



SPECIFICATION

Lead Dust Remediation

Solicitation No. ET022-161920
Project #: R.077695.001



R.077695.001

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Supporting Documentation

Figure 01	Location Plan
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Figure 05	Abatement - Basement Mechanical Room

Part 1 General

1.1 SCOPE OF WORK

- .1 The scope of work involves the abatement of lead dust in Rooms 146, 147, 149 through 161 (inclusive), 163, 164, 165, the basement mechanical area and the stairwell into the Identification Garage, of the RCMP Regina Lab Building, as outlined below and on the attached Contract Drawings:
 - .1 Room 146 - West Block:
 - .1 Floor - clean and seal concrete stairwell floor, and immediately surrounding area.
 - .2 Walls - clean stairwell wall surfaces to 2.5 m above ground (2 walls).
 - .3 Door - clean stairwell door and door frame.
 - .4 Horizontal surfaces - clean all tables, shelves, counters, cupboards and horizontal surfaces in the room.
 - .5 Miscellaneous room contents - clean surface of all exposed room contents
 - .6 Exterior of ducts, conduits, fixtures and pipes - clean top of all exterior surfaces at/below exposed ceiling level.
 - .7 Exterior of diffusers, grates, louvres - clean all exterior surfaces at supply air distribution (2) points and exhaust air intake (2) points.
 - .8 Interior ducting - clean exhaust air duct at the southwest corner of the room, from termination point to EV1.30.
 - .2 Room 147 - West Block:
 - .1 Floor - clean entire linoleum floor area.
 - .2 Exterior of diffusers, grates, louvres - remove and dispose of the exhaust grating (1) point near the floor in the north area of the room.
 - .3 Room 149 - West Block:
 - .1 Floor - clean entire plywood floor area.
 - .2 Exterior of diffusers, grates, louvres - clean all exterior surfaces at exhaust air intake (1) point.
 - .4 Room 150 - West Block:
 - .1 Floor - clean and seal entire concrete floor area.
 - .2 Wall - clean west, north and south concrete block walls.
 - .3 Horizontal surfaces - clean all tables, shelves, cupboards, counters and horizontal surfaces in the room.
 - .4 Miscellaneous room contents - clean surface of all exposed room contents
 - .5 Exterior of ducts, conduits, fixtures and pipes - clean top of all exterior surfaces at/below exposed ceiling level.

- .6 Exterior of diffusers, grates, louvres - remove and dispose of the supply air distribution diffusers (4) points and clean all exterior surfaces at exhaust air intake (2) points.
- .7 Interior ducting - clean interior of the central vacuum tubing.
- .5 Room 151 - West Block:
 - .1 Floor - clean entire linoleum floor area.
 - .2 Wall - remove and dispose of all fabric wall panels and plywood backstop walls. Once removed, clean all underlying drywall surfaces.
 - .3 Ceiling - remove and dispose of all fabric ceiling panels. Once removed, clean all underlying drywall surfaces.
 - .4 Horizontal surfaces - clean all tables, shelves, cupboards, counters and horizontal surfaces in the room.
 - .5 Firing bench and ballistic trap - clean, remove and dispose of the ballistic trap, wood backstop and baffles, and reinforced steel backstop.
 - .6 Concrete sump - clean and seal the interior of the concrete sump (walls and floor).
 - .7 Exterior of diffusers, grates, louvres - clean all exterior surfaces of the supply air distribution (north end of room) and exhaust air intake (south end of room) points.
 - .8 Interior ducting - clean interior of the exhaust air ducting from the ballistic trap to the exit from the building and the interior of the supply air ducting at the northwest and northeast corners of the room to common duct and then to the air handling unit.
- .6 Room 152 - West Block:
 - .1 Floor - clean entire concrete floor area.
 - .2 Horizontal surfaces - clean all tables, shelves, counters, cupboards and horizontal surfaces in the room.
 - .3 Miscellaneous room contents - clean surface of all exposed room contents
 - .4 Exterior of ducts, conduits, fixtures and pipes - clean top of all exterior surfaces at/below exposed ceiling level.
 - .5 Exterior of diffusers, grates, louvres - clean all exterior surfaces at exhaust air intake (1) point.
 - .6 Interior ducting - clean exhaust air duct at the north side of the room from the termination point to EV1.40.
- .7 Room 153 - West Block:
 - .1 Floor - clean and seal entire concrete floor area.
 - .2 Exterior of ducts, conduits, fixtures and pipes - clean top of all exterior surfaces at/below exposed ceiling level.
 - .3 Exterior fume hood - remove and dispose of fume hood.
 - .4 Interior ducting - remove and dispose of fume hood ducting from the intake point to the exit point from the room.
- .8 Rooms 154/155/156 - West Block:

- .1 Ceiling - remove and dispose of all lay-in ceiling tiles.
- .2 Exterior of ducts, conduits, fixtures and pipes - clean top of all exterior surfaces at/below exposed ceiling level.
- .9 Room 157 - West Block:
 - .1 Ceiling - remove and dispose of all lay-in ceiling tiles.
 - .2 Exterior of ducts, conduits, fixtures and pipes - clean top of all exterior surfaces above the suspended ceiling.
 - .3 Exterior of diffusers, grates, louvres - remove and dispose of exhaust air intake (1) point.
- .10 Room 158 - West Block:
 - .1 Floor - clean entire linoleum floor area.
 - .2 Exterior of diffusers, grates, louvres - remove and dispose of exhaust air intake (2) points.
 - .3 Interior ducting - remove and dispose of 2.0 m length of fume hood ducting from the intake point at the east wall.
- .11 Room 159 - West Block:
 - .1 Floor - clean entire linoleum floor area.
 - .2 Ceiling - remove and dispose of all lay-in ceiling tiles.
 - .3 Horizontal surfaces - clean all tables, shelves, counters, cupboards and horizontal surfaces in the room.
 - .4 Exterior of ducts, conduits, fixtures and pipes - clean top of all exterior surfaces above the suspended ceiling.
 - .5 Exterior of diffusers, grates, louvres - remove and dispose of supply air distribution diffuser (1) point and exhaust air intake (1) point.
- .12 Room 160 - West Block:
 - .1 Floor - clean entire linoleum floor area.
 - .2 Ceiling - remove and dispose of all lay-in ceiling tiles.
 - .3 Exterior of ducts, conduits, fixtures and pipes - clean top of all exterior surfaces above the suspended ceiling.
- .13 Room 161 - West Block:
 - .1 Floor - clean entire linoleum floor area.
 - .2 Ceiling - remove and dispose of all lay-in ceiling tiles.
 - .3 Exterior of ducts, conduits, fixtures and pipes - clean top of all exterior surfaces above the suspended ceiling.
 - .4 Exterior of diffusers, grates, louvres - remove and dispose of exhaust air intake (2) points and clean all exterior surfaces at exhaust air intake (1) point.
- .14 Room 163 - West Block:
 - .1 Horizontal surfaces - clean all tables, shelves, counters, cupboards and horizontal surfaces in the room.
 - .2 Exterior of ducts, conduits, fixtures and pipes - clean top of all exterior surfaces at/below the exposed ceiling level.

