

Port Authority of New York and New Jersey

**World Trade Center (WTC) Vehicular Security Center and
Tour Bus Parking Facility
New York, New York**

Construction Protection Plan

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United States Department of Transportation
Federal Transit Administration



THE PORT AUTHORITY OF NY & NJ

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1 INTRODUCTION

This Construction Protection Plan (CPP) describes the environmental management program for the Port Authority of New York and New Jersey's (PANYNJ) World Trade Center (WTC) Vehicular Security Center and Tour Bus Parking Facility (the "Project"). The CPP for the Project has been prepared in compliance with the Project's Environmental Assessment (EA; November 8, 2006) and Finding of No Significant Impact (FONSI; January 26, 2007), prepared pursuant to the National Environmental Policy Act (NEPA), and the Project's Memorandum of Agreement (MOA; June 2006), prepared pursuant to Section 106 of the National Historic Preservation Act of 1966. This CPP identifies the coordination necessary to limit potential impacts to the environment, protected resources and communities within and abutting the Project area. The objectives of the CPP are to:

- Incorporate the commitments made in the FONSI (Appendix A), MOA (Appendix B), and the Project's World Trade Center Site Resource Protection Plan (RPP)(Appendix C);
- Identify environmental requirements within the Project that require compliance to Federal, state and local regulatory permit conditions and the procedures defined to meet them;
- Define Environmental Performance Commitments (EPCs) and mitigation measures committed to in the Project's EA and ensure that these requirements are identified in both the CPP and the Contract Documents;
- Review EPCs and stipulations implemented by the Project in order to meet these objectives;
- Define the responsibilities and actions required to maintain compliance with environmental requirements during construction and to effectively respond to problem situations or agency/public concerns;
- Establish the necessary procedures for communications, documentation and review of environmental compliance activities for each construction contract; and
- Describe the Historic Properties adjacent to the Project and the kinds of mitigation measures needed to protect them.

This CPP is a living document that will be updated as design and construction progresses and if additional environmental issues are identified. Periodic reviews of this CPP will be performed to ensure continual improvement of the plan's adequacy and it will be expanded and updated during the project duration. This CPP is intended to be flexible and tailored to match highly variable construction activities and locations throughout the Project. The objectives of this document and processes will be realized with the development of the Project specifications. These specifications will require the Construction Contractor(s) to implement plans that will guide the construction of the Project.

2 PROJECT INFORMATION

The Project will result in a vehicular security center and tour bus parking facility at the WTC Site in Lower Manhattan. The Project will consist of four levels. The entrance/exit will be located on the south side of Liberty Street between Route 9A and Washington Street. Tour buses transporting visitors to the Memorial will drop the passengers off on Greenwich Street adjacent to the Memorial Center and then proceed south to Liberty Street, turn right or westbound, where they will make a left-turn into the garage entrance. Delivery vehicles and automobiles will enter the facility from either eastbound or westbound Liberty Street. Vehicles will exit the facility via eastbound Liberty Street. The facility will also include a driveway on Cedar Street, which will be reserved for limited operations. The roof of the facility will be at street level (approximate elevation 326 feet¹) and will be the base of the future Liberty Park and St. Nicholas Church. Liberty Park and St. Nicholas Church will be constructed by others at a later date.

The security center will be located on the B1 level or elevation 296 feet. Once vehicles have been properly screened, those meeting security standards will be directed to a common ramp. Authorized trucks, buses, and automobiles will continue downward through the B2 level to the B3 level of the WTC Site. Vehicles that fail the security screen will exit onto Liberty Street.

The B3 level (elevation 264 feet¹) will include tour bus parking on both the Southern Site and beneath the WTC Transportation Hub. An internal roadway system will be constructed that will connect the Southern Site with the eastern portion of the WTC Site via a tunnel beneath the No. 1 subway line. The roadway will provide for future connections to a consolidated loading area, which will be constructed by Silverstein Properties, Inc. (SPI) in tandem with the development of Towers 3 and 4. The roadway will also provide for a connection to the roadway that will serve Tower 2, the Performing Arts Center, and Freedom Tower. Approximately 28 tour bus parking spaces will be located within the Southern Site while the remaining approximately 52 tour bus spaces will be provided on the eastern portion of the WTC Site, beneath the WTC Transportation Hub.

The Project will also include ancillary facilities and systems, such as employee spaces, mechanical rooms, and emergency egress. These facilities will be located both within the Southern Site and the east bathtub. To the maximum extent feasible, PANYNJ will locate these facilities with the utility rooms and egress for the other proposed uses on the WTC Site.

On the Southern Site, three ventilation structures will be constructed. Two will provide for exhaust and the third will be for fresh air intake. The proposed ventilation structures will be at least 40 feet tall, and will include mechanical rooms and egress.

The ventilation of the bus parking facility on the eastern portion of the WTC Site will be combined with the ventilation of the WTC Transportation Hub. Ventilation equipment will be located within the future cores of Towers 2 and 3. Depending on the schedule for completing Towers 2 and 3, it may be necessary to construct free-standing ventilation structures to serve the subgrade bus parking on a temporary basis, and if Towers 2 and 3 are not developed, PANYNJ will maintain these free-standing ventilation structures.

