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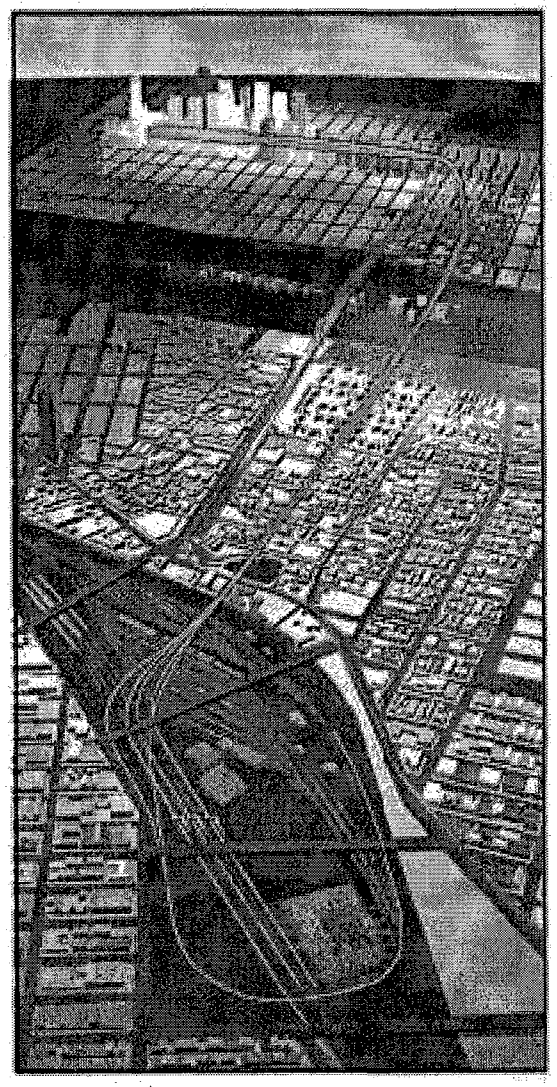

MTA Long Island Rail Road

East Side Access

CONSTRUCTION SAFETY AND HEALTH PLAN

June 2001 (Rev 0)

Metropolitan Transportation Authority
State of New York

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LIST OF EXHIBITS

1.1 CONSTRUCTION SAFETY AND HEALTH POLICY

The safety requirements of this plan reflect the determination of the MTA to prevent injuries and illnesses to persons and damage to property and equipment during construction activities contracted by the MTA. It is the stated goal of the MTA and the expected goal of all consultants, contractors, vendors and/or others doing business with the MTA.

The MTA considers no phase of construction or administration of greater importance than accident prevention. Incidents resulting in personal injury or illness to employees or the general public, and/or damage to property and or equipment represent needless waste and loss. It is the policy of the MTA to conduct all operations safely and thereby prevent injuries, illnesses and property damage.

Planning for safety shall start with design and continue through purchasing, fabrication and construction. All practical steps shall be taken to maintain a safe and healthful place of employment. The contractors shall be responsible for the prevention of incidents, injuries and illnesses on all work under their direction and shall be responsible for the thorough safety and loss control training and instruction of their employees.

The objectives of this Construction Safety and Health Plan are first, the promotion of the attitude that injuries, illnesses and loss are not "an acceptable part of the work" in construction. Second, that the prevention of injuries, illnesses and the protection of employees and property are a fundamental value and therefore shall receive top priority, support, and the participation of senior MTA Management and staff as well as that of all parties involved in construction.

ESA MANAGEMENT STATEMENT

Safety and Health is of great importance to the successful completion of the ESA Project. The MTA/LIRR Chief Program Executive, has described the ESA philosophy in the following statement:

To: All Project Personnel

The East Side Access Project Management Team (PMT) is committed to providing a safe and healthy work environment for every worker on the Project. In addition, work practices must be developed and utilized that will minimize the impact to the worker and the environment from project related tasks.

The PMT and every consultant/contractor who performs work on the East Side Access Project must be dedicated to the concept that all incidents are preventable. Accordingly, ESA Project has adopted a zero tolerance accident philosophy that will be sustained through work planning, training, accountability, and continuous improvement. The Project's priority is to provide a workplace free of hazards and to reduce employee "at risk" behavior, thereby eliminating near misses, injuries, and illnesses and sustaining full compliance with safety and health requirements. This includes limiting the impact of the Project on the environment.

Chief Program Executive

ESA ZERO ACCIDENT POLICY

In compliance with ESA Safety & Health philosophy, it is the ESA Project policy that worker safety and health is a fundamental core value in how we conduct business. Each Consultant/Contractor shall adopt a "Zero Accident Policy" that incorporates the following four guiding principles into its S&H program:

- All accidents/incidents are presumed preventable
- Open communication will be fostered at all levels
- Teamwork, innovation, employee participation, and individual initiative will be encouraged
- Adequate resources to implement the S&H program will be provided

The "Zero Accident" philosophy shall be established in the consultant/contractor work planning documents and be consistently and routinely incorporated in training and general communications with its employees.

1.2 PURPOSE AND SCOPE

The purpose of this plan is to establish a practical and effective program for the prevention of and response to incidents, illnesses and injuries, and to assign specific responsibilities to contractors for program development and compliance.

This basic safety program has been designed to assist all contractors and their supervisors in the recognition, evaluation and control of hazardous activities or conditions within their respective areas of contract responsibility.

The minimum incident and injury prevention efforts expected from each contractor are indicated in the following sections. Activities or conditions that do not meet these minimums as determined by the MTA shall be considered not in compliance with this contract. The contractor immediately upon notification shall correct such activities by the MTA.

Strict compliance with the provisions of this plan and corrective actions by the contractor as determined by the MTA shall be considered part of the original scope of work and shall not delay the schedule for performance of work by the contractor.

No declaration, act, or omission of the MTA or its authorized representatives, will be deemed to exempt, either wholly or in part, expressly or by implication, any contractor or the contractor's place of employment, on MTA contracts, from full compliance with the terms of any safety regulation as stated by the federal government, the state of New York, the city of New York or other jurisdictions applicable to the contractor's work package on the East Side Access project.

A list of abbreviations and definitions can be found in Tables 1 and 2.

1.3 PROGRAM OBJECTIVES

The overall objective of this program is to establish the concept that people, not property are our most important assets. Worker and public safety and health is a core value in how we conduct business.

All project safety and loss control efforts shall be directed towards the elimination of personal injuries, illnesses and damage to property, and minimizing the effects of incidents on both the individuals and on the project.

Specific objectives of the program are:

- The elimination of worker injuries and illnesses during construction activities on the project
- The prevention of injuries and illnesses to members of the public during construction activities on the project. The prevention of damage to private property arising out of construction operations
- Increased efficiency and cost reductions
- Compliance with all contractual and statutory requirements
- Maintenance of favorable labor and community relations
- Maintain effective relationships with regulatory agencies
- Avoidance of penalties

1.4 PROGRAM EFFECTIVENESS

The effectiveness of the MTA construction safety program depends on the active participation and cooperation of personnel assigned to the project. It is the responsibility of all assigned personnel to carry out the following:

- Proper planning of all work to minimize the potential for and maximize the prevention of personal injury, illness, property damages and loss of productive efforts
- Establish and maintain a safety and health program that will provide early detection and correction of unsafe practices and conditions
- Provide adequate protection of adjacent public and private properties to provide for the safety of the public
- Establish and implement safety education and incentive programs that focus on the following:
  - Employee indoctrination

- Safety meetings and safety communications
- Safety instruction to individual employees and group safety training
- Identification and elimination of unsafe behaviors and actions
- Communicating Lessons Learned from investigation of incidents
- Awareness of hazards and appropriate control measures, and
- Programs to provide recognition and appropriate rewards to employees for working safely and for actively participating in accident prevention

1.5 ORGANIZATION AND ADMINISTRATION

1.5.1 Administration

The MTA, through this document, is establishing performance standards for safety during the course of the project. Oversight of these standards shall be by the MTA through the Construction Manager.

The MTA will oversee individual contractor performance for compliance with all applicable federal, state, local and MTA safety and environmental requirements. The MTA will monitor for compliance, all construction safety and health matters on the jobsite; and will, through the Resident Engineer, hold each contractor responsible for all safety, health, and contractual requirements. Each contractor shall be held accountable for the safe and healthful performance of work by their employees and all subcontractors, regardless of tier.

Each contractor is directly responsible for the implementation and administration of MTA's safety and health programs and all federal, state, and local regulations applicable to its own operations and those of its subcontractors regardless of tier. Each prime contractor shall have a full-time on-site Lead Safety Engineer or Safety Representative as indicated in the Technical Specifications Section of the Contract. Prior to commencement of work, contractor's Project Manager, Superintendent and Safety Engineer shall attend a safety indoctrination and coordination conference with the Safety Manager, Resident Engineer, and OCIP Administrator.

To assist contractors in fulfilling their responsibility, the Construction Manager shall conduct safety audits.

The OCIP Administrator and other designated safety personnel may also conduct periodic loss control surveys.

Whenever a violation of job safety is observed, the contractor will be notified, verbally and/or in writing, to correct the violation. The contractor shall respond in writing within 24 hours of receipt of a written notice. Immediate corrective action of the safety hazard shall be taken.

Table 1 - Acronyms and Abbreviations

Abbreviation/Acronym	Definition
AED	Automated External Defibrillator
AMTRAK	National Passenger Rail Corporation
ANSI	American National Standards Institute
CFR	Code of Federal Regulations
CM	Construction Manager
CPR	Cardio-Pulmonary Resuscitation
CSEP	Construction Safety Education Program
CSHP	Construction Safety and Health Plan
CSPP	Confined Space Permit Policy
DOT	Department of Transportation
DSR	Designated Safety Representative
EMT	Emergency Medical Technician
EPA	Environmental Protection Agency
FC	Foot Candles
FDNY	New York City Fire Department
GFCI	Ground-Fault Circuit Interrupter
JHA	Job Hazard Analysis
LEL	Lower Explosive Limit
LIRR	MTA Long Island Rail Road
MNR	MTA Metro-North Railroad
MPH	Miles per hour
MSDS	Material Safety Data Sheet
MTA	Metropolitan Transportation Authority
NEC	National Electric Code
NFPA	National Fire Protection Association
NIOSH	National Institute of Occupational Safety and Health
NTP	Notice To Proceed
NYCDEP	New York City Department of Environmental Protection
NYCDOT	New York City Department of Transportation
NYCT	MTA New York City Transit
OCIP	Owner Controlled Insurance Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limits
PSI	Pounds Per Square Inch
RE	Resident Engineer
SCBA	Self-Contained Breathing Apparatus
SE	Safety Engineer
SR	Safety Representative
TBM	Tunnel Boring Machine
EPBM	Earth Pressure Balance Machine

Table 2 - Definitions

Terms	Definitions
Alternate Safety Coverage Policy	A Policy for providing adequate safety supervisory coverage for small work crews or in the event of the absence of the regularly employed Safety Engineer. See Section 2.1.
Anti-two block	Device on a crane which prevents the operator from moving the hook into the blocks.
Air-Lock	A chamber through which employees pass from one air pressure environment to another. Also known as a man lock.
Authority	The MTA and its affiliated agencies.
Competent Person	A competent person is one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
Construction Manager	The firm responsible for construction management of the ESA on behalf of the MTA.
Safety Manager	A staff member of the Construction Manager who is assigned to a particular set of contracts or a specific construction project. Construction Safety Engineers are directly supervised by the Construction Safety Manager.
Contract	A written agreement between the MTA and a prime contractor including executed modifications.
Designated Safety Representative	Individual meeting all requirements of Section 2.1 serving in lieu of the Lead Safety Engineer or Safety Engineer for short periods of time, or on non-repetitive off shifts involving small crew work coverage. (See Section 2.4 for complete details)
Falsework	The temporary structure erected to support work in the process of construction; composed of shoring or vertical posting, formwork for beams and slams, and lateral bracing.
Gas tester	Individual who works directly for the Contractor and is responsible for air monitoring.
Hot work	Any work involving a flame or producing a spark, such as the use of a torch, grinder or electric arc welder.
Insurance Administrator	Firm responsible for administering the OCIP for the MTA.
Safety Engineer (Heavy Civil)	Full-time employee of the contractor responsible for the implementation of the contractor's safety and health program. The individual shall possess at least five years of heavy construction safety experience, be familiar with occupational safety and health laws and regulations, and be currently certified in first-aid and CPR by the American Red Cross or

Terms	Definitions
	its equivalent.
Loss Control Coordinator	Individual from the insurance brokerage company.
Personnel Platform	Any platform or other working surface designed to be suspended from a crane while carrying personnel. These devices may be used to work from or they may be used to transport personnel from one point to another. Other names for these devices include, but are not limited to, man baskets, man cages, Work Platforms.
Project Manager (CM)	The construction manager's senior management official responsible for the project, beginning with pre-construction activities and extending to final completion of the work.
Project	MTA East Side Access (ESA).
Resident Engineer	The construction manager's field representative responsible for the completion of specific construction contracts. The Resident Engineer is responsible for directing the contractor with regard to compliance with Contract and Regulatory Safety Standards.
Safety Incentive Program	A contractual program included in large work load OCIP contracts to provide incentives to the contractor for working with the MTA to reduce injury costs.
Scaffolding	Any temporary elevated platform and its supporting structure used for supporting workmen or materials, or both.
Working Chamber	The space or compartment under air pressure in which the work is being done. Also known as the Compression chamber.

1.5.2 General Duty Statement

It is the duty of all supervisory personnel, regardless of their employer or contracting tier, to take all immediate corrective actions possible when they discover, or have reported to them, an unsafe or unhealthful condition or unsafe employee act on the ESA Project.

Contractors shall comply with the OSHA, Title 29 Code of Federal Regulations, New York State and City safety standards or the provisions of this contract which ever is most restrictive in regulating the safety conditions to be maintained in the work environment as determined by the MTA. The contractor recognizes that all government promulgated safety regulations are *minimum standards* and that additional safeguards may be required by the MTA to ensure worksite safety and prevent loss.

Strict compliance with all sections of this plan, as determined by the MTA, shall be considered part of the original scope of work and shall not delay the schedule for performance of work by the contractor.

Documents, reports and materials required by this plan to be completed, submitted, maintained in file or otherwise handled by the contractor shall be considered the property of

the MTA and shall be available at all times for review by the MTA without prior notice to the contractor. Where required by law, the contractor shall maintain a copy of these records for their purposes.

1.5.3 Safety Responsibilities

MTA

The MTA desires to ensure that all participants in MTA construction contracts observe the required safety standards in the performance of their work. The MTA goal is the effective execution of a comprehensive occupational safety, health, and environmental program that best serves the interests of all workers involved in the construction of the system and those of the general public. The implementation of and compliance with the MTA Safety and Health Program lies with the construction contractor. The MTA oversees the day-to-day management of the project's safety program as set forth in this Construction Safety and Health Plan. The MTA is responsible for:

- Monitoring the effectiveness of the contractor's safety and health program
- Requiring timely application of safety and injury and illness prevention procedures
- Reporting unsafe work conditions wherever observed to the contractor's Safety Engineer or to the project manager/superintendent for immediate corrective action
- Notifying the Resident Engineer (RE), in writing, of non-compliance with project safety and health requirements
- Notifying the MTA project management team of the names of contractors, subcontractors, or any individuals who continually or deliberately violate safety and health regulations and where appropriate, initiate action to remove an individual from the project
- Maintain a safety incentive program for contractors that meet or exceed the safety goals established for the project

Owner Controlled Insurance Program Administrator

The Owner Controlled Insurance Program Administrator (OCIP) Administrator performs a monitoring and support function for the MTA. The OCIP Administrator will coordinate resources (programmatic and personnel) with the Safety and Health Manager to maximize their effectiveness. The OCIP Administrator responsibilities include:

- Administration of the OCIP
- Review and evaluate loss performance in order to identify significant loss trends
- The loss control personnel directed by the OCIP Administrator have duties which include but are not limited to the following:

- Assist the MTA in support of the continued development and maintenance of the construction safety program
- Plan and coordinate future loss control activities
- Assist the MTA with on-site loss control audits by the MTA through monthly attendance for the Injury Audits with the insurance company's loss control consultant and the contractor
- Provide instructional and development support for the Construction Safety Education Program

Safety Manager

MTA Director, Construction Safety or designee shall perform the following functions;

- Daily management of the project's safety and health program
- Development of project safety and health programs
- Oversight of all construction safety and health activities
- Determination of compliance with all contract safety requirements

CM Safety Engineers

The MTA Construction Safety staff shall have the authority to issue stop-work orders to any contractor or subcontractor who fails, or refuses to take prompt corrective action when given notice of non-compliance with any applicable safety requirement.

Construction Safety staff shall perform the following functions:

- Review all contractors' safety and health programs and the qualifications of the contractors. Both the safety and health program and the Safety Engineer shall be accepted prior to the contractor commencing work on the project.
- Maintain a file of all safety inspections and of all written safety notices given to the contractors
- Receive copies of the contractor's initial and subsequent injury reports to ensure that they determine causes, corrective actions and actions to prevent a recurrence of the same or similar incident
- Report to the OCIP Administrator and MTA, damage, regardless of amount, to property belonging to the general public, as reported by contractor or person(s) involved
- Provide technical assistance to contractors and field safety personnel, including instruction, proper reporting, recordkeeping, or other safety and health procedures

- Review work areas on a regular basis as determined by the Safety Manager. These reviews shall be for the purposes of confirming contractor compliance and shall not be considered to be exhaustive or complete reviews of the entire worksite on any specific day. These reviews shall not relieve the contractor of the statutory and contractual obligation to identify and correct unsafe conditions or practices.
- Monitor the contractor's employee safety indoctrination program
- Attend contractor's weekly toolbox safety meetings on a periodic basis
- Notify the Resident Engineer (RE) in writing of any unsafe conditions
- Administer an MTA approved monthly safety audit program of contractor projects to determine compliance with MTA safety programs
- Through the Construction Safety Education Program, the MTA shall develop and disseminate construction safety information and training materials to the Construction Manager and contractors

Resident Engineer

The MTA, in association with the Resident Engineer shall oversee the contractor's timely application of safety and incident prevention procedures for all construction activities and all personnel on the project including subcontractors, visitors, and suppliers of materials or equipment.

The Resident Engineer or the Construction Manager's inspection staff shall report any unsafe working conditions verbally or via written notice to Safety Manager. The condition shall also be reported the to contractor's foreman, Safety Engineer, the Project Manager, and or General Superintendent. The contractor shall promptly correct the unsafe working conditions.

The MTA through the Resident Engineer shall recommend the temporary or permanent removal from all project sites any individual(s) who continually or deliberately violate safety requirements.

Contractor

The Construction Safety and Health Plan is an MTA contract document and contractors shall ensure that all employees, visitors, subcontractors, and their suppliers/vendors, while on the jobsite and in the conduct of MTA contracts, comply with the requirements of this document, OSHA Title 29 Code of Federal Regulations, whichever is most stringent in regulating the safety conditions to be maintained in the work environment. The contractor recognizes that all government promulgated safety regulations are *minimum standards.* Additional safeguards may be required by the MTA to ensure worksite safety and to prevent loss. The contractor is responsible for compliance with the injury prevention and safety requirements contained in its contract with the MTA and all safety related submittals. Compliance with the requirements of this paragraph shall be considered within the original scope of work and made without delaying the schedule for performance of work by the contractor. To achieve these

requirements, the contractor shall, within thirty (30) days of notice to proceed (NTP) or prior to the start of construction whichever comes first, submit to the MTA for review and acceptance, a contractor's S&H Plan including:

- The contractor's safety policy for compliance with the MTA construction safety program
- A detailed safety plan which reflects the contractor's intentions for full and complete compliance with MTA construction safety program and the provisions of its contract with the MTA
- A written statement that demonstrates the contractor's awareness and knowledge of all local, state and federal health and safety codes applicable to its contract with the MTA
- A written safety incentive program which involves all contractor and subcontractor employees

The contractor shall prepare and submit to the MTA all submittals indicated in this document and other submittals as required by the Resident Engineer for review and acceptance by the MTA. Compliance with the requirements of this paragraph shall be considered within the original scope of work and made without delaying the schedule for performance of work by the contractor.

The contractor shall notify the Resident Engineer immediately of inspections to be conducted at the work site by OSHA or any other federal, state or city safety, health or environmental organization/agency in accordance with the provisions of section 7.3.7.

When the contractor is issued a citation, order or warning by OSHA, or any other regulatory agency at any level of government, a copy of the citation and Notice of Proposed Penalty shall be forwarded to Resident Engineer within 24 hours. This requirement applies to all citations regardless of the contractor's plans to appeal the citation.

The contractor shall have at least one full-time on-site Safety Engineer whose duties are defined on page 13 and who shall be on-site when any work is in progress. Multiple shifts, weekends and holidays shall be covered by personnel as defined elsewhere in this plan.

The Safety Engineer shall have not less than five years of construction safety or construction safety related experience. Each Safety Engineer shall have successfully completed the 30-hour OSHA course on Construction Safety and Health (29 CFR 1926). All Safety Engineers shall possess current qualifications and certificates as defined elsewhere in this plan.

The Safety Engineer shall be charged with the responsibility of on-site safety coordination and shall be assigned full time to the contract and shall not be utilized on any other MTA contracts or other non-MTA contracts. He/she shall have the authority to direct the correction of unsafe conditions and unsafe practices, and shall be responsible for administering the required safety programs of the contract. The Safety Engineer shall have the authority to suspend work until unsafe conditions or practices are corrected.

The contractor will:

- Submit for acceptance to the MTA within thirty days of Notice of Award, a resume of each Safety Engineer proposed for assignment to the contract. The resume shall include a description of the duties, responsibilities, accomplishments, and safety record of preceding assignments from which the candidate has gained construction safety engineering experience.
- Establish and maintain an orientation program for all new employees in compliance with Section 3 of this plan
- Maintain qualified Gas Testers as required
- As required by this contract, have on-site at all times, monitoring and testing equipment for such things as, but not limited to, the following:
  - Noise
  - Gases
  - Air flow
  - Air quality
  - Lighting
- Have a bulletin board located in an area near the Contractor's field office. Items such as, but not limited to, the following shall be posted on the bulletin board:
  - Emergency procedures
  - Emergency phone numbers
  - OSHA poster
  - Notice of Workers' Compensation Carrier
  - OSHA 200 Summary (During February each year)
- Conduct training classes on safety, first aid and fire prevention. See Section 11.15 of this plan for additional training required for tunnel construction projects.

Contractor's Project Manager and/or Superintendent

As the direct representative of the contractor at the jobsite, the Project Manager/ Superintendent shall at a minimum:

- Plan and execute all work in accordance with the stated objectives of the ESA construction safety and health program, as stated in Section 1.4

- Assume primary responsibility for safety and health of their scope of work and ensure that responsibility is passed down through line management
- Take immediate action to correct unsafe or unhealthful work practices or conditions
- Implement administrative actions required for complete and accurate safety records
- Attend safety meetings as directed by the MTA including but not limited to the monthly 'All Hands' safety meeting
- Ensure that required first-aid plans and facilities are established and maintained
- Ensure that all subcontractors comply with all regulations, standards, ordinances, contractor's safety program or rules relating to the safety of persons and/or property
- Assure that all superintendents and foremen complete job specific safety training before beginning contract-related activities. At a minimum, instruction in the following topics shall be included:
  - Hazard identification and abatement
  - Preparation of job hazard analyses/safe work plans
  - Communications in safety
  - Applicable federal and state regulations
  - Injury and Incident Investigation
- Training certificates and records shall be maintained at the worksite and made available to the MTA for review

Contractor's Safety Engineer

The contractor's Safety Engineer shall at a minimum:

- Make daily safety inspections of the jobsite(s) and public areas contiguous and adjacent thereto and take necessary and timely corrective action(s) to eliminate unsafe acts and/or conditions
- Provide foremen with relevant material for use in conducting weekly toolbox safety meetings
- Review safety meeting reports submitted by foreperson to ensure adequacy of training as well as subject matter

- Conduct incident investigations and preserve incident sites. Prepare and submit the required reports to the RE for final distribution in accordance with the plan.
- Develop and implement a safety training program for supervisors and employees as applicable to their specific jobs
- Develop and implement incentive programs designed to recognize individual contractor/subcontractor employee safety efforts and contributions towards improvement of job site safety
- Attend the Monthly Safety Engineers and Monthly All Hands meetings as held by the MTA
- Ensure that employees receive medical treatment for occupational injuries and that the OSHA Form 200 is maintained and available for review by the MTA or designee without prior notice
- Ensure that all subcontractor employees at any tier comply with jobsite safety rules and regulations; and that the subcontractors' reports are completed in accordance with this plan and according to the requirements of the applicable regulatory agencies
- When the contract involves underground operations, the contractor's Safety Engineer shall have the following added responsibilities:
  - Provide for control, availability, and use of safety equipment, including employee personal protective equipment. He/she shall ensure that all equipment used in tunnels or underground work requiring approval by certifying agencies is properly approved or certified and that this equipment is maintained in an appropriate manner.
  - Ensure that timely and accurate records are kept by the gas tester(s). These records shall be maintained at the Work Site and available for review by the MTA.
- Shall perform monitoring/testing on items including, but not limited to; noise, airflow, and air quality. Written records of such tests shall be kept and made available upon request.
- Prepare copies of all required contractor safety reports
- Conduct weekly safety meetings to be attended by all contractor/subcontractor and management personnel. Written records of these meetings shall be maintained at the worksite and made available to the MTA.
- Coordinate and participate in the development of Job Hazard Analyses/Safe Work Plans, ensuring quality and timely submittals. Coordinate training of work crews and line supervision affected by each JHA/SWP.

Line Supervisor (Forepersons)

Forepersons are the key individuals in an effective safety program. Their initiative and training toward accident prevention on their daily assignments determine the degree of safety that exists on the job.

A foreperson's safety responsibilities include the following as a minimum:

- Inspection of the assigned job area to ensure that unsafe acts or conditions are identified and corrected. This includes the inspection of tools and or equipment utilized by the foreman's assigned crew regardless of the ownership of the tool or equipment.
- Ensures that safety requirements are adhered to and enforced
- Provides and requires the use of proper personal protective equipment and suitable tools for the job
- Sets a good example for his/her crew in the matter of safety
- Ensures that orderliness and good housekeeping are maintained at all times
- Sees that his/her assigned crew is properly instructed in safe work practices when assigned to their job task
- Conducts weekly tool box safety meetings with personnel to:
  - Discuss unsafe work practices and conditions, directing safe alternatives.
  - Review incident experiences with the crew and discuss corrective action.
  - Encourage personnel to make safety suggestions and respond appropriately.
- Ensure that prompt first aid is administered. Confirm that required first aid training of crewmembers is current.
- Instruct all newly hired personnel with respect to safety requirements and job duties

2.1 PURPOSE AND SCOPE

To set forth minimum safety requirements, emergency procedures, and guidelines to protect employees, property and the general public.

2.2 OBJECTIVES

The MTA safety and health objectives are:

- To set minimum standards for the provision of a safe and healthful workplace
- To comply with all regulatory safety standards as well as any special MTA construction safety standards
- To establish guidelines for required emergency procedures
- To develop administrative and safety guidelines for job-site tours

2.3 ALTERNATE SAFETY COVERAGE

In order to insure uniform safety coverage in situations when the assigned Safety Engineer or Safety Representative can not be on the jobsite, the MTA has established the following Alternate Safety Coverage Policy. This policy allows the contractor to utilize a Designated Safety Representative (DSR) to perform safety duties of the required Safety Engineer or Representative during specific periods of absence. The contractor shall comply with all portions of this policy in order to ensure the continued effectiveness of the safety program. This allowance does not replace the safety personnel requirements of the contract as specified in the Technical Specifications, but is intended only to provide a method for continued work on the project when the required personnel must be absent for short or unexpected periods of time.

All work on the jobsite shall be halted when the designated safety person is not available to perform his/her contractual duties.