- .3 Exterior of diffusers, grates, louvres - clean all exterior surfaces at exhaust air intake (1) point.
- .15 Room 164 - West Block:
 - .1 Exterior of diffusers, grates, louvres - clean all exterior surfaces at exhaust air intake (2) points.
- .16 Room 165 - West Block:
 - .1 Exterior of diffusers, grates, louvres - clean all exterior surfaces at exhaust air intake (2) points.
- .17 Basement Mechanical Area:
 - .1 Exterior of diffusers, grates, louvres - clean all exterior surfaces at the exhaust air relief vent (1) point.
 - .2 Interior ducting - remove and dispose of exhaust air handling unit, clean exhaust air duct from the exit of Room 151 to the exit from the building on the east elevation, and clean supply air plenum between Room 151 and air handling unit.
 - .3 Central vacuum - remove and dispose of central vacuum canisters (5) and associated piping. Cap piping at entrance to ceiling as required.
- .2 The areas to be remediated are outlined in EGE Engineering Ltd.'s report titled "Pre-Abatement Lead Assessment - RCMP Regina Lab Building - Former Indoor Firing Range - Regina, SK, and dated December, 2015 (see Attachment A), and as illustrated on Figures 01 through 05.
- .3 The work is to be completed by an experienced Lead Remediation Contractor.
- .4 The Contractor shall provide all labour, materials, supplies and equipment, including worker protection and decontamination area, necessary to isolate and clean all impacted areas and rooms, and to remove and decommission all noted materials and equipment.
- .5 At the completion of the final abatement activities, post remediation confirmatory surface sampling will be conducted by the Departmental Representative to ensure compliance with the specifications.

1.2 DEFINITIONS

- .1 Lead Control Work: means lead particulate abatement procedures, and disposal of lead or materials containing lead, as specified.
- .2 Lead Control Area: means space in which lead particulate control work is being performed and to which general access is prohibited.
- .3 Lead Waste: means removed contaminant and contaminated materials or products.
- .4 Contaminant: means lead particulate material.
- .5 Contaminated: describes products, by-products or materials containing or affected by lead particulate abatement thereof.

- .6 Action Level: a health criterion for a substance in air set at 50% of the Occupational Exposure Limit (OEL) for that substance.
- .7 HEPA Filter: high efficiency particulate air filter, removing not less than 99.97% of particulates measuring 0.3 microns or larger, for powered air purifying respirators, vacuums, vacuum trucks and negative air units.
- .8 P100 Filter: high efficiency, oil-proof, particulate air filter, removing not less than 99.97% of particulates measuring 0.3 microns or larger, for powered air purifying respirators.
- .9 Containment System: includes the cover panels, screens, tarps, scaffolds, supports and shrouds used to enclose an entire work area. The purpose is to minimize or prevent the debris generated during surface preparation from entering into the environment, and to facilitate the controlled collection of the debris for disposal. Containment systems may also employ the use of ground covers or water booms.
- .10 Emissions: emissions from the containment that require control, including airborne plumes of material, as well as spills or leaks of water, abrasives, paint chips, and debris.
- .11 Impenetrable: impervious to dust and wind.
- .12 Impermeable: impervious to water.
- .13 TCLP Testing: Toxicity Characteristic Leaching Procedure (TCLP) described in the Waste Control Regulation and used to classify hazardous waste in accordance with the requirements of the regulation.
- .14 Contractor: firm responsible for completing the Scope of Work and complying with the requirements of the project, as per this Specification.
- .15 Departmental Representative: an organization or individual designated in the Contract or by written notice to the Contractor, to act as the Departmental Representative for the purposes of the Contract.
- .16 CSA: Canadian Standards Association.
- .17 DCU: decontamination unit.
- .18 MUC: maximum use concentration.
- .19 HVAC: heating, ventilation and air conditioning.
- .20 VAV: variable air volume.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Title and description of Work: Site Remediation of Former Indoor Firing Range - RCMP Regina Lab Building - Regina, Saskatchewan.

- .2 The work comprises all activities associated with the remediation of lead dust located within the former indoor firing range and adjacent rooms.
- .3 Mobilization and demobilization consists of preparatory work and operations, including but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to and from the project site.
- .4 Work by Others: confirmatory sampling by Departmental Representative.
- .5 The scope of work contained in this specification will be conducted in accordance and in conjunction with directions from the Departmental Representative at the site.
- .6 Schedule construction activities to ensure the scope of work is conducted in a timely manner and within the Contract duration.

1.4 CONTRACT METHOD

- .1 Complete Work under lump sum contract.

1.5 SITE EXAMINATION

- .1 Before submitting a tender, the Contractor shall: examine the job site, building construction, waste and storage areas; compare plans and specifications with existing conditions; and fully satisfy himself as to all data and matters required for the completion of the contract.
- .2 Failure to acquaint himself fully with all available information concerning conditions affecting the work shall not relieve the Contractor of the responsibility for estimating the difficulties and costs of satisfactorily performing the work.
- .3 Commencement of mobilization shall constitute acceptance of existing conditions, and verification of dimensions.
- .4 Claims for additional costs will not be entertained with respect to conditions which would reasonably have been ascertained by an inspection of the site prior to tender closing time.

1.6 WORKER QUALIFICATIONS

- .1 Workers used for handling, abatement and packaging for disposal of lead waste, shall have been trained in the hazards associated with lead, acceptable to the Saskatchewan Occupational Health and Safety Division.
- .2 At least one employee who will be performing the work shall have completed a first aid course. The Contractor is required to provide proof of worker First Aid, which will be reviewed by the Departmental Representative. Documentation must be received by the Departmental Representative one week prior to requesting authorization to proceed with the lead abatement activities. Proof of First Aid training must also be made available on site during the lead remediation activities.

1.7 CONSTRUCTION ORGANIZATION AND START UP

- .1 Within 7 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Departmental Representative, Owner, Contractor, major Subcontractors, field inspectors and supervisors to be in attendance.
- .3 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Schedule of Work.
 - .3 Requirements for temporary facilities.
 - .4 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.
 - .5 Health and safety requirements.
 - .6 Environmental protection requirements.
 - .7 Close out procedures and submittals.
 - .8 Other Business.
- .4 During construction, coordinate use of site and facilities through Departmental Representative.

1.8 SUBMITTALS

- .1 Comply with requirements of this Section. Provide submittals prior to start of lead control work. A table of required submittals and submission dates is provided below.
- .2 Submit a copy of a Lead Exposure Control Plan to the Department Representative one week prior to the commencement of lead remediation activities as described in Part XXI, Section 307, The Occupational Health and Safety Regulations, 1996 (SK). The Department Representative must review the Lead Exposure Control Plan prior to the commencement of lead remediation activities. Include the following information in the plan:
 - .1 Locations of:
 - .1 Lead control areas.
 - .2 Change area.
 - .3 Barrier tape areas.
 - .4 Decontamination area.
 - .2 Sequencing of lead abatement related work.
- .3 Submit an abatement schedule outlining the project phasing and the critical path of milestone events, including work area preparation, clean up, disposal, final cleaning, testing and air monitoring.