¹ PANYNJ Engineers employ an elevation standard where 300 feet is approximately equal to sea level.

3 RESPONSIBILITIES

The process of environmental compliance begins prior to construction by identifying, tracking and integrating environmental requirements during design. It also includes effective permitting and construction planning to incorporate environmental controls and mitigation measures accepted or approved by the responsible agencies during the design phase. This section of the CPP describes the Project's organizational structure and interface, and it provides a description of the roles and major responsibilities of key staff and organizational units involved in the Project.

The Project will be built through the concerted efforts of various organizations and responsible parties who will work together providing multiple levels of oversight to ensure a successful outcome. The primary organizations include the PANYNJ and the Contractor. Other key support and oversight organizations such as the Federal Transit Administration (FTA) and the Lower Manhattan Construction Command Center (LMCCC) are involved in the Project. These organizations will work toward the common goal of successfully completing the Project, achieving the expectations of the State of New York and the Project stakeholders while satisfying Federal requirements.

The Lower Manhattan Construction Command Center (LMCCC) is a key coordination partner of PANYNJ for this Project. PANYNJ participates in weekly meetings with LMCCC staff and other stakeholders to coordinate the Project with the other construction projects in Lower Manhattan. The coordination activities include construction logistics and schedules, utility work, maintenance and protection of traffic and pedestrians, street and site access priorities, environmental commitments and protection, safety and vehicle access.

3.1 Port Authority of New York and New Jersey

PANYNJ and its consultants will manage and develop the Preliminary and Final Engineering for the entire Project. A number of divisions within the PANYNJ will participate in the Project, including the World Trade Center Construction Division, the Engineering and Architecture Division, Construction Management Division, Materials Division, and many others. Where necessary, consultants supplement PANYNJ staff for various design, inspection, management, and other functions.

PANYNJ provides the day-to-day design development for Conceptual Design, Preliminary Engineering and Final Design for the construction contracts. PANYNJ will develop and update the environmental compliance plans and procedures including the Environmental Commitment checklists. PANYNJ will also be responsible for performing construction support services for the Project for those packages for which they had design responsibility. This includes review of shop drawing submittals, addressing requests for information, change order support and site visits.

PANYNJ, as permit applicant for Federal and most New York State permits, will provide ongoing support and oversight of the Project with regard to compliance issues. PANYNJ will be the point of contact for communication with these agencies. PANYNJ is responsible for assuring that the final engineering design reflects compliance with the Project's EA commitments, the requirements of the FONSI and MOA. PANYNJ is responsible for ensuring that the environmental commitments identified in the FONSI are incorporated into Final Engineering and that environmental controls are incorporated into the contract documents based on the level of engineering design completed. Final design and construction sequencing will be prepared to minimize disruption to businesses and residents.

Responsibilities related to environmental compliance include:

- Implementing the EPCs and other stipulations through construction contract specifications;
- Permitting support services; and
- Monthly reporting on status of environmental performance commitments.

3.2 Contractor

The Contractor is responsible for overall construction work, which includes construction compliance with applicable environmental commitments and requirements. The Contractor is ultimately responsible for overseeing the construction and implementing the requirements set forth in this CPP as required by the contract specifications. The Contractor responsibilities include:

- Managing day-to-day construction activities project-wide;
- Enforcing environmental commitments project-wide;
- Effective and timely communication of environmental compliance issues to the PANYNJ and their Resident Engineers (RE); and
- Serving as the primary emergency coordinator.

The Contractor is responsible for compliance with all environmental regulatory requirements contained in the contract. This includes the protection of historic resources, cultural resources, and air quality, implementation of effective noise, vibration and traffic controls, and proper management of soils, hazardous materials and waste.

The Contractor will also be required to perform its work in accordance with the contract plans, specifications, procedures, permit conditions and project commitments. Specifically, this includes being fully cognizant of and sensitive to, the commitments, procedures, restrictions, permit conditions and guidance identified in the contract. Sub-Contractors will also be required to cooperate fully in implementing any project specifications, procedures and guidelines developed for environmental compliance. The Contractor also will designate a point of contact for environmental issues.

The Contractor's responsibilities as part of this CPP include:

- Maintaining a monitoring program as part of the construction operations, including environmental aspects of the work;
- Providing signage and way finding that will inform the public of temporarily closed areas and alternate routes;
- Evaluating in advance the need for site-specific mitigation measures and tailoring mitigation measures to the need prior to initiating construction activities;
- Incorporating and monitoring environmental issues into daily planning;
- Communicating in a timely manner any environmental problems to the assigned RE;
- Initiating timely corrective actions to protect communities and environmental resources; and
- Following protocols outlined in the contract to ensure that the necessary engineering and scientific methods, practices, procedures and resources essential to be employed throughout the design and construction conform to the applicable requirements of the National Historic Preservation Act, the New York State Historic Preservation Officer, and the New York City Landmarks Preservation Commission.

The Contractor will be notified by the RE when environmental non-compliance is observed. In all cases, the Contractor will be required to immediately implement and maintain corrective actions or potentially be subject to withheld payments or stop-work orders.