The following are general requirements for safety coverage:

- The contractor shall empower the DSR with the authority to direct immediate correction of all unsafe conditions, and, as necessary, to stop affected work until all corrective measures are completed
- Designated Safety Representative shall not substitute for personnel required by the Technical Specifications of this contract in any situation other than those specifically described below and for no longer than the time periods indicated
- All requests for Alternate Safety Coverage must be accompanied by current copies of certification cards for certifications required by this policy. This request shall be processed and transmitted in the manner of any other contractor submittal in accordance with the requirements of this plan

- The Request for Alternate Safety Coverage shall include the following information:
  - Clear indication of the reason for coverage.
  - A clear description of the location(s) of the covered work.
  - A clear description of the scope of the covered work.
  - Size of the work crews to be covered.
  - Identification of all responsible personnel to be on duty during the specific period.
- The RE shall, after confirming that all required certifications are current, accept the Request for Alternate Safety Coverage

2.3.1 Qualifications

To be acceptable to the MTA, a candidate for Designated Safety Representative shall satisfy the following requirements:

- Be a foreperson, superintendent or member of the contractor Project Management Team currently assigned to the work
- When requested, demonstrate familiarity with all reporting and recordkeeping requirements for which the DSR will be responsible
- Have a copy of the contractor's Safety and Health Plan, procedures and work rules
- Satisfactorily complete the OSHA 510 (OSHA Standards for the Construction Industry)

2.3.2 Use of a Designated Safety Representative

The contractor may utilize this policy in the following situations and only in accordance with the requirements of this policy.

Sick, Personal or Emergency Leave

The contractor shall inform the Resident Engineer immediately upon the absence of the designated safety engineer or representative and provide a copy of the Alternate Safety Coverage Request (Form DSR-1) indicating the qualified person who will act as DSR during the absence.

If the sick, personal or emergency leave extends more than fourteen calendar days, the contractor shall provide a qualified Safety Engineer, acceptable to the authority and meeting the requirements of the Technical Specifications of this contract to assume the duties and responsibilities of the absent Safety Engineer/Representative on or before the fifteenth day of absence.

Vacation Leave

The contractor shall provide a copy of the Alternate Safety Coverage Request (Form DSR-1) indicating the qualified person who will act as DSR during the absence no less than one week prior to the planned absence.

If the vacation extends more than fourteen calendar days, the contractor shall provide a qualified Safety Engineer, acceptable to the authority and meeting the requirements of the Technical Specifications of this contract to assume the duties and responsibilities of the absent Safety Engineer/Representative on or before the fifteenth day of absence.

Safety Engineer/Representative Termination or Resignation

In the event that a contractor Safety Engineer is either terminated or resigns, the contractor shall immediately inform the Resident Engineer.

The contractor shall assign a DSR immediately and provide the Resident Engineer a copy of the Alternate Safety Coverage Request indicating the DSR candidate.

If the substitution of a DSR extends more than fourteen calendar days, the contractor shall provide a qualified Safety Engineer/Representative, acceptable to the MTA and meeting the requirements of the Technical Specifications of this contract to assume the duties and responsibilities of the former Safety Engineer/Representative on or before the fifteenth day of absence.

Small Work Crews

In situations where a small crew of fifteen employees or less, including all supervisory and subcontractor employees, is involved in work on an extended shift, weekend work or irregular shift work; a DSR may be substituted for the personnel required by the Technical Specifications provided the following conditions are met:

- Prepare a JHA and identify how DSR will provide adequate and appropriate safety coverage
- The contractor shall submit the JHA and provide a copy of the Safety Coverage Request (Form DSR-1) indicating the qualified person who will act as DSR during the work no less than four working days prior to the planned work
- Work activity at contract completion

As the contract nears completion and the only remaining contractor activity is limited to work by small crews on an irregular basis, acceptance of the use of a DSR for the work will be by the Resident Engineer based upon the detail of the particular situation.

2.4 REQUIRED EMERGENCY PROCEDURES

2.4.1 Emergency Action Plan

The contractor shall have a written Emergency Action Plan including, but not limited to, the following:

- Injuries to employees

- Injuries to the general public on or adjacent to the jobsite
- Property damage with particular emphasis on utilities
- Fire
- Tunnel collapse or flooding
- Natural disasters
- Other exposures or potential hazards that may occur at the jobsite
- Ventilation for Underground work areas
- Emergency procedures compatible with local police and fire department procedures

The contractor's Safety Engineer shall review emergency procedures monthly to ensure that contractor personnel are familiar with the proper actions to take, and that emergency telephone numbers are current. The emergency procedures shall be posted on the contractor's bulletin board. All emergency procedures shall be reviewed and accepted by the MTA.

Within 30 days of receiving the NTP or 30 days prior to the start of construction whichever comes first, the above procedures shall be submitted to the MTA, for review and acceptance. Work will not begin without written acceptance.

The Emergency Action Plan and specific emergency procedures will be discussed and reviewed regularly by the Contractor's supervisory personnel and at toolbox safety meetings.

2.4.2 Emergency Action Plan Implementation

Should an emergency occur, the contractor shall:

- Immediately secure the area and implement the emergency action plan
- Notify the Resident Engineer
- Provide information regarding the emergency to the Resident Engineer only. Questions from the press and media shall be referred to the Resident Engineer.

2.5 FIRST-AID FACILITY AND STAFFING REQUIREMENTS

In formulating an emergency action plan, the contractor shall provide appropriate facilities and staff for the treatment of on-the-job injuries. The first-aid facility shall comply with the requirements of the Supplemental Terms and Conditions in conforming to one of the following three Facility Type definitions:

2.5.1 Type I Facility and Staff Requirements

First-Aid Station - The location, size, furnishing and equipment shall have the acceptance of the MTA and be capable of providing quiet, private communications, as well as adequate

ventilation, light, heat, hot and cold water, toilet facilities and electrical outlets. Additionally, this station must also be equipped with an automated external defibrillator, oxygen, first-aid kit suitable to service the number of personnel assigned to the project, towels and paper cups, a blood pressure cuff and stethoscope, a cot or an equivalent resting place, and other items as required by the consulting physician.

Staff and Duties - The contractor shall provide a full-time Emergency Medical Technician (EMT) whenever the work is in progress. The EMT shall report to and coordinate with the Safety Engineer. The EMT shall maintain the First Aid Facility in the highest state of readiness at all times. The EMT may also perform safety related administrative duties as directed.

All contractor supervisors, foremen and two other contractor employees in each work area shall be trained in first aid and CPR. Copies of the certificates shall be submitted to the MTA for review.

Off-site medical treatment of employee injuries shall be performed at medical facilities approved by the OCIP Administrator.

2.5.2 Type II Facility and Staff Requirements

First-Aid Station - The location, size, furnishing and equipment shall have the acceptance of the MTA and be capable of providing quiet, private communications, as well as adequate ventilation, light, heat, hot and cold water, toilet facilities and electrical outlets. Additionally, this station must also be equipped with a first-aid kit suitable to service the number of personnel assigned to the project, towels and paper cups, a cot or an equivalent resting place, and other items as required by the consulting physician.

Staff and Duties - The contractor shall provide at least one employee (other than the required Safety Engineer) certified in first aid and CPR by the American Red Cross or its equivalent. This person shall be available on each shift and duly designated by the employer to care for injured employees. This person shall be responsible for maintaining the First Aid Facility in the highest state of readiness at all times. This person may be assigned other duties but must work in or near the first-aid station.

All contractor supervisors, foremen and two other contractor employees in each work area shall be trained in first aid and CPR. Copies of the certificates shall be submitted to the MTA for review and acceptance.

Off-site medical treatment of employee injuries shall be performed at medical facilities approved by the OCIP Administrator.

2.5.3 Type III Facility and Staff Requirements

First-Aid Station - On contracts where a first-aid station is not practical, a 16-unit (minimum) first-aid kit approved by the consulting physician shall be available. These first-aid kits shall be provided in the ratio of one for each 25 persons or fewer employed. The first-aid kits shall be weatherproof and the contents of the kits replenished as used. The location of the first-aid kits shall be discussed at the weekly tool box safety meetings.

Staff and Duties - The designated first-aid/CPR person must be available to provide first-aid treatment as needed whenever work is in progress. This person may be assigned other duties related to the performance of the assigned crew.

All contractor supervisors including foremen shall be trained in first aid and CPR. Copies of the certificates shall be submitted to the MTA for review and acceptance.

Off-site medical treatment of employee injuries shall be performed at facilities approved by the OCIP Administrator.

2.6 PROTECTIVE MEASURES OF THE PUBLIC

All necessary precautions to prevent injury to the public or damage to property of others shall be taken. Installation of temporary barriers and/or fencing designated to protect the public shall be reviewed and accepted by the MTA and monitored for compliance by the RE. Precautions shall include but not be limited to the following:

- Work shall not be performed in any area occupied by the public unless specifically permitted by the contract or approved in writing by the MTA
- When necessary to maintain public use of work areas involving sidewalks, entrances to buildings, lobbies, corridors, aisles, stairways, vehicular roadways, etc., the contractor shall protect the public in accordance with all applicable laws and regulations
- Sidewalks, entrances to buildings, lobbies, corridors, aisles, doors or exits shall be kept clear of obstructions to permit safe ingress and egress of the public at all times
- Appropriate warnings, signs and instructional safety signs shall be conspicuously posted where necessary. In addition, a signal person shall control the movement of motorized equipment in areas where the public might be endangered.
- Sidewalks, sheds, canopies, catch platforms and appropriate fences shall be provided when necessary to maintain public pedestrian traffic adjacent to the erection, demolition or structural alteration of outside walls on any structure. The protection required shall be in accordance with all applicable laws and regulations.
- Temporary fencing shall be provided around the perimeter of aboveground operations adjacent to public areas except where a sidewalk shed or fence is provided by the contractor as required in the above bullet. Perimeter fences shall be at least eight feet high.
- Temporary fencing may be constructed of wood or metal frame and sheathing, chain link, a combination of both, or as otherwise provided in contract documents.
- Guardrails shall be provided on both sides of vehicular and pedestrian bridges, ramps, runways and platforms. Pedestrian walkways elevated above adjoining surfaces, or walkways within four feet of the top of excavated slopes or vertical

banks, shall be protected with guardrails, except where sidewalk sheds or fences are provided.

- Barricades shall be provided between work areas and pedestrian walkways, roadways or occupied buildings unless more specific protection is required in the paragraphs above. When a barricade is temporarily removed for the purpose of work, an attendant shall monitor openings to prevent injury or damage to the public.

- Temporary concrete barricades, such as "Jersey Barriers", shall be used along streets where work is being performed to separate vehicular traffic from the work areas. A chain-link fence, or its equivalent, at least four feet in height shall be installed on top of the concrete barricades to prevent pedestrians from climbing or jumping over the barricades. Snow or plastic type fencing shall not be permitted on the project. This requirement may be waived by the RE when fencing or concrete barricades are impractical or inappropriate.

- Temporary sidewalks shall be provided when a permanent sidewalk is obstructed by the contractor's operations

- Warning signs and lights shall be maintained along guardrails, barricades, temporary sidewalks and at every obstruction to the public. Lights shall be placed at both ends of such protection or obstructions and not over twenty feet apart alongside of such protection or obstruction.

- The use of fuel burning type lanterns, torches, flares or other open flame devices are prohibited

2.7 GROUP TOURS AND SITE VISITORS

It is particularly important that a high degree of protection be afforded all persons on authorized tours of construction jobsites. The following instructions shall be complied with, as applicable, by the contractor and those responsible for arranging such tours:

- In all cases, the RE and the Contractor shall be advised of any tour in a timely manner prior to the tour taking place

- MTA/CM will coordinate the tour arrangements

- MTA/CM will coordinate the following with the individual or organization requesting the tour:

  - *Number of Visitors* - Tour groups in non-work areas will be limited to no more than twenty-five persons per tour guide. Tour groups in work areas will be limited based upon the specific conditions to be encountered by the tour group

  - *Clothing* - Visitors entering the work areas will be required to wear pants or slacks, shirt or blouse, and sturdy leatherwork shoes. Sneakers, high-heeled

shoes, light weight hiking footwear, steel-toed athletic or casual footwear are prohibited.

- *Minors* - Persons under 18 years of age are not permitted on project tours

- *Protective Equipment* - Hard hats, eye protection, earplugs, flashlights, self-rescuers and other protective devices will be required as necessary. MTA shall provide protective equipment.

- *Release and Hold Harmless Agreement* - Each visitor shall be required to sign a release and hold harmless agreement prior to the commencement of the tour. A sample Visitor's Release and Hold Harmless Agreement is contained in this plan as Exhibit 2-1.

All visitors shall comply with contractor safety requirements. MTA staff members and tour guides shall familiarize their group(s) with the hazards to be encountered on the tour prior to entering the work site. Personnel touring tunnels will be trained in the unique hazards of underground construction, the use of self-rescuers and other emergency procedures.

2.8 LOCATING UTILITIES REQUIREMENTS

The contractor shall take all necessary precautions to identify, locate and avoid contact with existing utilities prior to any underground work being performed.

- A minimum of one week prior to excavating, the contractor shall notify the local "Call Before You Dig" or "One Call" Center to allow member agencies to mark locations of underground utilities

- The contract specifications and drawings shall be reviewed by the contractor for notations of utility companies that may not be a member of an underground service alert group. Those not members of an underground service alert group must be contacted directly.

A written record of all calls to the underground service alert group or utility companies shall be kept and retained by the contractor. This log shall be maintained at the primary jobsite and made available to the MTA for review without prior notice. See Exhibit 2-2-Underground Service Alert Contact Log

- The contractor shall visually check the area for signs indicating the possibility of recent underground relocation work by an outside entity

- The Contractor shall also notify the relevant Railroad Departments (Power, Signals, Communications and Gas, Sewer & Water) prior to any excavation

- The contractor shall notify the RE and staff at the periodic look ahead meeting and/or readiness review as to any upcoming underground work expected during the look ahead time period

- The contractor shall take all necessary steps to protect the utilities from damage

EXHIBIT 2-1 VISITOR'S RELEASE AND HOLD HARMLESS AGREEMENT

VISITOR'S RELEASE AND HOLD HARMLESS AGREEMENT

Contractor: _____

Contract No: _____ Date: _____

In consideration of being permitted, for my own purposes and interests, to enter upon the premises or construction site of the East Side Access project, I hereby release, hold harmless, and indemnify MTA, the construction managers, contractors and subcontractors from and against, and assume the risk, for and on behalf of myself, my heirs, my survivors and my estate, for all damages, losses, injuries and any and all other claims of any type whatsoever for personal injury (including death) and other loss or damage of any nature whatsoever including damage to my personal property, sustained or caused while on such premises or site, except those injuries which are caused solely by the negligence of MTA, the construction managers, contractors, subcontractors or its agents or employees. In the event any clause, term or provision of this agreement shall be declared or adjudicated void or invalid, it shall in no manner affect the other clauses, terms and provisions hereof, which shall remain in full force and effect, as if the clause, term or provision so declared or adjudicated invalid was not originally a part hereof.

Print Name: _____

Signature: _____

Address: _____

Date: _____

EXHIBIT 2-2 UNDERGROUND SERVICE ALERT CONTACT LOG

Long Island Rail Road
East Side Access

UNDERGROUND SERVICE ALERT CONTACT LOG

CONTRACT NO: _____ CONTRACTOR/SUBCONTRACTOR: _____

Date	Time	Service/Firm And Individual	Reference	Disposition

EXHIBIT 2-3 ALTERNATE SAFETY COVERAGE REQUEST (FORM DSR-1)

Long Island Rail Road
East Side Access

ALTERNATE SAFETY COVERAGE REQUEST
(FORM DSR-1)

Contract No: _____ Date: _____

Contractor: _____

SAFETY ENGINEER/REPRESENTATIVE COVERAGE SITUATION:

☐	Vacation
☐	Personal Leave
☐	Sick Leave
☐	Termination
☐	Resignation
☐	Small Crew Coverage
☐	End of Contract Coverage

Detailed Scope of Operation(s): _____

Coverage Start Date:	_____	Expected End Date:	_____	Time Of Day:	_____

Current Safety Engineer/Representative: _____ (name)

Designated Safety Representative Nominee: _____ (name)

Designated First Aid Responder: _____ (name)

Designated CPR Responder: _____ (name)

Assigned Gas Tester: _____ (name)

3.1 PURPOSE AND SCOPE

To establish safety training and instruction activities required of every contractor while under contract with MTA.

3.2 OBJECTIVES

To ensure that all personnel are trained in the awareness of hazards involved in specific job assignments and contractors are in compliance with all the specific requirements of Section 1.5.2.

3.3 BASIC ELEMENTS

The following areas of safety instruction and communication will satisfy the regulatory as well as the MTA requirements:

- Safety and Health Indoctrination
- Work assignments and Job Hazard Analyses
- Safety meetings; general, toolbox and task training
- Job specific instruction
- Promotional materials
- Supervisor Safety Training
- Construction Safety Training
- Railroad Safety Training (where applicable)
- Safety incentives
- Haz-Com Training

3.4 PROCEDURES

Each contractor is responsible to comply with all training requirements. However, the Safety Manager is available to assist contractors in carrying out their injury and incident prevention instruction and training responsibilities.

3.4.1 Indoctrination

All employees, prior to beginning work on the project, shall attend a 4-hour owner led safety indoctrination program at a location designated by the owner.

Newly employed, promoted and/or transferred personnel shall be fully instructed in the safety practices required for their assignments by audio/visual means including but not limited to video tape presentations, computer interactive training, instructor presentations and

or a combination of methods. Initial instructions for all project personnel shall include, but not be limited to, instruction on the following:

- For each individual, the hazards presented by the specific work assignment and in the general work area
- Personal protective equipment required
- Instructions on the proper procedure for reporting unsafe job conditions that may be encountered
- Reporting of any and all injuries, accidents and damage, including near misses
- Contractor's safety program
- Location of first-aid and medical facilities
- Tool box safety meeting requirements
- Emergency service notification procedure for fire, medical emergencies, police services or other emergency situations
- An orientation by the foreman or superintendent of the new employee work area

3.4.2 Work Assignments

All work assignments, regardless of level, shall include specific instructions on safety. Supervisors shall follow-up under actual working conditions to ensure that all safety instructions are being followed.

3.4.3 Meetings

Properly conducted safety meetings of reasonable length are an effective means of communicating with employees. To be effective, the material presented must be specific as well as practical.

- Crew Training Meeting (Toolbox) - Each foreman or shifter shall hold a weekly toolbox safety training meeting in the work area with their entire crew. Subject matter should cover specific safety procedures pertinent to the crew's on-going activity. Additional toolbox meetings may be warranted depending on the type of work being performed.
- Operational or Progress Meetings - Safety shall be the first agenda item. The record of these meetings should reflect the specific items discussed. The contractor's Safety Engineer is required to attend.

3.4.4 Underground Safety Training

See Section 11 of this plan for additional safety training requirements for underground construction.

4.1 PURPOSE AND SCOPE

A basic program shall be followed by all contractors and their subcontractors for the control and elimination of unsafe practices by employees, during the construction of the MTA contracts. Control of unsafe acts is a major factor in the effectiveness of the overall safety and loss control program.

4.2 OBJECTIVES

The objectives of the work practices control program are to:

- Eliminate job-related injuries and illnesses
- Provide a safe and healthful work environment
- Ensure protection of the general public and the environment
- Eliminate overall losses and claims

4.3 PROCEDURES

The techniques applied by the contractor in the control of employee unsafe acts include but are not limited to the following:

- *Contractor* - Each contractor shall be responsible for continuous surveillance of their operations in order to eliminate the probable sources of potential injuries or losses due to unsafe conditions, acts or procedures
- *Contractor Supervision* - The practical safety experience of project supervision shall be utilized in directing the actions of those under their direction
- Never, under any circumstance, will any employee perform work assignments by themselves in isolated work areas

4.3.1 Reporting of Identified Unsafe Practices or Conditions

Monitoring and auditing of the safety compliance of contractors shall be made by the Construction Manager field staff. Contractors will be notified in writing of serious unsafe practices or conditions discovered or noted by the MTA or other staff. The lack of notification of the contractor by the MTA regarding a specific hazard shall not in any way relieve the contractor of the responsibility and obligation to identify and correct unsafe conditions or practices.

The Contractor's Safety Engineer, shall document to record unsafe practices and/or unsafe practices or conditions recognized or brought to their attention

4.3.2 Substance Abuse

MTA is committed to the establishment and maintenance of a safe and efficient work environment for all personnel, free from the effects of alcohol, illegal drugs and other controlled substances.

The contractor and all subcontractors, regardless of tier, suppliers and all other persons performing work on MTA property shall comply with the provisions of the MTA/LIRR Drug and Alcohol Program for the ESA (see attachment).

4.3.3 Other Controlled Items

MTA prohibits the use, possession, concealment, transportation, promotion or sale of the following controlled items:

- Firearms, weapons, and ammunition, except when authorized for security reasons
- Switchblades
- Unauthorized explosives including fireworks
- Stolen property or contraband

5.1 PURPOSE AND SCOPE

Establish and maintain physical conditions that at a minimum meet the standards established by federal, state and MTA safety regulations.

5.2 OBJECTIVE

Eliminate injuries and incidents resulting from unsafe physical conditions.

5.3 PROCEDURES

Planning

Planning for the safety of all personnel shall continue throughout the project. Contractors shall plan the safety procedures to be followed for each phase of construction. The Safety Engineer, in conjunction with the Project Manager, Supervisor, or Engineer that is directly responsible for the work will develop and implement the Job Hazard Analysis (JHA). The JHA will be reviewed with the work crew prior to starting a new operation.

Job Hazard Analysis

A written JHA shall be developed when a known safety hazard exists as well as for all major construction operations. A written JHA shall be part of the development of any Construction Work Plan.

- The contractor shall submit within 30 days of Notice to Proceed (NTP) a schedule for the preparation and submittal of JHA's. As work progresses, additional JHA's may be required by the MTA and shall be submitted upon notification by the Resident Engineer.
- JHA's will be submitted ten days prior to commencing the activities included in the JHA
- No work requiring a JHA will commence prior to the submittal and acceptance of the JHA
- A JHA is required when the contractor, RE or the Safety Manager determines that equipment or procedures indicates a potential for injury involving one or more of the following hazards:
  - Potential for the release of stored energy; i.e., electrical, pressure, explosive, etc.
  - Danger of striking against or being struck by
  - Potential injury from burns, including chemical, thermal and or radiation
  - Potential oxygen-deficient environments, limited access or exit conditions

- Potential of being caught in, on, or between objects
- Potential injury from strain by pushing, pulling, or lifting
- Potential exposure to toxic/radioactive gases, vapors, mists, dusts, heat, cold or other physical stress agents
- Potential for property damage or loss of function (i.e., critical lifts, power outages, etc.)
- Any change in process or procedures that effect the crews operation

JHA's and Training

The JHA serves as an operating procedure and shall be made available to all personnel performing the work. A copy of the accepted JHA will be provided to all supervisors and foremen involved in the operation and will be introduced to the affected employees during a crew safety meeting held prior to the start of the new activity. Personnel involved with the operation will be instructed as to the hazards involved and methods required to eliminate the hazards, including emergency action to be taken in the event of an accident. Personnel will be made aware of the procedures to be used and requirements of the JHA. JHA's will be included in the Contractor's two week look ahead schedule and will be discussed at the Resident Engineer's weekly construction progress meeting.

5.3.1 Responsibility and Supervisory Training

The contractor is responsible for effective performance through its supervisors and foremen. The supervisor or foreman has direct control of the work being performed. They have the responsibility to observe and correct any unsafe acts and/or conditions that may exist.
Supervisors and foremen shall complete specific safety training before beginning contract related activities. This training shall conform to the requirements in Section 3. Additionally, the following topics will be added for supervision:

- Hazard identification and abatement
- Preparation of job hazard analyses
- Communications in safety
- Applicable federal and state regulations
- Injury and incident investigation

Training records shall be maintained at the worksite and made available to the MTA for review.

5.3.2 Inspections

There are many physical inspections required by statute and this document. In addition to all the other inspection responsibilities contained herein, the contractor shall ensure that its Safety Engineer makes thorough weekly inspections of each of the work areas (including storage, office and shop facilities) to ensure compliance with section 1.5.2. The Safety Engineer shall involve line supervision responsible for each area of work in the inspection of each specific area as a form of training and to expedite correction of the unsafe condition or practice. Safety deficiencies that are noted during the inspection shall be communicated to project management for corrective action on the day of the inspection. The contractor's Project Management Team shall be responsible for implementing corrective actions in a time frame appropriate to the severity of the hazard. The contractor's Safety Engineer will follow up and note the status of each safety deficiency until the deficiency has been abated. The MTA reserves the right to require daily or more frequent inspections as deemed appropriate by the MTA. The following is an additional list of inspection responsibilities:

- The contractor shall perform crane inspections and maintain daily, monthly, quarterly, and annual logs
- Contractors shall immediately notify the Resident Engineer whenever an OSHA compliance officer arrives on the project in compliance with sections of this plan
- Contractors shall immediately notify the Resident Engineer of visits by the Fire Department and/or Fire/Safety Inspectors.
- Contractors shall expect frequent monitoring and auditing of their safety practices and procedures by the MTA. Full cooperation of the contractor shall be given to correct any safety discrepancies noted verbally or in writing by the Construction Manager. These inspections and audits shall not relieve the contractor of any of its safety obligations. Due to the transitory nature of worksite conditions and personnel, violations may occur occasionally or routinely and may be undetected by any given inspection by the Construction Manager. For this reason, the contractor is expected to exercise absolute control over job site conditions and personnel to minimize the potential for unintended injury or property damage.

5.3.3 "Red Tag" Procedure

The MTA has established a program by which equipment, tools or other items used to complete the work, that have been determined to present a potential for unintended injury when used as directed by the manufacturer, shall be removed from service. All equipment, tools or other items used to complete the work are subject to periodic inspection by the MTA and any item of the contractor that is rejected as not conforming to Section 1.5.2 of this plan, the manufacturers' recommendations, or applicable ANSI standards and presents a potential for unintended injury when used as directed by the manufacturer shall be "Red Tagged." The tag will be dated and signed and will note the unsafe condition.

Any item so tagged shall not be used until the condition noted on the tag has been corrected and the tag has been removed by the person who has signed and attached the tag.

5.3.4 Notification of Hazards

Contractors shall provide the Resident Engineer and the MTA Construction Safety Manager with immediate verbal notification, to be followed by written notice of the existence of any hazardous conditions, property or equipment at the work site that are not under the contractor's control. However, it shall be the contractor's responsibility to take all necessary precautions against injury to persons or damage to property from such hazardous conditions until corrected by the responsible party.

5.4 SAFETY AUDIT PROCEDURE

The Monthly Safety Audit relates solely and exclusively to the inspection of the contract on a specific pre-arranged date each month. Due to the transitory nature of worksite conditions and personnel, violations may occur occasionally or routinely and may be undetected by any given inspection by the staff of the Construction Manager. For this reason, the contractor is expected to exercise absolute control over job site conditions and personnel to minimize the potential for unintended injury or property damage.

The Resident Engineer will schedule the monthly safety audit. The Resident Engineer shall in turn notify the contractor's Project Manager of the date and time.

The audit team shall consist of the Contractor's Project Manager, Contractor's Safety Engineer, Resident Engineer, Safety Manager, and an OCIP/Insurance Safety Representative. The team shall inspect the contractor's worksite. Safety Manager will complete the Contractor Safety Audit Checklist and contractor Safety Audit Summary Sheet per the instructions in the following paragraphs.

The audit team will utilize the most recent version of the "Contractor Safety Audit Checklist" form as supplied by the MTA.

For each category on the Contractor Safety Audit Checklist, Safety Manager will determine the maximum score possible for each item in Column "A". The maximum score is shown in parentheses next to the category title. For items that are not applicable at the time of audit, "N/A" will be entered in Column "A".

Safety Manager will rate the contractor for each item on a scale of 0 to 3, and enter the score in Column "B" of the checklist. Items will be rated per the point system shown below. Points given will not exceed the maximum possible for that category. "N/A" will be entered for items that do not apply at time of audit.

SAFETY AUDIT RATING – POINT SYSTEM

POINTS	LEGEND
3	Meets or exceeds the minimum standards established by section 1.5.2.
2	Fails to completely meet the minimum standards established by section 1.5.2.
1	Fails significantly to meet the minimum standards established by section 1.5.2.
0	Substantial non-compliance with the minimum standards established by section 1.5.2.

Upon completion of the audit , the "SUBTOTAL" for each checklist category will be calculated. The subtotals will be entered into Part A and Part B of the contractor Safety Audit

Summary Sheet in the box marked "AUDIT RESULTS". The "Possible Score" and "Actual Score" for all categories will be calculated and the "TOTALS" entered for each column.

The contractor's percent compliance will be calculated by dividing the total actual points by the total possible points, and multiplying by 100. The percent number will be entered in the blank provided on the summary sheet under "Percent Compliance"

The names of all audit team participants will be entered in the box "AUDIT PARTICIPANTS." The Safety Manager will keep the original checklist package and summary sheet. Copies will be given to all persons involved in the audit.

