Public Works and Government Services Canada

Requisition No.: 20180858

Buy and Sell ID No.: _____

Specifications for

AEC 22 Remediation and Landfill Treatment Facility Operation

Watson Lake Airport, Watson Lake, Yukon

Project No. R.084250.002 July 2017

APPROVED BY:

Regional Manager ES — Date: 27/7/2017

Construction Safety Coordinator — Date: 2017.07.27.

TENDER:

Project Manager — Date: 25 July 2017

Real Property Services Branch, Professional and Technical Services, Pacific Region
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Canada

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PROFESSIONAL
YUKON
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Dec/28/17

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1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. Pre-mobilization Submittals will be paid in accordance with lump sum price established for all Preconstruction Meetings, final design, planning, health and safety, and other Submittals in accordance with the Contract or required and accepted by the Departmental Representative as in accordance with the Contract prior to mobilization to Site.

1.1.2. Mobilization will be paid in accordance with lump sum price established for mobilizing all necessary equipment, materials, supplies, facilities, and personnel associated with the Works to the Site. Includes initial insurance, bonding, and permits. Additional insurance, bonding, and permits due to changes in scope, cost, and schedule as accepted by the Departmental Representative will be included in Contract amendments.

1.1.3. Site and Ground Surface Preparation will be paid in accordance with lump sum price established to prepare the Site for planned construction works. Includes clearing and grubbing, demolition, temporary removal of existing infrastructure, utility location, rerouting, and protection, and construction of temporary onsite access roads. Also includes removal of any incidental or generated material. Also includes Preconstruction Precondition Survey and Preconstruction As-Built Documents.

1.1.4. Monitoring Well Decommissioning – will be paid in accordance with lump sum price established to decommission monitoring wells indicated on Drawings in accordance with Provincial or Territorial regulations.

1.1.5. Traffic Control will be paid in accordance with lump sum price established to provide traffic control in accordance with the current version of BC Ministry of Transportation and Infrastructure Traffic Control Manual for Work on Roadways and the *Yukon Highways Act*, or equivalent.

1.1.6. Test Pitting will be paid in accordance with unit rate established for time to complete excavation and backfill of test pits, including for equipment time and associated delays, as directed by Departmental Representative.

1.1.7. Site Facilities - Provision will be paid in accordance with lump sum price established to design, temporarily provide for duration of Work, and erect all infrastructure in accordance with the Contract. Includes temporary structures and facilities, environmental protection, stockpile areas, laydown areas, groundwater monitoring well protection, access, onsite roadways, temporary hoarding, federal signage, office facilities, sanitary facilities, water management infrastructure, lighting and utilities.

1.1.8. Site Facilities - Operation will be paid in accordance with lump sum price established to operate and maintain all infrastructure between mobilization and demobilization. Includes temporary structures and facilities, stockpile areas, laydown areas, groundwater monitoring well protection, access, onsite roadways, temporary hoarding, federal signage, office facilities, sanitary facilities, water management infrastructure, lighting, and utilities. Also includes ongoing services including project management, security, surveying, noise

monitoring, vibration monitoring, road cleaning and dust control, utilities, project meetings, inspections, progress Submittals, traffic control, health and safety, Environmental Protection, cleaning and operation during inclement weather. Also, includes living out allowances, travel and room and board. Rate must not vary even if hours of work and/or days of work vary. Time will only be paid for duration in accordance with the Contract and changes in schedule as accepted by the Departmental Representative and included in Extension of Time on Contracts.

1.1.9. Temporary Site Fencing will be paid in accordance with a unit rate established for a lineal measurement for temporary security fencing at the entrance to the Site and around the perimeter of any on-Site open excavation including a minimum 10 m setback from the edge of the excavation. Rate includes fence provision, erection, dismantling and removal from Site. Measurement of length of fencing to be confirmed by Departmental Representative.

1.1.10. Survey – Survey will be paid in accordance with a lump sum established for measurement of quantities in the event of a dispute between the Contractor and the Contract. The Contractor can, at their own cost, retain a land surveyor.

1.1.11. Standby Time will be paid in accordance with unit rate price established, for time when construction Work is unable to proceed, and that is directly attributable to any neglect or delay that occurs after the date of the Contract on the part of the Departmental Representative in providing any information or in doing any act that the Contract expressly requires the Departmental Representative. Measurement as recorded time by Departmental Representative. Includes machinery and labour standby costs. Does not include items covered by Site Facilities Operation. Standby Time may be pro-rated based on hours of work. Make all efforts to minimize impacts due to delays caused by the Departmental Representative, including re-sequencing Work. Provide documentation of a sufficient description of the facts and circumstances of the occurrence to enable the Departmental Representative to determine whether or not the Standby Time is justified. Reviews, sampling, or other work conducted by the Departmental Representative with time allowances in accordance with the Contract will result in no increase to the Contract Amount nor Extension of Time for completion of the Work.

1.1.12. Waste Oversize Debris Removal will be paid in accordance with unit rate price established for volume including Transport and Disposal. Measurement as recorded by Departmental Representative. Includes loading, hauling, interim storage, and handling for all material transported from Site. Debris may include concrete, metal and asbestos containing pipe.

1.1.13. Access Road Maintenance will be paid in accordance with the lump sum price established to design and provide access road maintenance acceptable to a Qualified Professional and Departmental Representative for the duration of the Contract.

1.1.14. Water Management – Equipment will be paid in accordance with the lump sum price to provide all personnel labour, pumps, hoses, lines and minimum 5,000 L

tank to dewater the excavation and store water for disposal. Cost includes removal of equipment and tank upon completion of work.

1.1.15. Water Management – Disposal will be paid in accordance with the unit rate price established for disposal of liquid collected in a minimum 5,000 L tank on-Site at an approved or disposal at a permitted facility as accepted by the Departmental Representative.

1.1.16. Contaminated Material - Excavation, Transportation and Placement will be paid in accordance with unit rate price established for volume of material removed to excavate to Contaminated Material Extents according to Drawings, transported to the on-Site Land Treatment Facility, and placement within the Land Treatment Facility using methods and locations approved by the Departmental Representative. Measurement as recorded insitu Excavation volume of final Contaminated Material Extents as Surveyed by Departmental Representative. Insitu volume will be calculated based on simple dimensions of excavation (bank volume) and will not account for exsitu bulking (expansion or swell) and insitu compaction (densifying) factors. Includes all handling, loading, hauling, unloading, interim storage, and final placement.

1.1.17. Non-Contaminated Material - Excavation, Transportation and Stockpile will be paid in accordance with unit rate price established for volume of material removed to excavate to Overburden and Topsoil and Inert Debris. Measurement as recorded insitu Excavation volume of Overburden and Topsoil as Surveyed by Departmental Representative. Insitu volume will be calculated based on simple dimensions of excavation (bank volume) and will not account for exsitu bulking (expansion or swell) and insitu compaction (densifying) factors. Includes transportation on-Site within 300 m. Includes all handling, loading, hauling, unloading, and stockpiling.

1.1.18. Hazardous/Special Waste Soil - Excavation and Transportation will be paid in accordance with unit rate price established for volume of material removed to excavate Hazardous/Special Waste Soil. Measurement as recorded insitu Excavation volume of Hazardous/Special Waste Soil as Surveyed by Departmental Representative. Insitu volume will be calculated based on simple dimensions of excavation (bank volume) and will not account for exsitu bulking (expansion or swell) and insitu compaction (densifying) factors. Includes transportation to an off-Site Facility as approved by the Departmental Representative. Includes all handling, loading, hauling, and unloading.

1.1.19. Metals Impacted Soil - Excavation and Transportation will be paid in accordance with unit rate price established for volume of material removed to excavate Metals Impacted Soil. Measurement as recorded insitu Excavation volume of Metals Impacted Soil as Surveyed by Departmental Representative. Insitu volume will be calculated based on simple dimensions of excavation (bank volume) and will not account for exsitu bulking (expansion or swell) and insitu compaction (densifying) factors. Includes transportation to an off-Site Facility as approved by the Departmental Representative. Includes all handling, loading, hauling, and unloading.

1.1.20. Purchase and Install Curtain Liner (Geomembrane) will be paid in accordance with the unit rate price established for area of material purchased and installed within excavation. Measurement in accordance with the Drawings, the Contract and as directed by the Departmental Representative. Includes purchase, transportation to Site, onsite transport, all handling, loading, hauling, unloading, placing, testing, and inspections to demonstrate compliance with Contract.

1.1.21. Backfill – Imported from the storage area in or near the Land Treatment Facility will be paid in accordance with unit rate price established per volume of material for use as Backfill for Excavation. Measurement as recorded insitu Imported Backfill volume of final Contaminated Material Extents and overlying incidental material as Surveyed by Departmental Representative. Insitu volume will be calculated based on simple dimensions of excavation (bank volume) and will not account for exsitu bulking (expansion or swell) and insitu compaction (densifying) factors. Includes analytical testing and inspections to demonstrate compliance with Contract, provision, transport to Site, onsite transport, all handling, loading, hauling, unloading, placing, grading and compacting.

1.1.22. Backfill – Imported from off-Site will be paid in accordance with unit rate price established per volume of material imported from an off-Site Facility for use as Backfill for Excavation. Measurement as recorded insitu Imported Backfill volume of final Contaminated Material Extents and overlying incidental material as Surveyed by Departmental Representative. Insitu volume will be calculated based on simple dimensions of excavation (bank volume) and will not account for exsitu bulking (expansion or swell) and insitu compaction (densifying) factors. Includes analytical testing and inspections to demonstrate compliance with Contract, provision, transport to Site, onsite transport, all handling, loading, hauling, unloading, placing, grading and compacting. Material to be 100% passing the 75mm sieve and less than 5% passing the 0.075 mm sieve.

1.1.23. Backfill – Overburden and Topsoil will be paid in accordance with unit rate price established for volume of Overburden and Topsoil material suitable for reuse as Backfill for Excavation. Measurement as recorded insitu Overburden and Topsoil Backfill volume of final Contaminated Material Extents and overlying and adjacent incidental material as Surveyed by Departmental Representative. Insitu volume will be calculated based on simple dimensions of excavation (bank volume) and will not account for exsitu bulking (expansion or swell) and insitu compaction (densifying) factors. Includes analytical testing and inspections to demonstrate compliance with Contract, onsite transport, all handling, loading, hauling, unloading, placing, grading and compacting.

1.1.24. Disposal – Hazardous/Special Waste will be paid in accordance with unit rate price established for weight of Hazardous/Special Waste material disposed. Measurement as recorded on Disposal Facility weigh scale certified by Measurement Canada and results provided to Departmental Representative on Certificates of Disposal. Contaminated Material Disposal includes Contaminated Material Treatment Offsite, as required by Disposal Facility.

1.1.25. Disposal – Metals Impacted Soil will be paid in accordance with unit rate price established for weight of Metals Impacted Soil disposed. Measurement as

recorded on Disposal Facility weigh scale certified by Measurement Canada and results provided to Departmental Representative on Certificates of Disposal. Contaminated Material Disposal includes Contaminated Material Treatment Offsite, as required by Disposal Facility.

1.1.26. Site Restoration will be paid in accordance with the lump sum price established to restore the Site to make suitable for post-Work use as shown on Drawings. Includes re-establishment of pre-existing infrastructure, re-installing groundwater monitoring wells, final grading, topsoil reuse, revegetation, and deconstructing and removal from Site all temporary facilities and removal of any incidental or generated material. Also includes repair and maintenance of access road, restoration of equipment staging areas, onsite roadways, stockpile areas, access pad areas, as required.

1.1.27. Demobilization will be paid in accordance with lump sum price established for demobilizing all equipment and personnel associated with the Works from the Site. Includes decontaminating all equipment prior to removal from Site.

1.1.28. Closeout Submittals will be paid in accordance with lump sum price established for Final Site Inspection (for Certificate of Completion purposes), Closeout Meetings, provision of final as-built documents and completion documents as instructed by the Departmental Representative.

In the event the contractor does not agree on the quantities documented for material in the trucks, the Departmental Representative can direct loaded trucks to a weigh scale for measurement, at the Contractor's cost. For the purpose of estimation soil will be assumed to have a bulk density of 2,000 kg/m^3 and concrete will be 2,400 kg/m^3.

1.2. Definitions

1.2.1. Certificate of Completion: see General Conditions.

1.2.2. Change Order: PSPC form issued by the Departmental Representative to the Contractor as per the relevant Contemplated Change Notice.

1.2.3. Confirmation Samples: soil and sediment samples collected from the base and walls of the excavation by the Departmental Representative to confirm that the remedial objectives for the Work have been met.

1.2.4. Contaminated Material: soil, sediment and other solid material where substances occur at concentrations that: (i) are above background levels and pose, or are likely to pose, an immediate or long-term hazard to human health or the environment, or (ii) exceed the levels specified in policies and regulations. Includes Hazardous/Special Waste and Waste Quality; does not include Non-Contaminated Material or Waste. Relevant regulations, unless otherwise in accordance with the Contract or as instructed by the Departmental Representative, include:

1.2.4.1. For sites in Yukon, may include risk-based site-specific target levels for remediation objectives: Yukon Special Waste Regulation, Yukon Contaminated Sites Regulation.

1.2.5. Contaminated Material Extents: lateral and vertical excavation extents of Contaminated Material to be remediated to meet remediation objectives. Extents

on Drawings are approximate and may vary based on field observations or Confirmation Samples. Does not include Topsoil or Overburden.

1.2.6. Contaminated Water: liquid material where substances occur at concentrations that: (i) are above background levels and pose, or are likely to pose, an immediate or long-term hazard to human health or the environment, or (ii) meet or exceed the levels specified in policies and regulations. Includes Hazardous Waste/Special Waste and water that is not suitable for aquatic life, irrigation, livestock or drinking water or any other water use specified in the BC Contaminated Sites Regulation or Yukon Contaminated Sites Regulation, as applicable. Includes Non-Aqueous Phase Liquids (NAPL). Does not include Non-Contaminated Water or Sewage Wastewater. Relevant regulations, unless otherwise in accordance with the Contract or as directed by the Departmental Representative, include:

1.2.6.1. For sites in Yukon, may include risk-based site-specific target levels for remediation objectives: Yukon Special Waste Regulation, Yukon Contaminated Sites Regulation.

1.2.7. Contaminated Water Treatment Plant: a temporary onsite or existing offsite facility located in Canada that is designed, constructed and operated for the handling or processing of Contaminated Water in such a manner as to change the physical, chemical or biological character or composition of the water to lower than the site-specific remedial objective, Discharge Approval, and in compliance with all regulations.

1.2.8. Contemplated Change Notice: PSPC form issued by the Departmental Representative to the Contractor requesting Contractor to provide a quote, which may result in a Change Order.

1.2.9. Contract: see General Conditions.

1.2.10. Contract Amount: see General Conditions.

1.2.11. Contractor: see General Conditions.

1.2.12. Departmental Representative: see General Conditions.

1.2.13. Discharge Approval: permit, certificate, approval, or any other form of authorization issued by appropriate federal agency, province, territory, or municipality having jurisdiction and authorizing discharge.

1.2.14. Disposal Facility: a facility specifically used to introduce waste into the environment for the purpose of final burial.

1.2.15. Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.

1.2.16. Environmental Protection: prevention, control, mitigation, and restoration of pollution and habitat or environmental disruption during construction. Control of Environmental Pollution and Damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; vibrations; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.2.17. Environmental Protection Plan: plan developed by the Contractor to ensure Environmental Protection and prevent Environmental Pollution and Damage identifying all environmental risks and mitigation measures, including: personnel requirements, emergency contacts, Environmental Protection methods, procedures, and equipment, and emergency response including a Spill Control Plan.
1.2.18. Extension of Time: see General Conditions.
1.2.19. Extension of Time on Contracts: PSPC form requesting an Extension of Time.
1.2.20. Final Completion: see General Conditions.
1.2.21. Hazardous Waste: Contaminated Material which meets the regulatory definition of Hazardous Waste.
1.2.22. Land Surveyor: a person working for the Contractor who is a qualified, registered land surveyor licensed to practice in relevant jurisdiction.
1.2.23. Land Treatment Facility: equivalent of Soil Treatment Facility.
1.2.24. Landfill Facility: an existing offsite facility located in Canada that is designed, constructed and operated to prevent any pollution from being caused by the facility outside the area of the facility from waste placed in or on land within the facility.
1.2.25. Materials Source Separation Program: consists of a series of ongoing activities to separate reusable and recyclable waste into categories from other types of waste at point of generation.
1.2.26. Non-Contaminated Material: soil, sediment and other solid material, including debris, excavated incidentally which meets:
1.2.26.1. For sites in Yukon: the Yukon Contaminated Sites Regulation most stringent of Schedule 1 and 2.
1.2.27. Non-Contaminated Water: liquids which are suitable for direct discharge to the environment after removal of sediment, and which is not Contaminated Water or Sewage Wastewater. Includes surface runoff, stormwater, and groundwater which has not come into contact with Contaminated Material.
1.2.28. On Site Instruction: instructions or other communications issued by the Departmental Representative to the Contractor.
1.2.29. On Site Notice: notice or other communication issued by the Contractor to the Departmental Representative.
1.2.30. Overburden: Non-Contaminated Material excavated incidentally above Contaminated Material Extents that is suitable as Backfill or material removal required to facilitate access to the Contaminated Material. Includes material excavated as part of Temporary Sloping.
1.2.31. Progress Payment: see General Conditions.
1.2.32. PSPC: Public Services and Procurement Canada. Representative of Canada with control of the Site.
1.2.33. Qualified Professional: a person working for the Contractor who is registered in relevant jurisdiction with his or her appropriate professional association, acts under that professional association's code of ethics, and is subject to disciplinary action by that professional association, and through suitable education, experience, accreditation and knowledge can be reasonably relied on to provide

advice within his or her area of expertise. Includes Geotechnical Engineers, Environmental Consultants, and Land Surveyors.

1.2.34. Quote: Contractor's cost estimate issued to the Departmental Representative as per the relevant Contemplated Change Notice via an On Site Notice.

1.2.35. Remediation by Excavation: complete excavation of Contaminated Material and incidental Non-Contaminated Material to the Extents determined by a Qualified Professional for the purpose of remediating the Site to meet numerical standards. Includes full treatment and disposal. Does not include risk assessment or risk management of material onsite. Does not include encapsulation or solidification in place.

1.2.36. Sewage Wastewater: liquid waste which is not suitable for direct discharge to the environment, and which must be either treated offsite or discharged to a sanitary sewer. Includes water from hand basin, shower, personal hygiene facilities, or other liquid waste from sanitary facilities.

1.2.37. Site: work area available to Contractor according to Drawings. Does not include shared or public areas, including common roads.

1.2.38. Special Waste: Yukon equivalent of Hazardous Waste.

1.2.39. Subcontractor: see General Conditions.

1.2.40. Submit/Submittals: documents from the Contractor to the Departmental Representative as: required by Contract; stipulated in permit, certificate, approval, license or any other form of authorization; by convention or industry practice. Submittals are final only after review and accepted in writing by Departmental Representative.

1.2.41. Substantial Performance: see General Conditions.

1.2.42. Superintendent: see General Conditions

1.2.43. Supplier: see General Conditions.

1.2.44. Survey by Departmental Representative: survey conducted by Departmental Representative, or by Departmental Representative's consultant or by Land Surveyor retained by Departmental Representative. Survey may be performed by physical measurement (e.g. tape measurer) or by survey equipment (e.g. Global Positioning System, total station). Contractor may perform independent survey using a Qualified Professional to confirm Survey by Departmental Representative.

1.2.45. Topsoil: Organic Containing, Non-Contaminated Material excavated incidentally above Contaminated Material Extents that is a surface organic layer to facilitate vegetation growth. Does not include Overburden.

1.2.46. Transfer/Interim Storage Facility: a facility specifically used to transfer or store on a short-term basis Contaminated Material during offsite transport.

1.2.47. Treatment Facility: a facility specifically used to treat Contaminated Material. May be Owner's (PSPC provided) or Offsite (Contractor provided). Owner's Soil Treatment Facility is located on property under PSPC control, but may be located at a different location than where construction work occurs. Offsite Treatment Facility may treat soil, sediment, or water.

1.2.48. Waste: Non-Contaminated Material that is not soil. Includes cleared and grubbed vegetation, litter, rubbish, debris, cobbles, boulders, excess construction

material, lumber, steel, plastic, concrete, and asphalt. Includes Topsoil and Overburden that is not re-used.

1.2.49. Waste Oversize Debris: Waste that is required to be excavated and is: larger than 1 cubic metre or larger than 2 metres in one dimension, cannot be removed with a typical excavator with bucket, and requires the use of special equipment (e.g., saws, hydraulic cutters, excavator hammers, vibratory pile extractors). Includes bedrock, boulders, pilings, building structures, concrete foundations, pipe supports, and tank bases.

1.2.50. Waste Quality: soil or other material that is not suitable for industrial, commercial, urban park, residential, agricultural, wildlands or any other land use specified in the BC Contaminated Sites Regulation or Yukon Contaminated Sites Regulation, as applicable.

1.2.51. Waste Reduction Plan: a written report which addresses opportunities for reduction, reuse or recycling of materials.

1.2.52. Work: see General Conditions.

1.2.53. Working Day: see General Conditions.

1.3. Action and Informational Submittals

1.3.1. After hours work: at least 5 Working Days prior to commencing after hours work Submit a schedule showing requested dates, times, and reasons for after hours work. Approval will only be granted for reasons valid in the opinion of the Departmental Representative and if request can be reasonably accommodated by other contracts.

1.4. Work Covered by Contract

1.4.1. Contractor must provide personnel with appropriate experience in remediating contaminated materials. Contractor to provide specialized material handling, health and safety, and environmental protection procedures.

1.4.2. Work to be performed under the Contract includes, but is not limited to, the following items, including all ancillary Work, covered further in the Contract:

1.4.2.1. Pre-mobilization Submittals
1.4.2.2. Mobilization
1.4.2.3. Site and Ground Surface Preparation
1.4.2.4. Monitoring Well Decommissioning
1.4.2.5. Traffic Control
1.4.2.6. Test Pitting
1.4.2.7. Site Facilities Provision
1.4.2.8. Site Facilities Operation
1.4.2.9. Temporary Site Fencing
1.4.2.10. Survey
1.4.2.11. Standby Time
1.4.2.12. Waste Oversize Debris Removal and Disposal
1.4.2.13. Access Road Maintenance
1.4.2.14. Water Management –Equipment
1.4.2.15. Water Management – Disposal

1.4.2.16. Contaminated Material – Excavate, Transport (to LTF), Place
1.4.2.17. Non-Contaminated Material – Excavate, Transport (within 300 m), Stockpile
1.4.2.18. Hazardous/Special Waste Soil -- Excavate, Transport (off-Site)
1.4.2.19. Metals Impacted Soil -- Excavate, Transport (off-Site)
1.4.2.20. Purchase and Install Curtain Liner
1.4.2.21. Backfill – Imported from Land Treatment Facility
1.4.2.22. Backfill – Imported from Off-Site
1.4.2.23. Backfill – Overburden and Topsoil
1.4.2.24. Disposal – Hazardous/Special Waste
1.4.2.25. Disposal – Metals Impacted Soil
1.4.2.26. Site Restoration
1.4.2.27. Demobilization
1.4.2.28. Closeout Submittals
1.4.3. Green Requirements:
1.4.3.1. Use only environmentally responsible green materials/products with no Volatile Organic Compounds (VOC) emissions or minimum VOC emissions of indoor off-gassing contaminants for improved indoor air quality – subject of acceptance of Submittal of Materials Safety Data Sheet (MSDS) Product Data.
1.4.3.2. Use materials/products containing highest percentage of recycled and recovered materials practicable – consistent with maintaining cost effective satisfactory levels of competition.
1.4.3.3. Adhere to waste reduction requirement for reuse or recycling of waste materials, thus diverting materials from Landfill Facility.
1.4.4. Work not included in the Contract comprises such work and services specifically listed as:
1.4.4.1. Not Used.

1.5. Location

1.5.1. The Site location is shown on Drawings.
1.5.2. There is no civic street address or PIN for the Site.

1.6. Project/Site Conditions

1.6.1. Work at Site will involve contact with contaminated materials, requiring appropriate health and safety and environmental protection procedures.
1.6.2. Complete list of anticipated contaminants and concentration levels on the Site available separately in assessment reports and/or Drawings.
1.6.3. Existing condition on the Site identified according to Drawings.
1.6.4. Utilities/services availability on Site:
1.6.4.1. Electrical power is not available on Site.
1.6.4.2. Water is not available on Site.
1.6.4.3. Sanitary sewer is not available on Site.
1.6.4.4. Storm sewer is not available on Site.

1.7. Other Contracts

1.7.1. Other contracts are currently in progress at Site.
1.7.2. Other contracts are:
1.7.2.1. Environmental and other consultants.
1.7.2.2. Site users as identified in Contract Documents.
1.7.3. Further contracts may be awarded while the Contract is in progress.
1.7.4. Cooperate with other contractors in carrying out their respective works and carry out instructions from Departmental Representative.
1.7.5. Coordinate Work with that of other contractors. Allow access for other contractors to Land Treatment Facility. If any part of Work under the Contract depends for its proper execution or result upon Work of another contractor, report promptly to Departmental Representative, in writing, any defects which can interfere with proper execution of this Work.

1.8. Products Supplied by the Departmental Representative

1.8.1. Not Used.

1.9. Contractor's Use of Site

1.9.1. Use of Site:
1.9.1.1. For the sole benefit of Canada.
1.9.1.2. Exclusive and only for completion of the execution of Work.
1.9.1.3. Assume responsibility for assigned premises for performance of this Work.
1.9.1.4. Be responsible for coordination of all Work activities onsite, including the Work of other contractors engaged by the Departmental Representative.
1.9.2. There are no pre-existing arrangements for encroachment on the neighbouring properties. Shoring designs accommodating no offsite encroachment, or arrangements for offsite encroachment, are the responsibility of the Contractor.
1.9.3. Perform Work in accordance with Contract. Ensure Work is carried out in accordance with schedule accepted by Departmental Representative.
1.9.4. Do not unreasonably encumber Site with material or equipment.
1.9.5. Accommodate common areas with other Site users, including roadways.
1.9.6. Segregate Contractor's work area from common areas to prevent unintentional multiple employer worksite, as required.

1.10. Existing Permits

1.10.1. Existing permits are:
1.10.1.1. Attached in Appendix C.

1.11. Schedule Requirements

1.11.1. Work to be initiated: within 10 Working Days of Contract Award.
1.11.2. Pre-Mobilization Submittals: within 10 Working Days of Contract Award.
1.11.3. Mobilization: within 10 Working Days of Contract Award.
1.11.3.1. Site Works: Final Completion no later than 2017 October 31.
1.11.3.2. Offsite Treatment and Disposal Works: Final Completion no later than 2017 October 31.

1.11.4. Completion of the Work: no later than 2017December31. Includes all final Submittals including as-built documents, the Certificate of Completion, and the Statutory Declaration at Final Completion.

1.12. Hours of Work

1.12.1. Restrictive as follows:

1.12.1.1. Working Day work hours are unrestricted.

1.12.1.2. Contractor to define Working Day prior to start of work.

1.12.2. Obtain consent from Departmental Representative for all after hours Work, including weekends and holidays.

1.12.2.1. Proceed only as instructed by the Departmental Representative.

1.13. Security Clearances

1.13.1. Not Used.

2. PART 2 - PRODUCTS

2.1. Not Used

2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Utility Locations: at least 5 Working Days prior to commencing any subsurface disturbance, Submit drawings identifying all utilities on the Site. Update drawings as instructed by the Departmental Representative.

1.3.2. Breakdown of Lump Sum Prices: at least 5 Working Days prior to submitting the first Progress Payment, Submit a breakdown of the Contract lump sum prices including labour, material and time, in detail as instructed by the Departmental Representative and aggregating Contract Amount.

1.3.3. Daily Work Records: at the end of each shift Submit daily Work records, during onsite Work. Include:

1.3.3.1. Quantities for each Description of Work identified in the Unit Price Table and Change Orders.

1.3.3.2. Description of Work performed.

1.3.3.3. Current Site conditions.

1.3.3.4. General information including: date, time shift started and ended, Subcontractor(s) onsite, Health and Safety items, and Environmental Protection items.

1.3.3.5. Signature of Superintendent and Departmental Representative.

1.3.4. Cash Flow: with each Progress Payment, Submit a cash flow forecast. Include:

1.3.4.1. Calculation of planned cost versus actual cost and schedule forecasting and cash flow projections on a monthly basis, indicating anticipated value of future Progress Payments, for each Description of Work identified in the Unit Price Table.

1.3.4.2. Progress Payments will not be processed until cash flow has been accepted by the Departmental Representative.

1.3.5. Coordination Meeting Minutes and Drawings: at least 5 Working Days prior to relevant Work commencing, Submit final meeting minutes and drawings from coordination with Subcontractors.

1.3.6. Quality Management Plan: within 10 Working Days after Contract award, Submit a quality management plan. Include:

1.3.6.1. Details on planned review, inspection and testing to provide Quality Assurance and Quality Control for the Work.

1.3.6.2. Subcontractors responsible for review, inspection and testing.

1.3.6.3. Schedule of submittals of review, inspection and testing results.

1.3.7. Review, Inspection, and Testing Results: within 5 Working Days of receipt, Submit all results of reviews, inspection, and testing performed as part of the Work, including laboratory reports.

1.4. Division of Specifications

1.4.1. This specification is subdivided into Divisions and Sections in accordance with the six digit National Master Specifications System.

1.4.2. A Division or Section may consist of the Work of more than one Subcontractor. Responsibility for determining which Subcontractor provides the labour, material, equipment and services required to complete the Work rests solely with the Contractor.

1.5. Documents Required

1.5.1. Maintain 1 copy each of the following posted at the job Site:

1.5.1.1. General Conditions.
1.5.1.2. Drawings.
1.5.1.3. Specifications.
1.5.1.4. Addenda or other modifications to Contract.
1.5.1.5. Change orders.
1.5.1.6. Copy of current Work schedule.
1.5.1.7. Reviewed and final shop drawings Submittals.
1.5.1.8. One set of record drawings and Specifications for “as-built” purposes.
1.5.1.9. Field and laboratory test reports.
1.5.1.10. Reviewed and accepted Submittals.
1.5.1.11. Manufacturers’ installation and application instructions (as appropriate).
1.5.1.12. National Building Code of Canada (as appropriate).
1.5.1.13. Current construction standards of workmanship listed in technical Sections (as appropriate).
1.5.1.14. Health and Safety documents, including all daily toolbox meetings, Notice of Project, and utility clearances.
1.5.1.15. Environmental Protection Plan.
1.5.1.16. Quality Management Plan.
1.5.1.17. Final Meeting Minutes, Agendas and associated attachments.
1.5.1.18. Permits and other approvals.

1.6. Setting out of Work

1.6.1. Assume full responsibility for and execute complete layout of Work to locations, lines and elevations in accordance with the Drawings.

1.6.2. Provide devices needed to layout and construct Work.

1.6.3. Supply such services and devices in accordance with the Contract to facilitate Departmental Representative’s inspection of Work.

1.7. Acceptance of Substrates

1.7.1. Each trade must examine surfaces prepared by others and job conditions which can affect his work, and must report defects to the Departmental Representative.

Commencement of Work will imply acceptance of prepared Work or substrate surfaces.

1.8. Works Coordination

1.8.1. Coordinate Work of Subcontractors.

1.8.1.1. Designate one person to be responsible for review of Contract and shop drawings and managing coordination of Work.

1.8.2. Convene meetings between Subcontractors whose Work interfaces and ensure awareness of areas and extent of interface required.

1.8.2.1. Provide each Subcontractor with complete Drawings and Specifications for Contract, to assist them in planning and carrying out their respective work.

1.8.2.2. Develop coordination drawings when required, illustrating potential interference between Work of various trades and distribute to affected parties.

1.8.2.3. Facilitate meeting and review coordination drawings. Ensure Subcontractors agree and sign off on coordination drawings.

1.8.2.4. Publish minutes of each meeting.

1.8.2.5. Submit a copy of coordination drawings and meeting minutes as instructed by the Departmental Representative.

1.8.3. Submit shop drawings and order of prefabricated equipment or rebuilt components only after coordination meeting for such items has taken place.

1.8.4. Work coordination:

1.8.4.1. Ensure cooperation between trades in order to facilitate general progress of Work and avoid situations of spatial interference.

1.8.4.2. Ensure that each trade provides all other trades reasonable opportunity for Final Completion of Work and in such a way as to prevent unnecessary delays, cutting, patching and removal or replacement of completed Work.

1.8.4.3. Ensure disputes between Subcontractors are resolved.

1.8.5. Failure to coordinate Work is responsibility of Contractor.

1.9. Approvals of Shop Drawings, Product Data and Samples

1.9.1. The term "shop drawings" means drawings, figures, diagrams, illustrations, schedules, performance charts, brochures and other data which are Submittals by Contractor to illustrate details of a portion of Work.

1.9.2. Submit as instructed by the Departmental Representative the requested Shop Drawings, product data, MSDS sheets and samples in accordance with the Contract.

1.9.3. Allow sufficient time for the following:

1.9.3.1. Review of product data.

1.9.3.2. Acceptance of shop drawings.

1.9.3.3. Review of re-submission.

1.9.3.4. Ordering of accepted material and/or products.

1.10. Relics and Antiquities

1.10.1. See General Conditions.

1.11. Additional Drawings

1.11.1. The Departmental Representative may furnish additional Drawings for clarification. These additional Drawings have the same meaning and intent as if they were included with Drawings referred to in the Contract.

1.11.2. Upon request, Departmental Representative may furnish up to a maximum of 2 sets of Drawings for use by the Contractor at no additional cost. Should more than 2 sets of documents be required the Departmental Representative will provide them at additional cost.

1.12. Record Keeping

1.12.1. On Site Instructions: Contractual correspondence from the Departmental Representative to the Contractor. Does not include Contemplated Change Notices, Change Orders, and Extension of Time on Contracts. Sequentially numbered On Site Instructions. Include cross references to applicable On Site Notifications. The status of the Contractor, including the function of Prime Contractor, must not change by reason of any On Site Instructions.