The Contractor's Duties include:

- Working with the RE to identify site-specific mitigation needs and construction sequencing to limit impacts and help ensure environmental compliance;
- Working in conjunction with the PANYNJ in developing, implementing and reviewing all contractor Environmental Awareness Training requirements for the contract phase;
- Assisting the PANYNJ in identifying and resolving environmental compliance issues and daily preparation of field reports and direction to sub-contractors regarding their activities and performance;
- Facilitating site access and work by PANYNJ and its environmental Contractors where mitigation activities occur;
- Assisting the PANYNJ as requested with environmental permit/regulatory support, including site inspections by regulatory agencies;
- Timely communication of environmental compliance issues to the PANYNJ;
- Tracking and identifying any hazardous waste issues on the work site. Ensuring that all hazardous materials present on the site have been cited in a Material Safety Data Sheet (MSDS) and that employees are aware of the hazards present in the workplace and have access to MSDS logs;
- Ensuring effective communication in the transmittal of information on environmental requirements and compliance;
- Submit information on its activities that involve the use or generation of hazardous substances and wastes, or that can potentially violate the provisions of existing permits, or that have the potential to detrimentally effect the environment;
- Informing the sub-contractor that if they must acquire, handle, transport and/or store regulated substances (e.g., hazardous wastes), which trigger worker health or safety and/or environmental concerns, such substances must be treated in a safe, appropriate manner as defined by the applicable laws and regulations and project-specific plans/procedures; and
- Responsible for familiarity with all environmental permits, plans and procedures, as stated in the contract.

3.3 Resident Engineer

PANYNJ's designated Resident Engineer (RE) and construction management support staff will be assigned to each of the construction contracts for the Project. They will provide direct technical oversight of construction work and ensure compliance with contract documents, including environmental requirements.

An RE will be assigned to each of the construction contracts for the duration of construction. They will provide direct oversight to the Contractors and ensure compliance with contract documents, including environmental requirements. The RE's duties will include the following.

- The RE will oversee the Contractors for the following: Ensuring that all aspects of the RPP and MOA are followed. Assisting the Contractors in identifying and resolving environmental compliance issues. Daily preparation of field reports and direction to Contractors regarding their activities and performance, including environmental compliance.

- Preparation of Deficiency Reports and Corrective Action Reports for Contractors when situations of environmental non-compliance occur.
- Informing the PANYNJ of contract non-compliance, so that the Project Manager can assess the need for payment to be withheld or for a stop-work order to be issued.
- Facilitating site access and work by the Contractors.
- Assisting the PANYNJ as requested with environmental permit/regulatory support, including site inspections by regulatory agencies.
- Timely communication of environmental compliance issues to the PANYNJ.
- Tracking and identifying any hazardous waste issues on the work site.
- Ensuring effective written communication with the Contractor, transmittal of information on environmental requirements and compliance.
- Enforcing the contract language that clearly states that the Contractor is responsible for complying with all federal, state and local environmental regulations and plans and procedures.
- Transmitting Deficiency Reports and Corrective Action Reports to the Project Manager.
- Notifying the Contractor of withheld payments or stop-work orders for non-compliance with contract and environmental requirements.
- Requiring that the Contractor submit information on their activities, which involve the use or generation of hazardous substances and wastes, or that, can potentially violate the provisions of existing permits, or that have the potential to detrimentally effect the environment.
- Informing the Contractors that if they must acquire, handle, transport and/or store regulated substances (e.g., hazardous wastes), which trigger worker health or safety and/or environmental concerns, such substances must be treated in a safe, appropriate manner as defined by the applicable laws and regulations and the project-specific plans/procedures.

3.4 Project Historic Architect

Prior to construction, PANYNJ will retain a Project Historic Architect (PHA) throughout the period of design and active construction that might impact historic properties adjacent to the Project or remaining historic structural elements or as otherwise agreed to by the PANYNJ and the New York State Historic Preservation Officer (SHPO).

The PHA will meet the U.S. Secretary of the Interior's professional qualifications standards (48 F.R. 44716). The PHA will provide professional advice and counsel to the Chief Engineer of the PANYNJ or the Engineer's designee (RE) regarding the management and implementation of this CPP.

The PHA, in consultation with the chief engineer of PANYNJ or his designee, will be empowered to issue "stop work" orders with respect to the Project to prevent unanticipated damage to Historic Properties adjacent to the Project or remaining structural elements and any recommencement of work shall only be permitted at such time that the Engineer and the PHA determine that the appropriate modifications have been made to assure that no damage will occur to Historic Properties adjacent to the Project or remaining historic structural elements. The RPP (Appendix B) outlines the qualifications and role of the PHA.

3.5 Interested Parties

PANYNJ furnished copies of this CPP to SHPO, the Advisory Council on Historic Preservation (ACHP) and the Project's Section 106 Consulting Parties for review and comment with respect to the Project in accordance with the MOA. The Consulting Parties had 21 calendar days in which to comment on the CPP with respect to the Project and SHPO and ACHP had 30 calendar days. Following the comment period, PANYNJ will consider all comments received with respect to the Project and will prepare an updated CPP if necessary. The CPP for the Project will be in place prior to the commencement of construction activities for the Project that could affect historic properties adjacent to the Project.