- .4 Submit to the Departmental Representative proof of worker training for all workers assigned to the work of this section, including specified worker training on the hazards associated with lead, Workplace Hazardous Materials Information System (WHMIS), Transportation of Dangerous Goods (TDG), First Aid Certification and other training certification required by the Departmental Representative.
- .5 Submit to the Departmental Representative copies of test results documenting manufacturer's leak test for HEPA-filtered negative air units and vacuums. Testing to be arranged by the Contractor once equipment is delivered to site and documentation to be made available at the time of the pre-contamination site assessment.
- .6 Submit to the Departmental Representative at least one week prior to anticipated lead remediation start date certification that HEPA-filtered vacuums required for this contract meet specified HEPA filter designation for component filter assemblies.
- .7 Submit to the Departmental Representative at least one week prior to anticipated lead remediation start date disposal procedures for contaminant and contaminated waste handling/management.
- .8 Submit to the Departmental Representative at least one week prior to anticipated lead remediation start date worker decontamination procedures and a project-specific health and safety plan. The health and safety plan must include procedures for addressing incidents and injuries on site.

Table 1: Breakdown of Required Project Submittals and Submission Dates

Submittal Required	Submission Date
<ul style="list-style-type: none"> • Section 1.6.2 - Evidence of Worker First Aid Training 	<ul style="list-style-type: none"> • One Week Prior to Anticipated Lead Remediation Start Date • Made Available on Site During Lead Remediation Activities
<ul style="list-style-type: none"> • Section 1.8.2 - Lead Exposure Control Plan 	<ul style="list-style-type: none"> • One Week Prior to Anticipated Lead Remediation Start Date
<ul style="list-style-type: none"> • Section 1.8.3 - Project Schedule 	<ul style="list-style-type: none"> • One Week Prior to Anticipated Lead Remediation Start Date
<ul style="list-style-type: none"> • Section 1.8.4 - Proof of Worker Training Pertaining to Tasks, 	<ul style="list-style-type: none"> • One Week Prior to Anticipated Lead Remediation Start Date • Made Available on Site During Lead Remediation Activities
<ul style="list-style-type: none"> • Section 1.8.5 - Filter Performance Documentation 	<ul style="list-style-type: none"> • Made Available on Site at the Time of the Pre-Contamination Site Assessment
<ul style="list-style-type: none"> • Section 1.8.6 - HEPA Filter Information 	<ul style="list-style-type: none"> • One Week Prior to Anticipated Lead Remediation Start Date • Made Available on Site During Lead Remediation Activities
<ul style="list-style-type: none"> • Section 1.8.7 - Waste Disposal 	<ul style="list-style-type: none"> • One Week Prior to Anticipated

Procedures	Lead Remediation Start Date
<ul style="list-style-type: none"> Section 1.8.8 - Health and Safety Plan Including Worker Decontamination Procedures 	<ul style="list-style-type: none"> One Week Prior to Anticipated Lead Remediation Start Date
<ul style="list-style-type: none"> Section 1.13.5 - Respirator Fit Test Records 	<ul style="list-style-type: none"> One Week Prior to Anticipated Lead Remediation Start Date Made Available on Site During Lead Remediation Activities
<ul style="list-style-type: none"> Section 2.1.4 - Lead Sealant 	<ul style="list-style-type: none"> One Week Prior to Anticipated Lead Remediation Start Date

1.9 CONTRACTOR USE OF PREMISES

- .1 The Contractors use of the site shall be restricted to the designated work area. There shall be no access to other areas of the site or other buildings unless directed by the Departmental Representative.
- .2 Work area access and egress shall be at the designated location shown on the Contract Drawings, unless otherwise specified by the Departmental Representative.
- .3 Execute work with least possible interference or disturbance to normal use of premises, and in particular when undertaking work in Rooms 146 and 150, which are fully operational on a daily basis. Contractor to make arrangements with Departmental Representative to facilitate work as stated. Contractor is to minimize the closure time for Rooms 146 and 150, and where required, undertake the work as stated, in parallel with RCMP site operations.
- .4 The Contractor shall not unreasonably encumber site with materials or equipment or move stored products or equipment which interferes with operations at the site.
- .5 Contractor will provide sanitary facilities for use by Contractor's personnel. Keep facilities clean.
- .6 At completion of construction operations, condition of existing work shall be equal to or better than that which existed before new work started.

1.10 SECURITY

- .1 Where security has been reduced by Work of Contract, provide temporary means to maintain security.
- .2 Security clearances:
 - .1 Personnel employed on this project will be subject to RCMP security check.
 - .2 Obtain clearance, as instructed, for each individual who will require entry to the premises.
 - .3 Personnel may be checked daily at start of work shift and provided with pass which must be worn at all times. Pass must be submitted at end of work shift and personnel checked out.

- .4 Contractor's personnel will require satisfactory RCMP initiated security screening in order to complete Work in premises and on site.

1.11 DEPARTMENT REPRESENTATIVES REPRESENTATIVE

- .1 PWGSC will be represented at the site by a Departmental Representative.
- .2 The Contractor will maintain regular contact with the Departmental Representative.

1.12 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

- .1 Execute work with least possible interference or disturbance to site operations, occupants and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

1.13 PREPARATION

- .1 The Contractor must ensure that all employees involved in the project pre-planning have thoroughly reviewed the regulations regarding the requirements in the areas of air monitoring, worker protection, disposal of hazardous waste and removal of lead-contaminated debris.
- .2 The Contractor must confirm that all project security, health and safety and first aid requirements have been discussed, reviewed and complied with. The Contractor must ensure the required number of trained first-aid personnel and the proper first-aid equipment is available on site at all times.
- .3 An emergency phone list containing the phone numbers (office, cell, home) of the entire project management team will be prepared, posted on site, and distributed accordingly by the Contractor. The phone list must also contain the police, ambulance and fire emergency numbers. The emergency phone list shall be incorporated into the health and safety plan, to be submitted to the Departmental Representative, and must be made available at the first aid station on site at all times during lead remediation activities.
- .4 The Contractor must ensure all workers fully understand the health hazards associated with lead abatement. The Contractor shall instruct all the lead abatement workers on the necessary safety procedures and protective measures to be used on a lead clean-up project. The Contractor shall instruct each worker how to correctly use all of the necessary equipment (HEPA vacuums, wash station, etc.) that will be made available at all times. Work area supervisors will monitor the workers to ensure their comprehension and ability to safely use this equipment. Evidence of the discussion will be recorded in daily 'tailgate' safety meetings which must be signed by each of the workers present on site.
- .5 The Contractor will review and discuss with all workers on site, the personal protective equipment and respiratory protection requirements for this lead abatement project. The Contractor will introduce and implement the written respiratory protection program developed by the abatement contractor. Each worker must be qualitatively fit tested using irritant smoke or quantitatively fit tested and be assigned a respirator that will provide the

worker with a proper face to mask seal (Fit Test Form). Proof of worker fit-testing will be submitted to the Departmental Representative at least one week prior to the anticipated start of lead remediation activities and will be made available on site.

- .6 Ensure all equipment equipped with HEPA filters has been in-place filter tested prior to project commencement and all documentation has been obtained.

1.14 WASTE DISPOSAL QUANTITIES

- .1 Contractor to provide summary of all wastes disposed including quantities, disposal locations, and original scale tickets, as applicable.

