



THE PORT AUTHORITY OF NY & NJ

Downtown Restoration Program The World Trade Center Site

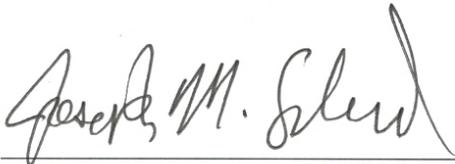
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Safety, Health and Environmental Program

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Approvals and Endorsements

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1 Program Information

1.1 Safety and Health Policy Statement

The safety and health of the World Trade Center Site (herein referred to as "WTC Site") employees, people working on our projects, and the general public is paramount. The Port Authority of New York & New Jersey (herein referred to as "Port Authority") is committed to safe and secure working conditions and employees working safely throughout the WTC Site construction projects. We demonstrate our commitment by implementing and continually improving a coordinated safety, health environmental program.

1.2 Program Objective

The Port Authority has prepared this Safety, Health, and Environmental Program (herein referred to as "Program") to promote safety, and to mitigate and/or control all hazards associated with the construction at the WTC Site. The goals of this Program are to prevent personal injury, protect the public from construction hazards, protect adjoining properties, structures and utilities from damage, prevent environmental damage, and to control and reduce all direct and indirect costs and productivity losses attributable to accident and incident occurrences.

The overall WTC Site goals are to achieve and sustain "zero accident and environmental incident tolerance" through continuous improvement practices. The responsibility for safety and health must be in accordance with all applicable Federal, State and local codes and standards and is assumed by all contractors as specified by written contracts between the Port Authority, our tenants, other stakeholders at the WTC Site and their respective contractors and sub-contractors.

The sustainable goals established for this program include:

- a) Develop, implement and maintain a tracking tool that facilitates the ability to effectively and efficiently manage the safety program across all projects;
- b) Identify and remediate worker, public, property, and environmental hazards through the performance of site evaluations;
- c) Ensure work is performed consistent with WTC Site safety requirements, each contractor's health and safety plans, and applicable regulatory standards;
- d) Effectively communicate with contractor staff to ensure site safety requirements are understood and achieved;
- e) Promptly review each contractor's health and safety plans, work plans, and job hazard analyses;
- f) Evaluate the contractor's safety, health and environmental training programs to ensure workers are informed of the hazards and available controls for the task they are performing;

- g) Measure and track the injuries and observations followed by the implementation of appropriate control measures for continued program improvements.

The Port Authority reserves the right to revise this Program as required and necessary to ensure worker, public, property, and environmental protection, and to remain current with applicable regulations, technologies, and practices.

The Port Authority Construction Management Team (herein referred to as "CM") is responsible to protect all property, materials, supplies, and equipment existing, constructed or stored on the site pending the issuance of a Port Authority Permit to Occupy or Use unless otherwise expressly approved by the Port Authority. The CM includes the Engineer of Construction (EOC), Senior Program Manager (SPM), PA Resident Engineer/Resident Engineer's Office (RE/REO) and/or agents working on behalf of the Port Authority.

1.3 Program Approach

The WTC Site requirements have been established by the Port Authority to ensure worker protection, public safety, the protection of adjoining properties/utilities/streets, and the environment. All tenants, contractors, employees, consultants, vendors, and external agencies shall be required to incorporate these Port Authority requirements into their project specific health and safety plans. Revisions to their health and safety plans, or portions therein, shall be as required in this Program. All provisions herein are intended to ensure regulatory compliance and best management practices during the performance of any work at the WTC Site.

All work performed at the WTC Site must be carefully coordinated as to not interfere with the construction activities of others working at the WTC Site, WTC Site maintenance and operations, or with the continuous operation and security of the PATH and MTA transit systems. Constant care must be exercised at all time to avoid any adverse impacts to PATH or MTA customers, employees, the general operation, security, structural integrity of the system, and emergency egress pathways, or impede emergency response.

1.4 Program Effectiveness and Cooperation

The effectiveness of this Program is dependent on the active participation and cooperation between the Port Authority, all WTC stakeholders/owners and agencies performing or responsible for construction activities on or in the vicinity of the WTC Site including, WTC Site tenants and lessees, as well as respective employees, consultants, contractors, tradesmen, vendors, and authorized visitors.

The success of the Program, its implementation and maintenance requires the careful coordination of all construction activities on the WTC Site inclusive of the following items:

- a) All work must be planned prior to execution to ensure that an appropriate analysis and review is performed to anticipate and eliminate identifiable risks or potential for personal injury, property damage, and environmental damage;
- b) The means and methods employed for the performance of any work must comply with the safety requirements of all applicable federal, state and local jurisdictional rules and regulations, laws, ordinances, codes, statutes, industry standards, and Port Authority and PATH policies and procedures;

- c) Reliable, verifiable and uniform health and safety procedures must be established and maintained for the entire WTC Site to ensure the prompt detection and remediation of unsafe conditions or work practices. Those conditions/safety deficiencies shall be corrected on a timely basis, or as directed by the Resident Engineer's Office (herein referred to as "REO"), the World Trade Center Site Safety Director (herein referred to as "SSD"), or their designated representatives. Each contractor shall utilize the Port Authority Safety Management System Tracking Tool (herein referred to as "SMST2") as described in Section 5.0 herein.
- d) Comprehensive safety training programs must be established and maintained for WTC Site workers to enhance safety awareness, and to promote a cooperative approach in the identification and mitigation of unsafe or unhealthy conditions and work practices;
- e) Comprehensive, enforceable, and site specific Health and Safety Plans (herein referred to as "HASPs") and Job Hazard Analysis (herein referred to as "JHAs") must be established by each contractor, and be readily available at the worksite to ensure that all work is performed in a manner that eliminates predictable worker, public, property, and environmental hazards. All HASPs and shall be reviewed annually, and updated as necessary or as required by the REO, the SSD or their designated representatives based upon any changes in the scope of work, existing site conditions, regulation, or the intended method of execution;
- f) A comprehensive communications system must be established and maintained to ensure that all emergency response contacts and related information are readily available throughout the WTC Site for the prompt reaction to and investigation of all accidents/incidents.

1.5 Program Structure

The following structure is in place at the WTC Site to ensure coordination across the Project.

1.5.1 *Owner Controlled Safety Council*

The Owner Controlled Safety Council includes members from Port Authority Senior Management Staff, Silverstein Properties Inc., and other stakeholders, as appropriate. As necessary, this group shall meet to discuss the overall site program to ensure coordination and consistency for safety management across the WTC Site. The responsibilities of this council include:

- a) Ensures a Coordinated Safety Program;
- b) Sets Policy and Direction;
- c) Reviews and Adopts Annual Goals;
- d) Reviews Performance.

1.5.2 *Senior Executive Working Group*

The Senior Project Executive Working Group includes members from Port Authority Senior Management Staff, Project Executive Staff, and other stakeholders, as appropriate. As

necessary, this group shall meet to discuss the site program. The responsibilities of the working group include:

- a) Consistently communicate and endorse safety program;
- b) Being responsible and accountable for safety program;
- c) Approve goals and objectives;
- d) Review the performance of the safety program.

1.5.3 Safety Director and Stakeholders Committee

The Safety Director and Stakeholders Committee include members from the WTCC staff, Construction Manager, Owner Senior Safety staff, and other stakeholders. On a monthly or more frequent schedule this group shall meet to discuss the site program. The responsibilities of the committee include:

- a) Developing site wide initiatives;
- b) Developing project specific goals and objectives that feed site wide goals and objectives;
- c) Sharing best practices;
- d) Participating in the coordination of a training program(s);
- e) Review the performance of the safety program.

1.5.4 Operations Safety Committee

Each CM, contractor, project manager, stakeholders/owner, safety representative, and represented trades, in addition to representatives from the Port Authority, will participate in the Port Authority monthly Operations Safety Committee.

The SSD shall prepare the agenda, document all meeting proceedings, and distribute a meeting report to all attendees for the Operations Safety Committee.

The responsibilities of the committee include:

- a) Reviewing and discussing site wide initiatives;
- b) Sharing best practices;
- c) Participating in a training session during the meeting;
- d) Discuss site wide trends.

In addition to the agenda and topics to be presented by the SSD, each CM, CSSM, and contractor's safety supervisor shall be required to discuss their project's safety performance. This discussion is to include, but not be limited to, a review of accidents and incidents, corrective measures addressing accidents and incidents, training, and pre-task safety planning.

1.5.5 Project Specific Safety Committee

The Project Specific Site Safety Committee is the safety committee for the project. Each project shall have a committee comprised of the CM, contractors, construction and project managers, safety representatives, and union representatives. On a weekly basis this group shall meet to discuss the project's safety program. The responsibilities of this committee include a review, at a minimum, of the following areas:

- a) Incident review from the prior week;
- b) Open safety observation notices and program trends;
- c) Construction plans and job hazard analyses for upcoming work;
- d) Construction look ahead for planning/coordination with other projects;
- e) Status of training programs and toolbox talks;
- f) Status update on Environmental Performance Commitments;
- g) Review performance of the program.

1.6 Safety Management System Tracking Tool

An online web-based application has been implemented to be used as a tool to monitor, measure and enhance the safety performance at the World Center Site. The Safety Management System Tracking Tool (SMST²) shall be used by WTCC, CM, contractors and designated stakeholders to manage various safety, health and environmental key performance indicators such as observations, incidents, project work hours and other information.

1.6.1 Safety Observation Notice Process

The CM and/or contractor is responsible for ensuring that documented worksite safety, health and environmental observation findings are corrected, or at a minimum acknowledged, within 12 hours from notification.

- a) WTC Safety or designated stakeholders perform safety, health and environmental observations by visiting projects and performing a visual safety, health and environmental inspection to determine if there is any variance from contract requirements, the projects safety and health policies, plans, programs, and/or PA, local, State or Federal rules and/or regulations;
- b) Once an unsafe action/condition, health or environmental condition is observed, WTC Safety or designated stakeholders shall document the observations using the Safety Observation Notice (SON) or similar template in the field;
- c) Field observations are then entered into the SMST². These observations will then be electronically sent to the CM/contractors;
- d) Upon receipt of the SON, the CM and/or contractor shall investigate the finding within twelve (12) hours of electronic receipt of such notification and develop a plan to correct

the action/condition. The CM and/or contractor will update the status (open, ongoing, corrected, corrected on site) of the SON in the SMST²;

- e) Once the CM and/or contractor has responded to the observation as resolved, WTC Safety or designated stakeholder will conduct a field verification confirming the action/condition has been corrected;
- f) After conducting the field verification, WTC Safety or designated stakeholder will document observations as resolved through the SMST²;
- g) By the 15th day of each month, each CM and/or contractor shall ensure the following information for the prior month is in the SMST²;
 - i) Total hours worked within the reporting period for the CM and/or contractor
 - ii) Total number of OSHA recordable injuries within the reporting period
 - iii) Total number of OSHA lost time injuries within the reporting period
 - iv) Total number of lost work days incurred within the reporting period
 - v) Total number of restricted work days incurred within the reporting period
 - vi) Total number of first-aid cases within the reporting period
 - vii) Total number of near misses within the reporting period
- h) All accident and incident investigations will be documented in the system.

1.7 Definitions, Acronyms and Abbreviations

Term	Definition
ASME	American Society for Mechanical Engineers
ASTM	American Society for Testing and Materials
ANSI	American National Standards Institute
CGC	Compressed Gas Cylinder
CM	Port Authority Construction Management Team
CFSM	Contractor Fire Safety Manager
CSSM	Contractor Site Safety Manager
EOC	Engineer of Construction
EOR	Engineer of Record
FDNY	New York City Fire Department
FRA	Federal Railroad Administration
HAZMAT	Hazardous Material
HASP	Health and Safety Plan
ISD-RM	PANYNJ Inspection & Safety Division – Risk Management

JHA	Job Hazard Analysis
LMDC	Lower Manhattan Development Corporation
MTA	Metropolitan Transportation Authority
NEC	National Electric Code
NFPA	National Fire Protection Association
NYCBC	New York City Building Code
NYCDOB	New York City Department of Buildings
OCME	New York City Office of the Chief Medical Examiner
NYCDOT	New York City Department of Transportation
TAA	PANYNJ Tenant Alteration Application
TCA	PANYNJ Tenant Construction Application
PSM	PANYNJ Project Safety Manager
ROW	PATH Right of Way
PATH SS&EM	PATH System Safety & Environmental Management Division
Port Authority or PA	Port Authority of New York and New Jersey
EOC	Port Authority Engineer of Construction
OIG	Port Authority Office of the Inspector General
PAPD	Port Authority Police Department
PATH	Port Authority Trans-Hudson
PA RE or RE	Port Authority Resident Engineer
REO	Port Authority Resident Engineer's Office
SPM	Senior Program Manager
SMST ²	Safety Management System Tracking Tool
US DOT	U.S. Department of Transportation
OSHA	U.S. Occupational Safety and Health Administration
WTC Site	World Trade Center Site
SSD	World Trade Center Site Safety Director
Program	World Trade Center Safety, Health and Environmental Program
WTC Blue Book	World Trade Center Site Rules and Regulations
WTCC	World Trade Center Construction

2 Roles, Responsibilities and Program Management

2.1 Port Authority Chief Engineer

The Chief Engineer of the Port Authority of New York & New Jersey is the final authority regarding the interpretation of all jurisdictional codes, regulations, and ordinances at the WTC site.

2.2 Engineer of Construction (EOC)/Senior Program Manager (SPM)

The EOC/SPM is the duly authorized representative of the Director of the World Trade Center Construction Department and the authority regarding the application of all jurisdictional codes, regulations, and ordinances at the WTC Site. The EOC/SPM, or his/her duly authorized representative, is primarily responsible for ensuring that each CM and sub-contractor comply with the requirements of the Contract Specifications and Tenant Construction Applications issued by the Port Authority for work performed at the WTC Site. The day-to-day enforcement and administration of the Program, contractor HASPs and JHAs is the responsibility of the REO, the SSD, and their designated representatives.

2.3 Port Authority Resident Engineer (RE)/Port Authority Resident Engineer's Office (REO)

The RE/REO is responsible for the daily monitoring of all work performed at the WTC Site. The issuance of all Port Authority approvals, acceptances and/or comments for all HASPs and JHAs submitted by the CM and contractors after review by the appropriate Port Authority personnel is completed through the REO.

The responsibilities of the RE/REO include, but are not limited to, the following:

- a) The suspension of any construction activities if warranted for the protection of life and/or property/or utilities, protection of the environment, or the elimination of any hazardous or potentially hazardous conditions;
- b) Notifying the contractor when unsafe working conditions, practices and behavior are detected (e.g., lack of good housekeeping practices, use of equipment in obviously poor condition, failure to adhere to rules, regulations, ordinances or policies regarding safety);
- c) Notifying the contractor of any noncompliance with safety requirements contained in either the Contract Specifications or the Tenant Construction Application;
- d) Reviewing all Daily Reports, Equipment Maintenance Log, Inspection Reports, and Accident Reports as appropriate. Such reports are to be promptly submitted and audited to ensure that the contractor takes immediate and prudent action to correct all anticipated or discovered safety deficiencies. Accident reports are to be submitted to the REO and SSD within twenty-four hours of the event;

- e) Reporting all accidents/incidents and all serious injuries to PATH patrons / employees to the Manager, PATH SS&EM

2.4 Port Authority WTC Site Safety Director (SSD)

The Port Authority shall designate a person to serve as the WTC Site Safety Director. The SSD shall have access to all project staff, and is responsible for a fully coordinated, enforceable and uniformly implemented safety program throughout the WTC Site.

The SSD is also responsible for the promotion, planning and implementation of all safety awareness programs, practices, procedures, and training necessary to control, reduce, and eliminate hazards throughout the WTC Site. The SSD will report to the Director and Deputy Director, World Trade Center Construction Department.

The SSD ensures that all WTC stakeholders/owners, CM, contractors, and external agencies implement the Program as presented in this document, and that it is updated as required to address the changing conditions of the WTC Site that may affect the health and safety of the work environment. At a minimum, the SSD has the following responsibilities:

- a) Identifies, promotes, plans, develops, coordinates and modifies as required all site safety activities, programs and initiatives to preserve and protect the health and safety of all workers and employees within the WTC Site, the public, adjoining properties and utilities, and the environment;
- b) Develops and directs a comprehensive on-site inspection program to audit all construction activities within the WTC Site to ensure compliance with all applicable federal, state, and local regulations related to the health and safety of the workers and the public;
- c) Coordinates all activities among the Port Authority, WTC stakeholders/owners and external agencies and contractors to ensure that the work of one entity does not adversely impact the health and safety of another;
- d) Reviews and revises as required the Program and its associated health and safety requirements to improve overall worksite conditions, continually evaluate the effectiveness of its programs and initiatives, and initiate changes based on current industry trends;
- e) Ensures the appropriate preparation of site-specific HASPs and JHAs by all WTC stakeholders/owners, external agencies, and CM, and contractors prior to the implementation of such plan(s), and revisions thereto, as the project develops;
- f) Coordinates WTC Site safety training, and implements associated initiatives and objectives;
- g) Provides notification to Port Authority and WTC senior staff, as appropriate, of all accidents on the WTC Site. The SSD or designated representative participates in the investigation of incidents and provides the necessary support for investigative entities for purposes of conducting their investigation;
- h) Tracks and verifies that identified site safety deficiencies are corrected;

- i) In conjunction and cooperation with the Inspection and Safety – Risk Management Department serves as a Port Authority liaison to outside federal, state, and city agencies as it relates to WTC Site health and safety issues;
- j) Coordinates the activities of the various Project Safety Managers and Port Authority Safety personnel;
- k) Reviews and/or audits all documentation related to safety as required.

2.5 Port Authority WTC Site Manager

The WTC Site Manager is responsible for the safe and orderly operation, maintenance, and security of the WTC Site on a 24-hour basis, 365 days per year, and at a minimum shall provide the following services:

- a) Establishes and enforces policies, procedures, rules and regulations governing the WTC Site operations and security to facilitate redevelopment;
- b) Approves access for authorized individuals and vehicles;
- c) Provides physical upkeep for common facilities;
- d) Provides an overall Site Traffic Management, and Site Security Plan;
- e) Maintains designated public areas, and common use areas on the WTC Site;
- f) Ensures WTC Site security/safety orientation is provided and current.

2.6 Port Authority Project Safety Manager (PSM)

The PSM, in conjunction with the REO and the SSD, is responsible for the day-to-day environmental, safety and health operations of the assigned project for which they work ensuring the insurance stakeholders are coordinated and an integral part of the program working with the construction management contractor teams.

This is accomplished by:

- a) Performing comprehensive and focused safety, health, and environmental inspections;
- b) Reviewing CM and contractor HASPs, JHAs, and Means and Methods;
- c) Attending weekly tool box talks conducted by the CM and contractors;
- d) Participating in the weekly safety committee meeting chaired by the CM;
- e) Participating in the performance of accident and incident investigation;
- f) Audit training records and documents required to be maintained by the CM CSSM and sub-contractor's safety supervisor;

- g) Evaluate new procedures and practices to ensure compliance with regulation;
- h) Follow-up on the CM and contractor's use of the SMST².

2.7 Port Authority Inspection and Safety Division – Risk Management (ISD-RM)

The ISD-RM will advise and support the REO and the SSD in all matters of occupational and public safety, health and environment and at a minimum, shall provide the following support services as applicable:

- a) Routinely assess and monitor the safety performance of contractors performing work at the WTC Site and prepare written reports, as necessary;
- b) Utilize the Safety Observation Notification Online System to document findings and corrective recommendations for the protection of workers, the public, adjoining structures, utilities, and the environment;
- c) Review Port Authority contract, TAA/TCA drawings, specifications, and submittals to ensure compliance with all applicable safety standards and codes;
- d) Review and prepare written comments on all HASPs and JHAs provided by all CM, contractors, WTC stakeholders/owners and external agencies to ensure uniformity and completeness in accordance with all applicable safety standards and codes, and best management practices;
- e) Participate in the performance of accident investigations to identify the factors contributing to all incidents. Prepare an investigative report identifying the incident, contributing factors and the recommendations to prevent recurrence;
- f) Accompanies and assists outside regulatory agency representatives and insurance underwriters in the performance of their routine inspections and investigations;
- g) Performs Port Authority liaison responsibilities with outside federal, state and city regulatory agency representatives;
- h) Provide recommendations to the SSD to improve the effectiveness of the Program.

2.8 Port Authority Treasury-Risk Financing

Treasury-Risk Financing will advise and support the REO and the SSD in all matters of insurance, and coordinate a cooperative approach to site safety with insurance company safety representatives and loss control managers. Under the Port Authority Owner Controlled Insurance Program (OCIP), qualified insurance company safety professionals who have significant years of field experience in accident prevention in the construction industry will focus their efforts on current health and safety issues, and potential impact to the Port Authority.

These safety professionals will work under the direction of Treasury-Risk Financing, and in cooperation with the SSD regarding all health and safety matters within the WTC Site.

Treasury-Risk Management personnel shall:

- a) Coordinate and maintain effective and routine communication with all parties involved in the safety and loss control efforts provided by the Port Authority and Insurers involved in the management and control of risk within the WTC Site;
- b) Analyze loss trends. Provide recommendations to increase the effectiveness of the Program;
- c) Routinely review and recommend changes and/or enhancements to the application and content of the HASP submitted by all WTC stakeholders/owners and external agencies and their prime contractors.
- d) Review incident data contained within the Safety Management System Tracking Tool and compare with OCIP information. Notify SSD of any discrepancies.

2.9 PATH System Safety & Environmental Management Division (SS&EM)

The PATH SS&EM will advise and support the REO and the SSD in all matters of occupational and public safety, emergency management, fire protection and environmental protection that affect the PATH, and at a minimum provide the following services:

- a) Routinely inspect and monitor the safety performance of contractor(s) on site in the PATH Right-of-Way (PATH ROW), Station and terminal areas, and prepare written reports documenting their findings with corrective recommendations concerning worker protection, the protection of the public, adjoining structures, utilities, emergency management, egress, fire protection concerns and the environment. Such written reports will be provided to the SSD immediately following any routine inspection;
- b) Review contract, TAA and TCA documents, drawings, specifications, and submittals involving PATH operations to ensure compliance with all applicable safety, environmental and transportation standards and codes;
- c) Participate in accident/incident/injury investigations within the PATH Right-of-Way, station/terminal areas to identify the factors contributing to the accident/incident/injury, and provide recommendations to prevent reoccurrences;
- d) Accompany outside regulatory agency representatives in the performance of routine inspections and investigations;
- e) Provide ongoing recommendations to improve the effectiveness of the Program.

2.10 WTC Stakeholders/Owners, External Agencies and Their Prime Contractors

Consistent with Sections 2.11 through 2.13 herein, each CM and contractor shall have dedicated safety representatives assigned to their project. Safety representatives shall not have any other duties other than safety management through the enforcement of applicable regulation, implementation of this program, and compliance with their project's approved health and safety plans. Safety representatives shall have adequate knowledge and experience with the applicable safety, environmental, and building codes and regulations. The World Trade Center Construction Department Director and the SSD shall review the resume of any Contractor Site Safety Manager proposed by the CM. A personal interview may also be required with the WTC SSD and PA General Manager Operations Safety. Only an individual deemed to be competent by the Director of World Trade Construction Department and the SSD prior to the individual being hired shall assume this position.

The CM CSSM and/or contractor safety supervisor shall have the authority and responsibility to ensure the proper implementation of their company's HASP, and plans prepared for the project. Each CM CSSM and contractor safety supervisor shall have the authority to suspend operations where an imminent danger situation exists.

