction work having longer durations must be subdivided into smaller elements of the Work such that construction Activities must have durations of 20 working days or less. Non- Construction activities such as some design related activities, procurement of materials, fabrication and delivery of equipment, concrete curing, and regulatory agency reviews may have longer durations.

The planning, scheduling, coordination and execution of the work is the sole responsibility of the Design-Builder. DDC Agreement, the substantial completion date, the final completion date, as well as the cost and resource loading within the Baseline Project Schedule must not be changed in any updates without written permission from the DDC.

6.2 Definitions

For purposes of this Attachment, the following terms will have the meanings specified in this section:

a. Activity: An intricate part of the Design-Build work that can be identified and measured for planning, coordinating, monitoring, and controlling the project.

b. Baseline Project Schedule: The as-planned CPM schedule for completion of the Design-Build work in accordance with the scheduled occupancy readiness date or the adjusted scheduled occupancy readiness Date, as applicable, reviewed and commented upon by the Owner and the Design-Builder, and completed by the Schedule Preparer.

   i. Following the initial update to the Baseline Project Schedule, including starts, finishes, Activity percent complete, logic adjustments, or duration amendments, as agreed upon at the Project Schedule definition meeting by the Project Team, the current updated schedule rendering will be defined as the Project Schedule.

   ii. The Baseline Project Schedule will remain unaltered as a tool to measure progress outlined and anticipated during the Project Schedule Definition Meeting and by the Schedule Basis document.

c. Baseline Project Schedule Update: The as-updated contemporary view of the Project Schedule, as understood by the project team at the time of the schedule status, which comprehends the accurate reflection of Design-Build Work started, progressed, and completed on the Project and the intended path of progress for Design-Build Work going forward.

d. CPM: Critical Path Method is a scheduling process used to plan and coordinate the Design-Build Work, arranging activities based on logical relationships in order to create a network diagram of interconnected procedures.

e. Critical Path: A progressing sequence of interdependent activities within the schedule network containing zero (0d) total float and establishing the minimum duration to achievement of Commissioning Readiness and Occupancy Readiness.

f. Float: The measure of latitude in starting and/or completing an Activity without impeding on the successful realization of project milestones.

   i. Recognizing float within an Activity, or chain of activities, does not permit the Design-Builder to disrupt progress or delay completion of an Activity.

g. Milestone: A milestone identified and included in the Design-Build Contract to be utilized by the Design-Builder in developing the Baseline Project Schedule

h. Narrative Statement: A narrative description of the Baseline Project Schedule Update.

i. PDM: Precedence Diagram Method utilizes standard CPM calculations creating an interdependent logical relationship between activities and a dependent path from Contract Effective Date through Commissioning Readiness and Occupancy Readiness.

j. Project Schedule: The Baseline Project Schedule, as updated by the Baseline Project Schedule updates.

k. Project Team: Persons acting on behalf of the owner or the Design-Builder in an effort to successfully plan, schedule, and coordinate the Design-Build work.

l. Resource: Any labor, material, or equipment, shared or exclusive, required for the completion of an Activity or the Design-Build work, which recognizes an associated cost.

m. Schedule: A comprehensive leveling of necessary procedural tasks, the sequencing of those tasks, and the resource allocation required to successfully complete the Design-Build work by the completion date.

n. Schedule Basis: A well-organized, narrative rendering of the project Team's involvement in the development of the as-planned Baseline Project Schedule, documenting key understandings of the project's scope, risks and threats to Occupancy Readiness, and the Schedule Management strategy.

6.3 Schedule Preparer

The Design-Builder must engage the services of a professional schedule preparer responsible for the preparation and coordination of schedule-related information for the Baseline Project Schedule and all required Baseline Project Schedule updates and reporting. The schedule preparer must possess a minimum of five years of construction related scheduling experience, must have developed and maintained at least two schedules for Projects of similar size and scope utilizing Oracle Primavera P6© software.

a. Provide intended schedule preparer's qualifications prior to the Project Schedule definition meeting, including qualifying Project names, locations, scope description, Project construction value, the type of scheduling software utilized and the submitted representative's direct role on the Projects noted.

b. During the period encompassing the agreement date to Final Completion, any substitution for the schedule Preparer, needed or requested, will require the resubmission of qualifications to the DDC in accordance with this Appendix.

c. Failure to designate a schedule preparer, or submit qualifications, will not absolve the Design-Builder of the requirements of this attachment.

The schedule preparer is a project resource responsible for the timely development and submission of all specified schedule iterations, statements, and reports; responsibilities include at a minimum the following:

a. Development of a schedule management strategy.

b. Baseline Project Schedule.

c. The schedule basis.

d. Baseline Project Schedule updates and reporting.

e. Submission of the as-built final Baseline Project Schedule.

6.4 Preliminary Baseline Schedule

The Design-Builder submitted a preliminary Baseline Project Schedule with its proposal that includes important design and construction activities and milestones from the contract agreement date through the applicable Guaranteed Completion Date for Final Completion. The level of detail of the preliminary Baseline Project Schedule is in summary level for major procurement, permitting, design and construction work, with all major milestones for the work included. The dates in the preliminary Baseline Project Schedule will be superseded by the dates reflected in the Baseline Project Schedule submitted in accordance with Section 6 (Baseline Project Schedule) of this article.

6.5 Development of the Project Schedule – Project Schedule Definition Meeting

The parties will schedule a Project Schedule definition meeting promptly following the Agreement date. The meeting will include members of the Project Team and will be conducted for the purpose of reviewing the schedule preparer's initial Baseline Project Schedule, defining the intent of the specification, and realizing applicable portions of the Schedule Basis. The discussions and mutual agreements reached at this and subsequent meetings by the Project Team will form the basis for the development of the Baseline Project Schedule and will be used for coordinating, scheduling and monitoring the Design-Build Work.

The schedule preparer is to complete the Baseline Project Schedule with information provided by the project team, following the Project Schedule definition meeting, and submit the Baseline Project Schedule for review and comment by the DDC.

a. The project team will recommend tasks or summaries appropriate to planning, scheduling and coordinating, including: establishing a focused work breakdown structure (WBS), phasing requirements, identifying logical connections critical to Commissioning Readiness and Occupancy Readiness, accounting for contract award and critical submittals, fabrication and delivery of long-lead materials, products, specialized equipment or services, and recognizing critical testing, inspection, or commissioning durations for coordination and tracking.

The Project Baseline Schedule must include a detailed critical path network-based schedule with emphasis on a fast track.

The Baseline Project Schedule recognizing early completion will be reviewed by members of the project team.

Milestones included in the Design-Build contract are to be incorporated into the Baseline Project Schedule.

The Design-Builder will comply with the Baseline Project Schedule and will be responsible for providing the necessary resources to complete the Design-Build work as defined by the schedule preparer.

6.6 Baseline Project Schedule

Following the Project Schedule definition meeting, the Design-Builder must submit a fully developed cost and resources loaded Baseline Project Schedule in accordance with this article, within thirty days following the Agreement date. The Baseline Project Schedule must be in the form of an activity-oriented network diagram (Critical Path Method) and the principles and definitions of the terms used herein must be as set forth in the Associated General Contractors of America (AGC) publication The Use of CPM in Construction, 1976. In the event of discrepancies, this article must govern the development and utilization of the Baseline Project Schedule.

The Baseline Project Schedule must be comprised of the cost and resource loaded Detailed Network Diagram and reports described herein. The Baseline Project Schedule must show the sequence and interdependence of activities required for complete performance of all the work including design development, procurement, construction, and commissioning. The Baseline Project Schedule must begin with the agreement date and must include milestones representing dates for release for construction documents to be completed, as well as each of the Guaranteed Completion Dates. each of the Guaranteed Completion Dates.

6.7 Detailed Network Diagram

The Baseline Project Schedule must include time-scaled network diagrams based on calendar days. The network diagrams must be Critical Path Method ("CPM") precedence format and must show the sequence and interdependence of activities required for complete performance of all items of work. A calendar must be shown on all sheets along the entire sheet length. Each activity must be plotted so that the beginning (and completion dates) of the activity can be determined graphically (by comparison) with the calendar scale.

The Detailed Network Diagram must provide sufficient detail and clarity of form and technique so that the Design-Builder can plan, schedule, and control the work properly and the DDC can readily monitor and follow progress for all portions of the work. The Detailed Network Diagram must include all activities of the work, including preliminary Baseline Project Schedule activities. The Design-Builder must analyze the activities outlined in the Detailed Network Diagram with respect to normal manpower and equipment requirements to determine activity time durations in units of whole working days. Critical Path activities must be identified, including Critical Paths for interim completion dates. Milestone events must be identified and connected to the appropriate activity, denoting its start or completion, as applicable. Each start milestone event must restrain the start of all dependent activities. Further, all activities included in the scope of work associated with a completion milestone event must be finished before that milestone event can occur. Interfaces and dependencies with preceding, concurrent, and follow-on work by others must be included as milestone events.

The Detailed Network Diagram must include the following information related to the activities:

a. Activity number.

b. Activity description.

c. Estimated duration in working days.

d. Activity cost.

e. Manpower requirements in man-hours.

f. Major equipment.

The degree of detail of the Detailed Network Diagram must consider the following factors:

a. The structural breakdown of the project.

b. The type of work to be performed and the labor trades involved.

c. All delivery activities for all major materials and equipment.

d. Submittal and approval of shop and working drawings and material samples.

e. Plans for all subcontract work.

f. Access and availability to work areas.

g. Test, submissions, and acceptance of test results.

h. Coordination with ongoing existing operations.

i. Planning for phased or total acceptance by the DDC.

Seasonal weather conditions must be considered and included in the planning and scheduling of all work influenced by high or low ambient temperatures and/or precipitation to ensure completion of all work by the applicable Guaranteed Completion Dates. Seasonal weather conditions must be determined by an assessment of average historical climatic conditions based upon the preceding ten-year records published for the locality by the National Ocean and Atmospheric Administration.

The Design-Builder may use labor or equipment restraints separately noted to optimize and level labor and equipment requirements. The individual activities involved may be sequenced within the limits of total float. When this leveling technique is used in establishing the working schedule, it must be reflected in the logic. Critical or near-Critical Paths developed from the use of labor restraints must be kept to a minimum. Near-Critical Paths must be defined as those paths having 14 calendar days or less of total float at time of initial submission.

The Design-Builder must develop a unique system to number and differentiate design, procurement, Construction, quality control testing, functional testing, commissioning, maintenance, other activities, additional or modified activities resulting from design development and potential revision activities directed by the DDC. The numbering system for potential revision activities must include, at a minimum, the potential revision number assigned by the DDC and a sequential number representing each work item included in the revision. No two activities must have the same number identification. Prior to submission of the Baseline Project Schedule, the Design-Builder must submit the numbering system to the DDC for approval.

