

A.0 Special Construction Requirements

It is the responsibility of the Contractor to ensure that the appropriate special requirements are adhered to:

- a) The Contractor shall abide by the Tunnel Safety Rules. The Tunnel Safety Rules are included in Section A.1 below.
- b) The Contractor shall take appropriate action to protect against asbestos contamination and worker exposure when penetrating the Control Room and electrical room ceiling (Fan Room Floor) in the West and East buildings. The ceilings of these rooms have approximately 1/2 inch sprayed-on asbestos covered by approximately one inch of foil-backed fiberglass insulation.
- c) It shall be the Contractor's responsibility to locate existing utility lines within the tunnel. Utility maps depicting the existing utility lines locations are provided in the Reference Documents. The Contractor can obtain any additional information regarding utility lines at the Project Site from the Eisenhower Tunnel Maintenance Section, tel. 303-512-5734, Tom Hurst. The Contractor shall protect all affected utility lines.
- d) The Contractor shall be responsible for providing generated power for all Work areas during the working hours. No apparatus shall be left operating unattended during non-Work hours. The Contractor shall be responsible for containment and clean-up of any spillage.
- e) Storage areas within the tunnel facilities shall require CDOT Approval prior to use. Two additional staging areas at the East and West Portals will be available to the Contractor as directed by CDOT:
 1. West Portal staging area (30' x 180') at the West Portal in the South Parking Lot.
 2. East Portal staging area (50' x 180') in the North Parking Lot.

The staging areas shall be defined with eight-foot high chain link fence to be provided by the Contractor. Locking gates shall be provided for access. Temporary lighting shall be provided and guaranteed by the Contractor. Any staging areas to remain during winter months, the Contractor shall be responsible for snow removal in the staging area. The Contractor's operations shall not interfere with the EJMT maintenance operations during the winter months.

- f) All Work requiring an electrical outage shall be performed during specific outage periods as identified by CDOT.

All complete outages shall be scheduled with CDOT 48 hours prior to the requested time and shall only be performed during the hours 10 PM to 6 AM each day Sunday night through Friday morning.

CDOT personnel will operate and disable all switchgear, motor controls, and power switching equipment as necessary for the Work. At no time shall the Contractor operate any of the above equipment themselves.

- g) For tasks that involve pulling cables through the ducts, special care should be used to minimize the generation of airborne dust and the number of workers in the duct.
- h) Note that each task of the Project will need to be assessed individually, as required by OSHA, to evaluate all potential safety hazards. If a potential hazard is anticipated, initially the most conservative approach should be taken, until task specific testing can be conducted to verify the actual hazard level.

Book 2 Section 1 Exhibit A: Special Construction Requirements

Elevated carbon monoxide (CO) may be encountered in the Work area and the Contractor shall conduct continuous CO monitoring.

It is the contention of CDOT, per the duct cleaning project which was completed December 1999, with the exception of the NE Building Transition areas, the dust on top of the ceiling slab may contain small amounts of heavy metals. However, the Contractor shall take adequate precautions if the construction activity will result in hazardous dust particles becoming airborne.

The precautions may include the following Personal Protection Equipment (PPE), at a minimum, full-face respirator or half-face respirator with goggles, disposable coveralls (with hood and booties), gloves, and hearing protection, as required. Note: Paper dust masks do not provide adequate inhalation protection for the fine dust. Typically, the half-face respirator with goggles is more comfortable and cooler for workers to wear over a long work period. Regular safety glasses do not provide adequate eye protection in dusty and windy work areas, thus, goggles are recommended. The workers should be required to wash their hands and face when they leave the Work area at breaks, lunch, and at the end of the task or work day to prevent ingestion or inhalation of the dust. Initially, at a minimum, additional task specific air sampling in the workers' breathing zone will be needed to verify and document the safety requirements (work methods, PPE, etc.) are adequate to protect the workers' health for the specific task or Work being performed. All testing shall conform to Section 250, Environmental, Health and Safety Management.

