Date: April 11, 2019

ADDENDUM NO. 2
To Project Bidding Documents for:

CHILLER REPLACEMENT PROJECT
GLENDALE HIGH SCHOOL
GLENDALE, CA

tBP Proj. No. 20916.02

tBP/ARCHITECTURE
4611 Teller Avenue
Newport Beach, CA 92660
949/673-0300

TO: PROSPECTIVE BIDDERS

This Addendum forms a part of the Contract Documents and modifies the original Drawings dated March 6, 2019. Acknowledge receipt of this Addendum in space provided on the Bid Form. Failure to acknowledge may subject Bidder to disqualification.

CHANGES TO SPECIFICATIONS

1. ABATEMENT REPORT SPECIFICATIONS
   Add the Abatement Specifications, issued with the addendum.

CHANGES TO DRAWINGS

1. SHEET M1-1 MECHANICAL UTILITY TUNNEL PLAN
   Replace full size sheet Drawing M1-1 in its entirety, issued with this addendum.

2. SHEET E0-2 SINGLE LINE DIAMGRAM AND DETAILS
   A. Single Line Diagram Add A.I.C. ratings as follows:
   - Distribution Panelboard MDP1 shall be 65,000 A.I.C.
   - Panelboard MPL shall be 22,000 A.I.C.

   B. Single Line Diagram Add Plan Note #3 at “Bus Tap”
   Plan Note #3
   2. Contractor shall install bus tap in accordance with UL891. Contractor shall submit a Bus Tap Plan for approval as part of the submittal process. Include all costs in bid to comply with this provision.

ATTACHMENTS
The following attachments are a part of Addendum No. 2:

1. **Specification Sections:**

   A. ABATEMENT REPORT SPECIFICATIONS

2. Full Size Sheets (30” x 42”): (Total 1)
   M1-1

ASBESTOS ABATEMENT SPECIFICATIONS

For The Asbestos Related Work At

SERVICE TUNNELS - CHILLER
GLENDALE HIGH SCHOOL

1440 E. Broadway
Glendale, California 91205

Prepared For

GLENDALE UNIFIED SCHOOL DISTRICT

333 West Magnolia Avenue
Glendale, California 91204

Prepared by

ENCORP
Engineering our Environment

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REV March 29, 2019

PREPARED BY: _____
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DHS # 11092

REVIEWED BY: _____
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CAC # 18-6403
DHS # 2935

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SECTION 02080 - ASBESTOS MATERIALS REMOVAL

PART 1 - GENERAL

1.1 PROJECT SITE

A. The project site is identified as the Glendale High School Chiller Replacement Project located at 1440 E. Broadway, Glendale, California. Work areas shall include areas of impact where hazardous materials are to be impacted by demolition and replacement. Hazardous Materials are outlined in the Table located in Article 1.2.G, below.

1.2 SCOPE OF WORK

A. The main project goal for this project is perform the necessary project abatement. All hazardous materials identified within the subject buildings as impacted based on the Asbestos materials report, are to be removed and prepared for demolition. The abatement contractor has the sole responsibility for confirming the location, scope of impact, quantity and degree of difficulty in prepping or removing the materials as identified in the Hazardous Materials Inspection Report, and based on the demolition, modernization plans, demolition specifications, upgrades and provided project specification & drawings.

B. All removal and disturbance of asbestos-containing materials shall be performed by an asbestos abatement contractor, using 32-hour asbestos certified workers (Asbestos Worker trained as outlined in 40 CFR 763). Abatement contractorôs workforce shall be supervised by experienced persons trained, knowledgeable and qualified in the techniques of asbestos abatement, handling and disposal of asbestos-containing and/or asbestos-contaminated materials, and the subsequent cleaning of contaminated areas, including, at a minimum, Competent Person/Contractor Supervisor training as outlined in 40 CFR 763.

C. NOT USED IN THIS SCOPE.

D. NOT USED IN THIS SCOPE.

E. NOT USED IN THIS SCOPE.

F. Contractor shall utilize employees with HAZWOPER training, as outlined in 29 CFR 1910.120 and 8 CCR 5192, when handling all õotherò hazardous materials.

G. The Abatement Contractor shall be responsible for all disturbance, spot removal or impact, removal and proper disposal of asbestos containing materials, demolition/ removal/impact for demolition and deemed necessary in conformity with the Project Building Plans, Project Specifications & The Asbestos Inspection Report provided as Attachment A to this Section 02080, including equipment which is specified, shown or reasonably implied for the removal, transport, and disposal of the Asbestos materials identified in the Tables below.

POSITIVE ASBESTOS CONTAINING MATERIALS		
MATERIAL	**LOCATION OF MATERIAL**	**ESTIMATED TOTAL QUANTITY**
TSI Joint Attachments & TSI Hard Pack Run	Upper tunnel , Lower tunnel at attachments/floor archers	122 joint 400 sq ft
TSI Elbows	Upper tunnel , Lower tunnel	20 elbows 190 sq ft
Connection gaskets/flanges	Upper tunnel - Lower tunnel	122 ea 60 sq ft
Connection gaskets/flanges	Chiller, Boiler A & B, connection points and pipe run flanges	20 ea 12 sq ft

*The listed quantities, materials, and locations are for budgetary information and are not to be used for bidding purposes. The abatement contractor has the sole responsibility for confirming the location, scope of impact, quantity and degree of difficulty in removing the materials as identified in the asbestos Materials Inspection Report and based on the demolition- modernization plans, and provided project specification & Drawings.

H. The Work includes the removal, transport, and disposal of the following contaminated materials.

1. All hazardous materials identified in the table in Article 1.2.G, above.
2. All Universal waste components including but not limited to:
3. All materials used for work area preparation.
4. All discarded personnel protective equipment.
5. All other potentially contaminated materials.

I. Other items of work shall include:

1. As per agreement between Contractor and Owner.

J. Replacement of removed materials:

1. As per agreement between Contractor and Owner.

K. Furnishings, cabinets, moveable objects, and equipment temporarily removed to gain access to hazardous materials shall be reinstalled to original location upon completion of work, unless other arrangements and approval have been provided by the Owner.

L. Damages caused during the performance of abatement activities shall be repaired by Contractor (e.g. paint peeled off by barrier tape, nail holes, water damage, etc.) at no additional expense to Owner, unless other arrangements and approval have been provided by the Owner.

M. Listed quantities are for budgetary information and are not to be used for bidding purposes. The abatement contractor has the sole responsibility for confirming the location, quantity and degree of difficulty in removing the identified materials.

N. Contractor to review specifications and coordinate all demolition, disturbance, and/or spot abatement of asbestos items as necessary to complete demolition/modernization activities, including removal and disposal of miscellaneous hazardous materials according to all federal, state, and local regulations.

1.3 WORK TO BE PERFORMED BY OTHERS

A. As per Project Specifications.

1.4 RESPONSIBILITIES OF OWNER

A. The Owner will provide daily oversight of and environmental monitoring surrounding the abatement/removal operations.

B. The Owner will provide existing water, at no cost to the Contractor, for construction purposes.

C. The Owner will provide existing electrical power, at no cost to the Contractor, for construction purposes.

D. The abatement contractor shall coordinate with the Owner and/or school representatives for the location of equipment storage, staging and waste storage locations.

1.5 REQUIRED LICENSURE

A. Contractor shall be licensed by the State of California, Contractors State License Board and be registered to perform asbestos related work with the Division of Occupational Safety and Health, Department of Industrial Relations. At a minimum contractor shall hold the following license classifications:

1. License with ASB - Asbestos Certification and Haz-Mat Certification

B. Transportation of Friable and Non-Friable Asbestos Containing Materials: Contractor shall itself be or have a subcontractor who is a registered hazardous waste transporter with the State of California, Department of Toxic Substances Control.

C. Subcontractors shall hold all licenses applicable to specified trade work.

1.6 PERMITS

A. As required by Cal/OSHA.
B. As required by the South Coast Air Quality Management District.
C. As required by local agencies for specific tasks (i.e., electrical permit for temporary power, etc.).

1.7 NOTIFICATIONS

A. Contractor shall make all required written notifications to regulatory agencies including the following:

1. California Division of Occupational Safety and Health (Cal/OSHA)
2. South Coast Air Quality Management District (SCAQMD)
3. Department of Health Services (Cal/CDPH)
4. LA County Fire Department Permit

B. Notifications dates for SCAQMD shall include dates of containment set up and include all time until all asbestos waste is removed from the project site.

1.8 INSURANCE REQUIREMENTS

A. As per Project Specifications.

1.9 BONDING REQUIREMENTS

A. Please refer to District General Conditions and Requirements from Purchasing.

1.10 PROJECT SCHEDULE

A. Project Start Date: TBD Project Completion Date: TBD

B. All work shall be performed as per agreement between Contractor and Owner.

C. For the purposes of this Work Plan "submittal due date" shall mean the day on which submittals required by Article 1.12 shall be received by the Construction Manager, "start work" shall mean the day Contractor arrives on the project site, and "completion date" shall mean the day Contractor leaves the project site including final clearance testing and demobilization.

D. Contractor to indicate the number and duration of shifts required to perform abatement monitoring as part of the bid document. Costs associated with hazardous materials abatement monitoring, beyond those pertaining to the project duration indicated in the Contractorôs Bid, shall be deducted from Contractorôs Contract Amount.

1.11 APPLICABLE REGULATIONS

A. Contractor shall perform all Work in compliance with the most recent edition of all applicable federal, state, and local regulations, standards and codes governing asbestos abatement, transport, and disposal of asbestos containing/contaminated materials, and contaminated materials, and all other hazardous materials.

1. Requirements include obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements associated with codes, regulations, and standards.

B. Regulations, Standards, and Codes (General):

1. General applicability of federal, state, and local regulations, standards and codes governing hazardous materials abatement, demolition, transport, and disposal, except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable regulations, standards, and codes have the same force and effect and are made a part of the contract documents as if copied directly into the contract documents, or as if published copies are bound herewith.

C. Contractor Responsibility: The Contractor shall assume full responsibility and liability for the compliance with all applicable federal, state, and local regulations pertaining to work practices, transport, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site.

1. The contractor is responsible for providing training, medical examinations and maintaining training/medical records of personnel as required by the applicable federal, state, and local regulations, including personal air monitoring for all work practices.

2. The Contractor shall hold the Owner and ENCORP harmless for failure to comply with any applicable hazardous materials abatement, transport, disposal, safety, health or other regulation on the part of himself, his employees, or his subcontractors.

1.12 SUBMITTALS

A. No later than five days prior to commencement of work, Contractor shall submit (six copies) to ENCORP, the District Environmental Consultant, documentation that includes, without limitation, the following:

1. Current Copies of licenses and registrations required by Article 1.5 Required Licensure (include copies of subcontractorsø licenses).

2. Copies of written notification to the following regulatory agencies:

   a. California Division of Occupational Safety and Health (Cal/OSHA)
   b. South Coast Air Quality Management District (SCAQMD)
   c. Department of Health Services (Cal/CDPH)

3. Current Proof of insurance coverage required by Article 1.8 Insurance Requirements (include proof of insurance for subcontractors).

4. Current Proof that required permits, site location and arrangements for transport and disposal of asbestos containing waste materials have been made.

5. Current Proof of legal right to use patented equipment or processes.

6. Current Manufacturer's certification that HEPA vacuums, differential pressure air filtration devices and other local exhaust ventilation equipment conform to ANSI Z9.2-79 and have been permitted by the SCAQMD.

7. Current Documentation showing that Contractor's employees, including foreman, supervisor, and any other company personnel or agents who may be exposed to airborne asbestos fibers or who may be responsible for any aspects of asbestos abatement activities, have received training as required by 29 CFR 1926.1101 and 8 CCR 1529.

8. Current Documentation showing that Contractor's employees, including foreman, supervisor, and any other company personnel or agents who may be exposed have received training as required by 29 CFR 1926.62 and 8 CCR 1532.1.

9. Current Documentation from Physician (signed by an M.D.) showing that all employees or agents who may be exposed to airborne asbestos fibers in excess of background levels have received medical monitoring to determine whether they are physically capable of working while wearing the respirator required without suffering adverse health effects. The Contractor must be aware of and provide information to the examining physician about unusual conditions in the workplace environment (e.g. high temperatures, humidity, chemical contaminants) that may impact on the employee's ability to perform work activities.