The contractor will be responsible for rectifying all safety items checked in Column "D" of the Safety Audit Checklist. These items will be brought into compliance by the contractor and signed-off in Column "E." If the contractor scored 69% or less, the following instructions for "Mandatory Follow-Up Audit" apply:

- If the contractor scored 69% or less on Percent Compliance, a follow-up meeting will be scheduled between the contractor, the Resident Engineer and Safety Manager to discuss audit results. The contractor will be required to submit a corrective action plan to bring into compliance all items with a score of "2" or less. The plan will be submitted within 24 hours of the follow-up meeting; specific completion dates for each item will be included in the plan.

- Within forty-eight hours after the Contractor's projected date of compliance, a re-audit team consisting of the Contractor's Safety Engineer, Contractor's Project Manager, Resident Engineer and Safety Manager will conduct a follow-up audit using the original audit checklist. All items checked in Column "D" of the checklist will be re-audited and initialed in Column "E" if in compliance.

- If any items still fail to meet minimum standards, the contractor will be directed to stop work in the affected areas until deficiencies have been corrected.

6.1 PURPOSE AND SCOPE

Establish the minimum safe work practice standards that shall be observed by all contractors, subcontractors, vendors and visitors while on the MTA projects. The contractor recognizes that all government promulgated safety regulations are *minimum standards* and that additional safeguards may be required by the MTA or its designee to insure worksite safety and prevent loss.

6.2 OBJECTIVES

Ensure the effective prevention of injuries and property damage and contractor compliance with Section 1.5.2.

Contractor compliance with these safe practice standards, as well as other sections of this Construction Safety and Health Plan.

6.3 HOUSEKEEPING PROCEDURES

Housekeeping means specifically, that at any time, each and every piece of equipment, tool, material, facility, or apparatus shall be stored, stacked, located or placed, in such a manner as will render an injury highly improbable and gives the direct and obvious impression of a clean and orderly work place. This applies to all areas of the Work Site.

6.3.1 Housekeeping Responsibility

Responsibility for material or equipment placement belongs to the contractor and craft who will use or install it. Material and equipment shall be stored or parked in an orderly manner.

- The contractor shall develop a work site plan designating specific storage area for all materials, working equipment and yard work areas
- When a contractor or craft begins work in an area, that contractor and/or craft is responsible for the housekeeping of that area, regardless whether the area was left disorderly by a previous contractor or work crew
- The manner in which the contractor controls the housekeeping in their work areas is a direct reflection of the overall safety attitude of the contractor
- Parking of personal vehicles shall be separated from work, storage and equipment parking areas

6.3.2 Housekeeping in the Work Areas

Housekeeping are basic items involved in achieving the goal of "zero" work injuries. It takes the cooperation and participation of each employee to keep work and storage areas orderly. At minimum, all contractors, subcontractors and employees shall meet the following basic requirements:

- All access ways will remain open at all times

- Work areas will be cleaned daily as work progresses
- Cables, cords or loose objects will not be left in passageways, stairways, walkways or other areas where they may become underfoot
- All materials, tools and equipment such as shackles, slings, ladders, safety equipment, etc. will be kept in an orderly manner and removed from work areas and returned to storage areas when no longer in use
- Welding rod, nuts, bolts and round stock shall be kept in proper containers
- Trash containers shall be placed at appropriate locations for disposal of all rubbish, trash and debris
- Daily checks of work area by the contractor shall be made for the removal of rags, boxes, paper and other debris for housekeeping and fire prevention. Rubbish, trash and/or debris will be removed from the work area daily
- Dunnage shall be stored in neat storage piles or removed from the job-site daily

6.4 FIRE PREVENTION

The general requirements for fire prevention are:

- Access to fire extinguishers, exits, hydrants or other fire fighting equipment will not be blocked
- All flammable liquids and combustible material will be stored away from any open flame or spark. Trash, rubbish or debris shall not be stored in proximity to flammable liquid or combustible material
- All burning and welding operations shall be carefully planned and all combustible or flammable material removed from the area before starting the job

6.5 ACCESS AND EGRESS

The contractor shall provide adequate means of access to the work areas. This access may consist of ladders, scaffolds, doorways, aisles, stair towers and elevators or ramps. Means of access and egress shall be maintained in a clear and orderly manner. All access ways shall conform to Section 1.5.2 of this document.

The following are requirements for access and egress safety:

- When the contractor utilizes stairways/stair-towers for access into the work area, the contractor shall provide stairs that are at least 3 feet wide and permit 2-way traffic
- The design and erection of stairways and stair-towers shall conform to OSHA regulations and manufactures specifications

- Contractor shall provide at least one route of access/egress that is of adequate size and construction to allow the plan movement of a fully loaded stokes basket, ambulance gurney or similar device to and from the work areas. A single route of access/egress may be constructed to comply with this.

- Contractors shall provide at least one route of access/egress which is adequate size and construction to allow two way traffic to and from the work areas. A single route of access/egress may be constructed to comply with this.

Stairways/Stair Towers

During construction, stairs shall be provided on all structures that are two or more floors or more than 20 feet in height or depth. The following are general requirements for stairway safety:

- Permanent stairway placement should occur as soon as practical

- All parts of stairways shall be free of hazardous projections. Debris and other loose material shall not be allowed to accumulate on stairways.

- Permanent steel stairways having hollow pan type treads and landings that are to be used prior to concrete placement shall have the pans filled with solid material to the level of the nosing

- Temporary stairs shall be at least 36 inches wide, and erected to the manufactures specification. Wooden treads for temporary service shall be full width of the stairs treads.

- Riser height and tread width shall be uniform throughout any flight of stairs

Elevators

Elevators used for the movement of personnel from one level to another shall comply with Section 1.5.2 of this document.

6.6 PROTECTION FROM FALLS

To reduce the potential for slips, trips and falls, the work site shall be maintained in compliance with Section 6.3 of this document. All employees exposed to a potential fall of six feet or greater shall be protected by a fall protection system in compliance with Section 1.5.2 of this document and the provisions of this section. At minimum, employees exposed to a fall of six feet or greater shall be protected by one or more of the following:

- A static fall protection system composed of a guard rail, mid rail, toe board and posts in compliance with section 1.5.2 of this document. This system shall be inspected, at minimum, every twenty-four hours and defects or damage shall be repaired immediately. No work shall be allowed to take place in the area near the damage or defect until the system has been repaired.

- A personal fall arrest system consisting of a full body harness, double locking snap hooks, lanyard and anchorage system in compliance with section 1.5.2 of this document. Personal fall arrest equipment shall be inspected before each use.

- In those situations where it is not feasible or creates a greater hazard to comply with the previous parts of this section, the contractor shall submit to the MTA a Fall Protection Plan in compliance with section 1.5.2 of this document. The contractor shall not engage in any work under the submitted plan until it has been accepted by the MTA in Writing. Compliance with the provisions of this paragraph shall be considered within the original scope of this contract and shall not delay the schedule for performance of work by contractor.

- All personal fall arrest equipment which is removed from service due to wear or defect shall be either destructively discarded or returned to the manufacturer

Personnel shall not attach themselves to an anchorage point by looping the lanyard around the anchorage and then attaching the hook back to the lanyard. All employees shall receive training with respect to fall protection in compliance with section 1.5.2 of this document. The contractor at the work site shall maintain training records. No activity that requires the use of any form of fall protection shall be commenced by the contractor prior to the review by the MTA of a Job Hazard Analysis for the specified work

6.6.1 Ladders

Handrail and floor openings for ladder-ways shall be provided with a gate or offset railing such that a person can not walk directly into the opening in compliance with section 1.5.2 of this document.

Manufactured Ladders

Manufactured ladders on the project shall comply with ANSI standards. The use of metal ladders is prohibited. The following requirements must be followed to ensure ladder safety:

- All manufactured ladders shall be maintained in a condition equal to original manufacturing. Those ladders not meeting this condition shall be removed from this project

- The side rails shall extend 36 inches above the landing. When this is not practical, grab rails shall be installed. All ladders in use shall be tied, blocked or otherwise secured to prevent unintended displacement.

- Stepladders shall not be used as straight ladders

- Employees shall never stand on the top two steps of a stepladder

- Extension ladders are not be dismantled and used as straight ladders

- Any employee working from any ladder, who is exposed to a fall six feet or more, shall comply with section 6.3.3, of this document regarding Protection from Falls

- Only one employee shall work from a single ladder at a given time

Job-Made Ladders

Job-made ladders shall be fabricated in compliance with section 1.5.2 of this document and appropriate ANSI standards.

6.6.2 Scaffolding

The general requirements for scaffolding safety are:

- Scaffolds shall be designed, built, dismantled and inspected by competent persons to manufacturers' specifications. To avoid the use of makeshift platforms and scaffolding, each job should be carefully planned to ensure that scaffolding is used where required, that such scaffolding conforms to section 1.5.2 of this document and is in accordance with the manufacturers' specifications and designs.

- All scaffolds and/or falsework shall be inspected by a competent person before each work shift. Such inspections shall be recorded in writing and the inspections records shall be maintained by the contractor.

- During the erection or disassembly of any scaffold system, 100% fall protection shall be enforced

- Guardrails and toe boards shall be installed on all open sides and ends of scaffolds. Guardrails shall be 2 x 4 inch stock, mid-rail 2 x 4 inch stock, or its equivalent. The top rail should be approximately 42 inches high and mid-rail placed halfway between top rail and the platform.

- The toe board, 4 inch minimum height, shall be securely fastened in place

- Wooden railing posts (verticals) shall be made of at least 2 x 4 inch stock or its equivalent, and be spaced so as not to exceed 8 feet on center

- When working from a scaffold which is not completely decked and/or guardrails are not installed, 100% fall protection shall be enforced

- All scaffolding shall be accessed either via scaffold ladders installed at the time of erection of the scaffold or other ladders or stairways in conformance with section 1.5.2. At no time shall the frames or other structural members of the scaffold be used for work site access.

- To prevent movement, scaffolds shall be tied or otherwise firmly attached to adjacent structures

- All scaffold planks are to be OSHA approved and shall be restrained from sliding or moving

6.6.3 Floor, Roof, Wall Openings and Open-Sided Platforms

To control conditions where there is a danger of employees or materials falling through floor, roof or wall openings, such openings shall be protected conform to section 1.5.2 of this document and the applicable paragraphs of this section.

6.7 FALSEWORK

The requirements for falsework safety are as follows:

- Falsework shall comply with section 1.5.2 of this document and shall not be constructed prior to the submission and written acceptance by the MTA of a written Job Hazard Analysis for the construction with detailed drawings signed by a professional engineer license by the state of New York. The Job Hazard Analysis shall also include inspection and maintenance procedures to be completed during utilization of the falsework structure.

- Prior to construction, demolition or stripping of falsework, a written Job Hazard Analysis shall be submitted describing how the contractor intends to perform the work safely

- Protective sheeting or netting to prevent debris from falling shall be installed along railing where falsework spans a public street or pedestrian walkway

- At no time shall material or debris be stored on any ladder or stair tower landing

6.8 EQUIPMENT STANDARDS

To prevent personal injury and property damage, the contractor shall, at minimum, adhere to the standards listed below.

6.8.1 Motor Vehicles

The following are requirements for motor vehicle safety:

- Each operator is responsible for the safe operation of his or her vehicle. Drivers shall make a daily inspection of the following: steering, brakes, mirrors, lights, horn, seat belts, backup alarm system, tires, windshield wipers and fire extinguishers. Noted defects shall be reported for prompt repair; no vehicle shall be used until any deficiencies affecting safe operation have been corrected.

- Preventive maintenance shall be regularly scheduled for all vehicles to ensure their safe operating condition. All vehicles shall be in compliance with federal and state requirements.

- Vehicles shall not be loaded beyond their rated capacities or in a manner that will obscure the driver's vision. All loads shall be securely fastened to prevent shifting or loss of material.

- Motor vehicles shall be fueled only by approved methods. Smoking or open flames shall not be permitted when a vehicle is being fueled. Equipment shall not be refueled while engine is running.

- All mobile construction equipment shall be equipped with an a reverse signal alarm audible above the surrounding noise level to a distance not less than 200', unless equivalent methods of protection are specifically permitted by the most stringent regulation that applies.

- All occupants of motor vehicles shall wear seat belts. Transportation of personnel in the back of any truck is prohibited unless equipped with properly constructed seats and seat belts.

6.8.2 Cranes

The following are requirements for crane safety:

- Operators are responsible for the exercise of caution necessary for the safe operation of their equipment. Operators shall immediately report any unsafe conditions, including defects in the machine or rigging, to their supervisor.

- Crane operators shall be licensed by the city of New York for the equipment type to be operated

- Crane operations, where the load is beyond the direct view of the operator, shall be observed by a signal person who can directly observe the load and be directly observed by the operator. The operator shall stop all load movement in the event the signal person is unable to observe the load or fails to continuously observe the load and signal the operator.

- Re-certification is required for any crane involved in an incident and/or subjected to any overloading, side pulling, or shock loading of the boom, as determined by the MTA

- Operators shall not permit anyone to ride the hook, headache ball or load

- When the operator leaves the machine or repairs are being made, it is the responsibility of the operator to set the brakes, secure the boom, take the machine out of gear and turn off the engine

- When making any lift, the operator will take operational signals only from the authorized signal person. The only exception is that the operator will act upon an emergency stop signal given by anyone.

- It is the joint responsibility of the operator and the riggers to see that all hitches are secure and that all loose material is removed before the loads are lifted

- Hooks, wire rope, bearings, gears, friction clutches, chain drives and other parts subject to wear must be inspected at regular intervals and repaired or replaced as required. The contractor shall maintain records of such inspections.

- All cranes, except crawler cranes and boom type excavators, shall be equipped with outriggers of a design and strength suitable for the work being performed. Outriggers shall be used in accordance with the manufacturer's instructions.

- All cranes over three tons manufacturer's rated capacity shall be inspected and certified annually by the city of New York

- All overhead electrical lines shall be considered as high voltage lines and no crane or any part of a crane shall be permitted to work within ten feet of an overhead electrical line, unless prior approval is obtained from the MTA

- Public vehicular and/or pedestrian traffic shall not be allowed to pass beneath the boom of any crane. When the boom of a crane must be placed over a street or pedestrian walkway the traffic, vehicular and/or pedestrian shall be stopped or rerouted.

- Crane operators shall comply with the requirements of section 1.5.2 of this document

- Boatswain's chairs shall not be suspended from any crane

- All cranes shall be equipped with a seat belt for the operator and this belt shall be worn at all times when the crane is being operated

6.8.3 Construction Equipment

The following are requirements for construction equipment safety:

- Equipment shall be thoroughly inspected at the beginning of each shift

- Operators shall not start or operate any equipment while other personnel are oiling or adjusting the equipment

- The glass in the cabs of cranes, loaders and other equipment, shall be accepted safety glass

- Runways, stairways and/or platforms shall be provided whenever required for the safe operation of the equipment

- No more than one person, the operator, shall ride any equipment unless the equipment is equipped with seats equipped with seat belts to accommodate such riders

- Industrial forklifts with altered, modified or damaged forks shall be immediately red tagged by the contractor and removed from service. The particular equipment

shall not be returned to service until the fork or forks is repaired or replaced in accordance with the manufacturer's recommendations and directions.

6.9 RIGGING

Rigging activities, regardless of the equipment used to hoist or move the materials shall comply while the following requirements:

- Comply with section 1.5.2
- The use of chains, including alloy steel chains, for the purposes of rigging any load, is prohibited unless prior approval is obtained form the MTA
- The rigging of loads shall be completed under the supervision of a qualified rigger
- The fork of any industrial forklift shall not be altered in any way to allow the attachment of a shackle or other rigging device. Rigging equipment shall not be directly supported or attached to the forks. A forklift may only be used to lift materials securely attached to pallets or when utilizing a manufacturer accepted or approved attachment that allows for the use of rigging equipment.
- Only safety hooks, or properly moused hooks shall be used. Suspended loads shall be controlled by tag lines.
- Hooks, shackles, wire rope, synthetic slings, and other rigging equipment subject to wear must be thoroughly inspected at regular intervals by a qualified rigger and repaired or replaced as required.
- All rigging equipment which is removed from service due to wear or defect shall be either destructively discarded or returned to the manufacturer
- Rigging equipment shall be inspected by a qualified rigger prior to each lift for obvious damage or defects. Equipment found to be damaged or defective shall be retired in compliance with above bullet.

6.10 ELECTRICAL

The following are requirements for electrical safety:

- All electrical work, installation and wire capacities shall be in accordance with the pertinent provisions of the National Electrical Code (NEC) and OSHA. Additional requirements for underground construction will be found in Section 11 of this plan.
- All switches shall be enclosed and grounded. Panel boards shall have provisions for closing and locking the main switch and fuse box compartment.
- Temporary cables or cords passing through work areas shall be covered or elevated to protect them from damage and to eliminate tripping hazards

- Temporary cables or cords crossing roadways shall be covered to prevent damage from vehicles and/or equipment and shall be maintain in a dry environment
- Extension cords used with portable electric tools and appliances shall be rated heavy duty, of the three wire grounding type, and shall conform to the type and configuration required OSHA and the NFPA
- All extension cords shall be thoroughly inspected for damage before each use
- Suitable means shall be provided for identifying all electrical equipment and circuits, especially when two or more voltages are used on the same job. All circuits shall be marked for the voltage and the area of service they provide.
- All electrical work shall be performed by qualified electricians who are familiar with the codes
- Ground-fault circuit interrupters (GFCI) or an accepted assured grounding program shall be used
- Energized parts of wiring or equipment shall be effectively guarded to prevent contact by personnel or objects
- All electrical circuits and/or equipment shall be de-energized prior to any work being performed on the circuits and equipment. Exception: When electrical circuits and/or equipment cannot be de-energized and must be worked hot, then adequate voltage rated insulated gloves, mats, aprons and other protective equipment shall be used as required and shall be tested for leaks and insulating capabilities.

6.11 "LOCK-OUT"/"TAG-OUT" CLEARANCE PROCEDURE

The following procedure is intended to provide a controlled method for rendering sources of stored energy including equipment or operating systems inactive (including mechanical or piped systems) when system is worked on for any reason, such as repair, removal or replacement of parts and or installation of new parts. The requirements of section 1.5.2 of this document shall be observed. This procedure includes the three basic phases of work on any system:

1. Shutting down system and draining, restraining or blocking stored energy sources
2. Repairing or otherwise working on the system
3. Re-start of the system

Even in the simplest of situations, the "lock-out" "tag-out" clearance procedure must be observed to ensure the safety of the operation.

Prior to starting any major operation that would involve locking and tagging procedures, a meeting shall be set up involving the Contractor's Safety Engineer and the Safety Manager. Specific procedures should be adopted and reviewed by all concerned prior to commencement of work.

6.11.1 Shutdown of Equipment or System

All equipment is to be shut down in a manner consistent with good operating practice. The main disconnect shall be opened in addition to any remote control switches. On electrical work, as a further precaution, the electrician shall remove all supply fuses. On piped systems, the main valves shall be closed and pressures relieved. After assurance that the equipment has been properly shut down in accordance with prescribed procedures, the craft supervisor shall positively determine that the equipment or system has been locked and tagged as follows:

- Each employee performing work on the system shall place a padlock on the equipment in such a manner as to render operation of the equipment or system impossible. All primary and secondary controls, including but not limited to switches, breakers, fuses and or valves, shall be similarly locked. Only the employee shall have access to the key for their individual lock(s) and only the employee who placed the lock on the machine shall remove.

- Each individual craftsperson assigned to the job shall attach to each of their locks a separate standard danger tag. The tag shall be dated, signed, and a short explanation for the reason for the tag should appear in the provided spaces.

- Prior to any employee entering any point of operation of the system, all stored energy in the system shall be drained or otherwise released as per the manufacturer's instructions. Additionally, prime movers shall be blocked, locked or otherwise restricted to prevent unintended operation or movement.

6.11.2 Repair or Installation

The craft supervisor responsible for the work must ensure that the equipment has been deactivated and properly locked and tagged before permitting his/her personnel to perform any work..

6.11.3 Starting Up Equipment or System

As soon as the work is completed, the locks and tags shall be removed by the individuals who installed them. In the event the shift ends before the work is completed, the status of the work is to be reported in detail to the oncoming shift personnel and the first shift personnel shall remove their locks only after insuring that the next shift personnel have similarly locked the system out in order to continue working on the system. At no time should a system be unlocked unless it is completely ready for re-start. Upon completion of the work, the supervisor will make certain all worker's locks and tags have been removed and that everyone is clear of the equipment or system. The supervisor shall return the equipment to normal operating conditions. At no time shall any person other than the person who locked and tagged a system be allowed to remove or otherwise alter the tag or lock placed upon the system.

6.12 TOOLS

Hand tools, power tools and similar equipment, whether furnished by the contractor or the employee, shall be maintained in a condition in compliance with manufacturer's instructions and direction. Supervisors and craft employees shall be responsible for the inspection and repair of tools under their control. Tools shall be used concurrently with personal protective equipment as recommended or directed by the manufacturer. Tools shall be used and maintained in compliance with section 1.5.2.

6.12.1 Hand Tools

The following are requirements for hand tools safety:

- Insulated or non-conducting tools should be used when working near energized electrical circuits
- Tool handles should be tightly fitted. Wooden handles should be carefully checked: tightened with wedges, if necessary, or replaced if split or splintered.
- All impact tools, such as chisels and punches, shall be regularly dressed to eliminate mushrooming or flaring of the point of impact

6.12.2 Power Tools

Power tool injuries are typically caused by improper handling or poor maintenance. The following shall apply to all types of power tools:

- Only authorized personnel shall be permitted to operate or repair power tools
- Maintenance of power tools shall be systematic. All worn or damaged tools shall be promptly repaired or replaced. All tools shall be cleaned, tested and inspected regularly.
- Power tools shall not be used if safety equipment, such as shields, tool rests, hoods and guards have been removed or otherwise rendered inoperative
- Employees using tools under conditions that expose them to the hazards of flying objects or harmful dusts shall be provided with personal protective equipment (PPE) that provides adequate protection from the specific hazard. The appropriate PPE will be identified in the JHA.
- All electrically powered tools shall be properly grounded or carry a manufacturers plate that clearly indicates double or triple insulation
- Fuel-powered tools shall not be used in unventilated areas. Gasoline shall be dispensed only from accepted and listed safety cans. Gasoline and other flammable products shall not be used or taken into underground areas.

- Portable grinders shall be provided with hood type guards with side enclosures that cover the spindle and at least 50% of the wheel. All wheels will be inspected daily or prior to each use for signs of fractures.

- Bench grinders shall be equipped with deflector shields and side cover guards. Tool rests and tongue guards shall have a maximum clearance of 1/8 inch from the wheel.

- Connectors on all compressed air hoses greater than 1/2" inside diameter shall have whip checks provided to prevent the hose from whipping in the event of accidental disconnection. All other pressure hoses shall have restrained connections.

- Air-supply lines shall be protected from damage, inspected daily or prior to each use and maintained in good condition

- The pressure of compressed air used for cleaning purposes shall be 30 psi or less (does not apply for cleaning forms, etc.)

- The trigger mechanism of all hand held power tools, powered either by air, electricity or fuel, shall not be modified without the expressed written permission of the tool manufacturer

- All personnel who operate pneumatic, electric or gasoline-powered chain saws shall be trained in the safe operation of a chain saw

- All chain saws shall be equipped with, at minimum, the following:
  - safety tip
  - hand guard/chain brake
  - spark arrester (gasoline only)
  - chain catcher
  - bumper spikes

- All persons operating chain saws shall utilize, at minimum, the following personal protective equipment:
  - hard hat
  - ANSI approved eye protection and face shield or screen
  - gloves

- cut resistant chaps
- approved hearing protection

6.12.2 Powder Actuated Tools

The following requirements should be followed for safe handling of powder actuated tools:

- Only employees trained in its use of powder actuated tools shall be permitted to use them. All personnel using the tool shall wear eye and hearing protection.
- Signs shall be posted in the work area advising all personnel of the use of powder actuated tools
- Tools shall not be loaded until just prior to use. Loaded tools shall not be left unattended. All expended shells shall be picked up and properly disposed of by the operator.
- Tools shall not be used in an explosive or flammable atmosphere. Cartridges (power source) shall be kept separated from all other material.
- All live rounds and misfires shall be secured by the authorized tool operator at the end of each shift
- Powder actuated tools used on this project shall meet the requirements of Section 1.5.2

6.12.3 Pneumatic Nailers/Staplers

The following requirements should be followed for safe handling of pneumatic nailers/staplers:

- To prevent unintentional discharge, all pneumatically driven nailers and staplers shall have a safety device on the tool which shall prevent the tool from being operated unless the muzzle of the tool is in contact with the work surface
- When not in use, the nailer and/or stapler shall be disconnected from the air supply
- All personnel, who operate pneumatic nailers and/or staplers, shall be trained in their safe operation and shall wear approved eye and hearing protection at all times during operation

6.13 WELDING AND CUTTING

6.13.1 Welding

The following are safety requirements for welding:

- Where welding is done, a suitable, approved fire extinguisher shall be available within ten feet of the hot work operation. Screens, shields or other safeguards

shall be provided for the protection of personnel or materials below or otherwise exposed to sparks, slag, falling objects or the direct rays of the arc.

- The welder shall wear approved eye and head protection consisting of an approved hard hat with appropriate welders face shield or hood attached.

- Electric welding equipment, including cable, shall meet the requirements of the National Electric Code. Welding practices shall comply with all applicable regulations.

6.13.2 Torch Cutting

The following are safety requirements for torch cutting:

- When gas cylinders are stored, moved or transported, the valve protection cap shall be in place

- When cylinders are hoisted, they shall be secured in an upright position in a cage or basket

- All compressed gas cylinders shall be stored, transported, and used in an upright position. If the cylinder is not equipped with a valve wheel, a key shall be kept on the valve stem while in use.

- An approved fire extinguisher shall be available within ten feet of the hot work operation

- Appropriate personal protective equipment, such as cutting glasses, shields and/or gloves must be used

- Materials being burned or cut shall be secured to prevent the unintended or uncontrolled falling of the material

6.13.3 Hot Work Permits

The contractor's Safety Engineer shall issue a Hot Work Permit before welding, cutting or any other spark-producing operations commence, if required by the job hazard analysis for the operation. Hot Work Permits shall only be issued after the following conditions have been confirmed:

- Fire protection facilities are in place

- Combustibles have been removed from the affected area, have been effectively shielded by a non-combustible barrier, or have been adequately water soaked

- The atmosphere contains less than 10% of the Lower Explosive Limit of explosive or flammable gases or vapors

In underground areas classified by OSHA as gassy or extra-hazardous, Hot Work Permits shall be valid only under the following conditions:

- Tests for explosive or flammable gases or vapors shall be conducted before the start and continuously during the hot work operation
- Hot work permits shall not be issued, nor shall they be valid during probe hole drilling or excavation of the face
- Confirm that ventilating air flow through the hot work area meets or exceeds required levels; the hot work shall immediately stop at any time the air falls below the required level

6.13.4 Fire Watch

A fire watch shall be maintained for at least ½ hour after completion of welding or torch cutting operations to detect and extinguish smoldering fires. Fire watchers shall be trained in the use of fire extinguishing equipment and shall be familiar with methods of sounding an alarm in the event of a fire.

6.13.5 Compressed Gases

At no time shall the amount of compressed gases for welding or cutting to be taken into or stored in a specific work be area other than that amount necessary for the completion of the assigned work during a single twenty-four-hour period. Compressed gas cylinders shall be considered to be "in storage" at any time when the regulator is removed. Cylinders that are "in storage" shall be maintained in a central designated storage area in compliance with NFPA.

6.14 CONCRETE AND CONCRETE FORMS

All equipment and materials used in concrete construction and masonry work shall meet the applicable requirements as prescribed in ANSI standard on "Safety Requirements for Concrete Construction and Masonry Work" as follows:

- Employees working more than six feet above any adjacent working surface, placing reinforcing steel, shall be protected by 100% fall protection including but not limited to personal fall arrest systems, guard rails or other systems providing 100% protection from falls
- Employees shall not be permitted to work above vertically protruding reinforcing steel unless such steel has been protected to eliminate the impalement hazard
- The riding of concrete buckets for any purpose shall be prohibited
- Powered concrete troweling machines (electrical or otherwise) of the rotating-blade type shall be equipped with a control switch that shall automatically shut off the power whenever the operator's hand is removed from the equipment handle. This switch shall be maintained in operating condition at

all times and shall not be modified with out written permission of the manufacturer.