The Detailed Network Diagram must be accompanied by a report, in tabular format, listing all activities by activity number and also including precedent and successor relationships, lag, and lead-time. Each listing must show activity number, description, location, responsibility, total duration in working days, early-start date, late-start date, early-finish date, late-finish date, total float, free float, cost, resources including man-hours and major equipment and status (whether critical or completed) for each activity.

Resource Assignments - Cost

a. Resources recognizing the total cost associated with all efforts necessary for the completion of a unique Activity within the schedule network, and the cumulative cost of the Design-Build Work, are to be assigned concordant with the detailed estimate submitted by the Design-Builder. The Design-Builder is responsible for providing the information necessary for assigning resources for the Baseline Project Schedule and Baseline Project Schedule Updates to the Schedule Preparer.

Resource Assignments – Labor/Manpower and Equipment

b. Resources recognizing the total labor/manpower and specialized equipment associated with all efforts necessary for the completion of a unique Activity within the schedule network, and the cumulative curve associated with the Design-Build Work, are to be assigned concordant with the intended means and methods proposed by the Design-Builder. The Design-Builder is responsible for providing the information necessary for assigning resources for the Baseline Project Schedule and Baseline Project Schedule Updates to the Schedule Preparer.

6.8 Owner Review and Comment on the Baseline Schedule

The Design-Builder and the DDC must meet, within seven days after the DDC's initial receipt of the Design-Builder's fully developed Baseline Project Schedule, for a joint review of and to identify any corrections or adjustments to the proposed Baseline Project Schedule. Within seven days of such joint review meeting, the Design-Builder must submit a Baseline Project Schedule incorporating the DDC's comments to the proposed Baseline Project Schedule. The DDC's review of the Design-Builder's Baseline Project Schedule will be solely to determine compliance with the requirements of the Contract Documents. The review and comment by the DDC of the Design-Builder's master schedule will not relieve the Design-Builder of any of its responsibility whatsoever for performance of the work, the accuracy, reasonableness or feasibility of the Baseline Project Schedule, or of the Design-Builder's responsibility to achieve any Guaranteed Completion Date. All modifications to the final version of the Baseline Project Schedule will be subject to the review and comment of the DDC in the manner set forth in this subsection. The finalization of the Baseline Project Schedule in accordance with this article will be a precondition to the establishment of the Construction Commencement Date.

6.9 Project Schedule Updates

The Design-Builder must submit schedule updates to the DDC twice a month. The first schedule update must consist of only electronic file (P6 file) no later than the 15th day of the month. The second schedule update must consist of electronic file (P6) and Narrative Report, no later than the 30th day of the month. Each schedule update following the original Baseline Project Schedule submission must include the following elements:

a. Activity sort by preceding event number from lowest to highest, and then in the order of the following event number;

b. Activity sort by early start for next 60 working days, then in order of preceding event number;

c. Activity sort by late finish for next 60 working days, then in order of preceding event number; and

d. Milestone status report to include current status of each milestone event.

e. Shows current Work progress and the status of Work completed for each task and subtask included in the Baseline Project Schedule;

f. Contains information on the resources to be employed and Work to be completed in the upcoming month, including a 60-day look-ahead that reflects all agreements made by the Parties as to Baseline Project Schedule revisions in sufficient detail for the DDC to be able to verify agreed-upon Work schedule and milestone date changes; and

g. Describes conditions that have affected or may accelerate or decelerate the Baseline Project Schedule then in effect, together with proposed Baseline Project Schedule adjustments and mitigation measures.

h. Describe any changes made and the inter effect on the tasks due to change.

Logic calculation configurations should be consistent throughout the Project. The Design-Builder must use retained logic option, calculate start to start lag by using Early Start option, calculate early start using contiguous activity duration option, and calculate total float using most critical option.

Within two business days of receipt of each schedule update, a meeting will be held with DDC and the Design-Builder to address any concerns, review updates to the actual starts, actual finishes, and the percent complete of in-progress activities, and consider logic changes, sequencing alterations, duration amendments, time impact events, and scope changes, for the purpose of determining the status of both design and construction progress on the updated Project Schedule.

a. During the progress of Design-Build Work, the Design-Builder is required to document actual start, actual finish, and Activity percent complete on a daily basis, and provide the information to the Schedule Preparer no later than three days prior to the required monthly update, and in the manner defined by the Schedule management strategy portion of the Schedule Basis.

b. The Design-Builder and the DDC will review the updated progress in the Baseline Project Schedule prior to acceptance of progress information and anticipated work as the Baseline Project Schedule Update.

   i. Revisions and comments are to be incorporated within two days of the Baseline Project Schedule Update meeting, and required reports are to be presented for review.

c. If the Design-Builder fails to progress the Design-Build Work as outlined in the Baseline Project Schedule Update it will be informed of its deficiencies and, if required, be requested to provide a recovery option.

   i. The Schedule Preparer is responsible for incorporating any recovery options as needed by the Design-Builder for the duration of the Project.

d. The Design-Builder will furnish all schedule information requested by the DDC and the Schedule Preparer, and as defined in the Schedule Management strategy outlined in the Schedule Basis.

e. During the period between Baseline Project Schedule Updates, any time impact event due to, but not limited to, a field condition or scope change, is to be noted by the Design-Builder; the impact is to be represented by the Schedule Preparer, at a minimum, with a Milestone event, the time for resolution, and the impact to work.

f. Baseline Project Schedule Updates recognizing early completion will be reviewed by members of the Project Team prior to acceptance of the Baseline Project Schedule Update.

   i. Following the schedule review meeting referenced above, the Design-Builder must respond and indicate how proposed changes or revisions thereto can be made to satisfactorily address the concerns of DDC and the Project Team in general. Upon DDC acceptance, the proposed changes will be incorporated in the updated Baseline Project Schedule and replace any previously issued Baseline Project Schedule.

Baseline Project Schedule updates are for the purpose of providing the Design-Builder with flexibility in its Work activity durations and sequences, but in no event will such updates result in a change in the Guaranteed Completion Dates and the cost and resource loading in the initial Baseline Project Schedule without written permission from the DDC.

6.10 Progress Reports

Prior to each weekly progress meeting and prior to Final Completion, the Design-Builder must gather the necessary information required to reflect progress to date and a two-week look-ahead schedule. A draft updated schedule and a two-week look-ahead schedule must be available for review at the meeting including all information available as of the cut-off date established by the DDC. The Design-Builder must come to the update meetings with the above data prepared in advance to provide, as of the end of the updating period, a complete and accurate report of current progress of all Work, showing plans to continue the work to meet the Guaranteed Completion Dates.

6.11 DDC Review of Project Update Schedules

The DDC will review the updated Baseline Project Schedule and advise the Design-Builder as to any of its concerns, along with proposed changes. Every month, in addition to the weekly progress meetings, the Design-Builder must meet with the DDC to discuss Project progress and the updated Baseline Project Schedule within 2 Business Days of DDC's receipt of the updated Project Schedule required under Section 6.9 above. The Design-Builder must respond to DDC concerns and indicate how the proposed changes or revisions thereto can be made to satisfactorily address DDC concerns. Upon DDC approval, the changes must be incorporated in the updated Baseline Project Schedule and replace any previously issued Baseline Project Schedule. The Baseline Project Schedule updates are for the purpose of providing the Design-Builder with flexibility in its work activity durations and sequences, but in no event will such updates result in a change in the Guaranteed Completion Dates and the cost and resource loading in the Initial Baseline Project Schedule without written permission from the DDC.

6.12 Time Impact Analysis

To the extent delays are experienced that may impact the Critical Path, the Design-Builder must submit a report containing a "Time Impact Analysis" utilizing methods that represent best management practice, subject to DDC's confirmation, illustrating the effects of such events on the current Baseline Project Schedule, including any new dates for Work task and major subtasks, commissioning dates and milestones, including Substantial Completion and Final Completion as applicable. Each Time Impact Analysis must include a fragment network analysis ("fragnet"), demonstrating how the Design-Builder proposes to incorporate the change or delay into the Detailed Network Diagram. The Design-Builder must present mitigation measures that were considered to offset potential Work delays, those proposed for DDC review and acceptance, and a revised Baseline Project Schedule incorporating the Design-Builder's proposed changes.

Each Time Impact Analysis must demonstrate how the Design-Builder proposes to incorporate the change or delay into the project schedule. Additionally, the analysis must demonstrate the time impact based on the date that the Design-Builder was notified of the DDC Directive or the date that the Delay Event began, the status of Construction at that point in time, and the event time computation of all affected activities. The event items used in the analysis must be those included in the latest updated copy of the detailed progress schedule or as adjusted by mutual agreement. Upon mutual agreement by the Parties, fragnets illustrating the influence of the Delay Event, Modification Change Request, Change Order or delay will be incorporated into the Detailed Network Diagram during the first update after mutual agreement is reached.

6.13 CPM Recovery Schedule

When periodic updates indicate the Design-Build work is 15 or more days behind the Baseline Project Schedule's Commissioning dates or Substantial Completion dates, the Schedule Preparer will present recovery options to the Design-Builder and DDC to be incorporated into a Baseline Project Schedule Update. These recovery options include, but are not limited to, allocating additional resources for Activity duration reduction, modifying network logic, or revising Activity sequences. This schedule must explore different options to minimize the time and cost impact to the project.

a. Alterations to the Project Schedule by a CPM Recovery Schedule, will constitute the updated Project Schedule.

The updated Project Schedule following the implemented CPM Recovery Schedule will be recognized as the primary baseline schedule for reporting. The Baseline Project Schedule will be retained as a secondary baseline schedule and will be utilized to measure progress against the alterations.

6.14 Final Baseline Project Schedule

Upon Final Completion, the Design-Builder must submit the final construction as-built Baseline Project Schedule for record with all Record Drawing Critical Paths identified and including the following:

a. All activities identified in the Baseline Project Schedule, including all added activities.

b. Activity durations must be the actual number of separate workdays during which work was performed on the activity.

c. Total man-days for an activity must be the actual number of man-days that were required to complete the activity.

d. The actual start date and finish date of each activity.

e. Actual milestone completion dates as indicated in completion certificates and acceptance letters issued by the DDC.

6.15 Products

Scheduling Software

a. Scheduling Software: Schedule is to be prepared and managed utilizing Oracle Primavera P6 PPM or EPPM operating system.