1.12.2. On Site Notifications: Contractual correspondence from Contractor to the Departmental Representative. Includes Submittals. Does not include Quotes and Extension Of Time on Contracts. Must be as a sequentially numbered On Site Notifications. Include cross references to applicable On Site Instructions. The status of the Contractor, including the function of Prime Contractor, must not change by reason of any On Site Notifications.

1.12.3. Maintain adequate records to support information provided to Departmental Representative.

1.12.4. Maintain asbestos waste shipment records or other Hazardous Waste Manifests for minimum of 3 years from date of shipment or longer period required by applicable law or regulation.

1.12.5. Maintain bills of ladings for minimum of 300 Working Days from date of shipment or longer period required by applicable law or regulation.

1.13. Change Documents

1.13.1. Change Documents do not relieve Contractor of any obligation.

1.13.2. Change Documents do not change the Contractor's responsibility for sequencing, methods and means.

1.13.3. Change Documents do not change by any reason the status of the Contractor, including the function of Prime Contractor or as supervisor.

1.13.4. Change Documents include:

1.13.4.1. Change Order: There may be an increase to the Contract Amount by reason of any Change Order. No Extension of Time for completion of the Work by reason of any Change Order.

1.13.4.2. Contemplated Change Notice: No increase to the Contract Amount by reason of any Contemplated Change Notice. No Extension of Time for completion of the Work by reason of any Contemplated Change Notice.

1.13.4.3. Extension of Time on Contracts: No increase to the Contract Amount by reason of any Extension of Time on Contracts. There may be an Extension of

Time for completion of the Work by reason of an Extension of Time on Contracts.

1.13.4.4. Quote: No increase to the Contract Amount by reason of any Quote. No Extension of Time for completion of the Work by reason of any Quote. The status of the Contractor, including the function of Prime Contractor, must not change by reason of any Quote.

1.14. System of Measurement

1.14.1. The metric system of measurement (SI) will be employed on the Contract.

2. PART 2 - PRODUCTS

2.1. Not Used

2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Preconstruction Meeting Minutes: within 2 Working Days of the Preconstruction Meeting, Submit meeting minutes.

1.3.2. Progress Meeting Minutes: within 2 Working Days of a Progress Meeting, Submit meeting minutes. Submit revised minutes within 2 Working Days of receiving comments by Departmental Representative.

1.3.3. Information for Progress Meetings: at least 2 Working Days prior to scheduled Progress Meetings, Submit all information in accordance with the Contract for Progress Meetings. Include:

1.3.3.1. Agenda for the proposed Progress Meeting.

1.3.3.2. Updated Project Schedule.

1.3.3.3. Copies of transport manifests and disposal receipts for all materials removed from Site.

1.3.3.4. Other information as instructed by the Departmental Representative or relevant to agenda for upcoming progress meeting.

1.3.4. Final Site Inspection: within 2 Working Days of the Final Site Inspection, Submit meeting minutes.

1.3.5. Closeout Meetings: within 2 Working Days of the Closeout Meeting, Submit meeting minutes.

1.4. Administrative

1.4.1. Schedule and administer project meetings throughout the progress of the Work weekly and at the call of the Departmental Representative.

1.4.2. Prepare agenda for meetings.

1.4.3. Submit written notice with agenda of each meeting 2 Working Days in advance of meeting date as instructed by the Departmental Representative.

1.4.4. Provide physical space and make arrangements for meetings, or arrange for teleconference meetings, as instructed by Departmental Representative.

1.4.5. Preside at meetings.

1.4.6. Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.

1.4.7. Maintain records of meeting minutes for a minimum of 2 years after Work is completed.

1.4.8. Representative of Contractor, Subcontractor(s) and Supplier(s) attending meetings must be qualified and authorized to act on behalf of party each represents.

1.5. Preconstruction Meeting

1.5.1. Within 5 Working Days after award of Contract, request a meeting of parties in Contract to discuss and resolve administrative procedures and responsibilities.

1.5.2. Departmental Representative, Contractor, Superintendent, major Subcontractor(s), field inspectors and supervisors must be in attendance.

1.5.3. Establish time and location of meeting subject to approval by Departmental Representative and notify parties concerned at least 3 Working Days before meeting.

1.5.4. Agenda to include:

1.5.4.1. Appointment of official representative of participants in the Work, including Contractor's Superintendent and Departmental Representative.

1.5.4.2. Schedule of Work.

1.5.4.3. Schedule of Submittals.

1.5.4.4. Requirements for temporary facilities.

1.5.4.5. Site security.

1.5.4.6. Change orders, procedures, approvals required, administrative requirements.

1.5.4.7. Monthly Progress Payments, administrative procedures, hold backs.

1.5.4.8. Appointment of inspection and testing agencies or firms.

1.5.4.9. List of Subcontractor(s).

1.6. Progress Meetings

1.6.1. During course of Work schedule progress meetings weekly subject to approval by Departmental Representative.

1.6.2. Contractor, Superintendent, major Subcontractor(s) involved in Work, and Departmental Representative are to be in attendance.

1.6.3. Agenda to include:

1.6.3.1. Review and acceptance of minutes of previous meeting.

1.6.3.2. Review health and safety, including incidents, near misses, and corrective measures.

1.6.3.3. Review Environmental Protection, including incidents, near misses, and corrective measures.

1.6.3.4. Review contractual compliance.

1.6.3.5. Review regulatory compliance.

1.6.3.6. Review communications, problems or concerns with community.

1.6.3.7. Review of Work progress since previous meeting.

1.6.3.8. Field observations, problems, conflicts.

1.6.3.9. Quantity results.

1.6.3.10. Updated progress schedule detailing activities planned over next 2 week period. Include review of progress with respect to previously established dates for starting and stopping various stages of Work.

1.6.3.11. Problems which impede construction schedule.

1.6.3.12. Corrective measures and procedures to regain projected schedule.

1.6.3.13. Revision to construction schedule.

1.6.3.14. Progress schedule, during succeeding Work period.

1.6.3.15. Review submittal schedules: expedite as required.
1.6.3.16. Maintenance of quality standards.
1.6.3.17. Quantities of material transported, treated, and disposed.
1.6.3.18. Review proposed changes for effect on construction schedule and on Final Completion date.
1.6.3.19. Other business.
1.6.4. Submit draft Progress Meeting Minutes for review and comment by Departmental Representative. Incorporate comments into final Progress Meeting Minutes.

1.7. Toolbox Meetings

1.7.1. During the course of the Work, schedule daily toolbox meetings at the start of each Work shift. Multiple meetings are required if the Contractor works multiple shifts within a 24-hour period.
1.7.2. All on Site workers to attend, including Contractor, Superintendent, major Subcontractor(s), and environmental consultants. Departmental Representative may attend.
1.7.3. Agenda to include:
1.7.3.1. Planned Work activities and environmental considerations for that shift.
1.7.3.2. Coordination activities required between Contractor, Subcontractor(s), Departmental Representative, and other contractor(s) including environmental consultant.
1.7.3.3. Health and Safety items.
1.7.3.4. Environmental Protection items.

1.8. Final Site Inspection

1.8.1. Within 5 Working Days of completion of Site Works but prior to Demobilization, request a meeting on Site to review the Site.
1.8.2. Departmental Representative, Contractor, Superintendent, major Subcontractor(s), field inspectors and supervisors must be in attendance.
1.8.3. Establish time and location of meeting subject to approval by Departmental Representative and notify parties concerned at least 3 Working Days before meeting.
1.8.4. Agenda to include:
1.8.4.1. Inspect removal of all temporary equipment, materials, supplies, and facilities.
1.8.4.2. Inspect final surface grades.
1.8.4.3. Inspect final vegetation.
1.8.4.4. Inspect permanent facilities for performance and damage.
1.8.4.5. Document all damage, deficiencies, missing items, and non-conformance.
1.8.5. If required, and in the opinion of the Departmental Representative, perform another Final Site Inspection after resolving all documented damage, deficiencies, missing items, and non-conformance.

1.9. Closeout Meeting

1.9.1. Within 10 Working Days of completion of the Work, request a meeting to review the project.

1.9.2. Departmental Representative, Contractor, Superintendent, major Subcontractor(s), field inspectors and supervisors must be in attendance.

1.9.3. Establish time and location of meeting subject to approval by Departmental Representative and notify parties concerned at least 3 Working Days before meeting.

1.9.4. Agenda to include:

1.9.4.1. Review Certificate of Completion.

1.9.4.2. Review final payment.

1.9.4.3. Identify lessons learned.

1.9.4.4. Perform Contractor Performance Evaluation Report Form.

2. PART 2 - PRODUCTS

2.1. Not Used

2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Master Plan: within 10 Working Days after Contract award, Submit a Master Plan (baseline schedule).

1.3.2. Schedule of Interruption of Services: at least 5 Working Days prior to any shutdown or closure of active utilities or facilities Submit a schedule identifying type of service and dates of shutdown or closure.

1.3.3. Project Schedule and Updates: with Progress Payment, Submit a Project Schedule updated as appropriate. Progress Payment submission is incomplete without an updated Project Schedule acceptable to Departmental Representative.

1.4. Requirements

1.4.1. Ensure Master Plan and detail Project Schedules are practical and remain within specified Contract duration.

1.4.2. Plan to complete Work in accordance with prescribed milestones and time frame.

1.4.3. Limit activity durations to maximum of approximately 10 Working Days, to allow for progress reporting.

1.4.4. Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.4.5. Include Work sequencing description and schedule:

1.4.5.1. Work Sequencing description must describe sequence, methods and means to perform each major task.

1.4.5.2. Work Sequencing schedule must show on a Gantt chart, start, end and dependencies of each major task and also indicates Work to be performed in sequence and in parallel.

1.4.5.3. Major tasks include all items identified on Unit Price Table.

1.5. Master Plan

1.5.1. Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).

1.5.2. Departmental Representative will review and return revised schedules within 5 Working Days.

1.5.3. Revise impractical schedule and resubmit within 5 Working Days.

1.5.4. Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.6. Project Schedule

1.6.1. Develop detailed Project Schedule derived from Master Plan.

1.6.2. Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:

1.6.2.1. Dates of commencement and completion of Work for each Description of Work identified on the Unit Price Table.

1.6.2.2. Dates of Submittals including shop drawings, product data, MSDS sheets and samples.

1.6.2.3. Dates of inspection and testing.

1.6.2.4. Final Completion date within the time period in accordance with the Contract, including Amendments.

1.7. Project Schedule Reporting

1.7.1. Update Project Schedule on monthly basis reflecting activity changes and completions, as well as activities in progress.

1.7.2. Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.8. Project Meetings

1.8.1. Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.

1.8.2. Weather related delays with their remedial measures will be discussed and schedule, not cost, will be negotiated.

2. PART 2 - PRODUCTS

2.1. Not Used

2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Project Submittal List – Pre-Project Submittals

#	Contractor's Submission	Submitted to PSPC	Submitted when
1	Health & Safety Plan and related Health & Safety Submittals (including Yukon Workers Compensation Board Notice of Project, Proof of Good Standing with Yukon Workers Compensation Board) (Section 01 35 29.14)	Departmental Representative	Within 10 working days of Contract Award
2	Preconstruction Condition Survey (Section 01 71 00)	Departmental Representative	within 10 Working Days prior to mobilization to Site
3	Preconstruction As-Built Documents (Section 01 71 00)	Departmental Representative	at least 5 Working Days prior to mobilization to Site
4	Preconstruction Meeting Minutes (Section 01 31 19)	Departmental Representative	within 2 Working Days of the Preconstruction Meeting
5	Coordination Meeting Minutes and Drawings (Section 01 11 55)	Departmental Representative	At least 5 Working Days prior to relevant Work commencing
6	Permits (Section 01 41 00)	Departmental Representative	at least 10 Working Days prior to mobilization to Site
7	Master Plan (Section 01 32 16.07)	Departmental Representative	Within 10 working days after Contract Award
8	Project Schedule and Updates (Section 01 32 16.07)	Departmental Representative	With Progress Payment
9	Shop Drawings (Section 01 33 00)	Departmental Representative	at least 5 Working Days prior to commencing applicable Work
10	Site Layout (Section 01 52 00)	Departmental Representative	within 10 Working Days after Contract award and prior to mobilization to Site
11	Signs (Section 01 52 00)	Departmental Representative	at least 5 Working Days prior to posting
12	List of Signs and Devices (Section 01 35 00.06)	Departmental Representative	within 10 Working Days after Contract award and prior to mobilization to Site
13	Contaminated Material and Non-Contaminated Material Management Plan. Includes Proposed Disposal Facilities and Licensing for transport of contaminated materials (including Hazardous/Special Waste) and waste (Section 01 35 13.43)	Departmental Representative	within 10 Working Days after Contract award and prior to mobilization to Site

#	Contractor's Submission	Submitted to PSPC	Submitted when
14	Environmental Protection Plan (Section 01 35 43)	Departmental Representative	within 10 Working Days after Contract award and prior to mobilization to Site
15	Pollution Control Procedures Modification (Section 01 35 43)	Departmental Representative	Immediately when pollution control procedures are inadequate
16	Pollution Control Remediation Procedures Modification (Section 01 35 43)	Departmental Representative	immediately when soil, sediment or water contaminated by Contractor's activities are inadequate as instructed by the Departmental Representative
17	Dust and Particulate Control Procedures Modification (Section 01 35 43)	Departmental Representative	immediately when dust and particulate control measures are inadequate as instructed by the Departmental Representative
18	Quality Management Plan (Section 01 11 55)	Departmental Representative	Within 10 Working Days after Contract award
19	Waste Reduction Plan (Section 01 74 19)	Departmental Representative	within 10 Working Days after Contract award and prior to mobilization to Site
20	Import Backfill Material Quality (Section 02 61 00.02)	Departmental Representative	at least 5 Working Days prior to bringing material onsite
21	Import Backfill Material Samples (Section 02 61 00.02)	Departmental Representative	at least 5 Working Days prior to bringing material to Site
22	Seed and Fertilizer (Section 02 61 00.02)	Departmental Representative	prior to ordering
23	Temporary Hoarding and Fencing (Section 31 23 33.01)	Departmental Representative	at least 5 Working Days prior to installation
24	Sloping, Shoring, Excavation and Backfilling Plan (Section 31 23 33.01)	Departmental Representative	within 10 Working Days after Contract award and prior to mobilization to Site

1.3.2. Project Submittal List – During Project Submittals

#	Contractor's Submission	Submitted to PSPC	Submitted when
1	Information for Progress Meetings (Section 01 31 19)	Departmental Representative	at least 2 Working Days prior to scheduled Progress Meetings
2	Progress Meeting Minutes (Section 01 31 19)	Departmental Representative	within 2 Working Days of a Progress Meeting
3	Product Data (Section 01 61 10)	Departmental Representative	at least 5 Working Days prior to use
4	Substitution (Section 01 61 10)	Departmental Representative	at least 5 Working Days prior to use and after Contract award
5	Quality of Work (Section 01 61 10)	Departmental Representative	at least 5 Working Days prior to Work
6	Transport Manifests (Section 01 35 13.43)	Departmental Representative	within 5 Working Days of offsite transport

#	Contractor's Submission	Submitted to PSPC	Submitted when
7	Drawings identifying all utilities within and immediately surrounding the work area (Section 01 11 55)	Departmental Representative	5 working days prior to commencing any subsurface disturbance
8	After Hours Work (Section 01 11 00)	Departmental Representative	at least 5 Working Days prior to commencing after hours work
9	Breakdown of Lump Sum Prices (Section 01 11 55)	Departmental Representative	At least 5 working days prior to submitting first Progress Payment
10	Daily Work Records (Section 01 11 55)	Departmental Representative	At the end of each shift
11	Cash Flow (Section 01 11 55)	Departmental Representative	With each Progress Payment
12	Schedule of Interruption of Services (Section 01 32 16.07)	Departmental Representative	at least 5 Working Days prior to any shutdown or closure of active utilities or facilities
13	Landfill Receipts (Section 01 74 19)	Departmental Representative	within 5 Working Days of transport offsite
14	Recycling Receipts (Section 01 74 19)	Departmental Representative	within 5 Working Days of transport offsite
15	Inspection and Test Reports (Section 01 45 00)	Departmental Representative	within 5 Working Days of receipt
16	Monitoring and Testing Results (Section 31 23 33.01)	Departmental Representative	within 5 Working Days of sampling, Submit all monitoring and testing results. Include procedures, frequency of sampling
17	Weigh Scale Certification (Section 31 23 33.01)	Departmental Representative	at least 5 Working Days prior to use
18	Weigh Scale Slips (Section 31 23 33.01)	Departmental Representative	within 10 days of measurement
19	Final Site Inspection Meeting Minutes (Section 01 31 19)	Departmental Representative	within 2 Working Days of the Final Site Inspection

1.3.3. Project Submittal List – Closeout Submittals

#	Contractor's Submission	Submitted to PSPC	Submitted when
1	Closeout Documents: includes As-Built Documents (Section 01 78 00)	Departmental Representative	within 20 Working Days of Final Completion of Site Restoration
2	Certificate of Treatment (Section 01 35 13.43)	Departmental Representative	within 30 Working Days of treatment at Treatment Facility
3	Product Instructions (Section 01 78 00)	Departmental Representative	at least 10 Working Days before Substantial Performance of the Work is completed

#	Contractor's Submission	Submitted to PSPC	Submitted when
4	Certificate of Disposal (Section 01 35 13.43)	Departmental Representative	within 30 Working Days of disposal at Disposal Facility
5	Closeout Meeting Minutes (Section 01 31 19)	Departmental Representative	within 2 Working Days of the Closeout Meeting

1.3.4. Shop Drawings: at least 5 Working Days prior to commencing applicable Work, Submit Shop Drawings signed by a Qualified Professional.

1.4. General

1.4.1. Submission details to be commensurate for type of Work and Site conditions. Details depend on Work performed and Contractor's sequence, methods and means.

1.4.2. This section specifies general requirements and procedures for the Contractor's Submittals of Shop Drawings, product data, samples and other submittals in accordance with the Contract to Departmental Representative. Additional specific requirements for Submittals are identified in individual technical sections.

1.4.3. Present Shop Drawings, product data and samples in SI Metric units.

1.4.4. Where items or information is not produced in SI Metric units, converted values are acceptable.

1.4.5. Contractor's responsibility for errors and omissions in Submittals is not relieved by the Departmental Representative's review of Submittals.

1.4.6. Notify Departmental Representative in writing at time of Submittals, identifying deviations from requirements of Contract and stating reasons for deviations.

1.4.7. Contractor's responsibility for deviations in Submittals from requirements of Contract is not relieved by the Departmental Representative's review of Submittals unless Departmental Representative gives written acceptance of specific deviations.

1.4.8. Make any changes in Submittals which Departmental Representative requires to be in accordance with the Contract and resubmit as instructed by the Departmental Representative.

1.4.9. Notify Departmental Representative in writing, when resubmitting, of any revisions other than those instructed by the Departmental Representative.

1.4.10. Do not proceed with Work until relevant Submittals are finalized and have been accepted.

1.4.11. Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to Submit in ample time is responsibility of Contractor.

1.4.12. Review Submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each Submittal has been checked and coordinated

with requirements of Work and Contract. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

1.4.13. Verify field measurements and affected adjacent Work is coordinated.

1.4.14. Adjustments made on Submittals by the Departmental Representative will not result in an increase to the Contract Amount or an Extension of Time for completion of the Work. If adjustments result in an increase to the Contract Amount or an Extension of Time for completion of the Work, notify Departmental Representative and receive approval prior to proceeding with Work.

1.4.15. Keep one final copy of each Submittal onsite.

1.5. Submission Requirements

1.5.1. Coordinate each Submittal with the requirements of the Work and the Contract. Individual Submittals will not be reviewed until:

1.5.1.1. Submittals are complete.

1.5.1.2. All related information is available.

1.5.2. Allow 10 Working Days for Departmental Representative's review of each Submittal, unless otherwise specified.

1.5.3. All Submittals are to be sent to Departmental Representative in duplicate as a hardcopy and in electronic format compatible with Departmental Representative's software.

1.5.4. Accompany Submittals with On Site Notification:

1.5.4.1. Date.

1.5.4.2. Project title and number.

1.5.4.3. Contractor's name and address.

1.5.4.4. Identification and quantity of each Shop Drawing, product data and sample.

1.5.4.5. Other pertinent data.

1.5.5. Submittals must include:

1.5.5.1. Date and revision dates.

1.5.5.2. Project title and number.

1.5.5.3. Name and address of:

1.5.5.3.1. Subcontractor.

1.5.5.3.2. Supplier.

1.5.5.3.3. Manufacturer.

1.5.5.4. Signature of Superintendent, certifying approval of Submittals, verification of field measurements and in accordance with the Contract.

1.5.5.5. Qualified Professional to sign and seal Submittals in accordance with the Contract. Submittals to include at a minimum 1 hard copy of original ink sealed document.

1.5.5.6. Details of appropriate portions of Work as applicable.

1.6. Shop Drawings

1.6.1. Shop Drawings are designs, drawings, figures, diagrams, illustrations, schedules, performance charts, brochures and other data intended to illustrate details of a portion of the Work which are provided by the Qualified Professional of record.

1.6.2. Maximum sheet size: ANSI E (864 x 1118 mm).

1.6.3. Submit, as instructed by the Departmental Representative, electronic and 2 hard copies of Shop Drawings for each requirement requested in the specification sections and/or as instructed by the Departmental Representative.

1.6.4. Cross-reference Shop Drawing information to applicable portions of the Contract.

1.6.5. Qualified Professional to sign and seal each individual Shop Drawing.

1.6.6. Qualified Professional to sign and seal final Shop Drawings and submit as instructed by the Departmental Representative upon Final Completion of the construction project. Final Shop Drawings are prepared by a Qualified Professional to reflect design changes made during the construction of the Remediation by Excavation project. Final Shop Drawings are intended to incorporate addenda, change orders and other significant design changes, but not necessarily Site instructions.

1.6.7. Shop Drawings must include:

1.6.7.1. The original date of issue.

1.6.7.2. The dates of all applicable revisions.

1.6.7.3. The project title.

1.6.7.4. The project address.

1.6.7.5. The project number.

1.6.7.6. Wherever applicable, the name(s) of the: Contractor, Subcontractor(s), Supplier(s), manufacturers, and separate detailers.

1.6.7.7. The sequence number for each Shop Drawing.

1.6.7.8. Identifications of all products and materials.

1.6.7.9. Relation to adjacent structures or materials.

1.6.7.10. Clearly identified field dimensions.

1.6.7.11. Applicable standards.

1.7. Shop Drawings Review

1.7.1. Departmental Representative's review of Shop Drawings is only to determine if Shop Drawings are consistent with the general intent of the Contract and are in accordance with the Contract.

1.7.2. This review will not mean that Departmental Representative approves the detail design inherent in the Shop Drawings, responsibility for which will remain with Contractor submitting same.

1.7.3. This review will not relieve the Contractor of responsibility for errors or omissions in the Shop Drawings or of responsibility for meeting all requirements of the Contract.

1.7.4. Without restricting the generality of the foregoing, be responsible for:

1.7.4.1. Dimensions to be confirmed and correlated at the Site.

1.7.4.2. Information that pertains solely to fabrication processes or to techniques of construction and installation.
1.7.4.3. Coordination of the Work of all sub-trades.

2. PART 2 - PRODUCTS

2.1. Not Used
2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used
3.1.1. Not Used.

END OF SECTION

4. PART 1 - GENERAL

4.1. Measurement Procedures

4.1.1. See 01 11 00.

4.2. Definitions

4.2.1. See 01 11 00.

4.3. Action and Informational Submittals

4.3.1. List of Signs and Devices: within 10 Working Days after Contract award and prior to mobilization to Site Submit a list of signs and other devices required for the project.

4.4. Protection of Public Traffic

4.4.1. Comply with requirements of acts, regulations and bylaws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.

4.4.2. Comply with current version of BC Ministry of Transportation and Infrastructure Traffic Control Manual for Work on Roadways, the *Yukon Highways Act*, or equivalent.

4.4.3. Provide and maintain road access and egress to property fronting Site and in other areas in accordance with the Contract, except where other means of road access exist that are accepted.

4.5. Informational and Warning Devices

4.5.1. Provide and maintain signs, flashing warning lights, and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Work which requires road user response.

4.5.2. Supply and erect signs, delineators, barricades and miscellaneous warning devices to comply with current version of BC Ministry of Transportation and Infrastructure Traffic Control Manual for Work on Roadways, the *Yukon Highways Act*, or equivalent.

4.5.3. Place signs and other devices in locations recommended in current version of BC Ministry of Transportation and Infrastructure Traffic Control Manual for Work on Roadways, the *Yukon Highways Act*, or equivalent..

4.5.4. Meet with Departmental Representative prior to commencement of Work to prepare list of signs and other devices required for project. If situation onsite changes, revise list for approval.

4.5.5. Continually maintain traffic control devices in use:

4.5.5.1. Check signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.

4.5.5.2. Remove or cover signs which do not apply to conditions existing from day to day.

4.6. Control of Public Traffic

4.6.1. Provide competent flag personnel, trained in accordance with, and properly equipped to, current version of BC Ministry of Transportation and Infrastructure Traffic Control Manual for Work on Roadways, the *Yukon Highways Act*, or equivalent for situations as follows:

4.6.1.1. When public traffic is required to pass working vehicles or equipment that block all or part of travelled roadway.

4.6.1.2. In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.

4.7. Operational Requirements

4.7.1. Maintain existing conditions for traffic throughout period of Contract except that, when required for construction in accordance with the Contract and when measures have been taken in accordance with the Contract and accepted by Departmental Representative to protect and control public traffic, existing conditions for traffic to be restricted as follows:

4.7.1.1. Maintain existing conditions for traffic crossing right-of-way.

4.7.1.2. Maintain access for medivac purposes at all times.

5. PART 2 - PRODUCTS

5.1. Not Used

5.1.1. Not Used.

6. PART 3 - EXECUTION

6.1. Not Used

6.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Contaminated Material and Non-Contaminated Material Management Plan: within 10 Working Days after Contract award and prior to mobilization to Site, Submit plan detailing management of Contaminated Material and Non-Contaminated Material. Include:

1.3.1.1. Sequence, methods and means to ensure different categories of waste are segregated.

1.3.1.2. Sequence, methods and means to handle, transport, and store Contaminated Material and Non-Contaminated Material onsite.

1.3.1.3. Sequence, methods and means to transport Contaminated Material and Non-Contaminated Material offsite. Include name, vehicle type, and licenses of transporters. Include name, location, provincial or territorial authorizations, and evidence of compliance with municipal zoning and bylaws of all transfer stations and interim storage facilities.

1.3.1.4. Sequence, methods and means to transport Hazardous/Special Waste offsite. Include name, vehicle type, and licenses of transporters. Include name, location, provincial or territorial authorizations, and evidence of compliance with municipal zoning and bylaws of all transfer stations and interim storage facilities.

1.3.1.5. Sequence, methods and means to dispose Hazardous/Special Waste offsite. Include details on treatment process, disposition of contaminants, and written confirmation from facility owner acknowledging suitability of facility for material to be treated. For all offsite Treatment Facilities, include name of facility, location of facility, copy of valid and subsisting permit, certificate, approval, license, or other required form of authorization issued by a Facility Authority for the facility, and evidence of compliance with municipal zoning and bylaws of facility.

1.3.1.6. Sequence, methods and means to treat Contaminated Material at Owner's Soil Treatment Facility. Sequence, methods and means to dispose Non-Contaminated Material offsite. Include details on disposal process and written confirmation from facility owner acknowledging suitability of facility for material to be disposed. For all Disposal Facilities include name of facility; location of facility; copy of valid and subsisting permit, certificate, approval, license, or other required form of authorization issued by a Facility Authority for the facility; and evidence of compliance with municipal zoning and bylaws of facility.

1.3.2. Transport Manifests: within 5 Working Days of offsite transport, Submit documentation verifying that material has been transported appropriately. Include:
1.3.2.1. Method of transport.
1.3.2.2. Name of transport company.
1.3.2.3. Weigh scale receipt including location, date, and weight of loading.
1.3.2.4. Weigh scale receipt including location, date, and weight of unloading.
1.3.3. Certificate of Treatment: within 30 Working Days of treatment at Treatment Facility, Submit documentation verifying that materials have been treated by Contractor. Include:
1.3.3.1. Issued by the Treatment Facility.
1.3.3.2. On company letterhead.
1.3.3.3. Name and location of facility where the material is being treated.
1.3.3.4. Date and weight for each shipment received and total weight received at the offsite facility.
1.3.3.5. Date and weight for each treatment event and total weight treated at the offsite facility.
1.3.3.6. Treatment methodology.
1.3.3.7. Laboratory certificates demonstrating treatment objectives were met.
1.3.3.8. Disposition of treated material.
1.3.3.9. Signed by identified authorized treatment company representative.
1.3.4. Certificate of Disposal: within 30 Working Days of disposal at Disposal Facility, Submit documentation verifying that materials have been disposed by Contractor. Include:
1.3.4.1. Issued by the Disposal Facility.
1.3.4.2. On company letterhead.
1.3.4.3. Name and location of facility where the material is being disposed.
1.3.4.4. Date and weight for each shipment received and total weight received at the Disposal Facility.
1.3.4.5. Identification of final ownership of material.
1.3.4.6. Signed by identified authorized disposal company representative.

1.4. Sequencing and Scheduling

1.4.1. Commence Work involving contact with Contaminated or potentially Contaminated Material or Wastewater after all applicable Environmental Protection procedures (including those identified in Contaminated Material and Non-Contaminated Material Management Plan and Environmental Protection Plan) and facilities (including those identified in Site Layout) are operational and accepted by Departmental Representative.
1.4.2. Plan work sequencing and traffic patterns to prevent contamination of clean areas due to traffic or debris.

1.5. Equipment Decontamination Facility

1.5.1. Prior to commencing Work involving equipment contact with potentially Contaminated Material, construct equipment decontamination facilities to accommodate the largest potentially contaminated equipment onsite.

1.5.2. Collect and contain equipment decontamination wastewater and sediment. Transfer collected wastewater and sediment to treatment facilities accepted by Departmental Representative.

1.6. Personnel Decontamination Facility

1.6.1. Provide an area or areas close to the workers' changing facilities to enable workers and other personnel leaving areas such as exclusion area to remove deleterious and contaminated materials from boots, clothing and skin surfaces.

1.6.2. Be responsible for ensuring that all materials, chemicals, protective clothing, wash water and deleterious materials are collected, treated and disposed of in accordance with applicable environmental standards and regulations.

1.6.3. Personnel Decontamination Facility to be available for use by persons other than the Contractor's workers and Subcontractors, including federal employees, other contractor(s), and environmental agencies. Provide use of facilities to other persons.

1.7. Drum Staging Pad

1.7.1. Provide, maintain, and operate drum staging pad as required.

1.7.2. Construct drum staging pad with sump capable of collecting leachate and rain runoff. Place impermeable liner that contours over top of berm, and collects leachate and runoff from staging pad which is conducted solely to sump on staging pad. Leachate is Contaminated Water.

1.8. Soil Stockpiling

1.8.1. Provide, maintain, and operate temporary storage/stockpiling facilities as per Contractor's Site Layout.

1.8.2. Segregate Contaminated Material from Non-Contaminated Material into separate stockpiles to prevent cross-contamination.

1.8.3. Prevent precipitation from infiltrating or from directly running off stockpiled materials. Cover stockpiled materials with an impermeable cover during periods of Work stoppage including at end of each Working Day and as directed by the Departmental Representative.

1.8.4. Securely fasten covers over stockpiled material until material is loaded for offsite transport.

1.8.5. Store excavated Non-Contaminated Material only on non-contaminated surface areas. Ensure no contact between excavated Non-Contaminated Material and drainage of Contaminated Water or Contaminated Material.

1.8.6. Store excavated Contaminated Material in temporary stockpiles.

1.8.6.1. Install impermeable liner (e.g. asphalt or minimum 20 mil (0.5mm) polyethylene) below proposed stockpile locations to prevent contact between stockpile material and ground.

1.8.6.2. Cover stockpiled material when not being worked or sampled to prevent release of airborne dust, vapours, or odours, and to prevent saturation and leachate generation from material.

1.8.6.3. Prevent Non-Contaminated Water, such as surface water, from coming into contact with Contaminated Material stockpiles.

1.8.7. Segregate Contaminated Material into different treatment/disposal streams, including at a minimum:

1.8.7.1. Hazardous Waste/Special Waste

1.8.7.2. Waste Quality

1.8.8. Segregate different suspect material in discrete stockpiles to facilitate ex-situ characterization as instructed by the Departmental Representative.

1.8.9. Assist Departmental Representative in collection of stockpile samples for exsitu characterization. Ex-situ characterization may take up to 5 Working Days, not counting the day the sample is collected. No Standby Time charges or increases to Contract Amount or Extension of Time for completion of the Work can be incurred for Confirmation Sample results provided within 5 Working Days, not counting the day the sample is collected.

1.8.10. Do not remove Contaminated Material from stockpiles until exsitu characterization completed and as instructed by Departmental Representative.

1.9. Equipment Decontamination

1.9.1. At minimum, perform the following steps during equipment decontamination: mechanically remove packed dirt, grit, and debris by scraping and brushing without using steam or high-pressure water to reduce amount of water needed and to reduce amount of contaminated rinsate generated.

1.9.2. If required, as instructed by the Departmental Representative, use high-pressure, low-volume, hot water or steam supplemented by detergents or solvents as appropriate. Pay particular attention to tire treads, equipment tracks, springs, joints, sprockets, and undercarriages. Scrub surfaces with long handle scrub brushes and cleaning agent. Rinse off and collect cleaning agent. Air dry equipment in clean area before removing from Site or travelling on clean areas. Perform assessment as instructed by the Departmental Representative to determine effectiveness of decontamination.

1.9.2.1. Take appropriate measures necessary to minimize drift of mist and spray during decontamination including provision of wind screens.

1.9.2.2. Collect decontamination wastewater and sediment which accumulate in decontamination location. Treat collected wastewater as Contaminated Water. Manage decontamination sediment as Hazardous Waste/Special Waste or characterize the material appropriately and dispose in accordance with the characterized class.

1.9.3. In the opinion of the Departmental Representative, each piece of equipment must be inspected by the Departmental Representative after decontamination and prior to travel on clean areas or demobilization from Site. Perform additional decontamination as required in the opinion of the Departmental Representative.