4 ENVIRONMENTAL MANAGEMENT CONTROLS

4.1 Environmental Compliance Process

Throughout the course of planning the Federally-funded Lower Manhattan Recovery Projects, PANYNJ, the Metropolitan Transportation Authority/New York City Transit (MTA/NYCT), The New York State Department of Transportation (NYSDOT) and the Lower Manhattan Development Corporation (LMDC) have worked together to establish a common approach for ensuring compliance with Federal environmental requirements. The goal of this collaborative approach was to minimize cumulative environmental impacts in the area's residential and business communities during construction of these vital projects.

The above public agency sponsors declared their commitment to the Environmental Analysis Framework and implemented EPCs for the Lower Manhattan Recovery Projects. The EPCs represent an advanced set of mitigation measures committed to by the project sponsors to avoid or minimize adverse cumulative effects of construction on sensitive resources. The Project's EPCs were incorporated into the environmental analyses and became part of the overall environmental record.

Consistency among project sponsors in implementing the EPCs ensures that the intended environmental benefits are uniformly achieved. The level of coordination that took place during the environmental analysis processes is being carried forward during the construction phases of project development. FTA, the project sponsors and the Lower Manhattan Construction Coordination Center (LMCCC) have worked together to coordinate EPC implementation and verification using common procedures among the project sponsors.

The environmental management objectives of this CPP will be achieved through:

- Incorporation of all applicable environmental requirements (e.g., EPCs, commitments in the EA, FONSI, RPP and MOA, permit conditions, laws/regulations, community commitments) into project design specifications, construction planning and construction contract documents;
- Promotion of environmental awareness among all project participants;
- Regular, ongoing coordination with LMCCC and comprehensive oversight of all construction activities and their cumulative effect, to help ensure and enhance environmental quality;
- Regular, open and timely interface and communication with PANYNJ and regulatory agencies; and
- Establishment of procedures, responsibilities and accountability for project-wide environmental compliance and problem resolution.

The process for achieving these objectives includes:

- Tracking project commitments and documents;
- Reviewing project designs and construction planning for environmental elements and mitigation measures tailored to the particular work sites;
- Applying environmental technical expertise and problem-solving capability as required;
- Inspecting and managing site environmental compliance by contractors; and
- Communicating with appropriate stakeholders.

4.2 Compliance Tracking and Reports

Environmental restrictions and measures to mitigate adverse effects to the environment have been identified and are described in the Project's FONSI. This CPP summarizes the requirements and types of actions necessary for achieving compliance. Incorporation of commitments into construction planning and field implementation will be tracked. This CPP is a living document that will be updated as contracts are refined, design evolves and additional information becomes available. Although PANYNJ is exempt from acquiring local permits, the Project's construction will be coordinated with city agencies and will comply with local requirements as necessary.

4.3 Environmental Specifications and Construction Planning

Environmental requirements are being incorporated into design and construction specifications and planning. Design and construction personnel and the Contractor will be familiar with Project commitments and requirements for the locations where they are working. They will incorporate and tailor mitigation measures to particular work site locations as required and appropriate.

As part of construction planning, numerous and detailed construction work plans will be sequentially prepared that cover specific portions of the Project. These plans will identify key construction activities, staging sequence, schedules, and work locations within specific work sites.

Construction planning compliance with environmental requirements and mitigation measures will be assessed by the PANYNJ prior to the commencement of any major construction activity or work at any new construction site. The Contractor will confirm Contractor awareness of these environmental requirements. (For the Programmatic EPC Specification, See Appendix D.)

4.4 Environmental Quality Assurance Inspections

The RE will be responsible for conducting daily field inspections of construction activities in a quality assurance (QA) role. As part of that inspection, they will confirm that work areas remain in compliance with all applicable permit conditions, project commitments, contract specifications, and contractual obligations in accordance with the FONSI, MOA, RPP and applicable Federal, State and Local laws and regulations. The RE will have the authority to stop work if environmental non-compliance is observed and the Contractor does not correct the deficiency. A daily Field Logbook will be used by the RE (or designated inspector(s)) to document observations, including those related to environmental compliance.

The RE (or designated inspector(s)) will give verbal direction on-site to the applicable contractor to initiate corrective actions when problems are observed. Copies of all daily Field Logbooks will be available for review in the RE's office. In circumstances where repeated or serious problems are observed, the RE (or designated inspector(s)) will prepare a Deficiency Report for transmittal by the Subcontracts Administrator to the offending Contractor. Corrective actions and the applicable permit or contract condition will be cited on the Deficiency Reports. Upon initiation of corrective action the RE will inspect the site and sign a copy of the Deficiency Report, confirming that compliance has been achieved.

The RE will review anticipated work with the Contractors as part of the inspection process, so that the need for mitigation measures can be effectively recognized, planned and implemented in advance.

4.5 Health and Safety Plan

The Contractor will be responsible to submit a Health and Safety Plan to the PANYNJ for review and approval. The HASP will be approved prior to the start of construction activities.