10. Current Documentation of respirator fit-testing for all Contractor employees and agents who must enter the work area. This fit-testing shall be conducted annually and in accordance with procedures as required by 29 CFR 1910.134 and 8 CCR 5144.

11. An emergency preparedness plan as required by Article 1.15 - Emergency Planning. Contractor to confirm their own confined space training, certification, and permit as needed.

12. Master schedule, showing phasing, number of shifts, time for air clearances, tear down and manpower loading to be utilized for the duration of the project.

13. A site specific work plan based on scope of work. Include a diagram showing containment set-up, decontamination unit(s), location of negative air machine and exhaust placement.

14. WORK SHALL NOT COMMENCE WITHOUT REVIEW AND APPROVAL OF SUBMITTALS FROM DISTRICT REPRESENTATIVES,

B. Following abatement activities and completion, Contractor shall submit to ENCORP documentation that includes, without limitation, the following (within 15 calendar days):

1. Copies of the work area entry/exit log book. Log book must record name, affiliation, time in, and time out for each entry into the work area.

2. Copies of logs documenting filter changes on respirators, HEPA vacuums, differential pressure air filtration devices, water filtration device, and other engineering controls.

3. Copies of Material Safety Data Sheets (MSDS) for solvents, encapsulants, wetting agents, replacement materials, and other substances brought by Contractor to the Project Site. MSDSs shall be available the first day that subject materials/substances are present on the project site.

4. Results of all required OSHA compliance air monitoring. Results shall be available prior to the start of the following shift and within 24 hours of completion of the last shift.

5. Copies of all accident/incident reports where injury or damage has occurred on or to the Owner's property.

6. Copies of daily logs indicating location(s) worked, type of materials removed, quantity of materials removed and number of personnel conducting the aforementioned activities.

7. Copies of all transport manifests, trip tickets and disposal receipts for all asbestos waste materials removed from the work area within 48 hours of the transport, to:

A. ENCORP
16700 Valley View Ave, Suite 100
La Mirada, California 90638
Attn: Alexander Blankevoort

8. Abatement contractor is responsible for profiling all waste streams at the start of the project. Results must be submitted to the ENCORP for verification of proper disposal.

1.13 NOTICES

A. Post in the clean room area of the worker decontamination enclosure a list containing the names, and telephone numbers of Owner, Construction Manager, Abatement Contractor, and ENCORP.

B. Post in the clean room area of the worker decontamination enclosure a list of all persons authorized to enter the work area.

C. Additional postings shall include:

1. Visitor Entry and Exit Log.
2. Employee Daily Sign in Log.
3. Entry and Exit Procedures.
4. Emergency Procedures.
5. Copies of permits required in Article 1.6 of this document and copies of notifications required in Article 1.7 of this document.
6. As required by the Department of Labor.

1.14 SITE USE AND SECURITY

A. Confine operations at the site to the areas permitted under the Contract. Portions of the site beyond which areas on which work is indicated are not to be disturbed.

B. The work area shall be restricted only to authorized, trained and protected personnel, including Contractor, Contractor's employees, Owner employees, Owner, Construction Manager, ENCORP, State and Local Inspectors.

C. Entry into the work area by unauthorized individuals shall be reported immediately to the ENCORP.

D. Contractor shall be responsible for Project site security during abatement operations in order to protect work efforts and equipment.

1.15 EMERGENCY PLANNING

A. Emergency planning and procedures shall be developed by Contractor prior to abatement initiation.

B. Emergency procedures shall be in written form and prominently posted. Contractor shall ensure that all persons entering the work area read these procedures and understand the Project site layout, location of emergency exits and emergency procedures.

C. Emergency planning shall include considerations of fire, explosion, electrical hazards, slips, trips and falls, confined spaces, school emergencies and heat related injury. Written procedures shall be developed and employee training in procedures shall be provided by Contractor.

D. Employees shall be trained in evacuation procedures in the event of work place emergencies.

1. For non-life-threatening situations, employees injured or otherwise incapacitated shall decontaminate following normal procedures with assistance from fellow workers, if necessary, before exiting the work place to obtain proper medical treatment.

2. For life-threatening injury or illness, worker decontamination shall take least priority. After measures to stabilize the injured worker, remove him from the work place and secure proper medical treatment.

3. Telephone numbers of all emergency response personnel and map to closest hospital shall be prominently posted in the clean and equipment rooms.

1.16 FIRE PROTECTION

A. All plastic, spray-on strippable coatings, and structural materials used in the asbestos abatement process shall be UL-approved and certified as fire retardant or noncombustible.

B. Wood shall be pressure impregnable and certified as fire retardant.

C. Material Safety Data Sheets (MSDS) for fire retardant materials shall be made available upon request.

D. All combustible rubbish and debris, including properly bagged asbestos shall be properly disposed of at the end of each working day.

E. A minimum of one (1) 4A/60BC dry-chemical extinguisher shall be maintained at each of the following locations:

1. At each corner of the work area. Where no clear corners exist, four (4) extinguishers shall be placed around the exterior wall of the work area so that they are approximately 25 percent of the total distance apart.

a. Exception: Where total contained work area is less than 1,000 square feet, two (2) 4A/60BC extinguishers shall be provided. All extinguishers shall be clearly identified with red tape.

2. Contractor shall ensure that on site personnel are aware of the location and proper use of all extinguishers and other fire/life safety equipment.

F. All existing fire detection, alarm systems, connections and standpipes shall remain in place, active and unobstructed. Any alteration to this equipment must be approved by ENCORP.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Generally, Contractor shall carefully adhere to the following:

1. All plastic, spray-on strippable coatings and structural materials used shall be UL-certified as fire retardant or non-combustible.

2. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and brand name (where applicable).

3. Fire-retardant polyethylene sheeting utilized for worker decontamination and construction/containment barriers shall be a minimum of six-mil in thickness.

4. Disposal bags shall be of six-mil polyethylene, pre-printed with labels as required by EPA regulation 40 CFR 61.152 (b) (I) (iv) or applicable Cal/OSHA requirements.

5. Stick-on labels as per EPA or Cal/OSHA requirements for disposal drums.

6. Warning signs as required by Cal/OSHA shall be utilized.

7. Disposal drums shall be 55-gallon DOT A1A (DOT 17H) with locking ring tops and will meet the requirements of 49 CFR 172-178.

B. Removal and Encapsulation:

1. Surfactant (wetting agent) shall be a 50/50 mixture of polyoxyethylene ether and polyoxyethylene ester, or equivalent, mixed in proportion of 1 fluid once to 5 gallons.

2. The encapsulating agent to be applied shall adhere to the substrate surfaces from which asbestos-containing material has been stripped.

3. The encapsulating agent shall not be flammable and should not be solvent-based or utilize a vehicle (the liquid in which the solid parts of the encapsulant are suspended) consisting of hydrocarbon.

4. If utilized, mastic removal solvents shall ***NOT*** be or create a RCRA waste, and shall be of the low odor variety.

C. Replacement:

1. Submit manufacturers certification indicating that replacement materials (if used) do not contain asbestos or more than 600 parts per million (dry weight) of lead.

2.2 EQUIPMENT

A. General:

1. A sufficient quantity of HEPA vacuums and/or differential pressure air filtration devices equipped with HEPA filtration and operated in accordance with ANSI Z9.2-79 (local exhaust ventilation requirements) and EPA guidance document EPA 560/5-83-002 Guidance for Controlling Friable Asbestos Containing Materials in Buildings. To calculate total air flow requirement:

$$\text{Total ft}^3\text{/min} = \frac{\text{Vol. of work area (in ft}^3\text{)}}{\text{15 min}}$$

To calculate the number of units needed for the abatement:

$$\text{Number of units needed} = \frac{\text{[total ft}^3\text{/min]}}{\text{[capacity of unit in ft}^3\text{/min]}}$$

2. At a minimum, full-face powered air-purifying respirators (PAPRs) with P-100 cartridges shall be utilized during all friable/Class I asbestos removal.

3. At a minimum, half-face air-purifying respirators with P-100 cartridges shall be utilized during all ceramic tile or lead-containing paint removal/impact except abrasive removal, or for the removal of all non-friable/Class II asbestos removal.

4. Respirators shall be furnished to the abatement workers by Contractor. The respirators shall have been tested and approved by National Institute of Occupational Safety and Health (NIOSH) for use in asbestos atmospheres.

5. Full body disposable protective clothing, including head, body, and foot coverings shall be furnished to visitors in sizes adequate to accommodate movement without tearing.

6. Additional safety equipment as supplied in accordance with 8 CCR 1514, (e.g. hard hats meeting the requirements of 8 CCR 1515, eye protection meeting the requirements of 8 CCR 1516, safety shoes meeting the requirements of 8 CCR 1517, hand protection meeting the requirements of 8 CCR 1520, hearing protection meeting the requirements of 8 CCR 1521 and body protection meeting the requirements of 8 CCR 1522), as necessary, shall be furnished to all workers and authorized visitors.

7. Non-skid foot wear shall be furnished to all abatement workers. Disposable clothing shall be adequately sealed to the footwear to prevent body contamination.

8. Furnish a sufficient supply of disposable mops, rags, and sponges for work area decontamination.

B. Removal:

1. A sufficient supply of scaffolds, ladders, lifts and hand tools (e.g., scrapers, wire cutters, brushes, utility knives, wire saws, etc.) shall be furnished as needed.

2. Rubber dustpans and rubber squeegees shall be furnished for cleanup.

3. Brushes utilized for removing loose asbestos-containing material shall have nylon or fiber bristles, not metal.

4. A sufficient supply of HEPA filtered vacuum systems shall be furnished during cleanup.

C. Encapsulation: Encapsulants shall be sprayed using airless spray equipment or hand pressurized sprayer.

D. Enclosure: Hand tools equipped with HEPA filtered local exhaust ventilation shall be utilized during the installation of enclosures and supports if there is any need to disturb asbestos containing materials during this process. As an alternative asbestos material may be partially removed following controlled removal procedures approved by the ENCORP.

PART 3 - EXECUTION

3.1 CLASS I ASBESTOS REMOVAL WORK

The following procedures shall be utilized for all removal of friable and/or Class I ACM, and from non-friable ACM utilizing mechanical removal methods from all impacted buildings.

A. Contractor shall coordinate all items of work with the ENCORP.

B. Contractor shall shut down and lock out all heating, cooling, and air conditioning system (HVAC) components that are in supply or pass through the work area. In the event that there is any impact to the HVAC system (such as an air intake), the HVAC system shall remain off during the project.

C. Contractor shall shut down and lock out electric power to all Work Areas. Contractor shall provide temporary power and lighting sources, insure safe installation of temporary power sources and equipment by compliance with all applicable electrical code requirements and Cal/OSHA requirements for temporary electrical systems. Protect each circuit with a Ground Fault Circuit Interrupter (GFCI) of proper size located in the temporary panel.

D. Install worker decontamination unit described in Article 3.7 or as agreed upon with ENCORP.

E. Post warning signs meeting the specifications of 8 CCR 1529, 8 CCR 5208, and 29 CFR 1926.1101, at any location and approaches to a location where airborne concentration of asbestos fibers may exceed ambient background levels. Signs shall be posted at a distance sufficiently far enough away from a work area to permit a person to read the sign and take necessary protective measures to avoid exposure.

F. Asbestos Handlers shall don personnel protective equipment as required in Article 2.2 - Equipment.

G. Pre-clean all vertical and horizontal surfaces within the work area using a HEPA-filtered vacuum and/or wet cleaning techniques, as appropriate. Contractor shall not use any methods that would raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, and shall not disturb asbestos-containing materials during the pre-cleaning phase.

H. Seal off all windows, doorways, elevator openings, corridor entrances, drains, ducts, grills, grates, diffusers, skylights and any other openings between the Work Area and uncontaminated areas outside of the Work Area with two layers six-mil fire retardant polyethylene sheeting and tape.

I. Cover floors in the area, as follows (cover floors where flooring finishes, such as floor tile and/or mastic, are to be removed, during Class I activities).

1. Two layers of six-mil (minimum) sheeting. Additional layers of sheeting may be utilized as a drop cloth to aid in cleanup of bulk materials, and/or to ensure protection from water leaks.

2. Containment plastic shall be sized to minimize seams. If the floor area necessitates seams, those on successive layers of sheeting shall be staggered to reduce the potential for water to penetrate to the flooring material. A distance of at least 6 feet between seams is sufficient. Do not locate any seams at wall/floor joints.