1.9.4. Furnish and equip personnel engaged in equipment decontamination with protective equipment including suitable disposable clothing, respiratory protection, and face shields.

1.10. Progress Decontamination

1.10.1. Decontaminate equipment after working in potentially contaminated Work areas and prior to subsequent Work or travel on clean areas.

1.11. Final Decontamination

1.11.1. Perform final decontamination of construction facilities, equipment, and materials which may have come in contact with potentially Contaminated Material prior to demobilization from Site.

1.12. Drums

1.12.1. Storage of liquid waste: 200 L steel drums meeting the *Transportation and Dangerous Goods Act*, closable lids, complete with labels for marking contents and date filled.

1.12.2. Storage of solid waste: 200 L steel drums meeting the *Transportation and Dangerous Goods Act*, closable lids, complete with labels for marking contents and date filled.

1.13. Contaminated Water Management

1.13.1. Collect Contaminated Water that has, or potentially has, come into contact with Contaminated Material including excavation and stockpile areas, or is otherwise potentially contaminated from Work activities.

1.13.2. Transport and treat collected Contaminated Water at off-Site Contaminated Water Treatment Plant or as directed by Departmental Representative.

1.14. Contaminated Water Transport

1.14.1. Assume ownership of, and be responsible for Contaminated Water once it is loaded on a vehicle, barge, or other vessel for transport to a Treatment Facility offsite.

1.15. Offsite Contaminated Water Treatment Plant

1.15.1. Offsite Contaminated Water Treatment: at Contractor's discretion, treat at Treatment Facility offsite provided by Contractor and accepted by the Departmental Representative.

1.15.2. Offsite Treatment Facility must:

1.15.2.1. Be an existing offsite facility located in Canada or the United States.

1.15.2.2. Be designed, constructed and operated for the handling or processing of waste in such a manner as to change the physical, chemical or biological character or composition of Contaminated Water. Treatment includes bioremediation and filtering. Treatment does not include blending, mixing, or dilution

1.15.2.3. Hold a valid and subsisting permit, certificate, approval, license, or other required form of authorization issued by a Facility Authority for the treatment of relevant Contaminated Material.
1.15.2.4. Comply with applicable municipal zoning, bylaws, and other applicable requirements.
1.15.3. Facility Authority:
1.15.3.1. For facilities within provincial or territorial jurisdiction: the relevant provincial or territorial ministry.
1.15.3.2. For facilities on First Nations reserve land in Canada not subject to the First Nation Land Management regime: Indigenous and Northern Affairs Canada.
1.15.3.3. For facilities on First Nations reserve land in Canada subject to the First Nation Land Management regime: the relevant First Nation Council. In addition, a Qualified Professional must certify that the facility is appropriate for the relevant Contaminated Material.
1.15.3.4. For facilities in the United States of America: either or both of the Environmental Protection Agency and the relevant State, as appropriate.
1.15.4. Treat material as soon as practical and within 100 Working Days of leaving Site or as required by Contract unless otherwise accepted by Departmental Representative.

1.16. Contaminated Material Management

1.16.1. Remove all Contaminated Material within Work areas in accordance with the Contract and as directed by the Departmental Representative.
1.16.2. Minimize generation of Contaminated Material to greatest extent practicable. Take necessary precautions to avoid mixing during excavation, handling, loading, stockpiling, and transport of Non-Contaminated Material with Contaminated Material, and Waste Quality with Hazardous Waste.
1.16.3. Segregate, excavate, handle, stockpile, load, unload, haul, interim storage, treat, and dispose Contaminated Material separately into the following classifications in accordance with the Contract or as instructed by the Departmental Representative based on insitu results, field observations, field measurements, and/or ex-situ characterization:
1.16.3.1. Hazardous Waste/Special Waste
1.16.3.2. Waste Quality
1.16.3.3. Metals Impacted Soil
1.16.4. Handle, stockpile, load, unload, haul, and interim store Contaminated Material from the Site separately from material from other sites.
1.16.5. Treat and dispose Contaminated Material from the Site separately from material from other sites to the extent practicable as acceptable to the Departmental Representative.
1.16.6. Material characterization additional to information provided in Contract required by transport, Treatment Facility or Disposal Facility responsibility of Contractor.

1.17. Offsite Contaminated Material Disposition

1.17.1. Treat Contaminated Material offsite as follows, otherwise in accordance with the Contract, or as instructed by the Departmental Representative:

1.17.1.1. Hazardous Waste/Special Waste: May be treated at a Treatment Facility prior to disposal at a Disposal Facility. Whether Treatment is required is dependent on Contractor's methods and means to meet Transport, Disposal, Regulatory or other requirements, and is not a project requirement.

1.17.1.2. Waste Quality: May be treated at a Treatment Facility prior to disposal at a Disposal Facility. Whether Treatment is required is dependent on Contractor's methods and means to meet Transport, Disposal, Regulatory or other requirements, and is not a project requirement.

1.17.2. Dispose of Contaminated Material offsite as follows, otherwise in accordance with the Contract, or as directed by the Departmental Representative:

1.17.2.1. Hazardous Waste/Special Waste: Must be disposed at a Disposal Facility regardless of Treatment.

1.17.2.2. Waste Quality: Must be disposed at a Disposal Facility regardless of Treatment.

1.18. Contaminated Material Transport-Offsite

1.18.1. Assume ownership of, and be responsible for, Contaminated Material once it is loaded on a vehicle, barge, or other vessel for transport.

1.18.2. Transport material as soon as practical. Do not unreasonably stockpile material onsite.

1.18.3. Cover material while being transported to prevent release of airborne dust, vapours, or odours, and to prevent saturation and leachate generation from material.

1.18.4. Excess water in soil or sediment must not be allowed to flow out of vehicle or vessel during transport.

1.18.5. Stabilize soil and sediment as necessary.

1.18.6. All vehicles, vessels and operators must be appropriately licensed and equipped to transport Contaminated Material.

1.18.7. Manifest and correlate weights and/or volume of all material transported from Site documenting weight and/or volume at removal from Site, movement, transfer stations, interim storage and treatment, and weight and/or volume of material at final Disposal Facility. Submit all manifests, as instructed by the Departmental Representative. Selected method of measurement must be consistent.

1.18.8. Material transported with discrepancies in manifests must be resolved as required by regulations and as acceptable to the Departmental Representative. Discrepancies include:

1.18.8.1. No manifest or an incomplete manifest.

1.18.8.2. The material transported does not match the description in the manifest.

1.18.8.3. The amount transported differs by more than 5% in the manifest.

1.18.8.4. The material transported is in a hazardous condition.

1.18.9. Transfer/Interim Storage Facility must:

1.18.9.1. Be an existing offsite facility located in Canada or the United States.
1.18.9.2. Be designed, constructed and operated for the transfer or interim storage of Contaminated Material.
1.18.9.3. Hold a valid and subsisting permit, certificate, approval, license, or other required form of authorization issued by a Facility Authority for the transfer or interim storage of relevant Contaminated Material.
1.18.9.4. Comply with applicable municipal zoning, bylaws, and other applicable requirements.
1.18.10. Facility Authority:
1.18.10.1. For facilities within provincial or territorial jurisdiction: the relevant provincial or territorial ministry.
1.18.10.2. For facilities on First Nations reserve land in Canada not subject to the First Nation Land Management regime: Indigenous and Northern Affairs Canada.
1.18.10.3. For facilities on First Nations reserve land in Canada subject to the First Nation Land Management regime: the relevant First Nation Council. In addition, a Qualified Professional must certify that the facility is appropriate for the relevant Contaminated Material.
1.18.11. For facilities in the United States of America: either or both of the Environmental Protection Agency and the relevant State, as appropriate.

1.19. Contaminated Material Treatment-Offsite

1.19.1. Assume ownership of, and be responsible for, Contaminated Material treated offsite.
1.19.2. Contaminated Material Treatment-Offsite: treat at Treatment Facility provided by Contractor and accepted by the Departmental Representative.
1.19.3. Treatment Facility must:
1.19.3.1. Be an existing offsite facility located in Canada or the United States.
1.19.4. Be designed, constructed and operated for the handling or processing of waste in such a manner as to change the physical, chemical or biological character or composition of Contaminated Material. Treatment includes bioremediation, thermal desorption, and incineration. Treatment does not include blending, mixing, or dilution.
1.19.4.1. Hold a valid and subsisting permit, certificate, approval, license or other required form of authorization issued by a Facility Authority for the treatment of relevant Contaminated Material.
1.19.4.2. Comply with applicable municipal zoning, bylaws, and other applicable requirements.
1.19.5. Facility Authority:
1.19.5.1. For facilities within provincial or territorial jurisdiction: the relevant provincial or territorial ministry.
1.19.5.2. For facilities on First Nations reserve land in Canada not subject to the First Nation Land Management regime: Indigenous and Northern Affairs Canada.
1.19.5.3. For facilities on First Nations reserve land in Canada subject to the First Nation Land Management regime: the relevant First Nation Council. In

addition, a Qualified Professional must certify that the facility is appropriate for the relevant Contaminated Material.

1.19.5.4. For facilities in the United States of America: either or both of the Environmental Protection Agency and the relevant State, as appropriate.

1.19.6. Treat material as soon as practical and within 100 Working Days of leaving Site or as required by Contract unless otherwise accepted by Departmental Representative.

1.19.7. Material sent to an offsite Treatment Facility must subsequently be disposed of at a Disposal Facility after treatment.

1.19.8. If proposed Treatment Facility is not acceptable to Departmental Representative, identify an alternate Treatment Facility that is acceptable.

1.19.9. Submit Certificates of Treatment for all Contaminated Material treated offsite.

1.20. Contaminated Material Disposal

1.20.1. Assume ownership of, and be responsible for, Contaminated Material disposed.

1.20.2. Contaminated Material Disposal: dispose Contaminated Material, including offsite treated Contaminated Material that may no longer be contaminated, at Disposal Facility provided by Contractor and accepted by the Departmental Representative.

1.20.3. Disposal Facility must:

1.20.3.1. Be an existing offsite facility located in Canada or the United States.

1.20.3.2. Be designed, constructed and operated to prevent any pollution from being caused by the facility outside the area of the facility from waste placed in or on land within the facility.

1.20.3.3. Hold a valid and subsisting permit, certificate, approval, license, or other required form of authorization issued by a Facility Authority for the disposal of relevant Contaminated Material.

1.20.3.4. Comply with applicable municipal zoning, bylaws, and other applicable requirements.

1.20.4. Facility Authority:

1.20.4.1. For facilities within provincial or territorial jurisdiction: the relevant provincial or territorial ministry.

1.20.4.2. For facilities on First Nations reserve land in Canada not subject to the First Nation Land Management regime: Indigenous and Northern Affairs Canada.

1.20.4.3. For facilities on First Nations reserve land in Canada subject to the First Nation Land Management regime: the relevant First Nation Council. In addition, a Qualified Professional must certify that the facility is appropriate for the relevant Contaminated Material.

1.20.4.4. For facilities in the United States of America: either or both of the Environmental Protection Agency and the relevant State, as appropriate.

1.20.5. Dispose material as soon as practical and within 100 Working Days of leaving Site or as required by Contract unless otherwise accepted by Departmental Representative.

1.20.6. Material sent to a Disposal Facility must be permanently stored at that facility.

1.20.7. If proposed Disposal Facility is not acceptable to Departmental Representative, provide an alternate Disposal Facility that is acceptable.
1.20.8. Submit Certificates of Disposal for all Contaminated Material disposed offsite.

1.21. Contaminated Material Transport – Owner's Soil Treatment Facility

1.21.1. Assume ownership of, and be responsible for, Contaminated Material once it is loaded on a vehicle.
1.21.2. Transport material as soon as practical. Do not unreasonably stockpile material onsite.
1.21.3. Cover material while being transported to prevent release of airborne dust, vapours, or odours, and to prevent saturation and leachate generation from material.
1.21.4. Excess water in soil or sediment must not be allowed to flow out of vehicle or vessel during transport.
1.21.5. Stabilize soil and sediment as necessary.
1.21.6. All vehicles, vessels and operators must be appropriately licensed and equipped to transport Contaminated Material.
1.21.7. Manifest and correlate weights and/or volume of all material transported from Site documenting weight and/or volume at removal from Site, movement, transfer stations, interim storage and treatment, and weight and/or volume of material at Owner's Soil Treatment Facility. Submit all manifests, as instructed by the Departmental Representative. Selected method of measurement must be consistent.
1.21.8. Material transported with discrepancies in manifests must be resolved as required by regulations and as acceptable to the Departmental Representative. Discrepancies include:
1.21.8.1. No manifest or an incomplete manifest.
1.21.8.2. The material transported does not match the description in the manifest.
1.21.8.3. The amount transported differs by more than 5% in the manifest.
1.21.8.4. The material transported is in a hazardous condition.

1.22. Contaminated Material Treatment – Owner's Soil Treatment Facility

1.22.1. Treat material as soon as practical and within 100 Working Days of leaving Site or as required by Contract unless otherwise accepted by Departmental Representative.

2. PART 2 - PRODUCTS

2.1. Not Used

2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Submit to Departmental Representative Submittals listed for review.
1.3.2. Work affected by Submittal must not proceed until review is complete.
1.3.3. Submit the following within 10 Working Days of Contract award:
1.3.3.1. Health and Safety Plan.
1.3.3.2. Copies of reports or directions issued by federal and provincial health and safety inspectors.
1.3.3.3. Copies of incident and accident reports.
1.3.3.4. Complete set of Material Safety Data Sheets (MSDS), and all other documentation required by the 2015 Workplace Hazardous Materials Information System (WHMIS 2015) requirements.
1.3.3.5. Emergency Procedures.
1.3.3.6. Notice of Project.
1.3.3.7. Proof of Good Standing with Yukon Workers' Compensation Board.
1.3.4. The Departmental Representative will review the Contractor's site-specific project Health and Safety Plan and emergency procedures, and provide comments to the Contractor within 5 Working Days after receipt of the plan.
1.3.5. If changes are required, revise the plan as appropriate and resubmit to Departmental Representative within 5 Working Days.
1.3.6. Submittal of the Health and Safety Plan, and any revised version, to the Departmental Representative is for information and reference purposes only. It will not:
1.3.6.1. Be construed to imply approval by the Departmental Representative.
1.3.6.2. Be interpreted as a warranty of being complete, accurate and legislatively compliant.
1.3.6.3. Relieve the Contractor of his legal obligations for the provision of health and safety on the project.

1.4. References

1.4.1. Government of Canada:
1.4.1.1. Canada Labour Code - Part II.
1.4.1.2. Canada Occupational Health and Safety Regulations.
1.4.2. National Building Code of Canada (NBC):
1.4.2.1. Part 8, Safety Measures at Construction and Demolition Sites.
1.4.3. Canadian Standards Association (CSA) as amended:
1.4.3.1. CSA Z797-2009 Code of Practice for Access Scaffold.

1.4.3.2. CSA S269.1-1975 (R2003) Falsework for Construction Purposes.
1.4.3.3. CSA S350-M1980 (R2003) Code of Practice for Safety in Demolition of Structures.
1.4.4. National Fire Code of Canada 2010 (as amended):
1.4.4.1. Part 5 – Hazardous Processes and Operations and Division B as applicable and required.
1.4.4.2. FCC No. 302, Standard for Welding and Cutting.
1.4.5. American National Standards Institute (ANSI):
1.4.5.1. ANSI A10.3, Operations – Safety Requirements for Powder-Actuated Fastening Systems.
1.4.6. Province of British Columbia:
1.4.6.1. *Workers Compensation Act* Part 3-Occupational Health and Safety.
1.4.6.2. Occupational Health and Safety Regulation.
1.4.7. Yukon Territory (as appropriate):
1.4.7.1. *Occupational Health and Safety Act.*
1.4.7.2. *Workers' Compensation Act.*
1.4.7.3. Occupational Health and Safety Regulation

1.5. Regulatory Requirements

1.5.1. Comply with codes, acts, bylaws, standards and regulations applicable to the performance of the Work in accordance with the Contract to ensure safe operations at Site.
1.5.2. In event of conflict between any provision of the above authorities, the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, the Departmental Representative will instruct on the course of action to be followed.

1.6. Worker's Compensation Board Coverage

1.6.1. Comply fully with the *Workers' Compensation Act*, regulations and orders made pursuant thereto, and any amendments up to the Final Completion of the Work.
1.6.2. Maintain Workers' Compensation Board coverage during the term of the Contract, until and including the date that the Certificate of Final Completion is issued.

1.7. Compliance with Regulations

1.7.1. PSPC may terminate the Contract without liability to PSPC where the Contractor, in the opinion of PSPC, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.
1.7.2. It is the Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the Work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

1.8. Responsibility

1.8.1. Assume responsibility as the Prime Contractor for Work under this Contract.

1.8.1.1. Be responsible for health and safety of persons onsite, safety of property onsite and for protection of persons adjacent to Site and environment to extent that they may be affected by conduct of Work.
1.8.1.2. Comply with and enforce compliance by employees with safety requirements of Contract, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.9. Health and Safety Coordinator

1.9.1. The Health and Safety Coordinator must:
1.9.1.1. Be responsible for completing all health and safety training, and ensuring that personnel that do not successfully complete the required training are not permitted to enter the Site to perform Work.
1.9.1.2. Be responsible for implementing, daily enforcing, and monitoring the site-specific Health and Safety Plan.
1.9.1.3. Be on Site during execution of Work.

1.10. General Conditions

1.10.1. Provide safety barricades and lights around Site as required to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.
1.10.2. Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the Site:
1.10.2.1. Provide appropriate means by use of barricades, fences, warning signs, traffic control personnel, and temporary lighting as required.

1.11. Project/Site Conditions

1.11.1. Work at Site will involve contact with contaminants identified in Specifications and environmental reports.

1.12. Work Permits

1.12.1. Obtain specialty permits related to project before start of Work.

1.13. Filing of Notice

1.13.1. The Prime Contractor must complete and submit a Notice of Project as required by Provincial or Territorial authorities.
1.13.2. Provide copies of all notices to the Departmental Representative.

1.14. Health and Safety Plan

1.14.1. Conduct a site-specific hazard assessment based on review of Contract, required Work, and project Site. Identify any known and potential health risks and safety hazards.
1.14.2. Prepare and comply with a site-specific project Health and Safety Plan based on hazard assessment, including, but not limited to, the following:
1.14.2.1. Primary requirements:
1.14.2.1.1. Contractor's safety policy.

1.14.2.1.2. Identification of applicable compliance obligations.
1.14.2.1.3. Definition of responsibilities for project safety/organization chart for project.
1.14.2.1.4. General safety rules for project.
1.14.2.1.5. Job-specific safe work, procedures.
1.14.2.1.6. Inspection policy and procedures.
1.14.2.1.7. Incident reporting and investigation policy and procedures.
1.14.2.1.8. Occupational Health and Safety Committee/Representative procedures.
1.14.2.1.9. Occupational Health and Safety meetings.
1.14.2.1.10. Occupational Health and Safety communications and record keeping procedures.
1.14.2.2. Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the Work.
1.14.2.3. List hazardous materials to be brought onsite as required by Work.
1.14.2.4. Indicate engineering and administrative control measures to be implemented at the Site for managing identified risks and hazards.
1.14.2.5. Identify personal protective equipment (PPE) to be used by workers.
1.14.2.6. Identify personnel and alternates responsible for site safety and health.
1.14.2.7. Identify personnel training requirements and training plan, including site orientation for new workers.
1.14.3. Develop the plan in collaboration with all Subcontractors. Ensure that work/activities of Subcontractors are included in the hazard assessment and are reflected in the plan.
1.14.4. Revise and update Health and Safety Plan as required, and re-submit to the Departmental Representative.
1.14.5. Departmental Representative's review: the review of Health and Safety Plan by Public Service and Procurement Canada (PSPC) will not relieve the Contractor of responsibility for errors or omissions in final Health and Safety Plan or of responsibility for meeting all requirements of construction and Contract.

1.15. Emergency Procedures

1.15.1. List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contacts (i.e. names/telephone numbers) of:
1.15.1.1. Designated personnel from own company.
1.15.1.2. Regulatory agencies applicable to Work and as per legislated regulations.
1.15.1.3. Local emergency resources.
1.15.1.4. Departmental Representative and site staff.
1.15.2. Include the following provisions in the emergency procedures:
1.15.2.1. Notify workers and the first-aid attendant, of the nature and location of the emergency.
1.15.2.2. Evacuate all workers safely.
1.15.2.3. Check and confirm the safe evacuation of all workers.
1.15.2.4. Notify the fire department or other emergency responders.

1.15.2.5. Notify adjacent workplaces or residences which may be affected if the risk extends beyond the workplace.
1.15.2.6. Notify Departmental Representative and Site staff.
1.15.3. Provide written rescue/evacuation procedures as required for, but not limited to:
1.15.3.1. Work at high angles.
1.15.3.2. Work in confined spaces or where there is a risk of entrapment.
1.15.3.3. Work with hazardous substances.
1.15.3.4. Underground work.
1.15.3.5. Work on, over, under and adjacent to water.
1.15.3.6. Workplaces where there are persons who require physical assistance to be moved.
1.15.4. Design and mark emergency exit routes to provide quick and unimpeded exit.
1.15.5. Revise and update emergency procedures as required, and re-submit to the Departmental Representative.

1.16. Hazardous Products

1.16.1. Comply with requirements of Workplace Hazardous Materials Information System 2015 (WHMIS 2015) regarding use, handling, storage and disposal of hazardous materials, and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to the Departmental Representative and in accordance with the Canada Labour Code.
1.16.2. Where use of hazardous and toxic products cannot be avoided:
1.16.2.1. Notify Departmental Representative beforehand of the product(s) intended for use. Submit applicable MSDS and WHMIS 2015 documents as required.
1.16.2.2. Provide adequate means of ventilation as required.

1.17. Unforeseen Hazards

1.17.1. Should any unforeseen or peculiar safety-related factor, hazard or condition become evident during performance of the Work, immediately stop Work and notify the Departmental Representative verbally and in writing.

1.18. Posted Documents

1.18.1. Post legible versions of the following documents onsite:
1.18.1.1. Health and Safety Plan.
1.18.1.2. Sequence of Work.
1.18.1.3. Emergency procedures.
1.18.1.4. Site drawing showing project layout, locations of the first-aid station, evacuation route and marshalling station, and the emergency transportation provisions.
1.18.1.5. Notice of Project.
1.18.1.6. Floor plans or Site plans.
1.18.1.7. Notice as to where a copy of the Workers' Compensation Act and Regulations are available on the Site for review by employees and workers.
1.18.1.8. Workplace Hazardous Materials Information System 2015 (WHMIS 2015) documents.

1.18.1.9. Material Safety Data Sheets (MSDS).
1.18.1.10. List of names of Joint Health and Safety Committee members, or Health and Safety Representative, as applicable.
1.18.2. Post all Material Safety Data Sheets (MSDS) onsite, in a common area, visible to all workers and in locations accessible to tenants when Work of this Contract includes construction activities adjacent to occupied areas.
1.18.3. Postings should be protected from the weather, and visible from the street or the exterior of the principal construction site shelter provided for workers and equipment, or as accepted by the Departmental Representative.

1.19. Meetings

1.19.1. Attend health and safety preconstruction meeting and all subsequent meetings called by the Departmental Representative.
1.19.2. Ensure all site personnel attend a health and safety toolbox meeting at the beginning of each shift, which must include:
1.19.2.1. Sign-in of all attendees.
1.19.2.2. Planned Work activities and environmental considerations for that shift.
1.19.2.3. Hazards associated with these Work activities, including environmental hazards (e.g. potential for hypothermia, heat exhaustion, heat stroke).
1.19.2.4. Appropriate job-specific safe work procedures.
1.19.2.5. Required personal protective equipment (PPE).
1.19.2.6. Appropriate emergency procedures.
1.19.2.7. Review recent accidents on Site, including near misses.
1.19.3. Retain records of all health and safety meetings onsite during Work, and retain as corporate records for a minimum of 7 years after Work is completed.

1.20. Correction of Non-Compliance

1.20.1. Immediately address health and safety non-compliance issues identified by the Departmental Representative.
1.20.2. Provide Departmental Representative with written report of action taken to correct non-compliance with health and safety issues identified.
1.20.3. The Departmental Representative may issue a "stop work order" if non-compliance of health and safety regulations is not corrected immediately or within posted time.
1.20.4. Correct non-compliance.

1.21. Hazardous Occurrence Investigation and Reporting

1.21.1. Hazard includes:
1.21.1.1. Any source of potential damage, harm or adverse effects on life, health, property or environment at work. It refers to any biological, chemical, ergonomic, physical, psychosocial and safety factor that is reasonably likely to cause harm or damage to humans, other organisms, or the environment in the absence of its control. Sometimes a hazard is referred to as being the actual harm or the health effect it caused rather than the hazard. For example the disease tuberculosis might be called a hazard by some but in general the

tuberculosis-causing bacteria would be considered the “hazard” or “hazardous biological agent”. Exposure to tuberculosis would be the hazardous incident. For types of Hazards refer to Annex 3 of the Standard on Hazard Prevention Program.

1.21.2. Hazardous Occurrence includes:

1.21.2.1. An event occurring at a PSPC managed building or worksite, or through the course of an employee's work that results in, or has the potential to result in, a fatality, injury, illness, exposure to a hazardous substance or property damage or an escapement of a hazardous material. For the purpose of investigating, recording and reporting hazardous occurrences, the following are included under this term: disabling injuries, minor injuries and near-misses.

1.21.3. Hazardous Occurrence Investigation and Reporting Procedures:

1.21.3.1. Includes information regarding the person involved and the basic circumstances surrounding the hazardous occurrence.

1.21.3.2. Provides a detailed and thorough description of the hazardous occurrence and the sequence of events.

1.21.3.3. Indicates corrective measures that have been taken since the occurrence.

1.21.3.4. Requires the appointment of a qualified investigator.

1.21.3.5. Provides recommendations for additional corrective measures, if required.

1.21.4. Fatal or Serious Accidents Procedures:

1.21.4.1. Call 911 to advise the police organization having jurisdiction to secure the scene and investigate the matter.

1.21.4.2. Advise the Departmental Representative of the fatality or serious accident within 1 hour.

1.21.4.3. No investigation will be conducted at the scene until the police service having jurisdiction has released the scene.

1.21.4.4. No person shall, unless authorized to do so, remove or in any way interfere with or disturb any wreckage, article or thing related to the incident except to the extent necessary to: save a life, prevent injury or relieve human suffering in the vicinity; maintain an essential public service; or prevent unnecessary damage to or loss of property.

1.22. Utility Clearance

1.22.1. The Contractor is solely responsible for utility clearance.

1.22.2. The Contractor will not rely upon Drawings or other information provided with utility locations.

1.23. Personal Protective Equipment Program

1.23.1. Submit Personal Protective Equipment (PPE) program to the Departmental Representative addressing:

1.23.1.1. Donning and doffing procedures.

1.23.1.2. PPE selection based upon Site hazards.

1.23.1.3. PPE use and limitations of equipment.

1.23.1.4. Work mission duration, PPE maintenance and storage.

1.23.1.5. PPE decontamination and disposal.

1.23.1.6. PPE inspection procedures prior to, during, and after use.
1.23.1.7. Evaluation of effectiveness of PPE program, and limitations during temperature extremes, and other appropriate medical considerations.
1.23.1.8. Medical surveillance requirements for personnel assigned to work at Site.
1.23.1.9. Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment.
1.23.1.10. Site control measures employed at Site including site map, site work zones, use of 'buddy system', site communications including site security, alerting means for emergencies, standard operating procedures or safe work practices, and identification of nearest medical assistance.
1.23.1.11. Decontamination procedures for both personnel and equipment.
1.23.1.12. Emergency response requirements addressing: pre-emergency planning, personnel roles, lines of authority and communication, emergency recognition and prevention, safe distances and places of refuge, site security and control, evacuation routes and procedures, decontamination procedures not covered under decontamination section, emergency medical treatment and first aid, emergency alerting and response procedures, critique of response and follow-up, PPE and emergency equipment, site topography, layout, prevailing weather conditions, and procedures for reporting incidents to local, provincial, or federal agencies.
1.23.1.13. Written respiratory protection program for project activities.
1.23.1.14. Procedures dealing with heat and/or cold stress.
1.23.1.15. Spill containment program if waste material is generated, excavated, stored, or managed onsite.

1.24. Offsite Contingency and Emergency Response Plan

1.24.1. Prior to commencing Work involving handling of hazardous materials, develop offsite Contingency and Emergency Response Plan.
1.24.2. Plan must provide immediate response to serious site occurrence such as explosion, fire, or migration of significant quantities of toxic or hazardous material from Site.

1.25. Personnel Health, Safety, and Hygiene

1.25.1. Training: ensure personnel entering Site are trained in accordance with specified personnel training requirements. Training session must be completed by Health and Safety Officer.
1.25.2. Levels of Protection: establish levels of protection for each Work area based on planned activity and location of activity.
1.25.3. Personal Protective Equipment:
1.25.3.1. Ensure all site personnel are furnished with appropriate PPE.
1.25.3.2. Unless identified otherwise in site-specific health and safety plan, minimum PPE to include: industrial protective headwear, high-visibility safety apparel, and protective footwear.

1.25.3.3. Ensure that safety equipment and protective clothing is kept clean and maintained.

1.25.4. Develop protective equipment usage procedures and ensure that procedures are strictly followed by site personnel; include following procedures as minimum:

1.25.4.1. Ensure industrial protective headwear is of appropriate CSA Standard and meets other appropriate standards.

1.25.4.2. Ensure high-visibility safety apparel is of appropriate CSA Standard and meets other appropriate standards.

1.25.4.3. Ensure protective footwear is of appropriate CSA Standard and meets other appropriate standards.

1.25.4.4. Dispose of or decontaminate PPE worn onsite at end of each workday.

1.25.4.5. Decontaminate reusable PPE before reissuing.

1.25.4.6. Ensure site personnel have passed respirator fit test prior to entering potentially contaminated work areas.

1.25.4.7. Ensure facial hair does not interfere with proper respirator fit.

1.25.5. Respiratory Protection:

1.25.5.1. Provide site personnel with extensive training in usage and limitations of, and qualitative fit testing for, air purifying and supplied-air respirators in accordance with specified regulations.

1.25.5.2. Develop, implement, and maintain respirator program.

1.25.5.3. Monitor, evaluate, and provide respiratory protection for site personnel.

1.25.5.4. Ensure levels of protection as listed have been chosen consistent with site-specific potential airborne hazards associated with major contaminants identified onsite.

1.25.5.5. In absence of additional air monitoring information or substance identification, retain an industrial hygiene specialist to determine minimum levels of respiratory protection required.

1.25.5.6. Immediately notify Departmental Representative when level of respiratory protection required increases.

1.25.5.7. Ensure appropriate respiratory protection during Work activities. As minimum requirement, ensure that persons entering potentially contaminated work areas are supplied with and use appropriate respiratory protection.

1.25.6. Heat Stress/Cold Stress: implement heat stress or cold stress monitoring program as applicable and include in site-specific Health and Safety Plan.

1.25.7. Personnel Hygiene and Personnel Decontamination Procedures. Provide minimum as follows:

1.25.7.1. Suitable containers for storage and disposal of used disposable PPE.

1.25.7.2. Potable water and suitable sanitation facility.

1.25.8. Emergency and First-Aid Equipment:

1.25.8.1. Locate and maintain emergency and first-aid equipment in appropriate location onsite including first-aid kit to accommodate number of site personnel; portable emergency eye wash; two 9 kg ABC type dry chemical fire extinguishers.

1.25.9. Site Communications:

1.25.9.1. Identify, supply and implement appropriate dedicated communication devices for Site and post emergency numbers near dedicated devices.
1.25.9.2. Ensure personnel use of "buddy" system and develop hand signal system appropriate for site activities.
1.25.9.3. Provide employee alarm system to notify employees of site emergency situations or to stop Work activities if necessary.
1.25.9.4. Furnish selected personnel with 2-way radios.
1.25.9.5. Safety Meetings: conduct mandatory daily safety meetings for personnel, and additionally as required by special or Work-related conditions; include refresher training for existing equipment and protocols, review ongoing safety issues and protocols, and examine new site conditions as encountered. Hold additional safety meetings on as-needed basis.

2. PART 2 - PRODUCTS

2.1. Not Used
2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used
3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Environmental Protection Plan: within 10 Working Days after Contract award and prior to mobilization to Site, Submit a plan detailing protection of the environment. Include:

1.3.1.1. Comprehensive overview of known or potential environmental issues to be addressed during Work.

1.3.1.2. Identify requirements that plan complies with. Includes: permits, certificates, approvals, or any other form of authorizations; other federal, territorial or provincial, or municipal requirements; and in accordance with the Contract.

1.3.1.3. Names and qualifications of persons responsible for ensuring adherence to Environmental Protection Plan.

1.3.1.4. Names and qualifications of persons responsible for manifesting material to be removed from Site.

1.3.1.5. Names and qualifications of persons responsible for training Site personnel.

1.3.1.6. Description of Environmental Protection personnel training program.

1.3.1.7. Work Area Plan showing proposed activity in each portion of areas, such as exclusion zone(s), decontamination zone(s) and clean zone(s), and identifying areas of limited use or non-use. Ensure plan includes measures for marking limits of use areas and methods for protection of features to be preserved within authorized Work areas.

1.3.1.8. Drawings showing locations of proposed temporary excavations or embankments for haul roads, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials onsite.

1.3.1.9. Historical, Archaeological, Cultural Resources, Biological Resources and Wetlands Plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands. Include procedures if previously unknown historical, archaeological, cultural, and biological resources are discovered during Work.

1.3.1.10. Noise Control Plan identifying methods and procedures for preventing, monitoring, and controlling noise for compliance with: applicable permits, certificates, approvals, or any other form of authorizations; other federal, territorial or provincial, or municipal requirements; and in accordance with the Contract. Include thresholds and procedures if: noise does not comply

with appropriate levels, or if there are public complaints. Plan to be for type of Work and Site conditions.