- Walkways at least 18" wide shall be provided and maintained on horizontal reinforcing steel mats across which workers will be walking or might be expected to walk

6.15 STEEL ERECTION

Permanent floors shall be installed as soon as practical following the erection of structural members. The general requirements for steel erection safety are as follows:

- Materials shall be so secured as to prevent their falling
- When setting structural steel, each piece shall be secured with not fewer than two bolts at each connection and drawn up wrench tight before the load is released
- Avoid walking on the top flange of beams. Beams must be dogged using the lower flange. Personal fall arrest systems shall be worn and utilized by all personnel.
- When loads are being hoisted, employees shall not walk under the lift or be exposed to the swing of the lift
- A tag line shall be used to control all loads
- For the protection of other crafts on the project, signs shall be posted in the erection area

6.15.1 Temporary Flooring

The erection floor shall be solidly planked over its entire surface except for access openings. Planking shall be not less than 2 inches thick, full-size, undressed, and shall be laid tight and secured against movement. A standard guardrail shall be installed, approximately 42 inches high, around the periphery of all temporary floor openings during construction.

6.16 EXCAVATIONS, TRENCHING AND SHORING

The determination of the angle of repose and design of the supporting system shall be based on careful consideration of the following: depth of the cut; anticipated changes in the soil due to air, sun and water; and ground movement caused by vehicle vibration or blasting, and earth pressures. All work shall conform to section 1.5.2 of this document.

Positive barrier or plating shall be provided when a trench is placed adjacent to any roadway.

6.17 PERSONAL PROTECTIVE EQUIPMENT

The following establishes the minimum requirements of personal protective equipment to be used. Only equipment complying with ANSI Regulations and/or OSHA Standards shall be used. All contractors shall be responsible for the compliance by their employees. The Contractor's Safety Engineer shall make regular field inspections to ensure compliance.

Documented, repeat non-compliance by individuals will lead to the removal of the individuals from all Project Work Sites. Documented non-enforcement of these minimum standards by employers will lead to the revocation of Safety Awareness Program payment eligibility for a period of not less than three months.

6.17.1 Head Protection

All persons on MTA work sites shall wear an accepted hard hat at all times in the work areas, including personnel operating enclosed equipment or equipment designed with a Roll Over Protection System (R.O.P.S.). Hard hats shall meet the requirements of ANSI Z89.1 or ANSI Z89.2, as appropriate, in conformance with Section 1.5.2, of this document. Metallic (metal) hard hats shall not be worn. Hard hats shall be worn with the bill facing either to the front or back providing the internal suspension system is placed on the wearer's head correctly.

6.17.2 Eye Protection

Eye and or face protection meeting the requirements of ANSI Z87.1 shall be worn. The specific eye or face protection worn by the individual shall be selected by the employer based upon the hazards presented by the employees' duties.

6.17.3 Respiratory Protection

Respiratory protection devices approved by the National Institute of Occupational Safety and Health (NIOSH) shall be supplied by the contractor and worn by all employees as required by Section 1.5.2, of this document when exposed to hazardous concentrations of toxic or noxious dust, fumes or mists. Where respiratory protection is required the contractor shall have a written respiratory protection program in conformance with section 1.5.2.

6.17.4 Hearing Protection

NIOSH or MSHA approved hearing protection shall be made available by contractors, and such protection shall be worn by all employees exposed to sound levels in excess of OSHA's permissible exposure limits (PEL) and in compliance with section 1.5.2 of this document.

6.17.5 Fall Protection

Fall Protection systems conforming to Sections 1.5.2 and 6.3 of this document, shall be provided by the contractor and shall be utilized by all employees exposed to falls from a height of six feet or more.

6.17.6 Safety Shoes

All persons entering the work areas of the site shall wear a sturdy leather or rubber work boot. Hiking shoes, dress shoes, sneakers or other recreational shoes including steel-toed recreational shoes, deck shoes, high heeled shoes, sandals and opened-toed shoes are not permitted on the work site.

6.17.7 Suitable Clothing

All contractor employees will be required to wear full-length pants, free of holes and made of durable material. An employee will not be permitted to wear clothing that has been saturated by gasoline, diesel fuel, oil, or any other flammable or combustible substance. Clothing constructed of synthetic fibers is not allowed underground or in areas where the is the potential for fire or explosion (including electrical rooms). Synthetic fibers melt upon exposure to heat, exacerbating any injuries. An employee's shirt must completely cover his/her shoulders as well as his/her entire mid-section to the waist. Athletic, sleeveless, tank top or fish net type shirts are not allowed. The minimum shirt allowed will be a standard T-shirt.

6.17.8 Other Personal Protective Equipment

Other personal protective equipment to be used under unusual circumstances, such as high temperature work, handling corrosive liquids, or other activities not specifically covered in this section shall be identified in the JHA and provided by the contractor.

6.17.9 Maintenance of Equipment

The contractor shall collect and destructively discard any personal protective equipment that has been altered in any manner.

6.18 BLASTING

The "Blaster's Handbook" by E.I. DuPont is one of several excellent guides in the use, storage and handling of explosives. All transportation, handling and use explosives shall be done in compliance with the requirements of Section 1.5.2. Any blasting shall be under the direction of a blaster licensed by FDNY.

6.19 FIRE PREVENTION/FIRE PROTECTION

Fire prevention/fire protection is of special importance during construction. There are considerably more hazards present during construction than will be present in the completed facility. Constant attention to the fundamentals of fire prevention/fire protection is vital.

The contractor shall comply with the recommendations of the National Fire Protection Association and applicable regulations of the FDNY and comply with Section 1.5.2 of this document.

The Contractor's Safety Engineer shall make fire hazard inspections of the entire project on a regular basis. Immediate correction of substandard conditions is mandatory.

The following are general requirements for fire prevention/fire protection safety:

- Particular care shall be taken when welding and cutting in locations where combustibles are present. When such welding or cutting is done, the surrounding area must be protected with fire retardant blankets and an adequate number of approved fire extinguishers must be immediately available. A fire watch and hot work permit shall also be at the site of the work.

- The operation and maintenance of temporary heating equipment shall create no fire hazards. The use of solid fuel salamanders shall be prohibited. Clothing must not be dried by placing on or near heaters.

- All flammable and combustible materials shall be stored, piled and handled with due regard to their fire characteristics. Flammable and combustible liquids must be handled and stored in accordance with section 1.5.2 of this document and dispensed only in acceptable safety containers. Welding gases shall be stored and segregated by type of gas. Lumber shall be stored in conformance with section 1.5.2 of this document.

- Temporary shacks or similar structures shall be constructed of fire resistant materials

- Rubbish and debris shall be cleaned and removed to acceptable containers at the end of each shift

- Fire extinguishers shall be located throughout the work area as required by section 1.5.2 of this document. The fire extinguishers shall be checked at least once each month and records kept as to service and maintenance in conformance with NFPA Standards.

6.20 CRANE-SUSPENDED WORK PLATFORMS

The use of a crane to hoist personnel in or out of shafts is prohibited except when the erection, use, and dismantling of conventional means of reaching the worksite would be more hazardous, or is not possible because of structural design or worksite conditions. In the case of an emergency, personnel may be hoisted in an approved man-cage or basket stretcher. In all other circumstances, before personnel can be hoisted, and the contractor shall comply with the following procedures.

6.20.1 Request Procedure

Requests for use of a crane-suspended work platform shall be submitted to the MTA no less than 21 days prior to the start of work with the platform. A complete submittal will include, at minimum, the following:

- A statement of why conditions, methods or operations require the use of a crane-suspended work platform

- A description of the crane to be used and the manufacturer's requirements in the use of the crane to suspend a personnel work platform

- The contractor shall certify, by letter, that the work platform and other components, including hardware, have been designed and/or reviewed by a qualified registered civil, mechanical or structural engineer

- Copies of all designs, drawings or other specifications for the components of the platform and rigging shall be submitted bearing the approval stamp and signature of a state of New York licensed professional engineer

- A thorough Job Hazard Analysis for the hoisting activities to be undertaken by the contractor. The contractor shall provide any additional information as required by the MTA to allow for proper review. Additional information requested by the MTA shall be considered within the original scope of this contract and shall not delay the schedule of work by the contractor.

- Copies of the last annual crane inspection report and the latest monthly crane inspection report

The contractor shall not hoist by means of a crane any employee until such time as the MTA has reviewed the items submitted in compliance with the paragraphs above. The contractor shall notify the Resident Engineer, in writing, prior to putting the crane and work platform into service. Notification shall certify that the contractor has complied with the requirements of this plan regarding the work to be undertaken. The contractor shall submit on a daily basis, a copy of the daily inspection of the crane being used for suspended work activities. The contractor at the Work Site shall maintain a file of all inspections.

6.20.2 Crane Safety Requirements

The following requirements shall be fulfilled by the contractor prior to and during any hoisting of personnel with a crane and work platform:

- When a crane and work platform are to be used the contractor shall comply with section 1.5.2 of this document.

- The contractor shall comply with the crane manufacturer's recommendations and OSHA requirements in the selection and use of a crane for suspending personnel on a work platform.

- Cranes used to suspend personnel on work platforms shall have the following safety features installed and operating:

  - The minimum safety factor for the wire rope hoist line and rigging components shall be ten times the maximum anticipated load as submitted by the contractor in the Job Hazard Analysis. Manufacturer's specifications shall be made available to the MTA for review.

  - There shall be a means for the operator to make sure that the crane is level

  - An anti-two-block device having audio/visual warning and lock out capabilities shall be provided to prevent damage to the wire rope and/or other components

  - A spring-loaded return to neutral or dead-man control. The load automatically stops when the controls are released

- A boom angle indicator and load charts readily visible to the operator
- Manufacturer's instruction manuals
- Radio or telephone communication system for voice communication between the crane operator, signal person, and personnel on the platform
- Any modifications or alterations to the crane shall be prohibited unless prior written authorization is obtained from the manufacturer. The manufacturer shall physically inspect all modifications or alterations and provide a letter certifying that the work meets the manufacturer's specifications. The crane shall be re-certified.
- Cranes with telescoping booms shall be marked so the operator knows the extended length

Mobile cranes shall be used for hoisting only when all outriggers are in the fully extended position and properly placed on a supporting surface. Hydraulic Outrigger Jacks shall be deployed in such a manner as to insure the level nature of the crane turn table and that the complete weight of the equipment is supported only by the Hydraulic Outrigger Jacks.

6.20.3 Crane Test and Load Requirements

The combined weight of the personnel platform, the attachment device, personnel, tools, other equipment and rigging deployed from the boom shall not exceed fifty percent of the lifting capacity of the crane's load chart at any given radius. The platform shall be load-tested at one hundred and fifty percent of the intended load prior to handling personnel. No one shall ride in the platform while the test is being conducted. The weight of the platform, personnel, attachments and all equipment contributing to the total weight of the load shall be calculated to determine the maximum allowable load. A simulated lift, with the platform loaded with at least the amount of weight as it will carry under working conditions, shall be performed to include movement of the platform through its entire range of motion. Once the simulated lift has been performed, the crane and platform shall be inspected for any signs of damage or defects. If any are found, they shall be corrected and the simulated lift repeated.

6.20.4 Inspection of the Crane and Personnel Platform

The crane shall be inspected daily when being used to handle a personnel platform and each time the crane is converted from use for material handling to use for personnel platform operations. The personnel platform shall be inspected immediately before any lifting operations.

6.20.5 Personnel Platform Design Criteria

The following are requirements for platform design safety:

- The platform shall be designed by a qualified New York registered civil, mechanical or structural engineer. Design calculations shall be included with the

professional engineer's stamped design drawing. Designs and drawings shall be submitted to the MTA for review.

- The platform and attaching devices shall have a minimum safety factor of ten
- The platform shall be designed for a minimum of four point suspension
- The platform shall have guardrails and toe boards that conform to section 1.5.2 of this document
- The flooring of the platform shall be of a non-slip material
- Provisions shall be made to secure tools and materials while the platform is in motion
- The platform shall have a plate specifying the following:
  - Weight of the empty platform including attaching hardware
  - Maximum number of people it is designed to carry
  - Name of the platform manufacturer, serial number and date manufactured
- The platform shall have overhead protection when there is an overhead hazard
- The platform shall be easily identifiable by high-visibility color or markings
- Access doors, if installed, shall open only to the interior of the platform and have a locking device

6.20.6 Rigging Requirements

The following requirements are for rigging safety:

- Wire rope, shackles, bull rings, cable eyes and other rigging hardware shall have a safety factor of ten
- The platform shall be suspended by a bridle consisting of at least four separate wire ropes with an angle of at least sixty degrees from the horizontal
- The bridle and rigging hardware shall not be used for any other lifting purpose
- The bridle and rigging hardware shall be marked with the same high visibility color or markings as the platform
- All cable eyes shall be equipped with thimbles. Manufacturer's specifications shall be kept in file on the Work site. This provision shall apply to all wire rope including rigging equipment.

- The cable legs of the bridle shall be connected to a bull ring or shackle as a means of attachment to the load line
- Defective or worn rigging equipment including but not limited to wire ropes, shackles, bull rings, cable eyes and other rigging hardware shall be destructively retired from service

6.20.7 Securing Personnel

Unless the personnel platform is enclosed by one half inch wire mesh to a height of at least six feet from the standing surface on all sides, all personnel lifted by the platform shall be equipped with and utilize a full body harness, decelerating lanyard, double locking snap hooks and an anchorage point supported by a structural member of the platform. Personnel shall not loop a lanyard around a structural member and hook around the lanyard.

6.20.8 Operating Requirements

The following are operation requirements for crane use safety:

- The crane shall be level within one degree and on firm ground. When outriggers are used, they shall be fully extended and set with the tires off the ground. Locking devices on the outriggers to prevent loss of support shall be engaged.
- The hoist drum shall have a minimum of three wraps on the drum when the platform has reached its lowest point of travel
- Lifting and lowering speeds shall not exceed one hundred feet per minute. The operator shall conduct operations slowly and cautiously at all times.
- The crane operator shall remain at the controls at all times when handling personnel on the platform. If for any reason the operator must leave the controls, personnel shall be removed from the platform prior to the operator leaving.
- The crane operator shall be physically and mentally fit and capable of communicating with the personnel on the platform
- The crane operator shall be thoroughly familiar with safe craning practices, trained and experienced with the equipment being used, and have a complete understanding of all manuals including maintenance and operation instructions provided for the specific crane in use.
- The crane operator shall hold a current crane operators license as issued by the city of New York
- Personnel shall not ride on the platform while the crane is traveling
- All brakes and locking devices shall be engaged when the platform is in the working position

- The platform shall be used only with the crane for which it was approved and tested
- A qualified signalman shall be assigned to the operation and have no other duties while personnel are on the platform
- Personnel platforms shall not be used for working on energized electrical lines or any devices used to generate or transmit electrical power
- When the crane with a personnel platform is working in the vicinity of electrical lines or devices, the minimum clearances maintained shall be at least twice those required for the voltage present
- The personnel platform shall not be used during weather conditions that will endanger the safety of those on the platform. Such conditions are high winds (15 mph or higher), electrical storms, snow, ice, fog and darkness.
- If the crane is equipped with a free fall load line, steps shall be taken to make the free fall capability inoperable when the personnel platform is in use
- A meeting shall be held prior to the lift with the crane operator, signalman, personnel to be lifted, and contractor personnel responsible for the work to be performed to review all work procedures

6.21 WORK ON OR NEAR ACTIVE RAIL

It is the responsibility of the Contractor to verify that project activities that occur in or adjacent to active railroads be conducted in a safe manner and in accordance with all applicable regulations. Specific safety requirements must be identified and railroad worker safety training must be conducted for every employee prior to entering a railroad location. The Contractor shall be responsible for coordinating this training with their employees and the RE. Each employee shall be required to carry a card and display a training sticker on his/her hard hat that verifies the training has been completed. Details of the railroad worker safety program requirements are provided in the ESA Railroad Safety Manual.

6.22 AERIAL LIFTS

The general requirements for aerial lift safety are:

- An authorized manufacturer shall install aerial lifts mounted on the bed of trucks
- The manufacturer in the safe operation of the lift shall train personnel who operate the aerial lifts
- All personnel shall wear and use a personal fall protection system while on the lift. The lanyard shall be anchored to the lifts guard rails
- Aerial lifts shall only be used within the guidelines of the manufacturer

6.23 NOISE CONTROL

The contractor shall comply with section 1.5.2 of this document as well as the city of New York or other jurisdictions' laws, rules, regulations including requirements in the contract regarding noise abatement, curfews and other related issues.

6.24 LASERS

The general requirements for laser safety are:

- Only qualified and trained personnel shall be assigned to install, adjust and operate laser equipment
- Personnel shall wear proper eye protection where there is a potential exposure to laser light greater than 0.005 watts (5 milliwatts)
- Lasers shall be located and targeted at levels above the workers' sight, when possible
- Beam shutters or caps shall be utilized, or the laser turned off, when laser transmission is not actually required
- When the laser is left unattended for a substantial period of time, such as during lunch, overnight, or at changes of shifts, the laser shall be turned off
- Signs warning all personnel of laser hazards shall be posted in the areas where lasers are being used

6.25 ASBESTOS

The project asbestos control plan consists of the following elements regarding asbestos-related work. All contractors and their subcontractors shall adhere to these requirements.

- Minimize exposure of employees and visitors to airborne asbestos
- Comply with all pertinent, regulatory, and project requirements related to asbestos-containing materials
- Utilize procedures for the identification, evaluation, control, maintenance, disturbance, abatement, and waste storage/disposal of asbestos-containing material at the project sites
- Remove, enclose, encapsulate, or repair hazardous asbestos-containing material as required by government regulations, and as needed to protect human health
- Assure all employees at the project sites have received asbestos awareness training

- Use only DEC and NYDEP certified asbestos consultants to evaluate potential asbestos-related hazards, sample suspect materials, and oversee asbestos-abatement projects
- Eliminate the installation of new asbestos-containing material whenever possible
- Ensure that asbestos-related contracted/subcontracted work is properly planned, reviewed, and conducted

6.26 LEAD

All contractors and their subcontractors shall adhere to the following rules as they pertain to lead to protect the health of employees and to address a variety of issues regarding lead-related work:

- Minimize exposure of lead to employees and visitors
- Comply with all pertinent, regulatory, and project requirements related to lead-containing materials
- Follow the regulatory procedures for the identification, evaluation, control, disturbance, abatement, and waste storage/disposal of lead-containing material at project sites
- Remove, enclose, encapsulate, or repair hazardous lead-containing material as required by government regulations, and as needed to protect human health
- All project employees shall have lead awareness training
- Only Department of Environmental Compliance (DEC) and New York City Department of Environmental Protection (NYCDEP)-certified lead personnel shall evaluate potential lead-related hazards, sample suspect materials, and oversee lead abatement projects

6.27 ENVIRONMENTAL PROTECTION

No contractor shall emit or discharge any substance into the environment in violation of the Environmental Protection Agency (EPA), New York City Department of Environmental Protection (NYCDEP), OSHA or other regulatory agencies. The contractor shall be responsible for all environmental monitoring and testing. Where an unintended discharge occurs the following steps shall be implemented:

- Immediate steps to minimize the discharge and resultant environmental impact
- Contact the Resident Engineer or NYCDEP

6.28 FUEL TRUCKS AND FUELING OPERATIONS

The following are requirements for fuel trucks and fuel operations safety:

- The contractor must comply with the requirements of the New York City Fire Department
- Warning placards and signage shall be permanently affixed to each side and the rear of the vehicle
- Fuel trucks shall be equipped with a fire extinguisher with a minimum rating of 20-B. The fire extinguisher shall be securely mounted to the truck and accessible for immediate use.
- Fueling operations are prohibited below grade without a special permit where required
- All equipment shall be shut down during fueling. This includes, but is not limited to, loaders, cranes, portable generators and compressors.
- All stationary fuel and oil storage tanks shall conform to section 1.5.2 of this document, and local fire department rules and regulations
- All stationary above ground storage tanks shall be equipped with a liquid resistant berm or other spill containment system capable of containing the entire volume of the storage tank without releasing liquid into the natural ground or water discharge system

6.29 TEMPORARY PRECAST AND CONCRETE DECK

The following are requirements for temporary precast and concrete deck safety:

- Decking mats shall be closely fitted together to prevent cracks between the mats
- Hooks for lifting and placing the deck mats and other rigging hardware shall be capable of lifting at least five times the deck mat weight
- When precast and concrete deck must be removed for any reason, the contractor shall provide appropriate fall prevention or protection measures at all times that the panels are removed. All personnel working within five feet of the deck opening shall be protected by a personal fall arrest system in conformance with section 1.5.2.
- All deck precast and concrete lifting eye holes and cracks shall be covered or filled with a suitable material, to prevent objects from falling through and to prevent pedestrians from stepping into the holes or cracks. In pedestrian walkways, material used to cover the holes and cracks shall be kept flush to prevent tripping.

7.1 PURPOSE AND SCOPE

To ensure that each contractor is aware of its responsibility for compliance with the Occupational Safety and Health Act, and to ensure that the contractor has readily available the applicable construction safety standards.

7.2 OBJECTIVES

The prevention of injuries is the primary rationale for the requirement that contractor's comply with these regulations.

7.3 PROCEDURES

7.3.1 OSHA

Under the Federal Occupational Safety and Health Act (Fed/OSHA), the federal government has established safety standards (29 CFR 1926/1910) for the construction industry.

The Construction Safety and Health Plan is an MTA contract document and contractors are required to ensure that all employees, visitors, subcontractors, and their suppliers/vendors, while on the work site and in the conduct of MTA contracts, shall comply with the requirements of this document. The contractor shall recognize that all government promulgated safety regulations are *minimum standards* and that additional safeguards may be required by the MTA or its designee to ensure work site safety and health and loss prevention.

7.3.2 Familiarization with Safety Standards

Each contractor must be familiar with the Occupational Safety and Health Act as they pertain to the contractor's work responsibility.

7.3.3 Reporting Fatal/Serious Injuries and Illnesses

All fatal incidents and/or serious injuries and illness resulting in in-patient hospitalization of three or more workers as a result of a particular incident shall be reported to OSHA district office. Employers must immediately report all blasting incidents.

7.3.4 OSHA Poster

Part of the OSHA requirements is that each employer must post in a prominent location the "Safety and Health Protection on the Job" poster. The poster briefly states the intent and coverage of the Act. Failure to post this document is a citable offense under the Act.

7.3.5 Ordering Safety Materials

Copies of the Occupational Safety and Health Act and related information on education and training programs may be secured from various sources both locally and outside the local area. If additional information is required regarding the procurement of required standards or other information, contact the Construction Safety Staff or the local OSHA District Offices.

7.3.6 Permit/Registration Requirements

All contractors shall obtain the necessary permits from New York State and/or City, MTA, or other jurisdictions within which work is being performed, for the following types of construction operations prior to the start of such operations:

- Construction of trenches or excavations five feet or deeper into which a person shall be required to descend
- The construction of any building, structure, scaffolding or falsework three stories high or the equivalent height
- The demolition of any building, structure or the dismantling of scaffolding or falsework more than three stories high or the equivalent height
- Operation of diesel engines underground
- Prior to doing any asbestos related work register with the California Division of Occupational Safety and Health (Labor Code 6501.5)

7.3.7 INSPECTIONS

Regular and unscheduled inspections of MTA contracts by OSHA as well as other regulatory agencies are to be expected by all MTA contractors. The Contractor shall, upon notification of an OSHA inspection by a Compliance Officer, notify the RE of the inspection request.

8.1 PURPOSE AND SCOPE

To establish on MTA construction projects prompt notification, thorough investigation and timely reporting of all project-related incidents, including illness or injury affecting any person, including third parties and near misses.

Adherence to the following will promote contractor and subcontractor compliance with MTA incident notification, investigation and reporting requirements.

8.2 NOTIFICATION

The contractor shall report all incidents of the type listed below immediately to the RE or designee. The purpose of this guidance is to ensure that project management is aware of and has the opportunity to engage in the response to serious health and safety events. It is intended to provide consistency in what is reported. Unique factors that serve to increase the seriousness of some occurrences should result in reporting of events otherwise excluded by this listing.

Emergency Events

Any event deemed to be an emergency, requiring a report to the '911'agency or intervention of emergency first responders such as fire, rescue, or ambulance (other than ambulance for personal illness).

Job Related Injuries/Illnesses:

- Any injury or illness resulting in a fatality
- Any lost-workday case injury or illness
- Any injury or illness resulting in in-patient hospitalization
- Any injury or illness resulting in medical treatment beyond first aid
- Any illness resulting from job-related exposures that could worsen significantly
- Any injury or illness requiring ambulance transport
- Any electrical shock contact with of 110VAC or greater

Property Damage:

- Any explosion or violent uncontrolled chemical reaction
- Any fire beyond the incipient stage that requires trained firefighters to extinguish
- Any incident or accident resulting in property damage greater than $5,000

Exposure to Toxic Materials, Harmful Physical Agents, or Radiological Events:

- Any personal contamination case (uptakes) in excess of regulatory standards

- Any penetrating radiation exposures greater than the project limits

Near Misses / Near Hits:

- Any event where the potential for an injury or death existed had the conditions changed slightly
- Any excavation collapse where employee or equipment was exposed to potential injury or damage
- Any confined space incident where employees were injured or exposed to chemicals
- Any fall from elevations greater than 4 ft

Other Events

The contractor shall report all other injury or illnesses, 'near miss' or non-serious property damage incidents not listed above to the RE by the end of the work shift within which they occurred.

8.3 OBJECTIVES

To ensure that project management is aware of all project incidents and that investigations are conducted to determine the cause of an incident and establish corrective actions to prevent recurrence.

8.3.1 Investigation

All incidents shall be thoroughly investigated without delay by the contractor. The investigation should generate appropriate recommendations for corrective actions to prevent recurrence of similar incidents.

In the event of a serious incident, the contractor shall immediately make an oral report of the preliminary details to the RE in compliance with Section 8.3.5 of this document. Serious injuries are defined as those injuries that are immediately life threatening, those that require hospitalization (including admission for observation) and those injuries that result in time lost from work as prescribed by a physician.

Contractors shall issue standing orders to all supervisors directly in charge of operations that the scene of an incident shall not be disturbed, except for rescue or other emergency measures, until otherwise directed by the RE.

Contractors' personnel, either witnessing or party to the incident, shall be detained at the site to provide detailed accounting of facts in the form of a written, signed statement. All statements as well as a preliminary investigation into the facts conducted by contractor management personnel, including drawings and pictures, shall be submitted to the RE within 24 hours of the incident.

Serious incidents and injuries may be directly investigated by the MTA. All contract employees, regardless of tier, shall make themselves available to the MTA at the MTA's convenience for interviews regarding the incident under investigation. The contractor shall

also preserve the incident scene in an undisturbed condition until advised by the MTA that work may continue. Compliance, as determined by the MTA, with the provisions of this section shall be considered within the original scope of work and shall not delay the schedule of work for the contract.

8.3.2 Analysis and Corrective Action

Corrective action can only be taken when specific factors of an incident have been accurately developed and the resulting recommendations have been disseminated to responsible persons.

In preparing written reports of an incident, statements and comments should be confined to facts.

The contractor's incident report, project records, progress reports and daily time reports may become important evidential material in any ensuing legal action. Accordingly, for the date on which a potential third-party accident has occurred, it is important to be specific and accurate in describing work being performed, crew and equipment being utilized, and their exact location.

8.3.3 Recordkeeping

Complete records are necessary incident prevention tools and specific records are required by OSHA. Failure to maintain these records is a citable offense.

8.4 PROCEDURES

8.4.1 Investigations and Reports

The contractor shall include with its Safety Program submittal report forms to be used for investigating and reporting accidents and incidents.

8.4.2 Incident Investigation Report

Within 24 hours of an incident, the contractor shall submit a report for each incident involving any of the following:

- Injury to an employee of the contractor or any subcontractor
- Any injury to persons not directly connected with the project (including all alleged injuries reported by a member of the general public)
- Incidents resulting in damage to public, private or commercial property (including all alleged property damages)
- "Near Miss" Incidents - any incident which could have involved any of the above

A complete supplemental report including written statements, sketches, photographs and any other pertinent facts shall be submitted within seven calendar days of the incident.

8.4.3 Monthly Injury Summary

A Monthly Injury Summary, shall be prepared and submitted to the RE.

8.4.4 Photographs

Photographs shall be taken in conjunction with investigations of any incident involving serious personal injury, all non-project personnel injuries, substantial property damage (including motor vehicle), equipment or material failure, and all incidents that may, even remotely, involve third party action.