5 ENVIRONMENTAL CONTROLS

5.1 Community Outreach

The objective of the community outreach program is to encourage an exchange of ideas and information on issues related to the Project and to generate interest in and support for the Project. This effort will be performed in concert and coordination with the Lower Manhattan Construction Coordination Center (LMCCC). Contact with elected officials and federal, state and local agencies is the responsibility of the PANYNJ. The goals of the program are to:

- Educate the public about the Project in general; and
- Provide a forum for gathering information, identifying and resolving public issues and concerns as they arise;

Ongoing Communication

The outreach effort may include any or all of the following methods for maintaining ongoing communications with the public:

- Website & Newsletters;
- E-mail notifications; and/or
- Meetings with appropriate stakeholders.

5.2 Historic Resources

5.2.1 Memorandum of Agreement and WTC Site Resource Protection Plan

The Project's MOA is included in Appendix B and the RPP is included in Appendix C and are incorporated and a part of this CPP.

5.2.2 Historic Element Emergency Remediation Plans

In accordance with the RPP, the purpose of the Emergency Remediation Plan is to outline procedures to be followed should an unforeseen condition or unanticipated damage arise that compromises or places at risk any historic elements on the World Trade Center Site.

East, West, and South Slurry Walls

Potential hazards to the east, west, and south slurry walls and proposed mitigations are anticipated to consist of, but are not necessarily limited to, the items listed below. The Contractor will supplement this list and submit plans as necessary for review and approval by PANYNJ and the PHA.

- 1) Hazardous material release (spill/leak), such as gasoline, motor oil, hydraulic fluid, or other chemical-based or petroleum-based products against the east or west slurry walls. In the event of a hazardous material release during the performance of any work under this contract the Contractor has been directed to stop all work and notify the RE immediately. Upon the receipt of such notification, the RE shall immediately communicate the incident in accordance with the following "WTC Site Hazardous Material\Chemical Release Response Flowchart," notify the PHA and direct the Contractor to proceed as follows:
 - a. Contain the release with appropriate means approved by the RE;
 - b. Provide positive identification to the RE of the materials released onto the east slurry wall, including the presence of any organic impurities present in the release;
 - c. The RE will issue a directive outlining the clean-up procedure to the Contractor; and

- d. Immediately proceed with the clean-up process.
- 2) Inadvertent damage to the concrete slab comprising the top of the east or west slurry walls at the point of attachment to concrete sections scheduled for demolition.
 - a. Secure the adjacent area to ensure the safety of persons, the integrity of materials and equipment, and immediately notify the RE;
 - b. Except in cases of emergency, leave cracked or damaged pieces of east slurry wall concrete in place for inspection by the RE and PHA;
 - c. The RE and PHA will provide the Contractor with specifications for the consolidation or epoxy repair of broken or damaged pieces of east slurry wall concrete; and
 - d. Implement said procedures to the satisfaction of the RE and PHA.

5.3 Noise Control

The Project's construction noise levels will exceed FTA's recommended 30-day threshold for residential uses near the project site. To minimize potential construction impacts, PANYNJ has incorporated EPCs into the contract specifications. The EPCs include the following:

- Where practicable, individual Project construction activities will be scheduled to avoid or minimize adverse impacts;
- The condition of surrounding buildings, structures, infrastructure and utilities shall be considered, where appropriate; and
- Contingency measures such as sequencing operations, construction alternative methods and source reduction measures, will be prepared in the event established limits are exceeded.

Several potential measures have been identified to mitigate airborne noise, ground-borne noise, and vibration impacts identified in the FONSI. A Noise and Vibration Plan will be developed by the Contractor prior to construction and implemented throughout the construction to minimize airborne noise impacts. Typical elements of the Noise and Vibration Plan may include:

- Source Limits and Performance Standards to meet noise level thresholds for daytime, evening and nighttime hours at sensitive land uses adjacent to the Project site;
- Design considerations and project layout approaches, including measures such as the construction of temporary noise barriers and placing construction equipment farther from noise-sensitive receptors;
- Community Liaison and Compliance Hot Line;
- Alternative construction methods, using special low noise emission level equipment and selecting and specifying quieter demolition or deconstruction methods will also be included; and
- A program to monitor noise during construction.

Noise mitigation measures will be coordinated with LMCCC. The Contractor will implement mitigation measures to limit noise levels and control nuisance noise during construction operations.

The Contractor will also schedule and conduct operations in a manner that will minimize, to the greatest extent feasible, the disturbance to the public areas adjacent to the work and to occupants of the buildings in the vicinity of the construction sites.

Specific noise reduction methods to be used by the Contractor may include:

- Use of concrete crushers or pavement saws for concrete deck removal, demolitions, or similar construction activity;
- Pre-auguring equipment to reduce the duration of impact or vibratory pile driving;
- Use of local power grid to reduce the use of generators;
- Attaching intake and exhaust mufflers, shields, or shrouds;
- Noise-deadening material to line inside of hoppers, conveyor transfer points, or chutes;
- Lining hoppers with rubber to reduce impact noise from rock and enclose truck area below hopper or enclose both hopper and truck;
- Noise barriers, screens or enclosures to reduce the noise from activities such as spoil being loaded into trucks, concrete trucks mixing concrete;
- Use jersey barriers with a 6-8 foot barrier on top to mitigate noise at street level;
- Restrict hours of operation whenever possible, so work does not occur between 10 pm and 7 am;
- Fit jackhammer, air compressors, generators, light plant and cranes with silencer and use noise tents around workers with jackhammers;
- Clad crane with timber paneling and possibly locate ventilation fans, dewatering pumps, air compressors and generators in the tunnel; and
- Use alternative piling techniques such as bored or augured piling rather than impact piling.

