

**Part 1            General**

**1.1                REFERENCES**

- .1            CSA International
  - .1            CSA S350-M1980(R2003), Code of Practice for Safety in Demolition of Structures.

**1.2                ACTION AND INFORMATIONAL SUBMITTALS**

- .1            Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2            Submit demolition drawings:
  - .1            Submit for review and approval by Departmental Representative demolition drawings stamped and signed by professional engineer registered or licensed in the Province of Alberta Canada, showing proposed method.
    - .1            The contractor shall be solely responsible for repairs' expenses of any damages to the structure and for any injuries resulting from demolition works.
  - .2            Submit for review and approval by Departmental Representative Shoring type stamped and signed by professional engineer registered or licensed in the Province of Alberta Canada.
- .3            Sustainable Design Submittals:
  - .1            Construction Waste Management:
    - .1            Submit project Waste Management Plan Waste Reduction Workplan highlighting recycling and salvage requirements.

**1.3                SITE CONDITIONS**

- .1            If material resembling spray or trowel-applied asbestos or other designated substance listed as hazardous be encountered, stop work, take preventative measures, and notify Departmental Representative immediately.
  - .1            Proceed only after receipt of written instructions have been received from Departmental Representative.
- .2            Notify Departmental Representative before disrupting building access or services.

**Part 2            Products**

**2.1                MATERIALS**

- .1            Use Manual Demolition Method that incorporate hand tools, such as jackhammers, sledge hammers and picks.

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Inspect the building and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.
- .2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.
- .3 Notify and obtain approval of utility companies before starting demolition.
- .4 Disconnect, cap, plug or divert, as required, existing public utilities within the property where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or plugged services on the site and indicate location (horizontal and vertical) on the record drawings. Support, shore up and maintain pipes and conduits encountered.
  - .1 Immediately notify Departmental Representative and utility company concerned in case of damage to any utility or service, designated to remain in place.
  - .2 Immediately notify the Departmental Representative should uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

**3.2 PREPARATION**

- .1 Protection of In-Place Conditions:
  - .1 Prevent movement, settlement, or damage to adjacent structures and utilities to remain in place. Provide bracing and shoring as required.
  - .2 Keep noise, dust, and inconvenience to occupants to minimum.
  - .3 Protect building systems, services and equipment.
  - .4 Provide temporary dust screens, covers, railings, supports and other protection as required.
- .2 Demolition/Removal:
  - .1 Place in the shoring/bracing type typical according to the site requirements (steel rods with timber or equivalent) in the location as shown in the plan
  - .2 Install in a temporary steel beam W200x19 in accordance with requirements of CAN/CSA-S16 and as shown in the plan.
  - .3 Remove Masonry wall area as indicated in the plan.
    - .1 Do not take down multiple rows of blocks at once & do not start at the bottom of the wall/lintel.
    - .2 Prevent starting the following rows of blocks before finishing the entire row first.
  - .4 Trim edges of partially demolished building elements to tolerances as defined by Departmental Representative to suit future use.

- .5 All openings/voids caused from the demolition shall be cleaned carefully and capped with a mortar wash then fill it with mortar.

**3.3 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES**

- .1 Canadian Federal Legislation
  - .1 Storage Tank Systems Containing Petroleum Products and Allied Petroleum Products Regulations SOR/2008-197.
  - .2 CEEA Canadian Environmental Assessment Act 2012. C.19, S 52.
  - .3 Canadian Environmental Protection Act (CEPA), 1999, c. 33.
  - .4 National Fire Code of Canada (NFC), 2010.
  - .5 Canada Labour Code (R.S. 1985, c. L-2).
    - .1 Part II (September 2000) - Occupational Health and Safety.
  - .6 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.
- .2 Canadian Council of Ministers of the Environment (CCME).
  - .1 CCME-PN1326-2004, Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products.

**1.2                SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide written storage tank description in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Provide the following information on storage tank:
  - .1 Former contents.
  - .2 Location.
  - .3 Reason for removal.
  - .4 Volume of liquid removed, waste manifest and name of facility that accepted waste.
  - .5 Volume of sludge removed, waste manifest and hazardous waste facility that accepted waste.
  - .6 Combustible gas meter readings
- .4 Provide Departmental Representative with copy of vapour removal test results.
- .5 Upon completion of work, provide Departmental Representative with certificate of destruction for the removed tank.