Baseline Project Schedule

a. The Schedule Preparer is to submit the Baseline Project Schedule in the format discussed at Project Schedule Definition Meeting, and in conjunction with the requirements of this and related sections.

b. P6 setting: 1. Verify the Default Duration Type for the project is "Fixed Duration and Units" and all activities within the Project are "Fixed Duration & Units". 2. Verify the Default Percent Complete Type for the Project is "Physical" and all activities within the Project are "Physical". 3. Verify that the critical activities are defined as "Longest Path". 4. The only acceptable scheduling option for "scheduling progressed activities" is Retained Logic. C.

Schedule Update Reports

a. The Schedule Preparer is to provide update reports in the format required as defined during the Project Schedule Definition Meeting. These reports include but are not limited to, the Schedule Basis, the updated P6© file, Activity network, Gantt charts, logic reports, look-ahead schedules, change management reports, responsibility reports, and the Narrative Statement.

b. Reports are to be provided within 30 days of the previous schedule update.

i. Baseline Project Schedule Update reports inaccurately reflecting Design- Build Work started, progressed, or completed, time impact events inappropriately placed within the Project Schedule, or Narrative Statements inadequately capturing the as-updated or as-planned Design-Build Work will be rejected.

ii. The Schedule Preparer is to represent the Design-Build Work started, progressed, or completed as accurately as possible with the information provided by the Design-Builder, and in accordance with industry standard practices for schedule related reporting.

Defining the Schedule Basis

a. The Schedule Preparer is to submit Schedule Basis documentation in conjunction with each revision to the Baseline Project Schedule submission recognizing the following:

i. Project title.

ii. Scope of work.

iii. Key personnel from the Project Team involved in planning.

iv. Planning basis and strategy for executing the Design-Build Work, including labor and equipment needs or restrictions, contractual constraints, and restricted work periods.

v. Critical path.

vi. Issues and concerns.

vii. Risks or threats to on-time completion.

viii. Exceptions or exclusions.

ix. Scheduling requirement deviations (i.e., Activity duration, calendar).

x. Schedule Management strategy.

xi. Time Impact Recognition strategy.

Narrative Statement

a. The schedule preparer is to provide the narrative statement with the specified Baseline Project Schedule Update and report and prior to each project schedule meeting.

b. The narrative statement must include the following:

i. An Introduction including the project name, Project location, the Design- Builder name, name of the schedule preparer, and a brief overview of the Design-Build work.

ii. An Executive Summary highlighting progress or significant changes.

iii. A Milestone Chart and Analysis recognizing any change in the Design- Build work and achievement of Milestones.

iv. An Analysis of Critical Path activities.

v. An Analysis of Time Lost or Gained on the schedule regarding Design- Build work; logic Changes and Schedule Development; Activities Not Started or Completed as Scheduled

vi. A Material Delivery summary identifying the onsite storage locations of material delivered for Design-Build Work being performed or Design-Build Work on the critical path, and the anticipated arrival dates of material required for future critical path Work.

vii. A Field Condition and Program Change summary noting any discoveries or contract alterations resulting in Contract Administration Approvals or Change Orders.

viii. A Special Condition summary noting delay events beyond the control of the Design-Builder requiring Contract Administration Approvals or Change Orders.

ix. Schedule Risks a: Potential Schedule Risks and Opportunities b: Schedule Delays c: Proposed Corrective Action Plan/Recovery Plan

x. Schedule Constraints

xi. Status of Design-Build Services a: Status of Design Services b: Status of Construction Services c: Status of Procurement Services

xii. Activity Codes and WBS Structure

c. For each Progress Schedule Submittal, the narrative must respond to previous update review comments from the Owner, recap progress and days gained or lost versus the previous Progress Schedule, describe changes, and identify Delays, their extent and causes. For Progress Schedule Submittals, each narrative also must itemize and explain changes in Activities, calendar, and logic ties, schedule recovery plans and Contractor initiated revisions. Provide summary cost date to include cost this period, cost to date, remaining cost, list of billable design/construction activities.

d. Baseline narrative must include details regarding

i. basis and assumptions for activity durations and logic,

ii. compliance with winter weather requirements, and

iii. any shifts, non-Business Days and multiple calendars applied to the Activities.

As-Built Project Schedule

a. The Schedule Preparer will submit an as-built Baseline Project Schedule recognizing the actualized progression of Design-Build Work vs. the intended as- planned Baseline Project Schedule within five days prior to Final Completion.

Execution

a. The Schedule Preparer and Design-Builder are to determine, with input from the Owner, a breakdown of WBS Levels within the Project which adequately and appropriately organize and represent the Design-Build Work and the intended structure of construction progress.

b. The Schedule Preparer and Design-Builder will determine and define activities applicable to the Design-Build Work and the scope of the Project. Activities are to be appropriately placed within WBS Levels and are to identify specific aspects of the Design-Build Work according to Project and contract requirements.

c. The Design-Builder and the DDC will review the initial Baseline Project Schedule at the Project Schedule Definition Meeting and provide comments for the development of the Baseline Project Schedule. The Baseline Project Schedule will be used for verifying percentages complete for the Design-Build Work and progress payments.

i. The Schedule Preparer is to complete the Baseline Project Schedule based on comments provided by the Design-Builder and the DDC within five days of the Project Schedule Definition Meeting. 2. If the Design-Builder fails or refuses to provide information for developing the Baseline Project Schedule, or if in the judgment of the DDC the information provided does not accurately reflect the Design-Build Work of the Project, the Design-Builder will be deemed not to have provided the information necessary for progress payments and payments will be withheld.

d. Following receipt of the Baseline Project Schedule in compliance with this section for review and comment, the DDC and the Design-Builder will return comments to the Schedule Preparer within five days. The Schedule Preparer is to revise according to the comments.

Activities

a. The Schedule Preparer and Design-Builder are to provide activities that accurately reflect the Work and that can be utilized for monitoring and anticipating progress. In establishing activities for the Work and their durations, the Design-Builder must include, as a minimum, the following:

i. Mobilization.

ii. Design Deliverables

iii. Demolition (where applicable)

iv. Permitting

v. Coordination with Other Stakeholders

vi. Fabrication.

vii. Material Delivery.

viii. Utility interruptions.

ix. Coordination.

x. Work period restrictions.

xi. Contractual constraints.

xii. Installation.

xiii. Inspection.

xiv. Testing and commissioning.

xv. Punchlist

b. Long-lead and critical submittals and contract procurement items are to be identified and defined by the Design-Builder and the Schedule Preparer and will be established in the appropriate WBS Level for monitoring and sequencing by the Schedule Preparer.

c. The schedule preparer will identify each Activity with a unique Activity identification number. The prefix for Activity identification is to be reviewed and commented upon by the Owner and utilized by the Schedule Preparer for the duration of the Design-Build Work. No Activity's identification number is to be altered after the Baseline Project Schedule has been reviewed and commented upon by the Owner.

d. The schedule preparer will not utilize any constraining techniques for activities without approval and will provide narrative documentation within the Schedule Basis during Baseline Project Schedule development and the Narrative Statement in conjunction with the Baseline Project Schedule Updates, defining the reasons for this usage.

e. The schedule preparer will not allow activities to be open-ended having either no predecessor or successor, with the exception of the first and last Activity in the Project Schedule network.

f. Activities will be linked sequentially by the Schedule Preparer with information provided by the Design-Builder according to the anticipated flow and progress of the Design-Build Work.

g. Activities with Start-Finish and Finish-Finish relationships established for the as-planned Baseline Project Schedule or amended for the Baseline Project Schedule Updates will require written explanation in the Schedule Basis and/or Narrative Statement.

Calendars

a. The calendar utilized by the Schedule Preparer for each Activity is to accurately reflect anticipated State and federal holidays, as well as work being performed off-hours as defined in the Design-Build Contract or by specific approved Design-Builder means and methods.

b. The Schedule Preparer is to identify unique Project level Activity calendars which connote the intent of the calendar for each Activity.

c. The Schedule Preparer will submit a list of calendars utilized in the development and management of the schedule within the Schedule Basis.

d. Activity calendars are not to be altered after the Owner has reviewed and commented upon the Baseline Project Schedule without an appropriate written explanation within the Narrative Statement recognizing the reason for the change.

e. Only Project Level Calendars should be used on Projects. No Activity should be assigned to a Global Level Calendar. Please ensure that each activity in the schedule is assigned to a calendar that is appropriate for the work type.

Activity Codes

a. The schedule preparer is to provide Activity codes for each Activity within the schedule network. The Activity codes will include responsibility, area, phase, location, and Milestones.

b. The schedule preparer is not restricted from utilizing as many codes as necessary or possible to assist in the management of the Design-Build work via the project schedule. Any additional Activity codes must remain within the scope of this section or related sections.

c. The schedule preparer is to develop Activity codes as Project level codes only.

d. Additional codes: The schedule must include but not be limited to the following activity codes:

i. Bid item

ii. Submittal #

iii. Procurement/fabrication

iv. Delivery

v. Construction/installation

vi. Change order

vii. Added scope

viii. Interface

ix. Construction phase

x. Update (added/deleted activities)

xi. Delay

e. No Activity Code is to be altered by the Schedule Preparer after the Baseline Project Schedule has been reviewed and commented upon by the Owner.

Project Codes

a. Project codes are not to be added to the Baseline Project Schedule or Baseline Project Schedule Updates by the Schedule Preparer.

Baselines

a. The Schedule Preparer will maintain a copy of the Baseline Project Schedule as the assigned baseline Project Schedule.

Time Impact and Time Impact Analysis

a. The Schedule Preparer will represent Time Impact to the Project Schedule Milestones utilizing, at a minimum, a Milestone event, an Activity for resolution, and related work associated with the impact to the as-updated Design-Build Work.

i. The Schedule Preparer is to use the most current Baseline Project Schedule Update to prepare the Time Impact representation.

ii. If Project Schedules have not been updated in accordance with this Attachment, an update must be generated which includes an accurate realization of the Design-Build Work performed and progressed up to the Time Impact event. Failure to maintain Baseline Project Schedule Updates in accordance with this or related sections will not absolve the Schedule Preparer or the Design-Builder of the responsibility to identify Time Impact as defined at a minimum by this Attachment.

iii. A Request for Time Extension will require Time Impact recognition within the CPM schedule.

iv. Time Impact events will be reviewed for accuracy and are to be updated in accordance with relevant new information regarding time for resolution and impact to remaining work on the Project.