5.4 Vibration Control

This CPP addresses the implementation of vibration protection measures to protect Historic Properties adjacent to the Project from increased vibration levels associated with construction activities. This CPP is based on the requirements laid out in the “New York City Department of Buildings Technical Policy and Procedure Notice (“PPN”) #10/88” regarding procedures for the avoidance of damage to historic structures resulting from adjacent construction. The PPN defines an adjacent historic structure as being contiguous to or within a lateral distance of 90 feet from a lot under development or alteration. For the historic buildings identified in the MOA, the vibration protection measures limit allowable vibration levels below the FTA vibration damage threshold criterion of 0.12 in/sec (approximately 95 VdB).

Vibration created by the Project construction may adversely impact five Historic Properties adjacent to the Project within 90 feet of the construction zone. As described in the Project’s MOA, these Historic Properties include:

- 90 West Street;
- St. Paul’s Chapel and Graveyard;
- The Former East River Savings Bank (26 Cortlandt Street);
- The Beard Building (125 Cedar Street); and
- 114 – 118 Liberty Street.

The Project will not result in any operational vibration impacts for uses planned on the WTC Site.

The Project will implement a proactive approach to reduce vibration levels and the possibility of community complaints during construction activities. The RE and the Contractor will keep residents and businesses abutting the work site properly informed of the period of impact and

the mitigation methods to be used. The description of the responsibility of PANYNJ and the Contractor are as follows:

- Pre-construction surveys of the Historic Properties likely to be affected adversely by construction activities will be performed and threshold or limiting values will be established to withstand the loads and displacements due to construction vibrations;
- Prior to construction, the Contractor will develop site-specific Vibration Control Plans;
- Construction mitigation will be established for each structure; and
- Construction vibration levels affecting Historic Properties adjacent to the Project will be monitored. A vibration-monitoring program to measure vertical and lateral movement and vibration during nearby construction activities will be developed. Details as to the frequency and duration of the vibration monitoring program will be determined as part of the Project's on-going consultation process with the SHPO, however at a minimum the following monitors will be implemented:
 - During construction, vibration level measurements will be taken at vibration-sensitive locations during ongoing construction activities at applicable daytime, evening and nighttime periods;
 - Background and construction vibration data will be monitored and recorded. A sketch or diagram for the exact location of the vibration measurement, construction equipment operating during the monitoring period and other activities occurring at the same time will be provided;
 - If vibration exceedances are observed, the Contractor will promptly perform vibration measurements at the complainant's location during activities representative of the offending operation. The complaint response measurement will be immediately submitted to the RE. In the event that the measured level exceeds allowable limits or results in nuisance conditions, the Contractor will be instructed to immediately implement vibration reduction controls;
 - Prior to construction, the Contractor will identify which industry standard Best Management Practices will be implemented to limit vibration impacts (particularly nuisance vibration); and
 - Oversight of Contractor's vibration monitoring program will be provided by the RE.

The types of mitigation measures to be implemented by the Contractor on a site-specific basis may include, but will not be limited to, the following:

- Use of deep saw-cuts to minimize the transmission of vibrations from pavement-breaking operations to foundations of nearby structures;
- Use of concrete cutters on pavement surfaces instead of pavement breakers, where practical;
- Use of vibratory rather than impact pile drivers where feasible for installation of retaining walls and other structural elements;
- Routing of truck traffic and heavy equipment to avoid impacts to sensitive receptors;
- Conduct vibration monitoring during highly disruptive construction activities, such as pile driving and drilling, particularly if situated within 90 feet of a sensitive receptor;
- Properly securing street decking over cut-and-cover excavations;
- Scheduling of work to limit nighttime impacts on residential areas;

- Heightened attention and controls when working near Historic Properties adjacent to the Project; and
- Minimization of the duration of vibration impacts.

If the Contractor receives a complaint regarding construction noise or vibration, they shall immediately notify the RE. The Contractor will promptly respond with feasible and appropriate mitigation measures on receipt of community complaints.

If vibrations created by the Contractor allegedly adversely impact the historic properties, the following process will be applied to assess/mitigate/repair the damage:

- Property owners will have a period of 12 months following completion of construction to file a claim with PANYNJ for property damage as it affects the structure's historic integrity allegedly caused by the Project;
- Property owners will be advised of their rights to make claims by written notice or on the Project website;
- Claims of damage to a Historic Property will be directed to the PANYNJ or the Contractor. PANYNJ will respond to the within 45 calendar days from the receipt of the claim; and
- After an investigation, if the PANYNJ determines that damage to the property was caused by Project construction vibration, PANYNJ, after consultation with SHPO, will repair damage to Historic Properties that is reasonably attributable to Project vibration activities.