1.15 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy each document as follows:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders.
 - .5 Other Modifications to Contract.
 - .6 Field Test Reports.
 - .7 Copy of Approved Work Schedule.
 - .8 Health and Safety Plan and Other Safety Related Documents.
 - .9 Other documents as specified.

1.16 REGULATORY REQUIREMENTS

- .1 Comply with applicable standards and regulations in effect at the time the work is performed. In cases of conflict between applicable standards and these specifications, the more stringent shall apply.
- .2 Referenced regulations include the following:
 - .1 The Occupational Health and Safety Regulations, 1996 (SK).
 - .2 The Saskatchewan Employment Act, 2013 (SK).
 - .3 The Environmental Management and Protection Act, 2010 (SK).
 - .4 The Municipal Refuse Management Regulations, 1986 (SK).
 - .5 Transportation of Dangerous Goods Act and Regulations.
 - .6 The Dangerous Goods Transportation Act and Regulations (SK).
 - .7 The Canada Labour Code.
 - .8 Canadian Environmental Protection Act.
 - .9 City of Regina Municipal Sewer Bylaw.
 - .10 Saskatchewan Environmental Code, July 2015.
- .3 Referenced standards include:

- .1 Department of National Defence (DND), *Decontamination Protocol for Indoor Firing Ranges* January 2003.
- .2 U.S. Department of the Navy, Navy Environmental Health Center, *Indoor Firing Ranges Industrial Hygiene Guide, Technical Manual NEHC-TM6290.99-10* Rev.1, May 2002.
- .3 U.S. Occupational Safety & Health Administration (OSHA), *Lead Exposure in Construction; Interim Final Rule-Assessment and Compliance Procedures, CPL 02-02-058 – CPL 2-2.58 – 29 CFR 1926.62*, December 1993.
- .4 Referenced methods include:
 - .1 American Society of Testing Materials (ASTM) E 1728-10, *Standard Practice for Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Lead Determination*, ASTM International, West Conshohocken, PA.
 - .2 National Institute of Occupational Safety and Health (NIOSH) *Method 9100, Lead in Surface Wipe Samples*, NIOSH Manual of Analytical Methods, Current Edition.
 - .3 TCLP-US Environmental Protection Agency (EPA) 40 CFR261, Appendix II, *Method 1311*.

1.17 PROTECTION OF PERSONNEL

- .1 The Contractor shall develop a project-specific health and safety plan for the project. The plan must specify how worker health will be protected, measures or procedures to be followed in the event of an incident or injury on site, emergency contact information, spill response measures and similar.
- .2 Provide workers and enforcement officers with personal protective equipment, including personally assigned respiratory protective equipment with P100 cartridges, disposable coveralls, gloves, eye, head, and foot protection, where required. Workers shall employ a “two suit system”, where the Decontamination Unit (DCU) is separate from the work area.
- .3 No smoking, eating or drinking is allowed in the building.
- .4 Provide the following to employees involved in lead control work:
 - .1 Written information describing potential health hazards related to exposure to lead dust.
 - .2 Written instruction describing safe work procedures.
- .5 For all lead control work, do the following:
 - .1 Comply with regulatory requirements.
 - .2 Provide workers with not less than a non-powered half-mask respirator equipped with P100 filters and hooded disposable coveralls. Coveralls shall fit snugly around neck, wrists and ankles. Workers shall be fit-tested for an appropriate respirator.

- .3 Provide workers with two types of gloves. When removing lead particulate use gloves made of two layers of impervious nitrile. When performing any other work use gloves made of leather.
 - .4 Provide workers with CSA-approved safety rubber boots when removing lead and CSA-approved safety boots during all other activities.
 - .5 Allow no one in lead control area during lead abatement work unless wearing disposable coveralls, two layers of nitrile gloves, rubber safety boots, and non-powered half-mask respirator equipped with P100 filters.
 - .6 Provide WHMIS labels on all products and a work site binder containing MSDSs for all chemicals used for this work.
- .6 Provide the following safety equipment for the Departmental Representative, as required to permit ready and safe access to work:
- .1 Disposable coveralls.
 - .2 Gloves – nitrile type.

1.18 MONITORING AND ASSESSMENT

- .1 The Departmental Representative will perform the following:
 - .1 Collect submittals and review.
 - .2 Conduct milestone assessments as the lead control work proceeds.
 - .3 Monitor air outside lead control areas.
 - .4 Monitor air during and after lead control work.
 - .5 Monitor surface lead dust levels inside the lead control area prior to acceptance of the work.
- .2 The Departmental Representative is authorized to identify deficiencies in the lead control work and provide site instructions to ensure compliance with contract requirements.
- .3 In the event that airborne lead dust exceeds acceptable levels, the Departmental Representative may stop work until corrective actions have been taken and airborne dust levels return to acceptable levels.
- .4 The Departmental Representative may stop work where he has reasonable cause to believe that:
 - .1 Dust levels inside the lead control area are unacceptable; and/or
 - .2 Work conditions and practice may lead to:
 - .1 Contamination of previously cleaned sections of the building with lead dust; and/or
 - .2 Release of lead dust into the environment.

1.19 DAILY AIR MONITORING

- .1 Background air samples have been collected from the proposed work area as outlined in in EGE Engineering Ltd.'s report titled "Pre-Abatement Lead Assessment - RCMP

Regina Lab Building - Former Indoor Firing Range - Regina, SK, and dated December, 2015 (see Attachment A).

- .2 From the commencement of the lead abatement project until completion of the final cleaning operations, air samples will be collected inside the lead work area on a daily basis by the Departmental Representative and analyzed to ensure adequate respiratory protection and work procedures. All daily air sample results will be analyzed on a rush basis, reviewed with the workers and posted on site at the first aid station.
- .3 Workers will assist the Departmental Representative in the collection of the air samples. This includes wearing sampling pumps, if required, and the provision of power to run the pumps.
- .4 Results of personal air samples collected inside the work areas will be used to establish the type of respiratory protection to be used. Personal air sample results shall be compared by the Departmental Representative to the "Maximum Use Concentration" (MUC) for the respiratory protective equipment (RPE) observed in use. The Departmental Representative will dictate if the RPE shall be upgraded by the Contractor and safe work procedures shall be altered by the Contractor should personal air samples exceed the MUC for the RPE observed in use.
- .5 Results of the area air samples collected outside of the work areas or in "Clean Rooms" of the DCU shall be used to ensure work area containment. Area air sample results shall be compared to the "Action Level" for occupational exposure to lead in air. The "Action Level" for lead in air is 50% of the occupational exposure limit (0.025 mg/m³).
- .6 If airborne lead levels outside the containment work area exceed the "Action Level" of 0.025 mg/m³, work will be suspended and corrections made to reduce the airborne lead levels to as low as reasonably achievable. Clean-up of occupied building areas outside of the containment work area shall be conducted be at no additional cost to the Owner.