1.3.1.11. Vibration Control Plan identifying methods and procedures for preventing, monitoring, and controlling vibration for compliance with: applicable permits, certificates, approvals, or any other form of authorizations; other federal, territorial or provincial, or municipal requirements; and in accordance with the Contract. Include thresholds and procedures if: vibration does not comply with appropriate levels, there are public complaints, or if onsite or offsite damage occurs

1.3.1.12. Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Ensure plans include measures to prevent mud transported onto public roads by vehicles or runoff, and mitigation measures if mud is transported onto public roads by vehicles or runoff. Vehicles and vehicle traffic must comply with all federal, provincial, and municipal laws and regulations.

1.3.1.13. Contamination Prevention Plan identifying hazardous, deleterious or regulated substances to be used onsite; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with federal, territorial or provincial, and municipal laws and regulations for storage and handling of these materials.

1.3.1.14. Spill Control Plan including procedures, instructions, and reports to be used in event of spill of hazardous, deleterious or regulated substances. Identify locations and contents of spill kits.

1.3.1.15. Communications Plan identifying emergency contact list and conditions for implementing emergency contact. Emergency contact to include: Contractor emergency response team including Superintendent; Departmental Representative and alternate, and other contractor(s) and individuals as instructed by the Departmental Representative; and federal, territorial or provincial, and municipal emergency contacts.

1.3.1.16. Air Pollution Control Plan detailing provisions to assure that contaminants, dust, debris, materials, and trash, are contained onsite. Include procedures, in accordance with the Contract, if air pollution does not comply with appropriate levels, there are public complaints, or if onsite or offsite damage occurs.

1.3.1.17. Non-Contaminated Material Disposal Plan identifying methods and locations for solid waste disposal including clearing waste. Include name, location, provincial or territorial authorizations, and evidence of compliance with municipal zoning and bylaws of Landfill.

1.3.1.18. Wastewater Management Plan identifying methods and procedures for management and discharge of Contaminated and Non-Contaminated Water including surface waters and wastewater which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of groundwater, disinfection water, hydrostatic test water, and water used in flushing of lines. Include method of treatment and disposal.

1.3.1.19. Erosion and Sediment Control Plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, federal, territorial or provincial, and municipal laws and regulations.

1.3.2. Pollution Control Procedures Modification: immediately when pollution control procedures are inadequate, as instructed by the Departmental Representative, Submit modified procedures to resolve problem.

1.3.3. Pollution Control Remediation: immediately when soil, sediment or water contaminated by Contractor's activities is inadequate as instructed by the Departmental Representative, Submit remediation procedures.

1.3.4. Dust and Particulate Control Procedures Modification: immediately when dust and particulate control measures are inadequate as instructed by the Departmental Representative, Submit modified procedures to resolve problem.

1.4. Fires

1.4.1. Fires and burning of rubbish onsite not permitted.

1.5. Cleaning

1.5.1. Maintain cleanliness of Work and surrounding Site to comply with federal, provincial, territorial, and municipal fire and safety laws, ordinances, codes, and regulations applicable to the performance of the Work.

1.5.2. Coordinate cleaning operations with disposal operations to prevent accumulation of dust, dirt, debris, rubbish, and waste materials.

1.5.3. Ensure cleanup of the Work areas each day and after Final Completion of Work.

1.6. Site Clearing and Plant Protection

1.6.1. Minimize stripping of Topsoil and vegetation.

1.6.2. Restrict tree and plant removal to areas in accordance with the Contract or as instructed by the Departmental Representative. Protect all other trees and plants onsite and offsite.

1.6.3. Salvage all trees and plants to be removed in accordance with the Contract or as instructed by the Departmental Representative.

1.6.4. Wrap in burlap, trees and shrubs adjacent to construction Work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m minimum.

1.6.5. Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.

1.7. Vibration

1.7.1. Maintain acceptable vibration levels not injurious to public health or safety, to the environment, to onsite or offsite property, or to any part of Work completed or under construction.

1.8. Noise

1.8.1. Maintain acceptable noise levels not injurious to public health or safety or to the environment.

1.9. Maintenance of Public Roads

1.9.1. Prevent tracking or spilling of debris or material onto public roads including roads to on-Site Land Treatment Facility.

1.9.2. Immediately sweep or scrape up debris or material on public roads including roads to on-Site Land Treatment Facility.

1.9.3. Clean public roads within a 200 m radius of the Site entrance at least once per shift.

1.10. Pollution Control

1.10.1. Pollution includes spills or other releases from Contractor's activities that could potentially contaminate soil, sediment, water, and atmosphere from discharge of hazardous, deleterious or regulated substances, including from equipment and material handling.

1.10.2. Provide sequence, methods and means, and facilities to prevent spills or releases.

1.10.2.1. Maintain temporary erosion and pollution control features.

1.10.2.2. Do not store fuel onsite other than tanks forming part of the equipment.

1.10.2.3. Control emissions from equipment and plant to meet applicable authorities' emission requirements.

1.10.2.4. Contractor to regularly inspect all machinery on the Site to ensure it is in good repair and free of leaks.

1.10.3. Inadequate procedures:

1.10.3.1. Stop relevant Work if procedures are inadequate to prevent spills or other releases, or when monitoring indicates that release equals or exceeds regulated or levels in accordance with the Contract.

1.10.3.2. Submit procedures proposed to resolve problem.

1.10.3.3. Make necessary changes to operations prior to resuming excavation, handling, processing, or other Work that can cause spills or other releases.

1.10.3.4. Departmental Representative can stop relevant Work at any time when Contractor's Work procedures are inadequate to prevent spills or other releases, or when monitoring indicates that release equals or exceeds regulated or levels in accordance with the Contract. Do not proceed with stopped Work until corrections accepted by Departmental Representative.

1.10.4. Be prepared to intercept, cleanup, and dispose of spills or other releases that can occur whether on land or water.

1.10.5. Spill kits and containment are to be maintained onsite and ready for deployment in the event of spills or other releases.

1.10.5.1. Spill kits are to include sufficient quantities of absorbent material, containers, booms, shovels and other tools, and personal protective equipment.

1.10.5.2. Spill response materials must be compatible with type of equipment being used or type of material being handled.

1.10.5.3. Spill kits are to be in close proximity to machinery.

1.10.5.4. During the Work there are to be trained and qualified personnel available that are ready to deploy spill kits when necessary.
1.10.6. Take immediate action using available resources to contain and mitigate effects on environment and persons from spill or release.
1.10.7. Promptly report spills and releases potentially causing damage to environment to:
1.10.7.1. Authority having jurisdiction or interest in spill or other release including conservation authority, water supply authorities, drainage authority, road authority, and fire department.
1.10.7.2. Contractor emergency response team including Superintendent
1.10.7.3. Departmental Representative and other contractor(s) and individuals as instructed by the Departmental Representative.
1.10.8. Departmental Representative can collect samples for chemical analyses prior to, during, and upon Final Completion of Work to monitor potential pollution caused by Contractor's activities. Assist Departmental Representative in collection of samples.
1.10.9. Remediation of soil, sediment or water contaminated by Contractor's activities.
1.10.9.1. Remediate all soil, sediment or water contaminated by Contractor's activities associated with the Work onsite and offsite.
1.10.9.2. Remediation includes excavation, pumping, testing, transport, treatment and disposal as appropriate for the type of contamination incurred, and at a minimum in accordance with the Contract.
1.10.9.3. Submit procedures for remediating soil, sediment or water contaminated by Contractor's activities.
1.10.9.4. Remediate as directed by the Departmental Representative.
1.10.9.5. Contractor is responsible for any additional investigation, testing, and assessments required as acceptable to the Departmental Representative.

1.11. Dust and Particulate Control

1.11.1. Execute Work by methods to minimize raising dust from construction operations.
1.11.2. Prevent fugitive dust from the Site from interfering with onsite and offsite uses.
1.11.3. Prevent dust from spreading to neighbouring properties.
1.11.4. Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads, excavations, and stockpiles.
1.11.5. Implement and maintain dust and particulate control measures immediately as instructed by the Departmental Representative during Work and in accordance with regulations and in accordance with the Contract.
1.11.6. Provide positive means to prevent airborne dust from dispersing into atmosphere. Use fresh (non-saline) water for dust and particulate control.
1.11.7. As minimum, use appropriate covers on vehicles, including trucks, barges, and trains, hauling fine or dusty material. Use watertight vehicles to haul wet materials.
1.11.8. Inadequate procedures:

1.11.8.1. Stop relevant Work if dust and particulate control is not sufficient for controlling dusts and particulates into atmosphere, or when monitoring indicates that dust or particulate levels equal or exceed regulated or levels in accordance with the Contract.
1.11.8.2. Submit procedures proposed to resolve problem.
1.11.8.3. Make necessary changes to operations prior to resuming excavation, handling, processing, or other Work that can cause release of dusts or particulates.
1.11.8.4. Departmental Representative can stop relevant Work at any time when Contractor's Work procedures are inadequate to prevent release of dusts or particulates, or when monitoring indicates that dust or particulate levels equal or exceed regulated or levels in accordance with the Contract. Do not proceed with stopped Work until corrections accepted by Departmental Representative.

1.12. Non-Contaminated Material Removal

1.12.1. Remove all Non-Contaminated Material within Work areas in accordance with the Contract and as instructed by the Departmental Representative.
1.12.2. Remove surplus materials and temporary facilities from Site.
1.12.3. Dispose waste offsite.
1.12.4. Do not burn or bury any waste onsite.
1.12.5. Do not discharge wastes into streams or waterways.
1.12.6. Do not dispose of volatile or hazardous materials such as mineral spirits, oil, or paint thinner in storm or sanitary drains.

1.13. Sewage Wastewater

1.13.1. Store Sewage Wastewater from toilet facilities with wastewater from hand basins, and/or showers, for ultimate disposal.
1.13.2. Provide, operate, and maintain Sewage Wastewater storage tanks to store Sewage Wastewater.
1.13.3. Transport and dispose of Sewage Wastewater at a Disposal Facility, or discharge to municipal sanitary sewer system in compliance with Municipal requirements, as accepted by Departmental Representative.
1.13.4. Discharges: comply with applicable discharge limitations and requirements; do not discharge Sewage Wastewater to Site sewer systems that do not conform to or are in violation of such limitations or requirements; and obtain approval prior to discharge of Sewage Wastewater.

1.14. Wastewater Control

1.14.1. Dewater various parts of Work including, without limitation, excavations, structures, foundations, and Work areas.
1.14.2. Employ construction methods, plant procedures, and precautions that ensure Work, including excavations, is stable, free from disturbance, and dry.
1.14.3. Direct surface waters that have not contacted potentially Contaminated Materials to surface drainage systems.

1.14.4. Control surface drainage including ensuring that gutters are kept open, wastewater is not allowed across or over pavements or sidewalks except through accepted pipes or properly constructed troughs, and runoff from unstabilized areas is intercepted and diverted to suitable outlet.

1.15. Non-Contaminated Water Disposal

1.15.1. Dispose of Non-Contaminated Water in manner not injurious to public health or safety, to property, or to any part of Work completed or under construction.

1.15.2. Control disposal or runoff of Non-Contaminated Water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.15.3. Ensure pumped Non-Contaminated Water into waterways, sewer or drainage systems is free of suspended materials. Provide flocculation tanks, settling basins, or other treatment facilities to remove suspended solids or other materials before discharging to storm sewers, watercourses or drainage areas.

1.15.4. Obtain permits to discharge Non-Contaminated Water to environment or Municipal sewers.

1.15.5. Do not discharge water which may have come in contact with potentially Contaminated Material or otherwise be Contaminated directly offsite to the environment or to municipal sewers.

1.16. Erosion and Sediment Control

1.16.1. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas, from stockpiles, staging areas, and other Work areas. Prevent erosion and sedimentation.

1.16.2. Minimize amount of bare soil or sediment exposed at one time. Stabilize disturbed soil or sediment as quickly as practical. Strip vegetation, regrade, or otherwise develop to minimize erosion. Remove accumulated sediment resulting from construction activity from adjoining surfaces, drainage systems, and water courses, and repair damage caused by soil erosion and sedimentation as instructed by the Departmental Representative.

1.16.3. Provide and maintain temporary erosion and sediment control measures.

1.16.3.1. Temporary erosion and sediment control measures are required to prevent erosion and migration of silt, mud, sediment, and other debris offsite or to other areas of Site where damage might result, or that might otherwise be required by laws and regulations.

1.16.3.2. Temporary erosion and sediment control measures include: silt fences, hay or straw bales, ditches, geotextiles, drains, berms, terracing, riprap, temporary drainage piping, vegetative cover, dikes, mulching, sediment traps, detention and retention basins, grading, planting, retaining walls, culverts, pipes, guardrails, temporary roads, and other measures appropriate to specific condition.

1.16.3.3. Temporary improvements must remain in place and in operation as necessary or until otherwise instructed by the Departmental Representative

1.16.3.4. Place silt fences and/or hay or straw bales in ditches to prevent sediment from escaping from ditch terminations.
1.16.3.5. Do not construct bale barriers and silt fence in flowing streams or in swales.
1.16.3.6. Check erosion and sediment control measures weekly after each rainfall; during prolonged rainfall check daily.
1.16.3.7. Bales and/or silt fence can be removed at beginning of Working Day, replace at end of Working Day.
1.16.3.8. Repair damaged bales, end runs, and undercutting beneath bales.
1.16.3.9. Unless instructed by the Departmental Representative, remove temporary erosion and sediment control devices upon Final Completion of Work. Temporary erosion and sediment control devices once removed become property of Contractor.
1.16.4. Whenever sedimentation is caused by stripping vegetation, regrading, or other development, remove it from adjoining surfaces, drainage systems, and watercourses, and repair damage as quickly as possible.
1.16.5. Construct fill areas to prevent erosion.
1.16.6. Do not disturb existing embankments or embankment protection in accordance with the Contract.
1.16.7. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
1.16.8. If soil, sediment and debris from Site accumulate in low areas, storm sewers, roadways, gutters, ditches, or other areas where it is undesirable, remove accumulation and restore area to original condition, as instructed by the Departmental Representative.

1.17. Work In or Adjacent to Waterways

1.17.1. Approvals and Practices:
1.17.1.1. Obtain Discharge Approval prior to commencing work which may impact waterways.
1.17.1.2. If applicable and as required, comply with *Fisheries Act* Authorization and other relevant authorizations and in accordance with the Contract.
1.17.1.3. Follow practices described in Fisheries and Oceans Canada (September 1993) Land Development Guidelines for the Protection of Aquatic Habitat.

Follow practices described in *Lands Act (2003)* and *Territorial Lands (Yukon) Act (2003)*, Environment Yukon (May 2011) Best Management Practices for Works Affecting Water in Yukon.

1.17.2. Timing
1.17.2.1. Time work in water to respect timing windows to protect fish, including their eggs, juveniles, spawning adults and/or the organisms upon which they feed.
1.17.2.2. Minimize duration of in-water work.
1.17.2.3. Conduct instream work during periods of low flow, or at low tide, to further reduce the risk to fish and their habitat or to allow work in water to be isolated from flows.
1.17.2.4. Schedule work to avoid wet, windy and rainy periods that may increase erosion and sedimentation.

1.17.3. Site Selection

1.17.3.1. Design and plan activities and works in wetland and waterbody such that loss or disturbance to aquatic habitat is minimized and sensitive spawning habitats are avoided.

1.17.3.2. Design and construct approaches to wetland and waterbody such that they are perpendicular to the watercourse to minimize loss or disturbance to riparian vegetation.

1.17.3.3. Avoid building structures on meander bends, braided streams, alluvial fans, active floodplains or any other area that is inherently unstable and may result in erosion and scouring of the stream bed or the built structures.

1.17.3.4. Undertake all instream activities in isolation of open or flowing water to maintain the natural flow of water downstream and avoid introducing sediment into the watercourse.

1.17.4. Contaminant and Spill Management

1.17.4.1. Plan activities near water such that materials such as paint, primers, blasting abrasives, rust solvents, degreasers, grout, poured concrete or other chemicals do not enter the watercourse.

1.17.4.2. Develop a response plan and implement immediately in the event of a sediment release or spill of a deleterious substance and keep an emergency spill kit on site.

1.17.4.3. Ensure that building material used in a watercourse has been handled and treated in a manner to prevent the release or leaching of substances into the water that may be deleterious to fish.

1.17.5. Erosion and Sediment Control

1.17.5.1. Develop and implement an Erosion and Sediment Control Plan for the site that minimizes risk of sedimentation of wetlands or waterbodies during all phases of the project. Maintain erosion and sediment control measures until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the wetland or waterbody or settling basin and runoff water is clear.

1.17.6. Erosion and Sediment Control Plan includes:

1.17.6.1. Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the water body.

1.17.6.2. Measures for managing water flowing onto the site, as well as water being pumped/diverted from the site such that sediment is filtered out prior to the water entering a waterbody. This includes pumping/diversion of water to a vegetated area, construction of a settling basin or other filtration system.

1.17.6.3. Site isolation measures (e.g., silt boom or silt curtain) for containing suspended sediment where in-water work is required (e.g., dredging, underwater cable installation).

1.17.6.4. Measures for containing and stabilizing waste material (e.g., dredging spoils, construction waste and materials, commercial logging waste, uprooted or cut aquatic plants, accumulated debris) above the high water mark of nearby waterbodies to prevent re-entry.

1.17.6.5. Regular inspection and maintenance of erosion and sediment control measures and structures during the course of construction.
1.17.6.6. Repairs to erosion and sediment control measures and structures if damage occurs.
1.17.6.7. Removal of non-biodegradable erosion and sediment control materials once site is stabilized.
1.17.7. Shoreline/Bank Re-vegetation and Stabilization
1.17.7.1. Clearing of riparian vegetation should be kept to a minimum: use existing trails, roads or cut lines wherever possible to avoid disturbance to the riparian vegetation and prevent soil compaction.
1.17.7.2. To greatest extent practicable, prune or top the vegetation instead of grubbing/uprooting.
1.17.7.3. Minimize the removal of natural woody debris, rocks, sand or other materials from the banks, the shoreline or the bed of the waterbody below the ordinary high water mark. If material is removed from the waterbody, set it aside and return it to the original location once construction activities are completed.
1.17.7.4. Immediately stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site.
1.17.7.5. Restore bed and banks of the waterbody to their original contour and gradient; if the original gradient cannot be restored due to instability, a stable gradient that does not obstruct fish passage should be restored.
1.17.7.6. If replacement rock reinforcement/armouring is required to stabilize eroding or exposed areas, then ensure that appropriately-sized, clean rock is used; and that rock is installed at a similar slope to maintain a uniform bank/shoreline and natural stream/shoreline alignment.
1.17.7.7. Remove all construction materials from site upon project completion.
1.17.8. Aquatic Life Protection
1.17.8.1. Ensure that all in-water activities, or associated in-water structures, do not interfere with aquatic life passage, constrict the channel width, or reduce flows.
1.17.8.2. Retain a qualified environmental professional to ensure applicable permits for relocating fish are obtained and to capture any fish trapped within an isolated/enclosed area at the work site and safely relocate them to an appropriate location in the same waters. Fish may need to be relocated again, should flooding occur on the site.
1.17.8.3. Screen any water intakes or outlet pipes to prevent entrainment or impingement of fish. Entrainment occurs when a fish is drawn into a water intake and cannot escape. Impingement occurs when an entrapped fish is held in contact with the intake screen and is unable to free itself.
1.17.8.4. Avoid using explosives in or near water. Use of explosives in or near water produces shock waves that can damage a fish swim bladder and rupture internal organs. Blasting vibrations may also kill or damage fish eggs or larvae.
1.17.9. Operation of Machinery

1.17.9.1. Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.
1.17.9.2. Whenever possible, operate machinery on land above the high water mark, on ice, or from a floating barge in a manner that minimizes disturbance to the banks and bed of the waterbody.
1.17.9.3. Limit machinery fording of the watercourse to a one-time event (i.e., over and back), and only if no alternative crossing method is available. If repeated crossings of the watercourse are required, construct a temporary crossing structure.
1.17.9.4. Use temporary crossing structures or other practices to cross streams or waterbodies with steep and highly erodible (e.g., dominated by organic materials and silts) banks and beds. For fording equipment without a temporary crossing structure, use stream bank and bed protection methods (e.g., swamp mats, pads) if minor rutting is likely to occur during fording.
1.17.9.5. Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water

1.18. Noncompliance

1.18.1. Departmental Representative will inform Contractor in writing of observed noncompliance with federal, provincial, territorial or municipal environmental laws, regulations, permits, or other environmental procedure violations.
1.18.2. After receipt of notice, inform the Departmental Representative of the proposed corrective action. Corrective action will be subject to acceptance of Departmental Representative.
1.18.2.1. Do not take action until after receipt of written acceptance.
1.18.3. Departmental Representative will issue stop order of Work until satisfactory corrective action has been taken.

2. PART 2 - PRODUCTS

2.1. Not Used

2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Permits: at least 10 Working Days prior to mobilization to Site, Submit copies of all permits, certificates, approvals, or any other form of authorizations and all reporting required.

1.4. Laws, Regulations, Permits

1.4.1. Generally, provincial, territorial and municipal laws, regulations, bylaws and other requirements do not apply on federal lands, activities or undertakings. Soil and other materials that are removed from federal lands may become subject to provincial, territorial or municipal laws and regulations.

1.4.2. Provincial, territorial or municipal standards may be used in relation to federal lands only as guidelines for the purpose of establishing remediation goals and objectives. The term "standards" is used in this part in order to maintain consistency in terminology throughout this document, and does not imply that standards contained in provincial, territorial or municipal laws and regulations apply on Federal lands, activities or undertakings.

1.4.3. Comply with certificates, licenses and other permits enforced at the location concerned required by regulatory federal, provincial, territorial, or municipal authorities to complete the Work that have already been obtained.

1.4.4. Obtain and pay for certificates, licenses and other permits enforced at the location concerned required by regulatory federal, provincial, territorial or municipal authorities to complete the Work that have not already been obtained or that are required to be amended.

1.4.5. Provide applicable authorities with plans and information required for issue of acceptance certificates.

1.4.6. Furnish inspection certificates in evidence that the Work installed conforms to the requirements of the authority having jurisdiction.

1.5. Codes, Bylaws, Standards

1.5.1. Meet or exceed requirements of Contract, standards, and codes applicable to the performance of the Work and referenced documents.

1.5.2. In any case of conflict or discrepancy, the most stringent requirements will apply.

1.5.3. Perform Work in accordance with the National Building Code of Canada (NBC), and other requirements or codes in accordance with the Contract, construction

standards and/or any other code or bylaw applicable to the performance of the Work.

1.5.4. Certificates, licenses and other permits enforced at the location concerned required by regulatory federal, provincial or municipal authorities to complete the Work: see 01 11 00.

1.5.5. Comply with all attachments, references, and reports relevant to Work, including environmental protection.

1.6. Smoking Environment

1.6.1. Smoking on the Site is not permitted.

2. PART 2 - PRODUCTS

2.1. Not Used

2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Inspection and Test Reports: within 5 Working Days of receipt, Submit 2 copies of inspection and test reports to Departmental Representative.

1.4. Quality of Work

1.4.1. Ensure that quality workmanship is performed through use of skilled tradesmen, under supervision of qualified journeyman, or Qualified Professional.

1.4.2. Meet or exceed standards set out in the National Building Code of Canada as applicable for workmanship, erection methods and procedures.

1.4.3. In cases of dispute, perform Work to standard or quality in accordance with any decisions by the Departmental Representative.

1.4.4. Follow Departmental Representative's directions to meet the Quality of Work in accordance with the Contract at no increase to the Contract Amount and no increase to Extension of Time for completion of the Work. Quality of Work includes addressing comments on Submittals, modifying environmental procedures, and preventing or remediating contaminated material spills.

1.5. Quality Management

1.5.1. Be responsible for all Quality Assurance and Quality Control during the performance of the Work.

1.5.2. Quality Assurance and Quality Control includes monitoring, inspecting, testing, documenting and reporting the means, methods, materials, workmanship, processes, and products of all aspects of the Work, including design, construction, and management as necessary to ensure conformance with the Contract.

1.5.3. Assist Departmental Representative in quality audit inspections and submit all indicated information within 5 Working Days of collection or as directed.

1.6. Inspection

1.6.1. Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Site, allow access to such Work whenever it is in progress. Work at locations other than Site includes offsite Transportation (e.g. transfer stations), Treatment, and Disposal Facilities.

1.6.2. Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Site.

1.6.3. If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

1.6.4. Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.

1.7. Independent Inspection Agencies

1.7.1. Independent Inspection/Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.

1.7.2. Provide equipment required for executing inspection and testing by appointed agencies.

1.7.3. Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

1.7.4. If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and re-inspection.

1.8. Access to Work

1.8.1. Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.

1.8.2. Co-operate to provide reasonable facilities for such access.

1.9. Procedures

1.9.1. Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.

1.9.2. Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

1.9.3. Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.10. Rejected Work

1.10.1. Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

1.10.2. Make good other Contractor's work damaged by such removals or replacements promptly.
1.10.3. If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, PSPC will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

1.11. Reports
1.11.1. Provide copies of inspection and test reports to subcontractor of work being inspected or tested and Departmental Representative.

1.12. Tests and Mix Designs
1.12.1. Furnish test results and mix designs as requested.
1.12.2. Test results must be signed by Qualified Professional.
1.12.3. The Departmental Representative may require, and pay for, additional inspection and testing services not included above.

2. PART 2 - PRODUCTS

2.1. Not Used
2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used
3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Site Layout: within 10 Working Days after Contract award and prior to mobilization to Site, Submit Site Layout drawings showing existing conditions and facilities, construction facilities and temporary controls provided by Contractor. Include:

1.3.1.1. Equipment and personnel decontamination areas.

1.3.1.2. Means of ingress, egress and temporary traffic control.

1.3.1.3. Equipment and material staging areas.

1.3.1.4. Stockpile areas and construction details, including base preparation and water control features.

1.3.1.5. Exclusion areas, contaminant handling areas, and other areas identified in Contractor's site-specific Health and Safety Plan and Environmental Protection Plan.

1.3.1.6. Grading, including contours, required to construct temporary facilities.

1.3.1.7. Location of all temporary facilities including: truck wash and decontamination units, office trailers, parking, storage, environmental monitoring stations, above ground and underground utilities, and temporary facilities and roads.

1.3.2. Signs: at least 5 Working Days prior to posting, Submit any signs viewable by public.

1.4. Utilities

1.4.1. Utilities not identified as being available on Site must be supplied at the Contractor’s expense. Provide supplied utilities for entire work force, including Subcontractors and Departmental Representative and their consultants.

1.5. Fire Protection

1.5.1. Provide and maintain temporary fire protection equipment during performance of Work required by governing codes, regulations and bylaws.

1.6. Access and Delivery

1.6.1. Only the designated entrance in accordance with the Contract can be used for access to Site.

1.6.1.1. Maintain for duration of Contract.

1.6.1.2. Make good damage resulting from Contractor’s use.

1.6.2. Use of the Site will be granted to the Contractor through the Departmental Representative.

1.7. Installation and Removal

1.7.1. Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
1.7.2. Identify areas which have to be graveled or otherwise treated to prevent tracking of mud.
1.7.3. Indicate use of supplemental or other staging area.
1.7.4. Provide construction facilities in order to execute work expeditiously.
1.7.5. Provide temporary utilities in order to execute Work expeditiously.
1.7.6. Remove from Site all such Work after use.

1.8. Site Storage/Loading

1.8.1. Confine work and operations of employees in accordance with the Contract. Do not unreasonably encumber premises with products.
1.8.2. Storage space must be limited to the Site.
1.8.3. Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.9. Construction Parking

1.9.1. Parking of private vehicles will not be permitted on Site.
1.9.2. Provide and maintain adequate access to project site.

1.10. Security

1.10.1. Be responsible security of site and contents of site after working hours and during holidays.
1.10.2. Control access to Site and maintain a log of all personnel onsite. No non-Work visitors allowed without prior written consent of Departmental Representative

1.11. Departmental Representative, Consultant(s) and Contractor Offices

1.11.1. Provide office facilities for the exclusive use of the Departmental Representative and their consultant(s), and the Contractor, with the following intent:
1.11.1.1. Two work stations within the factory fabricated modular units.
1.11.1.2. Work stations must include; 1 desk for the exclusive use of the Departmental Representative and their Consultant(s) (minimum size 120 cm x 50 cm, minimum height 70 cm), 1 swivel desk chair for the exclusive use of the Departmental Representative and their Consultant(s) (minimum load requirement 100 kg), 1 garbage can, and 1 recycling bin.
1.11.1.3. Building envelope: watertight construction.
1.11.1.4. Completed building: exterior to interior minimum sound attenuation of STC 30.

1.11.1.5. Building interior environment: heated and cooled to maintain temperature of 20 degrees C minimum to 25 degrees C maximum with relative humidity of 35% to 60%.
1.11.1.6. Provide ventilation and outdoor air as per ASHRAE 62.1 – 2010 Standard.
1.11.1.7. Building lighting: maintain measured lighting level of 200 lx at 1500 mm above finished floor, after building finishes and painting complete.
1.11.1.8. Thermal performance of window units: Maximum heat transfer rate (U-value) not to exceed 2.0 W/m2K.
1.11.1.9. Regularly collect refuse and recyclables and keep the office clean and properly maintained with heat and light.
1.11.1.10. Provide private washroom facilities in offices in accordance with the Contract, complete with flush or chemical type toilet, lavatory and mirror and maintain supply of soap, paper towels and toilet tissue.
1.11.1.11. Furnish offices in accordance with the Contract.
1.11.1.12. The work stations and contents designated for the Departmental Representative and their Consultant(s) must be for the sole use of the Departmental Representative and their Consultant(s) for the duration of the Work and may, if necessary, be used concurrently with other inspection agencies.
1.11.2. Installation:
1.11.2.1. Install level and plumb.
1.11.2.2. Install stairs.
1.11.2.3. Adjust doors and windows for smooth operation.
1.11.3. Provide a minimum of 2 parking spaces for Departmental Representative and their Consultant(s) adjacent to offices.

1.12. Sanitary Facilities

1.12.1. Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
1.12.2. Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.13. Protection and Maintenance of Traffic

1.13.1. Provide access and temporary relocated roads as necessary to maintain traffic.
1.13.2. Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
1.13.3. Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs.
1.13.4. Protect travelling public from damage to person and property.
1.13.5. Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.

1.13.6. Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
1.13.7. Construct access and haul roads necessary.
1.13.8. Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.
1.13.9. Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
1.13.10. Dust control: adequate to ensure safe operation at all times.
1.13.11. Location, grade, width, and alignment of construction and hauling roads: subject to approval by Departmental Representative.
1.13.12. Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
1.13.13. Provide snow removal during period of Work.
1.13.14. Remove, upon completion of work, haul roads designated by Departmental Representative.

1.14. Truck Wash and Decontamination Units

1.14.1. Supply, install and operate the truck wash, including the installation of a water supply.
1.14.1.1. No vehicles which have come in contact with Contaminated Material must leave the Site without passing through the truck wash.
1.14.1.2. The truck wash must provide, at a minimum, the ability to wash truck tires and load boxes to a minimum height of 1.7 m.
1.14.1.3. Truck wash must have a solid separation tank and all solids collected must be classified as Contaminated Material and disposed of at a Disposal Facility.
1.14.1.4. Recycle or treated as Contaminated Water water used in the truck wash.
1.14.2. Supply personnel decontamination units (minimum of 2) for use by hazardous material, testing and inspection personnel working in areas of hazardous materials and for general clean-up of personal protective equipment to remove Contaminated Material. Provide decontamination units for work force.
1.14.2.1. At least one personnel decontamination unit must have overhead shower capability.
1.14.2.2. The personnel decontamination units to be available to Departmental Representative and their consultants.
1.14.2.3. The personnel decontamination units are subject to acceptance of Departmental Representative.
1.14.3. The truck wash and personnel decontamination units must be maintained in good working order during onsite Work.
1.14.4. The truck wash and personnel decontamination units must be removed from the Site during Site Decommissioning.

1.15. Clean-Up

1.15.1. Remove construction debris, waste materials, packaging material from work site daily.

1.15.2. Clean dirt or mud tracked onto paved or surfaced roadways.
1.15.3. Store materials resulting from demolition activities that are salvageable.
1.15.4. Stack stored new or salvaged material not in construction facilities.

2. PART 2 - PRODUCTS

2.1. Not Used
2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used
3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Product Data: at least 5 Working Days prior to use, Submit data on products to be used in Work. Include:

1.3.1.1. Manufacturers' catalogue sheets, MSDS sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products or any other information in accordance with the Contract.

1.3.1.2. Delete information not applicable to project.

1.3.1.3. Supplement standard information to provide details applicable to project.

1.3.1.4. Cross-reference product data information to applicable portions of Contract.

1.3.2. Substitution: at least 5 Working Days prior to use and after Contract award, Submit proposals for substituting products, if required. Include statements of respective costs of items originally in accordance with the Contract and the proposed substitution.

1.3.3. Quality of Work: at least 5 Working Days prior to Work, Submit alternate means to meet or correct quality of work, if required.

1.4. Products, Material and Equipment

1.4.1. Use new products, material and equipment in accordance with the Contract. The term "products" is referred to throughout the specifications.

1.4.2. Use products of one manufacturer for material and equipment of the same type or classification in accordance with the Contract.

1.4.3. Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation method in accordance with the Contract.

1.4.4. Notify Departmental Representative in writing of any conflict between Contract and manufacturer's instructions. Departmental Representative will direct which document is to be followed.

1.4.5. Deliver, store and maintain packaged material and equipment with manufacturer's seals and labels intact.

1.4.6. Prevent damage, adulteration and soiling of products during delivery, handling and storage. Immediately remove rejected products from Site.

1.4.7. Store products in accordance with Suppliers' instructions.

1.5. Quality of Products

1.5.1. Products, materials and equipment (referred to as products) incorporated into Work must be new, not damaged or defective, and of the best quality

(compatible with the specifications) for the purpose intended. As instructed by the Departmental Representative, furnish evidence as to type, source, and quality of the products provided.

1.5.2. Defective products will be rejected regardless of previous inspections.

1.5.2.1. Inspection does not relieve responsibility, but is precaution against oversight or error.

1.5.2.2. Remove and replace defective products.

1.5.3. Retain purchase orders, invoices and other documents to prove that all products utilized in the Work meet the requirements of the Contract. Produce documents as instructed by the Departmental Representative.

1.5.4. Should any dispute arise as to quality or fitness of products, the decision rests strictly with the Departmental Representative in accordance with the Contract.