**1.3                DELIVERY, STORAGE AND HANDLING**

- .1 Waste Management and Disposal:

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Divert metal materials from landfill to metal recycling facility approved by Departmental Representative.
- .3 Segregate and deliver non-salvageable or non-recyclable materials, including waste liquids and sludges to Provincially licensed waste facility.

**Part 2 Products**

**2.1 NOT USED**

**Part 3 Execution**

**3.1 PREPARATION SAFETY AND SECURITY**

- .1 Conform to or exceed Federal and Provincial codes, local municipal by-laws, by-laws, and codes and regulations of utility authorities having jurisdiction.
- .2 The storage tank removal must be performed by a person approved to do so in the province in which the system is located.
  - .1 Alberta work must petroleum technicians licensed by Alberta Petroleum Storage Systems Contractor's Association (APSSCA) for removal as well as construction of any tank system as required by Environment Canada.
- .3 Protection:
  - .1 Meet safety requirements of Occupational Safety and Health, Canada Labour Code Part II and Regulations for Construction Projects.
  - .2 De-energize the tank.
  - .3 Disconnect or remove source of ignition from room 101.
  - .4 Open all doors to the room with the tank to allow adequate ventilation. Provide intrinsically safe fans for use in explosive atmospheres to maintain ventilation during procedure.
  - .5 Provide temporary protection for safe movement of personnel and vehicle traffic.
  - .6 Cut, braze or weld metal only in monitored areas established to be free of ignitable vapour concentrations.
  - .7 Ground and bond metal equipment, including tank and transfer pipes, before operating equipment or transferring flammable materials.
  - .8 Use non-sparking tools and intrinsically safe electrical equipment during flammable materials transfer.
  - .9 Smoking is not permitted on site at any time.

**3.2 DRAINING**

- .1 Keep all doors to the room with the tank open to allow adequate ventilation.

- .2 Drain and flush piping into tank.
- .3 Pump out liquid from tank
  - .1 Use explosion proof, air driven or hand pump.
- .4 Remove sludge from tank bottom and rinse out tank.
  - .1 Dispose of product, sludge, and rinsate in accordance with local and Provincial regulations using waste disposal carrier licensed by Provincial Environmental Agency having jurisdiction.

### **3.3 VAPOUR REMOVAL**

- .1 Purging:
  - .1 Purge vapours to the exterior of the building to less than 10% of lower explosive limit (LEL).
  - .2 Verify with combustible gas meter.
- .2 Inverting:
  - .1 Displace oxygen to levels below necessary to sustain combustion.
  - .2 Verify with combustible gas meter.
- .3 Dry Ice Method:
  - .1 Add 1.85 g of solid carbon dioxide (dry ice) for each 100 litre capacity.
  - .2 Crush and distribute ice evenly over greatest area to secure rapid evaporation. Avoid skin contact.
  - .3 Verify dry ice has vapourized.
- .4 Air Method:
  - .1 Ventilate tank with air using small gas exhauster operated with compressed air to the exterior of the building.
  - .2 Air to enter opening at one end and to exit opening at other end to quickly remove vapour.
  - .3 Test interior of tank to determine when tank is free of vapour.

### **3.4 TANK AND PIPING REMOVAL**

- .1 Remove piping and vents.
- .2 Verify that the vapour levels in the work area are less than 10% of the LEL. If elevated, use ventilation fan (s) to provide adequate ventilation to the work area.
- .3 Following tank clean out and verification that the vapour levels in the tank are acceptable, the tank will have to be cut into manageable pieces to remove from the building, along with all associated tank parts, piping and accessories.
- .4 The removed storage tank parts, piping, and accessories shall be digitally photographed with a minimum of 5 photos.

- .5 Separate for recycling and place in designated waste containers in accordance with Waste Management Plan.
- .6 Place materials defined as hazardous or toxic in designated containers.
- .7 Handle and dispose of hazardous materials in accordance with the TDGA, Regional and Municipal regulations.
- .8 Clearly label location of salvaged material's storage areas and provide barriers and security devices.

**3.5 SITE REMEDIATION**

- .1 Repair/fill any holes in floor, ceiling, or walls to match surrounding area.