Resources

a. The Schedule Preparer will work with the Design-Builder to add appropriate resource assignments to each Activity utilizing unique Resource IDs and Resource Names which recognizes the trade.

b. The Schedule Preparer is not restricted from utilizing as many resource assignments as necessary to accurately and adequately account for the Design- Builder's total Activity cost, labor/manpower, or specialized equipment. All resource assignments are to remain within the scope of this section and will comply with all requirements of the Design-Build Contract.

c. Total costs, labor/manpower, or specialized equipment associated with individual activities are to recognize at a minimum the following process when establishing costs per Activity:

i. Mobilization.

ii. All labor, supervision, and management encompassing the Activity duration.

iii. All intended material and equipment required for completion of an Activity.

iv. All testing and inspection requirements within the Activity

d. The Baseline Project Schedule and Baseline Project Schedule Updates are to clearly indicate the Project total cost, labor/manpower, or specialized equipment for the Design-Build Work and the actual cost, labor/manpower, and specialized equipment needs for the Design-Build Work performed from the Contract Effective Date to the current data date. The Schedule Preparer will submit a report verifying the cumulative

resource assignments at the as-planned baseline for the Project and the cumulative resource assignment consumption for the period of Design-Build Work from the previous data date to the current data date.

e. No changes are allowed to resources or the budgeted total costs for an Activity after the Owner has reviewed and commented upon the Baseline Project Schedule without prior written notice and opportunity to comment being provided to the Owner and a documented and detailed breakdown of the budgeted cost or resource adjustment being provided.

f. The budgeted total resource cost on the Baseline Project Schedule must equal the value of the Design-Build Work as outlined in the Design-Build Contract.

Resource Reporting

a. The Schedule Preparer is to provide reporting showing the resource assignments established for each Activity during development of the Baseline Project Schedule. Reports are to include at a minimum the following:

   i. Develop and submit a graphic report utilizing the specified scheduling software, showing the Design-Builder's budgeted Project cost and labor/manpower projections and the cumulative budgeted Project costs and labor/manpower as anticipated from the Contract Effective Date to Final Completion.

   ii. Develop and submit an Activity report utilizing the specified scheduling software, showing the resources per Activity and the budgeted baseline project cost and labor/manpower for each Activity in the Baseline Project Schedule.

b. Baseline Project Schedule Updates are to include updates to resources and will reflect the total actual cost of the Design-Build Work from the Contract Effective Date to the data date, and the total periodic cost for the timeframe of the update. The Schedule Preparer is to provide resource reporting to the Owner, including the following:

   i. Activity identification numbers, names, start, finish dates, and Activity percent complete for the period with actual period costs and a cumulative project report.

   ii. Total actual costs from the Contract Effective Date to the data date for the updated Project Schedule and a cumulative report for the project.

   iii. Compare resource reporting to the progress performed.

Resource Codes

a. Any resource codes added to an assigned resource are to be submitted to the Owner by the Schedule Preparer for review and comment prior to the finalization of the Baseline Project Schedule.

b. Resource codes are not to be added to the Project Schedule by the Schedule Preparer after finalization of the Baseline Project Schedule.

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Photographic Documentation

7

Article 7 Photographic Documentation

7.1 Summary

Section includes administrative and procedural requirements for the following:

c. Preconstruction photographs.

d. Periodic construction photographs.

e. Final completion construction photographs.

f. Preconstruction video recordings.

g. Periodic, and requested construction video recordings.

7.2 Submittals

Qualification Data:

a. Digital Photographic Documentation Service Provider: A firm specializing in providing photographic equipment, and related services for construction projects, with record of providing satisfactory services similar to those required for Project.

b. Digital Video Documentation Service Provider: A firm specializing in providing video and time lapse equipment, and related services for construction projects, with record of providing satisfactory services similar to those required for Project

Key Plan: Submit key plan of Project site Project Site and building with notation of vantage points marked for location and direction of each photograph and/or video recording. Indicate elevation or story of construction. Include information to allow identifying corresponding photographic documentation.

c. Resubmit updated key plan as required, as Project proceeds.

Equipment:

a. Digital Camera: Submit required digital cameras for approval, with minimum sensor resolutions of 12 megapixels.

b. Digital Video Camera: Submit required video cameras for approval.

Digital File Formats:

a. Submit proposed digital file formats and proposed file naming conventions for approval for each required photographic document type. Submit proposed file formats for the following:

   i. Photographic documentation.

   ii. Video documentation.

   iii. Time lapse Documentation.

      1) Digital files are to be unedited unless requested by the DDC in writing, and to utilize the maximum resolution of the camera image sensor

Digital Photographs:

a. Submit image files via the Contract this Agreement's required submittal process (Article 7) within three days of taking photographs.

b. Identification: Provide the following information with each image in its file metadata:

   i. Name of Project.

ii. Name and contact information for photographer.

iii. Name of PMC.

iv. Name of Design-Builder.

v. Date and time that the photograph was taken.

vi. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

vii. Unique sequential identifier keyed to accompanying key plan.

Video Recordings:

a. Submit video recordings via the Contract required submittal process within seven days of recording.

b. Identification: With each submittal, and within the video metadata, provide the following information:

i. Name of Project.

ii. Name and address of photographer.

iii. Name of PMC

iv. Name of Design-Builder.

v. Date and time that the video recording was recorded.

vi. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

vii. Weather conditions at time of recording.

7.3 Usage Rights

Obtain and transfer copyright usage rights from photographer to DDC for unlimited reproduction of all photographic documentation.

7.4 Photographic Media

Digital Images: Provide images in JPG format, produced by a digital camera with a digital camera, approved by the DDC.

Digital Video Recordings: Provide high-resolution, recordings in a format approved by the DDC.

7.5 Construction Photographs

General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.

Maintain key plan with each set of construction photographs that identifies each photographic location.

Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

Preconstruction Photographs: Before commencement of excavation, take photographs of Project Site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by CMC.

Flag excavation areas before taking construction photographs.

Take minimum 20 photographs to show existing conditions adjacent to property before starting the Work.

Take minimum 20 photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.

Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements, including any MTA facilities or Adjacent Properties.

Periodic Construction Photographs

a. Take minimum 30 photographs monthly, adjusted to coincide with the cutoff date associated with each Application for Payment Request. Select vantage points to show status of construction and progress since last photographs were taken.

b. Frequency: Take photographs monthly, coinciding with the cutoff date associated with each Application for Payment Request.

c. Vantage Points: During each of the following construction phases, take not less than two of the required shots from same vantage point each time to create a time-lapse sequence as follows:

   i. Commencement of the Construction Work, through completion of subgrade construction.

   ii. Above-grade structural framing.

   iii. Exterior building enclosure.

   iv. Interior Construction Work, through date of Substantial Completion.

d. Time-Lapse Sequence Construction Photographs: Take required sequences show status of construction and progress since last photographs were taken, and to provide a continuous record.

Final Completion Construction Photographs

a. Take 20 photographs after date of Substantial Completion for submission as Project record documents. CMC will inform photographer of desired vantage points.

Additional Photographs

a. The DDC may request photographs in addition to periodic photographs specified. Additional photographs will be paid for by Change Order and are not included in the Lump Sum Amount. Three days' notice will be given, where feasible.

b. In emergency situations, take additional photographs within 24 hours of request.

c. Circumstances that could require additional photographs include, but are not limited to, the following:

i. Special events planned at Project site.

ii. Immediate follow-up when on-site events result in construction damage or losses.

iii. Photographs to be taken at fabrication locations away from Project Site. These photographs are not subject to unit prices or unit-cost allowances.

iv. Substantial Completion of a major phase or component of the Work.

v. Extra record photographs at time of final acceptance.

vi. DDC's request for special publicity photographs.

vii. Construction Photographs: From time to time, DDC will instruct photographer about number and frequency of photographs and general directions on vantage points. Select actual vantage points and take photographs to show the status of construction and progress since last photographs were taken.

7.6 Construction Video Recordings

Continuous Recording: Mount required cameras on tripod or secure location before starting recording unless otherwise necessary to show area of construction. Display continuous running time and date. At start of each video recording, record weather conditions available from a reliable source.

Preconstruction Video Recording: Before starting excavation, record video recording of Project Site and surrounding properties from different vantage points, as directed by Design-Builder.

Flag excavation areas before recording construction video recordings.

Show existing conditions adjacent to Project Site before starting the Construction Work.

Show existing buildings either on or adjoining Project Site to accurately record physical conditions at the start of excavation or demolition, as applicable.

Show protection efforts by the Design-Builder.

Minimum recording time must be 30 minutes.

Periodic Construction Video Recordings: Record a video recording monthly, coinciding with the cutoff date associated with each Application for Payment Request. Select multiple recording locations to show status of construction and progress since last video recordings were recorded. Minimum recording time must be 30 minutes(s). Submit per specified submittal process.

Time-Lapse Sequence Construction Video Recordings: Record video recording to show status of construction and progress.

Frequency: During each of the following construction phases, set up video recorder to automatically record one frame of video recording every five minutes, from same vantage point each time, to create a time-lapse sequence of 30 minutes in length as follows.

a. Commencement of the Construction Work, through completion of subgrade construction or equivalent milestone in demolition.
b. Above-grade structural framing.
c. Exterior building enclosure.
d. Landscaping and Exterior Work
e. Selected interior work as directed by the DDC.

Timer: Provide timer to automatically start and stop video recorder so recording occurs only during daylight and construction work hours.

Vantage Points: Select multiple vantage points.

Submittal Procedures

8

Article 8 Submittal Procedures

8.1 Summary

This Section specifies certain general requirements of Submittals, including for Design Documents, Construction Documents, Release for Construction Documents, Record Drawings, and all other Submittals required under this Agreement.

Pursuant to Section 13 of the Design-Build Agreement, the review of Submittals by the DDC is solely for the DDC's benefit and will not relieve the Design-Builder of its obligation to perform the Work in conformance with the requirements of the contract documents.

The Design-Builder must respond to and resolve all of the DDC's comments and objections to a Review and Comment Submittal provided in accordance with the terms of this Contract as outlined in Articles 13.3 and 13.4 of the Design-Build Agreement.

8.2 Submittal Procedures

All Submittals must be transmitted through the designated submittal application within the DDC Program Management Information System (PMIS). Submittals transmitted by any other means will not be accepted by the DDC. In cases where samples or other items which cannot be transmitted electronically, the electronic submittal is to precede the physical submittal which must include a paper copy of the electronic submittal.

The Design-Builder will be responsible to see that the Submittal and related data are reviewed and approved for adequacy by authorized personnel prior to issue. A master list or equivalent document-control procedure identifying the current revision status of documents must be established and be readily available to preclude the use of invalid and/or obsolete documents.