1.5.5. Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.6. Availability of Products

1.6.1. Immediately upon signing the Contract, review product delivery requirements and anticipate foreseeable supply delays for any items.

1.6.2. If delays in supply of products are foreseeable, Notify Departmental Representative of such in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of the Work.

1.6.3. In event of failure to Notify Departmental Representative at the start of Work and should it subsequently appear that the Work may be delayed for such reason, the Departmental Representative reserves the right to substitute more readily available products of similar character.

1.7. Manufacturer's Instructions

1.7.1. Install or erect products in accordance with the manufacturer's instructions in accordance with the Contract.

1.7.1.1. Do not rely on labels or enclosures provided with products.

1.7.1.2. Obtain written instructions directly from the manufacturer.

1.7.2. Notify Departmental Representative in writing of any conflict between Contract and manufacturer's instructions. Departmental Representative will instruct which document must be followed.

1.7.3. Improper installation or erection of products, due to failure in complying with these requirements, authorizes the Departmental Representative to instruct the removal and re-installation.

1.8. Contractor's Options for Selection of Products for Tendering

1.8.1. Products specified by "Prescriptive" specifications: select any product meeting or exceeding requirements in accordance with the Contract.

1.8.2. Products specified by performance and referenced standard: select any product meeting or exceeding the referenced standard.

1.8.3. Products specified to meet particular design requirements or to match existing materials: use only material in accordance with the Contract.

1.8.4. When products are specified by a referenced standard or by performance specifications, as directed by the Departmental Representative, obtain from manufacturer and independent laboratory a report showing that the product meets or exceeds the requirements in accordance with the Contract.

1.9. Storage, Handling and Protection

1.9.1. Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions.

1.9.2. Store packaged or bundled products in original and undamaged condition with manufacturer's seals and labels intact. Do not remove from packaging or bundling until required in Work.

1.9.3. Store products subject to damage from weather in weatherproof enclosures.

1.9.4. Remove and replace damaged products as instructed by the Departmental Representative.

1.10. Transportation

1.10.1. Pay costs of transportation of products required in performance of Work.

1.10.2. Transport products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

1.10.3. Transport products subject to damage from weather in weatherproof enclosures.

1.10.4. Transport in an efficient manner that does not cause delays to the Work schedule.

1.11. Quality of Work

1.11.1. Ensure quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately Notify Departmental Representative if required Work is such as to make it impractical to produce results in accordance with the Contract. Provide alternate means to meet or correct quality of work, as accepted by the Departmental Representative.

1.11.2. Do not employ anyone unskilled in their required duties.

1.11.3. Perform Work to standard of fitness of Quality of Work in accordance with any decision by the Departmental Representative.

1.12. Coordination

1.12.1. Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.

1.13. Remedial Work

1.13.1. Perform remedial Work required to repair or replace parts or portions of Work as instructed by the Departmental Representative as defective or unacceptable. Coordinate adjacent affected Work as required.

1.13.2. Perform remedial Work by specialists familiar with materials affected. Perform in a manner neither to damage nor put at risk any portion of Work.

2. PART 2 - PRODUCTS

2.1. Asbestos Containing Materials Prohibition

2.1.1. Any material containing any degree of asbestos is banned from use in any and all sites, designs and projects.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Preconstruction Condition Survey: within 10 Working Days prior to mobilization to Site, Submit Preconstruction Condition Survey of existing structures, utilities and surface features.

1.3.2. Preconstruction As-Built Documents: at least 5 Working Days prior to mobilization to Site, Submit preconstruction as-built documents prepared by a Land Surveyor.

1.4. Survey Reference Points

1.4.1. Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.

1.4.2. Make no changes or relocations without prior written notice to Departmental Representative.

1.4.3. Report to Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

1.4.4. Require surveyor to replace control points in accordance with original survey control.

1.5. Survey Requirements

1.5.1. Establish permanent bench marks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.

1.5.2. Establish lines and levels, locate and lay out, by instrumentation planned excavation limits.

1.5.3. Stake for grading, fill.

1.6. Existing Services

1.6.1. Size, depth and location of existing utilities and structures as specified are for guidance only. Completeness and accuracy are not guaranteed.

1.6.2. Before commencing work, establish location and extent of service lines in area of Work and notify Departmental Representative. All utilities entering Site must be confirmed prior to subsurface disturbance (i.e. do not rely on as-built documents). As appropriate, confirm locations of buried utilities by independent utility locator and using hand test excavations or hydrovac methods.

1.6.3. Maintain and protect from damage all utilities and structures encountered, unless Work involves temporarily breaking, rerouting, or connecting into existing utilities.

1.6.4. Where Work involves temporarily breaking, rerouting, or connecting into existing utilities, obtain permission from utility companies of intended interruption of services, and carry out Work at times determined by the authorities having jurisdiction.

1.6.5. Submit schedule to and obtain approval for any shutdown or closure of active service. Adhere to schedule accepted by Departmental Representative and provide notice to affected parties.

1.6.6. Where unknown utilities are encountered, immediately verbally notify Departmental Representative and confirm findings in writing.

1.7. Examination

1.7.1. Examine Site and Contract and be familiar and conversant with existing conditions likely to affect Work, including Contaminated Material.

1.8. Records

1.8.1. Land Surveyor to prepare preconstruction as-built Shop Drawings of all utilities.

1.8.2. Land Surveyor to prepare postconstruction as-built Shop Drawings of all utilities, including existing, reinstated, rerouted, and abandoned.

1.8.3. Maintain a complete, accurate log of control and survey work as it progresses.

1.8.4. Preconstruction Condition Survey:

1.8.4.1. Conduct Preconstruction Condition Survey of existing structures and other features which can be affected by Work, both onsite and offsite. Includes: buildings, trees and other plants, lawns, fencing, service poles, wires, rail tracks, pavement, roads, survey bench marks, monuments and other features.

1.8.4.2. Survey to include detailed photographic documentation of any preconstruction damage, and measurements where appropriate, including crack width and length, angles out of true. Record written notices to owners of features that have existing damage.

1.8.4.3. Record written notices of offsite owners which refused entry to conduct Preconstruction Condition Survey.

2. PART 2 - PRODUCTS

2.1. Not Used

2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Waste Reduction Plan: within 10 Working Days after Contract award and prior to mobilization to Site, Submit a plan detailing material separation. Include:

1.3.1.1. List of materials to be reused or recycled.

1.3.1.2. Sequence, methods and means to dispose Waste offsite. For all Landfill Facilities include name of facility; location of facility; copy of valid and subsisting permit, certificate, approval, license, or other required form of authorization issued by a Facility Authority for the facility; and evidence of compliance with municipal zoning and bylaws of facility.

1.3.2. Landfill Receipts: within 5 Working Days of transport offsite, Submit receiving facility receipts indicating quantity and type of material delivered to Landfill Facility. Include:

1.3.2.1. Issued by the Landfill Facility.

1.3.2.2. On company letterhead.

1.3.2.3. Name and location of facility where the material is being disposed.

1.3.2.4. Date and weight for each shipment received and total weight received at the Landfill Facility.

1.3.3. Recycling Receipts: within 5 Working Days of transport offsite, Submit receiving facility receipts indicating quantity and type of materials sent for recycling.

1.4. Waste Disposition

1.4.1. Waste and Non-Contaminated Material Disposal:

1.4.1.1. Dispose all soil and sediment in Landfill Facility.

1.4.1.2. Divert materials other than soil or sediment which can be practically reused or recycled from Landfill as approved by Departmental Representative.

1.4.1.3. All Waste not reused or recycled must be disposed in Landfill Facility.

1.5. Waste Transport

1.5.1. Assume ownership of, and be responsible for, Waste once it is loaded on a vehicle, barge, or other vessel for transport.

1.5.2. Transport material as soon as practical. Do not unreasonably stockpile material onsite.

1.5.3. Cover material while being transported to prevent release of airborne dust, vapours, or odours, and to prevent saturation and leachate generation from material.

1.5.4. Excess water in material must not be allowed to flow out of vehicle or vessel during transport.
1.5.5. Stabilize material as necessary.
1.5.6. All vehicles, vessels and operators must be appropriately licensed and equipped to transport Waste.
1.5.7. Manifest and correlate quantities of all material transported from Site documenting quantity removed from Site, movement, transfer stations, interim storage and treatment, and weight of material at final Disposal Facility. Submit all manifests, as directed by the Departmental Representative.
1.5.8. Material transported with discrepancies in manifests must be resolved as required by regulations and as acceptable to the Departmental Representative. Discrepancies include:
1.5.8.1. No manifest or an incomplete manifest.
1.5.8.2. The material transported does not match the description in the manifest.
1.5.8.3. The amount transported differs by more than 5% in the manifest.
1.5.8.4. The material transported is in a hazardous condition.
1.5.9. Transfer/Interim Storage Facility must:
1.5.9.1. Be an existing offsite facility located in Canada or the United States.
1.5.9.2. Be designed, constructed and operated for the transfer or interim storage of Contaminated Material.
1.5.9.3. Hold a valid and subsisting permit, certificate, approval, license, or other required form of authorization issued by a Facility Authority for the transfer or interim storage of relevant Contaminated Material.
1.5.9.4. Comply with applicable municipal zoning, bylaws, and other applicable requirements.
1.5.10. Facility Authority:
1.5.10.1. For facilities within provincial or territorial jurisdiction: the relevant provincial or territorial ministry.
1.5.10.2. For facilities on First Nations reserve land in Canada not subject to the First Nation Land Management regime: Indigenous and Northern Affairs Canada.
1.5.10.3. For facilities on First Nations reserve land in Canada subject to the First Nation Land Management regime: the relevant First Nation Council. In addition, a Qualified Professional must certify that the facility is appropriate for the relevant Contaminated Material.
1.5.10.4. For facilities in the United States of America: either or both of the Environmental Protection Agency and the relevant State, as appropriate.

1.6. Waste Disposal

1.6.1. Assume ownership of, and be responsible for, Waste disposed.
1.6.2. Waste Disposal: dispose Waste at Landfill Facility provided by Contractor and accepted by the Departmental Representative.
1.6.3. Disposal Facility must:
1.6.3.1. Be an existing offsite facility located in Canada or the United States.
1.6.3.2. Be designed, constructed and operated to prevent any pollution from being caused by the facility outside the area of the facility from waste placed in or

on land within the facility. Must conform with the BC Landfill Criteria For Municipal Solid Waste or equivalent requirements of authorities having jurisdiction.

1.6.3.3. Hold a valid and subsisting permit, certificate, approval, license, or other required form of authorization issued by a Facility Authority for the disposal of relevant Contaminated Material.

1.6.3.4. Comply with applicable municipal zoning, bylaws, and other applicable requirements.

1.6.4. Facility Authority:

1.6.4.1. For facilities within provincial or territorial jurisdiction: the relevant provincial or territorial ministry.

1.6.4.2. For facilities on First Nations reserve land in Canada not subject to the First Nation Land Management regime: Indigenous and Northern Affairs Canada.

1.6.4.3. For facilities on First Nations reserve land in Canada subject to the First Nation Land Management regime: the relevant First Nation Council. In addition, a Qualified Professional must certify that the facility is appropriate for the relevant Contaminated Material.

1.6.4.4. For facilities in the United States of America: either or both of the Environmental Protection Agency and the relevant State, as appropriate.

1.6.5. Dispose material as soon as practical and within 100 Working Days of leaving Site or as required by Contract unless otherwise accepted by Departmental Representative.

1.6.6. Material sent to a Landfill Facility must be permanently stored at that facility.

1.6.7. If proposed Landfill Facility is not acceptable to Departmental Representative, provide an alternate Landfill Facility that is acceptable.

1.6.8. Submit Landfill Receipts for all Waste material disposed offsite.

1.7. Materials Source Separation

1.7.1. Provide separate containers for reusable and/or recyclable materials of the following:

1.7.1.1. Metals.

1.7.1.2. Wood.

1.7.1.3. Plastics.

1.7.1.4. Paper.

1.7.1.5. Glass.

1.7.1.6. Concrete

1.7.1.7. Other materials in accordance with the Contract.

1.7.2. Implement Materials Source Separation Program for waste generated on project in compliance with methods accepted by the Departmental Representative.

1.7.3. Locate containers in locations, to facilitate deposit of materials without hindering daily operations.

1.7.4. Locate separated materials in areas which minimize material damage.

1.8. Diversion of Materials

1.8.1. Create a list of materials to be separated from the general waste stream and stockpiled in separate containers, as accepted by the Departmental Representative and consistent with applicable fire regulations.

1.8.1.1. Mark containers.

1.8.1.2. Provide instruction on disposal practices.

1.9. Storage, Handling and Application

1.9.1. Do Work in compliance with Waste Reduction Plan.

1.9.2. Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes, and dispose at Landfill weekly.

1.9.3. Materials in separated condition: collect, handle, store onsite, and transport offsite to an authorized recycling facility accepted by the Departmental Representative, and remove from Site weekly.

1.9.4. Materials must be immediately separated into specified categories for reuse or recycling.

1.9.5. Unless otherwise in accordance with the Contract, materials for removal become the Contractor's property.

1.9.6. Onsite sale of salvaged/recyclable material is not permitted.

1.9.7. Submit receiving facility weigh scale receipts indicating quantity and type of materials sent for recycling as directed by the Departmental Representative.

2. PART 2 - PRODUCTS

2.1. Not Used

2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Product Instructions: at least 10 Working Days before Substantial Performance of the Work is completed, Submit instructions and data by personnel experienced in maintenance and operation of products and equipment constructed and remaining onsite, if required.

1.3.2. Closeout Documents: within 20 Working Days of Final Completion of Site Restoration, Submit completion documents and as-built documents.

1.4. As-Built Documents

1.4.1. The Departmental Representative will provide 2 sets of Drawings, 2 sets of Specifications, and 2 copies of the original AutoCAD files for “as-built” purposes.

1.4.2. As Work progresses, maintain accurate records to show all deviations from the Contract. Note changes as they occur on as-built Specifications, Drawings and Shop Drawings.

1.4.3. Drawings and Shop Drawings: legibly mark each item to record actual construction, including:

1.4.3.1. Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.

1.4.3.2. Field changes of dimension and detail.

1.4.3.3. Changes made by change orders.

1.4.3.4. Details not on original Drawings.

1.4.3.5. References to related Shop Drawings and modifications.

1.4.4. Contract Specifications: legibly mark each item to record actual workmanship of construction, including:

1.4.4.1. Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.

1.4.4.2. Changes made by addenda and change orders.

1.4.5. As-built information:

1.4.5.1. Record changes in red ink.

1.4.5.2. Mark on 1 set of Drawings, Specifications and Shop Drawings at Final Completion of project and, before final inspection, neatly transfer notations to second set.

1.4.5.3. Submit 1 set in editable AutoCAD 14 file format with all as-built information.

1.4.5.4. Submit all sets as instructed by the Departmental Representative.

1.4.6. As required, surveying to be completed by a Land Surveyor for as-built documents.

1.5. Completion Documents

1.5.1. Submit as instructed by the Departmental Representative, a written certificate that the following have been performed:

1.5.1.1. Work has been completed and inspected by the Departmental Representative in accordance with the Contract.

1.5.1.2. Treatment and disposal of treatable soils have been completed and disposal of all other soils has been completed.

1.5.1.3. Damage has been repaired, deficiencies have been completed, missing items have been provided, and non-conformance has been corrected, in the opinion of the Departmental Representative.

1.5.1.4. Equipment and systems have been tested, adjusted and balanced, and are fully operational, as applicable.

1.5.1.5. Certificates required by the Fire Commissioner of Canada, and utility companies have been submitted, as applicable.

1.5.1.6. Operation of systems has been demonstrated to the personnel as instructed by the Departmental Representative, as applicable.

1.5.1.7. Qualified Professional report documenting backfilling has met all requirements of the Contract.

1.5.1.8. Work is complete and ready for Final Site Inspection.

1.5.2. Defective products will be rejected, regardless of previous inspections. Replace defective products.

1.5.3. Prepare all documentation required as part of any permits or other authorizations obtained or otherwise the responsibility of the Contractor.

2. PART 2 - PRODUCTS

2.1. Not Used

2.1.1. Not Used.

3. PART 3 - EXECUTION

3.1. Not Used

3.1.1. Not Used.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Permits: at least 10 Working Days prior to mobilization to Site, Submit copies of all permits, certificates, approvals, or any other form of authorizations and all reporting required.

1.3.2. Import Backfill Material Quality: at least 5 Working Days prior to bringing material onsite, Submit documentation signed and sealed by a Qualified Professional verifying that material is acceptable for import and intended use. Include:

1.3.2.1. Grain-size distribution information, as applicable.

1.3.2.2. Chemical analyses for Potential Contaminants of Concern, including metals.

1.3.2.3. Testing to be performed by a Qualified Professional at sufficient frequency to characterize all material imported to Site. Test using appropriate guidelines and practices.

1.3.3. Import Backfill Material Samples: at least 5 Working Days prior to bringing material to Site, Submit samples of imported backfill.

1.3.3.1. Submit samples representative of all material to be imported. Sample frequency subject to acceptance by Departmental Representative.

1.3.3.2. Submit sufficient sample size to allow geotechnical and environmental quality testing as directed by Departmental Representative.

1.3.4. Seed and Fertilizer: prior to ordering, submit specifications of proposed native plant seed mix and fertilizer, including supplier information, to the Departmental Representative for approval. The native seed mix shall be free of invasive species.

1.4. Sequencing for Free Phase Products

1.4.1. When floating free phase substance (Non-Aqueous Phase Liquids) is present, remove free phase from saturated soil or sediment without further contaminating soil, sediment or groundwater prior to commencing other construction Work.

1.4.2. Collect free phase product (NAPL), load, transport and unload to a Treatment Facility.

1.5. Onsite Access Roads

1.5.1. Maintain onsite access roads as follows:

1.5.1.1. Obtain permission to use existing onsite access roads.

1.5.1.2. Maintain and clean roads for duration of Work.

1.5.1.3. Control mud and dust from road.

1.5.1.4. Repair damage incurred from use of roads.
1.5.1.5. Provide photographic documentation of roads used by construction vehicles before, during and after Work.
1.5.1.6. The Departmental Representative can instruct cleaning of the onsite access roads.

2. PART 2 - PRODUCTS

2.1. Materials

2.1.1. Erosion and sediment control materials to meet the following minimum requirements:
2.1.1.1. Hay or Straw Bale: wire bound or string tied; securely anchored by at least 2 stakes or rebar driven through bale 300 mm to 450 mm into ground; chinked (filled by wedging) with hay or straw to prevent water from escaping between bales; and entrenched minimum of 100 mm into ground.
2.1.1.2. Silt Fence: assembled, ready to install unit consisting of geotextile attached to driveable posts. Geotextile: uniform in texture and appearance, having no defects, flaws, or tears that would affect its physical properties; and contain sufficient ultraviolet ray inhibitor and stabilizers to provide minimum 2-year service life from outdoor exposure.
2.1.1.3. Net Backing: industrial polypropylene mesh joined to geotextile at both top and bottom with double stitching of heavy-duty cord, with minimum width of 750 mm.
2.1.1.4. Posts: sharpened wood, approximately 50 mm square, protruding below bottom of geotextile to allow minimum 450 mm embedment; post spacing 2.4 m maximum. Securely fasten each post to geotextile and net backing using suitable staples.
2.1.2. Gradations to be within limits specified when tested to ASTM C117-13 (Standard Test Method for Materials Finer than 0.075 mm (No. 200) Sieve in Mineral Aggregates by Washing) and ASTM C136-06 (Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates). Sieve sizes to SCC CAN/CGSB-8.1-88 (Sieves, Testing, Woven Wire, Inch Series) and CAN/CGSB-8.2-M88 (Sieves, Testing, Woven Wire, Metric Series).
2.1.3. Import fill materials to meet the following minimum requirements
2.1.3.1. Import fill materials must be granular aggregate must be composed of inert, clean, tough, durable particles of crushed rock, gravel and sand capable of withstanding the deleterious effects of exposure to water, freeze-thaw, handling, spreading and compacting. The aggregate particles must be uniform in quality and free from cinders, ashes, refuse, organics (e.g. sod, roots, wood), other deleterious materials, and free from an excess of flat or elongated pieces. Import fill materials must be compatible with existing insitu materials on Site.
2.1.3.2. Import fill materials must be approved by the Departmental Representative and originate from a clean source, and be below the standards in the Yukon Contaminated Sites Regulation applicable at the proposed receiving site. The

analytical testing program to verify compliance with the above regulatory requirements should be determined by the Contractor's Qualified Professional.

2.1.3.3. Import fill material that is cobble sized or larger (> 64mm) brought onsite must be tested by the Contractor for Acid Rock Drainage (ARD) and Metals Leaching (ML) potential using acid base accounting (ABA) for assessment of ARD potential and more specifically using the Modified Sobek Test Method. The potential for metals leaching must use Shake Flask Extraction (SFE) Method for analysis of metals leaching. See guidance document Price 2009, Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials MEND Report 1.20.1, Natural Resources Canada.

2.1.3.4. Any import fill material which has a discrete sample exceeding the standards or guidelines specified must be removed from the Site and replaced, including relevant placed material, as instructed by the Departmental Representative, and an alternate source of fill must be provided, with no increases to Contract Amount or Extension of Time for completion of the Work.

2.1.4. Import fill material additional testing:

2.1.4.1. Perform additional testing as instructed by the Departmental Representative.

2.1.4.2. Facilitate testing by the Departmental Representative.

2.1.5. Asphalt, as required, must, at minimum, meet the specifications for: Upper Course #1 mix-type as specified in Section 32 12 16, Hot Mix Asphalt Concrete Paving; of the BC Master Municipal Construction Document (2009) Platinum Edition.

3. PART 3 - EXECUTION

3.1. Examination

3.1.1. Site Verification of Conditions:

3.1.1.1. Contractor to determine condition of existing Site and requirements to make the Site suitable for Work.

3.2. Mobilization Requirements

3.2.1. Do not mobilize until instructed by Departmental Representative.

3.2.2. Mobilize all necessary equipment, materials and personnel to the Site in an orderly and efficient manner.

3.3. Site Preparation and Operation

3.3.1. Site Preparation and operation includes construction, operation and maintenance for the duration of the Work,

3.3.2. Remove and dispose all surficial Non-Contaminated Material at a Landfill to allow access for Work.

3.3.3. Clearing and grubbing of the Site to allow access for Work.

3.3.3.1. Clearing consists of removing Non-Contaminated Material vegetation above existing ground surface to facilitate Work. Includes: cutting off trees and

brush vegetative growth, felled trees, previously uprooted trees and stumps. Trees may be chipped and used on Site as part of Site Restoration. Dispose of Non-Contaminated Material at a Landfill.

3.3.3.2. Grubbing consists of excavation of Non-Contaminated Material below existing ground surface to facilitate Work. Includes: stumps, roots, boulders and rock fragments. Dispose of Non-Contaminated Material at a Landfill.

3.3.4. Remove obstructions, ice and snow, from surfaces to be worked.

3.3.5. Stripping of Topsoil (organic containing soil)

3.3.5.1. Commence Topsoil stripping of areas according to Drawings after clearing and grubbing.

3.3.5.2. Strip Topsoil to depths according to Drawings. Do not mix Topsoil with other soils.

3.3.5.3. Stockpile Topsoil as directed by Departmental Representative.

3.3.5.4. Reuse Topsoil as Owner Supplied Backfill as directed by Departmental Representative. Dispose of unused Topsoil as Non-Contaminated Material as directed by Departmental Representative.

3.3.6. Stripping of Overburden

3.3.6.1. Commence Overburden stripping of areas according to Drawings after stripping of Topsoil.

3.3.6.2. Strip Overburden to depths according to Drawings. Do not mix Overburden with other soils.

3.3.6.3. Stockpile Overburden as directed by Departmental Representative.

3.3.6.4. Testing of Overburden may be required if suspected of being contaminated. Contaminated Overburden will be considered Contaminated Material.

3.3.6.5. Reuse Overburden as Owner Supplied Backfill as directed by Departmental Representative and agreed to by Qualified Professional. Dispose of unused Overburden as Non-Contaminated Material as directed by Departmental Representative.

3.3.7. Decommission monitoring wells encountered incidentally within final Contaminated Material Extents.

3.3.7.1. Decommission monitoring wells extending below the Contaminated Material Extents in accordance with methods in BC Groundwater Protection Regulation or the Yukon Environment Protocol 7: Groundwater Monitoring Well Installation, Sampling and Decommissioning, as appropriate.

3.3.7.2. Protect monitoring wells outside Contaminated Material Extents. Replace damaged monitoring wells as directed by the Departmental Representative at Contractor's expense.

3.3.8. Protection:

3.3.8.1. Protect existing features with temporary barriers and enclosures as required by applicable local regulations.

3.3.8.2. Keep excavations clean, free of standing water, and loose soil or sediment.

3.3.8.3. Protect natural and man-made features required to remain undisturbed. Unless otherwise required or located in an area to be occupied by new construction, protect existing trees from damage.

3.3.8.4. Protect buried utilities that are required to remain undisturbed.

3.3.8.5. Provide temporary structures to divert flow of surface water from excavation.
3.3.9. Security and Safety:
3.3.9.1. Provide safety measures to ensure worker and public safety.
3.3.9.2. Ensure Site is secure during onsite Work, provide, install, and remove fencing, temporary hoarding, and other security measures as required and specified.
3.3.10. Site including all restoration and excavation areas should be secured with locked fencing, temporary hoarding and security personnel.

3.4. Import Fill Material

3.4.1. Do not import fill material until Departmental Representative has completed and analysed testing. Testing and analysis will depend on parameters. Testing will be performed at industry regular (standard) turnaround times (i.e. not priority, emergency, same day or other rush turnaround times).
3.4.2. Departmental Representative will inspect import fill material, and will not allow import of fill material that varies from Submittal samples.

3.5. Site Restoration

3.5.1. Final site grades must be within 5 cm of pre-existing grades before Work commenced, unless otherwise specified.
3.5.2. Clean permanent access roads of contamination resulting from project activity as required or as instructed of Departmental Representative, with no increases to Contract Amount or Extension of Time for completion of the Work.
3.5.3. Decontaminate equipment used in construction processes and remove from Site at end of construction activities.
3.5.4. Remove all temporary structures including subsurface structures for shoring support.
3.5.5. Revegetate disturbed areas, including excavated area and stockpile area, with fertilizer and seed mixture appropriate for location. Broadcast seed in the disturbed areas with a native plant seed mix. Seek Departmental Representative approval of the proposed native plant seed mix and supplier prior to ordering. The native seed mix must be free of invasive species. Apply seed in accordance with supplier's recommendations. No overspray is to occur onto equipment, roadways, utilities, structures, waterbodies, or environmentally sensitive areas.
3.5.6. Upon Final Completion of Work, remove Non-Contaminated Material materials and debris, trim slopes, and correct defects as instructed by the Departmental Representative.
3.5.7. Protect newly graded areas from traffic and erosion and maintain free of trash or debris until demobilization is completed and accepted by the Departmental Representative.
3.5.8. Reinstate pre-existing utilities, existing site access roads impacted by excavations and other infrastructure to original location and condition, meting current standards, codes, and other requirements, unless otherwise indicated or as instructed by the Departmental Representative.

3.5.9. Reinstate surface to pre-existing conditions, including surface material (e.g. vegetation, gravel, pavement), unless otherwise indicated or as directed by the Departmental Representative.

3.6. Demobilization

3.6.1. Do not demobilize until instructed by Departmental Representative.

3.6.2. Demobilize all necessary equipment, materials, and personnel from Site in an orderly and efficient manner.

END OF SECTION

1. PART 1 – General

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. References

1.3.1. U.S. Environmental Protection Agency (EPA)/Office of Water

1.3.1.1. EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices

2. PART 2 – PRODUCTS

2.1. Not Used

3. PART 3 – EXECUTION

3.1. Stripping of Topsoil (Organic Containing Soil)

3.1.1. Ensure that procedures are conducted in accordance with applicable Federal requirements.

3.1.2. Remove topsoil before construction procedures commence to avoid compaction of topsoil.

3.1.3. Handle topsoil only when it is dry and warm.

3.1.4. Remove vegetation from targeted areas by non-chemical means and dispose at an appropriate offsite facility.

3.1.5. Remove brush from targeted area by non-chemical means and dispose at an appropriate offsite facility.

3.1.6. Strip topsoil by scraper to depths as indicated by Drawings and Departmental Representative

3.1.6.1. Avoid mixing topsoil with subsoil.

3.1.7. Transfer topsoil to designated soil spoil area and pile by mechanical hoe

3.1.7.1. Stockpile height not to exceed 2.5 - 3 m.

3.1.8. Dispose of unused topsoil as directed by Departmental Representative.

3.1.9. Protect stockpiles from contamination and compaction.

3.1.10. Unused topsoil piles must be spread on Site or removed from Site before Completion of the Work.

3.2. Preparation of Grade

3.2.1. Verify that grades are correct and notify Departmental Representative if discrepancies occur. Do not begin work until instructed by Departmental Representative.

3.2.1.1. Grade soil with scrapers eliminating uneven areas and low spots, ensuring positive drainage.

3.2.1.2. Refer to included Borehole and test pit logs.

END OF SECTION

1. PART 1 - GENERAL

1.1. Measurement Procedures

1.1.1. See 01 11 00.

1.2. Definitions

1.2.1. See 01 11 00.

1.3. Action and Informational Submittals

1.3.1. Temporary Hoarding and Fencing: at least 5 Working Days prior to installation, Submit a description of temporary hoarding and fencing.

1.3.2. Sloping, Shoring, Excavation and Backfilling Plan: within 10 Working Days after Contract award and prior to mobilization to Site, Submit documentation describing excavation Work. Include:

1.3.2.1. Excavation temporary slope design.

1.3.2.2. Excavation temporary shoring design.

1.3.2.3. Support of structures design.

1.3.2.4. Sequence, methods and means for excavation dewatering and heave protection.

1.3.2.5. Backfilling requirements. Meet or exceed requirements in accordance with the Contract and any other codes, bylaws, rules and regulations applicable to the performance of the Work. Backfilling requirements include Imported Backfill and Owner Supplied Backfill.

1.3.2.6. Procedures for excavations adjacent to utilities or other structures if the excavation has the potential to impact utilities or other structures.

1.3.2.7. Monitoring and inspection requirements, including frequency or milestones when a Qualified Professional must inspect Works.

1.3.2.8. Sloping, Shoring, Excavation and Backfilling Plan must be signed and sealed by a Qualified Professional, as required by ground conditions, excavation depth, shoring type, or support type.

1.3.3. Monitoring and Testing Results: within 5 Working Days of sampling, Submit all monitoring and testing results. Include procedures, frequency of sampling, Quality Assurance and Quality Control testing and documentation to be provided. Provide monitoring and testing results, including any assessments performed by a Qualified Professional. Include:

1.3.3.1. Noise monitoring.

1.3.3.2. Vibration monitoring.

1.3.3.3. Imported backfill material, including geotechnical and environmental quality.

1.3.3.4. Compaction testing results.

1.3.4. Weigh Scale Certification: at least 5 Working Days prior to use, Submit a copy of the Measurement Canada, Weigh Scale Certification for any onsite or offsite weigh scale used during transportation, treatment or disposal.

1.3.5. Weigh Scale Slips: within 10 days of measurement, Submit all onsite and offsite weigh scale slips for material.

2. PART 2 - PRODUCTS

2.1. Backfill Material

2.1.1. Meet backfill requirements according to Drawings.

2.1.2. Meet appropriate grain size distribution from Aggregate Gradations of the current version of BC Ministry of Transportation and Infrastructure Standard Specifications for Highway Construction, the *Yukon Highways Act*, or equivalent.

3. PART 3 - EXECUTION

3.1. Site Review

3.1.1. Ensure that all Works comply with the final sealed design documents as prepared by a Qualified Professional.

3.1.2. Qualified Professional to visit Site regularly.

3.2. Install Temporary Hoarding and Fencing

3.2.1. Place temporary hoarding and fencing according to Drawings or as otherwise required so as to provide a visual, environmental, and safety barrier between the Site and neighbouring properties. Fencing must be installed where appropriate for safety of workers or public, or to separate work zones of different Prime Contractors.

3.2.2. Temporary hoarding and fencing to be a minimum of 2.4 m in height.

3.2.3. Temporary hoarding and fencing not to extend beyond the project Site boundary in accordance with the Contract.

3.2.4. Remove and replace temporary hoarding and fencing during excavation activities where excavation along the project Site boundary cannot be accomplished while the temporary hoarding is in place.

3.2.5. The type of temporary hoarding and fencing used will be as selected by the Contractor, but will be subject to approval be Departmental Representative. The temporary hoarding must not have visible holes and must be a neutral color subject to acceptance by Departmental Representative. Only signage accepted by the Departmental Representative will be allowed. No advertising, company identifications, or other markings permitted.

3.2.6. Remove temporary hoarding and fencing from the Site during the Site Restoration.

3.3. Design, Construction and Operation of Onsite Access Road(s)

3.3.1. Construct, operate and maintain the onsite access road(s) as required.

3.3.2. Design of temporary onsite access roads to be signed and sealed by a Qualified Professional.

3.3.3. Qualified Professional to confirm that the temporary onsite access roads allow for the safe transport of materials and equipment.

3.3.4. Any temporary access, detour and haul roads associated with the project must be constructed to accommodate all required uses and be maintained throughout the course of construction operations in a safe, environmentally sound manner.
3.3.5. Location, alignment, design and construction of all detour, access and haul road(s) subject to the acceptance of the Departmental Representative.
3.3.6. Employ suitable measures to maintain quality, visibility, and safe conditions in the use of access, detour and haul road(s) associated with the Work.