3. Floor sheeting shall extend at least 12" up the side walls of the Work Area.

4. Sheeting shall be installed in a fashion so as to prevent slippage between successive layers of material.

J. Cover all immovable items (plumbing, etc.) and/or construct walls in the Work Area with fire retardant polyethylene sheeting and seal with duct tape. Walls that will be demolished do not necessarily need protection (check with ENCORP). Walls shall be decontaminated using HEPA vacuums and wet cleaning techniques. Walls with mortar joints (e.g., tile) are considered porous. Openings through these walls, including louvers in Mechanical Rooms, must be sealed by critical barriers.

1. Walls shall be covered with two layers six-mil fire-retardant polyethylene sheeting (sealed airtight with duct tape).

2. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet.

3. Wall sheeting shall overlap floor sheeting by at least 12 inches beyond the wall/floor joint to provide a better seal against water damage and for negative pressure.

4. Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This will require additional support/attachment when Negative Pressure Ventilation Systems area utilized.

5. Where necessary for structural support, plywood sheeting and/or 2x4 lumber shall be utilized to ensure the structural integrity of the containment and critical barriers.

6. Fire exits shall be clearly labeled as required by Regulations.

K. Install the minimum number of 2' x 3' clear view windows that will provide visual access to ALL areas of each enclosure.

L. Install and initiate operation of negative pressure air filtration differential as required in Article 2.2 - Equipment. Negative pressure differential shall be at a minimum of -0.02" of water column at all times during asbestos removal operations.

M. Install and maintain a manometer equipped with a strip chart recorder. Manometer shall be capable of detecting at least 0.02" of water column.

N. The Contractor shall carry out all asbestos removal activities in a manner that will minimize pulverizing, breaking or creation of dust. Generally, manual removal methods will be preferred, although larger systems, such as power washers, are acceptable, as long as they are equipped with proper HEPA-filtration equipment and do not create an undue hazard.

O. Keep the ACMs being removed wet throughout removal operations by the use of an airless sprayer. In the event that visible dust is generated during the abatement process, also mist the air within containment periodically with water or an amended water solution with an airless sprayer to reduce airborne asbestos fiber concentrations.

P. Once all removal activities have been completed, clean-up of the work areas shall be conducted in accordance with Article 3.6 - Clean-Up.

Q. Encapsulate entire work area with a penetrating and/or lock-down type encapsulant following acceptance of clean-up activities.

R. Dispose of all asbestos containing/contaminated waste in accordance with Article 3.8 - Disposal Procedures.

3.2 CLASS II ASBESTOS REMOVAL WORK - GENERAL

The following procedure shall be utilized for all removal of non-friable/Class II ACM from all impacted buildings. This type of work shall include, but not be limited to asbestos-containing mastics, vinyl flooring finishes, asbestos cement pipes and panels, and joint compound associated with wallboard systems. Class II removal of roofing products is addressed in Article 3.2.1, below.

A. Contractor shall coordinate all items of work with the ENCORP.

B. Contractor shall shut down and lock out all heating, cooling, and air conditioning system (HVAC) components that are in supply or pass through the work area. In the event that there is any impact to the HVAC system (such as an air intake), the HVAC system shall remain off during the project.

C. Contractor shall shut down and lock out electric power to all Work Areas. Contractor shall provide temporary power and lighting sources, insure safe installation of temporary power sources and equipment by compliance with all applicable electrical code requirements and Cal/OSHA requirements for temporary electrical systems. Protect each circuit with a Ground Fault Circuit Interrupter (GFCI) of proper size located in the temporary panel.

D. Install worker decontamination unit described in Article 3.7 or as agreed upon with ENCORP.

E. Post warning signs meeting the specifications of 8 CCR 1529, 8 CCR 5208, and 29 CFR 1926.1101, at any location and approaches to a location where airborne concentration of asbestos fibers may exceed ambient background levels. Signs shall be posted at a distance sufficiently far enough away from a work area to permit a person to read the sign and take necessary protective measures to avoid exposure.

F. Asbestos Handlers shall don personnel protective equipment as required in Article 2.2 - Equipment.

G. Pre-clean all vertical and horizontal surfaces within the work area using a HEPA-filtered vacuum and/or wet cleaning techniques, as appropriate. Contractor shall not use any methods that would raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, and shall not disturb asbestos-containing materials during the pre-cleaning phase.

H. Seal off all windows, doorways, elevator openings, corridor entrances, drains, ducts, grills, grates, diffusers, skylights and any other openings between the Work Area and uncontaminated areas outside of the Work Area with two layers six-mil fire retardant polyethylene sheeting and tape.

I. Cover floors in the area of vapor barrier removal with fire retardant polyethylene sheeting (do not cover floors where flooring finishes, such as floor tile and/or mastic, are to be removed).

1. A single layer of six-mil (minimum) sheeting. Additional layers of sheeting shall be utilized as a drop cloth to aid in cleanup of bulk materials.

2. Containment plastic shall be sized to minimize seams. If the floor area necessitates seams, those on successive layers of sheeting shall be staggered to reduce the potential for water to penetrate to the flooring material. A distance of at least 6 feet between seams is sufficient. Do not locate any seams at wall/floor joints.

3. Floor sheeting shall extend at least 12" up the side walls of the Work Area.

4. Sheeting shall be installed in a fashion so as to prevent slippage between successive layers of material.

J. Cover all immovable items (plumbing, etc.) and/or construct walls in the Work Area with fire retardant polyethylene sheeting. Walls that will be demolished do not necessarily need protection (check with ENCORP). Walls shall be decontaminated using HEPA vacuums and wet cleaning techniques. Walls with mortar joints (e.g., tile) are considered porous. Openings through these walls must be sealed by critical barriers.

1. Walls shall be covered with two layers six-mil fire-retardant polyethylene sheeting (sealed airtight with duct tape).

2. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet.

3. Wall sheeting shall overlap floor sheeting by at least 12 inches beyond the wall/floor joint to provide a better seal against water damage and for negative pressure.

4. Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This will require additional support/attachment when Negative Pressure Ventilation Systems area utilized.

5. Fire exits shall be clearly labeled as required by Regulations.

K. Install the minimum number of 2' x 3' clear view windows that will provide visual access to ALL areas of the enclosure.

L. Install and initiate operation of negative pressure air filtration differential as required in Article 2.2 - Equipment. Negative pressure differential shall be at a minimum of -0.02" of water column at all times during asbestos removal operations.

M. Install and maintain a manometer equipped with a strip chart recorder. Manometer shall be capable of detecting at least 0.02" of water column.

N. The Contractor shall carry out all asbestos removal activities in a manner that will minimize pulverizing, breaking or creation of dust. Generally, manual removal methods will be preferred, although larger systems, such as bead-blasters for mastic removal activities, are acceptable, as long as they are equipped with proper HEPA-filtration equipment.

O. Keep the ACMs being removed wet throughout removal operations. In the event that visible dust is generated during the abatement process, also mist the air within containment periodically to reduce airborne asbestos fiber concentrations.

P. Once all removal activities have been completed, clean-up of the work areas shall be conducted in accordance with Article 3.6 - Clean-Up.

Q. Encapsulate entire work area with a penetrating and/or lock-down type encapsulant following acceptance of clean-up activities.

R. Dispose of all asbestos containing/contaminated waste; debris shall be kept wet at all times and be bagged while wet in accordance with Article 3.8 - Disposal Procedures.

3.2.1 CLASS II ASBESTOS REMOVAL WORK – ROOFING PRODUCTS

The following procedure shall be utilized for all removal of non-friable/Class II asbestos-containing roofing products, including asphaltic roof membranes, flashings, and related mastics.

A. Contractor shall coordinate all items of work with the Project Environmental Consultant.

B. Contractor shall shut down and lock out all heating, cooling, and air conditioning system (HVAC) components that are in supply or pass through the work area. In the event that there is any impact to the HVAC system (such as a fresh air intake), the HVAC system shall remain off during the project.

C. Contractor shall shut down and lock out electric power to all Work Areas. Contractor shall provide temporary power and lighting sources, ensure safe installation of temporary power sources and equipment by compliance with all applicable electrical code requirements and Cal/OSHA requirements for temporary electrical systems. Protect each circuit with a Ground Fault Circuit Interrupter (GFCI) of proper size located in the temporary panel.

D. Install worker decontamination unit described in Article 3.7 or as agreed upon with Project Environmental Consultant. If installation cannot occur on the roof, installation shall occur as close to the roof access as possible, with polyethylene sheeting laid-down between the decontamination unit and the roof access.

E. Post warning signs meeting the specifications of 8 CCR 1529, 8 CCR 5208, and 29 CFR 1926.1101, at any location and approaches to a location where airborne concentration of asbestos fibers may exceed ambient background levels. Signs shall be posted at a distance sufficiently far enough away from a work area to permit a person to read the sign and take necessary protective measures to avoid exposure (generally, at roof accesses, or at least twenty feet from removal, if on roof).

F. Asbestos Handlers shall don personnel protective equipment as required in Article 2.2.A. Double-suiting is recommended if decontamination unit is not on roof.

G. Pre-clean all vertical and horizontal surfaces within the work area using a HEPA-filtered vacuum and/or wet cleaning techniques, as appropriate. Generally, this will include roof-mounted duct work and equipment only; there is no need to pre-

clean surfaces to be removed. Contractor shall not use methods that would raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, and shall not disturb asbestos-containing materials during the pre-cleaning phase.

H. Seal off all windows, doorways, drains, ducts, skylights, roof penetrations, and any other openings between the Work Area and uncontaminated areas outside of the Work Area with six-mil fire retardant polyethylene sheeting and tape.

I. Cover all immovable items (plumbing, etc.) and/or construct walls around immovable objects with fire-retardant polyethylene sheeting. Walls, where present, shall be decontaminated using HEPA vacuums and wet cleaning techniques. Walls with mortar joints (e.g., tile) are considered porous. Openings through these walls must be sealed by critical barriers.

1. Walls shall be covered with six-mil fire-retardant polyethylene sheeting (sealed airtight with duct tape).

2. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least six feet.

3. Wall sheeting shall overlap floor sheeting by at least 12 inches beyond the wall/floor joint to provide a better seal against water damage and for negative pressure.

4. Wall sheeting shall be secured adequately to prevent it from falling away from the walls. This will require additional support/attachment when Negative Pressure Ventilation Systems area utilized.

5. Fire exits shall be clearly labeled as required by Regulations.

J. The Contractor shall carry out all asbestos removal activities in a manner that will minimize pulverizing, breaking or creation of dust. Generally, manual removal methods will be preferred, although larger systems, such as mechanical shears for cutting membranes into strips, are acceptable, as long as they are equipped with proper shrouding and HEPA-filtration equipment.

K. Keep the ACMs being removed wet throughout removal operations. In the event that visible dust is generated during the abatement process, also mist the air within regulated area periodically to reduce airborne asbestos fiber concentrations.

1. Bags of asbestos waste shall not be dropped or thrown from the roof, but carefully lowered to the ground.

L. Once all removal activities have been completed, clean-up of the work areas shall be conducted in accordance with Article 3.6 - Clean-Up.

M. Encapsulate entire work area with a penetrating and/or lock-down type encapsulant following acceptance of clean-up activities.

N. Dispose of all asbestos containing/contaminated waste in accordance with Article 3.8 - Disposal Procedures.

3.3 CLASS III ASBESTOS DISTURBANCE

Asbestos-related disturbance is the drilling, coring, removal or similar disturbance of asbestos-containing construction materials (ACCM) or asbestos-containing materials (ACM) not to exceed three (3) square feet in any one opening and not to disturb 100 square feet or greater cumulatively on any one project (contract). Asbestos-related disturbance work is considered to be Class III work in accordance with Title 8, Section 1529 (Asbestos) of the California Code of Regulations. In the event that disturbance greater than 3 square feet or 100 square feet total is required, the asbestos-related work shall be considered Class I or Class II asbestos abatement and require the use of an asbestos abatement contractor using 40-hour asbestos-trained workers and notification to the South Coast Air Quality Management District (SCAQMD) per Rule 1403, as required, (See Sections 3.1, 3.2, and 3.3 of this specification).