Make Submittals required by the contract documents, including those indicated in this Section, and revise and resubmit as necessary to establish compliance with the specified requirements. This Section excludes various administrative Submittals and closeout and training Submittals specified elsewhere, but includes the following:

a. Required Submittals List and Submittal Log
b. Individual Design Document Package Submissions
c. Individual Construction Document Submissions
d. Design Computations
e. Building and Utility Plans and Topographic Data
f. Estimated Material Quantities
g. Design Certifications
h. Product Data
i. Shop Drawings
j. Working Drawings
k. Construction Certifications
l. Documentation
m. Design-Builder's Reports
n. Design-Builder's Required Photographic Documentation
o. Governmental Approvals and letters from Utilities

p. Overviews, Procedures, Plans and Reports

q. Factory Acceptance Testing Plans and Results

r. Final Inspection at the factory

s. Field Acceptance Testing Plans and Results

The Design-Builder may require his subcontractors to provide drawings, installation diagrams, and similar information to help coordinate the Work, but such data must remain between the Design-Builder and the Sub-Contractor, and will not be reviewed by the DDC unless it is required by other pertinent sections of the specifications.

8.3 Definitions

Action Submittals: Any Mandatory DDC Approval Submittal, Deemed Approval Submittal, and Review and Comment Submittals as defined under Section 13 of the Design-Build Agreement.

8.4 Substitutions

"Or Equals" Substitutions:

a. Restricted Items – Where items of equipment and/or materials are specifically identified in the Contract Documents by a manufacturer's name, model or catalog number, only such specific items may be used.

b. When several materials are specified by name for one use, the Design-Builder may select any of those specified. Materials specified by manufacturer's trade name must comply with manufacturer's printed specifications and data.

c. Equals Considered – Whenever a material or article required is specific or shown on the Contact Drawings by using the name of the proprietary product or of a particular manufacturer or vendor, any material or article which will, in the opinion of the DDC/PMC, perform adequately the duties imposed by general design will be considered equal and satisfactory provided material or article so proposed is of equal substance and functioning in the DDC/PMC opinion. It must not be purchased or installed without the DDC/PMC written approval.

d. "Or Equal" request will be considered only when substantiated by the Design-Builder's submittal of data documenting the "or equal" nature of material or article.

Substitution for Unavailability:

a. Substitutions may be considered when a product becomes unavailable through no fault of the Design-Builder. The Design-Builder must document each request with complete data substantiating compliance of proposed Substitution with contract documents, or there is a clear benefit to the DDC including cost. A request constitutes a representation that the Design-Builder:

   i. Has investigated the proposed product and determined that it meets or exceeds the quality level of the specified product.

   ii. Must provide the same warranty for the substitution as for the specified product.

   iii. Must coordinate installation and make changes to other work which may be required for the Work to be complete with no additional cost to the DDC.

8.5 Action Submittals

Submittal Schedule: Submit a Schedule of Submittals, arranged in chronological order by dates required by the Project Schedule. Include time required for DDC review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or modifications to Submittals noted by the DDC and additional time for handling and reviewing Submittals required by those corrections.

a. Coordinate Schedule of Submittals with list of Subcontracts, the Schedule of Values, and the Design-Builder's Project Schedule.

b. Initial Submittal: Submit within thirty days of the Agreement Date. Include Submittals of Design Documents, Construction Documents and other Submittals that the Design-Builder is required to make under this Contract. List those Submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication and identify the type of Submittal, either Mandatory DDC Approval Submittal, Deemed Approval Submittal or Review and Comment Submittal.

c. Final Submittal: Within ninety days of the Agreement Date, the Design-Builder must deliver to the DDC for its approval, an updated, more detailed version of the Initial Schedule of Submittals reflecting any comments from the DDC on the Initial Schedule of Submittals and the Parties' discussions and coordination from the date of the DDC's approval of the Initial Schedule of Submittals.

   i. Submit revised Schedule of Submittals to reflect changes in current status and timing for Submittals.

d. Format: Arrange the following information in a tabular format:

   i. Scheduled date for first submittal

   ii. Specification Section number and title

   iii. Submittal type: Mandatory DDC Approval, Deemed Approval, Review and Comment, Informational

   iv. Description of the Work covered

   v. Scheduled date for the DDC's final release or approval

   vi. Scheduled dates for purchasing

   vii. Scheduled dates for installation

   viii. Activity or event number

8.6 Submittal Administrative Requirements

Coordination: Coordinate preparation and processing of Submittals with performance of Construction Work.

a. Coordinate each submittal with fabrication, purchasing, testing, delivery, other Submittals, and related activities that require sequential activity.

b. Submit all submittal items required for each Specification Section concurrently unless partial Submittals for portions of the Work are indicated on approved Schedule of Submittals.

c. Submit action Submittals and informational Submittals required by the same Specification Section as separate packages.

d. 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.

   i. DDC reserves the right to withhold action on a submittal requiring coordination with other Submittals until related Submittals are received.

Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review will commence on the DDC's receipt of Submittal through the designated PMIS.

a. Initial Review: Allow at least fourteen calendar days for initial review of each Submittal. Allow additional time if coordination with subsequent Submittals is required. The DDC will advise Design-Builder when a submittal being processed must be delayed for coordination.

b. Interim Submittals and Permit Submittals: The Design-Builder may elect to "fast track" elements of the Work to facilitate permitting and construction of the Project. If intermediate submittal is necessary, process it in same manner as initial submittal.

   i. A Project element may be extracted from the entirety of the Project at the Design-Builder's discretion.

   ii. Portion of the Work that the Design-Builder has separated from the Work as a whole for the purposes of permitting, or scheduling or other reasons must be submitted as interim Submittals for the DDC's records.

   iii. Required Design Package Submissions to the DDC for review must include all portions of the Work, including all Partial Permit and fast track elements, coordinated in a single document set. Submittals for these phases that include fast-tracked elements as separate sets of documents are not acceptable.

   iv. Submit Partial Permit and fast track documents separately as they occur.

c. Resubmittal Review: Allow at least fourteen calendar days for review of each resubmittal.

d. Further, large submissions with a significant number of pages may also require more time to review. To the extent not already incorporated in the Schedule of Submittals, the tables below provide the additional time required for each affected DDC review, due to multiple concurrent reviews or large submissions of Submittals, including the review of re-submittals:

Number of concurrent reviews, per discipline per week	0 to 1	2 to 3	4 or more
% increase in duration of each affected DDC review	0%	50%	100%
Number of design drawings / Number of report pages	up to 100 drawings / up to 150 pages	100 to 175 drawings / 150 to 250 pages	More than 175 drawings / more than 250 pages
% increase in duration of each affected DDC review	0%	50%	100%

Identification and Information: Identify and incorporate information in each electronic submittal file as follows:

a. Assemble complete submittal package into a single submittal with links enabling navigation to each item.

b. Include a uniform cover sheet with the following information as applicable:

i. Project name and number

ii. Date and revision date

iii. Name and address of Design-Builder

iv. Name of person that prepared submittal

v. Name of supplier

vi. Name of manufacturer

vii. Number and title of appropriate Specification Section

viii. Drawing number and detail references, as appropriate

ix. Location(s) where product is to be installed, as appropriate

x. Related physical samples submitted directly

xi. Applicable Governmental Approval

xii. Other necessary identification.

Options: Identify options requiring selection by the DDC.

Deviations: Identify deviations from the contract documents on Submittals.

Paper Copies: Unless paper copies are specifically indicated by the DDC, only electronic Submittals will be accepted through the DDC PMIS System.

Transmittal: Assemble each submittal individually and appropriately for electronic transmittal. Transmit each submittal using the designated submittal application within the DDC PMIS. DDC will reject Submittals received from sources other than Design-Builder.

a. When applicable, on an attached separate sheet, prepared on Design-Builder's letterhead, record relevant information, requests for data, revisions other than those requested by the DDC on previous Submittals, and deviations from requirements in the contract documents, including minor variations and limitations. Include same identification information as related submittal.

Resubmittals: Make resubmittals in the same form as the initial submittal. Make resubmittals within 7 calendar days after receipt of the DDC's review comments.

a. Note date and content of previous submittal on coversheet.

b. Note date and content of revision on coversheet and clearly indicate extent of revision.

c. Continue resubmission of submittals as necessary in response to DDC comments and objections in accordance with Sections 13.3, 13.4 and 13.5 under "Submittals" of the Design-Build Agreement.

Distribution: Furnish copies of final Submittals to manufacturers, sub-contractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of the Work. Show distribution on transmittal forms.

8.7 Submittals

Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications must 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 or witnessed statement on original paper copy certificates and certifications where indicated.

Test and Inspection Reports Submittals: Comply with requirements specified in "Quality Requirements."

Design Submittals: The Design-Builder must submit Project Specific Design drawings and specifications at progress levels and in packaging formats accepted by the DDC.

a. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of Applicable Law, 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.

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

a. 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.

b. Mark each submittal to show which products and options are applicable.

c. Include the following information, as applicable:

i. Manufacturer's catalog cuts

ii. Manufacturer's product specifications

iii. Standard color charts

iv. Statement of compliance with specified referenced standards

v. Testing by recognized testing agency

vi. Application of testing agency labels and seals

vii. Notation of coordination requirements

viii. Availability and delivery time information

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

i. Wiring diagrams showing factory-installed wiring.

ii. Printed performance curves

iii. Operational range diagrams

iv. Clearances required to other construction, if not indicated on accompanying Shop Drawings

e. Submit Product Data before or concurrent with Samples.

f. Submit Product Data in the following format:

i. PDF electronic file

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.

a. Preparation: Fully illustrate requirements in the contract documents. Include the following information, as applicable:

i. Identification of products

ii. Schedules

iii. Compliance with specified standards

iv. Notation of coordination requirements

v. Notation of dimensions established by field measurement

vi. Relationship and attachment to adjoining construction clearly indicated

vii. Seal and signature of professional engineer if specified

b. Submit Shop Drawings in the following format:

i. PDF electronic file.

ii. Final Shop Drawings: Submit electronic PDF to the DDC within 10 calendar days after receipt of the DDC's conformance designation. All drawings must be marked "This drawing was reviewed by the DDC on _____ (DATE)."

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.

a. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

   i. Identification: Include 1 paper copy of the electronic submittal and attach label on unexposed side of Samples that includes the following:

   ii. Generic description of Sample

   iii. Product name and name of manufacturer

   iv. Sample source

   v. Number and title of applicable Specification Section

b. 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.

   i. 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.

   ii. Samples not incorporated into the Work, or otherwise designated as the DDC's property, are the property of Design-Builder.

c. 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.

   i. 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. The DDC will return submittal with options selected.

d. 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.

e. Number of Samples: Submit three sets of Samples. The DDC will retain one Sample set. The remaining two will be returned. One for use by the Design-Builder and One for use by the appropriate subcontractor.

i. Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.

ii. 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.