**END OF SECTION**

**Part 1          General**

**1.1          REFERENCES**

- .1      Definitions:
  - .1      Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.
  - .2      Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.
  - .3      Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal.
- .2      Reference Standards:
  - .1      Department of Justice Canada (Jus)
    - .1      Transportation of Dangerous Goods Act, 1992 (TDG Act) 1992, (c. 34).
    - .2      Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286).
    - .3      Storage Tank Systems Containing Petroleum Products and Allied Petroleum Products Regulations (SOR/2008-197)
  - .2      Health Canada / Workplace Hazardous Materials Information System (WHMIS)
    - .1      Material Safety Data Sheets (MSDS).
  - .3      National Research Council Canada Institute for Research in Construction (NRC-IRC)
    - .1      National Fire Code of Canada-2010.
  - .4      Canadian Council of Ministers of the Environment (CCME)
    - .1      CCME-PN1326-2004, Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products.

**1.2          ACTION AND INFORMATIONAL SUBMITTALS**

- .1      Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2      Product Data:
  - .1      Submit manufacturer's instructions, printed product literature and data sheets for hazardous materials and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2      Submit two copies of WHMIS MSDS to Departmental Representative for each hazardous material required prior to bringing hazardous material on site.

- .3 Submit hazardous materials management plan to Departmental Representative that identifies hazardous materials, usage, location, personal protective equipment requirements, and disposal arrangements.

### **1.3 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions and Section 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Transport hazardous materials and wastes in accordance with Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.
- .4 Storage and Handling Requirements:
  - .1 Co-ordinate storage of hazardous materials with Departmental Representative and abide by internal requirements for labelling and storage of materials and wastes.
  - .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
  - .3 Store and handle flammable and combustible materials in accordance with National Fire Code of Canada, CCME-PN1326, and SOR/2008-197 requirements.
  - .4 Keep no more than 45 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use.
    - .1 Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval.
    - .2 Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires the written approval of the Departmental Representative.
  - .5 Transfer of flammable and combustible liquids is prohibited within buildings.
  - .6 Transfer flammable and combustible liquids away from open flames or heat-producing devices.
  - .7 Product transfer areas and transfer of products is to be done in adherence to National Fire Code of Canada, CCME-PN1326, and SOR/2008-197 requirements.
  - .8 Solvents or cleaning agents must be non-flammable or have flash point above 38 degrees C.
  - .9 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.
  - .10 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.
  - .11 Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:

- .1 Store hazardous materials and wastes in closed and sealed containers.
- .2 Label containers of hazardous materials and wastes in accordance with WHMIS.
- .3 Store hazardous materials and wastes in containers compatible with that material or waste.
- .4 Segregate incompatible materials and wastes.
- .5 Ensure that different hazardous materials or hazardous wastes are stored in separate containers.
- .6 Store hazardous materials and wastes in secure storage area with controlled access.
- .7 Maintain clear egress from storage area.
- .8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.
- .9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.
- .10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
- .11 When hazardous waste is generated on site:
  - .1 Co-ordinate transportation and disposal with Departmental Representative.
  - .2 Comply with applicable federal, provincial and municipal laws and regulations for generators of hazardous waste.
  - .3 Use licensed carrier authorized by provincial authorities to accept subject material.
  - .4 Before shipping material obtain written notice from intended hazardous waste treatment or disposal facility it will accept material and it is licensed to accept this material.
  - .5 Label container(s) with legible, visible safety marks as prescribed by federal and provincial regulations.
  - .6 Only trained personnel handle, offer for transport, or transport dangerous goods.
  - .7 Provide photocopy of shipping documents and waste manifests to Departmental Representative.
  - .8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide photocopy of completed manifest to Departmental Representative.
  - .9 Report discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.

- .12 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
- .13 Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.
- .5 Develop Construction Waste Management Plan related to Work of this section.
- .6 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, packaging materials as specified in Construction Waste Management Plan and in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

**Part 2 Products**

**2.1 MATERIALS**

- .1 Description:
  - .1 Bring on site only quantities hazardous material required to perform Work.
  - .2 Maintain MSDS in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

**Part 3 Execution**

**3.1 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  - .1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
  - .2 Recycle hazardous wastes for which there is approved, cost effective recycling process available.
  - .3 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.
  - .4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
  - .5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.

- .6 Dispose of hazardous wastes in timely fashion in accordance with applicable provincial regulations.
- .7 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.
- .8 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:
  - .1 Hazardous wastes recycled in manner constituting disposal.
  - .2 Hazardous waste burned for energy recovery.
  - .3 Hazardous wastes with economically recoverable precious metals.

**END OF SECTION**