Safety management and enforcement shall be administered by a full-time employee of the CM licensed by the NYC DOB as a Certified Site Safety Manager. The CSSM shall work directly with the project's supervision, report to the Corporate Safety Director and/or CEO, and cooperate and work with the Port Authority in the implementation of all required WTC Site safety programs and initiatives. The responsibilities of the CSSM shall not be delegated nor contracted out to contractors, suppliers, consultants, or any other persons or agency without the express prior written approval of the Port Authority REO and SSD.

The responsibilities of all CM include, but are not limited to, the following:

- a) The planning and execution of all construction work in accordance with the objectives and safety requirements of the Program, the Contract Specifications issued by the Port Authority, approved Tenant Construction or Tenant Applications, Port Authority policies and procedures, and all applicable federal, state and local laws, rules, regulations, statutes, and ordinances. The scheduling of all construction work must be approved in advance by the REO to not interfere or conflict with PATH Maintenance and Operations or other construction operations;
- b) Develop and submit a hard copy and a non-modifiable electronic version of a written WTC HASP to the REO and the SSD within fourteen (14) working days of the Port Authority approval to proceed with construction;
- c) Suspending construction activities as warranted for the protection of life and/or the public, property, streets, utilities, the environment, and the PATH Rail Rapid Transit System;
- d) Ensure contractors conduct weekly tool-box safety meetings. All meetings shall be documented to identify the date of the meeting, the individual running the meeting, the issues discussed, follow-up actions, and a list of attendees present. All documents related to tool-box safety meetings shall be available for on-site review by CM, REO, SSD, PSM and OIG and Insurers.

- e) Ensure that all contractors, employees, workers, and visitors on the WTC Site are familiar with the provisions of the approved HASP including but not limited to working adjacent to an operational rail rapid transit system and energized third rail;
- f) Notifying the REO and the SSD immediately if any inspector or official from any industry, federal, state or local safety entity arrives on the job site for a formal safety inspection, or media inquiry;
- g) Ensure that if any conflicts are discovered between the approved HASP and any other federal, state, or local rules, regulations or ordinances, the more stringent requirement will be complied with. If a conflict is discovered, the contractor shall notify the REO and the SSD immediately;
- h) Provide the CSSM with a two-way voice communication system that provides direct and immediate contact with all emergency contacts.

2.11 Contractor Site Safety Manager (CSSM)

The CM for each WTC stakeholder/owner and external agency shall designate for the duration of each work shift a full time site safety manager currently licensed by the NYC DOB as a Certified Site Safety Manager consistent with Chapter 33 – Safeguards During Construction and Demolition of the NYCBC. In addition to Chapter 33 enforcement, the Contractor Site Safety Manager (herein referred to as “CSSM”) shall also enforce the applicable OSHA occupational safety and health standards.

A copy of the CSSM’s valid and current certificate shall be contained in the contractor’s HASP, as well as being submitted to the REO and the SSD.

At a minimum, the CSSM shall have the following responsibilities:

- a) Ensures that the site specific HASP appropriately addresses all applicable federal, state and local regulatory standards, ordinances, etc., and the site specific requirements of this Program, as well as the prime contractor’s responsibilities for system safety and adherence to PATH safety rules and programs if applicable to the construction activities;
- b) Performs daily work site safety inspections with the appropriate contractor competent person to identify, document and correct any health and safety deficiencies, and to enforce the requirements of the HASP;
- c) Ensures that the CM and all contractors prepare appropriate JHAs for each task identifying the hazards and controls required to minimize the risk of injury;
- d) Verifies that all equipment has been inspected and maintained in accordance with applicable OSHA regulations and manufacturers’ specifications, and maintains appropriate documentation on site of all such inspections;
- e) Maintains a current listing of all competent persons as defined by OSHA at all times during performance of work at the site. Competent person certifications shall be submitted to the REO and the SSD for review and comment prior to the start of any such work. Activities that require a competent person shall be immediately terminated if no such person is readily available or the applicable OSHA standard is not adhered to. An updated competent persons list shall be submitted monthly.

- f) Ensures that CM and contractors' work crew has a competent person(s) assigned during each work shift, and that the competent person remains on site with each work crew for the duration of the task;
- g) Ensures that each CM and all contractors working on the site adhere to all of the requirements of the Program, HASPs and JHAs;
- h) Ensures that each CM and contractor convene weekly safety meetings with employees to inform them of all site safety issues and initiatives implemented by the WTC Safety Committees (i.e., Project Specific, Operations Safety, etc.);
- i) Prepares weekly safety meeting minutes and a rolling action item list (RAIL) that includes information from WTC Safety Committees, Safety Bulletins, Safety Observations, Job Hazard Analyses and information pertaining to the project. Copies of which shall be provided to the REO, PSM and the SSD;
- j) Conducts initial and routine site and safety orientation programs for all employees and workers which, at a minimum, shall include a review of the approved HASPs and JHAs, a description of the hazards present at the WTC Site which they may be in contact with or exposed to, identification of the procedures and equipment needed to eliminate the hazards, and the availability of all required PPE necessary to perform the work, and emergency procedures;
- k) Maintains on the WTC Site all training documentation verifying that all CM and contractor workers are trained, experienced and proficient in the use, inspection, and maintenance of all equipment, aerial lifts, machinery, electric power tools, pneumatically driven tools, hydraulic power tools, fuel powered tools, and powder actuated tools in accordance with applicable regulations and the manufacturer's specifications;
- l) Maintains on the WTC Site all training documentation including the training date, name of instructor, training agenda, and training session sign-in sheets and list of all attendees including job title, trade and WTC Identification Number. As required, conducts and ensures that all CM and contractor employees, visitors or other personnel who work, inspect, or are engaged in construction activities on or adjacent to the PATH tracks or platforms are trained and annually certified in PATH's Roadway Worker Protection Program. All training documents shall be made available to the REO, SSD, and PSM upon request.
- m) Conducts accident and near miss investigations, followed by the preparation of a written report describing the incident, contributing factors, and actions to be taken to prevent recurrence. This report is to be submitted with 24 hours to the REO, SSD, and PSM;
- n) Ensures that the HASP and all associated JHAs are in compliance with all applicable federal, state and local rules, regulations, statutes and ordinances;
- o) At a minimum, performs inspections at a frequency as identified in 1 RCNY, § 3310-01, Chapter 3300: Safeguards during Construction or Demolition, and maintains the required documentation as required therein. Copies of such inspections shall be made available to the REO, SSD, and PSM upon request.

2.12 Construction Fire Safety Manager (CFSM)

The CM and/or contractor for each WTC stakeholder/owner and external agency shall designate for the duration of each work shift a full time Contractor Fire Safety Manager. The CM shall notify the PSM who the designated CFSM is for each shift and of any changes to that designation. There is no specific prerequisite for the position, and the Contractor Site Safety manager may also be co-designated as the CFSM.

At a minimum, the CFSM shall be responsible for:

- a) Hot work compliance including permitting;
- b) Daily Fire Safety Inspections;
- c) Maintaining a Log of Fire Safety inspections and findings/follow up;
- d) Ensuring compliance with all applicable fire code requirements including but not limited to fire extinguishers, flammable/ combustible liquids and gases, trash and debris removal, edge protection, access/egress, fire safety plan implementation.

2.13 Contractor Safety Supervision

As required, the Contractor shall have present at the worksite during all working hours a dedicated safety supervisor possessing at a minimum, a current and valid OSHA 30-Hour Construction Industry Training Card, First-Aid/CPR certification, and have at least five (5) years of documented experience as a safety professional with experience in the type of work to be performed. This safety supervisor shall be responsible for safety, health, and environmental compliance and shall have no other responsibilities other than safety management. The contractor shall provide a copy of the proposed candidate's resume and credentials for review and acceptance by the SSD, CM and REO.

As required, the Contractor shall designate, and will have present on site with each work crew for the duration of that work shift, at least one competent person as defined by the OSHA standard 29 CFR Part 1926.32, and as elsewhere referenced in other 29 CFR Part 1926 standards, and will at a minimum perform the duties as described in 29 CFR 1926.20(b) (2). The designated competent person shall be responsible, and have the authority from their employer to take prompt corrective action to eliminate the hazard(s). At a minimum, each competent person shall possess a current and valid OSHA 30-Hour Construction Industry Training card and First-Aid/CPR certification. The Contractor shall assign, when required by a specific 29 CFR Part 1926 standard, a qualified or authorized person as defined in OSHA standard 29 CFR Part 1926.32.

2.14 OSHA Competent, Qualified and Authorized Persons

The CM and contractor shall maintain a current listing of all competent persons performing work on the project. Competent person documentation shall be submitted to the REO and the SSD on a monthly basis for review and comment. Activities that require a competent person shall be immediately suspended if no such person is readily available or the applicable OSHA standard is not adhered to.

If in the opinion of the SSD or CM a competent person, foreperson, or superintendent is not discharging his or her responsibility, or performing his or her job, the REO or SSD can order the removal of that person from his/her position at the WTC Site.

2.15 WTC Site Employees

All WTC site employees shall have, at a minimum, the OSHA 10-Hour Construction Safety and Health certification card, valid for 5 years from date of card issuance, possess current and valid licenses and certificates applicable to their scope of work, and be available for review while on-site.

3 Program Requirements

The CM, contractors, and second tier contractors shall incorporate, at a minimum, the most recent version of the applicable requirements of the following regulatory agencies as they pertain to worker safety and health, environmental protection, protection of the public and property, waste management, and transportation. In the case of conflicting requirements, the most stringent shall be followed:

- a) U.S. Department of Labor, Occupational Safety and Health Administration: Title 29 CFR, Parts 1903, 1904, 1908, 1910, and 1926
- b) U.S. Department of Labor, Mine Safety and Health Administration: Title 30, Chapter 1
- c) U.S. Environmental Protection Agency Title 40 CFR
- d) U.S. Department of Transportation Title 49 CFR
- e) NYS Department of Environmental Conservation
- f) NYS Department of Transportation
- g) NYS Department of Labor
- h) NYC Department of Buildings
- i) NYC Fire Department
- j) NYC Department of Health and Mental Hygiene
- k) NYC Department of Environmental Protection
- l) NYC Department of Sanitation
- m) NYC Department of Transportation
- n) NYC Department of Consumer Affairs

Additionally, work performed at the WTC Site shall at a minimum comply with the most recent version of the applicable consensus standards/recommendations from the following organizations, institutes, and associations as they pertain to worker health and safety health, environmental protection, protection of the public, waste management, and transportation. Where there are more than one consensus standards/recommendations, the more stringent shall be followed.

- a) American Concrete Institute
- b) American Industrial Hygiene Association (AIHA)
- c) American Red Cross

- d) American National Standards Institute (ANSI)
- e) American Society of Mechanical Engineers (ASME)
- f) American Society for Testing Materials (ASTM)
- g) American Welding Society
- h) Compressed Gas Association
- i) Institute of Makers of Explosives
- j) Manual of Uniform Traffic Control Devices (MUTCD)
- k) National Institute of Standards and Technology (NIST)
- l) Underwriters Laboratories (UL)
- m) U.S. Army Corp of Engineers
- n) NFPA

Note: Port Authority rules, standards and agreements outlined in this Program including addendums, any other specific governmental regulations and requirements (as applicable), and this Program will be followed when determining safe work practices and protection of workers and the environment. If any of these standards, requirements, rules or procedures conflict, the most stringent one will prevail.

3.1 WTC Site Rules and Regulations

All WTC Site personnel shall follow the World Trade Center Site, Rules and Regulations (WTC Blue Book).

3.2 Site Safety Orientation and Training

All WTC CM, stakeholders/owners, external agencies, contractors, supervisors and employees must complete the Port Authority WTC Site Orientation Program prior to performing work at the WTC Site and before obtaining a WTC Site ID or Vehicle Pass.

All CM and contractors shall be responsible for enrolling staff that will be assigned to work on or adjacent to the PATH Right of Way in the PATH On-Track Safety Program. Upon successful completion of this required safety training program, the employees will receive a PATH Roadway Worker card, which must be on their person at all times when working on or near the PATH ROW. The Roadway Worker training and card must be renewed annually. There are similar requirements for any work on or adjacent to the MTA system, in which case MTA training will be required.

The CM and contractor shall ensure workers, and all sub-contractor workers are properly trained, and as required possess valid and appropriate license(s), and/or certificate(s) consistent with regulations, laws, and best industry practices specific to their work activities

and the tools/equipment being used as per manufacturer specifications. At a minimum, employees working at the World Trade Center site shall have a valid OSHA 10-Hour or 30-Hour Construction Safety and Health Certification card in their possession while on-site. This certification must be renewed every five (5) years. A training matrix shall be maintained by each entity and readily available for review on site.

3.3 Substance Abuse and Weapons Policy

The Port Authority is committed to providing a safe, drug/alcohol free work place for all employees. This policy applies to all tenants, lessees, contractors, vendors and other third party employees, including management working on or visiting the project.

It is the responsibility of each CM and contractor to institute a Drug and Alcohol Program for its on site employees. Illegal drug and alcohol use on site is strictly prohibited. Any on site employee who is found to be under the influence of or ingesting illegal drugs or alcohol or carrying weapons will be reported immediately to the PAPD, and permanently removed from the WTC Site.

As drug and alcohol use on the job can contribute both to incidents and to greater risk for all individuals employed at the WTC site, as well as the general public, the following is prohibited at the WTC Site where work is being performed in support of WTC Site construction:

- a) The consumption of alcohol, or use of an illegal drug during scheduled working hours, either on the WTC Site or off-site, is strictly prohibited. Scheduled working hours, for these purposes, shall be presumed to be eight (8) consecutive hours from the time the worker enters the WTC Site and begins work. Carrying an open or closed container of an alcoholic beverage or smoking anywhere on the WTC Site at any time is strictly prohibited. Any violation of this policy will result in immediate and permanent removal from the WTC Site.
- b) The use of a legal medication which may impair a worker during the course of a work shift, either prior to, during, or upon returning to the WTC Site;
- c) The use, sale, offer to sell, purchase, transfer, storage, disposal, distribution or possession of illegal drugs, drug paraphernalia or alcohol products;
- d) Possession of any firearm or other dangerous weapons;
- e) Smoking anywhere within the WTC Site.

Each CM and contractor shall promote a Drug Free Workplace with their employees and will communicate what constitutes prohibited activities during their safety orientation and occasionally at tool box talks.

Workers that are found to be under the influence of or in possession of alcohol, illegal drugs, in possession of weapons or smoking anywhere within the WTC site as described above shall be immediately removed and dismissed from the WTC Site and their WTC Site access credentials will be revoked, and/or subject to criminal prosecution as warranted by their action(s). As per the NYC Fire Code, section 1404.1 and NYC Building Code, sections 3301.1.2 and 3303.7 smoking on any construction site, including the WTC Site, is strictly prohibited and violations may be issued to the contractor and/or other relevant parties.

3.4 Disciplinary Action Program

Each CM and contractor shall have a progressive disciplinary action program for all personnel who fail to enforce, follow or comply with established policies and procedures. Disciplinary action shall be handled through a 3-Strike Policy (i.e., 1-verbal, 2-written and/or limited removal from the WTC site, 3-limited to permanent removal from the WTC site), however, depending on the seriousness of the violation, immediate revocation of the employee's WTC Identification Badge can occur, as referenced in section 3.3.

An investigation shall be conducted to determine if an individual's action, lack of action, or conduct created, contributed to, or allowed an Imminent Danger Situation to exist as referenced in 29 CFR 1903 and 1908; disobeyed, disregarded, or other refused a directive from the PAPD; or disobeyed or disregarded a rule or regulation as listed in the WTC Blue Book. Records are to be maintained by each CM and contractor and shall be available for review by the Port Authority.

3.5 Penalties

All CM and contractors shall be subject to and include in their disciplinary action program provisions that hold the violating contractor(s) accountable for safety infractions.

Failure to comply with the safety requirements of the Program may result in the following amounts being deducted from the Contract Price for each specific non-compliance with a provision of the Program:

- a) First Offense: Warning – no monetary deduct
- b) Second Offense: \$500.00
- c) Third Offense: \$1,000.00
- d) Further Offense: \$2,000.00 for each additional offense

Deductions shall be non-cumulative for violation of multiple provisions of the Program. All penalties collected shall be put back into the contractor's safety program.

3.6 Responsibility and Accountability

The Port Authority is committed to creating a work environment absent of incidents and injuries. Everyone associated with this project must understand their responsibilities with regard to health safety and the environment. These responsibilities must be clearly defined and project management, supervision, contractors and workers will be held accountable for their health and safety performance. The following table outlines accountability and responsibility around key benchmarks:

SUBJECT	PROJECT MANAGEMENT	* FIRST-LINE SUPERVISION	WORKER	CONTRACTOR SITE SAFETY MANAGER
	WILL ENSURE THAT:	ENSURE THAT:	WILL:	WILL:
Program:	The Program is understood, implemented, and strictly complied with and that The Port Authority, Construction Managers, Contractors, vendors, and third party individuals are in conformance to the Program.	The Program is fully understood, implemented in work planning and communicated to workers.	Understand the contents of the Program and follow the established rules and procedures.	Advise project management and supervision as to status and conformance with the project Program. Support in administration of the Program.
Work Practices:	First-line supervision is communicating safe work practices to workers.	All work tasks are communicated to workers and there is compliance with the same.	Safe work practices are followed as communicated to them by their supervisor.	Assess project is compliant with safe work practices and federal, state, local, and regulations, rules and other procedures that must be subscribed to.
Site-Specific Safety Rules:	The site-specific safety rules and procedures are implemented and enforced.	The site-specific safety rules and procedures are understood and implemented.	Understand and follow the site-specific safety rules and procedures.	Assess project conformance to site-specific safety rules and procedures.
Emergency Action Plan:	Project team develops and implements the project Emergency Action Plan and the Crisis Management Plan.	Communicates the project Emergency Action Plan.	Understand the project Emergency Action Plan.	Assess project Emergency Action Plan and Crisis Management Plan.
Training:	Resources are available to implement safety and health training. Training programs are developed and implemented.	Receive a project-specific supervisor safety orientation prior to start of work. All workers under their direction are properly trained in hazard recognition and safe work practices.	Attend required project safety and health training. Understand and follow the work practices and guidelines discussed during the training.	Assess that project management, first-line supervision and workers have received proper health and safety training. Assist project supervision in training workers on hazard recognition and safe work practices. Monitor weekly "toolbox" safety meetings.
Risks/Hazards:	All first-line supervision identifies, evaluate, and control the work site	All risks/hazards are identified, evaluated and	Understand the hazards of the work and follow	Assist in evaluating risks/hazards and determining methods

	hazards, and resources are available to implement controls.	controlled. Institute a daily assessment program to identify, evaluate and correct work site risks/hazards.	the safe work practices and controls developed for those hazards.	of eliminating or reducing the risk/hazard.
Incidents:	All incidents are investigated properly and thoroughly.	Conduct a thorough and proper incident investigation and develop solutions to prevent similar occurrences.	Cooperate and participate in the incident investigation and contribute ideas and solutions.	Assist first-line supervision in investigating incidents. Maintain monthly incident statistics.

* First-line Supervision includes general superintendents, superintendents, field engineers, general foreman and foremen.

4 Accident/Incident Notification, Investigation and Response

The CSSM shall ensure that all accidents, incidents described in this Section, or as requested by the REO or SSD are reported, verified, investigated, and analyzed with preliminary reports provided to the PAPD, REO, SSD, and PSM within twenty-four (24) hours of the incident. The CSSM shall provide assistance, information and documentation as required by the Port Authority and/or its insurance company representatives investigating the incident. If required by the Port Authority, additional investigation and follow-up reports shall be provided by the CSSM.

Only Port Authority authorized personnel, such as the PAPD, ISD-RM, Office of the Inspector General (herein referred to as "OIG"), REO, SSD, PATH SS&EM, Law Department Claims Division, and other duly authorized Port Authority representatives, and/or its insurance company representatives, and/or authorized regulatory agency representatives shall be given information pertaining to the event.

4.1 Emergency Response

The CSSM or designee shall immediately notify the PAPD at (212) 608-5111 or 212-608-5115, followed by notification to the REO, SSD and PSM as to any and all injuries and accidents, including but not limited to following:

- a) Medical emergencies (e.g., amputations, thermal or chemical burns, unconsciousness, electrocution, poisoning, breathing difficulties, traumatic impact) requiring emergency medical services
- b) Fatalities
- c) Fires
- d) Bomb threats
- e) Workplace violence
- f) Civil disturbances
- g) Damage to or theft of property or equipment
- h) Hazardous materials incidents
- i) Environmental contamination
- j) Property/Utility damage
- k) Pedestrian injuries
- l) Structural failures and collapses

- m) Crane failures/Hoisting incidents
- n) Suspicious activities, items or deliveries
- o) Vehicular accidents
- p) Lightening strikes
- q) Findings of Possible Human Remains
- r) Any other events that would potentially impact the health and safety of those working at the site or the general public.

4.2 Emergency Notification

When notifying the PAPD, as presented on the World Trade Center Site "In Case Of Emergency" notification card, each caller will be required to provide the following information:

- a) Location of accident or incident;
- b) Caller name;
- c) Company working for;
- d) Call back cell phone number;
- e) Location of injured worker;
- f) Number of injured;
- g) The body part affected;
- h) Cause of the injury.

Except for police, rescue and emergency personnel, the CM CSSM shall immediately secure the area and restrict access. The accident scene shall not be disturbed, nor will any equipment, machine, system component, or tool be removed or repositioned until it has been released by the PAPD, ISD-RM, OIG, REO, and PATH SS&EM (as appropriate).

Actions to be taken during emergencies should be included in each CM and contractor's Emergency Action Plan, and be discussed regularly with site supervision and at "tool box" safety meetings. WTC Site emergency telephone numbers and procedures shall be posted in conspicuous locations at the job sites and contractor shanties. Any emergency situation which impacts the operation of the PATH Rail Rapid Transit System must be immediately communicated by the designated Employee-In-Charge to the REO. The REO shall then notify the PATH Trainmaster.

The CM and contractor emergency procedures shall be reviewed, revised, and drilled as required to provide maximum effectiveness. The CM CSSM shall review these procedures quarterly, and revised accordingly or as required by the REO or SSD based upon any changes in the scope of work, existing site conditions, or the intended method of execution. Revised copies shall be forwarded to the REO and the SSD.

4.3 Findings of Potential Human Remains

Upon the discovery of any items which appear to be potential human remains, all work in the vicinity is to be stopped immediately. The area is to be quarantined, and under no condition are the remains to be disturbed. The individual making the discovery shall immediately notify their foreman, general foreman or superintendent.

Upon such notification, the foreman, general foreman, or superintendent shall immediately notify the REO.

The REO will be responsible for contacting the PAPD, who will then notify the Office of the Chief Medical Examiner (OCME). Only upon notification by PAPD that the OCME has successfully recovered the potential human remains may work recommence in the area.

4.4 Emergency Action Plan

Each CM and contractor shall submit to the REO and PSM prior to the start of work a comprehensive and enforceable Emergency Action Plan addressing, at a minimum, locations of all emergency egress routes, emergency vehicle access routes, alarm systems, evacuation routes, post-evacuation assembly locations and personal accounting, responses to medical emergencies and body fluid releases;

The CM and contractor shall review and revise this plan quarterly, or as required by the REO or PSM based upon any changes in the scope of work, existing site conditions, or the intended method of execution. A hard copy, and a non-modifiable electronic version of all revisions shall be forwarded to the REO and PSM.

The Emergency Action Plan shall be communicated to all first-line supervisors, and shall be posted throughout the jobsite and contractor shanties, and communicated to workers during the Safety Orientation and weekly safety meetings.

Each CM and contractor shall maintain the following documents at their jobsite, and shall make the following available to all responders:

- a) Twenty-four hour contact list for project supervisory staff;
- b) Site plans identifying stairs, scaffold stairs, hoists, flammable and combustible liquid storage, compressed gas cylinder storage;
- c) Copies of Material Safety Data Sheets.