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

a. Type of product. Include unique identifier for each product.

b. Manufacturer and product name, and model number if applicable.

c. Number and name of room or space.

d. Location within room or space.

e. Submit product schedule as a PDF, unless otherwise indicated

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:

a. Name, address, and telephone number of entity performing Subcontract or supplying products.

b. Number and title of related Specification Section(s) covered by Subcontract.

c. Drawing number and detail references, as appropriate, covered by Subcontract.

d. Submit Subcontract list in the following format:

i. PDF electronic file.

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 the DDC, and other information specified.

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 American Welding Society (AWS) forms. Include names of firms and personnel certified.

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.

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.

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

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

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.

Product Test Reports: Submit written reports indicating current product produced by manufacturer complies with requirements in the contract documents and manufacturer's requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

Research Reports: Submit written evidence, from a model code organization acceptable to the City, that the product complies with Applicable Law. Include the following information:

a. Name of evaluation organization.
b. Date of evaluation.
c. Time period when report is in effect.
d. Product and manufacturers' names.
e. Description of product.
f. Test procedures and results.
g. Limitations of use.

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

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.

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.

Field Test Reports: Submit 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.

8.8 Delegated-Design Services

Delegated-Design Services Certification: In addition to shop Drawings, product data, and other required Submittals, submit digitally signed PDF electronic file of certificate, signed and sealed by the Architect of Record or Engineer of Record, for each product and system specifically assigned to the Design-Builder to be Signed and Sealed.

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.

8.9 Execution

Design Builder's Review

a. 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. Include a signed Quality Assurance form marked with approval before submitting to the DDC.

b. Project Closeout and Maintenance/Material Submittals.

c. Quality Assurance: include with each submittal a uniform, Quality Assurance form, initialed or signed by the Design-Builder. Include Project name and location, the Design-Builder's submittal number, Specification Section title and number, name of reviewer, date of the Design-Builder's approval, and statement certifying that submittal has been reviewed, checked, field measurements verified, and approved for compliance with the contract documents.

The DDC's ACTION

a. General: The DDC will not review Submittals that do not bear Design-Builder's approval stamp and will return them without action.

b. Action Submittals: The DDC will review each Mandatory Approval Submittal and may review, in its discretion, each Deemed Approval Submittal or Review and Comment Submittal, as deemed reasonably necessary and appropriate, and may make marks to indicate corrections or modifications required by the contract documents, and promptly return it. The DDC will return the submittal with a comment and action form.

c. Informational Submittals: The DDC will review each submittal and will not return it with a comment and action form unless it satisfies any ground for objection under Section 13.4 (Review and Comment Submittal) of the Agreement. The DDC will forward each submittal to appropriate party.

d. Partial Submittals prepared for a portion of the Work will be reviewed when use of partial Submittals has received prior approval from the DDC.

e. Incomplete Submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

f. The periods available to the DDC to review a Submittal commence after the date the DDC receives an accurate and complete Submittal in conformance with the contract documents.

g. Whenever the DDC provides review comments, the Design-Builder or DDC may request a meeting between the Design-Builder and the DDC for the Design-Builder to raise any questions or allow the DDC to explain the basis of its comments. Requested meetings will be established within two weeks after the DDC has returned comments to the Design-Builder

Revisions:

a. The Design-Builder must make required revisions as noted on initial submittal.

b. If the Design-Builder considers any required revision to be a Modification, it must notify the DDC as provided for in Article 26 of the Contract's Design-Build Agreement.

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Quality Requirements

9

Article 9 Quality Requirements

9.1 Summary

This Section includes administrative and procedural requirements for quality control to assure compliance with quality requirements specified in the Contract Documents.

Testing and inspecting services are necessary to verify compliance with requirements specified or indicated. These services do not relieve the Design-Builder of its responsibility for compliance with the contract document requirements.

Specified tests, inspections, and related actions do not limit the Design-Builder's other quality-assurance and -control procedures that facilitate compliance with the Contract Documents.

The provisions of this Article do not limit the requirements for the Design-Builder to provide quality-assurance and -control services required by the DDC or authorities having jurisdiction.

Specific test and inspection requirements are specified in Volume 3 -Specific Project Requirements.

LEED: Refer to the Specific Project Requirements to identify whether this Project is designed to comply with a Certification level according to the U.S. Green Building Council's Leadership in Environmental Design (LEED) Rating System.

9.2 Commissioning

Commissioning must be in accordance with ASHRAE and USGBC LEED-NC procedures, as described in Article 19 GENERAL COMMISSIONING REQUIREMENTS FOR BUILDING ENCLOSURE and/or Article 20 GENERAL COMMISSIONING REQUIREMENTS FOR MEP.

9.3 Related Sections

Include without limitation the following:

c. Article 2 PROJECT MANAGEMENT AND COORDINATION

d. Article 8 SUBMITTAL REQUIREMENTS

e. Article 15 CLOSEOUT PROCEDURES

f. Article 17 PROJECT RECORD DOCUMENTS

9.4 Conflicting Requirements

General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, the Design-Builder must comply with the most stringent requirement as determined by the DDC. The Design-Builder must refer any uncertainties and/or conflicting requirements to the DDC for a decision before proceeding.

Minimum Quantity or Quality Levels: The quantity or quality level shown or specified must 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. The Design-Builder must refer any uncertainties to the DDC for a decision before proceeding.

9.5 Quality Assurance

General: Qualifications paragraphs in this Article establish the minimum qualification levels required. Sections One through Three of the Specific Project Requirements specify additional requirements.

Installer Qualifications: Special Experience Requirements may apply to the firm that will install, erect or assemble specified Work required for the Project. If applicable, such Special Experience Requirements are set forth in the Contract Documents.

Manufacturer Qualifications: Special Experience Requirements may apply to the firm that will manufacture equipment, products or systems specified for the Project. If applicable, such Special Experience Requirements are set forth in the Contract Documents.

Fabricator Qualifications: Special Experience Requirements may apply to the firm that will fabricate materials, products or systems specified for the Project. If applicable, such Special Experience Requirements are set forth in the Contract Documents.

Professional Engineer Qualifications: A professional engineer who is licensed to practice in the State of New York and who is experienced in providing the engineering services of the kind indicated. Engineering services are defined as those performed for installation of the system, assembly or products that are similar in material, design, and extent to those indicated for this Project.

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

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

a. Build mockups in location and of size indicated or, if not indicated, as directed by the DDC.
b. Notify DDC seven (7) days in advance of dates and times when mockups will be constructed.
c. Demonstrate the proposed range of aesthetic affects and workmanship.
d. Obtain Design-Builder's and DDC's approval of mockups before starting fabrication, or construction of the Work in question.
e. Maintain mockups during construction in an undisturbed condition as a standard for judging completed Work.
f. Demolish and remove mockups when directed, unless directed or indicated otherwise.

9.6 Quality Control

DDC's Responsibilities: Where quality-control services are indicated as the DDC's responsibility in the Contract Documents, the DDC will engage a qualified testing agency to perform these services.

COST OF TESTS BORNE BY THE DDC: Where the DDC directs tests to be performed to determine compliance with the Contract Documents regarding materials or equipment, and where such compliance is ascertained as a result thereof, the DDC will bear the cost of such tests.

Costs for retesting and re-inspecting construction that replaces or is necessitated by Work that failed to comply with the contract documents will be charged to the Design-Builder.

Design-Builder's Responsibility: Tests and inspections not explicitly assigned to the DDC are the Design-Builder's responsibility. Unless otherwise indicated, the Design-Builder must provide quality-control services as set forth in the Contract Documents and those required by Authorities having jurisdiction.

COST OF TESTS BORNE BY THE DESIGN BUILDER: In the case of tests which are specifically called for in the Contract Documents to be provided by the Design-Builder or tests which are required by any Authority having jurisdiction, but are not indicated as the responsibility of the DDC, the cost thereof will be borne by the Design-Builder and will be deemed to be included in the Contract Price. The Design-Builder must reimburse the DDC for expenditures incurred in providing tests on materials and equipment submitted by the Design-Builder as the equivalent of that specifically named in the Contract Documents and rejected for non-compliance.

Where services are indicated as Design-Builder's responsibility, the Design-Builder must engage a qualified testing agency to perform these quality-control services. Any testing agency engaged by the Design-Builder to provide quality control services is subject to prior approval by the DDC.

The Design-Builder must not employ the same entity engaged by the DDC, unless agreed to in writing by the DDC.

The Design-Builder must notify testing agencies and the DDC at least 48 hours in advance of the date and time for the performance of Work that requires testing or inspecting.

Where quality-control services are indicated as the Design-Builder's responsibility, the Design-Builder must submit a certified written report to the DDC of each quality-control service.

Testing and inspecting requested by the Design-Builder and not required by the Contract Documents are the Design-Builder's responsibility.

The Design-Builder must submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

Manufacturer's Field Services: Where indicated, the Design-Builder must engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Results must be submitted in writing as specified in Article 8 - SUBMITTAL PROCEDURES.

Retesting/Re-inspecting: Regardless of whether the original tests or inspections were the Design-Builder's responsibility, the Design-Builder must provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the contract documents.

Associated Services: The Design-Builder must cooperate with entities performing required tests, inspections, and similar quality-control services, and must provide reasonable auxiliary services as requested. The Design-Builder must notify the testing agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

a. Access to the Work.
b. Incidental labor and facilities necessary to facilitate testing and inspecting.
c. Adequate quantities of representative samples of materials that require testing and inspecting. Assist testing entity in obtaining samples.
d. Facilities for storage and field curing of test samples.
e. Delivery of samples to testing entities.
f. Design mix proposed for use for material mixes that require control by the testing authority.
g. Security and protection for samples and for testing and inspecting equipment at the Project Site.

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

h. Schedule times for tests, inspections, obtaining samples, and similar activities.
i. Coordinate and cooperate with the Commissioning Agent as applicable for start-up. Inspection and functional testing in the implementation of the Commissioning Plan.

Manufacturer's Directions: Where the Contract Documents provide that that the manufacturer's directions are to be used; such printed directions must be submitted to the DDC.

Inspection of Material: In the event that the contract documents require the Design-Builder to engage the services of an entity to witness and inspect any material especially manufactured or prepared for use in or part of the permanent construction, such entity must be subject to prior written approval by the DDC.

The Design-Builder: must give a minimum thirty days' notice in writing to the DDC in advance of its intention to commence the manufacture or preparation of materials especially manufactured or repaired for use in or as part of the permanent construction. Such notice must contain a request for inspection, the date of commencement and the expected date of completion of the manufacturer or preparation of materials. Upon receipt of such notice, the DDC will arrange to have a representative present at such times during the manufacture as may be necessary to inspect the materials, or the DDC will notify the Design-Builder that the inspection will be made at a point other than the point of manufacture, or the DDC will notify the Design-Builder that inspection will be waived.