1.20 SURFACE CLEARANCE SAMPLING

- .1 Following the completion of the surface decontamination procedures, surface clearance sampling will be conducted by the Departmental Representative to determine whether the cleaning procedures have been effective in reducing the residual lead dust concentrations.
- .2 For the purpose of this project, the Departmental Representative will adopt the following screening level abatement guidelines, as outlined in EGE Engineering Ltd.'s report titled "Pre-Abatement Lead Assessment - RCMP Regina Lab Building - Former Indoor Firing Range - Regina, SK, and dated December, 2015 (see Attachment A):

Surface / Building Component	Lead Dust Guideline
Floor (hard), wall, horizontal surface, window, suspended ceiling tile (surface exposed to room) or ceiling surface (exposed to room)	220 µg/ft ²

Carpet (floor) and fabric-covered wall/ceiling panels	1,100 µg/ft ²
External HVAC component, conduit, pipe, electrical cable, light fixture, etc. exposed to room	220 µg/ft ²
Suspended ceiling tile (surface not exposed to room) and ceiling surface above suspended ceiling	1,100 µg/ft ²
External HVAC component, conduit, pipe, electrical cable, light fixture, etc. above suspended ceiling	1,100 µg/ft ²
Internal HVAC component (interior of ducts, air handling units, etc.)	1,100 µg/ft ²

- .3 If clearance criterion is not met following initial cleaning procedures, the area shall be re-cleaned by the Contractor and re-tested by the Departmental Representative. If clearance criterion is not met following re-cleaning procedures, lock-down methods may be employed or materials may be replaced. Lock-down methods to reduce lead contamination may include the application of an encapsulant to the affected areas.

Part 2 Products

2.1 MATERIALS AND EQUIPMENT

- .1 Vacuums: HEPA-filtered wet/dry type, with accessories adequate to perform lead abatement work.
- .2 Hand Tools and Supplies: scrapers, wire brushes, wiping rags, etc., of adequate quality to perform lead abatement work.
- .3 Lead Paint Cleaning Agent: TSP cleaning powder or similar, diluted with water as per manufacturer's instructions.
- .4 Lead Sealer: to CAN/CGSB-1.205-94, Sealer for Application, Class A water-based for spray application, and as follows:
- .1 Type 2 - surface film forming. The type of sealant to be used must be submitted in writing to the Departmental Representative for review.
- .5 Sheet Polyethylene: minimum 150 micrometres thick.
- .6 Sprayer: garden reservoir type, low velocity, capable of producing a mist or fine spray.
- .7 Duct Tape: good quality, water-resistant plastic type.
- .8 Negative Air Unit: Portable air handling system which extracts air directly from lead work area and discharges air outside building. Unit shall be fitted with pre-filter and HEPA final filter. Air shall pass through a HEPA filter before discharge. Unit shall have pressure differential gauge to monitor filter loading. Unit shall have auto shut-off and warning system for HEPA filter failure. HEPA filter shall have separate hold down

clamps to retain filter in place. Unit shall be equipped with a smoke detector auto shut-off.

- .9 The Departmental Representative will visually assess the HEPA filters in use on the project to determine if replacement is necessary. The Contractor will be responsible for replacement of the HEPA filters, as directed.

2.2 WARNING SIGNS

- .1 Provide warning signs and banner tape which state:
 - .1 Lead Abatement Area;
 - .2 Access to area is prohibited, except to authorized personnel; and
 - .3 Drinking, eating and smoking are prohibited in the building.
- .2 Obtain approval from Departmental Representative of warning sign and banner tape wording, legibility and location.

Part 3 Execution

3.1 PREPARATION

- .1 Lead abatement work may commence only after the following have been completed by the Contractor:
 - .1 Existing property, including non-removable equipment and furnishings, surfaces and finishes, have been protected from damage and contamination due to lead abatement work.
 - .2 HVAC system within the designated work area has been deactivated and sealed to prevent lead dust from entering the system.
 - .3 Decontamination area is set up and operational.
 - .4 Warning signs and barrier tape have been placed around perimeter of the lead control area and at each potential entrance to the area.
 - .5 A fire extinguisher has been provided in the lead control area. The fire extinguisher will be assessed by the Departmental Representative.
 - .6 All required materials and equipment have been placed in the lead control area for use in the lead abatement, cleanup and disposal.
 - .7 Departmental Representative has inspected and approved preparations in writing.
- .2 Worker Decontamination Unit (DCU):
 - .1 Worker DCU shall comprise of a two-stage system with two airlocks separating the work area from the occupied building areas. The purpose of the DCU shall be the decontamination of workers and authorized visitors. The DCU shall be constructed of critical barrier materials and include a "Clean Room" and an "Access Room", as follows:

- .1 Access Room: Build Access Room between the Clean Room and work area, with two curtained doorways. Install waste receptor and storage facilities for workers' shoes and any protective clothing to be re-worn in the work area. The Access Room shall be large enough to accommodate specified equipment and worker decontamination procedures.
- .2 Clean Room: Build a Clean Room between the access room and the occupied building areas, with two curtained doorways, one to the occupied building area and one to the Access Room. Provide necessary facilities for change and storage of clothing and footwear. Provide storage for clean protective clothing and RPE. Install a mirror to assist workers when donning RPE.
- .2 Container and Equipment DCU:
 - .1 Container and Equipment DCU shall comprise of a two stage system with two airlocks separating the work area from the occupied building areas. The purpose of the DCU is to provide a means to decontaminate waste containers and equipment. The decontamination unit shall be constructed of critical barrier materials, including wooden 2"x4" framework and polyethylene sheeting.
- .3 Maintenance of DCUs:
 - .1 Maintain DCUs in tidy condition.
 - .2 Ensure that the barriers and plastic sheeting are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.
 - .3 Visually inspect the enclosures at the beginning of each working period.
 - .4 Use smoke methods to test effectiveness of barriers when directed by the Departmental Representative.

3.2 LEAD ABATEMENT

- .1 Prior to the start of the cleaning procedures, the air handling system (where present) within the designated lead abatement work areas must be shut down and isolated using appropriate lockout procedures.
- .2 All electrical systems within the work areas that can be isolated will be locked out and properly isolated by a certified electrician. All power requirements within the work area shall be controlled with GFI receptacles.
- .3 Install and erect barriers at all entrances to the work areas of the building. Signs shall be posted where access to the work areas is possible. The signs shall delineate entry and protective equipment requirements and provide warning of potential health consequences.
- .4 Provide an area to be used for decontamination. A wash station and receptacle for contaminated clothing must be provided. Ensure the decontamination area is of adequate size to provide proper storage of workers clothes and personal protective equipment. In the wash station, provide warm water and soap, disposable towels and disposal containers for contaminated and non-contaminated waste.