Photographs shall be sufficient in number to adequately reflect the general area as well as pertinent details from a variety of angles. Photographs should be taken as soon as possible following the incident.

Identify each print on its reverse as follows: name of injured (if equipment damage, type; if property damage, location); date of incident; photographer's initial, and time photographs taken (date if different from occurrence); direction facing, and brief description of photo.

8.4.5 Telephone Reports

The contractor shall designate a responsible person to make emergency calls.

Should a serious incident occur resulting in damage to public or MTA property; or bodily injury to the public or employees of MTA, its consultants, contractors, or their subcontractors, it shall be reported immediately by phone to the Resident Engineer.

9.1 PURPOSE AND SCOPE

The Confined Space Permit Policy (CSPP) has been designed to prevent serious physical injury or death caused by employees attempting to perform work in confined space areas without proper testing and evaluation being performed.

9.2 OBJECTIVES

The objectives of the Confined Space Permit Policy are as follows:

- To establish a contractual definition of a confined space to aid in proper identification
- To establish minimum standards for work to be performed in a confined space
- To ensure compliance with all regulatory safety regulations with respect to work in a confined space

9.3 GENERAL REQUIREMENTS

Contractors shall ensure that their employees and supervisors are trained in Confined Space Entry Procedures in conformance with section 1.5.2, of this document. This includes all contractor and subcontractor personnel involved in any confined space operation. In addition, no employee shall enter a confined space without the prior completion of a Safe Entry Permit or similar checklist by a competent person.

9.4 CONFINED SPACE

A confined space shall include any area which:

- has limited openings for entry and exit
- may contain or produce toxic air contaminants
- has or may have a high concentration of an inert gas
- is not intended for continuous occupancy
- has or may have an oxygen deficient atmosphere (less than 19.5%)

Examples include, but are not limited to, storage tanks, process vessels, vats, vaults, sewers, manholes, cells, ducts and rooms with less than proper size openings for easy access with no mechanical ventilation.

9.5 RESPONSIBILITIES

Confined space areas shall be identified and evaluated by supervision and/or qualified safety personnel prior to employee entry. Once the evaluation is complete, supervision will draft its plan for ensuring that the elements of the CSPP are met. The contractor shall comply with the requirements of section 1.5.2.

10.1 PURPOSE AND SCOPE

The purpose of this section is to establish a procedure for the identification and notification to employees of hazardous substances. In general, there are two types of hazardous substances: chemicals brought onto the work site as part of the work and hazardous waste substances found at the work site. Both types are of concern to the MTA with respect to the health of the work force.

10.2 OBJECTIVES

The following are objectives of handling hazardous substances:

- To establish minimum standards for the handling of hazardous substances in the workplace
- To ensure compliance with all regulatory safety and other regulations with respect to the handling of hazardous substances in the workplace
- To establish a reporting criteria for providing information to the MTA regarding hazardous substances in the workplace.

10.3 GENERAL REQUIREMENTS

Contractors shall comply with the requirements of "Chemical and Hazards Safety and Health Plan" as per 29 CFR 1910.120 as it applies to the handling of hazardous wastes and shall submit for acceptance plans and other preventative measures as required by the Technical Specifications.

10.4 HAZARDOUS WASTES

The following are requirements for dealing with hazardous wastes:

- Contractors shall provide their personnel with information and training on hazardous waste substances in the work area at the time of their initial assignment and whenever a new hazard is discovered in their work area
- Contractors shall ensure that each container of hazardous waste substances, regardless of size, in the workplace is labeled, tagged or marked with the identity of the hazardous waste substances contained therein; and must show hazard warnings appropriate for employee protection
- Contractors shall provide their employees with all appropriate personal protective equipment when the employees must work with or near hazardous wastes. Contractors shall base personal protective equipment decisions based upon the maximum amount of protection, which can be afforded to the employee.

10.5 CHEMICAL HAZARDS

All hazards, including chemical, physical, and biological, shall be properly included in the Contractor's Safety and Health Plan in compliance with section 1.5.2. This program shall be submitted for review and acceptance as per the Technical Specifications of this contract.

10.6 REPORTING OF HAZARDOUS SUBSTANCES

All contractors shall comply with the following reporting requirements:

- All exposures to hazardous substances shall be immediately reported to the Resident Engineer in writing
- Each contractor working on the MTA ESA project shall provide the MTA with a list of hazardous substances that they will be using in their work-site operations. This list shall be updated and re-submitted by the contractor whenever a new substance or product is added. Copies of all Material Safety Data Sheets and other documentation shall be maintained at the work site.

11.1 PURPOSE AND SCOPE

To set forth minimum safety and health requirements for work areas located in and exposed to the hazards of underground construction. The objectives are:

- To set forth minimum standards for the provision of a safe and healthful workplace
- To ensure compliance with all regulatory safety standards as well as any special MTA underground safety standards
- To establish guidelines for required emergency procedures

11.2 GENERAL REQUIREMENTS

All contractors and subcontractors constructing or performing work in tunnels, shafts, underground chambers and other construction areas both physically connected to ongoing underground construction operations and covered in such a manner as to create conditions characteristic of underground construction for the MTA shall comply with the requirements of Section 1.5.2 of this document and the following requirements:

11.3 VENTILATION, DUST CONTROL AND AIR QUALITY

Within forty-five days of NTP or prior to starting construction, whichever occurs first, the contractor shall submit a work area ventilation plan. The plan shall be jobsite specific and shall be reviewed by the MTA for integration with other submitted and the project wide ventilation plan. Compliance with this provision and any stoppage of work resulting from non-compliance with this provision shall be considered within the original scope of this contract and shall not delay the schedule for performance of work by the contractor.

The work area ventilation plan shall be updated and resubmitted prior to any changes in the configuration of the existing plan and system. Fresh air shall be provided to all underground work areas by a ventilation system which is reversible from the surface.

No person shall be allowed to enter an underground work area unless the ventilation system, which supplies ventilation to that area, is operating and gas testing has confirmed adequate air flow and air quality.

In the event that the ventilation system stops operating, all persons shall be immediately removed from the affected underground area and shall not be permitted to reenter until the ventilation system operation has been restored and the minimum required airflow and air quality has been confirmed.

The fresh air flow shall not be less than 200 cubic feet per minute for each person underground plus 100 cubic feet per minute per diesel brake horsepower for each diesel engine (or greater if required by the manufacturer). The linear velocity of the air flow in tunnels shall not be less than 30 feet per minute. NOTE: These are minimum velocities and volumes. Other portions of the contract may require increased ventilation requirements. Where these minimum velocities/volumes are less than other contractual requirements, the highest velocities/volumes shall be required.

Whenever OSHA-required gas testing is performed, the contractor shall also perform an air flow test. Results of air flow tests shall be recorded. If measurement indicates that air flow and/or air quality requirements are not being met, the contractor shall immediately increase the air flow, remove personnel or remove/shut down diesel equipment, as necessary to meet the air flow and air quality requirements. The air supply shall be of sufficient quantity to prevent accumulations of dust, fumes, vapors and gases. Necessary precautions shall be taken should dust, fumes, vapors or gases be encountered. Drilling of rock or concrete and power cutting or power grinding of concrete shall only be performed by tools that introduce water at the point of operation.

11.4 TRANSPORTATION AND HAULAGE

All locomotives shall be equipped with lights, front and rear, an audible warning device (horn, bell or siren) a fire extinguisher and self-rescuers. Trains shall not be operated at a speed that will endanger any employee. All locomotives and cars shall be safety inspected at the beginning of each shift. Any defects affecting the safe operation of the equipment shall be corrected before its use. Locomotives and cars shall be equipped with automatic couplings. All cars shall be equipped with safety chains that are connected between cars/locomotives when in use. All trains shall slow down and use extreme caution when passing over switches or when personnel are alongside the track..

Riders shall ride on the locomotive only while seated in seats equipped with safety belts. All other personnel transported by the locomotive shall be seated in a man-car. At no time shall personnel ride on the outside of the locomotive. Standing shall only be allowed by the operator in the completion of his/her duties.

No train shall be moved until the operator has first given a warning by sounding a bell, horn or siren. All standing trains and cars shall be blocked or otherwise secured to prevent movement. All materials being transported by train shall be adequately secured against shifting. Only cars equipped with seats, overhead protection, non-skid floors, adequate headroom, enclosed sides and entrance gates at sides of the car shall be provided and used to transport personnel. The use of fuel-burning or internal combustion engines or locomotives underground is prohibited except for diesel engines.

In the event that oil, water or other conditions render track slippery, sand or other effective means shall be used to treat the affected areas to provide for adequate traction. Sanding mechanisms with which locomotives are equipped shall be maintained in working condition.

Locomotives shall be equipped with both manual and emergency braking systems. Braking systems shall be kept in serviceable condition at all times. They shall also be equipped with a deadman control system, which will be kept serviceable at all times.

11.5 HOISTING MATERIALS IN SHAFTS AND UNDERGROUND STATIONS

The top lander shall warn employees in the shaft, by the use of an air horn, or bells of loads to be lowered into the shaft prior to the load being placed over the shaft. Material hoisting, into and out of a shaft, shall be done by using appropriate hand signals or other approved communications systems such as voice communication with radios and voice-activated headset

The top lander shall stand at the top of the shaft where he/she can see all vertical movement of the line and material being hoisted. The bottom lander shall keep all personnel clear of the load. All shafts or excavation shall be provided with guardrails arranged to prevent an employee from walking or falling into the shaft

11.6 HOISTING OF PERSONNEL BY CRANE

11.6.1 General Requirements

Shaft and underground sites present unique conditions of access. To address these conditions, the contractor shall comply with the following requirements when using a crane to move personnel into or out of the work area or for positioning the personnel to perform the work.

Prior to utilizing a crane to hoist personnel into or out of the shaft, or any other underground area, the contractor shall comply with the provisions of Section 6 of this document.

11.6.2 Special Requirements

In addition, the contractor shall comply with the following:

- Personnel cages used to transport personnel into or out of a shaft or excavation shall be enclosed on all sides by one-half inch wire mesh to a height of not less than six feet
- When a work platform is used solely for the transportation, all personnel shall comply with the fall protection requirements of Section 6 of this document
- Work platforms shall not be routinely used for the transportation of personnel into or out of a shaft or excavation

11.7 ACCESS AND EGRESS

The employer shall control access to all openings to prevent unauthorized entry underground. The following are requirements for safety of visitors:

- A check-in/check-out system for personnel entering the underground work area shall be established to identify all personnel
- There shall be on duty, at each surface grade level entrance to the work, a designated person who shall be responsible for securing immediate aid and keeping an accurate count of persons underground in the event of an emergency

- Visitors must report to the contractor's or resident engineer's field office prior to going on-site or entering the tunnel. Each visitor shall receive a brief safety talk on the safety requirements of tunnel operations.

- Visitors shall be accompanied by a representative of the contractor or construction manager

11.8 TUNNEL EXCAVATION EQUIPMENT

The following are requirements for tunnel excavation equipment safety:

- Only qualified and properly trained personnel shall be permitted to operate tunnel driving equipment

- All hazardous moving parts and conveyors shall be guarded as required

- Warning devices and precautions, such as horns, bells and flashing lights, shall be used to ensure the safety of personnel while the tunnel driving equipment is being operated

- The tunnel excavation equipment shall be equipped with a fixed explosive and toxic gas monitoring system in conformance with section 1.5.2 of this document and the Technical Specifications of this contract. The gas monitoring system shall be in working order at all times and shall be calibrated per the specifications of the manufacturer. Calibration records shall be kept by the Contractor. Monitoring records shall document testing for, at minimum, the following gases: oxygen, explosive gases, carbon monoxide, and hydrogen sulfide.

11.9 COMMUNICATIONS

An underground telephone communication system shall be installed and maintained in conformance with section 1.5.2. All persons underground shall be trained in emergency phone use.

Underground phones, clearly and properly identified, shall be located at, but not limited to, the following locations:

- Heading/working face.

- Bottom and top of shaft(s).

- First-aid station.

- Contractor's office.

- Locations in tunnels at intervals not greater than 1000 feet.

Additionally, the contractor is to install a radio-based system in the tunnel which will allow people underground to communicate with one another seamlessly and without noticeable delay. At a minimum, radios will be located at the following locations:

- Heading and all work areas.

- All locomotives or other transportation equipment.
- Bottom of shaft.

11.10 WALKWAYS AND ACCESS

A clear, unobstructed walkway of a minimum width of eighteen inches shall be maintained throughout any tunnel. This walkway shall be illuminated in compliance with section 1.5.2 of this document.

Roads and walkways in the contractor's yard and buildings shall be kept clear of obstructions and materials. When the invert is used as the primary walkway, it shall be maintained free of muck or any other debris. Track ties and other materials which span the space between the tracks shall be covered or otherwise protected to prevent tripping hazards.

11.11 SELF-RESCUERS

All persons entering an underground area will either carry, or have immediately available, a self-rescue device listed and accepted by MSHA. Immediately available shall be defined as located within twenty-five (25) feet of the intended user. All personnel shall be instructed in the use of the self-rescuers when hired. All self-rescuers shall be inspected at least once each month by the Safety Engineer to ensure the operational status of these units. The results of the inspection shall be recorded and kept on file in the contractors office and be available for review by the MTA without prior notice

11.12 COMPRESSED AIR WORK

Where tunnel excavation work is carried out under air pressure in excess of normal atmospheric pressure, OSHA regulations shall apply. The contractors compressed air work plan shall include and not be limited to the following.

11.12.1 Compressed Air Work Plan

Prior to commencing any work in a compressed air atmosphere the contractor shall submit to the MTA for review and acceptance a Compressed Air Work Plan that complies with, at minimum the requirements below. The Plan shall be submitted at least forty-five (45) days prior to the planned work. Compliance with this provision and any stoppage of work resulting from non-compliance with this provision shall be considered within the original scope of this contract and shall not delay the schedule for performance of work by the contractor.

- The contractor shall consult and retain one (1) or more physicians licensed in the State of New York familiar with hyperbaric medicine and experienced in the physical requirements and medical aspects of compressed air work. The physician or qualified designee shall be available at all times while the work is in progress to provide medical supervision of employees involved in compressed air work. The physician shall perform the initial physical examinations for compressed air workers. No employee shall be permitted to enter compressed air environment until qualified by a physician. Employees shall have periodic physical examinations on a schedule as designated by the physician to determine if the employee is still medically qualified to engage in compressed air work. The maximum period between physical exams shall be one calendar year.

- The physician shall at all times keep a complete and full record of medical examinations and laboratory results
- There shall be present at all times, at least one (1) competent person designated by and representing the employer, who shall be familiar with compressed air safety and responsible for compliance requirements
- In addition, the contractor shall provide a full time Emergency Medical Technician (EMT) on the Contract whenever compressed air work is in progress
- A medical lock shall be established and maintained whenever air pressure is equal to or above 14 (psig) in the working chamber
- The Contractor's written Emergency Action Plan shall include procedures to address extrication of injured workers from the compressed air environment
- Identification badges shall be furnished to all employees, indicating that the wearer is a compressed air worker. A permanent record shall be kept of all identification badges issued.
- There shall be a qualified gauge tender on duty at the air control valves at all times to regulate the pressure in the working areas
- The low air compressor plant shall be of sufficient capacity to not only permit the work to be done safely, but shall also provide a margin of safety to meet any emergency situation
- Low air compressor units shall have at least two independent and separate power sources. Each independent and separate source of power supply shall be capable of operating the entire low air plant and its accessory systems.
- The capacity, arrangement and number of compressors shall be sufficient to maintain the necessary pressure without overloading the equipment and to assure maintenance of such pressure in the working chamber during periods of breakdown, repair, or emergency
- Testing the switch from one independent power source supply to another shall be performed monthly for at least 30 minutes to ensure the workability of the apparatus in an emergency
- To prevent rapid decompression, all air supply lines shall be equipped with check valves
- Low air pressure shall be regulated automatically. Manually operated valves shall be provided for emergency use
- The air intakes for all air compressors shall be located at a place where fumes, exhaust gases and other air contaminants will be at a minimum

- Gauges indicating the pressure in the working chamber shall be installed in the compressor housing, the lock attendant's station, and at the Contractor's field office
- Effective Communications Systems such as a Closed Circuit TV monitoring system; telephones, bells, whistles, and lights shall be maintained at all times between the following locations:
  - The working chamber face
  - The working chamber side of the man lock near the door
  - The interior of the man lock
  - Lock attendant's station
  - The compressor plant
  - First Aid station

The Communications System used shall be submitted to the Resident Engineer for acceptance prior to start of work.

11.12.2 Man lock Procedures

- If any employee complains of discomfort during pressurization in the airlock, the pressure shall be held to determine if the symptoms are relieved. If, after 5 minutes the discomfort does not disappear, the lock attendant shall gradually reduce the pressure until the employee signals that the discomfort has ceased. If he does not indicate that the discomfort has disappeared, the lock attendant shall reduce the pressure to atmospheric and the employee shall be released from the lock.
- Except in a life threatening emergency, no employee working shall be permitted to pass from the chamber to atmospheric pressure without following standard decompression tables
- The lock attendant in charge of a man lock shall be under the direct supervision of the appointed physician. He shall be stationed at the lock controls on the free air side during the period of compression and decompression and shall remain at the lock control station whenever there are men in the working chamber or in the man lock.
- A manual control, which can be used in the event of an emergency, shall be placed inside the man lock

- A clock, thermometer, and continuous recording pressure gauge with a 4-hour graph shall be installed outside of each man lock and shall be changed prior to each decompression. The chart shall be of sufficient size or register a legible record of variations in pressure within the man lock and shall be visible to the lock attendant. A copy of each graph shall be submitted to the appointed physician. In addition, a pressure gauge, clock, and thermometer shall also be installed in each man lock. Additional fittings shall be provided so that test gauges may be attached whenever necessary.

- The man lock shall be large enough so that those using it are not compelled to be in a cramped position.

- Man locks shall have an observation port at least 4 inches in diameter located in such a position that all occupants of the man lock may be observed from the working chamber and from the free air side of the lock

11.12.3 Ventilation and Air Quality

- Compressed air workers shall not enter the working chamber, until the chamber has been purged to clear of any hazardous gases. Before entering the chamber, the atmosphere will be tested with a gas tester via air valve on the bulkhead door.

- Exhaust valves and exhaust pipes shall be provided and operated so that the working chamber is well ventilated. There shall be no pockets of dead air. Outlets may be required at intermediate points along the main low pressure air supply line to the heading to eliminate dead air pockets. Ventilating air shall be not less than 30 cubic feet per minute.

- The air in the workplace shall be analyzed by the employer not less than once each shift. The test results shall be within the threshold limit values for hazardous gases, and within 10 percent of the lower explosive limit of flammable gases. If these limits are not met, immediate action to correct the situation shall be taken by the employer.

- The temperature of all working chambers which are subjected to air pressure shall, by means of after-coolers or other suitable devices, be maintained at a temperature not to exceed 85^{o} F

- Forced ventilation shall be provided during decompression. During the entire decompression period, forced ventilation through chemical or mechanical air purifying devices that will ensure a source of fresh air shall be provided.

11.12.4 Electricity

All lighting in compressed-air chambers shall be by electricity exclusively, and two independent electric lighting systems with independent sources of supply shall be used. The emergency source shall be arranged to become automatically operative in the event of failure of the regularly used source.

11.12.5 Fire Prevention and Protection

- Firefighting equipment shall be available at all times and shall be maintained in working condition
- Highly combustible materials shall not be used or stored in the working chamber
- Man locks shall be equipped with a manual type fire extinguisher system that can be activated inside the man lock and also by the outside lock attendant. The portable fire extinguisher shall be the dry chemical type.

11.13 SAFETY TRAINING

The contractor shall provide all employees working in an underground work site with tunnel safety training. This training shall be completed within ten days after the employee starts work.
A written list of employees completing this training shall be maintained by the Contractor. The list shall include employee name, social security number, craft and date of completion.
The tunnel safety training program shall include, but not be limited to, the following subjects:

- Tunnel Gases
- Explosive and toxic effects, means of detection, identification, analysis, and Personal Exposure Limits of each gas found in the tunnel atmosphere and methods used to control tunnel gases.
- Ventilation.
- Tunnel lighting and communication.
- Personal Protective Equipment.
- Various detection devices used, why they are needed, where they are needed and how to care for the equipment.
- Construction methods and equipment for the specific project including blasting where applicable.
- Fire Safety, fire prevention, and locations and use of fire extinguishers and other protective systems
- First-Aid and CPR
- Tunnel incident and injury prevention
- Introduction to the causes and prevention of incidents or injuries accidents
- Tunnel rescue and emergency training
- The proper use of self rescue devices

- Site specific emergency evacuation procedures
- check-in/check-out procedures

11.14 PRE-CONSTRUCTION MEETINGS

A pre-construction safety meeting shall be conducted by the Safety Manager prior to work commencing on any underground project. The meeting will address the following:

- General contractual safety and health requirements and contractor responsibilities
- Roles of the MTA, Resident Engineer, OCIP Administrator, and insurance carriers
- Injury and incident reporting requirements
- Required attendees are Resident Engineer, OCIP Representative, insurance company Loss Control Consultant, Contractor Project Manager, Contractor Safety Engineer

11.15 CARE OF INJURED PERSONNEL

All supervisors and at least one person on each tunnel crew shall have completed first- aid training provided by the Bureau of Mines or American Red Cross or equivalent training within the past two years and be competent to give proper emergency treatment.

11.16 ILLUMINATION

Offices, workrooms, stairways, corridors, passageways, construction roads, working areas and tunnels shall be adequately lighted while work is in progress or when needed to protect the general public and construction personnel from construction hazards. Minimum foot-candles (fc) required for lighting are:

Area	fc
General construction area	5
Indoors (warehouses, hallways, and stairways)	5
Tunnels, shafts, and general underground work areas	5
Tunnel heading	10
General construction shops,	10
First-aid and offices	10

11.17 REQUIRED CONTRACTOR SAFETY INSPECTIONS

- In all underground work, the Contractor shall inspect the roof, face and ground support system at the beginning of each shift and hourly thereafter. Any loose or dangerous ground shall be dislodged or adequately supported.
- A weekly inspection of all work areas and access areas shall be made by the Contractor's Safety Engineer
- Tracks for construction equipment shall be installed and maintained in compliance with Section 1.5.2 of this document
- The contractor shall designate a qualified person to perform weekly inspections of track fasteners, fish plates, switches, de-railers, bumpers, etc. The water level in the tunnel shall be maintained as low as possible, but at a maximum at a level at or below the top of construction track rail ties.
- The crane, hoist or elevator operator shall make and record the daily inspection of all hoisting machinery or equipment and related safety appliances. Any hazard noted shall be corrected immediately and so documented.

11.18 MISCELLANEOUS TUNNEL AND STATION LIGHTNING ARRESTER

For protection of equipment, electrical machinery and employees underground, each wire in each power or main lighting circuit which leads underground and extends over the surface of the ground 500 feet or more from the generating station or the substation shall be equipped with a lightning arrester with proper ground connections at the generating station or substation and also at, or near, the point where the circuit enters underground. The lightning arrester shall be connected to the secondary side of the transformers that feed circuits leading underground, unless the portion of the secondary circuit above ground is less than 50 feet long, in which case the arrester may be connected to the transformer.

EXHIBIT 12-1

RAILROAD SAFETY MANUAL

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FIGURES

Arc - A potentially destructive flash caused by the passage of electric current through the air.

Bulletin Order (BO) - A publication used to notify railroad employees of temporary changes affecting the movement of trains. Not applicable at the New York City Transit (NYCT) - see General Order..

Cab Signal - A device located in the operating cab of a locomotive or car that indicates the condition of the track ahead, whether clear or occupied, by a display of signals.

Catenary - A system of suspended wires, including the overhead contact (trolley) and feeder wires, from which trains obtain electric power.

Circuit - The complete path over which electric current flows from and is returned to its source.

Class"A" Groundman (or Third Rail Man) - A railroad Electric Traction Department employee specially trained and qualified to work on electric apparatus, catenary systems, and third rail and authorized to request a Power Supervisor to turn power on or off. At the NYCT, they are called Power Distribution Maintainers or P.D. Maintainers.

Clearance Profile - The limiting dimensions of height and width for trains to safely clear all bridges, tunnels, station platforms, other structures, and equipment on adjacent tracks.

Conductor/Flagman - A railroad employee qualified on the Rules of the Operating Department and the physical characteristics of the railroad and assigned to protect the railroad and the movement of trains and to obtain the use of a track. At NYCT, conductors who perform flagging are called construction flaggers; maintenance of way employees also perform construction flagging.

Construction Manager - A qualified person designated by the railroad to monitor the work of the construction contractor. Duties may also include coordination of force account requirements with the railroad.

Contact Shoe - A conductive assembly on a railroad car that established connection between the car's traction motor components and the third rail. If any car of a train is in contact with an energized third rail, all contact shoes should be considered to be energized.

Contact Wire - The overhead wire, also called trolley wire, from which the pantograph mounted on the roof of a locomotive or rail car collects electric current.

Contractor - A business entity (firm, partnership, corporation, or individual) that has contracted to perform work on the project.

Contractor Employee - An individual employed by a contractor.

Contractor's Safety Plan - A safety, health, and environmental control plan which specifies all applicable health, safety, environmental, and occupational laws and regulations applicable to the work, and an explanation of how the Contractor intends to assure that his activities comply with those laws and regulations.

Control Point (CP) - An interlocking where the signals and switches are controlled from a distant location by a train dispatcher; does not apply for NYCT, see Tower.

Crossover - Two switches connecting adjacent tracks allowing trains to cross from one track to the other.

De-energized Line (or Wire) - A section of the overhead catenary system, or other transmission line, that has been disconnected from the normal power source.

Employee in Charge (EIC) - A railroad employee designated by the railroad as the person in charge of the individuals working at the sight. The EIC is responsible for the safety, instruction, and protection of all workers under his or her jurisdiction.

Employee Timetable - An official railroad publication that sets forth the schedules and rules governing the movement of trains operated by the railroad.

Encroachment - Any entry of personnel or equipment within the established fouling limits.

Energized Line (or Wire) - Any section of catenary or transmission lines that has not been specifically de-energized.

Engine - A unit propelled by diesel fuel or electricity which is used to pull or push a train.

Extra Train - A train (with or without passengers) not designated by a timetable schedule.

Flagging Protection - The protection given, by a conductor/flagman using rule book procedures, to personnel fouling an active track. It is a means of communication between employees on the track and the train operator that serves two basic functions: (1) to provide a uniform method for protecting employees working on or about tracks; and (2) to ensure safe passage of trains through a designated area.

Form D - An official form used by Amtrak Train Dispatchers to issue orders affecting the movement of trains.

Foul - To enter into the fouling limits of an active trackway or energized overhead catenary wire(s).

Fouling Limit - The minimum distance that people or equipment can be from live tracks (25 feet from centerline of track) or catenary wires (15 feet from energized wire) without being protected by flagging or the track or wire being taken out of service. Minimum distances may vary from railroad to railroad. At NYCT, you are considered to be fouling immediately upon entering the trackway.

Fouling Point - The distance from the track where a standing person or object will not clear the movement of passing trains. Not applicable at NYCT.

Gang Watchman - An individual trained annually and qualified to provide roadway workers of approaching trains or on-track equipment. Watchman should be properly equipped to provide auditory and visual warnings with such items as whistles, air horns, white disks, red flags, lanterns, and fuses (red flares used for flagging, usually in emergency situations). The Watchman's sole duty is to look out for approaching trains and on-track equipment and provide at least 15 seconds advanced warning to roadway workers before arrival of trains or on-track equipment. Flagging procedures are different at the NYCT.

Gauge of Track - The standard distance, measuring 56 1/2", between the inside edges of two running rails of a track.

General Order (GO) - A publication used to make long-term or permanent changes to the Employee Timetable. At NYCT, a General Order is a notice that is distributed to authorize exclusive use of a section of track to perform work; it indicates how service will be affected by the work.

Ground - An electrical connection to earth potential.

Grounding Stick - A long wooden or fiberglass pole, used by railroad Power Department employees to insure that any stray currents are "grounded" and that it is safe for individuals to work nearby.

Hi-rail Vehicle - A highway vehicle equipped with additional, retractable, flanged wheels that can also operate on rails.

Horizontal Clearance Point - A point 25 feet from the centerline of a track.

Impedance Bond - A device located between or alongside the rails of a track to provide a path for traction return current around insulated joints of the signal system.

Infrequent Occupancy - The infrequent fouling of a track by personnel.

Interlocking - An arrangement of signals and switches to safely move trains from one track to another.