5.5 Traffic Management

Traffic Management for the Project includes public roadways and sidewalks and the maintenance of access to residences, businesses, and public service throughout the Project site. Vehicular, pedestrian and surface transit traffic will be impacted at a number of locations; however, such impacts will be minimized through the development of Maintenance of Traffic Plans.

Maintenance and Protection of Traffic (MPT) Plans will be prepared to provide specific guidance on traffic management for various portions of the construction zones and construction staging areas. Access to cultural sites near the Project Site will be maintained to the maximum extent feasible as part of the MPT plan. MPT plans will be coordinated with LMCCC and will be modified, as necessary, to coordinate with other project street and sidewalk closures.

5.5.1 Vehicular Traffic

The contractor will use standard traffic engineering improvements for mitigation of intersection and local construction impacts. The types of mitigation measures to be implemented by the contractor will be based on the Project's FONSI as well as the approved MPT plan, on a site-specific basis and will include:

- Advance public notice to motorists of the nature, extent and duration of lane closings and detours;
- Detour signage placed in strategic locations and use of appropriate warning signs;
- Construction during off-peak hours whenever feasible;
- Efforts to minimize disruption of access to residences and businesses; maintenance of at least one entrance to a property where multiple entrances exist;
- Coordination with other projects through LMCCC to minimize the potential to impact roadways and create cumulative effects;

- Parking policies for construction workers that will help minimize impacts to residences and businesses. Encourage contractors, inspectors and other personnel to use mass transit and dissuade the use of private vehicles in Lower Manhattan;
- Installation of signage and barriers for protecting and guiding pedestrians;
- Relocation of bus stops at construction sites to minimize the impacts on surface transit passengers; and
- Removal of curbside parking where necessary at construction zones to provide maximum road width traffic lanes. Loading and unloading areas will be relocated to minimize impact on businesses in the areas.

5.5.2 Pedestrians

During a period of the Project's construction, PANYNJ will divert pedestrians from Liberty Street to Albany Street. The Liberty Street pedestrian bridge over Route 9A will be maintained at its current location, but a new stairway will be constructed at its eastern terminus to redirect pedestrians south along Route 9A. At Albany Street, pedestrians will be able to travel east to reach Church Street. Measures to protect pedestrians during construction will include the following:

- Within construction areas, pedestrian sidewalks shall not be reduced to widths narrower than 5-feet;
- Physical separation will be provided between the construction zone and the sidewalks. Separation will consist of concrete barriers, wood fencing or protective mesh fencing; and
- Coordinate any required pedestrian diversions with LMCCC.

5.6 Air Quality

See Appendix D for the EPC Specifications, which includes the following:

- Use ultra low sulfur diesel (ULSD) fuel for all non-road vehicles that operate with diesel engines.
- Develop a plan with Con Edison, as appropriate, to disperse grid power throughout the construction zone for the Preferred Alternative. In contract documents, require all contractors and subcontractors to use electrically powered equipment for air compressors, pumps, mixing, desanding and grout plants, welding machines, and any other diesel powered equipment that can be replaced with an electrically powered version.
- Use of post-1995 fuel injection engines, which meet the Tier II engine emissions standards, as defined in Title 40, Part 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 would submit a request for an exception for review and approval prior to implementation.
- Use of Diesel Particle Filters (DPFs) or other measures with equivalent particulate matter removal efficiency for all nonroad diesel engines of 50 horsepower or greater. In cases where DPFs would not be feasible for safety considerations, mechanical reasons, or where the technology would not function properly, the contractor would submit a request for an exception for review and approval prior to implementation, and in these cases, Diesel Oxidation Catalysts (DOCs) may be used. Only in cases where, for technical reasons, neither DPFs or DOCs can be used effectively, and where the operation cannot be performed by another engine or other means, would the use of diesel engines greater than

50 horsepower be allowed without tailpipe reduction measures, subject to the above-described approval process.

- Prepare a Diesel Emission Mitigation Plan that shall address the control of emissions from all engines and vehicles including those that are not equipped with emission control devices. The Plan would limit idling times on diesel powered engines to 3 minutes and would require that contractors locate diesel powered engines away from fresh air intakes.
- Require contractors to submit a Dust Control Plan. Among other things, the Plan would contain protocols and procedures for the spraying of dust piles, containment of fugitive dust, and appropriate adjustment measures to accommodate changes in meteorological conditions.
- Continue to investigate additional means (e.g., fuel emulsions) to reduce NO_x (NO and NO₂) emissions, but it is not yet known whether these measures would reduce the effectiveness of the above described mitigation. Therefore, specific means to further reduce NO_x have not been identified at this time. If this investigation results in additional means to reduce NO_x without jeopardizing the particulate matter reduction measures, and if other constraints such as technological availability are resolved, then these additional mitigation techniques would be implemented, as appropriate.
- Implement verification procedures through construction specifications and contract documents. Verify mitigation and identify opportunities to expand its implementation as part of its ongoing oversight and auditing of the Project's construction. Implement project-specific verification procedures in accordance with decisions of the LMCCC, including procedures for reporting updates to the public. Implementation and verification procedures should be carried out consistent with the Common Implementation and Verification Procedures contained in the letter dated April 21, 2006 (see Appendix E).