5 Site Specific Orientation, Plans and Submittals

5.1 Site Specific Orientation

All employees shall have a WTC Site Project specific safety orientation given by the CM or contractor that includes, but not be limited to, the following topics:

- a) The recognition, avoidance, and control of actual or potential unsafe or unhealthy worksite conditions;
- b) PATH On Track Safety Training for working on or adjacent to the PATH Rail Rapid Transit System;
- c) Hazard communication training in the labelling, handling, storage, use, spill response, and disposal of hazardous materials, chemicals, products, and wastes (i.e., flammable, combustible, toxic, caustic, pressurized, cryogenic, explosive, etc.). Copies of each chemical product Material Safety Data Sheet shall be maintained at a location within the worksite, and made available to all workers during all shifts;
- d) The selection, use, limitations, inspection, maintenance, care, and storage of all personal protective equipment (PPE);
- e) Fire prevention, protection, and response training. This training shall be provided every 6-months;
- f) The selection, use, erection, inspection, maintenance, disassembly, and fall protection requirements for the use of ladders, scaffolds, and aerial lifts (i.e., extensible boom platforms, aerial ladders, articulating boom platforms, vertical towers, man-buckets, etc.);
- g) Flagman training for roadway closures and traffic and pedestrian diversions;
- h) The use, inspection, and maintenance of all equipment, machinery, electric power tools, pneumatically driven tools, hydraulic power tools, fuel powered tools, and powder actuated tools in accordance with applicable regulations and the manufacturer's specifications;
- i) Requirements of the Program, and approved HASPs and JHAs and disciplinary actions for worker safety infractions;
- j) Responses to blood and bodily fluid releases;
- k) Zero tolerance for substance abuse/weapons possession;
- l) No smoking policy;
- m) Emergency Action Plans addressing, at a minimum, locations of all emergency egress routes, emergency vehicle access routes, alarm systems, evacuation routes, post-evacuation assembly locations and personal accounting, and responses to medical emergencies.

5.2 Site Specific Plan (HASP)

All WTC Site stakeholders, CM, contractors, and external agencies shall be required to submit a written detailed project-specific Safety, Health and Environmental Plan to the REO and PSM within the timeframe provided, or as specified by the REO prior to the commencement of field work. The REO and PSM shall review the HASPs and plans, and provide comments as required addressing the contractor's overall compliance with the requirements of this Program.

The Safety, Health and Environmental Plan will:

- a) Identify each component of the work that the contractor is responsible for completing;
- b) Identify hazards associated with the work and the proper equipment and tools to perform the work;
- c) Plan adequate and sufficient controls to protect their work crews and property.

The REO, SSD, PSM, and Port Authority Inspection and Safety - Risk Management shall review and accept the project Safety, Health and Environmental Plan. If the Safety, Health and Environmental Plan require revision due to unanticipated or new hazards, or other condition changes, then all work pertaining to that work component shall be suspended until the Safety, Health and Environmental Plan is revised, reviewed and accepted.

5.2.1 Performance of Job Hazard Analysis

If based on the opinion of the REO, SSD, or PSM a particular task, operation, or activity is not addressed, or not addressed fully in the submitted plans, a Job Hazard Analysis (JHA) must be prepared and submitted to the REO and PSM for review and acceptance prior to performing that task, operation, or activity. The JHA must be prepared by the sub-contractor's safety supervisor or designated employee, be reviewed and approved by the CM, then submitted via a Transmittal Letter to the REO and PSM for acceptance prior to the performance of work. A copy of the JHA shall be maintained at the job site.

At a minimum, the JHA must include the following:

- a) Task, Operation, or Activity the JHA is being prepared for;
- b) Description of how work is to proceed;
- c) Crew size and members / Identification of crew foreman;
- d) Identification and analysis of hazards / exposures;
- e) Identification and implementation of hazard / exposure controls; which are to include but not be limited to tool and equipment selection, and personal protective equipment use;
- f) Specific training provided / To be provided;
- g) Employee review and sign-off.

5.2.2 Preparation of Regulatory Plans and Programs

The CSSM and the safety supervisor for each sub-contractor performing work on the WTC Site shall determine when occupational exposure assessments are required for physical, chemical, and radiation hazards such as noise, silica dust, metals, fumes, carbon monoxide, solvent vapors, particulates, and ionizing and non-ionizing radiation, etc. in accordance with the requirements of 29 CFR Part 1926. At a minimum, the exposure assessment will be based on 29 CFR 1926.55: Gases, Vapors, Fumes, Dusts, and Mists, and the Threshold Limit Values of Airborne Construction Table provided therein. The CSSM shall arrange all such monitoring during the performance of work and ensure compliance with OSHA personnel exposure assessment requirements. Each affected employee shall be notified in writing of the results. Copies of sampling results shall be forwarded to the REO, SSD and PSM.

The CSSM and sub-contractor safety supervisor shall ensure that all exposure monitoring is performed using accepted analytical methodologies (e.g. OSHA and National Institute of Occupation Safety and Health), and that the sampling frequency and results is representative of the work exposure. All sampling instrumentation used shall be properly calibrated.

Samples collected shall be submitted to a laboratory maintaining appropriate qualifications, state licensing, and current certifications (e.g. American Industrial Hygiene Association). The laboratory director or a certified industrial hygienist must sign all sampling reports.

The results of these exposure assessments shall be compared to the Threshold Limit Values of Airborne Contaminants for Construction, 29 CFR 1926.55 Appendix A, or other governmental, industry, or accepted and recognized exposure limits. The CSM shall determine if exposures exceed acceptable limits, and develop a remediation plan to reduce those exposures.

5.2.3 Safety Plan Submittal Requirements

All WTC Site stakeholders, CM, contractors, and external agencies shall be required to submit their HASP and related safety plans to the REO, PSM and the Office of the Inspector General (OIG) within the timeframe provided, or as specified by the REO. Submittals shall be in accordance with the process outlined below:

- a) Contractor submits plans to CM
- b) CM reviews and comments on the plan
- c) CM transmits documents with comments to the PA REO and SSD for review
- d) PA REO and SSD reviews and provides comments as warranted
- e) CM consolidates comments and transmits back to contractor for re-submittal, as necessary
- f) Contractor resubmits to CM
- g) CM reviews the submittal, ensuring comments are integrated into the plan and transmits to contractor, PA REO and SSD

Unless otherwise directed, the CM and contractor shall provide a hard copy and a non-modifiable electronic version of a written site specific HASP within fourteen (14) working days

of Port Authority approval to proceed with construction. At a minimum, the HASP shall include the following:

- a) Fall Protection and Prevention
- b) Lockout / Tagout and Permit-Required Confined Spaces
- c) Organization Details
- d) Fire Protection and Prevention
- e) Site Plan
- f) Hazard Communication
- g) PATH Operations
- h) Housekeeping
- i) Material Protection
- j) Electrical Protection
- k) Site Demarcation
- l) Scaffolds
- m) Hot Work
- n) NYCBC Chapter 33 Inspections
- o) Abrasive Blasting
- p) Personnel Protective Equipment
- q) Emergency Contacts
- r) Cranes and Derricks

For further information, refer to Section 6, Program Element Requirements.

6 Program Element Requirements

6.1 Fall Protection and Prevention

All work at height, except those activities regulated under 29 CFR 1926 Subpart R: Steel Erection, performed on vertical or horizontal surfaces or ledges that are equal to or greater than six feet above a lower level, including work on scaffolds, shall require fall protection.

Each contractor shall submit to the REO and PSM prior to the start of work a comprehensive and enforceable 100% Fall Protection and Prevention Program consistent with 29 CFR 1926 Subpart M: Fall Protection. This program shall be followed by all employees, vendors, consultants, and external agencies when working or walking on all unprotected vertical or horizontal side and edge, scaffold, and locations as identified in 29 CFR 1926.501: Duty To Have Fall Protection, at a height equal to or greater than six feet above a lower level, or at any height above a dangerous process, operation, or piece of equipment. Fall protection systems shall be designed by a qualified person, and installed and maintained by a competent person.

The CM and contractor shall review and revise the Fall Protection and Prevention Program quarterly, or as required by the REO or PSM based upon any changes in the scope of work, existing site conditions, or the intended method of execution. A hard copy and a non-modifiable electronic version of all revisions shall be forwarded to the REO and PSM.

6.2 Lockout / Tagout

Each contractor shall submit to the REO and PSM prior to the start of work a comprehensive and enforceable Lockout/Tagout Program for the performance of any operation in which a piece of machinery, equipment, system, or component thereof could unexpectedly start-up or become energized and release a form of energy (e.g.: electrical, mechanical, hydraulic, pneumatic, chemical, or thermal) while being serviced.

If the scope of work or the need to provide continued electrical service, work on a live (energized) electrical system or component (e.g. conductor, piece of equipment, transformer, switch gear, vault, panel) is required, a qualified person as defined and referenced in 29 CFR 1926.449 shall prepare and submit to the CSSM an Arc Flash Protection Work Plan which includes, but not limited to:

- a) A description of the work location, scope of work, duration, contractor performing the work, crew size, and reason why the system cannot be de-energized;
- b) The identification of the actual and potential arc flash hazards present, and a determination of flash intensity;
- c) The establishment of an arc flash protection boundary identifying the personnel protective equipment (PPE) requirements and worker qualifications for each boundary;
- d) The performance of a hazard assessment to identify the type of PPE and tools required to protect the worker from arc flashing;

- e) The type of training provided to the work crew in the use of PPE and tools required to perform the work;
- f) Written procedures describing the sequence of work;
- g) An emergency action plan in the event of an accident.

Prior to the start of any work, the Arc Flash Protection Work Plan, which is specific for the system being worked on, must be reviewed and signed off as "Approved" by the qualified person, forwarded to the CSSM for review and transmittal to the REO and PSM for review and comment prior to the commencement of that task.

The CM and contractor shall review and revise the Lockout/Tagout Program quarterly, or as required by the REO or PSM based upon any changes in the scope of work, existing site conditions, or the intended method of execution. A hard copy and a non-modifiable electronic version of all revisions shall be forwarded to the REO and PSM.

6.3 Permit-Required Confined Spaces

Each contractor shall submit to the REO and PSM prior to the start of work a comprehensive and enforceable Permit-Required Confined Space Entry Program prior to the performance of any operation in which entering to inspect, work, or monitor a space meeting the criteria of an OSHA permit-required confined space is required.

6.4 Organization Details

Each CM shall provide to the REO, the SSD and PSM, and WTC Site Manager prior to the start of work its company name, address, onsite organizational structure including specific job titles and functions, and 24-hour phone numbers. The same information shall be provided for all contractors working at the WTC Site.

6.5 Fire Protection and Prevention

Each contractor shall submit to the REO and PSM prior to the start of work a comprehensive and enforceable Fire Prevention and Protection Plan, to be enforced by the CFM, to include, at a minimum, locations of all fire extinguishing devices, standpipes, emergency egress routes, emergency vehicle access routes, alarm systems, chemical and compressed gas storage locations and associated containment and spill control measures, worksite evacuation routes, post-evacuation assembly locations, methods to eliminate fire hazards, maintenance of egress and exit ways, procedures to respond to a fire, and etc.

Existing fire protection systems within the PATH WTC Station shall not be impacted or impeded unless specific contractual work is required and previously scheduled and approved by PATH. The PATH Fire Safety Director monitors the fire protection systems 24/7, and all activities shall be coordinated with the PATH Fire Safety Director through the REO.

Prior to an activity which will impede, alter, impair, block, or in any way deactivate an active standpipe, sprinkler system, smoke detection system, hydrant, or existing fire protection or prevention system the CFM shall notify the REO and the ISD-RM.

The CSSM, CFSM, and contractor shall review and revise this plan quarterly, or as required by the REO or PSM based upon any changes in the scope of work, existing site conditions, or the intended method of execution. A hard copy and a non-modifiable electronic version of all revisions shall be forwarded to the REO and PSM.

6.6 Site Logistics Plan

Each CM and contractor shall submit to the REO and PSM prior to the start of work a comprehensive and enforceable plan identifying all proposed access routes, staging areas, crane locations, temporary traffic signal controls, worker and pedestrian crossings, vehicular and pedestrian gates for exit and entry, barriers, barricades, lighting, and fencing.

When working in an active roadway (e.g., erecting, using or dismantling a platform scaffold, using or moving an aerial lift, excavations, manhole entries, roadway paving, utility mark-outs, boring operations, surveys) a flag person and/or an impact resistant barrier (e.g. jersey barrier) shall be in-place for the duration of work. If the barrier is to remain in place during overnight hours, appropriate lighting shall be installed.

The CM and contractor shall review and revise this plan quarterly, or as required by the REO or WTC Site Manager based upon any changes in the scope of work, existing site conditions, or the intended method of execution. A hard copy and a non-modifiable electronic version of all revisions shall be forwarded to the REO, WTC Site Manager, and PSM.

6.7 Hazard Communication

Each contractor shall submit to the REO and PSM prior to the start of work a comprehensive and enforceable Hazard Communication Plan.

The CM and contractor shall review and revise this plan as additional chemical products are introduced, or if chemical product use deficiencies are identified. A hard copy and a non-modifiable electronic version of all revisions shall be forwarded to the REO, and PSM.

6.8 PATH Operations

When applicable, each CM and contractor shall submit to the REO and PATH SS&EM prior to the start of work a comprehensive and enforceable plan addressing compliance with the PATH Book of Rules, and the PATH On Track Safety Program. The plan should include any requirements that are in addition to the PATH power removal guidelines and method to achieve traction system Lockout / Tagout.

The CM and contractor shall review and revise this plan quarterly, or as required by the REO or PATH SS&EM based upon any changes in the scope of work, existing site conditions, or the intended method of execution. A hard copy and a non-modifiable electronic version of all revisions shall be forwarded to the REO and PATH SS&EM.

6.9 Housekeeping

Each contractor shall submit to the REO and PSM prior to the start of work a comprehensive and enforceable plan addressing the general housekeeping of the worksite including, but not limited to, the appropriate storage and/or security of all new and waste materials, the

continued maintenance of clear access and egress paths, walkways, and traffic areas, the maintenance of all permanent and temporary structures and buildings, maintaining work areas free from accumulations of waste materials, rubbish, debris, or other refuse and/or equipment discarded during the performance of work, and the removal, disposal and/or control of all rogue water, snow, dust, other transient materials with a potential for release from the WTC Site.

A dedicated resource will be tasked with the responsibility for the removal of debris, scrap material, trash, and other unusable materials on a daily basis at the end of each work shift.

The CM and contractor shall review and revise this plan as housekeeping deficiencies are identified, or if control measures are ineffective. A hard copy and a non-modifiable electronic version of all revisions shall be forwarded to the REO, and PSM.

6.10 Materials Protection

Each contractor shall submit to the REO and PSM prior to the start of work a comprehensive and enforceable plan outlining the securing and anchorage of all materials and equipment to resist uplift attributable to high wind hazards.

6.11 Electrical Protection

Each contractor shall submit to the REO and PSM prior to the start of work a comprehensive and enforceable plan to address the grounding of all temporary electrical services, panels, tools and equipment in accordance with all applicable OSHA regulations and the National Electrical Code (NEC). All electrical tools, extension cords and equipment must be appropriately grounded in accordance with the requirements of OSHA and the NEC.

All CM and contractors are advised that appropriate personnel protective precautions and restricted access areas must be established for work within specific locations of PATH adjacent to unguarded electrical equipment. Such access will be restricted to personnel deemed qualified by the REO and the PATH SS&EM.

6.12 Site Demarcation

Each CM and contractor shall submit to the REO and PSM prior to the start of work a comprehensive and enforceable plan to address the installation and maintenance of appropriate fencing, barricades, signage, markings and lighting in all work areas, including tunnels, to mitigate hazardous conditions.

6.13 Scaffolds

For all temporary construction, including but not limited to, scaffolding, hoisting systems, stairs, etc, the contractor's EOR drawings need to be submitted to Port Authority for record retention prior to construction. After erection, the contractor's EOR needs to issue to the REO a signed and sealed letter stating that he/she has inspected the temporary construction, it complies with his/her drawings, and it is now accepted by him/her for use.

The following outlines the criteria for scaffold design:

- a) Support scaffolds and stair towers erected to a height of forty (40) feet shall be designed by a qualified person ("qualified" as defined in 29 CFR 1926, Subpart L; 1926.450(b) or a scaffolding company.
- b) Support scaffolds and stair towers erected to a height of forty (40) feet to seventy-five (75) feet, or that are repaired, maintained, modified, or removed at these heights shall be designed by a scaffolding company or a NYS licensed professional engineer.
- c) Support scaffolds and stair towers erected to a height of seventy-five (75) feet or greater, or that are repaired, maintained, modified, or removed at these heights shall be designed by a NYS licensed professional engineer.

Each contractor whose workers will be utilizing the scaffold shall submit to the REO and PSM prior to the start of work a comprehensive and enforceable plan to address, erection, use, maintenance, daily inspections, and disassembly of the scaffold.

The contractor shall review and revise this plan if deficiencies in scaffold use are identified, or as requested by the REO or PSM. A hard copy and a non-modifiable electronic version of all revisions shall be forwarded to the REO and PSM.

6.14 Hot Work

Each CM and contractor shall submit to the REO and PSM prior to the start of work a comprehensive and enforceable plan to comply with the Hot Work Permit requirements established by the REO, and shall be responsible for any consequences or penalties for not complying with those requirements. The REO and PSM shall monitor and verify that proper fire protection measures, including fire watch, have been provided prior to, during, and at the completion of any hot work. The CM and contractor shall submit a plan, to be enforced by the CFSM, to the REO and PSM providing the following:

- a) Copy of the FDNY Pre-Hot Work Checklist;
- b) Name of torch or equipment operator;
- c) Name of fire watch;
- d) Company working for;
- e) Type of welding, compressed gases or equipment to be used;
- f) Compressed gas cylinder storage location;
- g) Applicable licenses, permits, and certificates of the torch operator for the type of activity;
- h) FDNY Certificate of Fitness for the assigned fire watch;
- i) Location of work;
- j) Duration;
- k) Copy of emergency procedures developed for this activity.

Completed copies of a Port Authority Cutting and Welding Permit for each torch operator, welder, and fire guard must be prepared and submitted to the REO. These Permits must be reviewed and approved by the REO prior to the start of this work in the field.

6.15 NYC Building Codes - Chapter 33 Inspections

On a quarterly schedule, the CSSM shall submit to the REO and PSM copies of all required NYCBC Chapter 33 inspections performed relative to the project. A hard copy and a non-modifiable electronic version of all revisions shall be forwarded to the REO and PSM and be readily available for on-site review.

6.16 Abrasive Blasting

Each contractor shall submit to the REO and PSM prior to the start of work a comprehensive and enforceable plan addressing the performance of any abrasive blasting, surface scarification, steam or water blasting, or high pressure water cutting. At a minimum, the plan shall address:

- a) The selection and use of respiratory and personal protective equipment;
- b) Methods to achieve and maintain work area isolation, and to establish ventilation and water drainage control;
- c) The type of equipment to be used, its power source and requirements, and the type of blasting or cleaning agent;
- d) The engineering controls for dust control and debris containment/collection methods to be used;
- e) Personal and environmental monitoring requirements for airborne contaminants;
- f) Methods to achieve dust suppression during freezing temperatures or high wind conditions.

The CSSM and contractor safety supervisor shall review the plan quarterly and revise accordingly, or as required by the REO or PSM based upon any changes in the scope of work, existing site conditions, or the intended method of execution. A hard copy and a non-modifiable electronic version of all revisions shall be forwarded to the REO and SSD and PSM.

6.17 Personal Protective Equipment

Each contractor shall submit to the REO and PSM prior to the start of work a comprehensive and enforceable plan addressing the training, selection, use, and maintenance of the personal protective equipment (PPE) issued to their workers. While performing work at the WTC Site, the minimum PPE requirements include the use of a hard hat, safety glasses, reflective vest or clothing, and work shoes. If based on the specific hazard(s) of the task, additional PPE may be required, each contractor shall provide required equipment and training in its use.

6.18 Emergency Contacts

Each CM and contractor shall submit to the REO and PSM an emergency contacts list, which shall include, as applicable, 24 hour contact numbers for the following:

- a) Superintendants;
- b) General foreman;
- c) Foreman;
- d) Contractor Site Safety Manager;
- e) Fire Safety Manager;
- f) Contractor Safety Supervisor;
- g) Contractor Safety Foreman;
- h) Competent Persons;
- i) Hazardous materials response contractor.

7 WTC Site Specific Health and Safety Requirements

Each CM, contractor, and external agency performing work at the WTC Site shall be required and responsible to prepare and implement the requisite programs, plans, and procedures necessary to protect worker health and safety, and to comply with all applicable federal, state, and local codes, rules, regulations, and ordinances. In addition to regulatory compliance, the following WTC Site-specific requirements shall be followed.

7.1 General Duty Clause

Each CM, contractors, second tier contractors, workers and employees performing work shall comply with the requirements of the OSHA, Section 5 (a) and (b): General Duty Clause.

Section (a): Each employer:

- a) "Shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.";
- b) "Shall comply with occupational safety and health standards promulgated under this Act."

Section (b): Each employee:

- a) "Shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct."

7.2 Recordkeeping and Reporting Occupational Injuries and Illnesses

Each CM and contractor performing work shall maintain records, reports, and posting consistent with the requirements specified in OSHA 29 CFR Part 1904.

7.3 General Safety and Health Provisions

Each CM and contractor shall comply with the requirements of 29 CFR Part 1926, Subpart C: General Safety and Health Provisions.

7.4 Occupational Health and Environmental Controls

Each CM and contractor shall comply with the requirements of 29 CFR Part 1926, Subpart D: Occupational Health and Environmental Controls, in addition to the following mandatory specific worksite requirements:

- a) For hand washing purposes, all temporary lavatories shall provide either hand soap with running hot and cold or tepid potable water, or a sanitizing hand wash. Remote hand wash stations providing running hot and cold or tepid potable water will be permitted

provided that they are located in close proximity of the lavatory. Paper towels must be provided;

- b) A break area furnished with tables, chairs, hand wash stations, temporary lavatories, lights, and trash containers must be provided;
- c) Trash, refuse, and construction debris shall not be allowed to accumulate for more than one day in areas of assembly, such as but not limited to locker rooms, lunch rooms, storage areas, and each jobsite location. A sufficient number of trash containers and construction dumpsters shall be provided, and their contents disposed of on a daily basis;
- d) Lighting for each work location, including tunnels, which at a minimum, complies with the requirements as referenced in 29 CFR Part 1926.56;
- e) Provisions for the quick flushing of the eye with a minimum of 15 minutes of continuous flow shall be provided and maintained;
- f) Consistent with U.S. OSHA publication #3154: Heat Stress Card, during periods of hot weather (equal to or greater than 85 degrees F and 40% Relative Humidity), each contractor's safety manager shall be required to develop a plan to prevent heat stress disorders. At a minimum, the plan shall address providing an adequate supply of drinking water with individual drinking cups, a shaded rest/break area, and training information on the signs and symptoms of heat stress; Contractors will provide daily, fresh clean drinking water to their employees. Drinking water will be dispensed in containers with a tight sealing lid and labeled as Drinking Water. Drinking water containers are to be cleaned daily.
- g) Adequate cups will be made available at each drinking water container. Cups will be stored in a durable clean dispenser. A trash can or other type receptacle will be provided to collect used cups. Contractors are responsible for cleaning up around the water container area. The use of a common cup, soda cans and bottles, drinking directly from the spout, and the placing of hands or material into drinking water is prohibited.
- h) Consistent with U.S. OSHA publication #5156: Cold Stress Card, during periods of cold weather (equal to or less than 30 degrees F), each contractor's safety manager shall be required to develop a plan to prevent frostbite and hypothermia. At a minimum, the plan shall address providing a warm sheltered area, an adequate supply of drinking water with individual drinking cups, and training information on the signs and symptoms of hypothermia.