A. Minor disturbance activities must be performed, at a minimum, by personnel possessing current 16-hour asbestos operations and maintenance (O & M) training. ACM waste must be disposed of as hazardous asbestos-containing waste. ACCM waste generated during minor disturbances can be disposed of as non-regulated construction waste.

B. The buildings will have ACM or ACCM impacted by drilling and coring during the planned Modernization Project.

C. Shut off air handling equipment to rooms where work will occur.

D. Demarcate the work area with plastic ñCautionò tape. Provide and post signs at the entrance to the work area affected. The signs shall comply with Cal/OSHA regulations.

E. Clean the area immediately under the location to be disturbed.

F. Move any moveable furniture or objects from immediately beneath the area to be disturbed.

G. At a minimum, 6-mil plastic sheeting shall be placed on the floor below the work area. The plastic sheeting will be secured to the closest wall and floor surface with tape. The plastic sheeting shall extend away from the work area a sufficient distance so that debris is confined to the plastic and that debris is not tracked onto adjoining flooring or carpeted surfaces.

H. For Class III disturbances requiring the cutting of an opening of 1 square foot or greater, but less than 3 square feet, through ACM or ACCM, or into an asbestos-contaminated space, provide an enclosure around the area of disturbance. This may include, but is not limited to:

1. Mini-enclosure where not more than two persons may occupy for the purpose cutting holes in walls or ceilings.

2. For drilling, coring, sawing or similar disturbance, an enclosure shall be placed over the area of disturbance of sufficient size to cover that area and contain the tools used. This can include drilling with a shroud, through a wet sponge, through a plastic enclosure, or similar designs which will ensure control of Asbestos fibers and other dust. Drilling or coring with the use of a vacuum collection device shall be equipped with a HEPA filter.

I. A HEPA-equipped vacuum shall be used for all disturbance, decontamination, and debris clean-up work.

3.4 NOT USED IN THIS SCOPE OF WORK

3.5 NOT USED IN THIS SCOPE OF WORK

3.6 CLEAN-UP PROCEDURES

A. Remove and containerize all visible accumulations of asbestos-containing material, LCM, and asbestos utilizing rubber dust pans and rubber squeegees to move material around. Do not use metal shovels to pick up or move accumulated waste within contained work areas.

Asbestos-containing/contaminated waste shall be placed in leak tight disposal bags. Disposal bags shall be doubled six-mil polyethylene, pre-printed with labels as required by EPA regulation 40 CFR 61.152 (b) (l) (iv), Cal/OSHA (Title 8 CCR Sections 1529 and 5208), SCAQMD Rule 1403, and if applicable Title 22 CCR Section 66504.

All other hazardous wastes shall be containerized as appropriate and disposed of in a manner that satisfies the requirements for waste characterization and disposal in accordance with the requirements of Title 22 of the California Code of Regulations, Sections 66243, et seq., and Sections 25157.8, et al, of the California Health and Safety Code.

B. Whether cleaning an asbestos work area or a lead work area (or both), wet clean all surfaces in the work area utilizing rags, mops and sponges, and clean all horizontal surfaces within each work area with a HEPA-vacuum, as appropriate.

C. Remove the cleaned layer of polyethylene sheeting from floors and walls, as applicable. Windows, doors, HVAC system vents and all other openings (critical barriers, if employed) shall remain sealed. Dispose of as asbestos-contaminated or lead-contaminated as appropriate to the work area in question.

D. After gross cleaning of the work area, HEPA-vacuum and wet clean all objects and surfaces in the work area are completed, remove all containerized waste from the work area.

E. Decontaminate all tools and equipment and remove at the appropriate time in the cleaning sequence.

F. ENCORP will inspect the work area for visible residue. If any accumulation of residue is observed, it will be assumed to be asbestos and/or lead, as appropriate to the work area, and a second settling period and cleaning cycle

repeated at no additional cost to Owner.

G. Following the satisfactory completion of clearance air monitoring or clearance wipe testing, the remaining barriers may be removed and prepared for proper disposal. A final visual inspection by ENCORP will be performed. Unsatisfactory conditions may require additional cleaning and air monitoring/wipe sampling, at no additional cost to Owner.

3.7 WORKER DECONTAMINATION SYSTEMS

A. Worker decontamination enclosure systems shall be provided at all locations where workers will enter or exit the work area. At a minimum, one three-stage system at a single location is required. Each work area where negative pressure enclosure is the selected method of engineering controls shall have a worker decontamination unit.

B. Worker decontamination enclosure systems constructed at the Project site shall utilize six-mil, fire-retardant polyethylene sheeting, or other approved materials for privacy.

C. Personnel Decontamination Units shall not be located inside the work area(s) unless specifically authorized by the ENCORP.

D. Alternate methods of providing Decontamination facilities may be submitted to the ENCORP for approval. Do not proceed with any such method(s) without the written authorization.

E. The worker decontamination enclosure system shall consist of at least a cleansing station in accordance with the requirements of 8 CCR 1527 and 8 CCR 1529, equipped with adequate water, towels and cleansing agents to accommodate the entire crew and visitors.

3.8 DISPOSAL PROCEDURES

A. All friable asbestos waste shall be disposed of as Hazardous, Friable Asbestos Waste. All non-friable asbestos waste shall be disposed of as Non-Hazardous, Non-Friable Asbestos Waste.

All asbestos-containing waste shall be placed and stored in clear, sealed, leak-tight and appropriately labeled containers, in accordance with 8 CCR 1529 and SCAQMD Rule 1403, and transported to an appropriate landfill for disposal.

B. All hazardous wastes (including non-hazardous asbestos wastes) must be disposed of by a certified waste hauler approved by the Owner.

D. Arrange for proper disposal of any generated hazardous waste stream through an Owner-approved waste disposal facility.

E. Obtain the EPA Hazardous Waste Generator Identification Number and State of California Hazardous Waste Tax Identification Number from the Owner.

F. All hazardous waste manifests or non-hazardous material data forms shall be delivered to the ENCORP. Record keeping format shall utilize a chain of custody form which includes the names and addresses of the Generator (Owner), Contractor, Waste Hauler, pickup site, disposal site, the estimated quantity of the asbestos waste and the type of containers used. The form shall be signed by the Generator, Contractor, Waste Hauler and the Disposal Site Operator, as the responsibility for the material changes hands.

3.9 REESTABLISHMENT OF THE WORK AREAS

A. Reestablishment of the work area shall only occur following the completion of clean-up procedures and after clearance air monitoring has been performed and documented to the satisfaction of ENCORP.

B. Contractor and ENCORP shall visually inspect the work area for any remaining visible residue. Evidence of contamination will necessitate additional cleaning and air monitoring requirements at no additional cost to Owner, until approved by PEC.

C. Upon approval by ENCORP, the Contractor shall remove remaining fire retardant polyethylene sheeting, critical barriers, and decontamination unit.

D. Repair all areas of damage that occurred as a result of abatement activities at no additional cost to Owner, unless other arrangements and approval have been provided by the Owner.

3.10 ENVIRONMENTAL MONITORING

Stop work order due to deficiencies:

If, at any time, DISTRICT Representative or ENCORP decides work practices are violating Specifications, or, Federal or local regulations to extent of potential endangerment of building users, workers, DISTRICT Representative, employees or public, he will immediately notify Contractor (followed up in writing) that operations shall cease until corrective action is taken by Contractor. Contractor shall take such corrective action before proceeding with work. Loss or damage due to Stop Work Order(s) shall be Contractor's responsibility. A Stop Work Order, issued by DISTRICTÕs Representative or ENCORP shall become effective immediately.

A. Air monitoring will be carried out by the ENCORP on behalf of the Owner to verify that the building beyond the contamination area and the outside environment remains uncontaminated.

B. Background Air Monitoring:

1. The ENCORP will conduct pre-abatement air monitoring to determine ambient fiber levels prior to abatement. The analytical method shall utilize Phase Contrast Microscopy (PCM) using the NIOSH 7400 Method.

C. Area Air Monitoring: The ENCORP will conduct in-progress air monitoring daily to determine area airborne contaminant concentrations within the confines of the work area.

1. Environmental Air Sampling: Ambient air samples are taken and analyzed to indicate fiber migration from containment to the environment. Should any environmental sample outside work areas exceed the base line of 0.01 f/cc of air, or established background concentrations as determined by PCM analysis, all work will immediately halt except for corrective work. The PEC shall determine the source of the high fiber count and notify the contractor with directions for the corrective action.

D. Clearance Air/Wipe Monitoring:

1. Following the completion of final clean-up operations, notify the ENCORP that work areas are ready for final inspection and clearance air monitoring.

2. ENCORP will then sample the air in the work area for airborne fiber concentrations.

3. Phase Contrast Microscopy (PCM): In each homogeneous work area after completion of all cleaning work, a minimum number of samples will be collected and analyzed in accordance with the NIOSH 7400 Methodology as follows:

For work areas less than 160 square feet or 260 linear feet:

a. 5 interior aggressive air samples, 5 exterior air samples, 2 field blank samples and 1 lab blank sample for areas that had asbestos-containing materials removed.

b. Release Criteria: Decontamination of the work site is complete when each sample analyzed reveals airborne asbestos fiber concentrations are at or below 0.010 f/cc, or established background concentrations.

c. If these conditions are not met then the decontamination is incomplete and the cleaning procedures noted in Article 3.3 above shall be repeated. The area shall be re-tested at no additional cost to Owner until satisfactory levels are obtained.

4. Transmission Electron Microscopy (TEM): In each homogeneous work area after completion of all cleaning work, a minimum number of samples MAY be collected and analyzed by TEM in accordance with the requirements of 40 CFR Part 763, Subpart E (AHERA) as follows:

For work areas equal to or greater than 160 square feet or 260 linear feet:

a. 5 interior aggressive air samples, 5 exterior air samples, 2 field blank samples and 1 lab blank sample for areas that had asbestos-containing materials removed.

b. Release Criteria: Decontamination of the work site is complete when the average of the interior samples reveals that airborne asbestos fiber concentrations are at or below 70 structures/mm^2, or established background concentrations.

c. If these conditions are not met, decontamination shall be deemed incomplete, and the cleaning procedures noted in Article 3.3 above shall be repeated. The area shall be re-cleaned and re-tested at no additional cost to Owner until satisfactory levels are obtained.

3.11 OSHA PERSONNEL AIR MONITORING:

A. Air monitoring required by OSHA is work of the contractor. The contractor is responsible for providing daily OSHA compliance monitoring as per 29 CFR 1926.1101, 8 CCR 1529 for asbestos.

1. At minimum, Contractor shall conduct representative (25% of crew) breathing zone personal air monitoring of its employees twice each shift (asbestos only) and repeated daily or until a "negative exposure assessment", as derived in accordance with 29 CFR 1926.1101 (f)(2)(iii) and 8 CCR 1529 for asbestos.

2. Monitoring shall be conducted by a qualified air professional experienced and knowledgeable about the methods of air monitoring and in accordance with 29 CFR 1926.1101, 8 CCR 1529 and 8 CCR 1532.1.

3. Monitoring results and appropriate laboratory analysis work shall be submitted to ENCORP within forty-eight (48) hours of the monitoring work.

3.12 ALTERNATIVE PROCEDURES

A. If specified procedures cannot be utilized, a request shall be made in writing to ENCORP providing details of the problem encountered and recommended alternatives.

B. The removal of all ñotherò hazardous materials shall be handled as an alternative procedure. Contractor shall submit a work plan for the removal, handling, and disposal of all ñotherò hazardous materials, including but not limited to fluorescent light ballasts and tubes, mercury switches, refrigerants, batteries, and radioactive smoke detector sources. Work described in said work plan(s) shall not commence until the work plan has been accepted and approved, in writing, by ENCORP.