- i) The planned tunnel upgrade will require numerous holes to be drilled up through the tunnel ceiling into the ducts. The concrete ceiling is approximately 6 inches thick. It is expected that a significant amount of concrete dust will be generated during "dry" drilling making it necessary for the drilling operator(s) to wear the appropriate PPE. Also, it should be anticipated that drilling into exhaust ducts could allow the thick surface dust in the duct to escape through the hole immediately after drilling. Work may need to be suspended for a few minutes to allow the dust to be vented out of the worker's breathing zone (head and shoulder region). It is not anticipated the drilling will generate significant additional airborne dust within the ducts.
- j) The Contractor shall perform the Work utilizing safe practices following CDOT and OSHA requirements.
- k) The Contractor shall clean up all dirt/dust and any other debris generated during each shift and will be inspected by the tunnel personnel at the end of each shift.
- l) All tools shall be cleaned up and secured into one cohesive area at the end of each shift. In the air ducts, all tools and equipment shall be secured whenever unattended. If tools and miscellaneous items are not required, they shall be removed from the Work area before the end of each shift.
- m) Due to the security of the tunnel operations, the Contractor will receive three keys, which will be personally assigned to the Design Build Project Manager, Design Manager, and the Construction Manager. The recipient's firms shall be held liable. Tunnel personnel will oversee any and all exchanges. (Note: Under no circumstances shall the keys issued be duplicated.)
- n) All Work shall be completed such that it minimizes interruption to tunnel operations. CDOT will be the sole judge of acceptability.
- o) When Work is being done in the ducts, all open vents within the Work area shall be covered to ensure against objects falling through to the surface area beneath as approved by CDOT.

Book 2 Section 1 Exhibit A: Special Construction Requirements

- p) All existing installations within the air ducts shall be protected by the Contractor. The method of protection shall be submitted to CDOT for Approval. The Contractor shall repair any Contractor-caused damage to the existing installations immediately.
- q) All over height detector and traffic signals must be kept operational at all times.
- r) If any entry into a confined space is required, the Contractor shall abide by CDOT and OSHA rules and regulations concerning confined spaces. All appropriate training and equipment shall be provided by the Contractor. All training records shall be kept on-Site for CDOT review at any time.

A.1 Tunnel Safety Requirements

- a) All equipment, materials, and people shall be confined to the lane closed for the work parties. No equipment, materials, or people shall cross the centerline of the roadway encroaching into the lane of travel at any time.
- b) No materials, equipment, or people shall enter or exit the tunnel roadway until authorized to do so by the CDOT representative or in-tunnel supervisor.
- c) All gas powered vehicles shall be turned off when parked in the closed lane within the tunnel and shall be parked with emergency brake set, the transmission in park, if an automatic, or in gear, if a standard transmission.
- d) Hard hats and safety vests shall be worn at all times by all members of the work party.
- e) Use of drugs or alcohol, or persons under the influence of drugs or alcohol, are prohibited within the tunnel.
- f) No flash bulbs, strobes, high intensity light bars, headlights, or other bright lights shall be aimed at oncoming traffic at any time.
- g) Each member of the work party shall have their own flashlight to be used in the event of a power failure.
- h) Members of the work party are not allowed to leave the tunnel and enter the crosscut passageways unless authorized to do so by the in-tunnel supervisor.
- i) Members of the work party are not allowed to open any junction boxes or other electrical equipment boxes.
- j) Horseplay (i.e. running, throwing materials, etc.) shall not be permitted.
- k) Pulpits, manholes, fire hydrants, fire extinguisher cabinets, catch basins, and all other covers and door openings shall not be opened without the authority of the in-tunnel supervisor, in the absence of an emergency.
- l) Goggles, safety glasses, ear, and steel toe protection shall be worn as appropriate while performing various tasks.

Book 2 Section 1 Exhibit A: Special Construction Requirements

- m) Ladders shall be placed and monitored to ensure the ladders are not allowed to "kick-out" from the bottom into the traveled lane.
- n) Tunnel lighting adjacent to the walls shall not be tampered with in any manner.
- o) Tunnel traffic control systems may be modified with the Approval of CDOT.
- p) Vehicles shall not be parked directly underneath the message boards.
- q) No bright light shall be permitted to be directed at the tunnel's closed circuit TV cameras.
- r) The in-tunnel supervisor's instructions shall be followed at all times.
- s) No lifting mechanisms or any part thereof shall be allowed to protrude into the traveled lane.
- t) At no time shall an individual or work party enter the air ducts or tunnel without radio communication with the tunnel Control Room operator.
- u) CDOT reserves the right to direct the Contractor to leave the tunnel at any time due to emergencies or unforeseen circumstance, as they may occur.
- v) No Smoking in State Buildings.
- w) CDOT Identification card must be worn at all times.