5.7 Dust Control

Dust control measures to protect air quality will be implemented by the Contractor for construction, earthmoving and trucking operations (see Appendix D for the EPC Specifications). The Contractor will pursue aggressive measures to control dust during construction with the preparation of a dust control plan. The dust suppression program will be approved and monitored by PANYNJ.

Dust control measures to protect air quality will also be developed and implemented by the Contractor for earthmoving and trucking operations. Contractor air quality mitigation measures will be tailored to the specific work-site conditions. The RE will oversee the Contractor's Best Management Practices to reduce dust. The Contractor will implement Best Management Practices and the methods described below:

- All vehicles transporting soil to/from the work sites will have their loads covered to minimize spillage and fugitive dust;
- Gravel cover will be applied to soil (unpaved) surfaces where they will be regularly traveled at egress and ingress routes from/to work sites; wheels will be cleaned as necessary prior to leaving sites to control tracking;
- Water or a dust/erosion control agent will be applied as necessary by truck to unpaved surfaces used for trucking during dry weather conditions, with adequate frequency to limit the generation of dust from vehicle traffic;
- Implement appropriate measures to prevent deposits of material on public ways. All materials deposited on public roadways and sidewalks from construction-related activities will be cleaned up within one day or sooner except in designated lay-down areas. Laborers

and/or street-sweeping equipment will be available and used where necessary to clean paved surfaces;

- All piles of soil and aggregate that could cause fugitive dust generation through wind erosion will be covered with a tarp or watered-down regularly. Contractors will be responsible for monitoring and controlling dust generation from their specific work areas and materials;
- All stockpiles of soils designated for reuse will be placed on and covered with, waterproof material until removed for placement elsewhere; and
- Dust screens will be used as feasible where added dust controls are needed when work abuts sensitive receptors.

The Contractor will employ the following materials handling method:

- Reduce the amount/frequency of material handling operations (i.e., avoid multiple handling of materials);
- Minimize the frequency of stockpile disturbance and the size of areas disturbed;
- Reduce material drop height when loading-out to stockpiles and trucks;
- All vehicles traveling onsite must obey appropriate speed limits for safety and to minimize dust generation; and
- Established truck routes will be used to minimize impacts to local residents and businesses.

The RE field staff will provide daily visual monitoring of work site conditions to give direction for implementation of mitigation measures, where needed, if the cumulative affect of construction produces unacceptable conditions.

5.8 Settlement

A comprehensive settlement-monitoring program will be prepared by the PANYNJ. A pre-construction survey is underway in all existing nearby buildings to document baseline conditions. Criteria established by the PANYNJ will define the limits of acceptable ground movements and levels of ground movements for which remedial or mitigation measures will be considered. To apply these criteria, the Contractor will implement the monitoring program in order to measure ground movements, movements of existing facilities and groundwater levels, including surface and deep settlement points, before, during and after construction.

Oversight geotechnical monitoring by the RE will be undertaken, to ensure that settlement criteria are being met. The RE will have the authority to enforce continued work shutdown until correct conditions are re-established.

5.9 Sediment/Erosion Control and Water Quality

During construction, Best Management Practices will be employed to minimize soil erosion and other effects of stormwater run-off. Best Management Practices, appropriate to site conditions, may include:

- Minimization of the acreage of bare soils and the duration that are exposed;
- Use of silt fence, hay bale barriers and other physical controls;
- Controls at catch basins to help protect against turbid water inflow;
- Seeding with appropriate materials and at correct times of the year to stabilize slopes;
- Use of storm-water basins to collect and control runoff;
- Minimizing water flow where it has the potential to cause erosion;

- Containment around soil stockpiles;
- Containment to prevent raw concrete or grout from contacting waterways;
- Control of suspended solids during dewatering operations using filtration methods, proper flow rates, settling basins, or sedimentation tanks;
- Use of silt curtains along shorelines of waterways where appropriate during work;
- Minimization of equipment operations in and near waterways; and
- On-going maintenance of sediment and erosion controls.

Dewatering will be performed according to permit conditions and to discharge points acceptable to either the New York City Department of Environmental Protection or the New York State Department of Environmental Conservation, as appropriate. Filtration methods, sedimentation basins, controlled pumping rates and protection of catch basins with filter fabric and/or hay bales will be used to limit discharge of suspended solids into storm drains and surface waters. Control methods will be checked and monitored daily during active dewatering and adjusted or replaced when needed.

Appendix A
World Trade Center Vehicular Security Center and Tour Bus
Parking Facility
Finding of No Significant Impact

Appendix B
Memorandum of Agreement among the Federal Transit
Administration, the Advisory Council on Historic
Preservation, the New York State Historic Preservation
Office, and the Port Authority of New York and New Jersey
pursuant to Section 106 of the National Historic Preservation
Act

Appendix C
World Trade Center Site
Resource Protection Plan

Appendix D

Environmental Performance Commitment Specifications

Appendix E
Environmental Performance Commitment Implementation
and Verification Procedures