C. Alternative procedures shall provide equivalent or greater protection than procedures that are replaced.

D. Any alternative procedure must be approved in writing by the ENCORP prior to the implementation of the procedure.

End of Section 02080

ATTACHMENT A:

Asbestos Inspection Report

ASBESTOS INSPECTION REPORT

SERVICE TUNNELS
GLENDALE HIGH SCHOOL
1440 E. Broadway
Glendale, California 91205

Prepared For

GLENDALE UNIFIED SCHOOL DISTRICT
333 West Magnolia Avenue
Glendale, California 91204

Prepared By

ENCORP
Engineering our Environment
16700 Valley View Avenue, Suite 100, La Mirada, California 90638
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March 28, 2019 ï REV March 29, 2019
ENCORP PROJECT P19118.G01

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I. ASBESTOS INSPECTION REPORT

ASBESTOS INSPECTION REPORT

FACILITY: ..... **GLENDALE HIGH SCHOOL – SERVICE TUNNELS**
CHILLER REPLACEMENT PROJECT
1440 E. Broadway
Glendale, California 91205

INSPECTION DATE: ..... March 28, 2019, Rev March 29, 2019

INTRODUCTION

GLENDALE UNIFIED SCHOOL DISTRICT retained **ENCORP** to conduct an asbestos inspection in preparation for demolition of the service tunnel lines and chillers at **GLENDALE HIGH SCHOOL**, located at 1440 E. Broadway, Glendale, California. The inspection scope of work was limited to suspect Asbestos Containing Materials (ACM's) that may be impacted. The inspection results that follow summarize the components tested and the results for asbestos samples.

Asbestos is a general term applied to a group of naturally occurring minerals which separate into fibers. This fibrous material (e.g., Amosite, Chrysotile, Crocidolite, Tremolite, Anthophyllite, and Actinolite) are composed of silicates of aluminum, magnesium and other metals which are incombustible and very difficult to destroy or degrade. Asbestos has a tendency to break into a dust of tiny fibers which can float in the air and be inhaled or swallowed. Asbestos inhalation exposure has been shown to increase the risk of developing lung cancer, mesothelioma (cancer of the lining of the lung and/or abdomen.) and asbestosis (chronic lung disease), as well as other damage to the lungs. Exposure occurs by breathing asbestos fibers produced as a fine dust when asbestos is handled during fabrication, installation or removal. By definition Asbestos Containing Materials (ACM) are any material or product which contains 1 percent (1%) or more asbestos. CAL/OSHA further regulates the content of asbestos in materials or products that contain 1 tenth of a percent (0.1%) or more asbestos for the purpose of worker and occupant protection.

ENCORP's Site Surveillance Technician Mr. Jesus Roman and Certified Asbestos Consultant, Mr. Alexander Blankevoort, performed the site inspections. Prior to sample collection, ENCORP's representatives conducted a visual investigation of the property to identify and quantify all suspect asbestos containing, and lead painted building materials. Upon completion of the visual investigation, building materials were grouped into homogeneous categories and samples were collected from the suspect ACM's previously identified.

SAMPLING METHODOLOGY -- ASBESTOS

ENCORP used a modified random sampling protocol to collect the samples of the suspect asbestos containing materials. Each of the suspect samples collected for this report were given a unique sample identification number and sealed inside leak proof containers for shipment to the laboratory for analysis.

All of the bulk samples collected by **ENCORP** during this inspection were analyzed by ENCORP Environmental Laboratory**,** La Mirada, California. ENCORP Environmental Laboratory is accredited by NIST/NVLAP for analysis of asbestos fibers in bulk samples. These samples were analyzed by Polarized Light Microscopy/Dispersion Staining (EPA/600/R-93/116). This method is designed as an inexpensive screening method to examine bulk samples; it is not an absolute method. Any visible light method (including PLM) is limited by the resolution possible with visible light.

Because fibers with a diameter less than one micron will not be seen using PLM, a possibility exists that the asbestos content of materials with low asbestos percentages (such as floor tiles and soils) could actually be higher when analyzed by TEM, SEM, or X-ray diffraction.

INSPECTION RESULTS – ASBESTOS

The following contains the summary of the suspect asbestos containing materials sampled during this inspection, including the location and laboratory analysis. Positive ACMôs are distinguished in ñ**bold**ò Samples collected and found not to contain asbestos are classified as being None Detected ñNDò The complete sampling results can be found in the attachment section.

SUMMARY OF SUSPECT MATERIALS TESTED						
Sample No.	Building Component	Location Of Material	Condition	Friability	Estimated Quantity	% and type of Asbestos
051737 1 2 3	TSI Patching compounds	Upper tunnel, lower tunnels	G	F	-	ND
051737 4 5 6	**TSI Joint Attachments & TSI Hard Pack Run**	**Upper tunnel , Lower tunnel at attachments/floor archers**	**G**	**F**	**122 joint 400 sq ft**	**20% Amosite**
051737 7 8 9	**TSI Elbows**	**Upper tunnel , Lower tunnel**	**G**	**F**	**20 elbows 190 sq ft**	**3% Chrysotile**
051737 10 11 12	TSI Black/phone Carbon like Joint Attachments	Upper tunnel - Lower tunnel	**G**	**F**	**-**	ND
N/A	**Connection gaskets/flanges**	**Upper tunnel - Lower tunnel**	**G**	**F**	**122 ea 60 sq ft**	**Presumed by certified asbestos consultant**
N/A	Fiberglass pipe wrap and insulation	Upper ï Lower tunnel	**G**	**F**	**-**	Non-suspect material
28 29 30	Black tar coating / fiberglass insulation runs	Lower tunnel	D	F	-	Tar = ND Jacket = ND Insulation
1 2 3	Fiberglass insulation and elbows install circa 2003	Chiller/boiler rooms	**D**	**F**	**-**	Jacket = ND Insulation = ND
4 5 6	Boiler drum insulation (installed circa 2003)	Boiler A	**G**	**F**	**-**	ND
7 8 9	Boiler drum insulation (installed circa 2003)	Boiler B	**G**	**F**	**-**	ND
10 11 12	Boiler drum insulation cloth (installed circa 2003)	Boiler A	**G**	**F**	**-**	ND
13 14 15	Boiler drum insulation cloth (installed circa 2003)	Boiler B	**G**	**F**	**-**	ND

16 17 18	Boiler tank duct cap connection insulation (installed circa 2003)	Boiler A	**G**	**F**	**-**	ND
19 20 21	Boiler tank duct cap connection insulation (installed circa 2003)	Boiler B	**G**	**F**	**-**	ND
22 23 24	Chiller foam insulation	Chiller	**G**	**F**	**-**	Insulation = ND Glue = ND
25 26 27	Cloth patching insulation	Overhead pipe run ï near back up Chiller	**G**	**F**	**-**	Insulation = ND Cloth = ND
N/A	**Connection gaskets/flanges**	**Chiller, Boiler A & B, connection points and pipe run flanges**	**G**	**F**	**20 ea 12 sq ft**	**Presumed by certified asbestos consultant**
32	New ï Green Gasket	Gasket storage cabinet	G	F	-	ND
33	**New – Black/grey Gasket**	**Gasket storage cabinet**	**G**	**F**	**N/A**	**60% Chrysotile**

Conditions of materials are identified as follows: Good (G), Damaged (D), or Significantly Damaged (SD), Friable (F), Non-friable (NF). The quantities listed are for budgetary purposes only. Contractors completing proposals for the removal of asbestos containing materials are responsible for verifying the location, quantity, degree of difficulty and necessity for removing the identified materials.

DISCUSSION/RECOMMENDATIONS – ASBESTOS

Asbestos containing materials (ACM) should be removed by a California trained and licensed abatement contractor in accordance with all governing regulations. ENCORP also recommends that a California Certified Asbestos Consultant/Site Surveillance Technician oversee the project to ensure that proper methods are being utilized.

Additional asbestos-containing materials may be present at this site. Care should be taken when demolishing materials that will open wall cavities or sealed ceiling areas. If any additional known, assumed, or suspected asbestos-containing materials are discovered during renovation, remodeling or demolition activities, contact an environmental consultant to determine the proper course of action.

Should you have any questions concerning this report, please contact me at (714) 523-9811. Thank you.

Respectfully submitted,

Alexander Blankevoort
Vice President of Operations, ENCORP
Certified Asbestos Consultant No. 04-3555
California DPH Inspector/Assessor No. 11092

II. SAMPLE ANALYSIS

A. ASBESTOS LABORATORY ANALYSIS

ENCORP ENVIRONMENTAL MANAGEMENT AND SERVIC
16700 VALLEY VIEW AVE. STE. 100 LA MIRADA, CALIFORNIA 90638
(714) 523-9811 · FAX (714) 523-9810 · MAIN@ENCORP.NET · WWW.ENCORP.NET

Client Name: *Glendale USD*
Client Address: *333 West Magnolia Avenue*
Glendale, CA 91204
Facility Name: *Glendale High School - Service Tunnel*
Facility Address: *1440 E. Broadway*
Glendale, CA

Reference Batch Number: *057001*
Sampled Date: *3/28/2019*
Sampled By: *JROMAN/ABLANKEVOORT*
Analyzed By: *RONNIE KENESON*

Project Number: *P19118* . *G01*
Date Received: *3/29/2019*
Date Analyzed: *3/29/2019*

LABORATORY TEST REPORT

BULK ASBESTOS FIBER ANALYSIS (PLM) EPA-600/R-93/116: Interim Method for the Determination of Asbestos In Bulk Insulation Samples

Sample Number	Field/ Client Number	SAMPLE DESCRIPTION			Friable or Non-	CVE Asbestos	Non Asbestos (%)
		Sample Location/Activity	Color	Material			
763288	7	BOILER ROOM BASEMENT-BOILER B	WHITE	BOILER INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS
763289	8	BOILER ROOM BASEMENT-BOILER B	WHITE	BOILER INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS
763290	9	BOILER ROOM BASEMENT-BOILER B	WHITE	BOILER INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS
763291	10	BOILER ROOM BASEMENT-BOILER A	WHITE	BOILER END SEAL CAP CLOTH	NF	NONE DETECTED	100% FIBROUS GLASS
763292	11	BOILER ROOM BASEMENT-BOILER A	WHITE	BOILER END SEAL CAP CLOTH	NF	NONE DETECTED	100% FIBROUS GLASS
763293	12	BOILER ROOM BASEMENT-BOILER A	WHITE	BOILER END SEAL CAP CLOTH	NF	NONE DETECTED	100% FIBROUS GLASS
763294A	13A	BOILER ROOM BASEMENT-BOILER B	BROWN	BOILER END SEAL CAP CLOTH	NF	NONE DETECTED	100% MATRIX
763294B	13B	BOILER ROOM BASEMENT-BOILER B	WHITE	BOILER END SEAL CAP CLOTH-INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS
763295A	14A	BOILER ROOM BASEMENT-BOILER B	BROWN	BOILER END SEAL CAP CLOTH	NF	NONE DETECTED	100% MATRIX

-NOTES: ND=None Detected Asbestos is not quantifiable below the method detection limit of one (1) percent. Amphibole asbestos includes amosite, crocidolite, anthophyllite, tremolite and actinolite. (FR) = Friable, (NF) = Non-Friable. Condition of sample is as received by the laboratory. Our policy is to retain all samples for a period of thirty days. Accredited by the National Voluntary Laboratory Accreditation Program and Environmental Laboratory Certification for the specific scope of accreditation under NVLAP Lab Code 200878-0. Results reported pertain to sample(s) as submitted and does not necessarily apply to other apparently identical or similar materials.