3.4. Temporary Sloping and Shoring

3.4.1. Determine appropriate sloping or shoring to allow excavation of Contaminated Material Extents according to Drawings or as directed by Departmental Representative.
3.4.2. Design Requirements:
3.4.2.1. Act as sloping or shoring structures for excavations during remediation/construction excavation procedures.
3.4.2.2. Allow excavation of all Contaminated Material laterally and vertically on the Site to Contaminated Material Extents in accordance with the Contract. Allow excavation of additional Contaminated Material beyond Contaminated Material Extents as determined by Departmental Representative based on field observations or Confirmation Samples.
3.4.2.3. Provide a safe working environment for personnel and equipment within the dewatered excavation area.
3.4.2.4. Additional sloping or shoring may be required to extend excavation beyond Contaminated Material Extents according to Drawings. Revise Temporary Sloping and Shoring design as required by Qualified Professional.
3.4.2.5. Temporary shoring cannot have any tiebacks or supports which extend beyond the project Site boundary. Temporary shoring must not flex or bend when exposed while excavations are occurring on the Site.
3.4.2.6. Seismic Resistance of Temporary shoring:
3.4.2.6.1. Shoring structures are temporary structures only. Resistance to seismic loads will be at the discretion of the Qualified Professional.
3.4.2.6.2. Be responsible for any failures and resultant costs should the Temporary shoring fail due to a seismic event during the construction period.
3.4.2.7. All Shop Drawings to be signed and sealed by a Qualified Professional.
3.4.2.8. Temporary sloping and shoring designs to be completed in accordance with methods in current version of Canadian Foundation Engineering Manual.
3.4.3. Installation:
3.4.3.1. All installation activities must take place on the Site. No staging or construction activities are to take place on adjacent properties.
3.4.3.2. Installation must be regularly inspected by a Qualified Professional.
3.4.4. Maintain side slopes of excavations in safe condition by appropriate methods and in accordance with relevant regulations.
3.4.5. Construct temporary Works to depths, heights and locations to meet project requirements.
3.4.6. During backfill operation:

3.4.6.1. Unless otherwise indicated or as instructed by the Departmental Representative, remove Temporary shoring from excavations.
3.4.6.2. Do not remove shoring until backfilling has reached respective levels of such bracing.
3.4.6.3. Remove shoring in increments that ensure compacted backfill is maintained at elevation at least 500 mm above toe of shoring.

3.5. **Dewatering and Heave Protection**
3.5.1. Keep excavations free of water while Work is in progress unless otherwise indicated or as directed by the Departmental Representative.
3.5.2. Provide to Departmental Representative details of proposed dewatering or heave prevention methods, including dikes, well points, and sheet pile cut-offs.
3.5.3. Plan for excavation below groundwater table to avoid quick conditions or heave.
3.5.4. Prevent piping or bottom heave of excavations by groundwater lowering, sheet pile cut-offs, or other means.
3.5.5. Provide and maintain temporary drainage ditches and other diversions outside of excavation limits.
3.5.6. Keep excavations, staging pads, and other Work areas free from water including standby equipment necessary to ensure continuous operation of dewatering system.
3.5.7. Dewatering Methods: includes sheeting and shoring; groundwater control systems; surface or free water control systems employing ditches, diversions, drains, pipes and/or pumps; and other measures necessary to enable Work to be carried out in dry conditions.
3.5.8. Separate Contaminated Water from Non-Contaminated Water and collect and divert to Contaminated Water Treatment Plant as required.

3.6. Excavation
3.6.1. Notify Departmental Representative at least 5 Working Days in advance of excavation operations.
3.6.2. Excavate to lines, grades, elevations and dimensions in accordance with the Contract or as instructed by Departmental Representative.
3.6.3. Excavate all Contaminated Material laterally and vertically on the Site to Top of Excavation Contaminated Material Extents in accordance with the Contract. Excavate Side Slopes in accordance with Contract. Excavate additional Contaminated Material beyond Contaminated Material Extents in order to result in no residual contamination at the Site based on field observations or Confirmation Samples.
3.6.4. Elevations shown on Drawings are approximate and final excavation elevations to be determined based on field conditions as instructed by the Departmental Representative.
3.6.5. Excavation must not interfere with bearing capacity of adjacent foundations and infrastructure.
3.6.6. Machine cut banks and slopes.
3.6.7. Protect bottom of excavations from excessive traffic.

3.6.8. Grade excavation top perimeter to prevent surface water run-off into excavation.
3.6.9. Keep excavated and stockpiled materials safe distance away from edge of excavation.
3.6.10. Restrict vehicle operations directly adjacent to open excavations.
3.6.11. Segregate and handle to minimize the amount of Hazardous Waste materials wherever possible, while complying with Hazardous Waste disposal regulations. Segregation of Hazardous Waste during excavation will be by visual and olfactory characteristics and available in-situ characterization.
3.6.12. Contaminated Material onsite classification will be based on available in-situ characterization or ex-situ characterization as instructed by Departmental Representative.
3.6.13. Non-Contaminated Material onsite classification will be based on available in-situ characterization or ex-situ characterization as instructed by Departmental Representative.
3.6.14. Remove Waste Oversize Debris. Break or cut oversize debris into manageable size.
3.6.14.1. Piles encountered during excavation must be cut off at base of excavation. Piles are not to be extracted.
3.6.14.2. Debris that impinges on infrastructure or neighbouring properties is not to be removed unless instructed by Departmental Representative. Qualified Professional to confirm debris can be removed without impacting infrastructure or neighbouring properties.
3.6.15. Remove Non-Contaminated Material to Landfill or re-use as Backfill-Owner Supplied as shown on Drawings and as directed by Departmental Representative.
3.6.16. Remove Contaminated Material to onsite Treatment Facility or offsite Treatment Facility or offsite Disposal Facility.
3.6.17. Bases of excavations to be undisturbed bedrock, soil or sediment, level, free from loose, soft or organic material. Final depths of excavations to be determined by the Departmental Representative based on actual field conditions.
3.6.18. Notify Departmental Representative when bottom of excavation is reached based on Contaminated Material Extents.
3.6.19. Provide assistance to the Departmental Representative for collection of Confirmation Samples using a backhoe or excavator, or as directed by the Departmental Representative.
3.6.20. Obtain acceptance by Departmental Representative of completed excavation.

3.7. Backfill Types and Compaction

3.7.1. Use only Imported Backfill, Overburden Backfill, or Owner Supplied Backfill in accordance with the Contract and which has been recommended by a Qualified Professional, and been previously accepted as a Submittal.
3.7.2. Compact material in accordance with the Contract to ensure no long-term settlement and is suitable for planned post-remediation use:
3.7.2.1. Compact each layer of material to the more stringent of Excavation Plan or Drawings.

3.7.2.2. Machine compact all fill materials unless otherwise shown on Drawings.

3.8. Backfilling

3.8.1. Do not proceed with backfilling operations until completion of following:

3.8.1.1. Confirmation Sampling, analysis, and assessment have been completed by the Departmental Representative. Confirmation Sample analysis and assessment may take up to 5 Working Days, not including the day of sample collection. No Standby Time charges or increases to Contract Amount or Extension of Time for completion of the Work can be incurred for Confirmation Sample results provided within 5 Working Days, not including day of sample collection.

3.8.1.2. Surveying has been completed by a Land Surveyor for as-built documents.

3.8.1.3. Departmental Representative has inspected and excavation limits accepted by the Departmental Representative based on survey data and Confirmation Samples results.

3.8.1.4. Departmental Representative has inspected and accepted backfill material.

3.8.1.5. Proposed backfill material can be sampled and tested for geotechnical and environmental quality. Backfill material testing may take up to 5 Working Days not including day of sample collection.

3.8.1.6. Departmental Representative has inspected and accepted compaction results for previous lift.

3.8.1.7. Removal of shoring and bracing; backfilling of voids with satisfactory backfill material.

3.8.2. Areas to be backfilled to be free from debris, snow, ice, water and frozen ground.

3.8.3. Do not use backfill material which is frozen or contains ice, snow or debris.

3.8.4. Place backfill material in uniform layers not exceeding 300 mm compacted thickness, or in accordance with the Contract. Compact each layer to the satisfaction of the Qualified Professional and in accordance with the Contract before placing succeeding layer.

3.8.5. Backfill compaction to be tested by a Qualified Professional in accordance with Excavation Plan.

3.8.6. Notify Departmental Representative when final backfill grade is reached.

3.8.7. Do not begin subsequent Work until surveying has been completed by the Departmental Representative for documentation.

3.9. Overburden and Owner Supplied Material Backfilling

3.9.1. Place in locations in excavation as directed by Departmental Representative.

3.9.2. Be responsible for compacting to the satisfaction of the Qualified Professional and in accordance with the Contract.

3.9.2.1. Collect and test samples prior to placement as required by the Qualified Professional.

3.9.2.2. Identify any geotechnical concerns prior to placement, and obtain Departmental Representative approval to proceed.

END OF SECTION

1. PART 1 – General

1.1. REFERENCES

1.1.1. ASTM D746 - 07 Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact ASTM D 698-07e1, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN-m/m ^{3}).

1.1.2. ASTM D1004-94a(2003) Standard Test Method for Initial Tear Resistance of Plastic Film and Sheeting

1.1.3. ASTM D1505 - 10 Standard Test Method for Density of Plastics by the Density-Gradient Technique

1.1.4. ASTM D1603 - 06 Standard Test Method for Carbon Black Content in Olefin Plastics

1.1.5. ASTM D4833 - 07 Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products

1.1.6. ASTM D5199 - 11 Standard Test Method for Measuring the Nominal Thickness of Geosynthetics

1.1.7. ASTM D5596 - 03(2009) Standard Test Method for Microscopic Evaluation of the Dispersion of Carbon Black in Polyolefin Geosynthetics

1.1.8. ASTM D5994 - 10 Standard Test Method for Measuring Core Thickness of Textured Geomembrane

1.1.9. ASTM D6693 - 04(2010) Standard Test Method for Determining Tensile Properties of Nonreinforced Polyethylene and Nonreinforced Flexible Polypropylene Geomembranes

1.2. DELIVERY, STORAGE AND HANDLING

1.2.1. During delivery and storage, protect geo-membranes from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris and rodents.

1.3. WASTE MANAGEMENT AND DISPOSAL

1.3.1. Remove from site and dispose of packaging materials at appropriate recycling facilities.

2. PART 2 - PRODUCTS

2.1. MATERIALS

2.1.1. See attached material specifications or to meet equivalent material specifications.

3. PART 3 - EXECUTION

3.1. INSTALLATION

3.1.1. Maintain area of installation free of water and snow accumulations.

3.1.2. Prepare excessively soft supporting material as directed by Departmental Representative.

3.1.3. Do not proceed with panel placement and seaming when ambient temperatures are below minus 5 degrees C or above 40 degrees C, during precipitation, in presence of excessive moisture (eg. fog, dew), nor in presence of high winds.

3.1.4. Place and seam panels in accordance with manufacturer's recommendations on graded surface. Minimize wrinkles, avoid scratches and crimps to geomembranes and avoid damage to supporting material.

3.1.5. Protect installed membrane from displacement, damage or deterioration before, during and after placement of material layers.

3.1.6. Replace damaged, torn or permanently twisted panels to approval of Departmental Representative. Remove rejected damaged panels from site.

3.1.7. Keep field seaming to minimum. Locate field seams up and down slopes, with no horizontal field seam less than 1.5 m beyond toe of slope.

3.1.8. Keep seam area clean and free of moisture, dust, dirt, debris and foreign material.

3.1.9. Make field seam samples in accordance with requirements described in PART 2 on fragment pieces of geo-membrane and test to verify that seaming conditions are adequate.

3.1.10. Test field seams as seaming work progresses by non-destructive methods over their full length. Repair seams which do not pass non-destructive test. Reconstruct seam between failed location and any passed test location, until non-destructive testing is successful.

3.1.11. Repair minor tears and pinholes by patching until non-destructive testing is successful. Patches to be round or oval in shape, made of same geomembrane material, and extend minimum of 75 mm beyond edge of defect.

3.2. CLEANING

3.2.1. Remove construction debris from Project site and dispose of debris in an environmentally responsible and legal manner.

3.3. PROTECTION

3.3.1. Do not permit vehicular traffic directly on membrane

END OF SECTION

Drawings

Keystone Environmental

Watson Lake Airport AEC 22
Watson Lake, YT
Public Services and Procurement Canada

REVISION No.	DATE	PROJECT No.
00	July 2017	13221-05

Figure 1
Location Plan

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LEGEND

AREA OF ENVIRONMENTAL CONCERN

Keystone Environmental

NOTES:
1. THIS DRAWING IS FOR GENERAL INFORMATION ONLY.
LOT BOUNDARIES AND FEATURES ARE APPROXIMATE.
2. DATE OF AERIAL PHOTO IS 2015.

50 0 250 m

SCALE: 1:7,500 (approx.)

Watson Lake Airport AEC 22
Watson Lake, YT
Public Services and Procurement Canada

REVISION No.	DATE	PROJECT No.
00	July 2017	13221-05

Figure 2
Areas of Environmental Concern

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Keystone Environmental

NOTES:
1. THIS DRAWING IS FOR GENERAL INFORMATION ONLY.
LOT BOUNDARIES AND FEATURES ARE APPROXIMATE.

10 0 50 m

SCALE: 1:1,000 (approx.)

Watson Lake Airport AEC 22
Watson Lake, YT
Public Services and Procurement Canada

REVISION No.	DATE	PROJECT No.
00	July 2017	13221-05

Figure 3

Proposed Remedial Excavation Area (AEC 22A)

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N

MW09-TB-3
MW09-TB-4
22E-MW06-1
22E-BH16-5
22E-MW16-6
MW09-TB-2
MW09-22E-4
MW09-22E-3
MW09-TB-1
MW09-22B-4
22B-BH16-12
22B-MW06-3A
22B-MW06-3
22B-MW06-3C
22B-MW06-3B
22B-MW06-2
22B-BH16-8
22B-MW06-1
22B-MW16-9
MW09-22B-6
MW09-22B-5
22B-BH16-10
22B-TP06-01
22B-BH16-11
MW09-22B-7
BH09-22B-8
22C-MW16-26
22C-TP06-6
MW09-22C-24
22C-TP06-5
22C-BH16-34
MW09-22C-14

5 0 25 m
SCALE: 1:750 (approx.)

LEGEND

- AREA OF ENVIRONMENTAL CONCERN
- BUILDING OUTLINE
- FORMER BUILDING OUTLINE
- FOREST
- ROAD WAY
- BOREHOLE (BY SNC)
- MONITORING WELL (BY SNC)
- TEST PIT (BY SNC)
- SOIL CONCENTRATION(S) LESS THAN CSR STANDARDS
- SOIL CONCENTRATION(S) GREATER THAN CSR CL STANDARDS
- PROPOSED LIMIT OF REMEDIAL EXCAVATION

Keystone Environmental

NOTES:
1) THIS DRAWING IS FOR GENERAL INFORMATION ONLY. LOT BOUNDARIES AND FEATURES ARE APPROXIMATE.

Watson Lake Airport AEC 22
Watson Lake, YT
Public Services and Procurement Canada

REVISION No.	DATE	PROJECT No.
00	July 2017	13221-05

Figure 4
Proposed Remedial Excavation Area
(AEC 22B)

DRAWN BY: CY Document Path: I:\13200-13299\13221 - PWGSC WLA\Phase 00004 - DSI\Figs\AEC22\Fig4-Proposal-AEC22B-R0.mxd

N

MW09-22B-5
22B-BH16-10
22D-MW16-8
22B-TP06-01
22B-BH16-11
22C-MW16-26
22C-TP06-6
MW09-22C-24
MW09-22B-7
MW09-22C-22
22C-BH16-27
BH09-22C-20
MW09-22C-25
22C-TP06-7
BH09-22B-8
22C-BH16-28
22C-MW16-29
6-23
MW09-22C-23
22C-TP06-5
BH09-22C-21
22C-BH16-34
BH09-22C-18
22C-MW16-30
MW09-22C-19
22C-TP06-8
MW09-22C-14
22C-BH16-33
22C-TP06-4
22C-TP06-3
22C-BH16-32
MW09-22C-12
MW09-22C-I
22C-TP06-2
BH09-22C-13
22C-BH16-31
22C-BH16-35
22C-TP06-1
MW09-22C-10
MW09-22C-16
22C-MW06-3
MW09-22C-11
MW09-22C-J
22C-BH16-39
BH09-22C-17
22C-BH16-37
22C-MW06-1
22C-MW16-38
22C-MW06-2

LEGEND

- AREA OF ENVIRONMENTAL CONCERN
- FORMER BUILDING OUTLINE
- FOREST
- ROAD WAY
- BOREHOLE (BY SNC)
- MONITORING WELL (BY SNC)
- TEST PIT (BY SNC)
- SOIL CONCENTRATION(S) LESS THAN CSR STANDARDS
- SOIL CONCENTRATION(S) GREATER THAN CSR CL STANDARDS
- PROPOSED LIMIT OF REMEDIAL EXCAVATION

Keystone Environmental

NOTES:
1. THIS DRAWING IS FOR GENERAL INFORMATION ONLY. LOT BOUNDARIES AND FEATURES ARE APPROXIMATE.

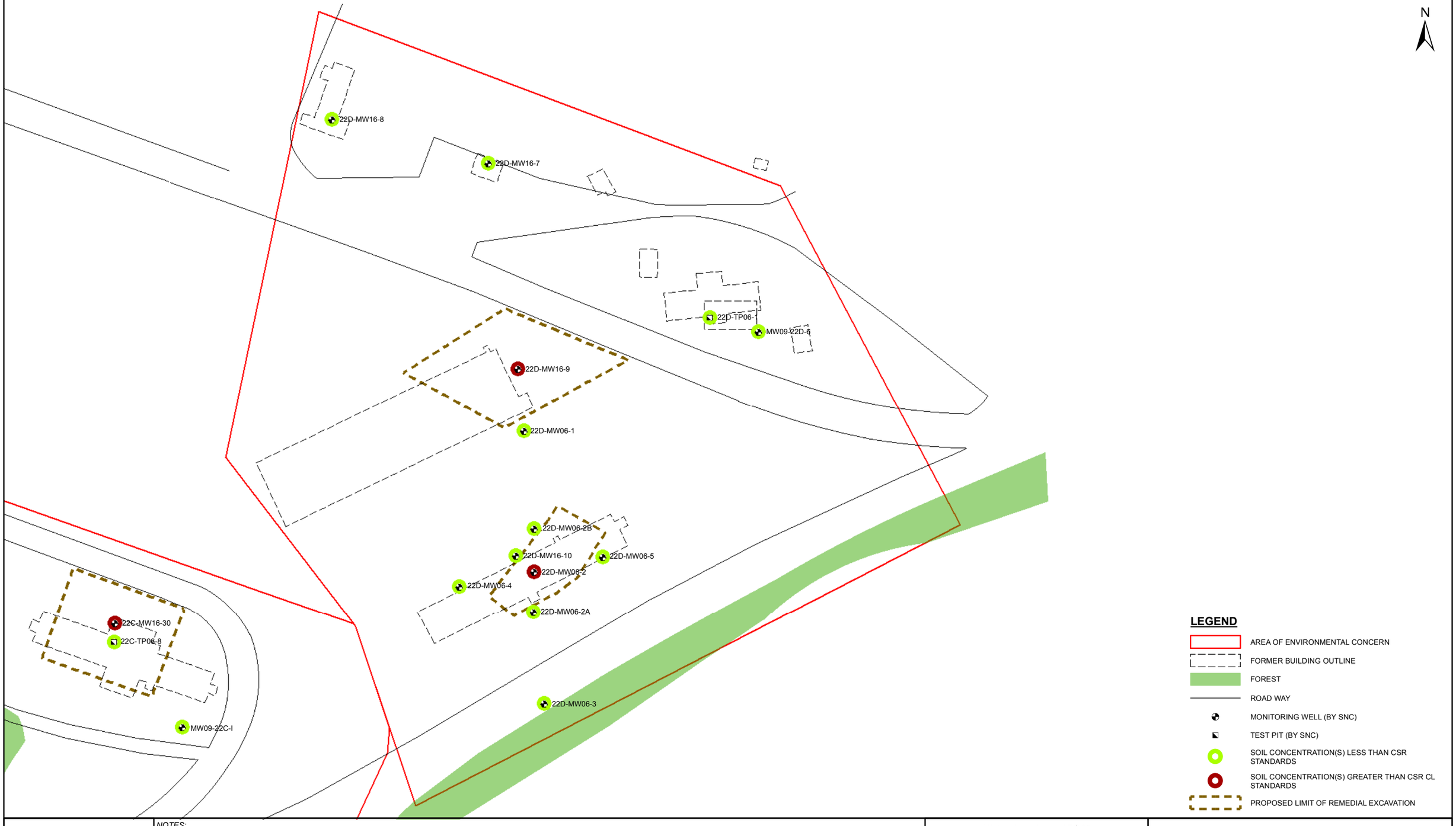
5 0 25 m
SCALE: 1:750 (approx.)

Watson Lake Airport AEC 22
Watson Lake, YT
Public Services and Procurement Canada

REVISION No.	DATE	PROJECT No.
00	July 2017	13221-05

Figure 5
Proposed Remedial Excavation Area
(AEC 22C)

DRAWN BY: CY DOCUMENT PATH: I:\13200-13299\13221 - PWGSC WLA\Phase 00004 - DSI\Figs\AEC22\Fig5-Proposal-AEC22C-R0.mxd



Keystone Environmental

NOTES:
1. THIS DRAWING IS FOR GENERAL INFORMATION ONLY.
LOT BOUNDARIES AND FEATURES ARE APPROXIMATE.

5 0 25 m

SCALE: 1:750 (approx.)

Watson Lake Airport AEC 22
Watson Lake, YT
Public Services and Procurement Canada

REVISION No.	DATE	PROJECT No.
00	July 2017	13221-05

Figure 6

Proposed Remedial Excavation Area (AEC 22D)

DRAWN BY: CY Document Path: I:\13200-13299\13221 - PWGSC WLA\Phase 00004 - DSI\Figs\AEC22\Fig6-Proposal-AEC22D-R0.mxd

N

MW09-TB-3
MW09-TB-4
22E-MW06-1
22E-MW16-6
22E-BH16-5
MW09-TB-2
MW09-22E-4
MW09-22E-3
MW09-TB-1
MW09-22B-4
22B-BH16-12
22B-MW06-3A
22B-MW06-3
22B-MW06-3C
22B-MW06-3B
22B-MW06-2
22B-BH16-8
22B-MW06-1
22B-MW16-9

LEGEND

- AREA OF ENVIRONMENTAL CONCERN
- FORMER BUILDING OUTLINE
- FOREST
- ROAD WAY
- BOREHOLE (BY SNC)
- MONITORING WELL (BY SNC)
- SOIL CONCENTRATION(S) LESS THAN CSR STANDARDS
- SOIL CONCENTRATION(S) GREATER THAN CSR CL STANDARDS
- PROPOSED LIMIT OF REMEDIAL EXCAVATION

Keystone Environmental

NOTES:
1. THIS DRAWING IS FOR GENERAL INFORMATION ONLY. LOT BOUNDARIES AND FEATURES ARE APPROXIMATE.

5 0 25 m

SCALE: 1:750 (approx.)

Watson Lake Airport AEC 22
Watson Lake, YT
Public Services and Procurement Canada

REVISION No.	DATE	PROJECT No.
00	July 2017	13221-05

Figure 7

Proposed Remedial Excavation Area (AEC 22E)

DRAWN BY: CY Document Path: I:\13200-13299\13221 - PWGSC WLA\Phase 00004 - DSI\Figs\AEC22\Fig7-Proposal-AEC22E-R0.mxd

COMPACTION

Compact to density of not less than 95% maximum dry density in accordance with Standard Proctor Maximum Dry Density (ASTM D 698). Contractor may have to use static rolling techniques.

BACKFILLING

Do not use backfill material which is frozen or contains ice, snow or debris. Compact each layer to the satisfaction of the Qualified Professional and in accordance with the Contract before placing succeeding layer.

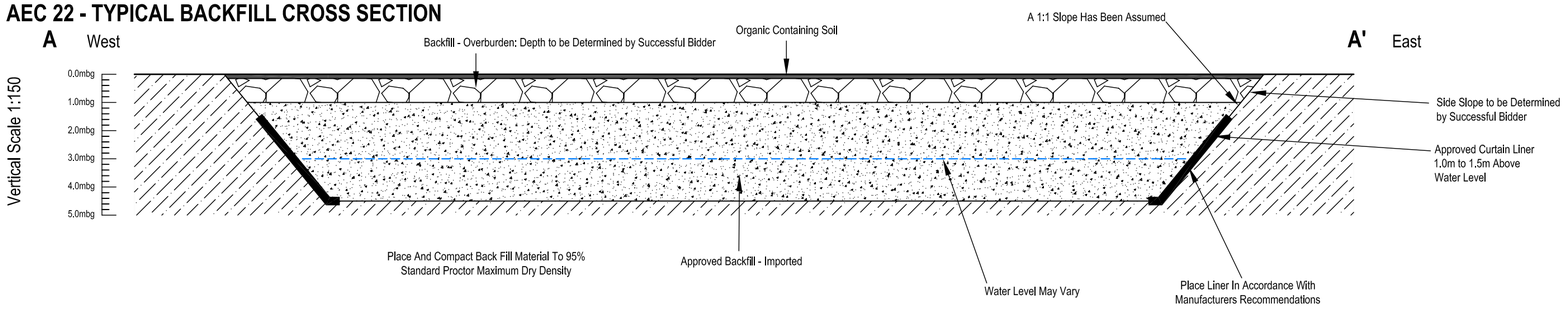
GRADING

Grade to match surrounding grades. Compact each layer to the satisfaction of the Qualified Professional and in accordance with the Contract before placing a succeeding layer.

EROSION AND SEDIMENT CONTROL

Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas, from stockpiles, staging areas, and other work areas. Prevent erosion and sedimentation.

AEC 22 - TYPICAL BACKFILL CROSS SECTION



EXCAVATION - CONTAMINATED SOIL

Depth of excavation to be confirmed through field analytical results. Side slope excavation to be determined by successful bidder.

EXCAVATION -- OVERBURDEN

Overburden volume to be confirmed using analytical results. Side slope excavation to be determined by successful bidder. Overburden to be set aside for reuse as backfill within approximately 300m of excavation.

See analytical results in Appendix E of the Specifications.

EXCAVATION - ORGANIC CONTAINING SOIL

Excavate organic containing soil and set aside within approximately 300m of excavation for reuse over overburden layer.

BACKFILL - IMPORTED/OWNER SUPPLIED

Place approved backfill only. Remove large organic debris during placement.

BACKFILL - OVERBURDEN

Overburden must be compatible with existing granular material on Site. Remove large organic debris during placement.

PREPARATION OF SIDES OF EXCAVATION FOR LINER PLACEMENT

The Sides of Excavation shall be cleared of debris prior to liner placement. The surface shall be free of debris that could puncture the liner.

REVEGETATION

Broadcast native seed mix compatible with the biological and geological climate zone of the Site. Seed mix shall contain a forest species mix.

LEGEND
- Organic Containing Soil
- Soil
- Overburden
- Approved Backfill
- Variable Water Level
- Approved Curtain Liner

Scale: NTS

Title: AEC 22 EXCAVATION & BACKFILL - CROSS SECTIONS

Project: EXCAVATION & BACKFILL

Client: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

Keystone Environmental

Date: JULY 2017

Drawing 8

13221/Phase 00003-SSI/Figs/AEC 22/Rev01/Fig8-Backfill Cross Sections-R1.dwg

APPENDIX A

Site Photographs

Client Name: Public Services and Procurement Canada	Site Location: AEC 22 Watson Lake Airport, Yukon Territory	Project No.

Photo No. 1

Date: July 12, 2017

Direction Photo taken: East

Description: Airport access road

Client Name: Public Services and Procurement Canada	Site Location: AEC 22 Watson Lake Airport, Yukon Territory	Project No.

Photo No. 2

Date: July 12, 2017

Direction Photo taken: East

Description: Access road to AEC 22 A

Client Name: Public Services and Procurement Canada	Site Location: AEC 22 Watson Lake Airport, Yukon Territory	Project No.

Photo No. 3

Date: July 12, 2017

Direction Photo taken: East

Description: AEC 22 A

Client Name: Public Services and Procurement Canada	Site Location: AEC 22 Watson Lake Airport, Yukon Territory	Project No.

Photo No. 4

Date: July 12, 2017

Direction Photo taken:

Description: AEC 22 B

Client Name: Public Services and Procurement Canada	Site Location: AEC 22 Watson Lake Airport, Yukon Territory	Project No.

Photo No. 5

Date: July 12, 2017

Direction Photo taken: West

Description: AEC 22 C

Client Name: Public Services and Procurement Canada	Site Location: AEC 22 Watson Lake Airport, Yukon Territory	Project No.

Photo No. 6

Date: July 12, 2017

Direction Photo taken: East

Description: AEC 22 D

Client Name: Public Services and Procurement Canada	Site Location: AEC 22 Watson Lake Airport, Yukon Territory	Project No.

Photo No. 7

Date: July 12, 2017

Direction Photo taken: West

Description: AEC 22 D

Client Name: Public Services and Procurement Canada	Site Location: AEC 22 Watson Lake Airport, Yukon Territory	Project No.

Photo No. 8

Date: July 12, 2017

Direction Photo taken:

Description: AEC 22 E

APPENDIX B

Environmental Investigations
(Test Pit and Borehole Logs)

NORTH

W E

S

AEC 22E

AEC 22B

AEC 22D

AEC 22A

AEC 22C

WATSON LAKE

LEGEND

0 50 METRES 250

AIRPORT BOUNDARY

AREA OF ENVIRONMENTAL CONCERN

NOTES

1. ORIGINAL DRAWING IN COLOUR.

REFERENCE DRAWINGS

DWG. NO.	DATE	DESCRIPTION
–	–	–

REVISIONS

REV.	DATE	DESCRIPTION	BY	CHK
0	2017-01-04	ISSUED TO CLIENT AS DRAFT	PES	MR

SNC·LAVALIN

CLIENT NAME: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

PROJECT LOCATION: WATSON LAKE AIRPORT YUKON, YT

TITLE:

AREAS OF ENVIRONMENTAL CONCERN 22A-E

DWN BY: PES	SCALE: 1:5,000	DATE: 2017-01-03	DWG No: 640752-002 REV.: 0
CHK'D: MR	PLOT: 20170317.1327	CADFILE: 640752-002	

PATH: P:\CURRENT PROJECTS\PWGSC\640752 WATSON LK APEC 22\4.0 EXECUTION\4.5 GIS AND DRAWINGS\GEOMATICS\CAD\640752-002.DWG

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Borehole No. : 22A-BH16-23

Location
Watson Lake Airport, Watson Lake, YT

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 03
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663940.037	Easting: 509676.007	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Soil Vapour (ppm)

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SAND and SILT (TOPSOIL), fine to medium grained sand, some gravel, fine, dark brown, loose, rootlets and leaves.					45	
	SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, brown, loose.			23-1			0
1							
	Between 1.8 m and 2.3 m - increased gravel, dark brown/grey, moist to wet, hydrocarbon-like odour.			23-2 *23-3			0
2	SAND, medium to coarse grained, trace gravel, fine, dark grey/brown, loose, wet, hydrocarbon-like odour.					76	
	Below 2.7 m - light grey/brown, no odour.						
3							
	Below 3.7 m - some gravel, light grey/light brown.			23-4			0
4							
5							
	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							

SAND
BENTONITE
SLOUGH

NOTES
Bolded sample denotes sample analyzed. \n*23-3 is a blind field duplicate of 23-2.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22A-BH16-24

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 03
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663944.421	Easting: 509638.477	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
0	SAND and GRAVEL, medium to coarse grained sand, fine and coarse gravel, brown, loose, frozen, rootlets and grasses.					50	0
	SAND, fine to medium grained, some silt, some gravel, fine, red/brown, loose, dry to damp.			**24-1**			
1	SAND, medium to coarse grained, some gravel, fine and coarse, light brown, loose, dry to damp.						
2						60	0
	Below 2.7 m - wet.			**24-2**			
3	SAND, coarse grained, trace gravel, fine, light grey/brown, loose, wet.						
4							
5							
	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							

SAND
BENTONITE
SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22A-BH16-25

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 03
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 6663974.428	Easting: 509571.363	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

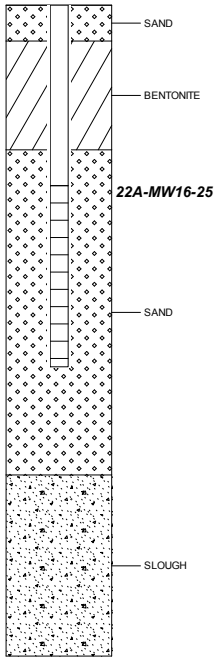
Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: 22A-MW16-25

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SILT and CLAY, some gravel, fine and coarse, subrounded, red/brown, stiff/compact.					50	0
	SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, brown, loose, damp.			25-1			
1	At 1.2 m - boulder/rock.						
	SAND and GRAVEL, fine to medium grained sand, fine gravel, light grey/brown, compact.						
2	Below 2.4 m - wet.					66	0
	SAND, coarse grained, some gravel, coarse, brown/grey, loose, wet.			25-2			
3	Below 3.0 m - trace gravel.						
4	Between 4.6 m and 5.2 m - red/brown.						
5	Below 5.5 m - fine to medium grained sand, light brown, loose to medium dense, wet.						
	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							



NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22A-BH16-26

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 03
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663915.319	Easting: 509470.809	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Soil Vapour (ppm)

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SAND and SILT (TOPSOIL), fine grained, trace gravel, fine, dark brown, loose, rootlets and grasses.						
	SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, brown, loose. Between 0.6 m and 3.0 m - decreased gravel.			**26-1**		45	0
1							
2							
3	SAND, medium to coarse grained, light grey/brown, loose, wet.			**26-2**		60	0
4	Between 3.8 m and 4.1 m - trace gravel.						
5							
	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							

SAND
BENTONITE
SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22A-BH16-27

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 03
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663900.157	Easting: 509481.345	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Soil Description

Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery

Soil Vapour (ppm)
- ○ Reading within indicated scale
- ● Reading outside indicated scale

10^1 10^2 10^3 10^4

Depth in Metres	Soil Description	Sample Number	% Recovery	Soil Vapour (ppm)
0	SAND and GRAVEL, medium grained sand, fine gravel, subrounded to subangular, brown, loose, damp.		58	
		27-1		0
	At 0.8 m - burnt wood debris (charred).			
1	SAND, fine to medium grained, some gravel, fine, brown, loose.			
2				
	SAND, coarse grained, light grey/brown, loose, wet.	27-2	66	0
3				
4				
5				
	Bottom of hole at 5.5 m.			
6				
7				
8				
9				
10				