No Shipping before Inspection: The Design-Builder must comply with the foregoing before shipping any material.

Certificate of Manufacture: When the DDC so requires, the Design-Builder must furnish to the DDC authoritative evidence in the form of Certificates of Manufacture that the materials to be used in the Work have been manufactured and tested in conformity with the Contract Documents. These certificates must include copies of the results of physical tests and chemical analyses where necessary, that have been made directly on the product, or on similar products being fabricated by the manufacturer. This may include such approvals as B.S.A, M.E.A., B.E.C. Advisory Board, etc.

Acceptance: When materials or manufactured products will comprise such quantity that it is not practical to make physical tests or chemical analyses directly on the product furnished, a certificate stating the results of such tests or analyses of similar materials which were concurrently produced may, at the discretion of the DDC, be considered as the basis for acceptance of such material or manufactured product.

Testing Compliance: The testing personnel must make the necessary inspections and tests and must be in such form as will facilitate checking to determine the compliance with the Contract Documents, indicating thereon all analyses and/or test data and interpreted results thereof.

Reports must be submitted, and authoritative certification thereof must be furnished to the DDC as a prerequisite of the acceptance of any material or equipment.

9.7 Approval of Materials

Local Laws: All materials, appliances and types or methods of construction must be in accordance with the Contract Documents and must in no event be less than that necessary to conform to the requirements of the New York City Construction Codes, Administrative Code and Charter of the City of New York.

Approval of Manufacturer: The names of proposed manufacturers, materials suppliers, and dealers who are to furnish materials, fixtures, equipment, appliances or other fittings must be submitted to the DDC for approval, as early as possible, to afford proper review and analysis. No manufacturer will be approved for any materials to be furnished under this Contract unless it has a plant of ample capacity and has successfully produced similar products. All approvals of materials or equipment that are legally required by the New York City Construction Codes and other governing Authorities must be obtained prior to installation.

All Materials: Fixtures, fittings, supplies and equipment furnished under the Contract must be new and unused, except as approved by the DDC, and of first-grade quality and of the best workmanship and design. The City of New York encourages the use of recycled products where practical.

Information to Suppliers: In asking for prices on materials under any item of the Contract, the Design-Builder must provide the manufacturer or dealer with such complete information from the Contract Documents as may in any case be necessary. In every case the Design-Builder must inform the manufacturer or dealer of all the requirements contained within the Contract Documents.

9.8 Special Inspections

Inspection of selected materials, equipment, installation, fabrication, erection or placement of components and connections made during the progress of the Work to ensure compliance with the Contract Documents and provisions of the New York City Construction Codes, must be made by a Special Inspector. The City of New York will retain the services of the Special Inspector and bear the costs for the performance of Special Inspections in compliance with NYC Construction Codes requirements or as additionally may be called for in the Project specifications, except as noted below for Form-TR-3: Technical Report for Concrete Design Mix. The Special Inspector must be an entity compliant with the requirements of the New York City Construction Code. The r Design-Builder must notify the relevant Special Inspector in writing at least 48 hours before the commencement of any Work requiring special inspection.

Form TR-3 Technical Report for Concrete Design Mix: The Design-Builder will be responsible for, and bear all costs associated with the filing and securing of approvals, if any, for Form TR-3 Technical Report for Concrete Design Mix, including but not limited to, engaging the services of a New York City licensed Concrete Testing Lab for the review and approval of concrete design mix, testing, signatures and professional seals, etc., compliant with NYC Department of Buildings requirements, for each concrete design mix.

The Design-Builder must notify the relevant Special Inspector in writing at least 48 hours before the commencement of any Work requiring Special Inspection. The Design-Builder will be responsible for and will bear associated costs to ensure that all construction or Work remains accessible and exposed for inspection purposes until the required inspection is completed.

Inspections and tests performed under "Special Inspection" will not relieve the Design-Builder of the responsibility to comply with the Contract Documents, and there is no warranty given to the Design-Builder by the City of New York in connection with such inspection and tests or certifications made under "Special Inspections,"

The Design-Builder must coordinate with DDC to provide access and schedule the Work for inspection by the Special Inspector.

9.9 Inspections by other City agencies

Letter of Completion: Just prior to Substantial Completion of this Project, the DDC will file with the Department of Buildings, an application for a Letter of Completion or a Certificate of Occupancy, whichever is appropriate for the structure.

Final Inspections: In connection with the above-mentioned application for a Letter of Completion or a Certificate of Occupancy and before certificates of final payments are issued, the Design-Builder will be required to arrange for all final inspections by the inspections staff of the Department of Buildings, Fire Department or other Governmental Agencies having jurisdiction, and secure all reports, sign offs, certificates, etc.by such inspection staff or other governmental agencies, in order that a Letter of Completion or Certificate of Occupancy can be issued promptly.

9.10 Certificates of Approval

Responsibility: The Design-Builder will be responsible for and must obtain all final approvals for the Work installed under the Contract in the form of such certificates that are required by all governmental agencies having jurisdiction over the Work of the Contract.

Transmittal: All such certificates must be forwarded to the DDC.

9.11 Acceptance Tests

Government Agencies: All equipment and appliances furnished and installed under the Contract must conform to the Specific Project Requirements and must in no event be less than that necessary to comply with the minimum requirements of the law and all of the governmental agencies having jurisdiction.

Notice of Tests: Whenever the Contract Documents and/or any governmental agency having jurisdiction requires an acceptance test, the Design-Builder must give written notice to all concerned of the time when these tests will be conducted.

Energy: The DDC will furnish all energy, fuel, and water required for tests.

Labor and Materials: The Design-Builder must furnish labor and all other materials and instruments necessary to conduct the acceptance tests at no additional cost to the City.

Certificates: The final acceptance by the DDC must be contingent upon the Design-Builder delivering to the DDC all necessary certificates evidencing compliance in every respect with the requirements of the regulatory agencies having jurisdiction.

Results: if the results of tests and Special Inspections indicate that the materials or procedures do not meet requirements as set forth in the contract documents or are otherwise unsatisfactory, the Design-Builder must only proceed as directed by the DDC. Additional costs resulting from retesting, re-inspecting, replacing of material and/or damage to the Work and any delay caused to the schedule will be borne by the Design-Builder.

9.12 Repair and Protection

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

j. Provide materials and comply with installation requirements specified in other Contract sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

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Temporary Facilities, Services & Controls

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Article 10 Temporary Facilities, Services & Controls

10.1 Summary

This section includes requirements for temporary utilities, construction facilities, temporary barriers and enclosures, temporary controls (including security), and Project identification signage.

10.2 Use Charges

General: Installation and removal of and use charges for temporary facilities must be included in the Lump Sum Amount unless otherwise indicated. See Design-Build Agreement for more information. Allow other entities to use temporary services and facilities without cost, including, but not limited to, DDC field office personnel, testing agencies, and authorities having jurisdiction.

Sewer Service: Pay sewer-service use charges for sewer usage by all entities for construction operations.

Water Service: Pay water-service use charges for water used by all entities for construction operations.

Electric Power Service: Pay electric-power-service use charges for electricity used by all entities for construction operations. The Design-Builder must make arrangements directly with the appropriate private utility company.

10.3 Informational Submittals

Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

k. Erosion- and Sedimentation-Control Plan: Show compliance with requirements NYS DEC SPDES Permit.

l. Fire-Safety Program: Show compliance with requirements of NFPA 241 and the FDNY. Indicate Design-Builder's personnel responsible for management of fire-prevention program.

m. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage.

   i. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.

   ii. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged work.

   iii. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, core drilling, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations.

   iv. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.

Dust Control Plan: In accordance with Article 13 – 'Environmental Requirements" of the Standard Project Requirements and Section 15 – "Environmental" of the Specific Project Requirements the Design-Builder must develop a Project Site Dust Control Plan. Submit coordination drawing and narrative that indicates the dust – control measures proposed for use, proposed locations, and proposed time frames for their operation. Identify further options if proposed measures are later determined to be inadequate.

10.4 Quality Assurance

Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

10.5 Project Conditions

Temporary Use of Permanent Facilities: If and where applicable, engage the installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before DDC's acceptance, regardless of previously assigned responsibilities.

10.6 Temporary Field Office Facilities

Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

The Design-Builder must provide and maintain at its cost and expense a DDC Construction Field Office and all related items as specified herein for the exclusive use of DDC construction personnel and consultant support personnel that the DDC deems necessary. The DDC Field Office must be located at the Project Site. Provision of the DDC Field Office must commence not sooner than 30 days prior to the scheduled start of construction activities on site. Unless otherwise agreed to by the DDC, the availability of a DDC Field Office on site as specified herein is a pre-requisite to the Design-Builder commencing with the construction Work on site. The provision of the DDC Field Office by the Design-Builder must continue through forty-five days after substantial completion of the required construction at the Project Site. The Design-Builder must remove the DDC Field Office forty-five days after substantial completion or as otherwise directed in writing by the DDC.

Common-Use Field Office: Minimum 60 feet by 24 feet – but of sufficient size to accommodate the needs of a minimum ten DDC construction personnel, support personnel, related office activities and a conference room of sufficient size to accommodate project meetings of fifteen individuals. Include one storage closet and a minimum three private offices, approximately 100 square feet each. The overall layout is subject to the review and approval of the DDC.