- i) Contractors will ensure adequate chemical toilets are available on the jobsite for the use of workers. Toilets should be located on or within two hundred (200) feet of each work area within the project. The following is the minimum requirement for toilets on this project:

Number of Employees	Number of Toilets Required
20 or Less	1 Toilet and 1 Urinal
20 or More	1 Toilet and 1 Urinal per 40 Workers
200 or More	1 Toilet and 1 Urinal per 50 Workers

- j) Chemical toilets shall be serviced often enough to prevent overflowing, creation of an unsanitary condition, a health hazard or nuisance, and shall be maintained in good repair so as to prevent leakage of the contents to the surrounding ground or onto the floor or other portions of the structure.

7.5 Personal Protective Equipment

Prior to the issuance of personnel protective equipment, each contractor shall require the competent person for each work crew to perform a JHA to determine the type(s) of personnel protective equipment required and provide training.

At a minimum, each CM and contractor shall comply with the requirements of 29 CFR Part 1926, Subpart C: General Safety and Health Provisions; Subpart D: Occupational Health and Environmental Controls (1926.57 – abrasive blasting; grinding, polishing, and buffing operations; spray finishing operations: 1926.60 – methylenedianiline; 1926.62: lead:); Subpart E: Personal Protective and Life Saving Equipment; Subparts M and R: Fall Protection; and Subpart Z: Toxic and Hazardous Substances, in addition to the following mandatory specific worksite requirements:

- a) Upon entrance to designated work areas, the minimal personal protective equipment requirements for work at the WTC Site are hard hats, reflective safety vests, construction sturdy/steel tip/composite tip shoes, and eye protection. A flashlight is required when working on or adjacent to PATH track areas and platforms;
 - i) When working on or around PATH tracks, steel tipped safety shoes as per ASTM F2412-05 and F2413-05: Standard Specification of Performance Requirements for Foot Protection, are required.
- b) Each CM and contractor performing work shall issue to their employees all PPE identified in approved JHAs. All JHAs shall be documented, maintained at the worksite, and on file with the CSSM;
- c) All selected PPE shall comply with the most recent ANSI requirements;
- d) Where work may require the use of respiratory protection, the requirements under 29 CFR 1926.103/1910.134 shall be followed.

- e) Full-length pants and shirts with sleeves that cover the entire shoulder must be worn at all times within the WTC Site.

7.6 Fire Protection and Prevention

Each CM and contractor shall comply with the requirements of 29 CFR Part 1926, Subpart F: Fire Protection and Prevention, and the NYC Fire Code.

The Contractor shall comply with the Rules of the City of New York (3RCNY§11-01) whereby all buildings under construction are subject to regular inspections conducted by the NYC Fire Department, Administrative Fire Company and the Bureau of Fire Prevention Construction, Demolition and Alteration (CDA) group.

The contractor CFM shall have overall responsibility to develop, implement, and maintain a fire protection and prevention program addressing 29 CFR Part 1926: Subpart F, and the NYC Fire Code, plus the following mandatory specific worksite requirements:

- a) Flammable and combustible liquids shall only be stored and transported in approved 1, 2, or 5-gallon Type I and II safety cans with spring loaded closing lids and flashback protection, or, in the alternative, United States Department of Transportation (US DOT) approved containers;
- b) All safety cans and containers shall be protected from fire, spark, impact, falls, and falling objects. Appropriate color-coding and permanent labeling such as "Gasoline", "Kerosene", "Diesel", or "Mixed-Fuel" shall adorn all safety cans and containers to designate its contents;
- c) Flammable and combustible liquid storage cans will be stored in approved fire cabinets, protected from fire, spark, impact, falls to lower levels, and falling objects. Up to 60 gallons of a flammable liquid and 120 gallons of a combustible liquid shall be permitted within a storage cabinet. No more than three storage cabinets will be allowed in any indoor storage area;
- d) All stationary and mobile fuel tanks with a storage capacity of greater than 5-gallons shall be equipped with secondary containment either integral to the unit, or by the installation of an impervious membrane and containment barrier (e.g., berm/dike system). The following information must be submitted to and approved by the REO and the PSM prior to a fuel tank being delivered and used at the WTC Site:
 - i) Provide the name of the tank manufacturer, fuel capacity, and product to be stored;
 - ii) Identify the type of tank leak protection – is the tank double walled or will secondary containment be required; if secondary containment is required, detail its construction;
 - iii) Identify the method to fill the tank; method to dispense the product for use;
 - iv) Identify if the tank will be stationary or mobile. If the tank is mobile, documentation verifying the tank was manufactured for lifting, plus the method to move the tank, such as rigging, attachments, and equipment to be used must be submitted to the REO and PSM. If the tank is not mobile, identify where it will be located;

- v) Identify the fire protection equipment associated with tank; include number, type, and location of fire extinguishers;
 - vi) Provide a grounding and bonding plan for flammable liquids;
 - vii) Identify what postings / labels / placards will be used for identification and warnings; identify the individual responsible to inspect the tank(s) and frequency.
- e) At a minimum, an actively charged 20-B:C portable fire extinguisher shall be permanently mounted in plain view, with unobstructed access within 25 feet of every flammable and combustible liquid storage & use locations;
 - f) During construction, a 2-A rated portable fire extinguisher shall be located on each floor adjacent to each stairway; an additional 2-A rated portable fire extinguisher shall be provided for each 1500 square feet of building area, with a maximum unobstructed travel distance not to exceed 75 feet;
 - g) At least half of the distributed portable fire extinguishers shall be A:B:C rated. All portable fire extinguishers with a classification of B:C, or multiple classifications of A:B:C portable fire extinguishers shall be rated not less than 20-B;
 - h) Pressurized water-can extinguishers, if used, shall be provided with an approved anti-freeze solution in areas open to ambient temperatures during cold weather;
 - i) Appropriate, material-specific portable fire extinguishers shall be provided for any hazards not specifically noted elsewhere in this document;
 - j) All self-propelled equipment (forklifts, cranes, rollers, etc.) shall be provided with appropriate portable fire extinguishers;
 - k) Portable fire extinguishers that are not mounted, such as those specifically used by the fire watch during cutting & welding operations, or mounted on self-propelled equipment shall not fulfill the requirements for distributed and mounted portable fire extinguishers;
 - l) All portable fire extinguishers shall be mounted off the floor, clearly visible with signs noting location where necessary, and have unobstructed access to them;
 - m) All portable fire extinguishers shall be maintained in a state of readiness. All required inspections, tests and maintenance shall be not less than that required by applicable codes and standards (NFPA 10 - Standard for Portable Fire Extinguishers, as referenced by the NYC Fire Prevention Code). A contract with an approved fire extinguisher contractor is recommended for inspections, testing, and maintenance. Used or defective extinguishers shall be removed and replaced with new units immediately after use or discovery of the defect;
 - n) All portable fire extinguishers shall be provided with an inspection tag upon installation and shall have the installation date noted in permanent marker the date of installation. Alternate inspection records are acceptable in accordance with the Fire Code;
 - o) Smoking is strictly prohibited at the WTC Site as per NYC Fire Code FC 1404.1. Durable "No Smoking" signs shall be conspicuously posted throughout all areas;

- p) Combustible materials, including but not limited to wood, paper, cardboard, plastic, trash, refuse, etc., shall not be allowed to accumulate in storage locations, or on floors being constructed. A designated refuse area shall be established for accumulation awaiting pickup. All combustible materials must be removed from each floor under construction and the worksite on a daily basis. Flammable and combustible oil-soaked rags must be deposited into fireproof containers;
- q) Active stairways, aisles, and all egress pathways shall remain unobstructed, and free from the storage of debris, combustible materials, flammable liquids, compressed gas cylinders, and equipment;
- r) The use of space heaters for comfort, and construction curing and drying shall at a minimum comply with NYC Fire Code FC 1403. For comfort heating, only electric space heaters shall be permitted. For construction curing and drying, propane and liquid fuel sources shall be permitted.
- s) When in use, generators and associated exhaust outlets such as but not limited to piping, stacks, and manifolds shall be properly vented, and positioned away from combustible materials;
- t) Compressed gas cylinder, flammable and combustible liquids, and all chemical products shall be stored and signed/labeled in accordance with the hazard class. The co-mingling of different hazard classes in storage is prohibited;
- u) When required, storage areas shall be protected from vehicular impact by the use of "jersey barriers" or a similar impact resistant material;
- v) Enclosed facilities (e.g. trailers) used for the storage of flammable gases or liquids shall be properly ventilated by either mechanical or natural means based upon the characteristic of the chemical product being stored. If lighting and/or power is installed, explosion proof, intrinsically safe wiring is required.
- w) All cylinders shall have regulators removed and cylinders capped when not in use. Any cylinder not in use shall be properly stored. Cylinders may remain on an approved cart for no more than 24 hours unless used during that period.

7.6.1 *Space Heaters*

Prior to the use of space heaters, the contractor shall submit to the CM and PSM the following for review and acceptance:

- a) Space Heaters for Comfort
 - i) A description of the proposed application for heater use;
 - ii) Identification of the locations where the heater will be used, and duration of use;
 - iii) A description as to the type of heater, size, emergency cut-off, and method of installation
- b) Space Heaters for Construction Curing and Drying
 - i) A description of the proposed application for heater use;

- ii) Identification of the locations where the heater will be used, and duration of use;
- iii) Specify the locations where the propane and/or liquid fuel will be stored;
- iv) When portable fueled space heaters will be used for construction related drying, provide:
 - (1) The number of heaters to be stored and size of fuel tank
 - (2) Amount of liquid fuel to be stored
 - (3) Means of fire protection and spill control
 - (4) Type, size, and location of fire extinguishers
- v) Specify the postings / labels / placards that will be used for product identification and warning; identify the individual(s) responsible to inspect the storage area and frequency of inspection;
- vi) Describe how the fuel system will be set up; provide the name(s) of the FDNY Certificate of Fitness holder where required or competent person who will set up, monitor and inspect the system; identify what fire protection / prevention measures will be in-place;
- vii) Affix to each propane tank and/or liquid fuel heater a tag identifying the name of the contractor using the unit;
- viii) Describe the type of training that will be provided addressing fuel heating unit use;
- ix) Submit a Job Hazard Analysis for use. The JHA must include:
 - (1) Method of refueling consistent with manufacturers instructions and fire code requirements;
 - (2) Method of transporting propane tanks and/or liquid fuel from storage to the work area;
 - (3) Details for ventilation of enclosed space(s) where heaters will be used;
 - (4) Scheduled inspection of heating units;
 - (5) Assessment to verify fire protection / prevention preparedness;
 - (6) Manufactures recommendation for operational distances from combustibles.

7.7 Signage

Each contractor shall comply with the requirements of 29 CFR Part 1926, Subpart G: Signs, Signals, and Barricades.

7.8 Materials Handling

Each contractor shall comply with the requirements of 29 CFR Part 1926 Subpart H: Materials Handling, Storage, Use, and Disposal, in addition to the following mandatory specific worksite requirements:

- a) The competent person for each work crew using alloy steel chain hoists, wire rope, natural and synthetic fiber rope, nylon/polyester/polypropylene webs (slings), shackles, eye-bolts, and hooks for the hoisting, lifting, supporting and suspension of materials shall at a minimum, inspect, maintain, and store the above elements at a frequency consistent with 29 CFR Part 1926.251: Rigging Equipment For Material Handling;
- b) The competent person shall document all sling inspections (daily, routine, and annual), maintain a copy of the inspection report at the worksite, and provide a copy of the inspection report to the CSM;
- c) Debris chutes with dumpsters manned by watch persons are required where the debris being removed is 20 feet or more from the point of deposit;
- d) Tag lines shall be used to control all suspended loads;
- e) Softeners shall be applied to all sharp edges when using synthetic and wire rope slings;
- f) Multiple loaded lifts (Christmas treeing) are prohibited;
- g) Prior to the raising or lowering of loads, the path of the load and landing pad shall be identified in advance of the lift. Lifts shall be coordinated in such a way as to avoid transporting the load above workers. Lifting loads over pedestrians, active roadways, and the PATH System is strictly prohibited;
- h) When erecting, dismantling (including jumping) a tower crane, rigging materials that use synthetic slings should only be used if the manufacturer's manual recommends synthetic slings to be used. Synthetic slings shall never be used unless softening mechanisms have been applied to all sharp edges;
- i) Where applicable, all loads shall be lifted in accordance with the manufacturer's rigging specifications and lifting requirements.
- j) Fuel cells designed to be lifted with contents present shall be used. All other fuel cells are considered to be stationery and shall not be lifted unless empty.

7.9 Hand and Power Tool Use

Each contractor shall comply with the requirements of 29 CFR Part 1926, Subpart I: Tools – Hand and Power, in addition to the following mandatory specific worksite requirements:

- a) Prior to the performance of work, the competent person for each work crew shall inspect all hand and power tools to ensure that workers are protected from the tool's point of operation. Workers shall be protected from open and exposed belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, reciprocating and rotating parts, and abrasive wheel explosions;

- b) Prior to use, the competent person shall ensure that all workers are trained and where required, certified in the use, inspection, and maintenance of all equipment, electric power tools, pneumatically driven tools, hydraulic power tools, fuel powered tools, and powder actuated tools in accordance with applicable regulations and the manufacturer's specifications.

As it pertains to the use of powder actuated tools, the contractor shall submit to the REO and the SSD prior to use the following:

- i) Name of the tool operator;
 - ii) Work location;
 - iii) Copy of FDNY Certificate of Fitness, and verification of manufacturer's training;
 - iv) Storage location and method for tool and shots;
 - v) Plan to retrieve spent or unfired shots.
- c) As referenced in 29 CFR Part 1926.300(b)(4)(iv), each competent person needs to additionally evaluate the types of power tools noted therein;
 - d) All power tools shall be inspected by the competent person to verify all switches and safety devices and guards are operational, and all power cords are firmly attached and in good repair;
 - e) To prevent displacement, all pneumatic or pressurized airlines and hoses shall be secured to each other and the tool through the use of whip lines, cotter pins, retainers, or a similar securing mechanism;
 - f) All hoses exceeding ½ inch inside diameter shall have a safety device (i.e., whip check) at the source of supply or branch to reduce pressure in case of hose failure.
 - g) All electrical hand and power tools shall be double-insulated or three-wire with a ground and connected to a ground fault circuit interrupter (GFCI).

7.10 Welding and Cutting Operations

Each contractor shall comply with the requirements of 29 CFR Part 1926, Subpart J: Welding and Cutting, in addition to the following mandatory specific worksite requirements:

- a) At no time shall free standing, unsecured compressed gas cylinders be present at the WTC Site;
- b) A tag secured around the valve stem, or other durable identification device indicating ownership shall be affixed to each compressed gas cylinder identifying the contractor as the cylinder user;
- c) Compressed gas cylinders shall be secured to a welder's handcart through the use of chains or a bracket. If the handcart is not to be used within 24 hours, the cylinders must be removed, and securely fastened (chained) within a designated and secured storage cage;

- d) Flammable and oxygen gas cylinders when stored must be separated by at least 20 feet or by the construction of an approved 30-minute fire-resistant barrier at least 5 feet in height. If stored on cylinder carts, the cart must have an approved 30-minute fire resistant barrier at least 5 feet in height;
- e) Storage cages shall be labeled with contents, hazard class, and contractor and contact number;
- f) Compressed gas cylinders shall not be secured to building components such as structural columns, scaffolds, ladders/stair towers, guardrails, hand/stair rails, and re-bar;
- g) All compressed gas cylinders when not in use shall be stored with the valve protection cap in place;
- h) During all hot work operations, a fire watch with an adequately sized and proper class fire extinguisher shall be provided in the immediate vicinity and all locations that could be impacted by spark or slag. In areas where sparks or slag may fall to lower levels, an additional fire watch person may be required at the lower level. All combustible materials and flammable liquids and gases shall be either removed from the vicinity, or protected in-place. For a minimum of 60 minutes after the completion of the hot work operation, the fire watch shall remain in-place until such time there is no potential for combustible material ignition. The fire watch shall not perform any other duties when acting as a fire watch. At any time the fire watch must depart their assigned area of responsibility, a qualified replacement must assume the duties of fire watch. At no time shall hot work proceed with no fire watch in place;
- i) During welding and cutting operations, surrounding employees, workspaces and the public shall be protected from spark and glare through the use of welders screens;
- j) Welding clamps shall not be connected to any electrical conduit, wiring, or component;
- k) For each individual torch operation, a Port Authority Cutting and Welding Hot Work Permit shall be requested, and issued by the EOC through the REO prior to the performance of work. Prior to all torch operations, the CFSM shall submit the FDNY Certificates of Fitness for the torch operator and fire watch, and NYC DOB, NYC DOT, ASME permits for the welder to the REO for review and approval;
- l) Compressed gas cylinders shall not be stored in direct sunlight, in the snow or ice, or in locations where they cannot be seen or subject to impact;
- m) All fuel-gas lines (oxygen/acetylene) shall have installed at the regulator and torch a flash-back protection device that will prevent flame from passing into the fuel-gas system.

7.11 Electrical

Each contractor shall comply with the requirements of 29 CFR Part 1926, Subpart K: Electrical, and NFPA 70E, in addition to the following mandatory specific worksite requirements:

- a) On a daily basis, prior to the performance of each shift, the competent person shall inspect all extension cords, pig-tail power cords and light stringers, plug and cord sets, outlets, tools, and generators. Damaged or defective cords, plugs, outlets, tools, and

generators shall be removed from service. All extension cords must be three-pronged grounded and have a heavy duty rating. Extension cords that cannot be elevated shall be protected from impact and damage;

- b) Extension cords with missing ground plugs must be removed from service and destroyed;
- c) All extension cords, including those attached to generators shall be connected to in-line ground fault circuit interrupter. The competent person shall test each line to verify that it is ground faulted protected prior to use;
- d) Where work is in, on, or around water, all extension cords, plugs and receptacles must be waterproof;
- e) The use of spliced (taped) electric or power cords is prohibited;
- f) Temporary light stringers shall have bulb protectors.

7.12 Scaffolding – Supported, Suspended, and Aerial

Each CM and contractor shall comply with the requirements of 29 CFR Part 1926 Subpart L: Scaffold, in addition to the following mandatory specific worksite requirements:

- a) Workers involved with the erection, dismantling, repair, maintenance, moving, modification, or use of a support scaffold equal to or greater than 40 feet in height shall possess the applicable support scaffold construction training certification from the NYC DOB. Only a trained work crew under the supervision of a competent person shall be permitted to erect, use, modify, move, or dismantle any support, suspended, or aerial scaffold;
- b) Workers working on support scaffolds at any height shall possess the applicable support scaffold training certification from the NYC DOB;
- c) Fall protection shall be required on all platform, suspended, and aerial scaffolds when the working platform is equal to or greater than 6 feet above a lower level;
- d) The CSSM shall maintain a list of the names and training experience of all prime and sub-contractor workers and/or employees competent to erect, use, and dismantle a scaffold and scaffolding system, and use of aerial lift;
- e) The competent person for the work crew erecting, using, or dismantling a scaffold, or using an aerial lift shall inspect the scaffold on a daily basis, or as required, prior to the performance of work by each shift, to ensure the scaffold or aerial lift complies with all applicable regulation and is acceptable for use;
- f) The competent person for the work crew erecting, using, moving, dismantling a scaffold or aerial lift shall document the daily inspection using a checklist, keep a copy of the completed checklist at the jobsite, and provide the CSSM with a copy;
- g) The working platform on all mobile scaffolds (i.e. bakers scaffold) shall be secured from displacement or upset by the use of a retaining clip or similar device. Lockable casters shall be provided on all mobile scaffolds;

- h) At a minimum, on a weekly basis or following an incident that could have affected the integrity of the scaffold or aerial lift, the competent person for the work crew erecting, using, dismantling a scaffold and scaffolding system, or an aerial lift shall affix a notification sign or tag to the scaffold or system indicating:
 - i) If scaffold use is Approved, Restricted, or Prohibited;
 - ii) The date of the inspection;
 - iii) The name of the person inspecting the scaffold.
- i) When using cross-bracing as a component of a guard-rail system:
 - i) Cross-brace For Top-Rail Protection:
 - (1) The cross-brace intersect shall be at a height of 38 – 48 inches above the working or walking platform. An additional rail will be required as a mid-rail at a height midway between the cross-brace intersect and the working or walking platform
 - ii) Cross-brace For Mid-Rail Protection:
 - (1) The cross-brace intersect shall be at a height 20 – 30 inches above the working or walking platform. An additional rail will be required as a top-rail at a height of 38 – 45 inches above the working or walking platform
- j) Toe boards shall be required on all scaffolds;
- k) When determined by the competent person of a work crew erecting or dismantling a scaffold that fall protection is infeasible, consistent with U.S. OSHA 29 CFR 1926.451(g)(2), the competent person shall substantiate in writing the following, have it signed by a principal of that company, and forward the document to the prime contractor's CSSM. The CSSM shall review and approve the plan, and forward it to the REO and SSD for review and comment as required:
 - i) The type, location, and height of the scaffold being erected, used or dismantled;
 - ii) The size of the work crew for scaffold erection, use or disassembly;
 - iii) The duration of the task requiring scaffold erection, use or disassembly;
 - iv) The conditions and reasons why fall protection is infeasible;
 - v) The methods used to inform, train and protect the workers from falls in the absence of fall protection.