- .5 Negative air units used shall be exhausted to the outside at an approved location.
- .6 Following the pre-job set up work, arrange for the Departmental Representative to perform a pre-contamination assessment of the work area. A work area supervisor is to accompany the Departmental Representative on the assessment of the work areas and must have any deficiencies fixed immediately.
- .7 The Departmental Representative shall conduct a Pre-Entry Safety Meeting at the start of each shift. This brief meeting will provide an opportunity for the entire work crew to discuss any hazard assessments conducted on site, review and/or revise the abatement procedures and fill out the daily safety program paperwork.
- .8 Upon completion of the Pre-Entry Safety Meeting, all work activities may begin. All workers entering the contaminated work area shall then don full body disposable coveralls, booties and approved respirators. Other personal protective equipment will include safety glasses, hard hats (if required), and nitrile gloves.
- .9 A half-mask respirator complete with HEPA filters shall constitute the minimum respiratory protection for this type of lead abatement project. All workers must be familiar with the correct use and limitations of the respirators assigned to them. Respirators must be properly fitted and maintained (Fit Test Forms). Facial hair which interferes with the respirator fit is not permitted.
- .10 Lead Abatement Activities shall consist of the following:
 - .1 Cleaning:
 - .1 All affected surfaces inside the work area, including, but not limited to the walls, floors, ceilings, horizontal surfaces, HVAC supply/exhaust ducting and/or ceiling cavity areas, shall be cleaned by HEPA vacuuming, washing of all surfaces with a lead-specific cleaning agent, and rinsing of all surfaces with clean water, followed by a final pass with the HEPA vacuum.
 - .2 Vacuuming will begin on the ceiling and end on the floor, sequenced to avoid passing through areas already cleaned, with the entryway cleaned last.
 - .3 Seal exposed concrete floors using concrete sealant in accordance with manufacturer's instructions.
 - .4 Where specified, clean interior and exterior surfaces of the HVAC equipment supplying the area, including blowers, terminal units (VAV, dual duct boxes, etc.), and exhaust fans. Apply lead-specific detergent to all internal surfaces, components, condensate collectors and drains using garden reservoir-type sprayer(s). Assure that a suitable operative drainage system is in place prior to beginning wash down procedures. Clean all coils and related components, including evaporator fins following manufacturer's instruction, when available. Wipe with a clean rag. Wipe again with a clean rinse water rag. Dispose of dirty rags in appropriate waste containers.

- .5 All rags and waste liquids used in the cleaning of the Rooms shall be properly disposed of as lead waste in appropriate waste containers. The waste containers shall then be taken to a designated storage area for disposal.
- .6 Air monitoring in the lead control area and a visual assessment by the Departmental Representative shall be completed prior to acceptance of the work and completion of final surface testing.
- .2 Equipment Decommissioning
 - .1 Where specified, clean exterior surfaces of items identified for removal and disposal by HEPA vacuuming, followed by a surface wipe with a lead-specific cleaning agent. Dispose of dirty rags in appropriate waste containers.
 - .2 Items identified for removal and disposal shall not be subject to clearance sampling.
 - .3 Items identified for removal and disposal shall not be salvaged.
 - .4 Provide waste summary report, including items removed, disposal location and hauler. Include all original weigh scale tickets and original certificate of destruction/disposal.

3.3 METHODS OF COLLECTING DEBRIS

- .1 Progressively containerize contaminated materials as abatement work progresses. Do not permit lead waste to accumulate.
- .2 Keep contaminated material damp to minimize generation of airborne lead dust.
- .3 Remove lead waste from lead control area at least once per day, and check, clean and replace filters at least once per day.

3.4 WORKER DECONTAMINATION

- .1 All abatement workers shall be fully trained in the proper decontamination methods to be used on this project. A copy of the written worker decontamination procedures shall be submitted to the Departmental Representative and posted in the wash station.
- .2 Before leaving the lead abatement work area and entering the decontamination area, the worker shall remove any gross contamination from his/her disposable coveralls using a HEPA vacuum. The worker shall then remove his/her boot covers and place them into the lead waste receptacle provided.
- .3 The worker shall then proceed into the wash area and remove the disposable coveralls and place them into the disposal receptacle provided.
- .4 The worker shall then proceed to the wash station and wash the outer surfaces of his/her respirator and his/her exposed facial areas and hair. Once the respirator has been properly cleaned, the HEPA cartridges can be taped over or disposed as contaminated waste. After a thorough wetting, the respirator can then be removed from the worker's face. The

worker shall then thoroughly wash his face, neck and head with the soap and water provided.

- .5 The worker can then don his/her street clothes and exit from the DCU. The worker must recheck and properly store his/her respirator.
- .6 Cleaning of Reusable Equipment and Materials: Loose surface lead dust shall be removed from equipment, and other reusable items prior to transportation off-site.

3.5 WASTE STORAGE, TRANSPORT AND DISPOSAL

- .1 The Contractor shall segregate industrial waste from dispersible waste. The Contractor shall submit to the Departmental Representative a waste disposal procedure for review. The Contractor shall ensure the Departmental Representative approves the segregation and storage procedures. Dispersible waste shall include contaminated plastic sheeting, rags and other consumable items, disposable coveralls, filters, waste water, detergent solutions and other dust and debris collected during the abatement process.
- .2 The Departmental Representative shall report sample results in order to determine classification of waste streams.
- .3 The Contractor shall contact Saskatchewan Environment and obtain a Generator Registration Number and shall transport hazardous waste in accordance with TDG.
- .4 The Contractor shall dispose of hazardous waste and industrial waste in accordance with the requirements of the Saskatchewan Municipal Refuse Management Regulations and authorities having jurisdiction.
- .5 The Contractor shall submit landfill permits and waste manifest documentation to the Departmental Representative in a timely fashion to allow compliance with the TDG Act and the Saskatchewan Municipal Refuse Management Regulations.

3.6 FINAL CLEANING

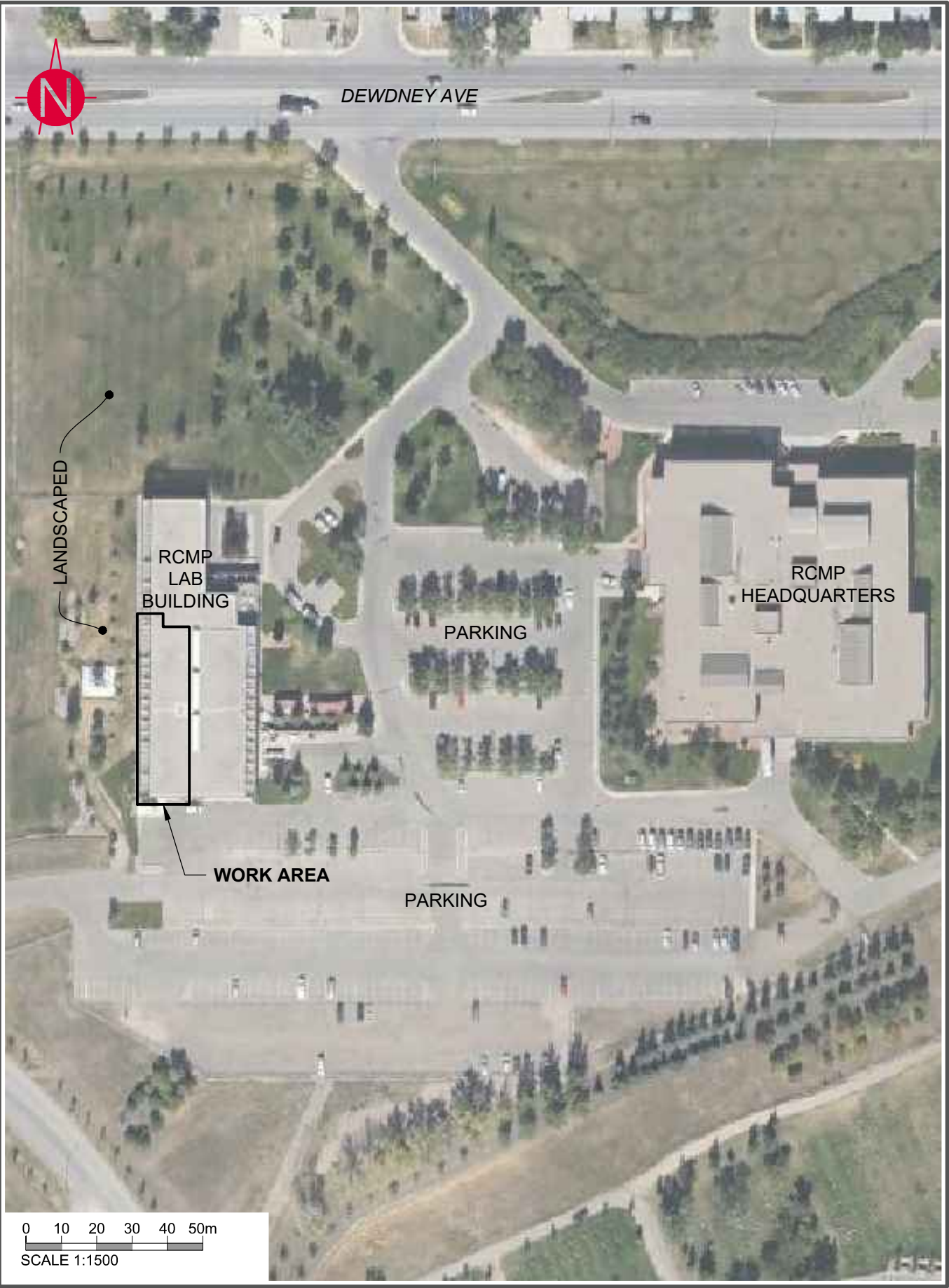
- .1 Upon completion of the lead control work and receiving authorization from the Departmental Representative, the Contractor shall perform the following:
 - .1 Remove lead waste from work site.
 - .2 Vacuum and wash contaminated tools and equipment.
 - .3 Clean site to original condition.
 - .4 Make good any damage resulting from the lead work, to the satisfaction of the Departmental Representative.