Live Track - Any main track or siding, with or without an overhead catenary system, that is in service for the movement of trains. Any track is to be considered a live track unless otherwise notified by a qualified railroad employee.

Live Wire - A term for energized line (or wire).

Main Track - A track that carries heavy traffic, often at high speeds, between points on a railroad. Main tracks are identified in the Employee Timetable. At NYCT, a main track is called a main line track.

NORAC Rules - A Northeast Operating Rules Advisory Committee official publication that sets forth the common rules applicable to member railroads including LIRR, Amtrak, and Conrail.

Obstruction - An object entering into the traffic envelope (the obstruction is said to be "fouling" the track).

Occupancy - Any use of a track other than direct crossing.

Overhead Wires - The collective electrical lines carried on the pole system along the tracks.

Pantograph - A device located on the roof of electric locomotives or self-powered rail cars that collects electric power from the overhead contact wire (or catenary) by means of a sliding contact shoe.

Pilot - An employee assigned to a train or track car when the engineer, conductor, or track car driver is not qualified on the physical characteristics or the operating rules of the territory to be traversed.

Power Supervisor - A senior official in the Electric Traction Department who has overall supervisory responsibility for operating the catenary and third rail on the railroad. At NYCT, this person is identified as the System Operator.

Program Manager - The consultant selected by the MTA LIRR to manage all aspects of the East Side Access Program.

Qualified Employee - A railroad employee qualified to remove tracks from service; qualified in the agency's Book of Rules, physical characteristics, and railroad worker protection; serves as the employee in charge (EIC).

Re-energized Line - A line that had been de-energized and has been returned to live status through prescribed procedures.

Right of Way - The limits of railroad property on either side of the tracks.

Roadway Worker - Any employee of a railroad or contractor to a railroad whose duties (which may include survey, inspection, construction, maintenance, or repair of railroad track, bridges, signal and communications systems, electric traction systems, roadway facilities, or roadway maintenance machinery and other activities) cause the employee to be on or near track or have the potential to foul a track.

Roadway Worker Protection (RWP) - Roadway worker protection is a program for helping workers in and around railroads to protect themselves and those around them from the hazards of moving trains and rail equipment, high voltage electrical systems, and other railroad conditions. RWP is provided by a railroad's Safety and Operating Rules that govern track occupancy by employees, trains, and on-track equipment.

Rules of the Operating Department - An official publication that sets forth rules governing the safe movement of trains.

Safety Rule Book - A book issued by an individual railroad that defines standards and rules based on railroad experience to prevent accidents and injuries.

Scheduled Train - A train for which a specific schedule is stated in the Employee Timetable.

Side Track - A track adjacent to the main track that is used for storing trains, serving a freight customer, passing trains, or some other purpose.

Signal Power Line (or Wire) - Power lines that supply the electric power for the railroad signal system carried on structures along with the catenaries and other transmission lines or buried alongside the track.

Station - A place designated in the Employee Timetable by name where trains stop to receive and discharge passengers.

Substation - A location containing transformers and switch gear where power is received at high voltage and changed to the required voltages and characteristics for distribution to the catenary system, third rail system, and other electric apparatus.

Supervisor - A contractor foreman or gang leader who is responsible for directing and monitoring the activities of one or more workers.

Switch - A moveable rail connection between two tracks that allows a train to move between them.

System Operator (NYCT) - see Power Supervisor.

Tower (NYCT) - A centralized location where switches and signals in immediate areas are controlled by a tower operator.

Track - An assembly of rails and ties on which trains move.

Track Outage - The removal of a track from service.

Traffic Envelope - The area encompassed by the vertical and horizontal clearance points. Any work within the traffic envelope requires flagging protection.

Train Order - An official form used by LIRR train dispatchers to issue orders affecting the movement of trains.

Transmission Lines - A system of electrical cables used to transmit power at high voltage between central generating stations and substations, often carried on structures along with the catenary and signal power lines.

Trolley Wire - Another term for the contact wire.

Use of Track - Obtaining permission from the proper authority for track occupancy.

Wayside Signal - A device along side or above a track displaying lights that indicate the permissible train speed.

Wire Train - A railroad maintenance train containing cars with elevated platforms to reach the overhead catenary system.

Work Train - A railroad maintenance train used for construction and repairs.

On the ESA Project, safety is of paramount importance. It is to be foremost in your mind during all phases of the work - from the first day a worker enters onto the site until the last worker leaves the completed project.

This document introduces you to the general practice of safety in and around railroads, and it provides specific rules, regulations, and procedures. It is **your** responsibility to learn them and integrate them into all your daily work on this project.

Rail safety is part of the East Side Access Project Environmental Health and Safety Program (EH&S). As part of the Program, contractors must develop and implement their own project and site specific safety programs and workers must receive training in rail construction safety.

This manual is one component of the rail construction safety training you will receive. It is designed to conform to the requirements of the Federal Railroad Administration, Amtrak, the Long Island Rail Road, Metro-North Railroad, and New York City Transit.

1.1 RAIL CONSTRUCTION SAFETY

Potential hazards at rail construction sites are numerous and varied. They can include moving trains, high voltage overhead catenary lines and third rails, moving construction equipment and machinery, hazardous chemicals, fire, flooding, and falls.

The Safety Plans and Programs of this Project, with its special requirements for railroad construction safety, include rules, regulations, and guidelines established by each of the railroad properties on which we will be working. In addition, all contract personnel working on the project site must comply with federal and state regulatory standards and mandates including those established by OSHA, NIOSH, DOL, NFPA, EPA, and others.

The most important element of a safe project is worker safety awareness. No amount of rules, procedures, and directives can protect a project whose workers ignore them.

If you fail to work safely, you put yourself and your coworkers at risk, and you threaten the railroad, its riders, and the public at large.

Construction on an operating railroad or transit system or adjacent to one is different from most other types of construction. A railroad presents a specialized work environment with its own language and operating rules and its own hazards and safety rules.

While some railroad safety rules and procedures may seem arbitrary or excessive, they are based on many years of prior experience in the railroad environment; many are the result of tragic lessons learned in previous accidents.

1.2 HAZARDS OF THE RAILROAD WORK ENVIRONMENT

The danger of the railroad work environment is far greater than most other construction sites. There are hazards that may not be encountered elsewhere, among them:

- High speed trains
- High voltage overhead catenaries and third rails
- Treacherous footing on rail, ties and ballast
- Work areas with limited clearance, retaining walls and rock cuts
- Minimal or no tunnel clearances
- Steep embankments
- Drainage ditches
- Obstructed visibility
- Moveable switch points and remote control switches

Trains can move at speeds up to 90 mph in both directions on every track. All tracks in the work zone are electrified with high voltage overhead catenary and/or third rail. Slippery rails, creosote-soaked ties, and uneven crushed stone ballast make walking difficult and hazardous.

Stone retaining walls, rock cuts, drainage ditches, and steep embankments throughout the work sites severely restrict clearance from passing trains. Worker visibility of approaching trains is restricted in many locations by a combination of grades, curved tracks, stone walls, bridges and bridge abutments, and buildings adjacent to the tracks.

New York City Transit (NYCT), has identified the following six **Common Hazards** in its records dating from 1946. They are consistent across all activities where personnel must walk on, inspect, or work in track areas and are useful on all rail properties:

- Stepping out into train traffic without first looking for oncoming trains
- Improperly "clearing up" for the passage of an oncoming train (securing enough clearance for the train to pass you safely)
- Not utilizing or following the proper flagging procedures
- Walking along the tracks with, as opposed to against, the normal flow of traffic
- A civil configuration (a curve or hill or other configuration) of tracks that obscures the vision of the train operator and the workers, preventing them from seeing each other
- Unexpected encountering of trains

NYCT has gone on to identify the following prominent causal factors in accidents:

- noncompliance with rules
- inattentiveness to duty
- inadequate supervision
- civil configurations that reduce line of sight
- lack of information prior to commencing work
- lack of procedures

addressing these causal factors, the probability of occurrence of incidents can be reduced

Specific safety rules and procedures of the railroads (and in accordance with RWP, see below) must be followed to protect workers from these hazards. Supervisors must learn these rules, follow them, and make sure that workers do the same.

The contractor is responsible for monitoring to make sure that all work is being done in conformance with railroad safety requirements.

As a contractor's roadway worker, you must be trained and qualified in these rules and in Roadway Worker Protection (RWP). RWP training is required for work on regulated railroads (including the LIRR, Amtrak, and Metro-North) by the Federal Railroad Administration (FRA) [Code of Federal Regulations (CFR), 49CFR Part 214.301]. New York City Transit has comparable training that is also required for this work.

The federal rules require the following:

> Mandatory participation in a daily job briefing with a qualified railroad representative before entering railroad territory within 25 feet of the center line of the outside track (FRA 214.315, Part A).
>
> The contractor's equipment operators (on or off the track) must be qualified, certified, and have demonstrated proficiency on the equipment they are to operate. (All aspects of 49CFR 214.353 are included in this requirement.)

To further insure maximum possible adherence to safety rules and operating procedures, the rail transit agencies require that any individual who is to work on their property receive special safety training. After successful completion of that training, the individual becomes qualified to work on railroad property. Proof of qualification, in the form of a photo identification card and a numbered sticker to be affixed to the employee's hard hat, will be issued to each individual who has completed the safety training. You receive this training in the ESA Project Rail Construction Safety Training Course.

1.3 WORKING ON LIVE TRACKS

When working on or around "live" railroad tracks, the greatest dangers for catastrophic accidents come from moving trains, overhead high voltage wires (catenary), and third

rail. In addition, walking surfaces are often slippery and uneven. Lastly, significant hazards result from tools and other work materials being left on the rail right of way.

Unsafe work practices with respect to any of these hazards endanger yourself, your coworkers, railroad employees, and the public at large.

In this section, general safe practices are presented for work in the presence of all of these hazards. The discussion describes roles of the individual worker, the site supervisor, and the Project Program Manager. Then additional site specific rules for work on live track and in both kinds of electric territory (catenary and third rail) are discussed. Lastly, precautions for walking on and near track and for cleaning up a work site are presented.

1.3.1 Personal Safety on Live Track

All individuals working on this project are responsible for their own safety and that of their coworkers, railroad employees, and the public at large. This means that if you see an unsafe situation or practice, you must do something about it and/or report it to the proper authority.

Rules require that you may not begin work without a safety orientation meeting, the authorization of a qualified railroad employee, and the proper clothing, equipment, and safety materials required for your work.

Lack of attention to train traffic, failure to obey the instructions of conductor/flagmen or gang watchmen, or failure to properly clear the tracks can lead to a tragedy involving one or more

workers. Failure to properly restore a roadbed can lead to a derailment, endangering hundreds of passengers and train crews.

Before working on a live track, you must always apply for permission. Only a qualified railroad employee, the employee-in-charge (EIC) can grant such permission or remove a track from service and put it back into service.

1.3.2 What You May Encounter on Track

Usually, on most railroad tracks, trains operate in accordance with a regular, fixed schedule. However, in the course of a normal workday, dozens of unscheduled trains

may operate on or near the work site. These unscheduled trains may include work trains, trains moving from one yard to another, trains added to or taken out of service, and special equipment, such as tampers, ballast regulators, and others.

Trains can and will be moved from one track to another at switches, turnouts, and crossovers (see Figure 1-1 – Portion of NYCT Track), so that it may be impossible for a worker to determine, on

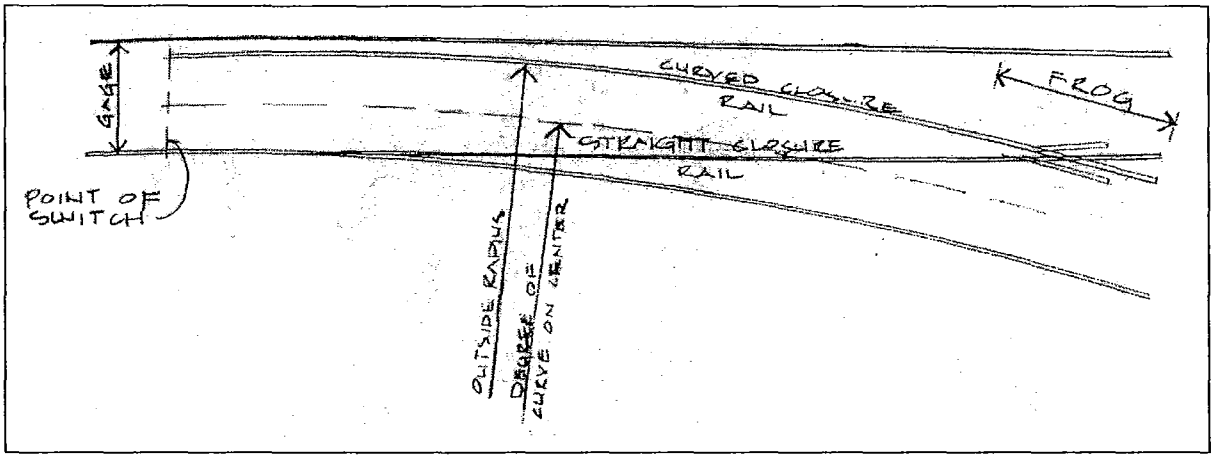

Figure 1-1: Portion of NYCT Track

his or her own, whether or not an approaching train will enter the work area on any particular track.

In rail yards, on "yard track," train movements are especially complex, since there is **no** normal flow of traffic or schedule, and there are numerous switches, turnouts, and crossovers.

The variety and complexity of these situations makes it imperative that workers heed the instructions of the railroad Employee in Charge and the flagmen/watchmen, and that they practice the following "commandments" for personal safety. These ten key "commandments" for personal safety should be memorized by all project employees and followed at all times. They will be discussed in detail in the following sections.

Personal Safety Commandments

- Remember: You are responsible for you own personal safety
- Expect train movement on any track, in either direction, at any time
- Watch for trains at all times
- Always look both ways before crossing a track
- Use the "buddy system" if your work distracts you from watching for trains
- Obey the instructions of conductor/flagmen and gang watchmen
- Know where to clear (as established at the daily job briefing)
- Don't clear one track by fouling another
- Treat all tracks, third rails, and overhead power lines as always live (electrically energized)
- Wear all required personal protective gear

In tunnels, on bridges, and in other particular locations where clearance is limited, it is especially important that work crews **know** where they are going to clear **before** they begin working on or near the tracks. This should be covered in the daily job briefing, but if you are uncertain, ask.

NYCT procedures require that "No Clearance" signs be posted when, during construction, the existing clearance is reduced sufficiently to create a no clearance area for at least 15 feet in either direction.

1.3.3 In Case of Emergency

In an emergency, a train may be stopped by giving a hand signal that means "STOP OR REMAIN STANDING." This signal is made by moving the hand, flag, light, or any other visible object to and fro (horizontally) across the track (see Figure 1-2 – Signal for Stopping a Train in an Emergency). If possible, stay sufficiently clear of the tracks to avoid being struck by the train you are attempting to stop.

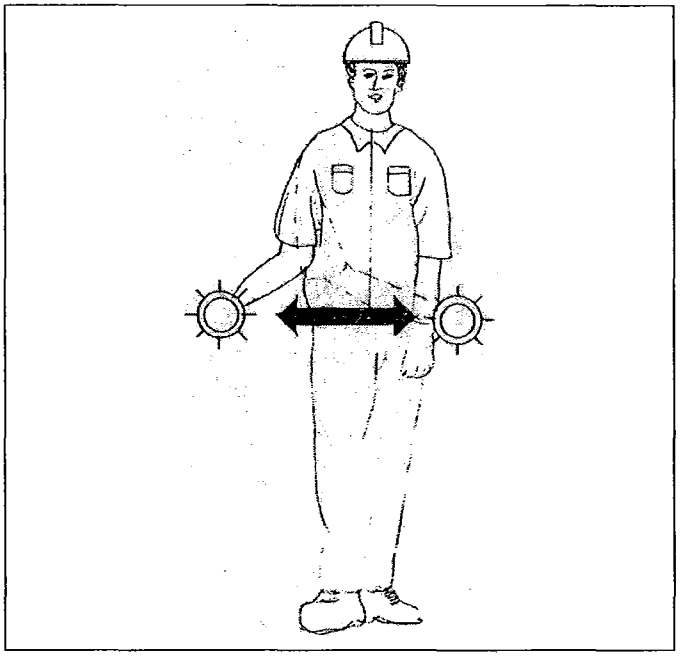

Figure 1-2: Signal for Stopping a Train in an Emergency

In NYCT tunnels, Emergency Alarm Boxes, Telephones, and Fire Extinguishers are located at 300 to 600 foot intervals and their locations are identified by blue lights. In the unusual circumstance that contractor personnel must operate the emergency alarm box which removes third rail power in the area, the individual must also use the telephone to communicate with the NYCT Desk Superintendent.

1.3.4 Moving Trains

Modern electric railroad trains operate relatively quietly at any speed. This constitutes an ever present danger to workers on a rail construction project. To assure that they can operate safely in the presence of this hazard, railroads and rail transit agencies:

- have established the concepts of "fouling, "fouling distance," and "fouling limits"
- limit access to rail rights of way
- provide flagging protection
- when necessary, take sections of track out of service during construction
- require that workers remain aware that trains can move through the work site at any time, on any track, in either direction

1.3.5 Fouling

If a person or piece of equipment occupies space that is not safe to occupy, it is said to be **fouling** that space. For example, on Amtrak, persons and equipment are **fouling** whenever they are within 25 feet of the centerline of the outermost track. On the NYCT subway system, on the

other hand, **fouling** the right of way takes place immediately on entering the trackway; this is due to the very limited clearances within which the system must operate.

Similarly, no work is allowed within 15 feet of electrical lines unless the lines have been de-energized and the work has been properly authorized. Persons or equipment within 15 feet of energized electric lines are **fouling** those lines.

The concept of fouling is basic to safety on railroad construction sites. It applies to personnel and equipment near track, where the danger is moving trains; and it applies to personnel and equipment near catenary and third rail, where the danger is electric shock. It is also used to restrict excavations near track.

The **fouling limits** that are in effect for this project are given in the box below.

Fouling Limits

WITHOUT RAILROAD AUTHORIZATION AND FLAGGING PROTECTION:

No equipment may be placed or used within 25 feet of the centerline of outermost track

No personnel may stand or work within 25 feet of the centerline of the outermost track

No unsecured material may be place within 25 feet of the centerline of the outermost track

No excavation may be done within 25 feet of the centerline of the outermost track (unless authorized by the project engineer)

No personnel or equipment may occupy space within 15 feet of energized electric wire

1.3.6 Fouling Requirements

To help assure that fouling limits are not violated, railroads require contractors to adhere to a set of requirements to protect workers. These do not apply on NYCT property, because as soon as an NYCT trackway is entered, it is fouled.

The railroads require that contractors erect a physical foul line (snow fence or similar material), using stakes and highly visible tape, 25 feet from the centerline of the outside track. No personnel or equipment is permitted to cross the foul line without specific permission from a qualified railroad employee. For additional reinforcement, warning stickers must be applied to contractor machinery as follows: **CAUTION - Equipment is prohibited from operating within 25 feet of tracks without proper authorization from NAME OF AGENCY/RAILROAD.**

Workers and supervisors must carefully monitor how equipment is being operated, particularly cranes and other lifting machines. Machine booms and lifted loads are not permitted to cross the

fouling lines, making it necessary to position equipment in such a way as to assure that, in the worst case, there will not be an accidental protrusion across a foul line. If this cannot be done, the piece of equipment must be treated as if it were within fouling limits and its location and operation must be approved by qualified railroad personnel.

Unsecured material is not permitted within 25 feet of the centerline of any track. To be safe, ALL MATERIAL, whether secured or unsecured, should be kept at least 25 feet from the center line of track. Contractors must erect fences and/or solid barriers to prevent any debris from construction activity from fouling the tracks.

The supervisor observation and monitoring requirements with respect to fouling restrictions are just as important as those related to train movement and electrical power.

1.3.7 Limitations on Access to Right of Way

No project personnel are allowed on a railroad or NYCT right of way without the permission of an authorized railroad or NYCT employee. Rail operations are complex and cannot always be understood or anticipated by non-railroad personnel. As a first level of safety, no one is allowed to enter the right of way without a trained and knowledgeable railroad employee who is authorized to allow such access.

Furthermore, no contractor personnel will be allowed access unless they have received rail construction safety training within the last 12 months and can produce their Safety Training ID card.

1.3.8 Flagging Protection

All work performed within the fouling limits will be done under **flagging protection**. This is protection provided by a railroad employee who is responsible for watching for oncoming trains or other equipment and for providing sufficient warning to the workers so that they can move to safety and allow the train or other equipment to pass.

When working on the right of way, contractor personnel must always know where the flagman (or gang watchman) is and remain alert for instructions from him or her.

1.3.9 Removal of Tracks from Service

Under certain circumstances, a track may be removed from service to facilitate construction work. This eliminates some hazards due trains and other railroad equipment on the particular track. However, trains will continue to move along adjacent tracks and elsewhere in the work site. The safety rules concerning awareness for trains and alertness to instructions from flagmen remain of utmost importance.

1.3.10 Awareness of Train Movements

All personnel working on the right of way must maintain continual awareness of the possibility of train movements through the work site and know the location of the nearest place where one can safely stand while the train passes by. The purpose of the flagman is to provide warning that a train is about to enter the work site but the existence of the flagman does not relieve the worker of his or her own personal responsibility for safety. As an added precaution, whenever possible, workers should use the "Buddy System," so that one worker keeps his or her partner's safety in mind.

The "Buddy System" becomes absolutely necessary when working in a noisy environment or under other conditions that make it difficult to see or hear instructions from the Flagman, including when one worker is wearing ear plugs. In these circumstances, one member of the Buddy pair is responsible for maintaining vigilance and tapping the other on the shoulder when it is necessary to clear the tracks.

And always keep in mind that train movements can occur at any time, in any direction, on any track.

1.3.11 Clearing Up

If a train is moving through the work site, it is critical for each and every worker to move to a safe location. But it is also important for all tools, materials, and equipment to be moved beyond the fouling limits. (At NYCT, this may involve special procedures as shown, for example, in Figure 1-3 – Special Clearing Procedures on NYCT Right of Way).

At the end of the shift, all tools, materials, and equipment must be moved beyond the fouling limits as well. If any items can roll, fall, or be blown onto the right of way, they must be secured in such a manner that they will not unintentionally foul the right of way.

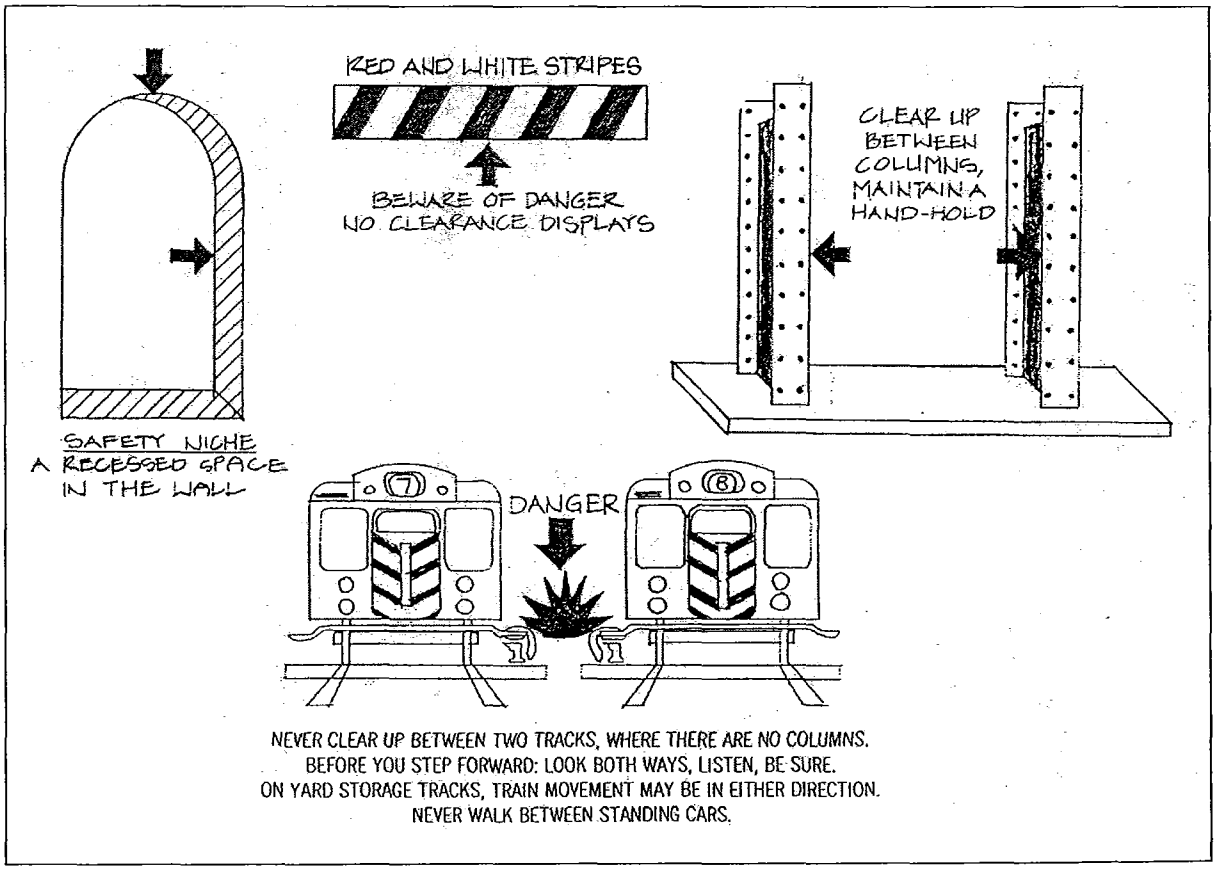

Figure 1-3: Special Clearing Procedures on NYCT Right of Way

1.3.12 Overhead Catenary

After the movement of trains, the greatest risk to personnel and property is posed by working in close proximity to electrical power lines and third rail. This section discusses safe work practices in the presence of overhead power lines or catenary. The next section discusses work near third rail. Both kinds of traction power distribution systems will be encountered on the ESA project, however, there is no overhead catenary on NYCT territory.

In overhead catenary territory, electrical power is distributed to trains through a system of overhead wires or "catenaries" which make contract with the train engine's pantograph (see Figure 1-4 – Overhead Catenary and Figure 1-5 – Railroad Catenary System). The catenary, in turn, receives its power from substations along the route. The substations take power from electric utility companies, transform it to the required voltage, and send it to the catenary through a series of switches and protective devices.