7.13 Fall Protection

Each CM and contractor shall comply with the requirements of 29 CFR Part 1926 Subpart M: Fall Protection and Subpart R: Steel Erection, in addition to the following mandatory specific worksite requirements:

- a) Each employer shall develop and implement a policy statement that provides general goals and guidance for a managed fall protection program and emphasizes management's commitment to providing a safe workplace for employees exposed to fall hazards. Employers shall provide adequate and timely resources necessary to support their managed fall protection program;
- b) Prior to the use of any personal fall arrest equipment, the prime and contractor shall prepare a JHA for the activity requiring the personal fall arrest;
- c) When a personnel fall arrest system (PFAS) is selected as a means of personnel fall protection, to maintain continuous fall protection double lanyards shall be required where compatible with the PFAS and design in use;
- d) When using the top wire of a wire rope guardrail system, or a wire rope perimeter cable as a horizontal lifeline, the guardrail / perimeter cable must be engineered, installed, and maintained to meet lifeline and anchorage loading requirements;
- e) PFAS shall be designed, installed, and maintained to ensure that if a worker experiences a fall, the lanyard shall engage to arrest the fall prior to any portion of the workers body impacting a lower level, structure or surface;
- f) Prior to each use, the competent person for the work crew shall ensure that his employee's personal fall arrest system (full body harness, connectors, D- rings, snap hooks, lanyards, lifelines, and anchorage points) are properly inspected, in good condition, and have the required tensile strength and load bearing capacity;
- g) All persons walking or working at any height above a dangerous process or piece of equipment shall be protected from falling through by the use of guardrails, personal fall arrest, or safety nets;
- h) All persons exposed to falling objects shall be required to wear a hardhat, and be protected from falling objects through the use of screens, toe boards, safety nets, canopies, or restricted access;
- i) Personal fall arrest shall be required for all workers and employees working in vehicle mounted aerial platforms, extensible boom platforms, articulating boom platforms, vertical towers (scissor lifts), and aerial ladders;
- j) A qualified person as defined by 29 CFR Part 1926.32 must design the required lifeline and anchorage systems. The competent person shall be required to install, inspect, and maintain the system as designed;
- k) The CSSM and the safety supervisor for each sub-contractor performing work on site shall develop an emergency response plan in the event a worker who experienced a fall wearing a personal fall arrest harness needs to be rescued;
- l) All exposed vertical and horizontal structural re-bar, and protruding pieces of metal shall be either be capped or covered with an impact resistant material;
- m) All surface openings, including but not limited to floor, wall, shaft way, utility, duct, skylight, roof, and conveyor shall be protected with a cover capable of supporting without failure at least twice the weight of workers, equipment, and materials imposed on it. All covers shall be secured from displacement caused by vertical or lateral impacts

and wind load. All surface covers shall be identified, i.e., "Hole", "Hole Cover - Do Not Remove." The competent person for the work crew will inspect each covered surface prior to and during the performance of work. Any missing cover will be replaced, damaged covers repaired, and loose covers secured. Covers to be used in active roadways shall be capable of supporting without failure twice the maximum intended axle load of the largest vehicle;

- n) The CSSM for the CM shall notify the REO and the PSM in advance of all safety net drop tests are required under 29 CFR 1926.502(e)(2), and provide written reports of each drop test result;
- o) The CSSM and contractor safety supervisor shall develop a safety net retrieval plan for personnel and debris;
- p) Documented fall protection training shall be maintained by the CSSM and sub-contractor's safety supervisor, and shall submit to the PSM for review upon request.
- q) Documented training is required for all personnel with regards to PFAS and requirements for anchorage and tie off points with the employee to acknowledge: "I acknowledge that I have been provided a harness and lanyard for use at the site. I have been advised to use this protection whenever I am exposed to a fall of 6' or greater while working at the site". The text shall be included as written as part of all fall protection training documentation;
- r) Workers will not tie off to a perimeter cable or wire rope handrail unless the requirements of (d) above are met;
- s) Each CM and contractor shall submit engineered documentation on horizontal and vertical lifelines to the Port Authority for review and approval. Non-wire rope (i.e.: fibrous) will not be approved as a component of a horizontal lifeline without approval of a PE qualified in fall protection system design. All horizontal lifelines will be installed under the direct supervision of a qualified person.
- t) Lanyards are not to be tied back to themselves unless the lanyard is specifically manufactured to tie back to itself.

7.14 Steel Erection

Each CM and contractor shall comply with the requirements of 29 CFR Part 1926, Subpart R: Steel Erection, in addition to the following mandatory specific worksite requirements:

- a) Multiple erection loads (Christmas treeing) is prohibited;
- b) Prior to the raising or lowering of loads, the path of the load shall be identified in advance of the lift. Lifts shall be coordinated in such a way as to minimize transporting the load above workers. Lifting loads over pedestrians or active roadways is strictly prohibited.
- c) Personnel platforms must have a positive-lock latch with a locking bolt and nut assembly, or provide a cable between the master links and hook block or headache ball;
- d) Fall protection shall be enforced by the work crew's competent person.

- e) The steel erection contractor shall use best available technologies and practices in achieving compliance with the fall protection requirements of Subpart R.

7.15 Motor Vehicle and Mechanical Equipment

Each CM and contractor shall comply with the requirements of 29 CFR Part 1926, Subpart O: Motor Vehicles, Mechanized Equipment, and Marine Operations, in addition to the following mandatory specific worksite requirements:

- a) Each operator of motor vehicles on the WTC Site shall have a valid and current driver's license with appropriate vehicle classification and each motor vehicle shall display the required annual safety inspection sticker;
- b) Only properly identified company vehicles with valid proof of proper vehicle registration and insurance shall be allowed on the WTC Site. Vehicles shall have required identification properly displayed on each side of the vehicle. Markings can be either decal, magnetic or painted on the vehicle;
- c) All vehicles must be properly insured and documentation must be made available upon request. Signs on vehicles shall be sufficient size to be readable from 100 feet. At a minimum, vehicle signs shall contain:
 - i) Company name;
 - ii) Company address;
 - iii) Company telephone number.
- d) Each CM and/or contractor shall furnish, at their own expense, a qualified traffic flag person as necessary to control the work traffic, unless otherwise directed by the REO or WTC Site Manager. Flag persons shall be provided with appropriate PPE;
- e) All vehicles shall be equipped with a functioning back-up alarm;
- f) Employee owned vehicles and/or equipment shall be parked only in locations designated by the Port Authority. Illegally parked vehicles/equipment are subject to removal. The Port Authority shall not assume any costs respective of towing fees, vehicle damage and/or any costs associated with this action;
- g) The windshield, side view mirrors, back up mirrors, and overhead windows (as required) on all vehicles used on the WTC Site shall be intact, in good repair, undamaged, and clean. Vehicle safety equipment such as driver and passenger seatbelts, back-up alarms, head/tail/brake/back-up/and clearance lights shall be in good repair, clean and tested daily, or at the beginning of each shift. Vehicles with deficiencies will be removed from service pending repair;
- h) All operators of construction equipment shall be properly licensed, and approved to use that equipment by the CSSM. Copies of certifications, licenses, etc. shall be maintained onsite by the CSSM and made available upon request by the REO or the PSM;

- i) Vehicles used to transport personnel shall have seats firmly secured and adequate for the number of individuals to be carried. All vehicle occupants shall be properly seated utilizing a manufacturer installed restraint device. Standing, kneeling or riding on the outside of moving vehicles is prohibited.

7.16 Excavations

Each contractor shall comply with the requirements of 29 CFR Part 1926 Subpart P: Excavations, in addition to the following mandatory specific worksite requirements:

- a) A minimum of two (2) business days prior to any excavating, the contractor shall notify the CM. The contractor shall notify the NYC One Call Center to allow member agencies to mark locations of underground utilities prior to any excavating and confirm such notifications with the CM.
- b) No subsurface penetrations, core drilling, pilot holes, trenching or excavations operations are to be performed before either the Port Authority or an outside agency or utility performs a mark-out. All underground utilities that are to remain must be protected for the duration of the operation;
- c) At a minimum, the competent person for each crew performing excavation and trenching operations shall:
 - i) Be present at the worksite at all times when workers are within the excavation or trench;
 - ii) Provide a means of access and egress once the excavation or trench reaches a depth of 4 feet shall be provided, and depending upon the soil classification and worksite conditions provide cave-in protection when the depth reaches 5 feet, and fall protection if the depth of the trench or excavation equals or exceeds 6 feet;
 - iii) Establish a warning system to protect workers within the excavation or trench from vehicles;
 - iv) Ensure there is no overhead hoisting operations over occupied trenches or excavations;
- d) At a minimum, on a daily basis prior to the performance of work by each shift, or following an incident that possibly could affect the integrity of the protective system, inspect the excavation, protective system, egress ways, and adjacent areas. All inspections shall be documented, with a copy maintained at the jobsite and a copy provided to the CSSM.
- e) Prior to the commencement of any trench work, a plan showing the location, route, width and depth of the trenching is to be submitted to REO and the PSM for review. As and when required by regulation, if trench shoring or shielding is required, a design prepared and stamped by a licensed NYS Professional Engineer is to accompany the plan;
- f) Open trenches, excavations, and stockpiled material at the construction site shall be appropriately barricaded, posted, and lighted;

- g) At a minimum, spoil piles and stockpiles shall be set back at least 2 feet from the edge of the trench or excavation, or at a greater distance as determined by the competent person;
- h) There shall be no work in trenches or excavations where there is the presence of water unless:
 - i) The flow of water is controlled by the use of pumping devices, and that the work crew's competent person monitors pumping operation;
 - ii) The competent person has performed a inspection of the cave-in protection and prevention measures in place and has verified they have not been compromised;
 - iii) The competent person informs the CSSM of the actions taken to support trench or excavation entry;
 - iv) The CSSM approves the entry.
- i) All coverings for open trenches or excavations shall be appropriately anchored or pinned to prevent displacement, and be of sufficient strength to support at least twice the maximum axle load of the largest vehicle expected to crossover the cover.
- j) Working within a covered trench or excavation without prohibiting vehicle traffic over it is prohibited.

7.17 Concrete and Masonry Work

Each CM and contractor shall comply with the requirements of 29 CFR Part 1926 Subpart Q: Concrete and Masonry Construction.

7.18 Underground Construction, Caissons, Cofferdams and Compressed Air

Each contractor shall comply with the requirements of 29 CFR Part 1926, Subpart S.

7.19 Demolition

Each contractor shall comply with the requirements of 29 CFR Part 1926 Subpart T: Demolition, in addition to the following mandatory specific worksite requirements:

- a) Prior to the demolition of any structure, a licensed NYS Professional Engineer and the competent person of the demolition crew shall perform and document a pre-demolition inspection, followed by the preparation and submittal of a Demolition Plan to the CSSM for review and approval. Once approved by the CSSM, the plan shall forward the plan to the REO for review. At a minimum, this plan will include a detailed description as to the means and methods, controls, and safety measures to be used for the demolition, and the following:
 - i) Verification of the location and condition of any remaining utilities in the structure. Prior to demolition, all active utilities and services need to be removed, de-energized, isolated, re-located, or guarded;

- ii) Verification of the stability of the existing, and adjacent structures. If required, such structures must be properly braced, shored, and supported to prevent unexpected collapse;
- iii) Identification of personal and debris fall hazards, and establishment of the appropriate controls suitable for each phase of the demolition;
- iv) Indication of whether waste chutes will be used, and if used, their location, construction, installation, and maintenance;
- v) Identification of the protective measures to be provided for the protection of pedestrians and adjacent roadways, buildings and other structures in accordance with the provisions of the NYCBC.

7.20 Blasting and the Use of Explosives

Each CM and contractor shall comply with the requirements of 29 CFR Part 1926 Subpart U: Blasting and the Use of Explosive, in addition to the requirements of the New York State Department of Labor and the NYC Fire Code. Additional requirements may be implemented by the FDNY, MTA, or other agencies.

7.21 Power Distribution

Each contractor shall comply with the requirements of 29 CFR Part 1926 Subpart V: Power Transmission and Distribution and 1910.269, Power Generation Transmission and Distribution.

7.22 Rollover Protective Structures; Overhead Protection

Each contractor shall comply with the requirements of 29 CFR Part 1926, Subpart W: Rollover Protective Structures; Overhead Protection.

7.23 Stairways and Ladders

Each contractor shall comply with the requirements of 29 CFR Part 1926, Subpart X: Stairways and Ladders, in addition to the following mandatory specific worksite requirements:

- a) When there is a vertical walking/working surface-to-surface break equal to or greater than nineteen (19) inches, a ladder or stairway is required;
- b) Stairs that have at least four (4) risers, or that are at least thirty (30) inches in vertical height shall either have a hand or stair rail installed;
- c) Access and egress ways and landings to and from each ladder and stairways or stair tower shall remain unobstructed and in good repair;
- d) Self-supporting and non self-supporting stairways and ladders can only be used in their manufacturers' designed and specified positions;
- e) The use of extension ladders shall not exceed a maximum working height of 40 feet. The use of individual extension ladder sections shall be prohibited.

- f) Three-point contact must be maintained when ascending or descending ladders.
- g) All ladder rungs and steps, and stairway treads shall be constructed of a skid-resistant material, or surfaced to prevent slipping.

7.24 Diving

Each contractor shall comply with the requirements of 29 CFR Part 1926, Subpart Y: Diving, in addition to the requirements of the U.S. Coast Guard for marine operations.

7.25 Hazard Communication

Each CM and contractor shall establish a Hazard Communications Plan consistent with OSHA standard 29 CFR Part 1910.1200 for multi-employer sites, in addition to the following mandatory specific worksite requirements:

- a) All chemical containers shall be properly labeled to identify their contents;
- b) All chemical containers shall be properly stored and transported;
- c) Material Safety Data Sheets (MSDS) for each chemical product used at the WTC Site shall be maintained onsite by the CSM, and shall be available to all workers during all shifts, the EOC, REO, PAPD, WTC Site Manager, and the PSM;
- d) Compressed gas cylinders, flammable and combustible liquids, and all chemical products shall be stored and signed/labeled in accordance with their hazard class. The co-mingling of different hazard classes in storage is prohibited.

7.26 Restriction of Hazardous Material Placarded Consignments

The following hazardous material placarded items shall be allowed onto the WTC Site providing the driver presents shipping papers and a delivery receipt indicating the name of the contractor requesting the products. Prior to delivery, the CSSM shall be in possession of the appropriate Material Safety Data Sheet.

- a) Class 2 – Oxygen, Flammable Gas, Non-Flammable Gas, Flammable
- b) Class 3 – Gasoline, Combustible, Fuel Oil
- c) Class 9 - Miscellaneous

The following hazardous material placarded items shall be restricted from entering the WTC Site. Vehicles with the following placards shall be detained, and the SSD or designee shall be contacted.

- a) Class 1 – Explosive
- b) Class 2 – Inhalation Hazard
- c) Class 4 – Flammable Solids, Spontaneously Combustible, Dangerous When Wet

- d) Class 5 – Oxidizer, Organic Peroxide
- e) Class 6 – Inhalation Hazard, Poison, Harmful
- f) Class 7 – Radioactive
- g) Class 8 – Corrosive
- h) Dangerous Cargo

7.27 Hazardous Chemical Storage Requirements

Consistent with the requirements in U.S. OSHA 29 CFR 1910, Subpart Z: Hazard Communication, 29 CFR 1926 Subpart F: Fire Protection and Prevention, Subpart J: Welding and Cutting, and U.S. DOT 49 CFR, Subpart E, Part 172: Labeling, each contractor shall at a minimum comply with the following:

- a) Establish and maintain a secure hazardous chemicals storage location adequately sized, designed, and constructed for the type and quantity of materials to be stored. All chemicals shall be stored in appropriate containers compatible with their hazard class;
- b) Only chemicals with the same hazard class warning shall be stored together;
- c) Confine their storage of hazardous chemicals to the area assigned, or their work location. Hazardous chemicals cannot be stored in common areas, roadways, or established egress routes;
- d) Each storage location shall be completely constructed of metal, or when not exposed to the environment framed, sheathed, and roofed with approved fire-retardant treated lumber; fenced and roofed; caged; or otherwise securely enclosed. The entrance door shall be constructed in such a manner as to allow for the visual identification of the stored contents. The entrance door shall be lockable and remain locked at all times when not occupied, with keys provided to WTC Site Manager, SSD, PSM, REO, and PAPD;
- e) The wall to floor seam of each storage location shall be bermed with an appropriate and compatible absorbent material to capture any liquid in the event of a release;
- f) Material hazard identification signs consistent with the labeling requirements of U.S. DOT 49 CFR: Part 172 and the NFPA 704 Hazard Diamond shall be conspicuously posted at all entrances into the storage location. Smoking shall be prohibited within all chemical storage locations, and shall be signed accordingly;
- g) Maintain on-site an adequate supply of spill response equipment and materials compatible for the type and quantity of the chemical products in storage;
- h) Maintain on-site a material safety data sheet (MSDS) for each chemical product stored. Ensure that workers are trained in the hazards and use of the product;
- i) Select, issue, and train workers in the maintenance, use and storage of the personnel protective equipment required when using the chemical products;

- j) Provide worker training in the proper methods to respond to spills and releases from the storage area;
- k) Compressed gas cylinders, flammable and combustible liquids, and all chemical products shall be stored and signed/labeled in accordance with their hazard class. The comingling of different hazard classes in storage is prohibited;
- l) When required, storage areas shall be protected from vehicular impact by the use of concrete "jersey barriers" or a similar impact resistant material;
- m) Enclosed facilities (i.e. trailers) used for the storage of flammable gases or liquids shall be properly ventilated by either mechanical or natural means based upon the characteristic of the chemical product being stored. If lighting is installed, explosion proof, intrinsically safe wiring is required;
- n) Select and provide the appropriate type, size, and number of fire extinguishers suitable for the fire hazards presented by the stored chemicals;
- o) If stored in drums, all drums shall be raised off the ground and stored on covered containment trays, or in contained enclosures;
- p) Flammable and combustible liquids, such as gasoline, kerosene, diesel, and mixed fuels shall only be stored in either Type I or II approved metal safety storage cans with flashback protection;
- q) All fuel containers (drums, gas cans, etc) shall be appropriately color-coded and permanently labeled as "Gasoline", "Kerosene", "Diesel", or "Mixed-Fuel";
- r) Flammable and combustible liquid safety storage cans shall be stored in approved fire cabinets with a quantity limited to 60-gallons of flammable and 120-gallons of combustible liquid per cabinet. No more than three storage cabinets shall be stored in one area;
- s) All non-stationary fuel tanks with a storage capacity of greater than 5-gallons shall be equipped with secondary spill containment either integral to the unit, or by the installation of an approved impervious membrane and containment barrier (e.g.: berm/dike system);
- t) A properly charged and maintained portable fire extinguisher with a rating of not less than 4-A:60B:C shall be permanently mounted in a conspicuous location readily accessible within 25 feet of the storage location;
- u) Compressed gas cylinders (CGC) shall be stored with their valve protection caps secured on the cylinder;
- v) CGC shall be stored with 3-point contact;
- w) CGC shall not be stored directly on the ground, on their sides, or stacked on top of the other;
- x) Flammable gases and oxygen must be stored separately at least 20 feet apart, or together with a 5-foot high, 30-minute fire-rated wall separating them.

- y) Smoking is prohibited anywhere on the WTC Site.

7.28 Spill Prevention, Response And Cleanup Plan Requirements

Each contractor shall comply with all applicable regulatory requirements including but not limited to 40 CFR 112; 6 NYCRR 595-599 and 6 NYCRR 610-614, and in addition shall prepare and maintain a Spill Prevention, Response and Cleanup Plan outlining the procedures and techniques for responding to spills, and releases of chemicals and /or petroleum products.

At a minimum, the plan should contain the following information:

- a) Responsible Person: The name, title, and contact information (phone number, and email) of the person responsible for compliance with the plan. Note: Responsible person in this section is defined as the preparer, maintainer, and implementer of this plan.
- b) Operations Descriptions: A brief description of the operations undertaken by the contractor, including identifying the project, work package, or work order under the World Trade Center Construction.
- c) Chemical Inventory: Include a listing of all hazardous substances (as defined in 6 NYCRR 595.1(c)) stored and used on site that shall include:
 - i. chemical name and chemical name of major components if a mixture (as defined in 6 NYCRR 595.1(c));
 - ii. Chemical Abstract Service (CAS) numbers;
 - iii. storage container type, size, and material of construction,
 - iv. storage location, and spill containment provided if any,
 - v. quantities stored or used,
 - vi. include the release reportable quantity for each hazardous substance found on site as listed in Tables 1 and 2 of 6 NYCRR 597.
- d) Storage Areas: A description of storage areas to include method of separation of incompatible materials, location, signage and identification. (i.e., contractor name, emergency contact information, and hazard identification)
- e) Overfill Protection: A description of overfill protection provided for tanks and equipment.
- f) Risk Assessment: An assessment of possible and reasonable causes of spills, leaks, and releases is to be documented.
- g) Visual Inspections: A documented visual inspection of all storage areas, secondary containment, equipment, and spill cleanup materials shall be performed weekly, corrective actions taken if deficiencies observed and be available for review,
 - i. Include procedures to address equipment leaks, rainwater removal from secondary containment, and replacement of spent spill cleanup materials.

- h) Cleanup Materials: A list of the types of cleanup and removal equipment and quantities along with materials maintained on site and their location is to be documented. The amounts of cleanup material kept on site is to be based upon the largest size discharge type such as oil, flammables, corrosives, etc., that would be handled without calling on outside resources.
- i) Notification procedures: Each contractor shall comply with spill notification requirements pursuant to 6 NYCRR 595 Releases of Hazardous Substances Reporting, Response and Corrective Action; 6 NYCRR 374-2 Standards for the Management of Used Oil; and the provisions of Article 12 of the Navigation Law found in 17 NYCRR 32.3, and 32.4.
 - i) All spills regardless of the size, source, or location shall be reported to the CM. And the WTC Site Safety Director. Notification shall be made within fifteen minutes of discovery via telephone. The following information is to be provided:
 - (1) Name and phone number of person making the notification
 - (2) Contractor/company name the notifier is affiliated with
 - (3) Incident location
 - (4) Name and quantities of material spilled
 - (5) If any persons injured
 - (6) Who will be handling the cleanup effort (i.e., Contractor and/or cleanup organization)
 - ii) The following information is to be provided under this section:
 - (1) The NY Department of Environmental Conservation (to report a chemical or oil spill):
 - (a) 24 Hour Spill Hotline 1-800-457-7362
- j) Report Preparation: Spills must be documented and a preliminary report submitted to the CM within 24 hours and include, at a minimum, the following:
 - i) Date and time the incident occurred
 - ii) Description of the area where the spilled occurred. Include work activities adjacent to the area and extent of spill (water and/or land saturation)
 - iii) Description of cause of spill and corrective actions.
 - iv) Name and company of person that discovered the spill
 - v) MSDS(s) for substances and quantity spilled
 - vi) Immediate actions taken to contain and stop the spill and/or leak
 - vii) If regulatory agencies were notified provide the following:

- (1) Name of the Agency, phone number called, name, title, and phone number of the person making the notification, time of notification, notification ID #, as required steps that will be taken to close the case
- viii) Means and methods to contain and cleanup spill
 - ix) Personal protective equipment used and decontamination techniques.
 - x) Listing of outside resources including name, address, phone number of the cleanup organization, and dates when the cleanup efforts were completed.
 - xi) Description of the type (e.g. debris, absorbent pads, recovered oil, etc.), amounts, storage location, and classification (solid waste; Universal, non-hazardous, or hazardous waste; used oil, etc.) of the cleanup material generated.
 - xii) Provide disposal means & method and, if applicable, provide disposal facility used. If disposal facility was used provide copies of the transportation documents (e.g. manifest).
- k) Cleanup Procedures: Description of techniques to be used for different types and size of spills identified in the risk assessment and notification section of this plan.
- l) Internal & External Resources: Include name, contact information (mailing address, phone number, and 24-hr emergency number) of the internal and external resources that will respond to spills and releases. Note: Cleanup external organization shall have the capability to respond within an hour from receiving notification. External resources shall include waste disposal organization. Include the disposal or recycling options for all materials such as contaminated soil, debris, hazardous substances, hazardous waste, etc., that will be generated during cleanup activities. Note: Include the name, EPA ID, and contact information of the waste broker, hauler, or other organization.
- m) Communication: Describe how employees are trained on the recognition and notification process of this plan.
- n) Approval: The plan shall be approved and signed by a Corporate Officer within the contractor's organization.

A copy of this plan shall be submitted to the CM for review and acceptance. This document must be kept current by reviewing and updating, at a minimum annually; or when necessary to address Regulatory changes, new Best Management Practices; or site observations. All updates to the plan must also be submitted to the CM for review and acceptance. A copy of this plan shall be maintained on site to be referenced when needed.