END OF SECTION

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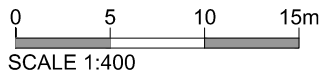
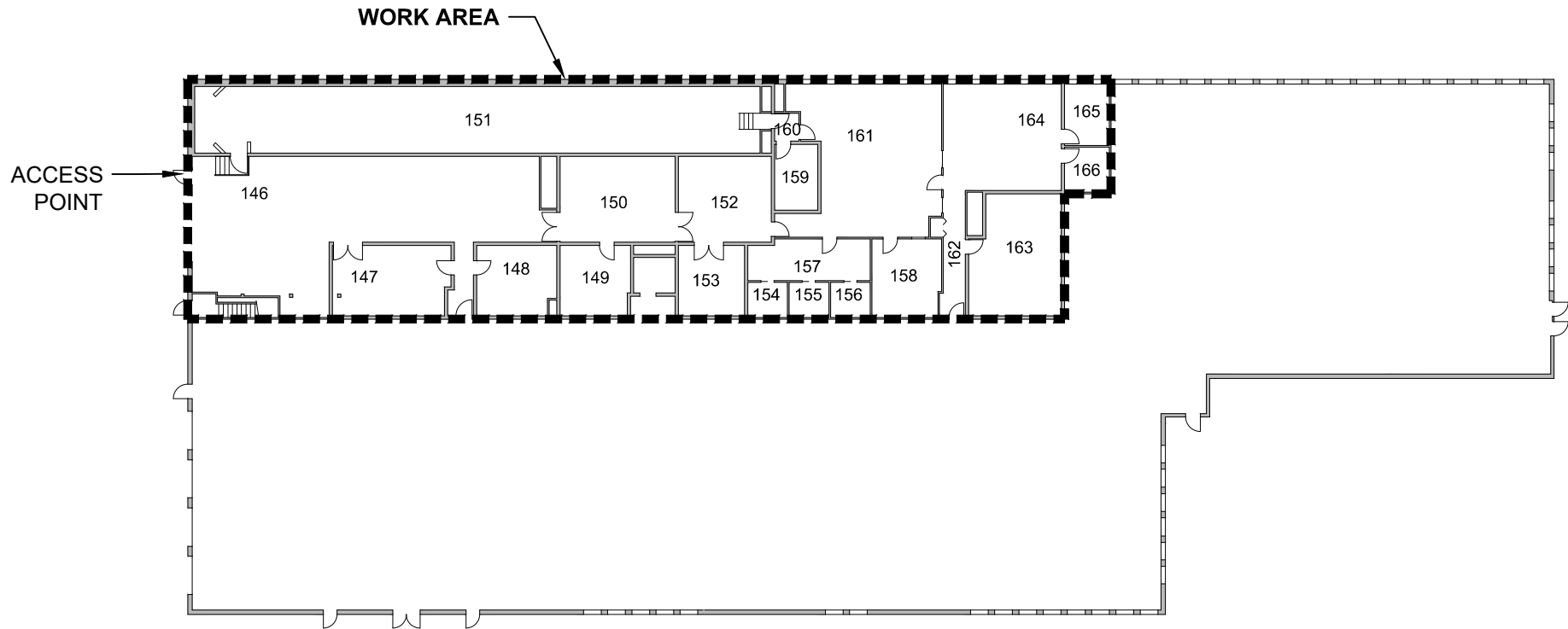


EGE

Public Works & Government Services Canada
RCMP Lab Building - Regina, Saskatchewan
Lead Abatement