SAND
BENTONITE
SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22A-BH16-28

PAGE 1 OF 1

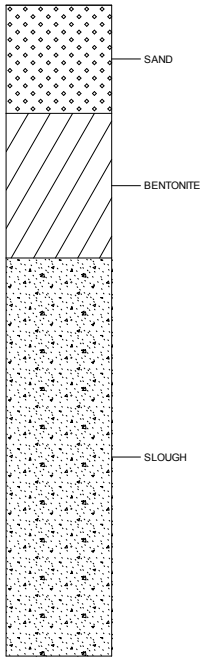
Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 04
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663887.036	Easting: 509489.875	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
0	SAND and SILT (TOPSOIL), fine grained, dark brown, loose, damp/frozen, rootlets and grasses.			28-1		38	0
	SAND and SILT, trace gravel, fine, brown/dark brown, soft, loose, blocky, damp.						
1	SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, subangular to subrounded, brown, loose.						
	SAND and GRAVEL, medium to coarse grained sand, fine and coarse gravel, subangular to angular, light brown, compact, dry.						
2						40	
	Between 2.7 m and 3.0 m - moist to wet.						
3	SAND, medium to coarse grained, trace gravel, fine, light grey/brown, loose, wet.			28-2			0
4							
5	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							



NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22A-BH16-29

PAGE 1 OF 1

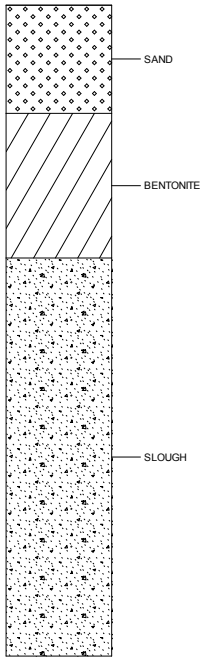
Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 04
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663871.868	Easting: 509495.362	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Soil Vapour (ppm)
- ○ Reading within indicated scale
- ● Reading outside indicated scale

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SAND and SILT (TOPSOIL), fine grained, dark brown, firm, damp/frozen, rootlets and grasses.						
0.3	SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, some silt, brown/dark brown, loose, damp, pockets of fine grained sand.			29-1		50	0
1							
1.5	SAND and GRAVEL, medium grained sand, fine gravel, trace silt, brown, loose.						
2							
3							
3.2	SAND, coarse grained, some gravel, coarse, subrounded to rounded, light grey/brown, loose, wet.			29-2			0
4							
5							
5.5	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							



NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22A-BH16-30

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 04
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 6663845.491	Easting: 509518.125	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

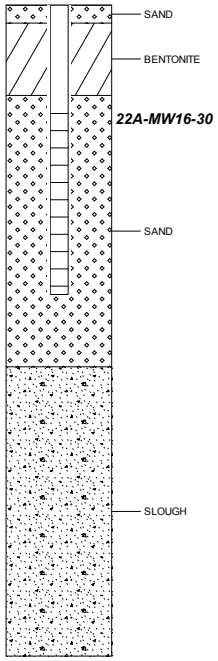
Reading within indicated scale
Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: 22A-MW16-30

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SAND and SILT (TOPSOIL), dark brown, firm, damp/frozen, rootlets and grasses.					58	0
1	SAND and GRAVEL, medium to coarse grained sand, fine and coarse gravel, subrounded to rounded, brown, loose.			**30-1**			
2	SAND, fine grained, grey, wet, hydrocarbon-like odour.			**30-2**			0
3	SAND, coarse grained, some gravel, coarse, subrounded to rounded, light grey/brown, loose, wet, hydrocarbon-like odour.			30-3		40	0
4	Below 4.0 m - no odour.			30-4			0
5							
6	Bottom of hole at 5.5 m.						
7							
8							
9							
10							

Soil Vapour (ppm): 10^1 10^2 10^3 10^4



NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22A-BH16-31

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 04
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663853.779	Easting: 509536.573	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Soil Vapour (ppm)

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SAND and SILT (TOPSOIL), fine grained, dark brown, firm, frozen, rootlets and grasses.						
	SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, trace silt, brown, loose, damp.			31-1		50	0
1							
2	SAND and GRAVEL, medium to coarse grained sand, fine and coarse gravel, light brown, compact, dry to damp.					66	
3	SAND, coarse grained, some gravel, coarse, light grey/brown, loose, wet.			31-2			0
4	Below 4.1 m - increased fine gravel.						
5							
	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							

SAND
BENTONITE
SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22A-BH16-32

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 04
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 6663861.206	Easting: 509549.449	Log Typed By:	HDM

Drilling Legend: Sample Interval; Vibrasonic

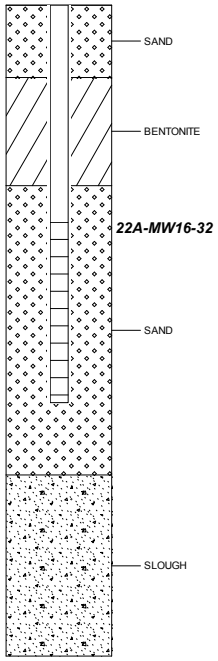
Water/NAPL Levels: Water Level 1; Water Level 2; NAPL; NAPL

Reading within indicated scale; Reading outside indicated scale

Solid PVC; Slotted PVC

Well Name 1: 22A-MW16-32

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SAND and SILT (TOPSOIL), fine grained, some gravel, fine, dark brown, firm, damp/frozen, rootlets.						
	SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, trace silt, brown, loose, dry to damp,			32-1		50	0
1	Below 0.5 m - some silt, dark brown.						
2						60	
3	SAND, medium to coarse grained, trace gravel, fine and coarse, light grey/brown, loose, wet, hydrocarbon-like odour.			32-2 *32-3			0
4	Below 4.3 m - no odour.						
	Below 4.6 m - increased coarse grained sand.						
5							
	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							



NOTES
Bolded sample denotes sample analyzed. \n*32-3 is a blind field duplicate of 32-2.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22A-BH16-33

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 04
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663886.754	Easting: 509576.254	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Soil Description

Depth in Metres | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

- Reading within indicated scale
- Reading outside indicated scale

Soil Vapour (ppm): 10^1 10^2 10^3 10^4

Depth (m)	Description	Sample Number	% Recovery	Soil Vapour (ppm)
0	SAND and SILT (TOPSOIL), fine grained, some gravel, fine and coarse, dark brown, firm, frozen, rootlets and grasses.		50	0
	SILT, some sand, fine grained, trace gravel, fine, red/brown, firm.	**33-1**		
1	SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, light brown, dry.			
2			20	
3				
4				
5	SAND, coarse grained, light grey/brown, loose, wet.	**33-2**		0
6			100	
	Bottom of hole at 6.7 m.			
7				
8				
9				
10				

SAND

BENTONITE

SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22A-BH16-34

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 04
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663900.709	Easting: 509589.374	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Soil Description

Depth in Metres | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

- Reading within indicated scale
- Reading outside indicated scale

Soil Vapour (ppm): 10^1 10^2 10^3 10^4

Depth (m)	Description	Sample Number	% Recovery	Soil Vapour (ppm)
0	SAND and SILT (TOPSOIL), fine grained, some gravel, fine and coarse, dark brown, loose.		83	
	SAND and SILT, red/brown, loose, dry to damp.			
1	SAND, fine to medium grained, trace gravel, fine, yellow/brown, damp to moist.	**34-1**		0
2	SAND and GRAVEL, medium to coarse grained sand, fine and coarse gravel, brown, loose, dry to damp.		67	
3				
4	GRAVEL, coarse, some sand, coarse grained, brown, loose.			
5				
	SAND and GRAVEL, medium to coarse grained sand, fine and coarse gravel, brown, loose, dry to damp.			
6	SAND, coarse grained, light grey/brown, loose, wet.	**34-2**		0
7	Bottom of hole at 7.0 m.			
8				
9				
10				

SAND

BENTONITE

SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22B-BH16-8

PAGE 1 OF 1

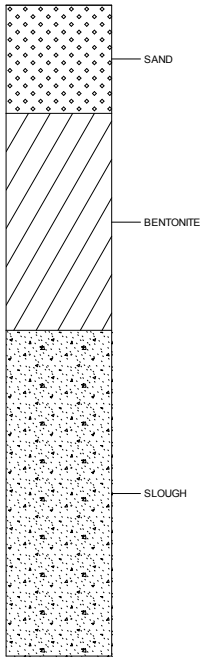
Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 06
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6664103.072	Easting: 509828.164	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
0	ASPHALT.						
	SAND, medium to coarse grained, some gravel, fine and coarse, light brown/brown, loose, damp.			8-1		50	0
1	SAND and GRAVEL, coarse grained sand, fine and coarse gravel, some cobbles, trace silt, brown, loose, damp.						
2	Between 2.1 m and 2.7 m - dark brown, hydrocarbon-like odour.			8-2 *8-3		60	0
3	SAND, coarse grained, some gravel, fine, light grey/brown, loose, wet.			8-4			0
4	Between 4.0 m and 4.6 m - medium to coarse grained sand, no gravel.						
	Below 4.6 m - coarse gravel.						
5	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							



NOTES
Bolded sample denotes sample analyzed. \n*8-3 is a blind field duplicate of 8-2.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22B-BH16-9

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 06
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 6664073.517	Easting: 509833.164	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

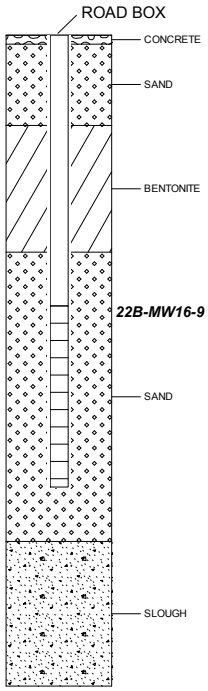
Reading within indicated scale
Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: 22B-MW16-9

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	ASPHALT.						
	SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, some cobbles, brown, loose, dry to damp.			9-1		50	0
1	Between 0.9 m and 1.2 m - increased fine grained sand, decreased gravel, light brown.						
2				9-2		66	0
3	SAND, coarse grained, some gravel, fine, light grey/brown, loose, wet.						
4							
	Below 4.6 m - medium grained sand, red/brown.						
5							
	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							

Soil Vapour (ppm): 10^1 10^2 10^3 10^4



NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22B-BH16-10

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 06
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6664010.838	Easting: 509827.886	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Soil Description

Depth in Metres | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery

- Reading within indicated scale
- Reading outside indicated scale

Soil Vapour (ppm): 10^1 10^2 10^3 10^4

Depth (m)	Soil Description	Sample Number	% Recovery	Soil Vapour (ppm)
0	SAND and SILT (TOPSOIL), fine grained, brown, firm, damp/frozen.	10-1	50	0
	SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, brown, loose, dry to damp.			
1	SILT, some sand, fine grained, some gravel, fine and coarse, red/brown.			
	SAND, coarse grained, some gravel, coarse, light brown, loose, damp.			
	SILT, some sand, fine grained, some gravel, fine and coarse, red/brown.			
2				
	Between 2.7 m and 3.0 m - compact, dry.	10-2	60	0
3	SAND, coarse grained, light brown, loose.			
4				
5				
	Bottom of hole at 5.5 m.			
6				
7				
8				
9				
10				

SAND
BENTONITE
SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22B-BH16-11

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 06
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663968.142	Easting: 509776.759	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
0	SAND and SILT (TOPSOIL), fine to medium grained, some gravel, fine, dark brown, firm, damp/frozen, rootlets and grasses.					58	0
	SAND, medium to coarse grained, brown, loose, damp.			**11-1**			
1	CLAY and SILT, some sand, fine grained, some gravel, fine, black, firm, damp to moist, pockets of grey clay, wood debris.						0
				11-2			
2	SAND and GRAVEL, coarse grained sand, coarse gravel, cobbles, grey, loose, moist to wet.					66	
3	SAND, coarse grained, some gravel, coarse grey/brown, loose, wet.						
4	GRAVEL, coarse, subrounded to rounded, some sand, coarse grained, loose, wet. Between 4.0 m and 4.3 m - brown.			11-3			0
5	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							

SAND
BENTONITE
SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22B-BH16-12

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 06
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6664132.999	Easting: 509846.009	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Soil Description

Depth in Metres

Stratigraphy Plot

Sample Interval Core Run

Sample Number

Blow Count

% Recovery

Reading within indicated scale

Reading outside indicated scale

Soil Vapour (ppm)

10^1 10^2 10^3 10^4

0 ASPHALT.

SAND and GRAVEL, medium to coarse grained sand, fine and coarse gravel, brown, loose, damp.

12-1

63

0

SAND, medium to coarse grained, red/brown.

1 SAND and GRAVEL, medium to coarse grained sand, fine and coarse gravel, brown, loose, damp.

2 Between 1.8 m and 2.4 m - fine grained sand, light brown, dry.

70

Between 2.7 m and 3.0 m - fine grained sand, light brown, dry.

3 Below 3.0 m - moist to wet.

SAND, coarse grained, grey, loose, wet, hydrocarbon-like odour.

12-2

0

4 Below 4.0 m - no odour.

12-3

0

5

Bottom of hole at 5.5 m.

6

7

8

9

10

SAND

BENTONITE

SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22C-BH16-26

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 01
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 6663957.445	Easting: 509832.199	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

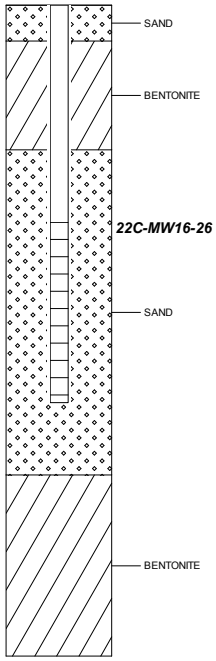
Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: 22C-MW16-26

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SAND and SILT, fine to medium grained, some gravel, fine, brown, loose, damp, rootlets and grasses.					50	
1	SAND, some gravel, fine and coarse, subrounded, brown, damp.			26-1			0
2							
3						60	
4	SAND, medium to coarse grained, grey/brown, loose, wet.			26-2			0
5	Below 4.6 m - coarse grained sand.						
	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							



NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22C-BH16-27

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 01
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663952.339	Easting: 509870.748	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
0	SAND and SILT (TOPSOIL), fine to medium grained, some gravel, fine, dark brown, damp, rootlets and grasses.					50	
0.6	SAND, fine to coarse grained, some gravel, fine, red/brown, loose, damp.			27-1		0	
1	Between 1.1 m and 1.2 m - fine grained sand, trace gravel. Below 1.2 m - dry.						
1.5	Below 1.5 m - light brown, pockets of dark brown, damp.						
2							
3						100	
3.1	SAND, medium to coarse grained, trace gravel, fine, light brown, pockets of orange/brown, loose, wet.			27-2		0	
4							
4.6	SAND, coarse grained, grey, loose, wet.						
5							
5.5	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							

SAND/CUTTINGS
BENTONITE
SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22C-BH16-28

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 01
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663941.420	Easting: 509897.025	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Soil Description

Depth in Metres | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

Soil Vapour (ppm): ○ Reading within indicated scale; ● Reading outside indicated scale; 10^1 10^2 10^3 10^4

0 SAND and SILT (TOPSOIL), fine to medium grained, some gravel, fine, dark brown, damp, rootlets.

SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, brown, loose, damp.

28-1
*28-2

0

1

Below 1.5 m - light brown, dry.

2

Below 2.4 m - brown, damp to moist.

3 SAND, medium to coarse grained, brown, loose, wet.

28-3

0

4

Below 4.6 m - coarse grained sand, grey.

5

Bottom of hole at 5.5 m.

6

7

8

9

10

SAND
BENTONITE
SLOUGH

NOTES
Bolded sample denotes sample analyzed. \n*28-2 is a blind field duplicate of 28-1.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22C-BH16-29

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 02
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 6663941.031	Easting: 509911.360	Log Typed By:	HDM

Drilling Legend: Sample Interval; Vibrasonic

Water/NAPL Levels: Water Level 1; Water Level 2; NAPL; NAPL

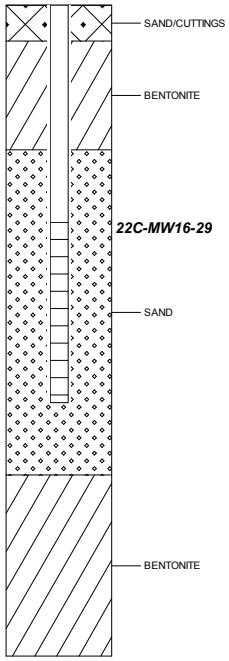
Reading within indicated scale; Reading outside indicated scale

Soil Vapour (ppm)

Solid PVC; Slotted PVC

Well Name 1: 22C-MW16-29

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SILT, SAND and GRAVEL (TOPSOIL), fine to medium grained sand, dark brown, loose, damp, rootlets and grasses.				63		
1	SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, subrounded, brown, loose, damp, sand pockets, light brown.			29-1		0	
2							
3	Below 2.7 m - increased coarse gravel, decreased sand, moist to wet. SAND, coarse grained, trace gravel, fine, grey/brown, loose, wet.				66		
4				29-2		0	
5	Below 4.6 m - some gravel.						
	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							



NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22C-BH16-30

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 02
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 6663915.786	Easting: 509994.686	Log Typed By:	HDM

Drilling Legend: Sample Interval; Vibrasonic

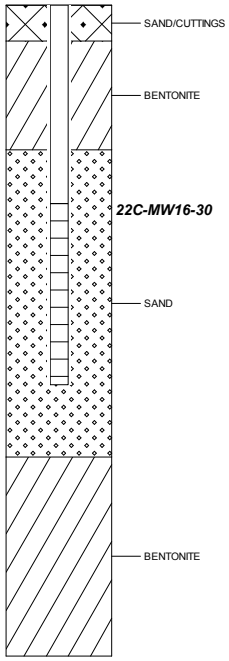
Water/NAPL Levels: Water Level 1; Water Level 2; NAPL; NAPL

Reading within indicated scale; Reading outside indicated scale

Solid PVC; Slotted PVC

Well Name 1: 22C-MW16-30

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SAND and SILT (TOPSOIL), fine to medium grained sand, dark brown, loose, damp to moist/frozen, rootlets and grasses.					63	
1	SAND, GRAVEL and CONCRETE, medium to coarse grained sand, fine gravel, light grey/brown, compact, dry to damp.						0
	SAND and GRAVEL, medium to coarse grained sand, fine gravel, brown, loose, damp to moist.			**30-1**			
2	SAND, light brown, dry to damp.						
	Below 2.4 m - gravel, coarse, subrounded to rounded, cobbles, wet.					60	
3	Between 2.9 m and 3.2 m - black, hydrocarbon-like odour.			**30-2** ***30-3**			0
4							
5							
	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							



NOTES
Bolded sample denotes sample analyzed. \n*30-3 is a blind field duplicate of 30-2.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22C-BH16-31

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 02
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663883.741	Easting: 509925.028	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Soil Description

Depth in Metres | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

- Reading within indicated scale
- Reading outside indicated scale

Soil Vapour (ppm): 10^1 10^2 10^3 10^4

0 SAND and SILT (TOPSOIL), fine to medium grained sand, some gravel, fine and coarse grained, subrounded to rounded, dark brown, loose, damp, rootlets and vegetation.

GRAVEL, fine and coarse, some sand, fine to coarse grained, brown, loose. — 31-1

1 SAND, fine to medium grained, some gravel, fine, brown, dry to damp, sand pockets, light brown.

Below 1.8 m - trace gravel.

2

SAND, coarse grained, loose, wet.

3 Between 3.0 m and 3.7 m - red/brown. — 31-2

4

Between 4.6 m and 5.5 m - grey/brown.

5

Bottom of hole at 5.5 m.

6 7 8 9 10

% Recovery: 50, 0, 80, 0

SAND
BENTONITE
SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22C-BH16-32

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 02
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663897.080	Easting: 509908.076	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
0	SAND and SILT (TOPSOIL), some gravel, fine, dark brown, loose, damp, rootlets and grasses.					50	0
	SAND and GRAVEL, coarse grained sand, coarse gravel, subrounded, brown, loose.			32-1			
1							
2	Between 0.9 m - moist to wet.						
	Below 1.8 m - wet.					56	
3	SAND, coarse grained, brown/grey, loose, wet.			32-2			0
4							
5							
	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							

SAND
BENTONITE
SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22C-BH16-33

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 02
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663910.887	Easting: 509849.934	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Depth in Metres | Soil Description | Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery | Soil Vapour (ppm)

- ○ Reading within indicated scale
- ● Reading outside indicated scale

Soil Vapour (ppm): 10^1 10^2 10^3 10^4

0 SAND and SILT (TOPSOIL), fine to medium grained sand, dark brown, loose, damp to moist, rootlets and grasses.

SAND and GRAVEL, fine grained sand, fine and coarse gravel, subangular to subrounded, some silt, dark brown, loose.

33-1

63

0

1 GRAVEL and COBBLES, coarse, some sand, coarse grained, light grey, compact.

SAND and GRAVEL, medium to coarse grained sand, fine and coarse gravel, brown, loose, damp to moist.

Below 2.1 m - wet.

2

30

3

0

33-2

SAND, coarse grained, light grey/brown, loose, wet.

4

5

Bottom of hole at 5.5 m.

6

7

8

9

10

SAND

BENTONITE

SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22C-BH16-34

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 02
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663921.650	Easting: 509822.895	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Soil Vapour (ppm)

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SAND and SILT (TOPSOIL), brown, loose, rootlets and grasses.			34-1		50	0
1	SAND, fine to medium grained, some silt, some gravel, fine, red/brown, loose, dry to damp.						
2	Below 1.8 m - light brown.					40	
3	GRAVEL, fine and coarse, subrounded, some sand, medium to coarse grained, loose.						0
	SAND, coarse grained, light grey/brown, loose, wet.			34-2			
4	No recovery (suspect SAND).						
5	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							

SAND/CUTTINGS
BENTONITE
SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22C-BH16-35

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 02
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663879.238	Easting: 509748.821	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Soil Vapour (ppm)

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SAND and SILT (TOPSOIL), some gravel, fine, brown, loose, damp, roots and rootlets.					50	0
	SAND, medium to coarse grained, some gravel, fine, red/brown.			35-1			
1	Below 1.2 m - increased coarse grained sand.						
2							
	SAND, coarse grained, some gravel, coarse, grey/brown, loose, wet.			35-2		60	0
3							
	Below 3.7 m - no gravel, grey.						
4							
5							
	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							

SAND/CUTTINGS
BENTONITE
SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22C-BH16-36

PAGE 1 OF 1

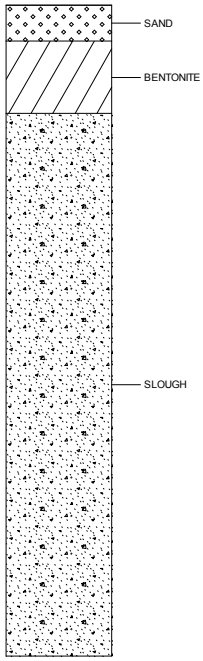
Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 03
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663850.483	Easting: 509725.305	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm) 10^1 10^2 10^3 10^4
0	GRAVEL, coarse, subangular to angular, some sand, coarse grained, brown, loose, frozen.					58	0
	SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, brown, loose to medium dense, damp.			36-1			
1	SAND, coarse grained, some gravel, fine, brown, loose.						
	Below 1.5 m - trace gravel.						
2						80	0
3	GRAVEL, fine, some sand, medium to coarse grained, light grey/brown, loose.			36-2			
4							
5							
	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							



NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22C-BH16-37

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 03
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663836.938	Easting: 509770.407	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Soil Description

Depth in Metres

Stratigraphy Plot

Sample Interval Core Run

Sample Number

Blow Count

% Recovery

- Reading within indicated scale
- Reading outside indicated scale

Soil Vapour (ppm)

10^1 10^2 10^3 10^4

0 SAND and SILT (TOPSOIL), trace gravel, dark brown, roots and rootlets.

SAND and GRAVEL, fine to medium grained sand, fine gravel, subrounded, brown, loose. — 37-1 — 50 — 0

WOOD BARK/DEBRIS

1 SAND, coarse grained, trace gravel, fine, light grey/brown, loose, damp to moist.

Below 1.7 m - wet.

2

60 — 0

3 — 37-2

Below 4.0 m - grey/brown.

4

5

Bottom of hole at 5.5 m.

6

7

8

9

10

SAND

BENTONITE

SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22C-BH16-38

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 03
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 6663826.153	Easting: 509837.220	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

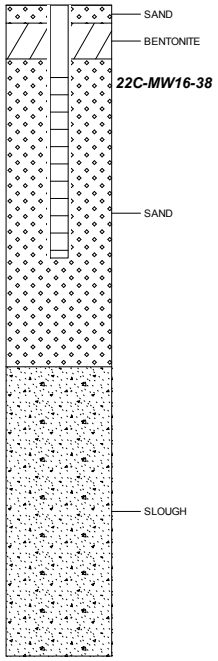
Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: 22C-MW16-38

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, brown, loose, trace rootlets. Between 0.3 m and 0.8 m - increased sand, decreased gravel, light grey/brown.					50	0
1	SAND, coarse grained, trace gravel, fine and coarse, light grey/brown, loose, wet.			**38-1**			
2	Between 1.8 m and 2.4 m - hydrocarbon-like odour.			**38-2** ***38-3**		40	0
3							
4	GRAVEL, fine and coarse, some sand, fine to coarse grained, loose.						
5							
6	Bottom of hole at 5.5 m.						
7							
8							
9							
10							



NOTES
Bolded sample denotes sample analyzed. \n*38-3 is a blind field duplicate of 38-2.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22C-BH16-39

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 03
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663851.884	Easting: 509989.284	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Soil Description

Stratigraphy Plot | Sample Interval Core Run | Sample Number | Blow Count | % Recovery

Soil Vapour (ppm)
- Reading within indicated scale
- Reading outside indicated scale

10^1 10^2 10^3 10^4

Depth in Metres	Soil Description	Sample Number	% Recovery	Soil Vapour (ppm)
0	SAND and SILT (TOPSOIL), fine grained, dark brown, loose, frozen, rootlets and grasses.		50	
	SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, some silt, brown, loose.	39-1	0	
1	Between 0.9 m and 1.5 m - medium coarse grained sand, decreased gravel.			
	SAND, fine to coarse grained, some gravel, fine, light brown, loose, dry to damp.			
2	Below 2.4 m - wet.			
3	SAND, coarse grained, trace gravel, fine, light grey/brown, loose, wet.	39-2	0	
4	Between 4.3 m and 5.5 m - medium to coarse grained sand, grey/brown.			
5				
	Bottom of hole at 5.5 m.			
6				
7				
8				
9				
10				

SAND
BENTONITE
SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22D-BH16-7

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 05
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 6664023.265	Easting: 510037.975	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

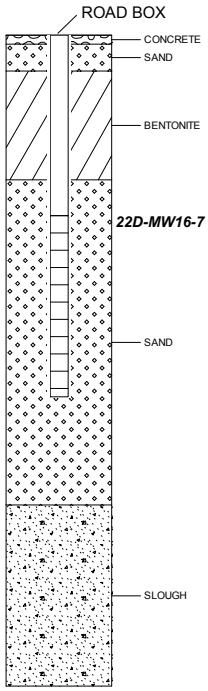
Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: 22D-MW16-7

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	ASPHALT and CONCRETE, some sand, coarse grained, some gravel, coarse, grey, hard, dry to damp.					86	0
	SAND and GRAVEL, coarse grained sand, coarse gravel, some cobbles, brown, loose, damp.			7-1			
1	SILT, trace sand, fine grained, trace gravel, fine, red/brown, firm, rootlets.						
	SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, subangular, some cobbles, light brown, medium dense to dense, dry.						
2	SAND, fine grained, light brown, dry.						
	SAND, medium to coarse grained, some gravel, fine, light grey/brown, loose, wet, hydrocarbon-like odour.			7-2 *7-3			0
3	Below 3.4 m - increased medium grained sand, no odour.						
4	Between 4.0 m and 4.6 m - fine to medium grained sand, brown.						
	Below 4.6 m - medium to coarse grained sand, increased gravel, dark grey.						
5	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							



NOTES
Bolded sample denotes sample analyzed. \n*7-3 is a blind field duplicate of 7-2.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22D-BH16-8

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 04
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 6664012.305	Easting: 510062.241	Log Typed By:	HDM

Drilling Legend: Sample Interval; Vibrasonic

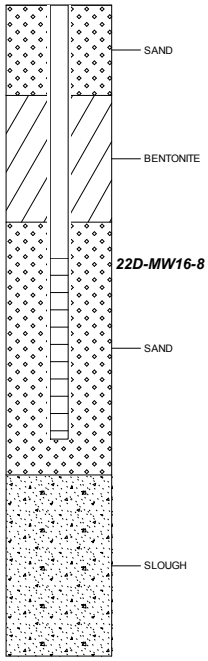
Water/NAPL Levels: Water Level 1; Water Level 2; NAPL; NAPL

Reading within indicated scale; Reading outside indicated scale

Solid PVC; Slotted PVC

Well Name 1: 22D-MW16-8

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SAND and SILT (TOPSOIL), trace gravel, fine, brown/dark brown, loose, dry to damp.			8-1		72	0
	SAND and GRAVEL, fine to medium grained sand, fine gravel, trace cobbles, brown, loose, dry.						
1	SAND, fine grained, trace gravel, fine, light brown, loose, dry.						
	SAND and SILT, fine to medium grained sand, red/brown, loose, rootlets.					100	
2	SAND, fine to medium grained, some gravel, fine and coarse, some cobbles, light brown, dense/compact. Between 1.8 m and 2.1 m - trace gravel.						
	Between 2.7 m and 3.0 m - fine grained sand.						
3	SAND, coarse grained, trace gravel, fine and coarse, grey/brown, loose, wet.			8-2			0
4	Below 3.8 m - medium to coarse grained sand, light grey/brown.						
5	Bottom of hole at 5.2 m.						
6							
7							
8							
9							
10							



NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22D-BH16-9

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 05
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 6663969.901	Easting: 510072.363	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

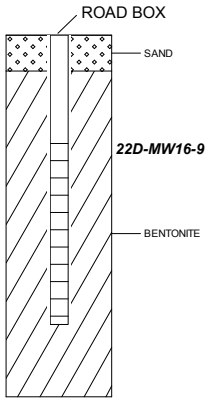
Reading within indicated scale
Reading outside indicated scale

Solid PVC
Slotted PVC

Well Name 1: 22D-MW16-9

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SAND and SILT, fine grained, some gravel, fine, red/brown, loose, dry to damp.			9-1		50	0
	SAND and GRAVEL, medium to coarse grained sand, fine and coarse gravel, brown, loose, dry.						
1	Between 0.9 m and 1.2 m - coarse grained sand, coarse gravel.						0
	SAND, medium to coarse grained, grey, loose, wet, hydrocarbon-like odour.			9-2			
2	Below 2.1 m - increased coarse grained sand, light grey/brown.					60	0
				9-3			
3	Below 3.2 m - no odour.			9-4			0
4	Below 4.0 m - medium to coarse grained sand, dark brown.						
5							
	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							

10^1 10^2 10^3 10^4



NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22D-BH16-10

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 05
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6663925.903	Easting: 510070.037	Log Typed By:	HDM

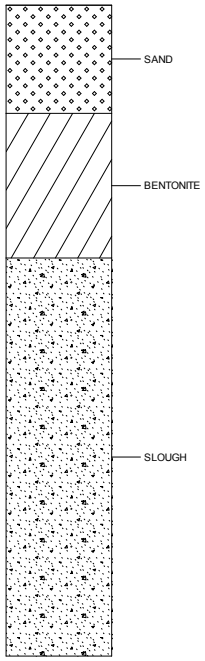
Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Soil Vapour (ppm)

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SAND and SILT (TOPSOIL), fine grained, dark brown, firm, damp/frozen, rootlets and grasses.					50	
	SAND and GRAVEL, medium to coarse grained sand, fine and coarse gravel, brown, loose, damp.						0
1	Between 1.1 m and 1.4 m - increased gravel, damp to moist.						
2	SAND, coarse grained, some gravel, fine and coarse, light grey/brown, loose, hydrocarbon-like odour.			**10-2** ***10-3**		60	0
3	Below 3.0 m - no odour.			**10-4**			0
4							
5	Between 4.7 m and 5.0 m - increased gravel.						
	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							



NOTES
Bolded sample denotes sample analyzed. \n*10-3 is a blind field duplicate of 10-2.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22E-BH16-5

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)		Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 01
Pipe/Slotted Pipe Dia. (m)	none/none	Northing: 6664163.407	Easting: 509762.945	Log Typed By:	HDM

Drilling Legend
- Sample Interval
- Vibrasonic

Water/NAPL Levels
- Water Level 1
- Water Level 2
- NAPL
- NAPL

Reading within indicated scale
Reading outside indicated scale

Soil Vapour (ppm)

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery
0	SAND and GRAVEL, fine to coarse grained sand, fine and coarse gravel, subangular to subrounded, brown, loose, damp, trace rootlets.					80
1	Below 1.1 m - dry.		5-1			0
2						
3	Below 2.4 m - wet, poor recovery.		5-2		30	0
4	Below 4.0 m - dry.					
5	SAND and GRAVEL, coarse grained sand, coarse gravel, light brown, damp to moist.					
	Bottom of hole at 5.5 m.					
6						
7						
8						
9						
10						

SAND/CUTTINGS
BENTONITE
SAND
SLOUGH

NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

SNC·LAVALIN

Client
Public Works and Gov't Services Canada

Location
Watson Lake Airport, Watson Lake, YT

Borehole No. : 22E-BH16-6

PAGE 1 OF 1

Drilling Contractor	Omega Environmental Drilling Ltd.	Date Monitored	n/a	Project Number:	640752
Drilling Method	Vibratory Sonic	Ground Surface Elev. (m)	n/a	Borehole Logged By:	MLC
Borehole Dia. (m)	0.20	Top of Casing Elev. (m)	n/a	Date Drilled:	2016 11 01
Pipe/Slotted Pipe Dia. (m)	0.05/0.05	Northing: 6664171.068	Easting: 509779.937	Log Typed By:	HDM

Drilling Legend: Sample Interval; Vibrasonic

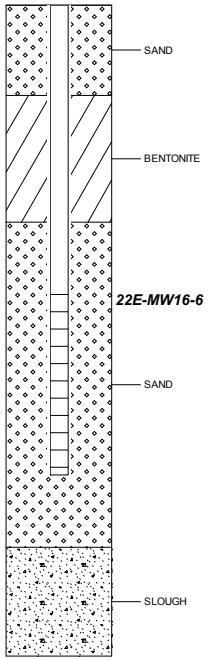
Water/NAPL Levels: Water Level 1; Water Level 2; NAPL; NAPL

Reading within indicated scale; Reading outside indicated scale

Solid PVC; Slotted PVC

Well Name 1: 22E-MW16-6

Depth in Metres	Soil Description	Stratigraphy Plot	Sample Interval Core Run	Sample Number	Blow Count	% Recovery	Soil Vapour (ppm)
0	SAND, medium to coarse grained, some gravel, fine and coarse, subrounded, brown, loose, damp to moist.			6-1		60	0
1	SAND and GRAVEL, medium to coarse grained sand, fine and coarse gravel, brown, loose, damp.						
2	Between 1.8 m and 2.1 m - increased gravel, subrounded, increased cobbles, subrounded.						
	SAND, fine to medium grained, red/brown, medium dense to dense, moist to wet.					100	
3	SAND, medium grained, some gravel, fine, damp to moist.						
	SAND, medium grained, some gravel, fine, brown, loose, wet.						0
4	SAND, medium grained, grey/black, wet, hydrocarbon-like odour.			6-2			
	SAND, medium grained, brown, loose, wet.			6-3			0
5	Bottom of hole at 5.5 m.						
6							
7							
8							
9							
10							



NOTES
Bolded sample denotes sample analyzed.