7.29 Contractor's Financial Obligations for Chemical Release Incidents

In the event of a hazardous chemicals/materials (hazmat) incident:

- a) In the event of a hazardous chemicals/materials hazmat incident, the PAPD will respond and immediately address any life safety concerns. As it relates to incident mitigation, the PAPD will isolate, and attempt to confine, collect, and/or contain as an interim control. Long-term remediation will be performed by a remediation contractor;

- b) Each CM and contractor shall be financially responsible and required to address (i.e., respond, mitigate, property and equipment restoration and repair, waste transportation and manifesting, waste disposal, and notification of the NYS DEC to obtain a spill number) all hazmat releases and incidents created by their own action or their contractors within their work and storage area(s) and during deliveries;
- c) Each CM and contractor whose actions cause a hazmat incident in another prime contractor's or sub-contractor's work or storage area(s) shall be financially responsible and required to address (e.g., response; mitigation; property and equipment restoration; repair, or replacement; waste transportation and manifesting; waste disposal; and notification of the NYS DEC to obtain a spill number) all hazmat releases and incidents;
- d) The CM shall be responsible to mitigate those hazmat incidents affecting common use areas, and at a CM or contractors work or storage area if a life safety or environmental hazard exists, or if the contractor's hazmat contractor is unavailable. Where it deems necessary, the Port Authority may respond to a contractor's work or storage area. In those instances the CM or contractor shall be financially responsible to reimburse the Port Authority for contractor charges (e.g., response; consulting; project monitoring; laboratory sampling and testing; mitigation; property and equipment restoration, repair, or replacement; waste storage, transportation, and disposal) and Port Authority staff time;
- e) Each CM and contractor shall be required to provide to the REO, WTC Site Manager, SSD, and PSM the name and contact information of their call-in hazmat contractor.
- f) The Port Authority shall provide an environmental consultant firm to monitor and document remediation work. Each CM and/or contractor shall be required to reimburse the Port Authority for this environmental monitoring service (e.g., project monitors, supervision, sample collection and laboratory analysis, report preparation). The Port Authority will not sign any manifest, shipping document, or assume the title as "generator" for hazardous waste generated by the CM or the contractor. The Port Authority will sign manifests only for that waste for which it is deemed responsible in accordance with EPA's definition of generator.

8 Environmental Performance Commitments

8.1 Vibration Abatement

The Contractor shall control and mitigate vibration during all hours of construction. The Contractor shall develop and implement specific construction vibration mitigation measures to protect historic properties from increased vibration levels associated with construction activities at the site (see Section 5 Historic Resource Protection). In conjunction with the protection of historic properties, overall construction vibration abatement and monitoring shall be addressed as follows:

- a) Contractor Vibration Control and Abatement Plan
 - i) The Contractor shall comply with all appropriate Federal, State and Local regulations applicable to vibration control and mitigation. The Contractor shall develop and submit to the Engineer for review and approval a Vibration Control and Abatement Plan (the "VCA Plan") that describes his intended mitigation procedures and methods to control and mitigate vibration during the performance of Work under this Contract.

The VCA Plan shall specifically address the following:

- i) Means and methods for the implementation of all control and mitigation measures including all calculations and supporting documentation;
- ii) Baseline background vibration measurements taken prior to the start of construction;
- iii) Construction vibration assessment. The method for predicting the construction vibration levels to be approved by the Engineer.

- b) Construction Vibration Monitoring:

To ensure compliance with this Section, the Contractor shall identify and submit to the Engineer for approval the qualifications of a firm to provide assistance in the development and implementation of a VCA Plan, and to provide vibration monitoring on the Site. The qualifications of the firm shall be as follows:

- i) The firm shall have within the preceding five years provided vibration measurement and analysis consulting services on at least three projects of similar size and complexity that included specific noise control and abatement initiatives, preferably in the City Of New York;
- ii) Each employee of the firm who will actually perform measurements or monitoring in the field shall possess appropriate training, and have demonstrated experience in the measurement and implementation of mitigation techniques for similar types of construction projects;
- iii) Upon the approval by the Engineer of a vibration control firm, the Contractor shall immediately procure the services of the firm to perform baseline vibration

- measurements at the site and near the Historic properties identified above, and submit a report to the Engineer including a review and assessment of the existing vibration levels relative to the allowable threshold;
- iv) On a weekly basis, or at other intervals deemed appropriate by the Engineer, the Contractor shall submit a written report to verify compliance with the allowable vibration threshold based on vibration measurements taken continuously at WTC site and near the Historic properties for the duration of construction activities;
 - v) The Authority may also monitor vibration levels at locations deemed appropriate by the Engineer to verify compliance. When vibration level measurements exceed the allowable threshold, the Contractor shall immediately cease all construction activities, notify the Engineer and implement the mitigation procedures described in the approved VCA Plan;
 - vi) If applicable procedures are not included in the VCA Plan, revised procedures are to be developed and implemented only with the approval of the Engineer. Such revised work procedures are to be incorporated in the VCA Plan as a revision, and resubmitted to the Engineer for review and approval;
 - vii) In the event of a conflict between the Contractor's vibration level measurements and those taken by the Authority, the Authority's measurements shall prevail.
- c) Submittals:
- A VCA Plan shall be submitted for the review and approval by the Resident (?) Engineer prior to the commencement of any construction work. The submittal shall include all revisions, and a copy of the approved VCA Plan and all revisions shall be provided to each contractor prior to the commencement of the contractor's work. The contractor shall be specifically obliged by the Contractor to comply with the requirements of the approved VCA Plan in the provisions of its subcontract.

8.2 Cultural and Historic Resource Protection

Consistent with the Stipulations of the executed Memorandum of Agreement (MOA) pursuant to Section 106 of the National Historic Preservation Act, a Resource Protection Plan (RPP) was developed by the Port Authority of New York and New Jersey's (PANYNJ) Priority Capital Programs Department (PCP), now the World Trade Center Construction Department (WTCC) in consultation with its Project Historical Architect (PHA).

The purpose of the MOA is to protect historically significant elements of the WTC Site that are to remain in situ during construction from inadvertent damage. The elements designated to be protected are presently as follows:

- a) East and west and Liberty Street slurry walls

The Contractor shall be responsible for compliance with all the requirements specified in the RPP for protection of the above historic WTC Site elements to remain undamaged and in situ during construction. The Contractor shall also require that each contractor be in compliance with the requirements of the RPP, and include appropriate provisions in each subcontract.

The Contractor shall cooperate fully in implementing any Contract specific procedures and guidelines regarding the protection the above historic WTC Site elements, and shall identify his/her respective staff responsible for the implementation and maintenance of all such protection.

The Engineer shall notify the Contractor when a non-compliance with WTC Site historic element protection requirements is discovered. Conversely, if the Contractor discovers any noncompliance with site element protection requirements, the Engineer is to be notified immediately. In all cases, the Contractor shall implement appropriate corrective actions immediately to restore the required protection.

b) Inspection of Existing Conditions of Historic Elements

The Contractor shall inspect and record the existing conditions of the above historic elements on the WTC Site, including but not limited to: 1) the historic tower perimeter column base remnants outlining the North and South Tower footprints and the footprint areas within the 12 outlines, 2) the E subway entrance, 3) the east and west slurry walls and 4) the steel beams in cross form.

c) Protection Considerations in All Contractor Submittals

The Contractor shall consider the protection of the historic WTC site elements in all submittals, especially those regarding means and methods, made to the Engineer for review and approval. The Contractor shall design, furnish and install all protective measures specified in the Contract Documents, and is responsible for the preservation of all existing protection measures in place that may be damaged or affected by his construction activities.

The Contractor shall not locate any equipment, deliver any materials or commence any work whatsoever that may impact historic elements on the WTC Site unless approved by the Engineer.

Each Contractor Submittal shall include the following information:

- i) A general location map of the WTC Site showing where the work shall be performed, including a notation on the map of location of the historic element(s) relative to the work;
- ii) A listing of materials or construction equipment to be used in the performance of work that shall or may come in contact with any of the WTC Site historic elements, and the proposed methods to be employed to prevent any damage to said historic elements.

d) Protection Requirements

If during the review of a Contractor submittal, the Engineer determines that the potential exists for damage, the Engineer may direct the Contractor to preserve or implement or restore the following protective measures in accordance with the Authority's Resource Protection Plan (RPP).

In the event that the Contractor identifies a more effective and/or efficient methods of protection as construction proceeds, the Contractor shall propose said measures for further consideration by the Engineer. Under no conditions, however, shall the Contractor proceed with such an alternate method without the approval of the Engineer.

e) Requirements for the Protection East and West and Liberty Street Slurry Walls

If Work is required by Contract on or adjacent to the existing east and west slurry walls of the West Bathtub, and the Engineer determines that a potential exists for the existing slurry walls to be damaged, the Contractor shall furnish and install appropriate protective measures approved by the Engineer that provide a clear, unobstructed, recognizable and respectful view of the walls.

f) Protection of Historic Resources from Construction Vibration

The Contractor shall develop and implement specific mitigation measures ? to protect the following Historic properties from increased vibration levels associated with construction activities at the site. Such measures shall reduce vibration to a level below the threshold criterion of 0.12 in/sec (approximately 95 VdB):

- i) 90 West Street
- ii) Beard Building, 125 Cedar Street
- iii) 114-118 Liberty Street
- iv) St. Paul's Chapel and Graveyard
- v) Former East Street Savings Bank, 26 Cortlandt Street

g) Monitoring Program

i) Periodic Monitoring:

Prior to construction, the Contractor shall meet with the Engineer to establish a program to periodically inspect and examine all protection measures in place to verify compliance with the applicable provisions of the RPP.

The Contractor shall develop and submit a written monitoring program for the review and approval of the Engineer. The program shall include an Emergency Remediation Plan (the "ERP") identifying the emergency contacts and outlining the procedures to be followed should an unforeseen condition or unanticipated damage arise that compromises or places at risk any historic elements on the WTC Site.

Once approved the Engineer, the Contractor shall set aside the materials, products and equipment in a safe and accessible location on the WTC site to ensure an immediate response to any such occurrence.

ii) Routine Monitoring

During the progress of construction, the Engineer will routinely review (inspect) all protection measures in place to verify compliance with the applicable provisions of

the RPP. Upon the completion of the Engineer's review, a meeting will be conducted with the Contractor to discuss and document the following:

- 1) The progress achieved since the previous inspection;
- 2) An assessment of the performance of the protection measures in place, and a determination of the adjustments or modifications required to correct non-compliances with the requirements of the RPP;
- 3) A review of the upcoming scheduled work activities, a determination of the required protection measures and verification that the existing protective measures are adequate for such activities. If necessary, there will be a determination of supplemental measures to be implemented for compliance with the requirements of the RPP.

h) Emergency Remediation

Should any condition arise or damage occur during construction that compromises the integrity of the in-place protection measures, or adversely affects any historic elements on the WTC Site, the Contractor shall stop all work in the affected area immediately, notify the Engineer and implement the relevant measures outlined in the approved ERP.

At a minimum, the notification to the Engineer shall include a description of the following:

- i) The situation that arose;
- ii) Its cause, if known;
- iii) Response measures implemented;
- iv) Recommendations for further intervention, if any.

At the time of notification, the Engineer, will determine whether or not the Contractor may resume work in the affected area. If not, the Contractor shall repair and/or furnish and install all supplemental remediation and mitigation measures deemed appropriate by the Engineer. All repair work shall be done in such a manner as to minimize the adverse impact to the affected historic elements. The Contractor shall not remove any damaged, marred or otherwise unsalvageable historic elements from the WTC Site unless otherwise approved by the Engineer.

8.3 Archaeological Resources

Consistent with the Stipulations of the executed Memorandum of Agreement (MOA) pursuant to Section 106 of the National Historic Preservation Act, the area within the WTC site bounded by West Street, Liberty Street, Washington Street and Cedar Street as well as the roadbeds of Liberty, Washington and Cedar Streets, have been determined to be sensitive historic archaeological resources.

Unless specifically required by Contract, under no conditions shall the Contractor perform any construction activities that may cause a subsurface disturbance at or in the vicinity of the above areas without the approval of the Engineer.

8.4 Discoveries of Archaeological Resources and Effects On Historical Resources

In the event that archaeological deposits or features are encountered during the performance of construction activities, the Contractor shall stop all work immediately, flag or fence off the archaeological discovery location, provide site security and immediately notify the Engineer. The Contractor shall not recommence Work until so directed by the Engineer.

8.5 Construction Protection Plan

The Contractor shall develop and submit to the Engineer for review and approval a comprehensive Construction Protection Plan (CPP) to address the implementation, enforcement and monitoring of the Environmental Performance Commitments (EPCs) as outlined in the following Sections of this Specification for Air Quality: Diesel Emission Mitigation and Dust Control, Noise and Vibration Abatement, Historic Resource Protection, Archaeological Resources and Discoveries. The CPP shall be submitted to the Engineer for review and approval within thirty (30) calendar days of acceptance by the Authority of the Contractor's proposal.

No Work shall commence until the CPP is approved by the Engineer. The CPP will be organized to address each EPC Section (where required), and shall include the following plans:

- a) Diesel Emission Mitigation (DEM) Plan;
- b) Dust Control (DC) Plan;
- c) Noise Control and Abatement (NCA) Plan;
- d) Vibration Control and Abatement (VCA) Plan;
- e) Emergency Remediation (ERP) Plan;
- f) Maintenance and Protection of Traffic (MPT) Plan - A plan for the management of traffic and truck/vehicle delivery routes to and from the site for each major construction phase. Included in the MPT plan are to be specific measures to minimize impacts to the intersection of Route 9A and Liberty Street for the maintenance of an acceptable Level of Service (LOS "B"). The plan shall also include the mapping of all existing businesses in the area;
- g) Soil Management Plan;
- h) Common Fuel Storage Plan.

8.5.1 Diesel Emission Mitigation

The CM and each contractor shall minimize all air-borne pollutants generated by diesel-powered equipment and vehicles at all times during the performance of Work. All Non-Road (e.g., backhoes, bull dozers, cranes, excavation machines, loaders, etc.) diesel-powered equipment, including stationary (e.g., generators, compressors, etc.), with a rated horsepower greater than 50 HP shall incorporate diesel emission reduction strategies that include the use of ultra-low sulfur diesel fuel and best available technology for emission controls. In addition, all such equipment and engines shall comply with all federal, state, and local regulations applicable to

exhaust emission controls and safety. The mitigation measures to be employed are to consist of the following:

8.5.2 Ultra-Low Sulfur Diesel (ULSD) Fuel

All diesel-powered Non-Road equipment to be used in the performance of work with a rated horsepower greater than or equal to 50 HP shall use Ultra-low Sulfur Diesel (ULSD) fuel that can be used without engine modification or fuel compartment flushing, and is certified to contain an average sulfur content of no more than 15 ppm, as determined over a six month period. In the event that the contractor can clearly demonstrate that ULSD fuel with an average sulfur content of not more than 15 ppm is not available, a written waiver may be granted by the REO until such time that the fuel has become available, or an approved equivalent is determined by the REO to satisfy the intent of this Section.

The Port Authority shall collect monthly samples of the ULSD fuel used during the period directly from the fuel tanks of equipment used on the construction site. The Testing Standards shall include, but are not limited to: ASTM D6920 – 03 “Total Sulfur in Naphthas, Distillates, Reformulated Gasolines, Diesels, Biodiesels, and Motor Fuels by Oxidative Combustion and Electrochemical Detection” or ASTM D6428-99 “Test Method for Total Sulfur in Liquid Aromatic Hydrocarbons and Their Derivatives by Oxidative Combustion and Electrochemical Detection.”

The ULSD shall be obtained from any distributor capable of meeting the requirements of this Section. All ULSD fuel shall be dispensed directly on the construction site from either a dedicated on-site fuel storage facility or segregated truck delivery. In the case of onsite storage, all such facilities shall comply with all applicable jurisdictional codes pertaining to the storage, containment and dispensing of fuel and all details must be submitted and approved by the REO prior to implementation.

A listing of ULSD fuel suppliers is included on the following Web page - http://www.epa.gov/otaq/retrofit/cont_fuels.html

All Non-Road diesel-powered equipment with a rated horsepower greater than 50 HP that Control Devices (devices) utilizing the best available technology (something missing in this sentence). The retrofit devices shall consist of Diesel Particulate Filters (DPFs) or other measures with equivalent particulate matter (PM) removal efficiency wherever the implementation of such a device is feasible. In cases where DPFs are not feasible for safety considerations, mechanical reasons, or where the technology would not function properly, the Contractor shall submit a request for a waiver to the REO review and approval prior to the use of such equipment. If the REO grants a waiver, Diesel Oxidation Catalysts (DOCs) shall be used.

Only in the following cases will the use of diesel engines greater than 50 HP without tailpipe reduction measures be permitted by the REO.

- a) Where for technical reasons neither DPFs or DOCs can be used effectively, and the operation cannot be performed by another engine or other means;
- b) To immediately remedy safety and health hazards;
- c) In response to emergencies.

Such reductions are to be targeted primarily toward the reduction of PM and secondarily on the reduction of nitrogen oxides (NOX), and shall in no event result in an increase in the emissions of either pollutant. The devices shall be contained in the U.S. Environmental Protection Agency (EPA) Verified Retrofit Technology List, the list of California Air Resources Board (CARB) Verifications, Europe's Verified Technology List (VERT), or as otherwise approved by the REO to provide the maximal level of pollutant reductions intended under this Section. For more information, refer to the following websites:

U.S. Environmental Protection Agency Verified Technology List:

<http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm>

California Air Resources Board Verified Technology List:

<http://www.arb.ca.gov/diesel/verdev/level3/level3.htm>

Europe Verified Technology List:

<http://www.akpf.org/pub/vertfilterliste.pdf>

Vendors of such technologies include: Cleaire, DCL International, Engelhard, Johnson-Matthey, Fleetguard Emission Solutions, Donaldson, Engine Control Systems, or other approved equal.

8.5.3 Diesel Construction Equipment Age Requirements

In order to facilitate the application of verified emission control devices as well as provide lower baseline emissions, all equipment used for the performance of Work under this Contract must use post-1995 fuel injection engines which meet Tier II engine emissions standards, as defined in 40 CFR Section 89.112. Exceptions will be made only for specific engines that are not yet commercially available as Tier II, and where the task cannot be reasonably accomplished using alternative engines or means which do comply with these demands. In such cases, the Contractor shall submit a request for a waiver to the REO for review and approval prior to the use of such equipment.

8.5.4 Diesel Emissions Mitigation Plan for Non-Road/On-Road Engines and Equipment

A Diesel Emission Mitigation Plan (the "DEM Plan") shall be prepared by the contractor and submitted to the REO for review and approval prior to the use of any diesel-powered engines, including non-road and on-road Vehicles. The DEM Plan shall identify all engines and vehicles to be utilized in the performance of work, whether owned by, operated by or on the behalf of the contractor, including that rented by the Port Authority as the rental agency of the contractor. No work shall proceed until a DEM Plan is submitted and approved by the REO. Once approved, no changes in or deviations from the DEM Plan will be permitted unless approved by the REO. The DEM Plan shall address the control of emissions from all engines and vehicles including on-road vehicles (i.e., diesel powered trucks) and non-road equipment not retrofitted with devices. The contents of this plan shall specifically address the requirements of the Subsections presented below:

- a) Work Zone Creation: The contractor shall establish on-road vehicle (i.e., diesel trucks) staging zones for the off-loading and loading of materials to and from the construction site. Such zones shall be located to minimize the impact of pollutants from diesel

engines and vehicles on sensitive receptors and the general public. In addition, the contractor shall ensure that diesel powered engines and vehicles are located away from the fresh air intakes of sensitive receptors as determined by the REO;

- b) Diesel Engine Idling Policy: The idling time of Non-Road and On-Road Vehicles shall be limited to three (3) consecutive minutes, as determined by the REO except as follows:
 - i) When an on-road vehicle is forced to remain motionless because of traffic conditions or mechanical difficulties over which the operator has no control;
 - ii) When it is necessary to operate heating, cooling or auxiliary equipment to accomplish the intended use of the vehicle; installed on the vehicle when such equipment is necessary;
 - iii) To bring the vehicle to the manufacturer's recommended operating temperature. In this event, the temperature requirements must be indicated in the DEM plan as an exception;
 - iv) When the outdoor ambient temperature is below twenty (20) degrees Fahrenheit;
 - v) When the vehicle is being actively worked on for repairs or maintenance.

8.5.5 Dust Mitigation

The contractor shall control fugitive dust at all times - 24 hours a day, 7 days per week, including non-working hours, weekends, and holidays. The requirements for mitigating fugitive dust particulate dispersions from the construction site and during the performance of Work, such as earth moving and demolition activities, shall include the following:

- a) The spraying of a (non-hazardous, biodegradable) dust suppressing agent;
- b) The physical containment of fugitive dust;
- c) The adjustment for meteorological conditions, as appropriate;
- d) Wheel washing of all construction Non-Road and Motor Vehicles leaving the WTC Site.

The contractor shall comply with all federal, state, and local regulations applicable to the control and mitigation of fugitive dust dispersion. The contractor shall submit a Dust Control Plan ("DC Plan") to the REO for review and approval to address the specific measures contained in this Section. A copy of this DC Plan shall also be provided to each contractor who shall be obliged to comply in the provisions of his subcontract with the contractor. The DC Plan shall include contact information for responsible individual(s) from the contractor with 24 hour, 7 days per week availability, and who have been vested with the authority to implement all controls and mitigation measures identified in the DC Plan. The DC Plan must detail all dust control procedures for all such controls and measures as approved by the REO, and be job specific to address all anticipated Work activities that may generate fugitive dust dispersions (e.g., demolition, saw-cutting, pavement milling, haul roads, etc.).

8.5.6 Noise Abatement

Where practicable, the CM and contractor shall schedule all construction activities to avoid and/or minimize any adverse acoustic noise or vibrations that could impact sensitive receptors as determined by the REO. Acoustical sensitive receptors presently include the Millennium Hotel on Church Street, Embassy Suites on Vesey Street, and Multi Family Residential Structure on the corner of Park Place and West Broadway and residential buildings along the south side of Liberty Street. The conditions and requirements are as follows:

- a) In the event that the REO determines that the contractor may or has exceeded the noise thresholds specified in Table 1 below, the REO may direct the contractor to implement, at his own cost, abatement measures deemed appropriate by the REO and/or as specified and approved in the contractor's Noise Control And Abatement Plan (the "NCA Plan"):

Table 1: Noise Limitation Thresholds for Sensitive Receptor Sites – Resultant noise at sensitive receptor sites shall be restricted to the following levels:

Time	dBA Limit
Weekdays, 7AM to 4 PM	80
All Other Times	70

Note: Measurements to ensure Noise Limitation Threshold compliance will be based on instantaneous maximum readings using "slow" integration speed setting on the sound level meter.

- b) The contractor shall comply with all appropriate federal, state and local regulations applicable to noise control and mitigation. The contractor shall submit a NCA Plan to describe his intended mitigation procedures and methods to control and mitigate noise generated during the performance of Work. One (1) original and four (4) copies of the NCA Plan and revisions are to be submitted to the REO. A copy of the NCA Plan and all revisions shall be provided to each contractor prior to the commencement of his work. The contractor shall be specifically obliged to comply with the requirements of the approved NCA Plan in the provisions of his subcontract with the contractor. The NCA Plan shall specifically address the following:
 - i) Means and methods for the implementation of all controls and mitigation measures;
 - ii) Design drawings of noise abatement enclosures and barriers, signed and sealed by a Licensed Professional Engineer in the State of New York;
 - iii) Description of physical noise mitigation materials, including the name of manufacturer and its specifications. All such materials shall be fire resistant;
 - iv) Catalogue cuts and technical data sheets of construction equipment to be used during Work;
 - v) The qualified acoustical firm procured by the contractor to provide professional services for the creation and implementation of the NCA Plan.
- c) To ensure compliance with this Section, the contractor shall procure the services of a qualified acoustical firm to provide assistance in the creation and implementation of the NCA Plan, and to provide noise monitoring on site. Each employee of the firm who will actually perform measurements or monitoring in the field shall be appropriately trained,

and have demonstrated experience in the measurement and implementation of mitigation techniques for similar types of construction projects. Such employees shall have within the preceding five years performed acoustical consulting on at least three projects of similar size and complexity that included specific noise control and abatement initiatives, preferably in the City of New York, and submit to the REO for review and approval the name and qualifications of the firm and employees as stipulated above.