Features must include but not be limited to:

a. All windows and doors must have aluminum insect screens.

b. Provide wire mesh protective guards at all windows and security bars at all exterior doors.

c. Provide a built-in or free-standing drafting table.

d. Provide two private toilets. Each washroom must be equipped with a flush toilet, a wash basin with faucet, medicine cabinet, complete with supplies and a toilet roll tissue holder. Plumbing and fixtures must be approved house type, with each appliance trapped and vented and a single discharge connection. Five-gallon capacity automatic electric heater for domestic hot water must be furnished.

e. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Provide a minimum of four convenience duplex outlets in open spaces and two each in private offices.

f. Lighting fixtures capable of maintaining average illumination of 50 fc.

g. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 72 degrees F during the heating season when the outside temperature is 5 degrees and 75 degrees F during the cooling season when the outside temperature is 89 degrees F.

h. The Design-Builder must provide temporary water and drainage service connections to the DDC Field Office trailer for a complete installation. Provide all necessary soil, waste vent and drainage piping.

i. The DB is to frost-proof all water pipes to prevent freezing.

ii. At the completion of the project, all temporary water and drainage connections and piping the field office must be removed by the Design-Builder and plugged at the mains.

i. The Design-Builder must furnish, install and maintain a temporary electric feeder to the DDC field office trailer immediately after it is placed on the Project Site.

i. The electrical feeder must be adequately sized based on the trailer load and installed per the NYC Electrical Code and complying with all utility requirements.

ii. The Design-Builder must pay all costs for current consumed and for maintenance of the system in operating condition, including the furnishing of the necessary bulb replacement lamps, etc. for the duration of the Project.

iii. At the completion of the project, the temporary electric service (feeder, safety switch, etc.) must be properly removed in its entirety.

j. Telephone Service: The Design-Builder must provide and pay all costs for the following telephone services:

i. Minimum six lines. One for each private office; one for the conference room; one for the plan table and one for the Fax copier machine.

k. Internet Service

i. The DDC field office must be provided with one broadband internet service account. Wideband internet service connectivity at a minimum throughput of fifteen MBPS download and 15 MBPS upload. Telephone service should be bundled together with internet connectivity. Because of throughput requirements, Verizon Fios is the preferred connectivity provider where available. This account will be active for the life of the project. The email name for the account must be the DDC Field Office/Project ID.

ii. The field office must be hard-wired for workstation connectivity at a minimum twelve locations, which accounts for ten field stations and two locations within the Conference Room.

1) Provide all necessary cabling.

2) Provide UPS/Surge suppressor combo.]

l. Computer Workstations

i. The Design-Builder must provide two complete computer workstations for use by City personnel as specified herein:

1) Make and Model: Dell; HP; Acer or approved equivalent requiring written approval of the DDC Assistant Commissioner of Information Technology Services.

2) Processor: i5-2400 (6MB Cache, 3.1 GHz) or faster computer- single processor.

3) System RAM: Minimum of 4GB (Gigabytes) Dual Channel DDR3 SDRAM at 1333MHz – 2 DIMMSs

4) Hard Disk Drive(s): 50GB Serial ATA (7200RPM) w/Data Burst cache, or larger.

5) CD-RW: Internal CD-RW, 48x speed or faster.

6) 16xDVD+/-RW: DVD Burner (with double layer write capability) 16x speed or faster.

7) I/O Ports: Must have At least one serial port, one parallel port, and three USB ports.

8) Video Display Card: HD Graphics (VGA, DMI) with a minimum of 64 MB of RAM.

9) Monitor: 22" W, 23.0-inch VIS, widescreen, VGA/DVI LCD monitor

10) Available Exp. Slots: System as configured above must have at least two full size PCI Slots available.

11) Network Interface: Integrated 10/100/1000 ethernet card.

12) Other Peripherals: Optical scroll mouse, 101 key keyboard, mouse pad and all necessary cables.

13) Software Requirement: Microsoft Windows 7 Professional SP-1, 32Bit; Microsoft Office Professional 2010 or 2013; Microsoft Project 2010; Adobe Acrobat Reader; Anti-virus software package with 2-year updates subscription; and, either Auto Cad LT or Microsoft Visio Standard Edition, as directed by DDC

14) All computers required for use in the DDC field office must be delivered, installed and set up in the Field Office by the Design-Builder.

15) All computer hardware must come with a three-year warranty for on-site repair or replacement. Additionally, and not withstanding any terms of the warranty to the contrary, the Contractor is responsible for rectifying all computer problems or equipment failures within one business day.

16) It is the Design-Builder's responsibility to ensure that the electrical service and phone connections are also available at all times; that is, the field office computers are to be powered and turned on twenty-four hours each day.

17) Broadband connectivity is preferred. The Design-Builder must take into consideration an extra phone line dedicated to the modem as part of the Contract unless Internet broadband connectivity, via cable or DSL, is available at the planned field office location. Any questions regarding this requirement should be directed to the Assistant Commissioner of ITS at 718-391-1761.

m. Photocopying Machine: Stand-alone, heavy duty, electric, dry-process color photocopying type with color scan and send capability via email, a minimum production rate of seventy pages per minute and an adequate supply of copy paper, toner, etc. The machine must be capable of duplex copying paper sizes, 8-1/2x11 inches, 8-1/2x14 inches, and 11x17 inches, and have separate trays for each paper size. It must have a document feeder, collator, stapler and the capability to reduce/enlarge copies between each paper size. The supply of each size copy paper, toner, etc. must be replenished and the machine must be maintained for the duration of the contract by the Design-Builder. Make and model can be Minolta, Canon, IBM, Epson or an approved equivalent and must be networked to the office computer workstations for printing capability.

Furnish and equip offices as follows:

a. Ten single pedestal desks, 42" x 32" with swivel chairs with arms furniture required for project-site documents including file cabinets, plan tables, plan racks, and bookcases.

b. Two conference room tables, 96" x 30" and sixteen folding chairs.

c. Ten metal waste baskets.

d. Two fire extinguishers

e. One water cooler with bottled water service, Crystal Springs Model No. LP14058 or approved equal.

f. Furnish conference room with a "Smart Screen" and a 4-foot- (1.2-m-) square tack and marker boards.

g. Coffee machine and supplies.

h. The exterior of the trailer must be lettered with black block lettering of the following heights with white borders:

i. CITY OF NEW YORK 2-1/2"

ii. DEPARTMENT OF DESIGN AND CONSTRUCTION 3-3/4"

iii. DIVISION OF PUBLIC BUILDINGS 3-1/2"

iv. DDC FIELD OFFICE 2-1/2"

v. "NOTE: In lieu of painting letters on trailer the Design-Builder may substitute a sign constructed of a good quality weatherproof material with the same type and size of lettering above.

Maintenance

a. The Design-Builder will provide and pay all costs for regular weekly janitor service and furnish toilet paper, sanitary seat covers, cloth towels and soap and maintain the DDC field office in first-class condition, including all repairs, until the trailer is removed from the site.

b. Supplies: The Design-Builder will be responsible for providing (1) all office supplies, including without limitation, pens, pencils, stationery, filtered drinking water and sanitary supplies, and (2) all supplies in connection with required computers and printers, including paper and toner cartridges for the printer.

c. Risk of Loss: The entire risk of loss with respect to the DDC Field Office and equipment will remain solely and completely with the Design-Builder. The Design-Builder will be responsible for the cost of any insurance coverage determined by the Design-Builder to be necessary for the field office.

d. At forty-five (45) days after the date of substantial completion, or sooner as directed by the DDC, the Design-Builders must have all services disconnected and capped to the satisfaction of the DDC. All repair work due to these removals will be the responsibility of the Design-Builder.

Rented Space: The Design-Builder has the option of providing, at its cost and expense, rented office or store space in lieu of trailer. Said space must be in the immediate area of the project and have adequate plumbing, heating and electrical facilities. Space chosen by the Design-Builder for the DDC field office must be approved by the Commissioner before the area is rented. All insurance, maintenance and equipment, including computer workstations in quantities required, must also apply to rented spaces.

10.7 Field Equipment

Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

HVAC Equipment: Unless DDC authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

a. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.

b. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction and marked for intended location and application.

c. Permanent HVAC System: Where possible, if f DDC authorizes use of a permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air grille in system and remove at end of construction and clean HVAC system as required in Article 15 "Closeout Procedures".

Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

10.8 Installation General

Locate temporary facilities where they will serve Project adequately and result in minimum interference with performance of the Work and adjacent operations. Relocate and modify facilities as required by progress of the work.

Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

10.9 Temporary Utility Installation

General: Install temporary service or connect to existing service.

Arrange with utility, DDC, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.

Connect temporary sewers to municipal system as directed by authorities having jurisdiction.

Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.

Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

Heating and Cooling: Provide temporary heating and cooling required by construction work for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

Isolation of work areas in occupied facilities (when applicable): Prevent dust, fumes, and odors from entering occupied areas.

a. Prior to commencing work, isolate the HVAC system in area where work is to be performed according to coordination drawings.
b. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
c. Maintain negative air pressure within work area using HEPA-equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.
d. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.
e. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.

Ventilation and Humidity Control: Provide temporary ventilation required by construction work for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.

Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

Install electric power service overhead unless otherwise indicated.

Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

Install lighting for project identification sign.

Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel.

a. At each telephone, post a list of important telephone numbers.
    i. Police and fire departments.
    ii. Ambulance service.
    iii. Design-Builder's home office.
    iv. Design-Builder's emergency after-hours telephone number.
    v. Design-Builders' offices.
    vi. DDC's office.
    vii. Principal Subcontractors' field and home offices.

10.10 Provision of Support Facilities

Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.

Maintain support facilities until DDC schedules substantial completion inspection. Remove before substantial completion. Personnel remaining after substantial completion will be permitted to use permanent facilities under conditions acceptable to DDC.

Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas within established construction limits.

a. Provide dust-control treatment that is non-polluting and non-tracking. Reapply treatment as required to minimize dust.

Temporary Use of new Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.

a. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.

b. Prepare subgrade and install subbase and base for temporary roads and paved areas in accordance with the final design of the permanent roads and paved areas.

c. Recondition base after temporary use, including removing contaminated material, regrading, proof rolling, compacting, and testing.

d. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before substantial completion. Repair hot-mix asphalt base-course pavement before installation of final course according to Section on "Asphalt Paving."

Traffic Controls: Comply with requirements of authorities having jurisdiction.

a. Protect existing site improvements to remain including curbs, pavement, and utilities.

b. Maintain access for fire-fighting equipment and access to fire hydrants.

Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain project site, excavations, and construction free of water.

a. Dispose of rainwater in a lawful manner that will not result in flooding project or adjoining properties or endanger permanent work or temporary facilities.

b. Remove snow and ice as required to minimize accumulations.

Project signs: Provide project signs as indicated. Unauthorized signs are not permitted.

a. Project Information Sign: Per NYC Building Code 3301.9, project sites with construction fences or sidewalk sheds must meet NYC DOB signage requirements that emphasize the type of work underway and highlight the Project's contact information. Any new building, demolition, excavation and alteration project site with a construction fence must post a Project Information Panel per Building Code 3301.9.1. In accordance with Building Code 3301.9, the Panel Design must include a project rendering, an elevation drawing of the building or zoning diagram of the building exterior, a description of the Project and anticipated completion date, owner and contractor information, 311 information and the primary DOB Permit. Demolition Projects require a project information panel without a rendering.

b. The Design-Builder must post a Project Information Panel on the construction fence on each perimeter fronting a public thoroughfare.

c. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to project.

d. Provide temporary, directional signs for construction personnel and visitors.

e. Maintain and touchup signs so they are legible at all times.

Waste Disposal Facilities: Comply with requirements specified in Article 14 "Construction Waste Management and Disposal."

Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.

Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.

Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of substantial completion.