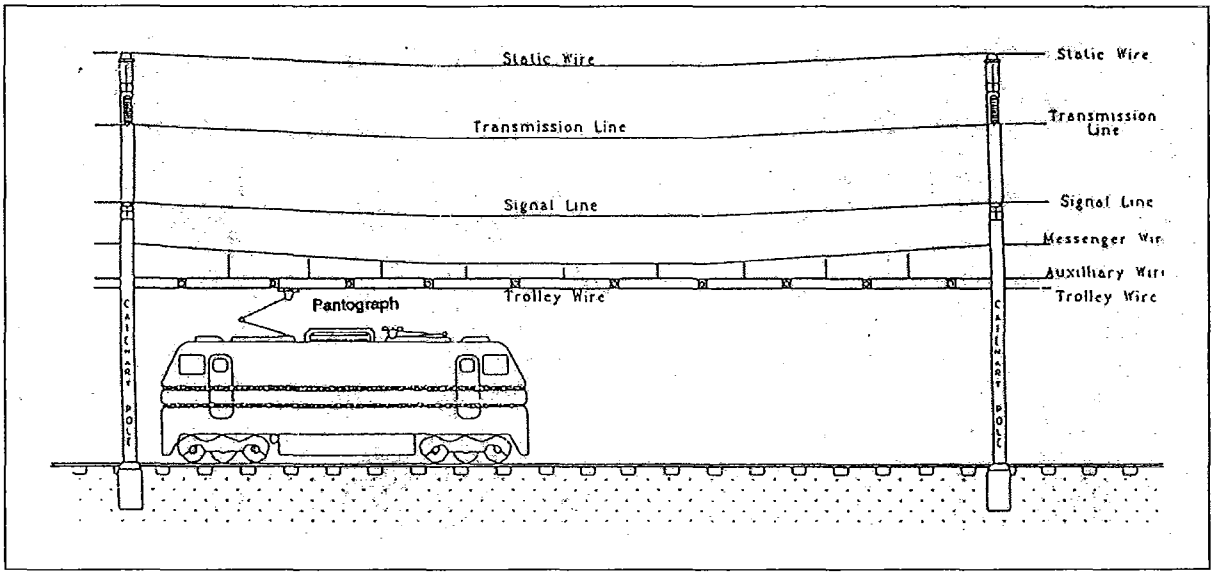

Figure 1-4: Overhead Catenary

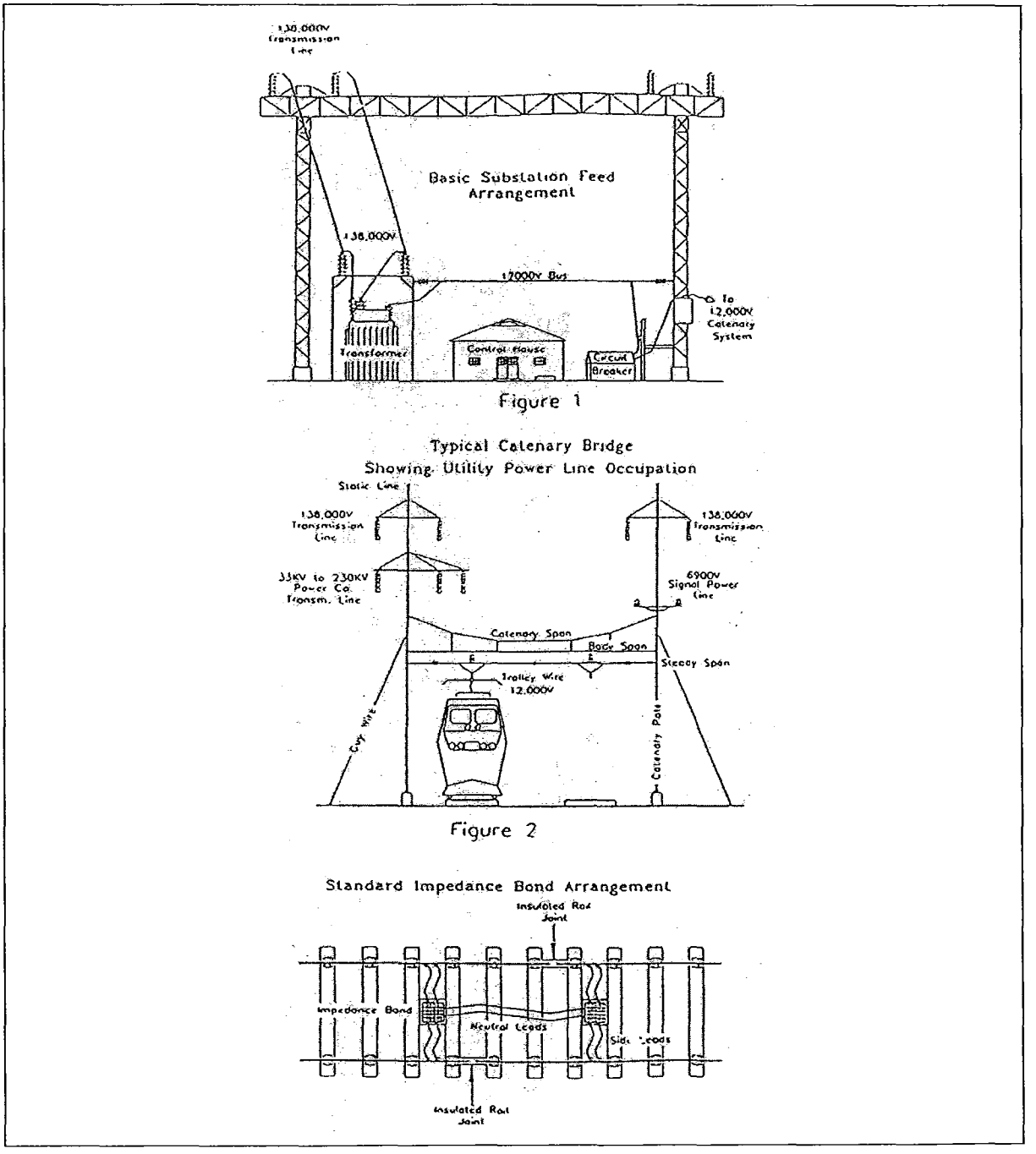

Figure 1-5: Railroad Catenary System

1.3.13 Working under Catenary

Working around overhead catenary is governed by strict rules. They begin with the fouling limits for catenary, which is within 15 feet of electrical lines (see Box on page 11).

Catenaries have the ability to retain electric voltage even though power is off. This ability is known as capacitance. In order for a catenary to be safe to work near, it must be "grounded," or connected to neutral (or "ground") by a groundstick.

This function is so life critical that only specially qualified railroad personnel can de-energize a catenary. Such an individual is called a "Class A Groundman" or a "Class A Lineman." The Class A Groundman/Lineman is the only one who can authorize work within the fouling limits of overhead catenary. He or she is also responsible for grounding any construction equipment that will operate within the fouling limits.

Unless authorized by the railroad's Class A Groundman, no work is to take place within 15 feet of electrical lines unless they are de-energized and properly grounded, and the work has been properly authorized.

Any construction equipment located within the fouling limits must also be grounded with a grounding cable by the Class A Groundman - **even though the power is off.**

1.3.14 Procedure for De-energizing Lines

When work must be done close enough to electrical lines to require them to be de-energized, specific procedures must be followed. A railroad Class A Groundman must always be present at the work site. The Railroad Class A Groundman:

- Instructs the supervisor and workers of electrical hazards
- Defines the limits of the work area
- Is satisfied that personnel have an adequate understanding of potential hazards
- Arranges for power removal and placement of grounding devices
- Indicates to personnel all wires and equipment that have been de-energized and the location of all grounding devices; and obtains supervisor confirmation signature on the standard form
- Is present at all times that work is performed and obtains the supervisor's signature confirming work stoppage, if leaving for any reason
- Verifies that personnel and equipment are safely removed before releasing clearance and allowing lines to be re-energized; and obtains supervisor confirmation signature on the standard form

At the start of each tour, a Railroad Class A Groundman will instruct the construction supervisor and all workers of the electrical hazards relating to the site and the nature of the work to be performed. Before any work is allowed to begin, the Class A Groundman will carefully review the specific physical limits in which work can safely be performed. If, for any reason, the Class

A Groundman feels that a worker or supervisor does not understand the instructions, that individual will not be permitted to work.

When, and only when, the Class A Groundman is satisfied that the work crew understands the instructions and the limits of the work zone, he or she will arrange with the Power Dispatcher for power to be removed. He will then apply the grounding devices, first clamping one end of the grounding pole to the rail and then clamping the other end of the pole to the catenary wire. Alternately, the wire may be grounded directly to a catenary structure.

The Class A Groundman will then review with the supervisor and the workers all wires, equipment, and electrical apparatus from which the power has been removed and the location of all grounding devices.

The supervisor must then sign the standard railroad clearance form, indicating that all workers and the supervisor have been properly instructed and that they will confine their work to the limits identified by the Class A Groundman. Once the form is signed, the supervisor and workers have **clearance** to work on or near the de-energized lines and equipment.

The Class A Groundman MUST be present during all work. If the Class A Groundman must leave the site for any reason, he or she will notify the supervisor and workers, make sure they all stop work and move the required distance from the lines, and obtain the supervisor's signature on the standard form. **By signing the form, the supervisor acknowledges that no work will resume until the Class A Groundman returns to the site and authorized resumption of work.**

When the clearance for the de-energized lines is to be **released**, and the line put back into service, the Class A Groundman will notify the supervisor and personally see that all workers have moved to a safe distance. The Class A Groundman will then obtain the signature of the supervisor on the appropriate railroad/transit agency standard form as acknowledgement that the supervisor and workers know that the lines are about to be re-energized and they will remain a safe distance from them.

The Class A Groundman will then remove the grounding devices and notify the Power Dispatcher that it is safe to re-energize the line. **Supervisors and workers MUST treat the lines as live from the moment the standard form is signed.**

Supervisor observation requirements are critical for this type of work. The supervisor must continually verify that the workers are within the defined limits and following all safety rules when working on or near a de-energized line or third rail. Special attention must be devoted to the transition times, when lines are about to be de-energized or re-energized. **The Class A Groundman is authorized to stop work in response to safety violations.**

NOTE: In Grand Central Terminal, there is also an overhead electrified rail (an overhead third rail) that supplies power to the yard switching engines. This rail should also be considered energized (LIVE) at all times.

1.3.15 Third Rail

As discussed in the previous section on overhead catenary, after train movements, high voltage electricity poses the greatest risk to personnel and property. This section discusses the precautions necessary to work safely around third rails, the second type of high voltage traction power system that will be encountered on this project.

In third rail territory, power is distributed to trains via a third or "contact" rail. This rail can be encountered on either side of the right of way. As with catenary transmission, electric power utilities supply railroad power substations. The substations convert incoming power to 600-750 volts DC. (See Figure 1-6. – A Third Rail System)

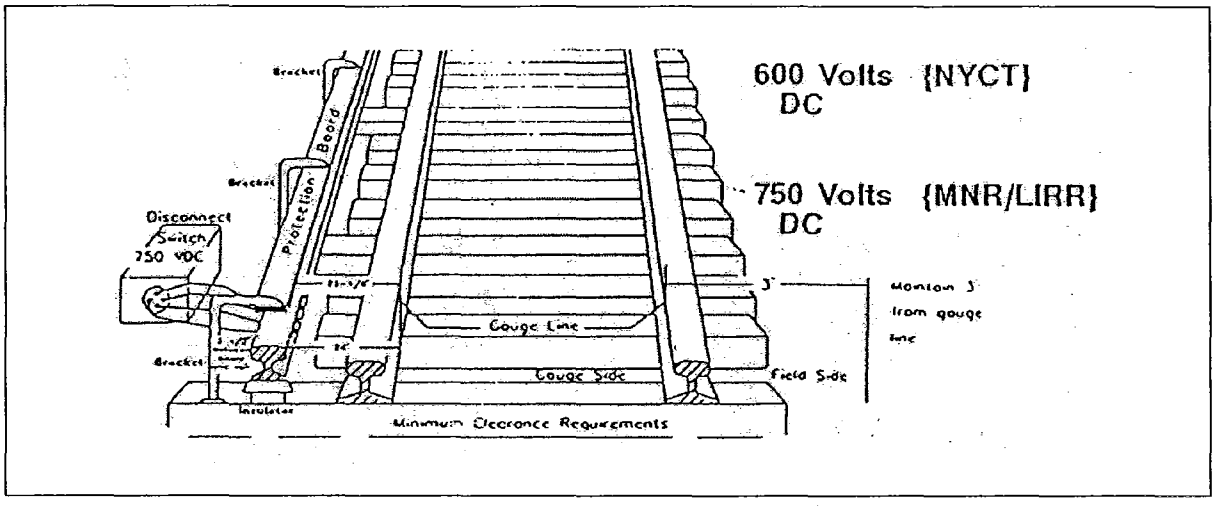

Figure 1-6: A Third Rail System.

On this project, you will occasionally be assigned to work in third rail territory. This will require that the third rail is de-energized before work begins. In other cases, you may be required to walk across sections of third rail territory while the third rail is energized. Both of these circumstances are discussed below.

1.3.16 Restricted Access

Third rail safety begins with restricted access: no work is to be done within the fouling limits of live track without the express authorization of a qualified railroad employee. **On NYCT property, where all access to the trackway is inside fouling limits, no one is allowed on the right of way without such authorization.**

When work must be done on the right of way in third rail territory, the third rail must be de-energized in accordance with specific procedures. A Third Rail Man must always be present at the work site. At NYCT, this function is performed by a Power Distribution (PD) Maintainer. The Third Rail Man or PD Maintainer:

- Instructs the supervisor and workers of electrical hazards
- Defines the limits of the work area

- Is satisfied that the personnel have adequate comprehension of scheduled tasks
- Arranges for power removal
- Indicates to personnel all third rails and equipment that have been de-energized; and obtains supervisor confirmation signature on standard form
- Is present at all times that work is performed and obtains supervisor signature confirming work stoppage, if leaving for any reason
- Verifies that personnel and equipment are safely removed before releasing clearance for the third rail to be re-energized; and obtains supervisor confirmation signature on standard form
- At NYCT, when power is removed from the third rail in a particular area, "Power Off" is verified at the site by means of a voltage tester, bank of lights, or third rail alarm

At the start of each tour, a Third Rail Man or Power Distribution Supervisor will instruct the construction supervisor and all workers of the electrical hazards relating to the site and the nature of the work to be performed. Before any work is allowed to begin, he or she will carefully review the specific physical limits in which work can safely be performed. If, for any reason, it is felt that a worker, or supervisor, does not understand the instructions, that individual will not be permitted to work.

When, and only when, the Third Rail Man or Power Distribution Maintainer is satisfied that the work crew understands the instructions and the limits of the work zone, he or she will arrange with the Power Dispatcher for power to be removed.

The Third Rail Man/PD Maintainer will then review with the supervisor and the workers all equipment and electrical apparatus from which the power has been removed.

The supervisor must then sign the standard railroad/transit clearance form, indicating that all workers and the supervisor have been properly instructed and that they will confine their work to the limits identified by the Third Rail Man. Once the form is signed, the supervisor and workers have **clearance** to work on or near the de-energized rail and equipment.

The Third Rail Man/PD Maintainer MUST be present during all work. If he or she must leave the site for any reason, he or she will notify the supervisor and workers, make sure they all stop work and move the required distance from the rail, and obtain the supervisor's signature on the standard form. **By signing the form, the supervisor acknowledges that no work will resume until the Third Rail Man/PD Maintainer returns to the site and authorizes the resumption of work.**

When the clearance for the de-energized third rail is to be **released**, and the track put back into service, the Third Rail Man/PD Maintainer will notify the supervisor and personally see that all workers have moved to a safe distance. He or she will then obtain the signature of the supervisor on the appropriate railroad/transit agency standard form as acknowledgement that the supervisor and workers know that the third rail is about to be re-energized and they will remain a safe distance from it.

The Third Rail Man/PD Maintainer will then notify the Power Dispatcher that it is safe to re-energize the section. Supervisors and workers MUST treat the third rail as live from the moment the signed form is returned.

Supervisor observation requirements are critical for this type of work. The supervisor must continually verify that the workers are within the defined limits and following all safety rules when working on or near a de-energized third rail. Special attention must be devoted to the transition times, when the rail is about to be de-energized or re-energized.

The Third Rail Man/PD Maintainer is authorized to stop work in response to any safety violations.

1.3.17 Personal Safety

It will be necessary, from time to time, to walk across sections of third rail territory where the third rail is energized. It should **always** be assumed that the third rail **is** energized.

Walking in Third Rail Territory

The following rules apply when walking in third rail territory:

- Always step over the third rail
- Where a path has been "designated" for walking, use it
- Never attempt to walk between the third rail and its running rail
- Never step, sit, walk upon, or brush against the third rail or the protection board over the third rail; even though the energized third rail may be protected by a board, there is always a chance of shock, due to the presence of water, brake shoe dust, or imperfections of the boards
- The third rail shall be considered to be energized at all times, except when it is known to be de-energized and protection is afforded by a Class A Employee, Third Rail Man, or PD Maintainer.
- **Contact shall never be made between energized third rail and the track rails or rail return system.**

1.3.18 Getting the Third Rail De-energized

When it is necessary to de-energize the third rail, permission must be received from the Power Director/Dispatcher. The Third Rail Man/PD Maintainer normally obtains such permission. To request that power be turned off, in an emergency, you must give your name, location, and reason for the request; then await the instructions of the Power Director/Dispatcher. On NYCT property, when a section of third rail has been or is to be de-energized, the Power Director or System Operator must confer with the railroad/transit employee who has jurisdiction over the affected track area.

At NYCT, when power is removed from the third rail in a particular area, a voltage tester, a bank of lights, or a third rail alarm verify Power Off at the site.

When the third rail has been de-energized, the railroad or NYCT must also take precautions to restrict trains from moving into the de-energized area. Trains that do enter the area could unintentionally "bridge" the break and carry high voltage into the de-energized section. It is the responsibility of the Dispatcher to eliminate such possibilities. However, if a train enters a de-energized section, personnel should assume that bridging has taken place and that the third rail may be energized.

NOTE: In Grand Central Terminal, there is also an overhead electrified rail (an overhead third rail) that supplies power to the yard switching engines. This rail should also be considered energized (LIVE) at all times.

1.3.19 Walking Hazards

Rail construction sites present special hazards even for the simple act of walking. Many rail rights of way contain ballast, which offers uneven and unstable footing. Tracks and ties themselves are tripping hazards and track surfaces are slippery. Grades, ditches, and embankments are also potential hazards. Walking amid these hazards can be further complicated when one is carrying heavy or bulky equipment.

No worker should enter a work site without proper shoes. This means shoes or boots that are at least six inches high (to support and protect the ankles), have a definite heel, and are in good condition.

Workers should be mindful of the walking hazards and step carefully, always stepping **over** rails and third rail covers, never **on** them. Special care must be taken to step over switches so as to avoid getting caught in the mechanism which may be activated remotely and without warning.

Never walk between the third rail and its adjacent running rail.

Finally, workers must remain aware that trains may be operating in the area where they are walking; they may operate on any track, at any time, in either direction.

1.3.20 Site Cleanup

At the end of the work shift, all equipment and materials must be moved outside the fouling limits. In addition, they must be secured in such a manner that they will not accidentally foul the right of way, the third rail, or the overhead catenary. These items should be stored in such a way that they are not susceptible to theft, vandalism, or other damage.

This cannot be properly accomplished in an informal way. Every worker must see to it that his or her equipment and materials have been properly moved and secured, and then a supervisor must walk the site and verify that the right of way, catenary, and third rail are safe.

II RESPONSIBILITIES

2.1 DIVISION OF RESPONSIBILITIES

At all levels of the project, ESA personnel should actively **promote safety.** In addition, to assist each and every individual who works on the ESA Project to meet the requirements for a safe project, specific duties are assigned to individuals at each level of Project Organization. These assignments are intended to assist in the achievement of a safe work environment. **They do not remove anyone's responsibility for their own safety and the safety of those around them.**

This section suggests techniques for promoting safety, and then outlines the safety tasks expected at each level of Project organization.

To Promote Safety:

- Believe in safety - it pays
- Practice safety - it pays even more
- Show workers your commitment to safety
- Participate in Safety Meetings
- Give weekly Tool Box Talks
- Observe and educate continually - teach by example
- Talk safety whenever you can

2.2 INDIVIDUAL WORKER RESPONSIBILITIES

No matter how much effort goes into the development of a safety program, each individual is ultimately responsible for working responsibly and safely. Supervisors and construction managers are responsible, not only for their own actions, but also for assuring that all the employees they observe, supervise, and monitor are in compliance with safety rules and regulations.

The following chart outlines the responsibilities of the trade workers and laborers who will be working on the East Side Access project. These responsibilities are discussed in more detail below:

Worker Responsibilities

- Know where to clear at the beginning of each shift, as explained at daily job briefing
- Know and comply with safe work practices
- Wear proper clothing and personal protective equipment
- Use proper tools and equipment
- Have appropriate skills, training, and certification
- Observe and report
- Know accident procedures
- Obtain proper authorization when required by task
- Keep off tracks unless the job requires you to be on them, but only after receiving permission from the railroad Employee in Charge

All employees must know and follow safe work practices, not only those covering construction and railroad work in general, but also those applicable to the specific tasks they are performing.

Wearing proper clothing, shoes, hard hats, and safety vests is an absolute must. Other protective equipment such as goggles, face shields, safety belts, flotation vests, gloves, and respirators shall be issued by the contractor when required. Harnesses and other fall protection should be used when required. Protective devices for hearing conservation may be used when determined necessary and safe to do so. When protective hearing devices are used, workers must also follow "buddy system" procedures. Employees must always use only the proper tools and equipment for each task, and those must be in good repair.

Workers should never undertake any activity that they are not skilled in or have not been trained to do. If a specific task requires certification, any worker performing that task MUST be certified.

Each individual working on the project should always observe what is going on around him or her. When it comes to safety, we are all our brothers' and sisters' keepers. Any worker who sees an unsafe condition is obligated to report it to his or her immediate supervisor who will have the responsibility to take appropriate action.

All workers should be thoroughly familiar with accident procedures. They must know the contents and location of all first aid kits at the job site. Workers must be aware of immediate actions they can take to assist an injured fellow employee and, when the nature of an injury is too severe, the procedures they must follow for summoning emergency medical help.

Workers must also be aware that they have to report every accident, no matter how minor it may seem to be.

Every worker has the responsibility to make sure that proper authorization was received before beginning any work task. This rule applies whether the required authorization is to come from an immediate supervisor, railroad personnel, or other party having jurisdiction at the work site.

2.3 SUPERVISOR RESPONSIBILITIES

Each contractor supervisor is a front line safety manager. It is his or her responsibility to promote safety on the job site. This includes communicating with the workers he or she supervises as to when work can be performed safely and which specific tasks require special authorization.

The following chart summarizes supervisors' safety responsibilities, which are discussed in more detail in the text that follows:

Contractor Supervisor Responsibilities

- Assure site, worker, and equipment fitness
- Observe and report safety performance (using checklists) - stop work if safety is compromised
- Maintain a Supervisor's Log for accident and incident reporting
- Before each work shift, provide Tool Box Talks, On-the-Job Training, or other appropriate Safety Meetings and Orientations (see the following section)
- Interface with the Program Manager, LIRR, Metro-North, Amtrak, NYCT, and other authorities
- Follow the approved Contractor's EH&S Plan
- Adhere to the EH&S Program

The first item, **site, worker, and equipment fitness**, means that before a supervisor allows work to begin, all conditions necessary to assure maximum safety are met. The supervisor must make sure that there is nothing about the work site, adjacent activity, weather conditions, and railroad operations, or other factors that would make the work activity unacceptably hazardous. The supervisor, through observations, must also make certain that all of the workers who are to perform the work are free from the influence of drugs and alcohol, and that they are trained, skilled, properly attired, and wearing the required protective equipment. The supervisor must also verify that the tools and equipment needed for the work are available and in good and safe working order.

Supervisors have the specific duty to observe all that is going on around them and take appropriate action if they believe safety is being compromised. That action can include stopping the work, if necessary, retraining, informing employees of corrective actions or procedures, and keeping the work stopped until the supervisor determines that it is safe to resume.

For the areas that they are directly in charge of, supervisors have a formal reporting responsibility. This is not "exception" reporting, but positive reporting: even if no hazards or incidents are observed, a report must be submitted stating so. Supervisors have specific daily inspection and reporting requirements. Checklists and other mechanisms are used to ensure that observations are thorough and that the reports will be consistent, relatively easy to prepare, and timely. In addition, each supervisor must keep a log where, among other things, entries related to project safety are to be made.

Supervisors also have responsibility to complete formal accident and incident reports. A near miss is a warning that must not be ignored. A thorough analysis and report on a near miss can often prevent a serious accident or injury from occurring in the future.

Periodically updating training and keeping workers constantly reminded of safety are other important supervisor responsibilities. These are best accomplished through formal, well-structured, daily Tool Box Talks and through both formal and informal on-the-job training. Such talks are required before each and every work shift.

At the weekly project safety meetings, supervisors will review their accident and incident reports, safety-related log entries, training, and other safety needs. This permits supervisors to learn from each other and will help them maintain a safer job site at all times.

The supervisor is the contractor's site manager. He or she is responsible for proper communication and interface with Program Management personnel, railroad/transit employees, local fire, police, and emergency response officials, and any other party having jurisdiction over any aspect of the work, to obtain authorizations or otherwise successfully move the work forward.

Supervisors must also be thoroughly familiar with, adhere to, and enforce the approved Contractor's EH&S Plan. They must also be familiar with the overall Project EH&S Program and comply with it at all times.

While workers may have the greatest impact as to whether or not hazards will be at unacceptable levels, supervisors can ensure that work proceeds as safely as possible.

2.3.1 Tool Box Talks

All contractor supervisors should conduct daily tool box safety talks with their staffs. Sign-in sheets should be used to verify attendance. Subject matter should vary from week to week and include specific issues relating to the work currently being performed. Topics covered should include a mix of both general safety issues and specific hazards/rules/regulations in the railroad environment. Supervisors should actively solicit employee participation in the discussion of safety issues.

Supervisors should utilize this Safety Manual as a source for topics, rules, and definitions to be discussed at tool box talks. Sample general safety topics include hazard identification, horseplay, adverse weather conditions, site housekeeping, near misses, and witnessing an accident. Railroad safety topics include proper procedures for crossing tracks and working within fouling limits, as well as the dangers of high voltage electrical lines and third rails. Other topics include personal protective equipment, what to do in case of fire, proper use of fire extinguishers, and the project emergency response plan.

2.3.2 Project Safety Meetings

A typical project safety meeting agenda will include follow-up items from previous meetings, safety issues of current interest, a review of any accidents or incidents on the job site since the last meeting, special safety requirements of pending work tasks, and items added by the railroad or other meeting attendees.

2.4 RAILROAD PERSONNEL RESPONSIBILITIES

Railroad/transit employees from several different departments will have specific duties and responsibilities at the project site. The following chart summarizes the railroad personnel we may expect to encounter on the job. The text that follows the chart, provides greater detail:

Responsibilities of Railroad Personnel

- Qualified railroad employees:
  - Remove tracks from service and restore them to service
  - Monitor the foul line and authorize necessary occasional encroachment
  - Accompany personnel on or near live tracks
- Conductor/Flagmen/Watchmen/Construction Flaggers (NYCT):
  - Warn contractor employees of approaching trains

On NYCT property, Flagmen must light lanterns before allowing entrance on to tracks; lanterns must remain lighted until the crew is safely back on the platform.

- Class A Groundmen/Linemen/Third Rail Men/Power Distribution Maintainers
  - Instruct contractor personnel of electrical power hazards
  - De-energize, ground, and re-energize electrical lines or third rail
  - Accompany personnel on or near energized lines or third rail
- Safety Department:
  - Ensure conformance with safety, technical, and operating requirements
  - Inspect the site and work on an ongoing basis

Contractor employees will interface with railroad personnel with different responsibilities and authority levels, proper identification is critical. All railroad/transit employees carry official photo identification. At any given time, there may be personnel from the Transportation, Capital, Power, Signals, Structures, Maintenance of Way, Safety, or other departments of any railroad present at the job site. When receiving instructions or directions, it is imperative to know that the person issuing them is authorized to do so.

Qualified railroad/transit employees are the only ones who can remove tracks from service and authorize encroachment into fouling limits. Any time a nonqualified person must be on or near

live tracks that are not protected by flagging, that person must be accompanied by a Qualified Employee.

All Conductor/Flagmen/Watchmen are Qualified Employees, but not all Qualified Employees are Conductors, Flagmen, or Watchmen. It is the Conductor/Flagman/Watchman's responsibility to protect moving trains. Any person who must be within the fouling limits must be accompanied by a qualified railroad/transit employee.

As previously discussed in the sections on Overhead Catenary and Third Rail, Class A Groundmen, Linemen, and Third Rail Men/P.D., maintainers are responsible for: protecting personnel from electrical hazards; removing and restoring power; applying grounding devices; and obtaining supervisor signatures as a means of acknowledgement that conditions relating to electric power are fully understood.

The Safety Department is responsible for establishing policies that govern the safe performance of all work done on the railroad. This includes work performed by railroad force account personnel, other railroad employees, and contractor personnel. In the case of contract work, the department will conduct periodic surveillance of field activities to identify failures to comply with these policies and the contractor's own approved safety programs. This includes procedures for the use and handling of hazardous materials and substances. The contract documents clearly specify restrictions and required Safety Department approvals.

Safety, Engineering, and Management staffs of the railroads and NYCT will review and approve the Contractor Environmental Health & Safety Program. They also have the authority to stop work if they believe it is not being performed safely. Engineering staff will review the project work and inspect the construction site on an ongoing basis. While their primary focus will be on quality control and technical matters, they will also pay close attention to safety issues.

III SAFETY RULES

3.1 RAILROAD SAFETY RULES

This section contains extracts from the railroad and transit agencies' safety rulebooks and other official publications that are applicable to construction employees working on railroad/transit property.

For the purposes of the project, the definition of "Employee" is extended to include all contractor personnel as well.

These rules supplement and complement the federal and state regulatory standards and mandates of OSHA, NIOSH, DOL, NFPA, EPA, FRA, etc., to which all contractor personnel must comply. All contractors must comply with all OSHA requirements that pertain to the industry.

3.1.1 Contractor Employee Responsibilities

The rail/transit agencies expect contractor employees to be properly rested and to abstain from any activity that would effect the safe and efficient performance of their duties. They do not expect contractor employees to incur any risk or commit any unsafe act nor do they condone such actions. Proper safety habits must be practiced and appropriate guidance must be given to new employees.