**Location
Plan**

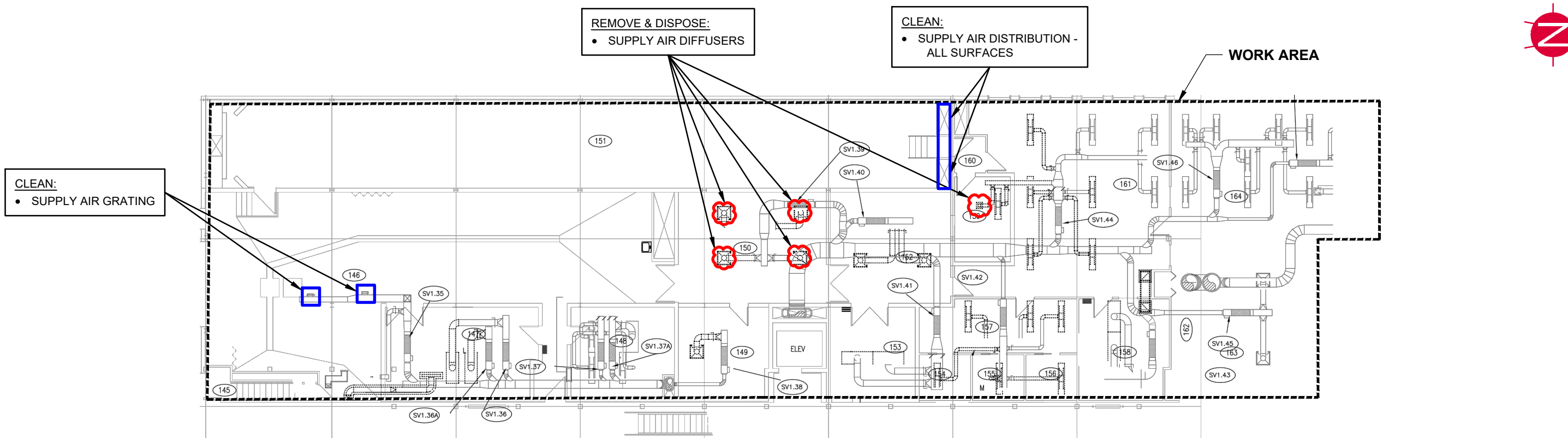
Figure 01



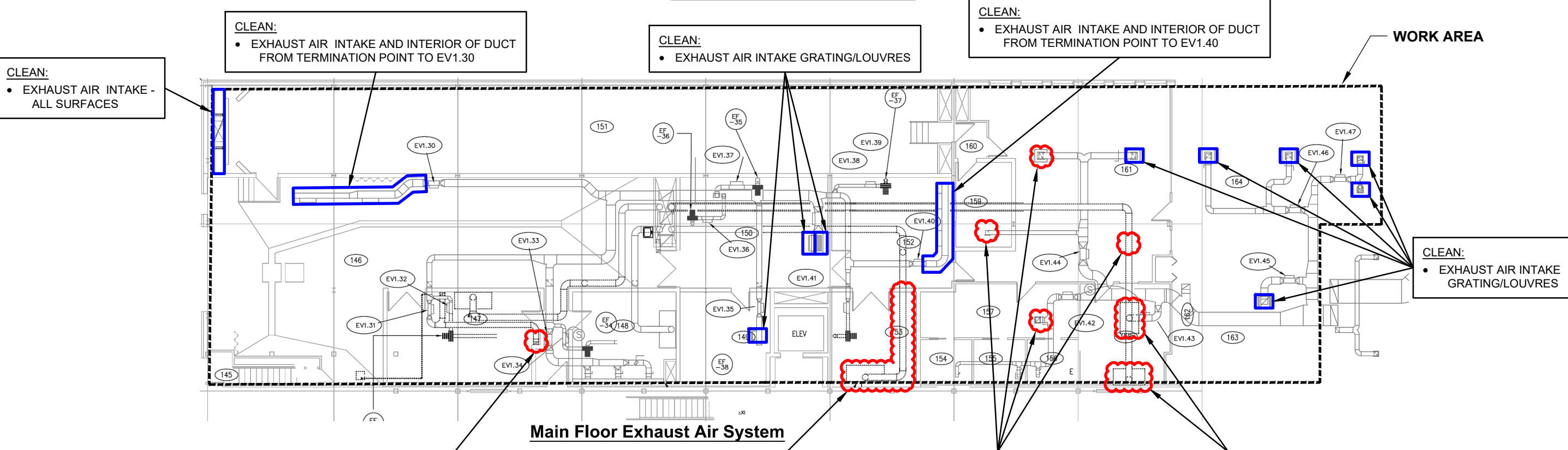
LEGEND:

106 ROOM NUMBER

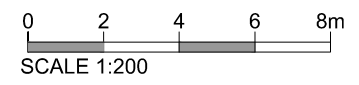
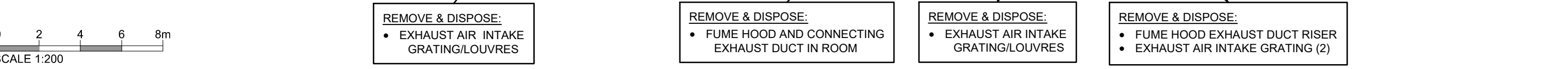
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Main Floor Supply Air System



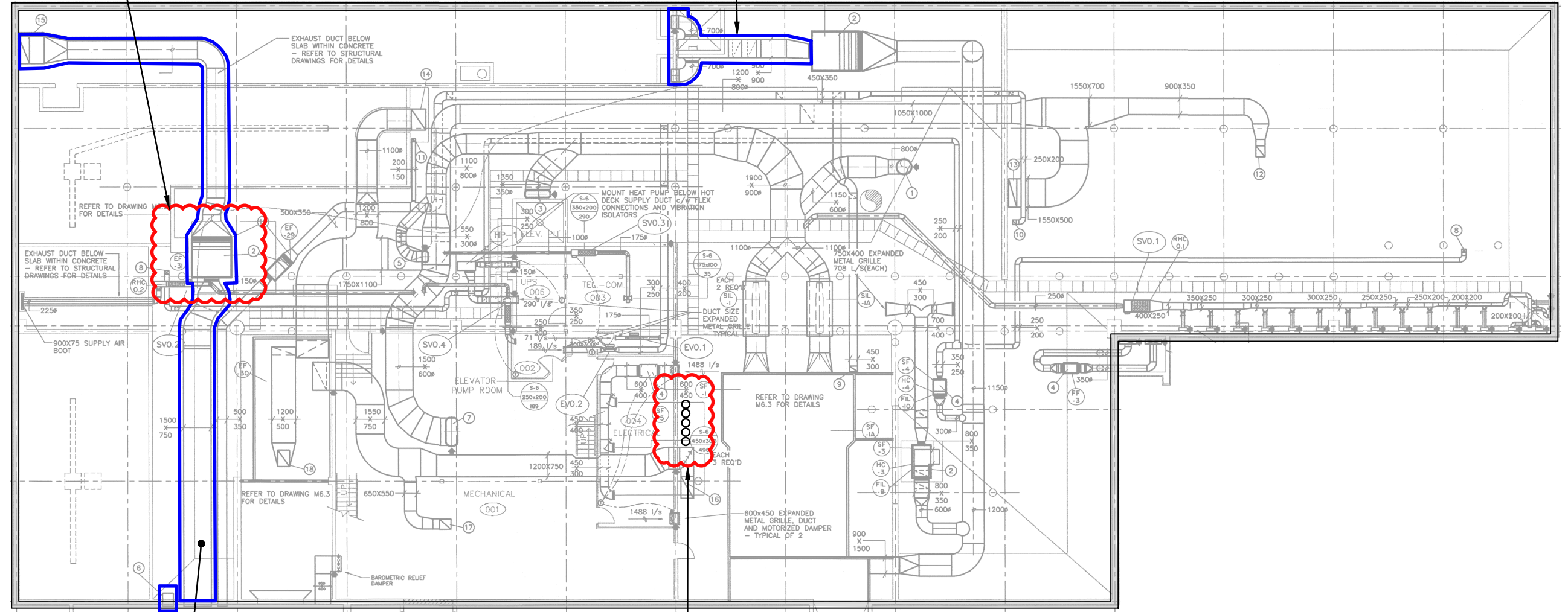
Main Floor Exhaust Air System





REMOVE & DISPOSE:
• AIR HANDLING UNIT

CLEAN:
• INTERIOR OF SUPPLY AIR PLENUM BETWEEN ROOM 151 AND AIR HANDLING UNIT



CLEAN:
• RELIEF VENT LOUVRE

CLEAN:
• INTERIOR OF EXHAUST DUCT BETWEEN ROOM 151 AND TERMINATION POINT ON EAST WALL

REMOVE & DISPOSE:
• CENTRAL VACUUM CANISTERS (5) AND PIPING. CAP PIPING AT CEILING