- d) The contractor shall continuously monitor the actual noise levels generated during construction activities to ensure compliance with the noise requirements stipulated herein. The Port Authority will monitor noise levels at known sensitive receptors or other locations deemed appropriate by the REO to verify compliance. When noise level measurements exceed the allowable thresholds, the contractor shall cease all construction activities, and immediately implement the mitigation procedures indicated in the approved NCA Plan. If applicable procedures are not included in the NCA Plan, revised procedures are to be developed and implemented only with the approval of the REO. Such revised work procedures are to be incorporated in the current NCA Plan, and resubmitted for formal review by the REO. In the event that a conflict between the contractor's sound level measurements and those of the Port Authority, the Port Authority noise level measurements shall prevail.

9 Cranes, Derricks, Hoists, Elevators and Conveyors

All Contractors and Subcontractors, regardless of tier shall comply with the requirements of Title 27/Subchapter 19 (currently in effect), Chapter 33/Section BC 3319, and Reference Standard RS 19-2, of the Building Code of the City of New York ("BCCNY"). All submittals are to be sent to the Resident Engineer's Office at the WTC Site ("REO"). Acceptance will be granted by the REO's office with concurrence by the Engineering Department's duly Authorized Representative. The current procedure for the approval to erect, use, and operate cranes or derricks at the World Trade Center Site ("WTC Site"), including the erection, jumping, climbing, and dismantling of tower and climber cranes, shall be as follows:

9.1 Prior to Delivery

Prior to the delivery to the WTC Site of any crane or derrick, the contractor shall provide the following to the Resident Engineer's Office at the WTC Site ("REO"):

- a) A copy of a current and valid Form CD-2, entitled "Crane/Derrick/Mobile Work Platform-Approval and Operation Application/Certificate, "Revised 08/15/05, as issued by the New York City Department of Buildings-Cranes & Derricks Division ("NYDOB-C&D"). The Form CD-2 shall bear the approval stamp of NYDOB-C&D as a "Temporary Certificate of Approval/Temporary Certificate of Operation," and must include an expiration date, a legible CD Number, and an authorized signature from a representative of NYDOB-C&D. In the event that such a "Certificate of Approval/Operation," is not available, the owner of the crane or derrick must file a Form CD-2, directly with NYDOB-C&D. Proof of the filing and a copy of the completed Form CD-2 shall be provided to the REO.
- b) If the crane or derrick is diesel powered, and the diesel engine has a horsepower rating equal or greater than 50HP, a copy of the applicable catalogue cut and other relevant information describing the Diesel Emissions Control Device retrofitted to the engine. The retrofit device shall be a Diesel Particulate Filter ("DPF"), or other Best Available Technology ("BAT") as determined by the Materials Engineering Unit ("MEU") of the Port Authority Engineering Department.
- c) If delivery and/or placement of the crane or derrick will require a movement on the West Haul Road either over the existing Acrow Bridge, or the slip road directly west of the South Projection, the contractor must comply with the following:
 - i) For movements over the Acrow Bridge: The contractor must comply with the "Acrow Panel Bridge Overload Protocol, "dated April 30, 2002, copy attached. This protocol requires the submission to the REO of an "Acrow Panel Bridge – Vehicle Information Sheet" describing in detail the loading to be imposed on the bridge, and is to be accompanied by appropriate catalogue cuts detailing the specific configuration of the crane or derrick during the movement.
 - ii) For movements on the slip road: Please note that the slip road is a bridge structure limited to loads not exceeding AASHTO(HS??). In cases where the loading will exceed this threshold, an "Acrow Panel Bridge – Vehicle Information Sheet" is to be submitted to the REO describing in detail the loading to be imposed on the road, and

- accompanied by appropriate catalogue cuts detailing the specific configuration of the crane or derrick during the movement.
- d) A fully executed Form CD-11, entitled "Equipment Owner Identification Form," Revised 12/03, as issued by NYCDOB-C&D.
 - e) A fully executed Form CD-16, entitled "Cranes and Derricks Division – Applicants Statement of Notification to Community Boards, " Revised 12/03, as issued by NYCDOB-C&D. Please note that it is the responsibility of the EOR to ensure that the Community Board has been appropriately notified. Proof of such notification is to be attached to the form. The web address for Community Board No. 1 is cbl@cbl.org. Please copy the Director Program Logistics at qbrathwai@panynj.gov on all such e-mails.
 - f) For Cranes or Derricks to be Operated Solely On the Property of the Port Authority, or on the Property of the State of New York: The contractor shall procure the services of a New York State Licensed Professional Engineer to be designated as the Engineer of Record for the crane or derrick ("EOR"). The EOR is to prepare and submit the following to the REO for review and acceptance:
 - i) A fully executed Form CD-4, entitled "Crane/Derrick/Mobile Work Platform-On-Site Inspection Application/Certificate," Revised 12/03, as issued by NYCDOB-C&D. The Form CD-4 shall be accompanied by plans, drawings, and calculations, all signed & sealed by the EOR. The plans, drawings, and calculations must clearly show and demonstrate the soundness of the following:
 - 1) The proposed location of the crane or derrick;
 - 2) All pertinent features of the site including, but not limited to, the assumed soil bearing values;
 - 3) Ground elevations and slopes;
 - 4) Vaults and other subsurface structures;
 - 5) Supporting platforms and structures;
 - 6) The swing and reach of the crane or derrick;
 - 7) Loads in accordance with Drawings CS1, dated 10.9.09, entitled " Allowable Crane Loading"
 - 8) Plans for emergency high winds.
 - g) For Tower or Climber Cranes: In addition to the above documentation of this Section, the EOR must prepare and submit the following:
 - i) 1. A fully executed Form CD-7, entitled "Notification of Erecting or Dismantling of Climber or Tower Crane," Revised 07/07. The Form CD-7 shall be accompanied by plans for the erection, jumping, climbing, and dismantling of the crane. The form is to be accompanied by a copy of the license of the master or tower rigger designated to supervise the erection of the crane, signed & sealed plans, and all associated documentation required to ensure compliance with the manufacturer's recommendations. The plans shall include the following:

- 1) The identification of the equipment proposed to be used for all such operations including all machines to be used for the erection or dismantling.
- 2) A detailed identification of the assemblies and components required for the erection and dismantling of the equipment.
- 3) The location of the equipment, sidewalk sheds, surrounding buildings, protection for their roofs and pick-up points, loads, and radius of swing of all loads. In addition, the safe load from the approved load radius chart shall be submitted for lift radius.
- 4) A weight list certified by the crane manufacturer listing all assemblies and components proposed to be lifted. All components are to be clearly marked with their weight painted on the assembly, or stamped on metal tags attached to the assembly. In lieu of a manufacturer's certification, the EOR may certify the weight list indicating how such weights were determined.
- 5) The center of gravity of all asymmetrical components shall be located and shown.
- 6) A sequence of operation detailing the erection, jumping, climbing, and dismantling, along with the rigging materials to be used in such operations.
- 7) All cranes or derricks located within the property lot lines or on the street, and being used to erect, jump, climb, or dismantle the crane.
- 8) The names, license numbers (as applicable), and contact information for the licensed rigger, rigger foremen, site safety manager, crane safety coordinator, and the contractor performing the erection, jumping, climbing, and/or dismantling work.
- 9) A signed & sealed load test procedure identifying the weights to be used, and the load moment and line pull testing to be conducted.

Only upon the review and acceptance by the REO with concurrence from the Engineering Department's Representative of all of the above listed submissions will the crane or derrick be permitted to enter the WTC Site. Please note that all such deliveries must be coordinated with WTC Facility Operations.

9.2 Upon Delivery

Upon the delivery of the crane or derrick to the WTC Site, the contractor shall proceed as follows:

- a) In the event that a "Certificate of Approval/Operation" is not available, but a Form CD-2, has been filed with NYCDOB-C&D for the inspection of the crane or derrick at the WTC Site. The NYCDOB-C&D Inspector will be permitted access to the WTC Site for the purpose of conducting such an inspection.

Please note that a Contractor will not be permitted to use or operate a crane or derrick at the WTC Site unless a current and valid "Certificate of Approval/Operation," as issued by NYCDOB-C&D, is presented to the REO.

For Tower or Climber Cranes: The NYCDOB-C&D inspection shall be conducted in both the unassembled and assembled states.

- b) The names, classifications, and license numbers of the crane or derrick operator and the master, tower, or climber crane rigger (as applicable).
- c) For Cranes or Derricks to be Operated Solely On the Property of the Port Authority, or On the Property of the State of New York: The contractor shall procure the services of a New York State Licensed Professional Engineer to be designated as the Engineer of Record for the crane or derrick ("EOR"). The EOR is to conduct a field inspection of the crane in the "unassembled state," and prepare and submit the following to the REO for review and acceptance:
 - i) A Form CD-8, entitled "Technical Report – Statement of Responsibility," Revised 12/03, as issued by the NYCDOB-C&D. The Form CD-8 shall be completed in its entirety with the exception of Box #5B, and signed and sealed by the EOR in Box #5A.

Only upon review and acceptance by the REO with the concurrence of the PA Engineering Department's representative of the Forms CD-4 and CD-8, and all plans and associated documentation will the contractor be permitted to proceed with the placement and assembly of the crane or derrick. Please note that REO acceptance of the above documentation under this Section does not constitute a release to commence with the erection of a tower or climber crane, additional submittals and inspections are required as stipulated in the next subsection of this procedure (Subsection 3).

- d) For Tower or Climber Cranes: In addition to the above documentation of this Section, the EOR must prepare and submit the following:
 - i) A fully executed Form CD-12, entitled "Designation of Safety Coordinator", Revised 12/03, as issued by NYCDOB-C&D.
 - ii) A signed & sealed report documenting the results of his field inspection of the crane in the "unassembled state", and certifying that all crane parts are in satisfactory condition, and acceptable for assembly and erection.
 - iii) A copy of the Safety Coordination Meeting Log as stipulated in Section BC 3319 entitled "Cranes and Derricks", of the BCCNY (3319.8.2 through 3319.8.8, and 3319.10.2), which require that the contractor conduct such a safety meeting prior to the erection, jumping, climbing, or dismantling of a tower or climber crane. These provisions stipulate the required meeting participants, topics of discussion, and record documents. Also, the inspections and certifications required by the EOR, crane operator, and rigger prior to the commencement of any such operation.

For Tower or Climber Cranes: Only upon review and acceptance by the REO of the all the documentation stipulated above will the contractor be permitted to proceed with the erection of the tower or climber crane.

- e) For Cranes or Derricks to be Operated Within the Fence Line of the WTC Site on or Encroaching Upon the Property of the City of New York: The Contractor shall file all forms, plans and associated documentation directly with NYCDOB-C&D. Only upon the presentation to the REO of a current and valid "Certificate of On-Site Inspection," as

issued by NYCDOB-C&D, will the Contractor be permitted to assemble or erect the crane or derrick at the WTC Site.

9.3 Prior to Use and/or Operation

Prior to the use and/or operation of a crane or derrick on the WTC Site, the contractor shall proceed as follows:

- a) For Cranes or Derricks to be Operated Solely On the Property of the Port Authority or on the Property of the State of New York: Upon the completion of the placement, assembly, and/or erection of the crane or derrick, including the erection of a tower or climber crane, the contractor shall proceed as follows:
 - i) The EOR shall perform a field inspection of the crane or derrick in the "assembled state", as required under BCCNY Reference Standard RS 19-2. The EOR will be responsible for the verification, inspection and certification of the following:
 - 1) That the crane or derrick has a current and valid "Certificate of Operation" as issued by NYCDOB-C&D for the configuration to be used at the WTC Site;
 - 2) That the crane or derrick support, dunnage, configuration, and location have been constructed and positioned in accordance with the plans and drawings submitted to the REO with the Form CD-4.
 - 3) That there are no vaults, or other below grade structures, affected by the crane or derrick other than those specifically shown on the plans and drawings submitted to the REO with the Form CD-4;
 - 4) A visual inspection of the crane or derrick to ensure that there is no damage including, but not limited to , the following:
 - (1) Bent or missing lacings;
 - (2) That the pins are properly installed, and have no visible fatigue;
 - (3) All items listed in Section 5-2.1.2 of ASME B30.5-2004.
 - ii) For Tower or Climber Cranes: In addition to the above, the contractor is to provide the following:
 - 1) The EOR shall conduct a load test in accordance with the load test procedure submitted under Item 9.1.g.i.9 above. Upon completion, and his/her

Upon the completion of the field inspection by the EOR, and his/her determination that the crane or derrick is sound, and has been assembled and positioned in accordance with the plans and drawings submitted to the REO with the Forms CD-4 and CD-7, the EOR shall submit to the REO both a signed & sealed inspection report certifying conformance, and a fully executed Form CD-8, signed & sealed in Box #5B.

determination that the results are satisfactory, the EOR shall submit to the REO a signed & sealed report certifying acceptance of the results.

- 2) Procure the services of a NYS Licensed Surveyor to perform a plumbness survey, a Licensed Testing Laboratory to perform anchor bolt pull-out testing, and a Licensed Rigger to certify compliance with the manufacturers bolt torque values connecting sections. Prepare and submit a fully executed Form CD-6, entitled "Crane/Derrick and Work Platform – Plumbness And Torque Notification/Anchor Bolt Pull Out Test," Revised 12/03, as issued by NYCDOB-C&D.
- 3) Written certification by the EOR that all safety devices on the crane involved in the erection, jumping, climbing, and dismantling procedure have been calibrated in accordance with the manufacturer's recommendations.

Only upon the review and acceptance by the REO of a signed & sealed inspection report and Final Form CD-8, (and the Form CD-6 for Tower and Climber Cranes), will the contractor be released by the REO to proceed with the use and operation of the crane or derrick. The Form CD-4 and Final Form CD-8, both as accepted by the REO, will constitute the "Certificate of On-Site Inspection."

- b) For Cranes or Derricks to be Operated Within the Fence Line of the WTC Site On or Encroaching Upon the Property of the City of New York: The Contractor shall file the form CD-6 and final Form CD-8 directly with NYCDOB-C&D. Proof of the filing, and copies of the completed form, shall be provided to the REO. Upon receipt by the Contractor of the "Certificate of On-Site Inspection," issued by NYCDOB-C&D, a copy shall be provided to the REO.

Notes:

1. Should the "Certificate of Approval/Operation" issued by the NYCDOB-C&D expire while the crane or derrick is in use at the WTC Site, the owner of the crane or derrick shall file all renewals and/or extensions directly with NYCDOB-C&D. Proof of the filing along with a copy of the completed Form CD-2 shall be provided to the REO. Upon receipt of any such renewals or extensions issued by NYCDOB-C&D, a copy shall be provided to the REO.
2. Please note that the estimated review time for all crane and derrick submissions to the REO is five (5) business days.
3. The above procedure is subject to change by the Authority based on subsequent Local Laws promulgated by the City of New York, and Regulatory Notices issued by the NYCDOB-C&D.
4. Although not specifically referenced in the above procedure, all cranes and derricks at the WTC Site shall also comply with the regulations promulgated by the New York State Department of Labor ("NYSDOL") – Part 23 entitled "Protection in Construction, Demolition, and Excavation," – Subpart 23-8 entitled "Mobile Cranes, Tower Cranes, and Derricks."
5. For questions regarding Diesel Emissions Control Devices and retrofits, refer to the Specification entitled "Environmental Performance Commitments," contained in each WTC Contract.
6. If the proposed crane or derrick position is within two hundred feet (200') of an NYC subway line or facility, approval from New York City Transit ("NYCTA") is required prior to the placement, assembly, or erection of the crane or derrick. In such cases, please note that a

Certificate of On-Site Inspection cannot be issued without NYCT written approval. The current NYCT contact is Mr. Stan Singh at (212) 510-2653.

7. Sometime following the delivery of any crane or derrick to the WTC Site, MEU will physically verify that the Diesel Emissions Retrofit has been completed in accordance with the BAT determination of paragraph 1.C, above.
8. Please note that in accordance with BCCNY under Title 27/Subchapter 19/Article 10/Section 1057 (27-1057), Reference Standard 19-2/Section 8 (8.1.3), and Chapter 33/Section BC 3319 (3319.3), the following equipment and/or cranes are, or are in part, exempt from the above approval procedures. However, in cases where the crane or derrick will be on the property of the City of New York, written notice must be provided to NYCDOB-C&D as per applicable regulations.
 - a. excavating or earth-moving equipment, except cranes used with clamshells (Full Exemption);
 - b. Augurs, churn-drills, and other drilling equipment not used for the hoisting of any objects (Full Exemption);
 - c. Cranes or derricks performing an emergency use pursuant to an order or direction issued by the REO (Full Exemption);
 - d. Cranes with less than 160 feet combined boom/jib length to be used for a period not exceeding 24 hours, operated entirely within the property lines, and at a location at least one boom/jib length away from all property lot lines (Exempt From Sections # 9.1f, 9.2c, and 9.3 above);
 - e. Service cranes and clamshells with a boom length of 110 feet or less to be operated entirely within the property lines and at a location that does not require the moving of any load over a roadway or sidewalk *(Exempt From Sections # 9.1f, 9.2c, and 9.3 above);
 - f. Pile drivers or clamshells used entirely within the property lines with a soil bearing pressure not exceeding allowable crane loading noted on Drawing CS1, dated 10.9.09 (Exempt From Sections #9.1f, 9.2c and 9.3 above);
 - g. Mobile cranes, including jibs and any other extensions to the boom ,not exceeding 50 feet in length and with a manufacturer's rated capacity of 3 tons or less (Full Exemption);
 - h. Mobile cranes, including jibs and any other extensions to the boom, exceeding 50 feet but not exceeding 135 feet in length, and with a manufacturer's rated capacity of 3 tons or less (Exempt from Sections # 9.1f, 9.2c and 9.3, above);
 - i. Mobile cranes, including jibs and any other extensions to the boom, exceeding 50 feet but not exceeding 135 feet in length, and with a manufacturer's rated capacity of 3 tons or less used exclusively as a man-basket (Full Exemption);
 - j. Hoisting Machines permanently mounted on the bed of material delivery trucks that are used exclusively for the loading and unloading of such trucks, provided that the length of boom does not exceed the length of the truck bed by more

- than 5 feet, and any material transported thereon shall not be raised more than 2 feet in the unloading process (Full Exemption);
- k. Derricks having a manufacturer's rated capacity not exceeding 1 ton (Full Exemption);
 - l. Mechanics trucks with a hoisting device used in activities related to the maintenance and repair of construction related equipment (Full Exemption);
 - m. Articulating boom cranes that do not have an integral hoisting mechanism, and that are used exclusively for the loading and unloading of trucks or trailers, provided that the length of boom does not exceed 135 feet, and that any material transported thereon shall not be raised more than 100 feet in the unloading process (Full Exemption).
9. For jurisdictional reference, refer to the drawing entitled "Record Property Map of World Trade Center," undated, which shows the current property lines of the Port Authority, the State of New York, and the City of New York within the WTC Site. Please note that the individual jurisdictions generally encompass the following:
- City of New York: All Vesey and Liberty Streets east of the West Street Haul Road, and the full length of Church Street.
 - Port Authority of NY & NJ: All areas bounded by the newly installed and existing slurry walls of the East and West Bathtubs.
 - State of New York: The full length of the West Street Haul Road.
10. The IRT Subway enclosure is limited to a maximum uniform vertical load of 200 psf. Loading and Coordination is to be approved by the REO at the present time, the duly authorized representative of the Engineering Department, Construction Division, Maureen Lynch-Jacobs, located at 115 Broadway, 8th Floor, phone 212-435-5115, Cell 973-332-2185.
11. The Contractor is to maintain a copy of all documents in the crane cab.
12. At the present time, the duly authorized representative of the Engineering Department, Construction Division is Maureen Lynch-Jacobs, located at 115 Broadway, 8th Floor, phone 212-435-5115, Cell 973-332-2185.

Contacts:

For issues related to the above procedure, please contact the following Port Authority personnel:

- Enforcement:
 - NS11M&M, Thomas J. O'Connor, P.E.
 - Office: (212) 435-5612 / Cell # (917) 697-7046
 - One World Trade (Tower 1), Lynda Tollner, P.E.

- Office: (212) 435-5632
- Towers 2, 3, 4, 5, 7, and Retail, Carla Bonacci, A.I.A.
 - Office: (212) 435-5532
- Transportation Hub, Richard Behnke, P.E.
 - Office: (212) 435-5676, Cell# 646-772-5076
- Vehicle Security Center, Debra Simonelli
 - Office: (212) 435-5148, Cell# (646) 592-0892
- For all other WTC Site Projects, Contact the Resident Engineer's office
- Incident Response - In the event of an accident or emergency involving a crane, immediate notification must be made to:
 - WTC Site Safety Director, Joseph Schwed, CSP, FMA
 - Cell# 973-722-2600, jschwed@panynj.gov and/or
 - Port Authority General Manager Operations Safety, Jim Keane
 - Cell# 973-417-4236, jkeane@panynj.gov
- Engineering Department Representative: Maureen Lynch-Jacobs
 - Cell # (917) 332-2185, mjacobs@panynj.gov
- Best Available Technology ("BAT") Retrofits: Dorian Bailey
 - Office: (201) 216-2963
- WTC Site Deliveries: Robert Schutz
 - Cell # (347)203-1443

Revision History

Date	Revision	Comments
7/31/08	-	Original Issuance
8/20/08	1	Revised to reflect current Letter of Agreement with NYCDOB-C&D
9/4/08	2	Revised to reflect findings of OIG Integrity Monitor following NYCDOB-C&D Gap Audit.
9/16/08	3	Amended to reflect Revised Protocols for Erecting and Dismantling (Including Jumping) Tower Cranes as issued by NYCDOB-C&D.
10/17/08	4	Revised to reflect OIG Integrity Monitor review of the 9/16/08 version.
12/30/08	5	Revised to include NYCDOB-C&D emergency Contact number.
4/1/09	6	Revised to reflect Memorandum of Understanding between Port Authority and NYC Department of Building, executed on March 5, 2009.
5/27/09	7	Revised to reflect man baskets and the transfer of crane approval responsibilities to the PA Engineering Department. CD 11 & CD 16 to be Included for all cranes and Load test for Tower Cranes only
7/17/09	8	Revised to include concurrence by the Engineering Department
10/19/09	9	Added II.D.1.g. and corrected Notes 8.f. to include Drawing CS1, dated 10.9.09, entitled "Allowable Crane Loading". Updated Contact List
10/27/09	10	WTC other projects contact
3/3/10	11	II B,C, and D1 became I D,E, and F, -information required prior to delivery, I. F. 1. h. note added for emergency high winds plan, Note 10 is added for loading on the IRT subway enclosure, Note 11 is added for the maintenance of documents I. B. was moved to II.B. -names of operators after delivery, I. G.1.g. moved to III. A. 2. c. -cert. of safety devices at time of load test

10 Personnel Platforms

All contractors regardless of tier shall comply with the requirements of the Occupational Safety and Health Administration's (OSHA) regulatory Subpart N, Cranes, Derricks, Hoists, Elevators, and Conveyors, standard 29 CFR 1926.550, Cranes and Derricks and 1926.552, Material Hoists, Personnel Hoists, and Elevators, and the New York City Building Code's (NYCBC) Reference Standard (RS) 19: Power Operated Cranes and Derricks, section 23.6: Hoisting Personnel.

The use of a crane or derrick to hoist employees on a platform is prohibited except when the erection, use, and dismantling of conventional means of reaching the work location such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform or scaffold, would be more hazardous, or is not feasible because of structural design or worksite conditions.

In the event of an emergency, should the injured person need to be raised or lowered to the ground level and there is no access to a personnel hoist and transport via stairway (if available) is not feasible, then a platform dedicated to rescue purposes shall be used to extricate the injured person. The platform will be used to supplement the primary means if needed. The primary means will be the use of a Stokes basket carried up the stairway most accessible. It will be the decision of the first responder, medical professional, or other medical authority to determine if a platform will be used for rescue.