No contractor employee may go on duty or remain on duty if under the influence of alcohol and/or drugs, or if there is any evidence of drug use. Furthermore, no contractor may have in his/her possession, while on duty, alcohol and/or drugs whether prescribed or over-the-counter, that may impair the contractor's ability to perform his/her duties, or that might constitute a threat to the property or safety of others. [Note: certain legal drugs taken alone or in combination may impair performance.]

Contractor employees under medication, whether prescription or over the counter, before or while on duty, must be certain that such medication will not affect the safe performance of their duties. • Contractors and their employees must be aware of the location of first-aid kits and lifesaving and firefighting equipment. That equipment is to be used only for the purposes intended.

Injured employees must immediately (a) obtain first aid or medical attention if necessary; (b) inform immediate supervisor. When person in charge is not in the immediate vicinity, inform him or the Chief Train Dispatcher at the earliest opportunity but not later than the off duty time on day of occurrence.

Immediate medical attention must be requested for employees who are ill or injured. Those injured or ill must not be left alone at any location. A supervisor must accompany them.

Contractors are responsible for correcting all unsafe conditions and practices, and reporting such conditions to immediate supervisor.

Whenever possible, employees must avoid reliance on the watchfulness of others; they must provide for their own personal safety.

In case of uncertainty, THE SAFE COURSE OF ACTION MUST ALWAYS BE TAKEN.

The immediate supervisor (Foreman, etc.) shall:

- Be responsible for the safe performance of all those under his/her jurisdiction
- Inform such employees of all potential hazards before they begin work
- Personally and continuously supervise work involving all potential hazards
- Promptly advise his or her immediate supervisor of any employees who resist correction and/or fail to improve their unsafe work practices.

Employees whose duties are subject to federal, state, and municipal laws or to regulations of the Bureau of Explosives, must familiarize themselves with all the requirements thereto and avoid violations.

3.1.2 Conduct of Employees

Employees must not engage in scuffling, horse play, or practical jokes, either on or off duty on company property. Any activity not directly associated with employees' duties and which may adversely affect safety is prohibited. Furthermore, the following are prohibited while on duty or at any time on company property:

- Sleeping or assuming the attitude of sleep
- Reading books, magazines, newspapers, or any printed matter other than work-related materials
- Use or possession of unauthorized radios, headsets, TVs, or computer terminals
- Unauthorized persons must not be permitted on locomotives, trains, equipment, or railroad/transit property

Employees are prohibited from any act that defeats the purpose of a safety device, such as:

- The possession or use of firearms on railroad/transit property without authorization is prohibited
- Smoking or the use of open flames where explosives, flammables, combustibles, or hazardous material and hazardous waste are stored or are being handled or in other unauthorized areas is prohibited. *(Employees must insure that non-employees comply with this rule.)*
- Material conveyor, chute, bucket, or other such facility must not be used as a means of personal transportation
- Never eat, drink, or store food or beverages in toilet rooms or in any area exposed to toxic material.

3.1.3 Attire

To safely perform their duties, employees must wear suitable clothing and footwear and shall not work shirtless. Employees are prohibited from wearing:

- Neckwear that may become entangled or caught in machinery or equipment (excluded are neckties where those are part of prescribed uniforms).
- Jewelry that may become entangled or caught in machinery or equipment or contact energized electrical circuits or apparatus
- Clothing badly torn or loose enough to be hazardous. Loose or baggy trousers, cuffs, or bottoms must be secured to prevent flapping, catching, or dragging
- Short trousers, cut-offs, and tank tops
- Clothing or gloves saturated with oil, grease, or other flammables
- Head or ear covering which interferes with vision or hearing

Contractor must wear shoes of sturdy construction and proper height (height at ankle of at least six inches) to insure adequate protection. They are prohibited from wearing:

- Open-toed shoes or sandals
- Athletic shoes or sneakers
- Shoes with thin, loose, or cracked soles
- Shoes with wedge-type soles or shoes without a definite heel of at least 1/2 inch.
- Stacked heels or platform soles
- Shoes or overshoes not properly laced

The wearing of head and facial hair styles that potentially obscure vision, interfere with the wearing of personal protective equipment, that can become entangled in machinery, or could be exposed to electrical equipment such as a high-voltage cabinet is prohibited.

Gloves must not be worn when operating machinery or machine tools or when close to moving machinery if there is a possibility of the gloves becoming caught and the hand drawn into the moving parts.

3.1.4 Personal Protective Equipment

Approved hard hats, reflectorized safety vests, and safety glasses must be worn by **all** employees while on right-of-way, in yards, shop facilities, and construction and/or work sites. On Amtrak property, **all** employees must wear safety glasses at **all** times. On NYCT property, all contractor employees must wear an approved reflectorized safety vest with the word "Contractor" printed on the front and back of the vest. In addition, they must carry an approved non-conductive flashlight.

3.1.5 Walking

When going to or from work locations contractors must walk, not run, keeping hands out of pockets and using established paths or routes. They must be alert to avoid tripping and slipping hazards and walk around, not jump across, excavations, holes, or open pits. If practicable, remove tripping or slipping hazard encountered on paths, walkways, platforms, or work areas; otherwise, promptly inform your immediate supervisor of its nature and location.

Contractor personnel must use designated routes, paths, or crosswalks to or from yard office, parking lot, station, shop, or other work locations. When walking through halls, passageways, or on steps:

- Keep to the right
- Use handrail
- Use each step of a stairway
- Use caution when going around corners to prevent collision with vehicles or persons
- Give way to persons with loads

When walking or working in poorly lit areas (tunnels, etc.), have sufficient light to permit moving about and performing work safely. If necessary to look away from direction in which walking, stop while doing so. Contractor employees must use a plastic or rubber flashlight or lantern when conditions, such as passing through tunnels or poorly lit areas, require it. The use of a flashlight or lantern with metal case is prohibited when working near electrified railroads. If necessary to use a surface made slippery by weather or other conditions, clean, if practicable, and/or scatter salt, sand, calcium chloride, or other suitable material, in accordance with railroad instructions.

When on or about Track:

- Contractors must not enter a track unless it is necessary in performance of their duty, and only when given permission by a qualified railroad employee
- The use of an umbrella on or about the tracks is prohibited
- In tunnels, where side clearance is limited and no manholes or other places of safety are provided, arrangements for use of track and protection against approaching trains must be made
- Keep clear of standing train, self-propelled vehicles, and machinery or other wheeled equipment
- Contractors are prohibited from sitting, stepping, standing, or walking on rail, frog, switch, interlocking machinery, third rail, and protection board, or other such parts of track structure unless specifically required to do so in the performance of their duties

- Keep as far as practicable from passing trains. If in confined places, secure loose clothing, large or long coats, and, if possible, maintain a handhold until the train has passed.

- Do not rest any object on your shoulder while close to a moving train

- **Expect rail equipment to move on any track, in either direction, at any time.** Contractors must look in both directions before:
  - Fouling track
  - Crossing track
  - Going between or around the end of equipment (30 ft from end of equipment)
  - Moving out from between or under equipment
  - Getting on or off equipment
  - Stepping over a switch
  - Performing any other applicable operation

When crossing tracks use approved walkway when available; otherwise take the shortest **safe** route after looking in both directions. If more than one track is to be crossed, stop and look before crossing each track. Jumping from truck, car, platform, or other elevated location is prohibited. If necessary to descend without use of ladder or steps:

- Observe ground or floor conditions

- Avoid holes, slippery spots, or obstructions

- When possible, maintain a handhold

Where ladder, scaffold, trestle, or other such work facility is located where it is likely to collide with persons, self-propelled or other equipment or machinery, or highway vehicle, it must be protected by:

- Surrounding it with a suitable guard indication at least 10 feet from such obstruction, properly marked and, if necessary, illuminated

- Stationing an employee at the site equipped with appropriate warning means

3.1.6 Handling and/or Storing Material

Car, truck, conveyor, or other transporting equipment must not be overloaded or unsafely loaded. Papers, boxes, and other combustibles must not be stored near machinery or electrical equipment, which could overheat or spark and ignite the material. Make sure the material on which you are working will not shift. Secure or hold the handle of power tools firmly while using them, and be braced and prepared to move clear if reamer, drill, tap, saw, or similar tool sticks or jams. When handling material:

- Avoid dislodging nearby loose material or object which is likely to catch hand, foot, or other part of body
- Keep clear of holes, slippery surface, or obstructions in order to prevent slipping, falling, or being caught by material

When lifting to a position above the waist, do not attempt the lift in one motion; bring the load waist high and then rest it on a support while changing your grip. Bend knees and use the leg muscles for the final lift. When carrying long objects observe location of obstructions and persons nearby to avoid striking them. When several persons are carrying a long object, each should carry it on the same side of his or her body and walk in step.

When working on or about the switch, make sure to keep clothing, tools, material, and all parts of the body clear of all moving switch parts unless the open switch points have been blocked or lever of hand operated switch is locked. Switch points can be manipulated at any time with no prior warning.

3.1.7 Hand and/or Power Tools, Jacks, and Other Equipment

All tools must be used only for the purposes for which they are intended; they must be inspected before being used. The use of insulated tools is highly recommended. Before operating equipment, vehicles, devices, or tools, determine that all persons who might be affected are in the clear. Leave equipment, tools, materials, scrap, debris, and other items clear of tracks, pathways, platforms, and other such places where they would constitute an obstruction or tripping or slipping hazard. The use of metallic tools and equipment, such as aluminum ladders, metallic tape measures, etc. is prohibited. In their place, the use of wooden or fiberglass ladders and cloth tape measures is recommended.

3.2 FIRE PREVENTION

As agencies of the State of New York, Long Island Rail Road, Metro-North Railroad, and NYCT are subject to the provisions of Title 9, Subtitle S, Chapter 1 of the "Official Compilation of Codes, Rules, and Regulations of the State of New York," otherwise known as the "New York State Uniform Fire Prevention and Building Code," and hereinafter referred to as "The Code." Fire prevention and protection is everyone's job. It is the duty of every contractor employee to know what constitutes a hazardous condition or operation. Once recognized, the situation must be corrected immediately or promptly reported for correction. Equally important is the responsibility that each contractor employee has to familiarize himself/herself with the location, use, and operation of the fire-extinguishing equipment provided, and to report promptly any inoperative or defective equipment to his/her supervisor or to the proper department. Upon

discovery of fire, contractor employees must immediately call for necessary assistance from fellow employees, company fire brigades, and outside local fire departments.

The use of portable incinerators is prohibited. Open flames or lights must be kept at least 25 feet from painting operations, whether done by spraying, hand brushing, or dipping. Spray booths or enclosures must be types approved by the Safety Departments. There shall be no storage of any flammables, in any quantity, below grade or in tunnels.

3.3 ACCIDENT AND INCIDENT REPORTING

All accidents must be reported. For the construction project, an accident is defined as any occurrence that results in personal injury or property damage. An incident is defined as the occurrence of an unwanted event that did not result in an accident but had the potential to cause an accident.

Certain accidents, as defined above, may have to be reported by the railroad to the Federal Railroad Administration (FRA), such as those involving train movement, passengers, railroad employees, trespassers, or contractor employees performing railroad maintenance work. Accidents involving contractor employees doing construction work would generally be reported only if train movement was involved.

It is also important to note that when a railroad reports to the FRA, different definitions of **accident** and **incident** are used. A **train accident** is defined as an event involving on-track equipment that causes property damage. A **train incident** is defined as an event involving on-track equipment that results in a casualty -- fatality or injury -- but does not cause property damage. A **non-train incident** is defined as an event that results in a casualty but does not involve on-track equipment or cause property damage.

When completing accident and incident reports, sufficient detail must be given to enable the railroad Safety Department to quickly determine if the event requires reporting to the FRA; and, if it does, which reporting category is appropriate.

Contractor and Engineer personnel will use approved forms to report accidents involving personal injury. This form includes information that may be needed for LIRR, Metro-North, and Amtrak compliance with FRA regulations. (See sample Forms 2 and 3 on the following pages.)

Completed forms should be forwarded to the attention of the Program Manager's Safety Manager, who will, in turn, submit the reports to the appropriate railroad Safety Department.

3.4 SAFETY CHECKLISTS

The use of checklists as an aid to ensure safety and operational readiness is invaluable.

No pilot would attempt to take a plane off the ground without first going through a formal, pre-flight checklist. No matter how often a pilot has gone through the procedure, each time is treated like the first time: the checklist is on paper and is filled out item by item.

Similarly, for this or any other construction project, supervisors should complete checklists that have been designed to call attention to those items needing verification to assure that the project proceeds safely and effectively. The Supervisor Safety Checklists are designed with safety as the primary concern. They do, however, contain items that are of operational concern as well; operations and safety cannot be separated. When operational planning is inadequate, schedules

are disrupted and unusual situations occur much more frequently - making the project site less safe. Safety and operations go hand in hand. The more safety is ingrained in the minds and actions of those working on a project, the smoother construction will proceed; the more thorough the operational planning for a project, the safer the project will be.

The continued use of checklists by supervisors will improve both safety and operations.

Using the Checklist

Two general safety checklists are provided for supervisors. One is for site readiness and the other for worker readiness. Supervisors should use these checklists for every new area of work they enter. Many items on the checklist should be addressed on a daily basis.

Supervisors are encouraged to add to the checklists and make them specific to their individual responsibilities. In addition, they can develop new task-specific checklists to help them assure the highest possible level of safety.

Each item should be marked with "Yes," "No," or "N/A" for not applicable. For example, Item 16 on the Site Readiness Checklist is, "Needed railroad equipment available and inspected." If no railroad equipment is required for the work, "N/A" should be entered in the "Action Needed/Comments" column. If railroad equipment is required and is not available, "No" should be checked and appropriate action to be taken or comments should be entered on the Checklist.

Each checklist should include the supervisor's name, date, and work location that is being checked. Supervisors should keep completed checklists on file and refer to them, as needed, for action requiring follow-up.

Sample Site Readiness and Worker Readiness checklists follow.

LIRR East Side Access
Supervisor Safety Checklist

Supv._____

Date:_____Loc_____

Worker Readiness

	Item	*Yes*	*No*	*Action Needed/Comments*
1.	Job briefing procedures agreed to			
2.	All workers trained and qualified			
3.	All workers wearing hard hats with safety stickers on right side			
4.	All workers wearing safety vests			
5.	All workers wearing safety glasses			
6.	All workers wearing approved footwear			
7.	Worker clothing appropriate for assigned tasks and not overly torn or damaged			
8.	Task specific personal protective equipment (hearing protection, welding masks, etc.) being worn by workers doing those tasks			
9.	Workers participated in daily Tool Box talks and daily safety talks			
10.	Workers properly trained for special tasks			
11.	All workers alert and sober			
12.	Workers know locations of fire extinguishers and First Aid kits			
13.	Vehicle and equipment operators properly licensed or certified			
14.	All workers reminded of and tested on flagging rules			
15.	All workers reminded that electrical lines and third rail must be grounded and they must follow the instructions of the Class A Groundman or Third Rail Man			
16.	Special safety instructions provided			
17.	Other items:			

LIRR East Side Access
Supervisor Safety Checklist

Supv._____

Date:_____Loc_____

Site Readiness

	Item	*Yes*	*No*	*Action Needed/Comments*
1.	On-track safety established			
2.	Fouling limits clearly marked			
3.	Working area clean and neat			
4.	Lighting adequate			
5.	Roads and walks clearly defined			
6.	Waste containers provided			
7.	Sanitary facilities available			
8.	No smoking signs posted where required			
9.	Other required signage in place			
10.	Fire extinguishers in place and inspected			
11.	Needed tools available and inspected			
12.	Needed equipment available and inspected			
13.	Needed machinery available and inspected			
14.	Needed track outages arranged and flagging provided			
15.	Needed electrical outages arranged and Class A or Third Rail employee provided			
16.	Needed railroad equipment available and inspected			
17.	Task specific personal protection equipment available (welding masks, insulating gloves, hearing protection, etc)			
18.	Potable water available			
19.	Needed electrical power available with GFP			
20.	Material available and properly stored			
21.	Hazardous materials and combustible fluids properly identified and stored			
22.	Required MSDS postings in place			
23.	Other items:			

KEY TELEPHONE NUMBERS

EMERGENCY: Dial 911		
LIRR	Jose Fernandez, VP, Safety	718-558-3095
		917-486-9434 (pager)
		1-800-800-7759 (pager)
	Lou Scida, Ops and Fire	718-558-3007
		917-490-0124 (pager)
	Paul Manske, Environmental	718-558-3095
		917-758-1972 (pager)
	LIRR Movement Bureau	718-558-8204
MNR	Joe Streany, Dir., Safety & Claims	212- 340-2096
		1-800-840-7510 (pager)
	Ken McHale, Environmental	914-686-8681
		1-800-840-7510 (pager)
	Amme Egan, Industrial Hygiene	914-686-8683
		1-888-358-2820 (pager)
	Don MacLennan, Fire Chief	914-271-1608
		1-888-358-3563 (pager)
	Martin Huss, Dir. Ind. Eng./QA	212-672-1221
		888-379-6909 (beeper)
	Asst. Chief Rail Traffic Controller	212-340-2049/2050/2051
Amtrak	Pat Colliere, Safety	212-630-6686
		1-800-759-8888,
		pin no. 1367411
	Trouble Desk	212-630-6309
		212-630-6466
NYCT	Office of System Safety	718-243-4780
	RTO Control Center Superintendent	A Division: 718-243-4111
		B-1 Division: 718-243-4311
		B-2 Division: 718-243-4211
NJT	Chief Dispatcher Office	201-714-2780
		201-714-2781
		1-800-742-2832
Bechtel/URS Corp PMC	George Morschauser, Program Manager	212-967-0219
		917-940-1480 (cell phone)
	Al Bast, Deputy Program Manager	212-967-0236
		917-390-9819 (cell phone)
	Ed Boni, Rail Safety	212-490-9090
		917-649-7105 (pager)
		203-494-7873 (cell phone)
	Steve Jones, ESA Safety	415-768-3627
		702-349-7573 (pager)

NOTE: Additional key names and telephone numbers will be added as project progresses

MTA/LIRR

DRUG AND ALCOHOL TESTING PROGRAM

FOR THE

EAST SIDE ACCESS PROJECT

INTRODUCTION

MTA/LIRR has established a drug and alcohol testing program to implement MTA/LIRR's drug and alcohol policy on the East Side Access Project.

This program shall apply to Contractor employees whose performance of their duties has the potential to affect the safety of the employee and others.

Unless the specific duties performed by the Contractor employee fall within the foregoing definition, the program shall not apply to the following types of positions:

1 Secretarial

2 Clerical

3 Administrative

4 Finance

5 Accounting

A position held by an employee which does not require the employee to work in the field in a capacity that contributes directly to the construction.

PROCEDURE

Policy on Drugs and Alcohol

A. Illegal Drugs

Employees are prohibited from using, possessing, distributing, dispensing, manufacturing, being under the influence, or otherwise being involved with illegal drugs and from abusive use of chemicals or controlled substances while on company or client property or while performing company business. In addition, such use, involvement or abuse is prohibited at any time to the extent it violates the law.

B. Alcohol

Employees are prohibited from possessing, consuming or being under the influence of alcohol while on company property or while performing company business. In addition, the abuse or being under the influence of alcohol is prohibited at any time.

Drug and Alcohol Screening

A. Illegal Drugs

1. Use, or under the influence

An employee will be considered to be using, and/or under the influence of illegal drugs if he or he receives a confirmed positive test for the substances identified in this procedure with designated cut-off levels contained in this procedure, section II. A. 2.

2 Designated Substances and Cut-off Levels for Drug Screening

All urine samples will **only** be screened for the following drugs of abuse:

Drugs to be Tested	Initial Cut-off Level (ng/ml)	Confirmation Cut-off Level (ng/ml)
Cannabinoids: (THC, Marijuana)	50	15
Benzolecgonine (Cocaine)	300	150
AMPHETAMINES	1,000	500
OPIATES:	2,000	
Morphine	-------	2,000
Codeine	-------	2,000
6-Acetylmorphine*	-------	10 ng/ml
Phencyclidine (PCP)	25	25

*6-Acetylmorphine will be tested for when the morphine concentration exceeds 2,000 ng/ml.

These substances and cut-off levels are identical to those established by the Department of Health and Human Services' ('HHS') Mandatory Guidelines for Federal Workplace Drug Testing Programs, which are subject to change by the Department of Health and Human Services. Any modification in the HHS National Institute on Drug Abuse ("NIDA") panel of drugs or cut-off levels will automatically result in an identical change under this procedure.

3. Circumstances under which drug testing will be required:

a. Employment

Employment is contingent upon successful completion of drug screening.

b. Reasonable Suspicion Testing

Employees will submit to testing whenever there is a reasonable suspicion, based on specific, objective facts and reasonable inferences drawn from these facts that drugs are being used or that the employee is impaired by alcohol.

Among other things, such facts and inferences may be based upon:

i. Observable phenomena while at work, such as direct observation of drug use or of the physical symptoms or manifestations of being under the influence of drugs or alcohol

ii. Abnormal conduct or erratic behavior while at work, or a significant deterioration in work performance

iii. A report of drug or alcohol use, provided by a reliable and credible source that has been independently corroborated

iv. Involvement in an accident which results in injury to the employee or a fellow employee or which causes property damage

v. Involvement in a life threatening situation or participation in unsafe acts that could cause injury or property damage

vi. Circumstances which give rise to a reasonable suspicion that the employee: (a) is under the influence of a controlled substance or alcohol while present on the work site during working hours; (b) has sold or transferred a controlled substance at the work site; or (c) has possessed a controlled substance or alcohol at the work site

c. Work-related Accident

MTA/LIRR will drug and alcohol test each employee whose performance either contributed to a work-related accident or cannot be completely discounted as a contributing factor to the accident. Testing will be conducted after medical attention is rendered, if required.

d. Random Testing of Employees

Employees will be subject to unannounced random screening for illegal drugs.

Such screening will be performed under a random selection method with a target annual testing rate of fifty percent of the total number of employees.

e. **Employees will be given an opportunity (up to 15 minutes) to have another individual (i.e. Shop Steward, Union Official etc.) present during the screen or search procedure.**

B. Alcohol

1. Use or Under the Influence

An employee will be considered to be using or under the influence of alcohol if his or her blood alcohol concentration is 0.04 or greater, determined by a confirmation test using an evidential breath testing device.

Employees who are found to have an alcohol concentration of 0.02 or greater but less than 0.04 will be removed from the work site until the start of the employee's next regularly scheduled work day. **(Note: Alcohol concentration levels listed above conform to Department of Transportation Workplace Drug and Alcohol Testing Programs 49 CFR Part 40)**

2. Circumstances under which alcohol screening **will** be required

a. Alcohol screening may be required when there is reasonable suspicion of alcohol use or **influence on the job.**

b. Random testing for alcohol may be performed for employees at any time.

Such screening will be performed under a random selection method with a target annual testing rate of fifty percent of the total number of employees.

c. Post-accident alcohol testing may be required under the same circumstances as post-accident drug screening. Testing will be conducted after medical attention is rendered, if required.

C. Drug and Alcohol Screening Collection and Analysis Requirements

1. Drugs

a. HHS Mandatory Guidelines for Workplace Drug Testing Programs

i) HHS Guidelines

MTA/LIRR adheres to the HHS Guidelines covering specimen collection for drug testing, chain-of-custody, laboratory qualifications, testing methods, drugs to be tested and cut-off levels, and use of a Medical Review Officer (MRO).

MTA/LIRR and its Contractors will use only HHS certified laboratories for specimen analysis.

ii) Medical Review Officer

All positive drug test results shall be reviewed by an MRO in accordance with the HHS Medical Review Officer Manual before a confirmed result is reported as positive.

2. Alcohol

Screening for alcohol will be administered by an evidential breath testing device.

All alcohol screening will conform to Department of Transportation ("DOT") Procedures for Transportation Workplace Drug and Alcohol Testing Programs 49 CFR Part 40 and be performed by certified personnel.

These procedures establish requirements for specimen collection, specimen analysis, quality assurance, invalid tests, refusals to test, uncompleted tests, privacy and disclosure of alcohol testing information, and recordkeeping.

III. Employee Notification

A. Current employees, new hires and/or transfers to the project shall be notified in advance that, as a condition of site access they are subject to the MTA/LIRR's drug and alcohol policy.

B. A notice such as the following will be posted at all gates and on appropriate employee bulletin boards on the jobsite:

"The use, possession, distribution, purchase, sale or being under the influence of illegal drugs and/or alcohol and the misuse of legal drugs on the Project is prohibited."

IV. Supervisory Orientation

Each supervisor shall be given an orientation on the effects and paraphernalia of drugs and alcohol. Each supervisor will also be provided with Supervisor Guidelines to assist them in performing their responsibilities under this drug and alcohol testing procedure.

V. Employee Use of Medication

Employees are responsible for reviewing their use of prescription and non-prescription drugs with their personal physician to ensure that any such use of medication does not negatively affect the safe performance of their specific job duties.

Employees who test positive will be required to provide the Medical Review Officer with information requested to evaluate the positive result. Such information may include a list of medications currently or recently taken, along with a prescription, if applicable.

VI. Privacy/Confidentiality

Adherence to HHS Guidelines and DOT Procedures, is intended, in part, to provide protection for employee privacy with respect to drug and alcohol screening.

Records covering employee screening for drugs and/or alcohol will be maintained on a confidential basis as required by the HHS Guidelines and DOT procedures. Additionally:

A. Pass/fail testing results for employees and billing information received from testing laboratories indicating employee names will be audited on a confidential basis and kept in confidential files.

B. No information concerning the details of screening results (e.g., identification of the illegal drug, non-prescribed prescription drug, or alcohol level detected by the test) will be released to the employee, to the employee's legal counsel or to a union representing the employee without a written request from the employee.

VII. Violation of MTA/LIRR Drug and Alcohol Requirements

A. Termination

Violation of MTA/LIRR drug and alcohol requirements may result in removal from the East Side Access Project for "failure to meet site requirements."

VIII. Employee Right to Retest Sample

An Employee notified of a positive test result shall have 48hours to request a retest of the original sample. The retest will be at the employee's expense and must be conducted by an HHS certified lab no later than five working days after the retest is requested. Failure to request and/or conduct the retest within these timeframes terminates the right to retest hereunder. Bechtel will consider the results of any retest conducted hereunder in making its final determination or decision in connection with this procedure.

IX Contesting of Determination or Decision

Represented craft/manual employees may have the right to contest any determination or decision that is made in connection with this procedure through their union.

X. Definitions

A. Alcohol Concentration (or Content)

Alcohol Concentration means the alcohol in a volume of breath expressed in terms of grams of alcohol per 210 liters of breath as indicated by screening using an evidential breath testing device.

B. Chain of Custody

Chain of Custody refers to the methodology of tracking specified materials or substances for the purpose of maintaining control and accountability from initial collection to final disposition, providing for accountability at each stage in handling, testing, and storing specimens and reporting test results.

C. Confirmed Positive Drug Test Result

Confirmed Positive Test Result means a test result that was positive on an initial FDA-approved immunoassay test, confirmed by a Gas Chromatography/Mass

Spectrometry assay (or other confirmatory tests approved by the Department of Health and Human Services), and reviewed and verified by the Medical Review Officer in accordance with the Mandatory Guidelines for Federal Workplace Drug Testing Programs.

D. Evidential Breath Testing Device (EBT)

An evidential breath testing device (EBT) means a breath testing device approved by the National Highway Traffic Safety Administration (NHTSA) for the evidential testing of breath and placed on NHTSA's "Conforming Products List of Evidential Breath Measurement Devices."

E. Illegal Drugs

Illegal Drugs means a controlled substance included in Schedule I or II, as defined by section 802(6) of Title 21 of the United States Code, the possession of which is unlawful under chapter 13 of that Title. The term "illegal drugs" does not mean the medically authorized use of a controlled substance pursuant to a valid prescription or other uses authorized by law.

F. Medical Review Officer

Medical Review Officer means the individual responsible for receiving laboratory results, who is a licensed physician with knowledge of substance abuse disorders and the appropriate medical training to interpret and evaluate all positive test results together with an individual's medical history and any other relevant biomedical information.

G. Random Testing

Random Testing means a system of drug testing imposed without individualized suspicion that a particular individual is using illegal drugs, and may either be:

1. Uniform-unannounced testing of designated employees occupying a specified area, element or position; or

2 A statistically random sampling of such employees based on a neutral criterion, such as social security numbers.