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Client Name: Glendale USD
Client Address: 333 West Magnolia Avenue, Glendale, CA 91204
Facility Name: Glendale High School - Service Tunnel
Facility Address: 1440 E. Broadway, Glendale, CA

Reference Batch Number: 057001
Sampled Date: 3/28/2019
Sampled By: JROMAN/ABLANKEVOORT
Analyzed By: RONNIE KENESON

Project Number: P19118 . G01
Date Received: 3/29/2019
Date Analyzed: 3/29/2019

LABORATORY TEST REPORT

BULK ASBESTOS FIBER ANALYSIS (PLM) EPA-600/R-93/116: Interim Method for the Determination of Asbestos In Bulk Insulation Samples

Sample Number	Field/ Client Number	SAMPLE DESCRIPTION			Friable or Non-	CVE Asbestos	Non Asbestos (%)
		Sample Location/Activity	Color	Material			
763295B	14B	BOILER ROOM BASEMENT-BOILER B	WHITE	BOILER END SEAL CAP CLOTH-INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS
763296A	15A	BOILER ROOM BASEMENT-BOILER B	BROWN	BOILER END SEAL CAP CLOTH	NF	NONE DETECTED	100% MATRIX
763296B	15B	BOILER ROOM BASEMENT-BOILER B	WHITE	BOILER END SEAL CAP CLOTH-INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS
763297	16	BOILER ROOM BASEMENT-BOILER A	WHITE	BOILER CONNECTION CAP	NF	NONE DETECTED	100% FIBROUS GLASS
763298	17	BOILER ROOM BASEMENT-BOILER A	WHITE	BOILER CONNECTION CAP	NF	NONE DETECTED	100% FIBROUS GLASS
763299	18	BOILER ROOM BASEMENT-BOILER A	WHITE	BOILER CONNECTION CAP	NF	NONE DETECTED	100% FIBROUS GLASS
763300	19	BOILER ROOM BASEMENT-BOILER B	WHITE	BOILER CONNECTION CAP	NF	NONE DETECTED	100% FIBROUS GLASS
763301	20	BOILER ROOM BASEMENT-BOILER B	WHITE	BOILER CONNECTION CAP	NF	NONE DETECTED	100% FIBROUS GLASS
763302	21	BOILER ROOM BASEMENT-BOILER B	WHITE	BOILER CONNECTION CAP	NF	NONE DETECTED	100% FIBROUS GLASS

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Project Number: P19118 . G01
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LABORATORY TEST REPORT

BULK ASBESTOS FIBER ANALYSIS (PLM) EPA-600/R-93/116: Interim Method for the Determination of Asbestos In Bulk Insulation Samples

Sample Number	Field/ Client Number	SAMPLE DESCRIPTION			Friable or Non-	CVE Asbestos	Non Asbestos (%)
		Sample Location/Activity	Color	Material			
763303A	22A	BOILER ROOM BASEMENT-CHILLER	BLACK	CHILLER FOAM INSULATION	NF	NONE DETECTED	100% MATRIX
763303B	22B	BOILER ROOM BASEMENT-CHILLER	GREEN	GLUE	NF	NONE DETECTED	100% MATRIX
763304A	23A	BOILER ROOM BASEMENT-CHILLER	BLACK	CHILLER FOAM INSULATION	NF	NONE DETECTED	100% MATRIX
763304B	23B	BOILER ROOM BASEMENT-CHILLER	GREEN	GLUE	NF	NONE DETECTED	100% MATRIX
763305A	24A	BOILER ROOM BASEMENT-CHILLER	BLACK	CHILLER FOAM INSULATION	NF	NONE DETECTED	100% MATRIX
763305B	24B	BOILER ROOM BASEMENT-CHILLER	GREEN	GLUE	NF	NONE DETECTED	100% MATRIX
763306A	25A	BOILER ROOM BASEMENT-BACK CHILLER OVERHEAD PIPE RUN	WHITE	TSI CLOTH PATCH	NF	NONE DETECTED	12% FIBROUS GLASS 88% MATRIX
763306B	25B	BOILER ROOM BASEMENT-BACK CHILLER OVERHEAD PIPE RUN	YELLOW	INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS
763307A	26A	BOILER ROOM BASEMENT-BACK CHILLER OVERHEAD PIPE RUN	WHITE	TSI CLOTH PATCH	NF	NONE DETECTED	12% FIBROUS GLASS 88% MATRIX

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Sampled Date: 3/28/2019
Sampled By: JROMAN/ABLANKEVOORT
Analyzed By: RONNIE KENESON

Project Number: P19118 . G01
Date Received: 3/29/2019
Date Analyzed: 3/29/2019

LABORATORY TEST REPORT

BULK ASBESTOS FIBER ANALYSIS (PLM) EPA-600/R-93/116: Interim Method for the Determination of Asbestos In Bulk Insulation Samples

Sample Number	Field/ Client Number	SAMPLE DESCRIPTION			Friable or Non-	CVE Asbestos	Non Asbestos (%)
		Sample Location/Activity	Color	Material			
763307B	26B	BOILER ROOM BASEMENT-BACK CHILLER OVERHEAD PIPE RUN	YELLOW	INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS
763308A	27A	BOILER ROOM BASEMENT-BACK CHILLER OVERHEAD PIPE RUN	WHITE	TSI CLOTH PATCH	NF	NONE DETECTED	12% FIBROUS GLASS 88% MATRIX
763308B	27B	BOILER ROOM BASEMENT-BACK CHILLER OVERHEAD PIPE RUN	YELLOW	INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS
763309A	28A	TUNNEL AREA-LOWER TUNNEL	BLACK	BLACK TAR PIPE RUN	NF	NONE DETECTED	100% MATRIX
763309B	28B	TUNNEL AREA-LOWER TUNNEL	OFF WHITE	JACKET	NF	NONE DETECTED	8% FIBROUS GLASS 92% MATRIX
763309C	28C	TUNNEL AREA-LOWER TUNNEL	TAN	INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS
763310A	29A	TUNNEL AREA-LOWER TUNNEL	BLACK	BLACK TAR PIPE RUN	NF	NONE DETECTED	100% MATRIX
763310B	29B	TUNNEL AREA-LOWER TUNNEL	OFF WHITE	JACKET	NF	NONE DETECTED	8% FIBROUS GLASS 92% MATRIX
763310C	29C	TUNNEL AREA-LOWER TUNNEL	TAN	INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS

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Glendale, CA 91204
Facility Name: *Glendale High School - Service Tunnel*
Facility Address: *1440 E. Broadway*
Glendale, CA

Reference Batch Number: *057001*
Sampled Date: *3/28/2019*
Sampled By: *JROMAN/ABLANKEVOORT*
Analyzed By: *RONNIE KENESON*

Project Number: *P19118* . *G01*
Date Received: *3/29/2019*
Date Analyzed: *3/29/2019*

LABORATORY TEST REPORT

BULK ASBESTOS FIBER ANALYSIS (PLM) EPA-600/R-93/116: Interim Method for the Determination of Asbestos In Bulk Insulation Samples

Sample Number	Field/ Client Number	SAMPLE DESCRIPTION			Friable or Non-	CVE Asbestos	Non Asbestos (%)
		Sample Location/Activity	Color	Material			
763311A	30A	TUNNEL AREA-LOWER TUNNEL	BLACK	BLACK TAR PIPE RUN	NF	NONE DETECTED	100% MATRIX
763311B	30B	TUNNEL AREA-LOWER TUNNEL	OFF WHITE	JACKET	NF	NONE DETECTED	8% FIBROUS GLASS 92% MATRIX
763311C	30C	TUNNEL AREA-LOWER TUNNEL	TAN	INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS
763312	31	TUNNEL AREA-UOOER FLANGE TUNNEL	BROWN	GASKET RESIDUAL	NF	NONE DETECTED	2% CELLULOSE 98% MATRIX
763313	32	BOILER ROOM BASEMENT-BOILER CLOSET	GREEN	NEW GREEN GASKET	NF	NONE DETECTED	40% CELLULOSE 60% MATRIX
763314	33	BOILER ROOM BASEMENT-BOILER CLOSET	BLACK	NEW BLACK GASKET	NF	60% CHRYSOTILE	40% MATRIX

Notes:

APPROVED SIGNATURE _____

Ronnie Keneson , Lab Manager

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CLIENT Glendale USD DATE 3-28-19 1 4

JOB NO P1918.G01 INSPECTORS Jesus R / Alex B

LOCATION Glendale HS 1440 E Broadway Glendale CA

SAMPLE NO.	LAB ID #	SAMPLE LOCATION	MATERIAL DESCRIPTION	CONDITION	QUANTITY	% ASBESTOS
1.	763282	Boiler Rm Basement	Fiber glass Insulation	D		Jacket w/silver 12FG Ins Yellow 100 FG
2.	283					
3	284					
4.	285	Boiler A	Boiler Insulation	G		White 100 FG
5.	286					
6.	287					
7.	288	Boiler B	Boiler Insulation			White 100 FG
8.	289					
9.	290					
10.	291	Boiler A	Boiler End seal cap cloth			White 100 FG

ABBREVIATIONS:

TYPES OF MATERIALS:

- ...urface Material
- TSI = Thermal Systems Insulation
- M = Miscellaneous Material

Comments/special instructions

CONDITION

- Good
- Damaged
- Significantly Damaged

OTHER

- ...quare Foot
- ...near Foot

CHAIN OF CUSTODY

Sampled by

Relinquished

Received

Date

3-28-19 3:00

3-28-19 6:00

3/29/19 0515

ENCORP Laboratory Services 16700 Valley View Avenue Suite 180 La Mirada California 90638

Office (714) 523-0811 Fax (714) 523-0810

057001

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CLIENT Glendale USD DATE 3-28-19 PAGE 2 OF 4

JOB NO. P19118.G01 INSPECTORS Jesus R / Alex B

LOCATION: Glendale USD 1440 E Broadway Glendale CA

SAMPLE NO.	LAB ID #	SAMPLE LOCATION	MATERIAL DESCRIPTION	CONDITION	QUANTITY	% ASBESTOS
1 1.	763292	Boiler Rm Basement Boiler A	Boiler cap end seal cloth	G		white 100 FC
1. 2.	293					1
1 3.	294	Boiler B				CAP Brown 100M INS. white 100 FC
1 4.	295					
1 5.	296					
1 6.	297	Boiler A	Boiler Connection cap			white 100 FC
1 7.	298					
1 8.	299					
1 9.	300	Boiler B				
2 0.	301					

ABBREVIATIONS:

TYPES OF MATERIALS	CONDITION	OTHER
S = Surface Material TSI = Thermal Systems Insulation M = Miscellaneous Material	G = Good D = Damaged SD = Significantly Damaged	SF = Square Foot LF = Linear Foot

Comments/special instructions

CHAIN OF CUSTODY

	Date/Time
Sampled by: JR	3-28-19 3:06
Relinquished Received By:	3-28-19 6:00
Relinquished Received By: RR	3/29/19 0575

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CLIENT Glendale USD DATE 3-28-19 PAGE: 3 OF 4
JOB NO: P1918.G01 INSPECTORS Jesus R / Alex B
LOCATION: Glendale HS 1440 E Broadway Glendale CA

SAMPLE NO.	LAB ID #	SAMPLE LOCATION	MATERIAL DESCRIPTION	CONDITION	QUANTITY	% ASBESTOS
1.	763302	Boiler Rm Boiler connection cap Boiler B Basement	Boiler connection cap	G		White 100 FC
2.	303	Chiller	chiller Foam Insulation & glue			ins. BLACK 100M glue GREEN 100M
3.	304					
4.	305					
5.	306	Back chiller overhead pipe run	TSI cloth patch			cloth white 12 FC ins yellow 100 FC
6.	307					
7.	308					
8.	309	Tunnel green lower tunnel	Black tar pipe run insulation			TAR BLACK 100 SF SACKET 8 FC ins. TAN 100 FC
9.	310					
10.	311					

ABBREVIATIONS:

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Comments/Special Instructions

CHAIN OF CUSTODY

Sampled By	Date/Time
JG	3-28-19 3:00
Relinquished/Received By	Date/Time
JR	3-28-19 6:00
Relinquished/Received By	Date/Time
RL	3/29/19 0515

057001

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CLIENT Glendale USD DATE 3-28-19 PAGE 4 OF 4

JOB NO P19118.601 INSPECTORS Jesus R / Alex B

LOCATION Glendale HS 1440 E broadway Glendale CA

SAMPLE NO.	LAB ID #	SAMPLE LOCATION	MATERIAL DESCRIPTION	CONDITION	QUANTITY	% ASBESTOS
3 1.	763312	Tunnel area Upper Flange tunnel	gasket Residual	G		Brown 2 CF
3 2.	763313	Boiler Rm basement Boiler closet	New green Gasket			Green 40 CF
3 3.	763314		New Black gasket			Black 60 Chrysotile
4.						
5.						
6.						
7.						
8.						
9.						
0.						