10.1 Prior to Use

Three days prior to the use of a personnel platform at the WTC Site the contractor shall provide the following to the WTC Site Safety Director, and Resident Engineer's Office at the WTC Site ("REO"):

- a) Written notification by a Professional Engineer licensed in the State of New York, or master rigger licensed in the City of New York documenting the following:
 - i) The type of work to be performed;
 - ii) Location of the work;
 - iii) The prime/general contractor;
 - iv) The name of the principle from the prime/general contractor;
 - v) The contractor performing the work;
 - vi) The name of the principle from the contractor performing the work;
 - vii) The date and time of the work;
 - viii) The duration of the work;
 - ix) Identification of crane to be used (crane owner, crane user, crane type, crane manufacturer and model, and NYCBC CN and/or CD number);
 - x) A copy of the crane's CN indicating its use with platforms;

xi) The reason(s) why conventional means of access cannot be used to achieve this work and the hazards associated with the use of conventional access means.

b) Certifications

- i) The name and New York State/New York City license number and expiration date of the Professional Engineer or licensed master rigger;
- ii) The name and NYCBC license number and expiration date of the site safety manager or coordinator that will be on-site during platform use;
- iii) The name and qualifications of the person who will be witnessing the required OSHA Subpart N platform trial lift and proof lift tests;
- iv) The name and New York City license number of the rigger who will be supervising the rigging of the platform;
- v) The name and qualifications of the person who will be inspecting the rigging;
- vi) The name(s) of personnel authorized and trained in emergency personnel platform operations.

c) Drawings

- i) If the personnel platform to be used is supplied by a manufacturer of personnel hoisting equipment, submit the catalog cut sheet for the equipment. At a minimum the information shall include, but not be limited to:
 - 1) Platform Suspension;
 - 2) Anchorage points for personal fall arrest;
 - 3) Unit weight, maximum rated load capacity, maximum occupancy, test weight, and serial number.
- ii) Loading and landing locations for the platform;
- iii) If the applicant is a licensed rigger, a sketch or description of the foundation for the crane (hoisting machine) is required.

NOTE: If the personnel platform is fabricated by the contractor, a stamped design drawing by a NYS licensed professional engineer shall be submitted.

d) Plans

- i) Method of platform rigging;
- ii) Storage location for rigging;
- iii) Selection of rigging components with rated loading plus verification that rigging can support a load five (5) times its maximum intended loading without failure;

- iv) Verification that the loaded platform will not exceed 50% of the rated capacity for the radius and configuration of the crane;
- v) Verification that the load line of the crane can support without failure at least seven (7) times the maximum intended load;
- vi) Verification that all rigging has the manufacturer's tag identifying load capacity.

10.2 Prior to Operation

Prior to operation of a personnel platform on the WTC Site, the contractor shall proceed as follows:

- a) Conduct a Trial Lift Test as required by OSHA 1926.550(g)(5)(i-v):
 - i) A licensed engineer or master rigger shall complete the Permit to Use a Suspended Platform prior to the suspension of personnel within the platform.
 - ii) A lift supervisor shall conduct a pre-lift safety meeting to review the scope and performance of work.
- b) Immediately prior to use, conduct a proof lift test as required by OSHA, 1926.550(g)(5)(vi):
 - i) Each time the platform is used, or there are repairs or modifications on the platform or rigging, a Proof Test shall be performed. The Proof Test shall be conducted by loading (weighting) the platform to 125% of the rated capacity. Once securely loaded, the platform shall be lifted over the anticipated travel path. Once completed, the weighted load shall be removed, and the platform put into use.

10.3 Emergency Use

Immediately prior to the use of a personnel platform being used in the event of an emergency medical response at the WTC Site, the contractor shall provide the following to the WTC Site Safety Director and Resident Engineer's Office:

- a) Submittal requirements as identified under Section 1;
- b) Documentation for each platform to be used in the event of an emergency medical response is required;
- c) A completed Permit to Use a Suspended Platform as required in Section 2a must be completed for each individual platform that may be used in the event of an emergency medical response;
- d) Conduct a pre-lift meeting attended by the crane or derrick operator, signal person(s) (if necessary for the lift), employee(s) to be lifted, and the person responsible for the task to be performed including a review of the appropriate requirements. This meeting shall be held prior to the proof lift and shall be repeated for all employees assigned to the operation. Steps d and e may be done concurrently;

- e) Conduct a proof lift test as required by OSHA, 1926.550(g) immediately prior to hoisting personnel. The proof test shall be conducted by loading (weighting) the platform to 125% of the rated capacity. Once securely loaded, the platform shall be lifted over the anticipated travel path. Once completed, the weighted load shall be removed, and the platform put immediately into use;
- f) Storage location of rigging;
- g) Unique marking of rigging storage for immediate identification;
- h) List of personnel authorized and trained personnel for emergency personnel platform operations.

10.4 Inspections

- a) Inspections: The contractor shall make available provide, at a minimum, the following to the World Trade Center Site Safety Director and REO: on a monthly basis:
 - i) Daily inspection log of all emergency use platforms;
 - ii) Daily inspection log of all rigging equipment associated with platform;
 - iii) Records of trial lifts;
 - iv) Records of proof tests;
 - v) Permits to use a suspended platform.

10.5 Personnel Platform Sample Permit

I. GENERAL INFORMATION

Project:	Name:	Contractor:	Name:
Contractor performing work	Name:	Contractor performing lift	Name:
Location:			

Crane User:	Address:
Company Principle:	

Crane Owner:	Address:

Purpose of Lift (Circle)	Inspection	Maintenance/Repair	Installation	Emergency Response
	Demolition	Initial Test	Drill	

Description of Work	

Lift Date:	Lift Time:	Duration of Lift:
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II. SUPERVISORY ASSIGNMENTS

Lift Supervisor	Name/Contractor:
Safety Manager	Name/Contractor:
Safety Coordinator	Name/Contractor:
Person Conducting Pre-Lift Meeting	Name/Contractor:
Person Inspecting Platform Prior Lift	Name/Contractor:
Person Inspecting Sling and Attachments Prior to Lift	Name/Contractor:
Person Verifying Rigging Configuration	Name/Contractor:
Person Monitoring Trial Lift Load Test	Name/Contractor:
Person Monitoring Proof Lift Test	Name/Contractor:
Person verifying rigging is consistent with Engineer's/Licensed Master Rigger's Design	Name/Contractor:

III. CRANE INFORMATION

Crane Mfr, Make & Model			
Crane CN Number		Exp. Date:	
Crane Boom Length (Feet)			
Maximum Allowable Pick Radius	Allowable Pick Load at Maximum Radius		
*Actual Pick Load at Maximum Radius	*Must not exceed 50% of Allowable Maximum Radius		
Crane Location			
Crane Operator	Name:	License Type:	

	License Number	Expiration Date
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- * If applicant is an engineer, the hoisting machine's Certificate of On-Site Inspection (CN) is required.
- * If applicant is a master rigger, the hoisting machine's Certificate of Operation (CD) and a sketch or description of the hoisting machine's foundation is required.

IV. RIGGING CREW

Crew Foreman	Name/Contractor:	
Rigging Crew	Name:	Name:
	Name:	Name:
Signal Person(s)	Name/Contractor:	Name:

V. PERSONNEL PLATFORM RIGGING PLAN PREPARATION

Rigging Plan Prepared By		NYC Licensed Master Rigger (Boom <250 feet)
(place check in box)		Professional Engineer (Boom >250 feet)

NYC Licensed Master Rigger	Name:	License Type:
	License Number:	Expiration Date:

Professional Engineer	Name:	State Issued:
	License Number:	Expiration Date:

V. RIGGING CONFIGURATION

Prepare and attach a sketch of the rigging configuration for the personnel platform. The following information shall be provided on the sketch.

Wire Rope ^{1,2}	Type	Size:	Load Capacity	Attachment Configuration
Attachments ^{1,2}	Type	Size:	Load Capacity	Rigging Configuration
Load Capacity of Wire Rope and Attachments Configuration				
Method to Attach Additional Safety Line from Lift to Load Line above the ball				
Capacity of Additional Safety Line and Attachments:				

1 All rigging must be labeled or tagged to identify the manufacturer, and load capacity rating. All rigging used for a personnel platform shall be dedicated for that application, and shall not be removed and be protected from the elements.

2 Wire rope, shackles, rings, master links, and other rigging hardware must be capable of supporting

without failure at least five (5) times the maximum intended load applied or transmitted to that component. Where rotation resistant rope is used, the slings shall be capable of supporting without failure at least ten (10) times the maximum intended load.

USE OF Personnel Lift Platform

Name of occupants to be lifted	Name:	Name:
	Name:	Name:

Personal Fall Arrest System	Type:	Model:
Attachment Method:	Location:	Method:
Method of Communications		

*When the personnel platform is used in response to a medical emergency, the number of occupants will be limited to injured worker, a signal person, and first and medical responders from PAPD ESU and FDNY EMS. Overall occupancy will not exceed that platform's rated capacity.

Platform Manufacturer:	Name:			
Rated Load Capacity	Maximum Intended Load	Trial Lift Load Weight	Proof Test Load Weight:	# of Occupants:

Prepared By:	Name:	Title:
	Date:	Contractor:

11 Hot Work Checklist

NYC FIRE CODE PRE-HOT WORK CHECK		
NYC FIRE CODE Section 2604.3.1 Pre-hot work check. A pre-hot work check shall be conducted by the responsible person prior to work to ensure that all equipment is safe and hazards are recognized and protected. A report of the check shall be kept at the work site during the work and made available for inspection by any representative of the Fire Department of New York. The pre-hot work check shall be conducted at least once per day and shall verify the following:		Compliant "C", Non-compliant "NC" or Not Applicable "N/A"
1.	The hot work equipment is in good working order.	
2.	The hot work area is clear of combustibles and flammable solids or that such materials present in the area are protected in accordance with NYC Fire Code Section 2604.1.1.	
3.	Exposed construction is of noncombustible materials or, if combustible, is protected.	
4.	Openings are protected.	
5.	Hot work area floors are clear of combustible waste accumulation.	
6.	Reserved.	
7.	Fire watch personnel, where required, are assigned.	
8.	Approved actions have been taken to prevent accidental activation of extinguishing and detection equipment in accordance with NYC Fire Code Sections 2604.1.8 and 2604.1.9.	
9.	Portable fire extinguishers and fire hoses (where provided) are operable and available.	
10.	All persons performing hot work possess certificates of fitness, where such certificates are required.	
11.	All persons performing hot work requiring a permit possess a site-specific permit or citywide permit, authorizing such work.	
Responsible person for hot work operation – Name		
Date:		
Area of work:		
Description of work:		

If any of the above items are non-compliant, hot work shall not begin, or shall cease until all conditions are safe and compliant with this code and all safety standards.

12 PATH Operational Safety Conditions And Precautions

PATH is an electrified rail rapid transit facility and care must be exercised around various unguarded Alternating Current (AC) and Direct Current (DC) electric installations. All personnel entering a PATH Right Of Way (ROW) and facilities shall comply with PATH safety rules and procedures.

Where a contractor's work, either CM or contractor, is on or adjacent to the PATH ROW, the contractor is required to annually pass the PATH "On-Track Safety Program" in compliance with the rules and regulations set forth in FRA regulation 49 CFR Part 124, Subpart C: Railroad Worker Protection, and provide documentation and certify that the firm's employees have taken and passed the class. The course encompasses the On Track Safety Program, personnel protective equipment, communications, safety rules and procedures, emergency signals, etc. The full text of the PATH On-Track Safety Program is contained within Appendix III of the PATH Book of Rules.

Any personnel not certified under this Program will not be permitted to enter the PATH track area. Access onto the PATH System tracks must be coordinated in advance through the REO. PATH will provide a four-hour certification class, which includes a certification test for supervisory staff representing the contractor. The contractor's supervisory staff will then be required to train and certify all additional contractor personnel that may be performing Work of the Contract. A letter certifying that the listed contractor personnel have been trained on the "PATH On-Track Safety Program" and, that they fully understand and will comply with all requirements of FRA rules, shall be filed with PATH's Manager, System Safety and Security Division at One PATH Plaza, Jersey City, NJ 07306, Tenth Floor, within 48 hours of such training. Only the persons specified in such a letter will be permitted to enter the PATH ROW.

Entrance to any Power, Signals & Communications (PS&C) facility requires proper authorization and accompaniment by PS&C personnel and an employee in charge provided by the REO. Any person entering such a facility (relay room, bungalow, high tension feeder room, wayside signal case, etc.) must exercise particular care to avoid inadvertent contact with energized conductors, terminals, and apparatus that may cause electric shocks and burns resulting in personal injury and possible death. Contractors shall implement their own lock out tag program in conjunction with PATH power removal prior to the start of any work on or adjacent to electrified components.

13 WTC Site Lifting Plan

The goal of the WTC Site crane safety management system is to have no incidents during lifting operations that cause injury to personnel, the general public or pose a threat to operational integrity. Following contractor risk assessments or upon the request of the REO or PSM, each CM and contractor shall submit to the REO and PMS prior to the start of work a comprehensive lift plan. Lift planning process describes the systematic assessment of important load factors and site factors. It is applicable to the "cherry-picker" as to the "superlift".

I. GENERAL INFORMATION

PROJECT: _____

LOCATION: _____

DATE / TIME OF LIFT: _____

OBJECT TO BE LIFTED: _____

DESCRIPTION OF LIFT: _____

Purpose of Lift: Inspection Maintenance Installation
 Dismantling Demolition Repair Relocation

OTHER: _____

Lift Category:

<input type="checkbox"/> 95 % of Crane Manufacturers Lift Capacity	<input type="checkbox"/> Tandem Lift
<input type="checkbox"/> Limited Clearance, Drift, or Interference	<input type="checkbox"/> Asymmetrical Object
<input type="checkbox"/> Unique Rigging Requirement	<input type="checkbox"/> Fragile / Thin Shell
<input type="checkbox"/> Blind Lift	<input type="checkbox"/> Wall / Slab
<input type="checkbox"/> Re-bar Cage	<input type="checkbox"/> Lifts Over Public
<input type="checkbox"/> Fuel Tank	<input type="checkbox"/> Gas Cylinder Cage
<input type="checkbox"/> Requested by REO/Safety	<input type="checkbox"/> Pre-Cast

OTHER: _____

Lift Plan Prepared By:

- ___ NYS Licensed PE
- ___ NYC Licensed or Special Rigger
- ___ Competent Person

NYS License PE:

Name: _____ License #: _____

Expiration Date: _____ Licensing State: _____

NYC Licensed or Special Rigger:

Name _____ License #: _____

License Type: _____ Expiration Date: _____

Competent Person:

Name: _____ Contractor: _____ Title: _____

Rigging Plan Prepared By:

- ___ NYS Licensed PE
- ___ NYC Licensed or Special Rigger
- ___ Competent Person

NYS License PE:

Name: _____ License #: _____

Expiration Date: _____ Licensing State: _____

NYC Licensed or Special Rigger:

Name _____ License #: _____

License Type: _____ Expiration Date: _____

Competent Person:

Name: _____ Contractor: _____ Title: _____

Location to Unload:

Method to Unload:

Lift Pathway:

Fall Protection For Personnel:

Coordination With PATH Operations:

II. PERSONNEL INVOLVED WITH LIFT

Prime Contractor: _____

Contractor To Perform Lift: _____

Lift Supervisor: _____ Contractor: _____

Safety Manager Present: _____ Contractor: _____

Identification of Rigging Crew:

Rigging Crew Foreman: _____ Contractor: _____

b) Signal Person: _____ Contractor: _____

c) Rigging Crew: _____ Contractor: _____

d) Name/Title Inspecting Slings/Hardware: _____ Contractor: _____

e) Name/Title of Person Conducting Pre-Lift Meeting: _____ Contractor: _____

f) Method of Communication between Signal Person & Crane Operator: _____

Crane Operator:

Name: _____ License #: _____

License Type: _____ Expiration Date: _____

III. RIGGING

Rigging Method:

Slings

Type: _____

Size: _____ Capacity: _____

Configuration: _____

Hardware –

Type(s): _____

Size(s) _____ Capacity: _____

Rigging Method

Type of Softener: _____

IV. CRANE DESCRIPTION

1	CRANE NAME AND MODEL NUMBER	
2	NYC DOB C&D NUMBER	EXPIRATION DATE
3	BOOM CONFIGURATION	BOOM LENGTH
4	BLOCK CAPACITY IN TONS	TOTAL WEIGHT OF CRANE INCLUDING COUNTERWEIGHT IN TONS
5	LIFTING CABLE DIAMETER IN INCHES	CABLE REEVING / NO. OF PARTS
6	WEIGHT OF MATERIAL TO BE PICKED	WEIGHT OF BLOCK AND RIGGING
7	DE-RATING OR SAFETY FACTOR	GROSS DESIGN PICK WEIGHT (FROM LINES 6 AND 7)
8	ABOVE GROUND UTILITIES/SURFACE ENCUMBRANCES	
9	UNDERGROUND UTILITIES OR OBSTRUCTIONS	
10	GROUND CAPACITY TONS/SF	MATTING TYPE
11	OUTRIGGERS	DUNNAGE
12	BOOM RADIUS IN FEET	BOOM ANGLE
13	PICKING CAPACITY PER CRANE CHART	
14	ENGINEERED SUBMITTAL NUMBER	

COMMENTS / NOTES

Prepared By: _____ Contractor: _____

Reviewed By: _____ Contractor: _____

Date Prepared: _____ Date Reviewed: _____

14 WTC Sling Use Guidelines

The following WTC Site guidelines for use of wire rope and synthetic slings were established to standardize the way in which slings are used during lifting operations, and to ensure that adequate measures are taken prior to and during a lift. These guidelines are consistent with 29 CFR 1926.251: Rigging Equipment for Material Handling, and OSHA's guidance document on safe sling use. This document addresses wire and synthetic sling training, condition evaluations, use and maintenance, and storage.

These Guidelines shall be revised and amended as necessary based on regulatory changes, best available technologies, and Site observations.

14.1 Training

All workers whose job responsibilities include the rigging of loads shall be trained in the visual evaluation and recognition of sling deficiencies, and shall have the authority to remove such slings from service. Only those workers who are trained, consistent with their job function, in accordance with applicable regulation, labor union training programs, or by each contractor shall be permitted to select the type of sling to be used, and method of attachment best suited to safely handle the load to be lifted.

On a daily basis, or as required by regulation, the foreman of each rigging crew, who is also trained in the visual evaluation and recognition of sling deficiencies, and has the authority to remove such slings from service, shall ensure that all sling users are visually evaluating each sling prior to use. The foreman shall maintain a daily record of such evaluations, and maintain the record at the worksite.

14.2 Condition Evaluations

For both wire and synthetic slings, each sling user shall be required to perform a pre-use daily visual evaluation, which shall include, but not be limited to the following:

Wire Rope	Synthetic
Missing, Illegible Sling Identifications	Missing, Illegible Sling Identifications
Broke Wires	Worn/Damaged Stitching
Abrasions	Knots Along Length of Sling
Corrosion	Holes, Tears, Cuts, Snags
Kinking, Crushing, Bird-caging	Acid, Thermal, Caustic Burns
Heat Damage	Excessive Wear
Crushed, Deformed or Worn Attachments	Discoloration

Additional daily evaluations may be required based on sling use, operating conditions, and loading. Based upon the evaluation, any damaged or defective rigging, rigging that has been over-exposed to environmental elements (rain, snow, ice, prolonged sunlight), or rigging that was sitting in water, snow, or ice shall be immediately removed from service. Synthetic slings

shall be removed from service if the manufacturer's load capacity identification label is missing or illegible. Wire rope slings shall be removed service if the manufacturers load capacity identification tag is missing or illegible.

Before returning a removed sling back to service, it must be repaired, reconditioned, and proof-tested by either a qualified person or the sling manufacturer. Documentation of the proof test shall be maintained on-site and available for review.

14.3 Use and Maintenance

Slings shall be selected, used and maintained in accordance with the manufacturers' specifications. Slings shall not be used if damaged or defective (see above), or in excess of its rated load at a given rigging configuration.

If a synthetic or wire rope sling is to be left on a load, the load cannot be placed directly on the ground or be stacked in such a manner causing the sling to be abraded, crushed, or deformed. Loads with slings attached must be supported with sills to prevent sling damage.

In order to protect the sling from deformation or abrasion during a lift, wire and synthetic sling softeners shall be required when at a minimum:

- a) The point of sling-to-load contact is at a sharp (90) degree right angle against an edge or surface;
- b) The load can deform or abrade the sling;
- c) The load needs to be protected from damage during the lift;
- d) Softening is recommended by the sling manufacturer.

14.4 Sling Storage

All slings shall be stored in accordance with the manufacturers specifications. At a minimum, all slings shall:

- a) When not in use be stored in a secure, weather tight enclosure or storage bin;
- b) Be stored in such a manner to prevent crushing, deformation, or abrasion;
- c) Be stored in locations where they cannot be damaged or create a trip hazard for workers.

15 High Wind/Hazardous Weather Guidelines

When the National Weather Service forecasts high winds, actions must be taken to secure the WTC Site. High winds are dangerous and all contractors must consider the safety of buildings and construction sites, cranes, suspended and supported scaffolding, and any other building appurtenances that may become loose from exposure to high winds. Proper planning shall be done to ensure a secure WTC Site.

15.1 General Site Conditions

WTC Site contractors should take all precautionary measures including but not limited to the following by securing:

- a) Objects subject to up-draft;
- b) Fencing and screening;
- c) Plastic and canvas wrapped items;
- d) Empty cans, drums and containers;
- e) Suspended hoses and lines;
- f) Mounted signs;
- g) Construction storage piles;
- h) Waste containers and contents;
- i) Swing gates and doors;
- j) Scaffolds, stair towers, and ladders;
- k) Electric panels and temporary installations;
- l) Light weight tools;
- m) Safety cans in fuel storage cabinets;
- n) Aerial lifts (booms, scissor lifts, etc.) in their lowest ground setting;
- o) De-watering equipment and ensure continued operation.

15.2 Crane Operations

The use of cranes and protection during hazardous weather events or high wind speeds are dependent on several factors.

- a) Sources For Hazardous Weather Notifications / High Wind Speeds:

- i. PAPD Desk – Notifications from Newark Liberty International Airport;
 - ii. Advisories from the NYC DOB;
 - iii. National Weather Service;
 - iv. Anemometer on crane;
 - v. Direct communication with LGA Air Traffic Control Tower.
- b) Suspend Lifting Operations When:
- i. Wind speeds exceeding 30 mph (NYC DOB), or as otherwise established by the crane manufacturer or the engineer of record;
 - ii. The object being lifted can act as a sail;
 - iii. The crane operator advises suspension of lift activities;
 - iv. Lightning strikes are occurring;
 - v. Crane operator or signal person visibility is lessened due to snow, fog, rain.
- c) WTC Crane Inventory:
- i. For each crane on site, the contractor will submit to the PA Engineering Crane Representative, REO and Safety Director a plan as to how each crane needs to be secured at its location and configuration consistent with the crane manufacturer's design specifications or engineer of record requirements.
- d) Securing the Crane For High Winds:
- i. Determine type of crane and evaluate location
 - ii. Secure crane in accordance with crane manufacturer's specifications or the engineer of record requirements. If the crane cannot be secured as specified, the contractor must provide to the PA Engineering Crane Representative, and REO a plan identifying how the crane is to be secured in its current location and configuration;
 - iii. The contractor and crane operator shall evaluate each crane to verify it has been adequately secured, and advise the master mechanic and safety manager accordingly.
- e) Returning the Crane To Service
- i. Prior to lifting operations, the crane will undergo a routine daily visual inspection to ensure operational fitness.