ABBREVIATIONS:

TYPES OF MATERIALS	CONDITION	OTHER
S = Surface Material TSI = Thermal Systems Insulation M = Miscellaneous Material	G = Good D = Damaged SD = Significantly Damaged	SF = Square Feet LF = Linear Feet

Comments/Special Instructions

CHAIN OF CUSTODY

	Date / Time
Sampled By JS	3-28-19
Relinquished / Received By JC	3-28-19
Relinquished / Received By RR	3/29/19 0515

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Client Address: 333 West Magnolia Avenue
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Facility Name: Glendale High School - Service Tunnel
Facility Address: 1440 E. Broadway
Glendale, CA

Reference Batch Number: 051737
Sampled Date: 11/27/2013
Sampled By: FRANCISCO BARRAZA
Analyzed By: MIGUEL OROZCO

Project Number: P13385 . G01
Date Received: 12/3/2013
Date Analyzed: 12/3/2013

LABORATORY TEST REPORT

BULK ASBESTOS FIBER ANALYSIS (PLM) EPA-600/R-93/116: Interim Method for the Determination of Asbestos In Bulk Insulation Samples

Sample Number	Field/ Client Number	SAMPLE DESCRIPTION: Sample Location/Activity	Color	Material	Friable or Non- Friable	Asbestos Type(%)	Non Asbestos (%)
395555	1	UPPER TUNNEL	BEIGE	(FIBROUS) PATCH PIPE	NF	NONE DETECTED	40% FIBROUS GLASS 60% MATRIX
395556	2	UPPER TUNNEL	BEIGE	(FIBROUS) PATCH PIPE	NF	NONE DETECTED	40% FIBROUS GLASS 60% MATRIX
395557	3	UPPER TUNNEL	BEIGE	(FIBROUS) PATCH PIPE	NF	NONE DETECTED	40% FIBROUS GLASS 60% MATRIX
395558A	4	UPPER TUNNEL	BEIGE	(FIBROUS) TSI WRAP	NF	NONE DETECTED	40% FIBROUS GLASS 60% MATRIX
395558B	4	UPPER TUNNEL	GREY	(FIBROUS) TSI JOINTS	FR	20% AMOSITE	80% MATRIX
395559A	5	UPPER TUNNEL	BEIGE	(FIBROUS) TSI WRAP	NF	NONE DETECTED	40% FIBROUS GLASS 60% MATRIX
395559B	5	UPPER TUNNEL	GREY	(FIBROUS) TSI JOINTS	FR	20% AMOSITE	80% MATRIX
395560	6	UPPER TUNNEL	GREY	(FIBROUS) TSI JOINTS	FR	20% AMOSITE	80% MATRIX
395561	7	UPPER TUNNEL	BEIGE	(FIBROUS) TSI ELBOWS	FR	3% CHRYSOTILE	30% CELLULOSE 10% FIBROUS GLASS 57% MATRIX

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Analyzed By: MIGUEL OROZCO

Project Number: P13385 . G01
Date Received: 12/3/2013
Date Analyzed: 12/3/2013

LABORATORY TEST REPORT

BULK ASBESTOS FIBER ANALYSIS (PLM) EPA-600/R-93/116: Interim Method for the Determination of Asbestos In Bulk Insulation Samples

Sample Number	Field/ Client Number	SAMPLE DESCRIPTION: Sample Location/Activity	Color	Material	Friable or Non- Friable	Asbestos Type(%)	Non Asbestos (%)
395562	8	UPPER TUNNEL	BEIGE	(FIBROUS) TSI ELBOWS	FR	3% CHRYSOTILE	30% CELLULOSE 10% FIBROUS GLASS 57% MATRIX
395563	9	UPPER TUNNEL	BEIGE	(FIBROUS) TSI ELBOWS	FR	3% CHRYSOTILE	10% FIBROUS GLASS 87% MATRIX
395564A	10	UPPER TUNNEL	BEIGE	(FIBROUS) CARBON (Wraping)	NF	NONE DETECTED	40% FIBROUS GLASS 60% MATRIX
395564B	10	UPPER TUNNEL	BLACK	(FIBROUS) HARD FOAM	FR	NONE DETECTED	100% MATRIX
395565A	11	UPPER TUNNEL	BEIGE	(FIBROUS) CARBON (Wraping)	NF	NONE DETECTED	40% FIBROUS GLASS 60% MATRIX
395565B	11	UPPER TUNNEL	BLACK	(FIBROUS) HARD FOAM	FR	NONE DETECTED	100% MATRIX
395566A	12	UPPER TUNNEL	BEIGE	(FIBROUS) CARBON (Wraping)	NF	NONE DETECTED	40% FIBROUS GLASS 60% MATRIX
395566B	12	UPPER TUNNEL	BLACK	(FIBROUS) HARD FOAM	FR	NONE DETECTED	100% MATRIX

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Analyzed By: *MIGUEL OROZCO*

Project Number: *P13385* . *G01*
Date Received: *12/3/2013*
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LABORATORY TEST REPORT

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Sample Number	Field/ Client Number	SAMPLE DESCRIPTION: Sample Location/Activity	Color	Material	Friable or Non- Friable	Asbestos Type(%)	Non Asbestos (%)

APPROVED SIGNATURE: _____
Miguel Orozco, Lab Manager

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051737

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CLIENT: Glendale HS / USD DATE: 11-27-13 PAGE: 1 OF 2

JOB NO: P13385.601 INSPECTORS: Francisco Barraza

LOCATION: Glendale HS

SAMPLE NO.	LAB ID #	SAMPLE LOCATION	MATERIAL DESCRIPTION	CONDITION	QUANTITY	% ASBESTOS
1.	395555	upper tunnel	Patch - Compand 1 Pipe		beige	40% FB GLSS
2.	395556	↓	Compand 2		↓	↓
3.	395557	↓	Compand 3		↓	↓
4.	395558	↓	TSI joints		beige grey	A) 40% FB GLSS B) 20% AMO
5.	395559	↓	↓		↓	↓
6.	395560	↓	↓		grey	20% AMO
7.	395561	↓	TSI elbow		beige	30% CELL 10% FB GLSS 3% CHRY
8.	395562	↓	↓		↓	↓
9.	395563	↓	↓		beige	10% FB GLSS 3% CHRY
10.	395564	↓	CARBON		beige black	A) ~~40% FB GLSS~~ B) ~~40% FB GLSS~~ NAD

ABBREVIATIONS

TYPES OF MATERIALS:	CONDITION:	OTHER:
S = Surface Material TSI = Thermal Systems Insulation M = Miscellaneous Material	G = Good D = Damaged SD = Significantly Damaged	S.F. = Square Feet L.F. = Linear Feet

CHAIN OF CUSTODY

Sampled by: Francisco Barraza Date/Time: 11-27-13

Relinquished/Received by: Francisco Barraza Date/Time: 11-27-13

Relinquished/Received By: [signature] Date/Time: 12/1/13 12/3/13

Comments/special Instructions:

ENCORP
Engineering our Environment

051737

16700 Valley View Avenue, Suite 100
La Mirada, California 90638
Tel: (714) 523-9811
Fax: (714) 523-9810
www.encorp.net

CLIENT: Glendale USD DATE: 11-27-13 PAGE: 2 OF 2

JOB NO: P13385 601 INSPECTORS: Francisco Barraza

LOCATION: Columbus #5

SAMPLE NO.	LAB ID #	SAMPLE LOCATION	MATERIAL DESCRIPTION	CONDITION	QUANTITY	% ASBESTOS
1.	395565	L	L	L	1	L
2.	395566	L	L	L	1	L
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

ABBREVIATIONS:

TYPES OF MATERIALS:	CONDITION:	OTHER:
S = Surface Material TSI = Thermal Systems Insulation M = Miscellaneous Material	G = Good D = Damaged SD = Significantly Damaged	S.F. = Square Feet L.F. = Linear Feet

CHAIN OF CUSTODY

Sampled by: Francisco Barraza Date/Time: 11-27-13

Relinquished/Received By: Francisco Barraza Date/Time: 11-27-13

Relinquished/Received By: Date/Time: 12/1/13 12/3/13

Comments/special Instructions:

ENCORP Laboratory Services · 16700 Valley View Avenue, Suite 100 · La Mirada · California 90638 Office (714) 523-9811 · Fax (714) 523-9810

Z:\Public\FORM Field Forms\Current Field Forms\Bulk Sample Forms

ENCORP ENVIRONMENTAL MANAGEMENT AND SERVIC
16700 VALLEY VIEW AVE. STE. 100 LA MIRADA, CALIFORNIA 90638
(714) 523-9811 · FAX (714) 523-9810 · MAIN@ENCORP.NET · WWW.ENCORP.NET

Client Name: *Glendale USD*
Client Address: *333 West Magnolia Avenue*
Glendale, CA 91204
Facility Name: *Glendale High School - Service Tunnel*
Facility Address: *1440 E. Broadway*
Glendale, CA

Reference Batch Number: *057001*
Sampled Date: *3/28/2019*
Sampled By: *JROMAN/ABLANKEVOORT*
Analyzed By: *RONNIE KENESON*

Project Number: *P19118* . *G01*
Date Received: *3/29/2019*
Date Analyzed: *3/29/2019*

LABORATORY TEST REPORT

BULK ASBESTOS FIBER ANALYSIS (PLM) EPA-600/R-93/116: Interim Method for the Determination of Asbestos In Bulk Insulation Samples

Sample Number	Field/ Client Number	SAMPLE DESCRIPTION			Friable or Non-	CVE Asbestos	Non Asbestos (%)
		Sample Location/Activity	Color	Material			
763282A	1A	BOILER ROOM BASEMENT	OFF WHITE/SILVER	JACKET	NF	NONE DETECTED	12% FIBROUS GLASS 88% MATRIX
763282B	1B	BOILER ROOM BASEMENT	YELLOW	INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS
763283A	2A	BOILER ROOM BASEMENT	OFF WHITE/SILVER	JACKET	NF	NONE DETECTED	12% FIBROUS GLASS 88% MATRIX
763283B	2B	BOILER ROOM BASEMENT	YELLOW	INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS
763284A	3A	BOILER ROOM BASEMENT	OFF WHITE/SILVER	JACKET	NF	NONE DETECTED	12% FIBROUS GLASS 88% MATRIX
763284B	3B	BOILER ROOM BASEMENT	YELLOW	INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS
763285	4	BOILER ROOM BASEMENT-BOILER A	WHITE	BOILER INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS
763286	5	BOILER ROOM BASEMENT-BOILER A	WHITE	BOILER INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS
763287	6	BOILER ROOM BASEMENT-BOILER A	WHITE	BOILER INSULATION	NF	NONE DETECTED	100% FIBROUS GLASS

-NOTES: ND=None Detected Asbestos is not quantifiable below the method detection limit of one (1) percent. Amphibole asbestos includes amosite, crocidolite, anthophyllite, tremolite and actinolite. (FR) = Friable, (NF) = Non-Friable. Condition of sample is as received by the laboratory. Our policy is to retain all samples for a period of thirty days. Accredited by the National Voluntary Laboratory Accreditation Program and Environmental Laboratory Certification for the specific scope of accreditation under NVLAP Lab Code 200878-0. Results reported pertain to sample(s) as submitted and does not necessarily apply to other apparently identical or similar materials.

 Where applicable, layers or "sub-samples" are reported and the Total Asbestos % represents the composite percentage of all sample layers. These samples were quanitified using a calibrated visual estimate.

III. CERTIFICATIONS

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Engineering our Environment

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State of California
Division of Occupational Safety and Health
Certified Site Surveillance Technician

Jesus Roman
Name

Certification No. 19-6450

Expires on 03/12/20

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

IV. FIELD INSPECTION DATA

HOMOGENEOUS MATERIALS INSPECTION FORM

Date: 11-27-13 Job Name: Glendale USD Project # P13365.601

Project Address: Glendale HS

Inspector(s): Francisco Barraza Page: 1 of 1

Material Description	Locations	Individual Sq Ft	Total Sq Ft	Condition	Qty of Samples	Sample #'s
Pipe Patch	upper/lower tunnel			D	3	1-3
TSI Joints				D	3	4-6
TSI elbow				D	3	7-9
CARBON				D	3	10-12

HOMOGENEOUS MATERIALS INSPECTION FORM

Date: 3/28/19 Job Name: Glendale H.S. Project # P19118.601

Project Address:

Inspector(s): Jesus Roman / Alex Blakemore. Page: 1 of 2

Material Description	Locations	Individual Sq Ft	Total Sq Ft	Condition	Qty of Samples	Sample #'s
Fiberglass insulation	Boiler Room					1,2,3,
Boiler A insulation						4,5,6
Boiler B insulation						7,8,9
Boiler cap End ~~Flex~~ seal cloth	Boiler A					10,11,12
Boiler cap end seal cloth.	Boiler B					13,14,15
Boiler connection CAP	Boiler A.					16,17,18.
Boiler connection CAPS	Boiler B					19,20,21

HOMOGENEOUS MATERIALS INSPECTION FORM

Date: 3/28/19 Job Name: Glendale HS. Project # P19118.G01

Project Address:

Inspector(s): Jesus Roman / Alex Blackerby Page: 2 of 2

Material Description	Locations	Individual Sq Ft	Total Sq Ft	Condition	Qty of Samples	Sample #'s
Chiller Foam insulation & ~~mastic~~ Glue.	Chiller.					22, 23 24
Tsi cloth PATCH.	Back - chiller overhead pipe run.					25, 26 27
Black tar Pipe run insulation	Lower tunnel					28, 29 30
Gasket Residual	@ Flange upper tunnel					31
New/Green Gasket.	Boiler closet					32
~~KF~~New/ Black Gasket						33

V. LIMITATIONS

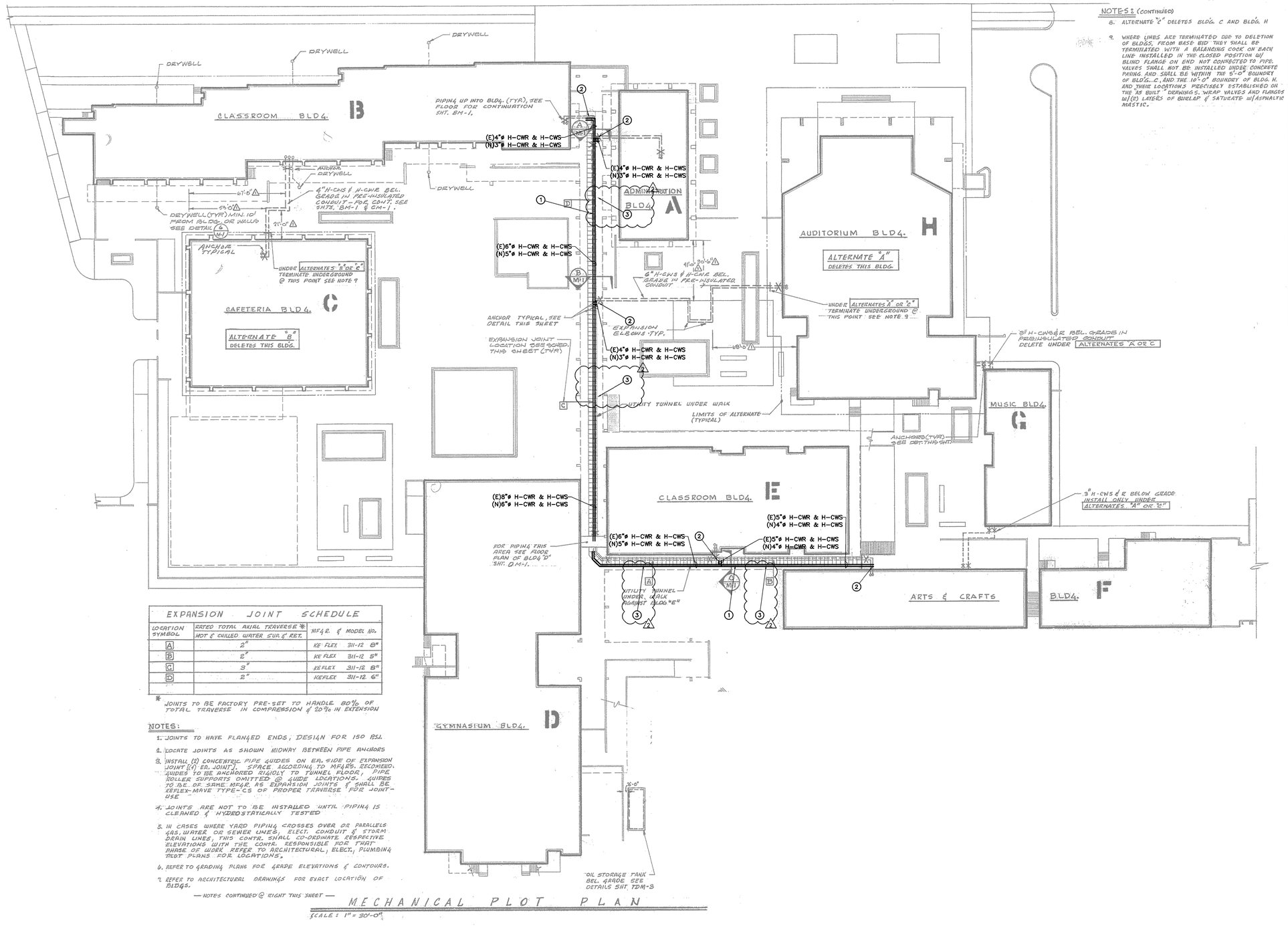
LIMITATIONS

Conditions described in this report are as found at the time of investigation, unless otherwise stated. Materials were homogenized where applicable. All additional materials not listed in this report that are discovered during demolition not visually inspected should be considered assumed asbestos containing until the materials can be properly identified and analyzed for the presence of asbestos.

ENCORP analyzed only the substances, conditions, and locations described in this report at the time indicated. No inferences regarding other substances, conditions, location or time can be made unless specifically stated in this report. This report does not constitute a complete asbestos inspection of the property. Samples were taken at the direction of the client and limited to materials that will be impacted by the demolition procedures.

This report is intended for the use listed in the section of this report titled ñINTRODUCTIONò The use of this report in any manner other than that listed in the Introduction requires the written consent of **ENCORP**. This report must be presented in its entirety.

The conclusions and recommendations presented are based on the agreed upon scope of work outlined in this report. **ENCORP** makes no warranties or guarantees as to the accuracy or completeness of information obtained from information provided or compiled by others. Note that information exists beyond the scope of this investigation. Additional information, which was outside this scope of work, not found, or available to **ENCORP** at the time of writing this report, may result in a modification of the conclusions and recommendations presented. This report is not a legal opinion. The services performed by **ENCORP** have been conducted in a manner consistent with a level of care ordinarily exercised by members of our profession currently practicing under similar conditions. No other warranty, expressed or implied, is made.



EXPANSION JOINT SCHEDULE			
LOCATION SYMBOL	RATED TOTAL AXIAL TRAVERSE * HOT & CHILLED WATER SUP. & RET.	MFG. & MODEL NO.	
A	2"	KE FLEX	311-12 8"
B	2"	KE FLEX	311-12 5"
C	3"	KEFLEX	311-12 8"
D	2"	KEFLEX	311-12 6"

* JOINTS TO BE FACTORY PRE-SET TO HANDLE 80% OF TOTAL TRAVERSE IN COMPRESSION & 20% IN EXTENSION

NOTES:

1. JOINTS TO HAVE FLANGED ENDS, DESIGN FOR 150 PSI.
2. LOCATE JOINTS AS SHOWN MIDWAY BETWEEN PIPE ANCHORS
3. INSTALL (2) CONCENTRIC PIPE GUIDES ON EA. SIDE OF EXPANSION JOINT (4) EA. JOINT). SPACE ACCORDING TO MFGRS. RECOMMEND. GUIDES TO BE ANCHORED RIGIDLY TO TUNNEL FLOOR; PIPE ROLLER SUPPORTS OMITTED @ GUIDE LOCATIONS. GUIDES TO BE OF SAME MFGR. AS EXPANSION JOINTS & SHALL BE KEFLEX-MAYE TYPE-CS OF PROPER TRAVERSE FOR JOINT-USE
4. JOINTS ARE NOT TO BE INSTALLED UNTIL PIPING IS CLEANED & HYDROSTATICALLY TESTED
5. IN CASES WHERE YARD PIPING CROSSES OVER OR PARALLELS GAS, WATER OR SEWER LINES, ELECT. CONDUIT & STORM DRAIN LINES, THIS CONTR. SHALL CO-ORDINATE RESPECTIVE ELEVATIONS WITH THE CONTR. RESPONSIBLE FOR THAT PHASE OF WORK. REFER TO ARCHITECTURAL, ELECT., PLUMBING PLOT PLANS FOR LOCATIONS.
6. REFER TO GRADING PLANS FOR GRADE ELEVATIONS & CONTOURS.
7. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF BLDGS.

— NOTES CONTINUED @ RIGHT THIS SHEET —

MECHANICAL PLOT PLAN

SCALE: 1" = 30'-0"

NOTES: (CONTINUED)

6. ALTERNATE "C" DELETES BLDG. C AND BLDG. H
9. WHERE LINES ARE TERMINATED DUE TO DELETION OF BLDGS. FROM BASE BID THEY SHALL BE TERMINATED WITH A BALANCING COCK ON EACH LINE INSTALLED IN THE CLOSED POSITION W/ BLIND FLANGE ON END NOT CONNECTED TO PIPE. VALVES SHALL NOT BE INSTALLED UNDER CONCRETE PAVING AND SHALL BE WITHIN THE 5'-0" BOUNDRY OF BLDG. C, AND THE 10'-0" BOUNDRY OF BLDG. H, AND THEIR LOCATIONS PRECISELY ESTABLISHED ON THE "AS BUILT" DRAWINGS. WRAP VALVES AND FLANGES W/ (8) LAYERS OF BURLAP & SATURATE W/ ASPHALTIC MASTIC.

GENERAL NOTES:

1. PRIOR TO ANY WORK BEING DONE CONTRACTOR SHALL MAKE A CAREFUL EVALUATION OF THE EXISTING CONDITIONS AND VERIFY ALL METHODS OF REMOVAL AND INSTALLATION OF MECHANICAL EQUIPMENT.
2. CONTRACTOR SHALL SEQUENCE ALL DEMOLITION AND REMODEL WORK SUCH THAT THERE IS NO SYSTEM DOWN TIME DURING OCCUPIED BUILDING HOURS UNLESS PREVIOUSLY COORDINATED WITH THE DISTRICT. ANY AND ALL SYSTEM SHUTDOWNS SHALL BE COORDINATED WITH THE DISTRICT IN WRITING A MINIMUM OF 30 DAYS IN ADVANCE.

KEY NOTES:

(1) CONTRACTOR SHALL PROVIDE PRICING FOR (4) DIFFERENT OPTIONS ~~REGARDING EXISTING HHW/CHW PIPING WITHIN THE TUNNEL~~:
1. REMOVE AND REPLACE ALL EXISTING HHW/CHW PIPING WITHIN THE TUNNEL WITH NEW, SCH 40 STEEL PIPING WITH GROOVED JOINTS.
2. REMOVE AND REPLACE ALL EXISTING HHW/CHW PIPING WITHIN THE TUNNEL WITH NEW, SCH 40 STEEL PIPING WITH WELDED JOINTS.
3. SLEEVE NEW SCH 40 PVC PIPING IN TO EXISTING HHW/CHW PIPING. NEW PIPING SHALL BE SIZES AS INDICATED IN OPTION 1.
4. CLEAN AND COAT EXISTING PIPING WITH NEW IN-PLACE EPOXY PIPE LINING. REPLACE EXISTING EXPANSION JOINTS IN KIND.

(2) PROVIDE NEW ISOLATION/BALANCING VALVES AT EACH BUILDING CONNECTION. TRANSITION AS REQUIRED.

(3) EXISTING EXPANSION JOINT LOCATION. PROVIDE NEW AT THESE LOCATIONS FOR ALTERNATES 1 AND 2. REPLACE EXISTING FOR ALTERNATE 4.

NORTH

MECHANICAL UTILITY TUNNEL PLAN

SCALE 1"=30'-0" | 1

tBP
architecture
planning
interiors
tBP/Architecture
4611 Teller Avenue
Newport Beach, CA 92660
ph: 949.673.0300 fx: 949.732.3895
architect

REGISTERED PROFESSIONAL ENGINEER
ANDREW R. GOSSMAN
No. M30870
Exp. 1/31/19
MECHANICAL
STATE OF CALIFORNIA

PDS
PocockDesignSolutionsInc.
consultant

GLENDALE HIGH SCHOOL CHILLER REPLACEMENT PROJECT

GLENDALE UNIFIED SCHOOL DISTRICT
1440 EAST BROADWAY AVE.
GLENDALE, CALIFORNIA 91205

owner

tBP project number : 20916.02
file name:
drawn by: AG checked by:
date: MARCH 20, 2019

Rev:	date:	description:
1	3-28-19	ADDENDUM NO.1
2	4-10-19	ADDENDUM NO.2

drawing title:
MECHANICAL UTILITY TUNNEL PLAN

drawing no.:
M1-1
drawing of