QA MR 2017 03 22 Print Date:2017-03-22

APPENDIX C

YESAB Decision Documents and Permits

LAND USE PERMIT
PERMIS D'UTILISATION DES TERRES

ENERGY, MINES & RESOURCES
Box 2703, Whitehorse, Yukon Y1A 2C6
Land Management Branch, (K-320)
Phone 667-3173 Fax 667-3214

Permit Class - Permis categorié	Permit No. - N° de permis	YESAB No. - N° de YESAB
A	2017-S742	N/A

Subject to the Land Use Regulation and the terms and conditions in this permit, authority is hereby granted to:

Sous réserve du Règlement sur l'utilisations des terres territoriales et des conditions de ce permis:

TRANSPORT CANADA

Permittee – Détenteur de permis

To proceed with the land use operation described in the application of:

Est autorisé à entreprendre les travaux d'exploitation des terres décrits dans la demande de permis présentée par:

Signature	Date
KELLY HUNNIE	30 MARCH 2017

Type of Land Use Operation – Genre de travaux d'exploitation des terres

INSTALLATION OF MONITORING WELLS, SOIL EXCAVATION AND COLLECTION OF SOIL AND GROUND WATER SAMPLES

Location – Emplacement

13 SITES ON PARCEL E REM LOT 1 (12 drilling and excavation sites; 1 monitoring well) AND 2 MONITORING WELLS NORTH OF THE ROBERT CAMPBELL HIGHWAY, NEAR THE WATSON LAKE AIRPORT

This permit may be assigned, extended, discontinued, suspended or cancelled pursuant to the *Land Use Regulation*.

Ce permis peut faire l'objet d'une cession, d'une prolongation, d'une cessation, d'une suspension ou d'une annulation, en vertu du Règlement sur l'utilisation des terres territoriales.

Dated at / Fait à WHITEHORSE

Engineer / Ingénieur _____

This / Ce 12 Day of / jour de MAY, 2017

Commencement Date / Date du début des travaux **13 MAY 2017**

Expiry Date / Date d'achèvement **12 MAY 2019**

NOTE

IT IS A CONDITION OF THIS PERMIT THAT THE PERMITTEE COMPLY WITH ANY OTHER APPLICABLE ACT, REGULATION, ORDINANCE, BY-LAW OR ORDER. DEFAULT HEREOF MAY RESULT IN SUSPENSION OR CANCELLATION OF THIS PERMIT.

REMARQUE

LE DÉTENTEUR DU PRÉSENT PERMIS DOIT SE CONFORMER À TOUT AUTRE REGLEMENT, LOI, DÉCRET, RÉGLEMENT MUNICIPAL OU ARRÊTÉ APPLICABLE. LE MANQUEMENT À CETTE OBLIGATION POURRAIT DONNER LIEU À LA SUSPENSION OU À L'ANNULATION DU PERMIS.

AEC 22

YESAB N/A

LAND USE PERMIT TERMS AND CONDITIONS

NAME OF PERMITTEE: TRANSPORT CANADA

The following terms and conditions are made pursuant to Section 30(1) of the *Land Use Regulation* and are hereby annexed to and form part of Land Use Permit **2017-S742.**

3.0 PLANS

1. The Permittee's field supervisor shall contact or meet with the Land Use Inspector at the Watson Lake Office of Compliance Monitoring and Inspections. Phone 867-536-7335 at least 48 hours prior to the commencement of this land use operation. **CONTACT INSPECTOR**

2. The Permittee shall not conduct this land use operation on any land not designated in the accepted application and attached maps, unless otherwise authorized in writing by the Engineer. **PLANS**

3. The Permittee shall, in accordance with Section 32 of the *Land Use Regulation* submit a Final Plan. **FINAL PLAN**

4. The Permittee shall at all times conform to all applicable Federal, Territorial or local regulations, ordinances or by-laws. **CONFORM TO APPLICABLE LAWS**

5. Upon completion of this project, long term land tenure will be required for the background monitoring wells. **LAND TENURE**

6. The Permittee shall contact the Town of Watson Lake prior to the commencement of this Land Use Permit to obtain a Development Permit, if required. **DEVELOPMENT PERMIT**

4.0 NOTICES / REPORTS

1. The Permittee shall provide in writing to the Land Use Inspector at least 48 hours prior to commencement of this land use operation the following information: **IDENTIFY AGENT**
   (a) person, or persons, in charge of the field operation to whom notices, orders, and reports may be served; and
   b) alternates; and
   c) all the methods for contacting the above person(s).

2. The Permittee shall contact the Land Use Inspector not less than 5 days prior to start-up during each season during which work will be undertaken; including changes to equipment, contractors or method of operation. **SEASONAL START-UP**

YESAB N/A

3. The Permittee shall, at least 10 days prior to the completion of the land use operation, provide the information of when final clean-up and restoration of the land used will be completed in writing to the Land Use Inspector. — **REPORTS BEFORE REMOVAL**

5.0 DISPLAY PERMIT / INSTRUCT EMPLOYEES AND CONTRACTORS

1. The Permittee shall display a copy of this permit on the permit site. — **DISPLAY PERMIT**

2. The Permittee shall ensure that a copy of this permit, operating conditions and definitions is provided to and understood by all contractors and sub-contractors prior to the start-up of this land use operation. — **PERMIT CONTRACTORS & SUB-CONTRACTORS**

6.0 EQUIPMENT

1. The Permittee shall not use any equipment except of the type, size and number that is listed in the accepted application unless otherwise authorized in writing by the Land Use Inspector. — **ONLY APPROVED EQUIPMENT**

2. The Permittee shall ensure equipment is free of foreign soil and plant material before moving it to the project site. — **CLEAN EQUIPMENT**

7.0 PETROLEUM

1. The Permittee shall clearly mark with stakes or flags the location of any spill of any petroleum and forthwith report the time, manner, location, amount and type of spill to the Yukon Spill Report Centre at (867) 667-7244. — **REPORT PETROLEUM SPILLS**

2. The Permittee shall dispose of all combustible waste petroleum products as per the Special Waste Regulations of the Yukon Environment Act. — **WASTE PETROLEUM DISPOSAL**

3. The Permittee shall not allow petroleum products to spread to surrounding land or into water bodies. — **FUEL CONTAINMENT**

4. The Permittee shall at all times have on site sufficient oil spill clean-up equipment and material in readiness to clean-up all petroleum which may be spilled. — **OIL SPILL CLEAN-UP EQUIPMENT**

5. The Permittee shall have a Spill Contingency Plan in place or ensure that the haul contractor has a Spill Contingency Plan in place to provide for response to and clean-up of any spills of fuel or other hazardous materials. — **SPILL CONTINGENCY PLAN**

YESAB N/A

6. The Permittee shall provide in writing to a Land Use Inspector the location, map and quantity of all petroleum fuel caches within 10 days after establishment. — **REPORT FUEL LOCATION**

7. The Permittee shall not place any petroleum fuel storage containers within 30.48 metres of the normal high water mark of any waterbody. — **FUEL BY STREAM**

9.0 WILDLIFE HABITAT

1. Encounters with wildlife are to be reported to the Conservation Officer in Watson Lake at (867) 536-3210. — **ENCOUNTERS WITH WILDLIFE**

2. The Permittee shall restore any trails used by trappers or hunters along access routes by slashing any and all trees that may fall across these paths or trails and by removing any other obstructions such as snow piles or debris that may be pushed across the trails. — **TRAILS RESTORATION**

3. The Permittee shall leave standing dead trees with cavities for bird nesting. — **NESTING TREES**

4. The Permittee shall take every precaution to ensure that wildlife habitat is not damaged. — **HABITAT DAMAGE**

5. The Permittee shall, while preparing the access road, make every effort to avoid covering or destroying traps or snares that may be found along these routes. — **TRAPS PROTECTION**

6. The Permittee shall contact the trapper 10 days prior to the start of this land use operation. — **CONTACT TRAPPER**

10.0 TRAVEL RESTRICTIONS

1. The Permittee shall suspend overland travel of equipment or vehicles if rutting occurs. — **SUSPEND OVERLAND TRAVEL**

2. The Permittee shall not move any equipment or vehicles unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging. — **VEHICLES MOVEMENT**

11.0 LINES, TRAILS AND ROWS

1. The Permittee shall use existing accesses where possible. — **USE EXISTING ACCESSES**

2. The Permittee shall not construct parallel lines or roads unless authorized in writing by the Engineer. — **PARALLEL ROADS**

YESAB N/A

3. The Permittee shall immediately suspend the land use operation on the site and notify the Land Use Inspector and the Archaeology Section of the Yukon Government of the location of the site and nature of any unearthed materials, structures or artifacts.

ARCHAEOLOGICAL SITES AND/OR BURIAL GROUNDS

4. The Permittee shall prior to commencing construction of the road, line, trail or right-of-way clearly mark on the ground the whole route to be used for approval by the Land Use Inspector.

MARK ROUTE

5. The Permittee shall not construct earth approaches abutted to the roadbed on any public highway or road, without prior written approval of the Highways and Public Works, Government of Yukon.

HIGHWAY APPROACHES

13.0 DISPOSAL - BRUSH AND TREES

1. The Permittee shall dispose of all brush and debris cleared from trails and lines by cutting the branches from the stems, and cutting the stems into lengths so that all parts of the trees felled lie flat on the ground surface, or as directed by the Land Use Inspector.

BRUSH DISPOSAL

2. The Permittee shall salvage all portions of trees cleared that are larger than 10 centimetres in diameter.

SALVAGE TIMBER

3. The Permittee shall complete total disposal of all debris and brush cleared prior to expiry of the Land Use Permit.

BRUSH DISPOSAL TIMING

4. The Permittee shall progressively complete disposal of all debris and brush.

PROGRESSIVE DISPOSAL

5. (a) The Permittee shall not leave tree stumps exceeding 30 centimetres above the ground surface;

TREE STUMPS

and/or

(b) The Permittee shall not leave deciduous stems exceeding 5 centimetres above the ground surface.

DECIDUOUS STEMS

6. The Permittee shall not use any self-propelled machinery for clearing the brush and trees.

HAND CREWS ONLY

14.0 DISPOSAL – GARBAGE AND SOLID WASTE

1. The Permittee shall remove all garbage and debris from the area of the land use operation to a disposal site approved in writing by the Land Use Inspector.

REMOVE GARBAGE

YESAB N/A

2. The Permittee shall ensure that the land use area is kept clean and tidy at all times.

CLEAN WORK AREA

16.0 DISPOSAL CHEMICAL/TOXIC WASTE

1. The Permittee shall ensure that all special wastes are disposed of in accordance with the Yukon Special Waste Regulations.

SPECIAL WASTES

2. The Permittee shall clearly mark with stakes or flags the location of any spill of liquid or dry chemicals or other toxic substance and forthwith report the time, manner, location, amount and type of spill to the Engineer and Environmental Protection Service. (Environmental Protection Service can be contacted at Phone (867) 667-7244, Whitehorse, Yukon).

REPORT CHEMICAL SPILLS

17.0 WATER COURSE AND FISH HABITAT

1. The Permittee shall not clear or otherwise remove any vegetation within 30.48 metres of the natural boundary of any water body except by hand.

HAND CLEARING

2. The Permittee shall not in any circumstances allow the deposit of any unauthorized soils or debris in any watercourse, or in any location where these materials could be deposited into any watercourse.

DEPOSITING SOIL IN STREAMS PROHIBITED

3. The Permittee shall not in any circumstances deposit or allow the deposit of any deleterious substances (including but not limited to fuels, lubricants, hydraulics, and coolants) of any type into any waters, or in any place under any conditions where the deleterious substances may enter any waters.

DEPOSITING DELETERIOUS SUBSTANCES

18.0 EROSION CONTROL/PREVENTION

1. The Permittee shall prepare the site in such a manner as to prevent rutting of the ground surface.

PREVENTION OF RUTTING

2. The Permittee shall minimize the areas cleared.

MINIMIZE AREA CLEARED

19.0 RESTORATION

* 1. The Permittee shall complete all clean-up and/or restoration of land used, prior to the expiry date of this permit and/or any corrective action date given by a Land Use Inspector, whichever comes first.

CLEAN-UP PRIOR TO EXPIRY

5 - 10 days.

2 The Permittee shall remove any obstruction to natural drainage caused by any part of this land use operation.

NATURAL DRAINAGE

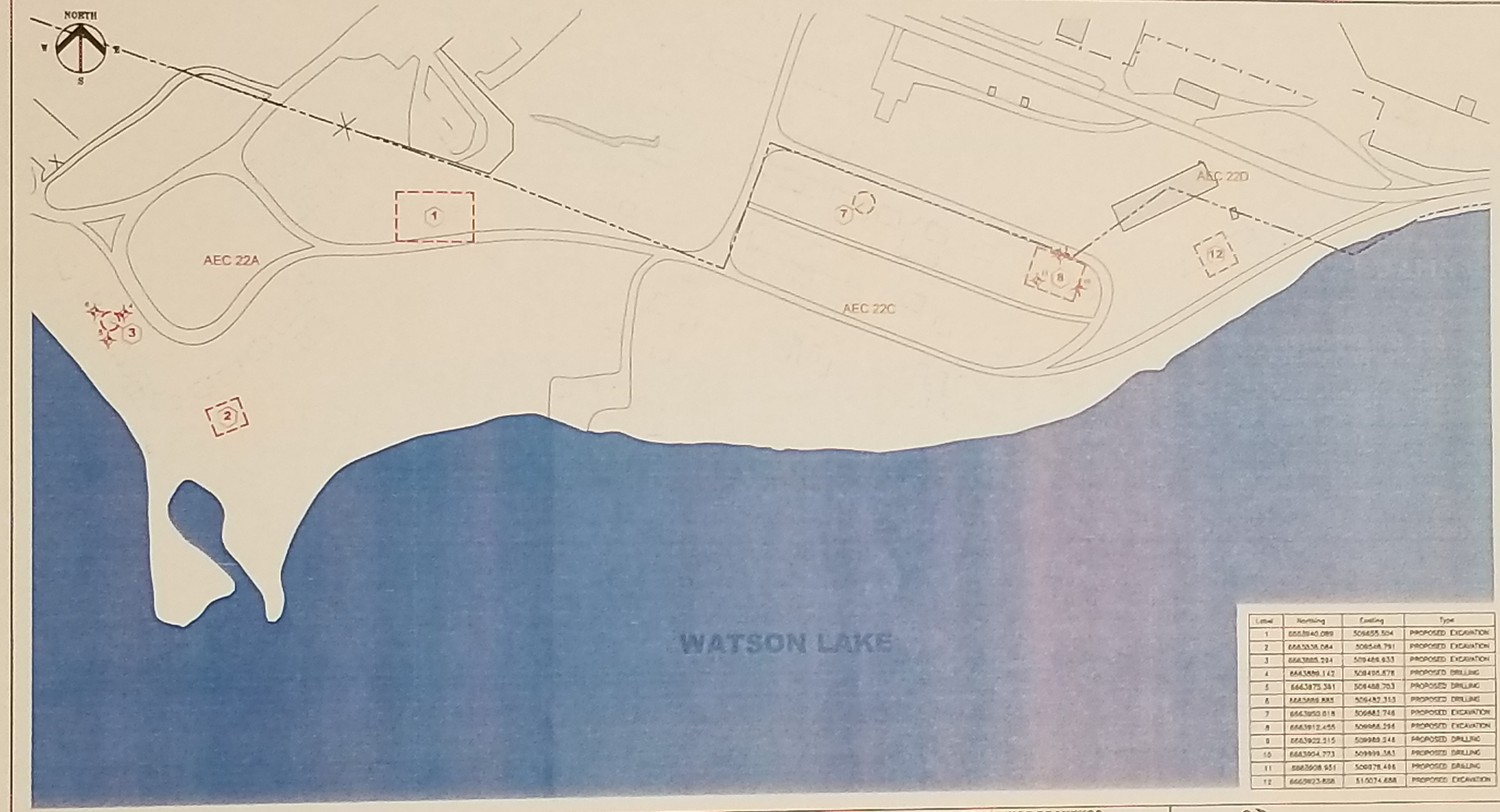
YESAB N/A

21.0 OTHER MATTERS

1.	The Engineer reserves the right to close any area to the Permittee during periods when dangers to natural resources are severe.	CLOSURE
2.	The Permittee shall be liable for any costs of clean-up resulting from this land use operation.	CLEAN-UP LIABILITY
3.	The Engineer reserves the right to unilaterally modify any of the terms and conditions in this permit if the Engineer, after considering all pertinent evidence, concludes that modifications are required to protect the biological or physical characteristics of the land management zone.	MODIFY TERMS AND CONDITIONS
4.	The Permittee shall not fence any part of the land use area.	FENCE PROHIBITED
5.	The Permittee shall not construct any structures of a permanent nature in conjunction with this land use operation.	NO PERMANENT STRUCTURES

Brenda Sproule

B. Sproule
Manager, Land Use



Label	Northing	Easting	Type
1	6663940.089	509655.504	PROPOSED EXCAVATION
2	6663936.084	508548.791	PROPOSED EXCAVATION
3	6663885.294	509486.633	PROPOSED EXCAVATION
4	6663886.142	508496.878	PROPOSED DRILLING
5	6663875.361	508488.763	PROPOSED DRILLING
6	6663886.885	509482.353	PROPOSED DRILLING
7	6663950.018	509683.746	PROPOSED EXCAVATION
8	6663912.455	509968.394	PROPOSED EXCAVATION
9	6663922.215	509989.248	PROPOSED DRILLING
10	6663954.773	509999.383	PROPOSED DRILLING
11	6663908.951	509878.486	PROPOSED DRILLING
12	6663923.858	515074.888	PROPOSED EXCAVATION

LEGEND

0 20 40 60 80 100

- AIRPORT BOUNDARY
- PROPOSED EXCAVATION AREA
- PROPOSED DRILLING

NOTES

1. ORIGINAL DRAWING IN COLOUR.
2. COORDINATES IN UTM.

REFERENCE DRAWINGS

DWG. NO.	DATE	DESCRIPTION
–	–	–

REVISIONS

REV.	DATE	DESCRIPTION	BY	CHK
0	2017-03-29	ISSUED TO CLIENT	PES	MR

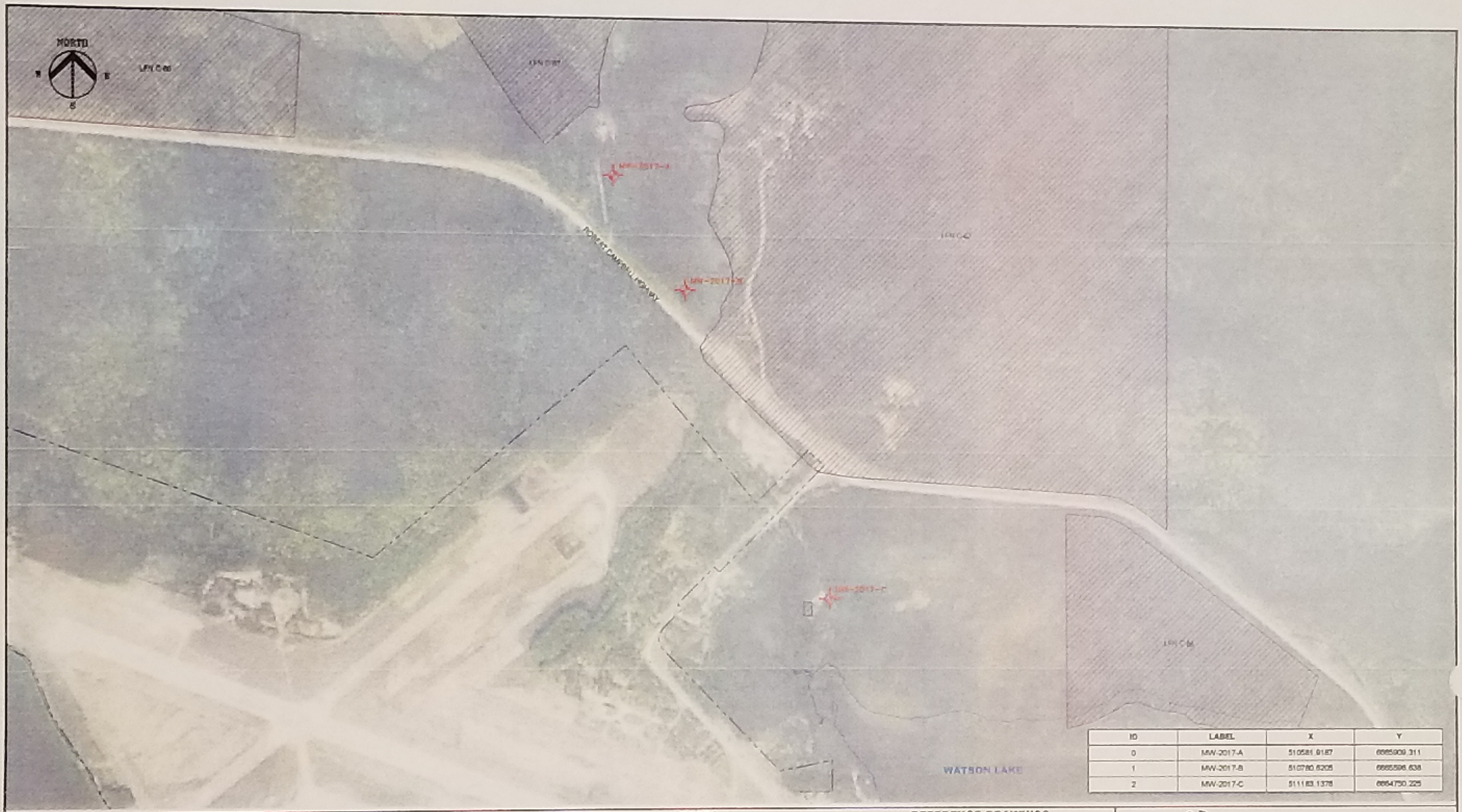
SNC·LAVALIN

CLIENT NAME: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

PROJECT LOCATION: WATSON LAKE AIRPORT YUKON, YT

TITLE: **PROPOSED DRILLING AND EXCAVATION AREAS**

DRN BY: PES	SCALE: 1:2,000	DATE: 2017-03-28	DWG No. 640752-PRO1	REV. 0
CHK'D: MR	PLOT: 20170329.1420	CADFILE: 640752-PRO		



ID	LABEL	X	Y
0	MW-2017-A	510581.9187	6665909.311
1	MW-2017-B	510780.8205	6665596.638
2	MW-2017-C	511183.1378	6664750.225

LEGEND

0 150 300 METRES

- AIRPORT BOUNDARY
- THIRD PARTY PROPERTY
- PROPOSED BACKGROUND WELL

NOTES

1. ORIGINAL DRAWING IN COLOUR.
2. COORDINATES IN UTM.

REFERENCE DRAWINGS

DWG. NO.	DATE	DESCRIPTION
-	-	-

REVISIONS

REV.	DATE	DESCRIPTION	BY	CHK
0	2017-03-29	ISSUED TO CLIENT	PES	MR

SNC·LAVALIN

CLIENT NAME: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

PROJECT LOCATION: WATSON LAKE AIRPORT YUKON, YT

TITLE: **PROPOSED BACKGROUND WELL DRILLING**

DWN. BY: DM	SCALE: 1:10,000	DATE: 2017-03-07	DWG No: 640752-PR02 REV: 0
CHK'D: MR	PLOT: 20170329.1418	CADFILE: 640752-R3	

FINAL PLAN AND/OR QUARRY RETURN

As per Section 32 of the Territorial Land Use Regulations the submission of a Final Plan is a legislated requirement.

As per Condition Number 10 of the Quarrying Permit, you must advise of the amount quarried.

Permittee Name (in full):		
Address:		
Land Use Permit number:		
Quarry Permit number(s):		
Was the area used the same as originally applied for?		
Was access constructed:		
How much land was used? ha.	For the access? ha.	
Geographic pit location:		
Amount of material requested:		cubic meters
Amount of material quarried:		cubic meters
Has pit reclamation taken place?		

Sketch of suitable scale indicating the following:

- Quarry boundary and access roads
- Overburden locations
- Geographic location for tie-in purposes
- Slash/debris disposal area

North Arrow

Permittee Signature:_____ Dated:_____

Print Name Here:_____

APPENDIX D

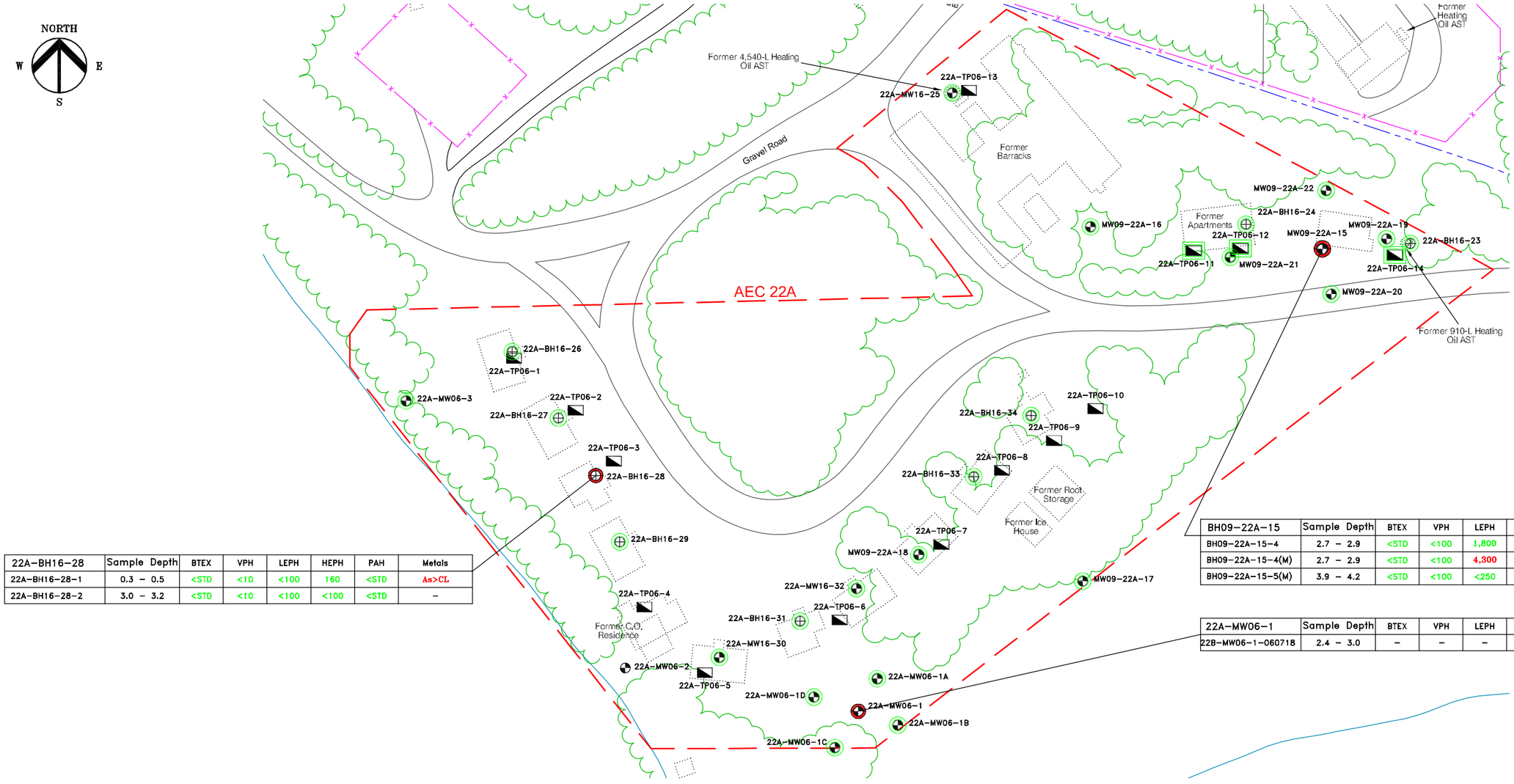
Geomembrane Specifications

30 Mil High Density Poly Ethylene Geomembrane Liner Specifications

Property	**Unit** **English (Metric)**	**Value** **English (Metric)**
Thickness	Mil (mm)	30 (0.75)
Density	g/cm^3	0.94
Tensile Properties Break Strength Break Elongation	 lb/in (N/mm) %	 114 (20) – 120 (21) 700 – 800
Tear Resistance	lb (N)	16 (71) – 21 (93)
Puncture Resistance	lb (N)	42 (186) – 60 (267)
Stress Crack Resistance	hr	300 – 500
Carbon Black Content	%	2.0 – 3.0
Oxidative Induction Time (OIT)	Min	100
High Pressure OIT - % retained after 90 days	%	60 - 80
High Pressure OIT - % retained after 1600 hr	%	35 - 50

APPENDIX E

Analytical Data



22A-BH16-28	Sample Depth	BTEX	VPH	LEPH	HEPH	PAH	Metals
22A-BH16-28-1	0.3 – 0.5	<STD	<10	<100	160	<STD	As>CL
22A-BH16-28-2	3.0 – 3.2	<STD	<10	<100	<100	<STD	–

BH09-22A-15	Sample Depth	BTEX	VPH	LEPH	HEPH	PAH	Metals	VOC
BH09-22A-15-4	2.7 – 2.9	<STD	<100	1,800	<250	<STD	<STD	<STD
BH09-22A-15-4(M)	2.7 – 2.9	<STD	<100	4,300	<250	–	–	–
BH09-22A-15-5(M)	3.9 – 4.2	<STD	<100	<250	<250	–	–	–

22A-MW06-1	Sample Depth	BTEX	VPH	LEPH	HEPH	PAH	F1-F4	Metals	VOC
22B-MW06-1-060718	2.4 – 3.0	–	–	–	–	–	F4>CWS	–	–

	VPH	LEPH	HEPH	PAH	Metals	VOC
YUKON CSR CL STANDARDS (µg/g)	200	2,000	5,000	SEE TABLES	SEE TABLES	SEE TABLES

	F4
CWS GUIDELINES (µg/g)	3,300

LOCATION

ANALYTICAL SOIL RESULTS

BH09-22A-15	Sample Depth	BTEX	VPH	LEPH	HEPH	PAH	Metals	VOC
BH09-22A-15-4(M)	2.7 – 2.9	<STD	<100	4,300	<250	–	–	–

SAMPLE ID

DEPTH OF SAMPLE (m)

RED – CONCENTRATION GREATER THAN THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES

GREEN – CONCENTRATION LESS THAN OR EQUAL TO THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES

B BENZENE
T TOLUENE
E ETHYLBENZENE
X XYLENES
VPH VOLATILE PETROLEUM HYDROCARBONS (C6–C10)
LEPH LIGHT EXTRACTABLE PETROLEUM HYDROCARBONS (C10–C19)
HEPH HEAVY EXTRACTABLE PETROLEUM HYDROCARBONS (C19–C32)
PAH POLYCYCLIC AROMATIC HYDROCARBONS
VOC VOLATILE ORGANIC COMPOUNDS
As ARSENIC
< DENOTES CONCENTRATION LESS THAN INDICATED DETECTION LIMIT
– NOT ANALYZED FOR

LEGEND

0 10 20 30 40 METRES

- AIRPORT BOUNDARY
- AREA OF ENVIRONMENTAL CONCERN
- FOREST (TREE LINE)
- FORMER STRUCTURE
- CURRENT FENCE
- BOREHOLE
- MONITORING WELL
- TEST PIT
- CONCENTRATION(S) LESS THAN OR EQUAL TO THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES
- CONCENTRATION(S) ARE GREATER THAN THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES

NOTES

1. ORIGINAL DRAWING IN COLOUR.
2. YUKON CSR PL STANDARDS ONLY APPLIED TO AEC 22A, 22C AND 22D.
3. (M) INDICATES SAMPLE ANALYZED AT MOBILE LABORATORY.

REFERENCE DRAWINGS

–	–	–
DWG. NO.	DATE	DESCRIPTION

REVISIONS

1	2017-03-23	ISSUED TO CLIENT	PES	MR
0	2017-01-04	ISSUED TO CLIENT AS DRAFT	PES	MR
REV.	DATE	DESCRIPTION	BY	CHK

SNC·LAVALIN

CLIENT NAME: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

PROJECT LOCATION: WATSON LAKE AIRPORT YUKON, YT

TITLE:

SUMMARY OF SOIL ANALYTICAL RESULTS - AEC 22A

DWN BY: PES	SCALE: 1:800	DATE: 2017-01-03	DWG No: REV.: 1
CHK'D: MR	PLOT: 20170323.1006	CADFILE: 640752-R3	640752-003

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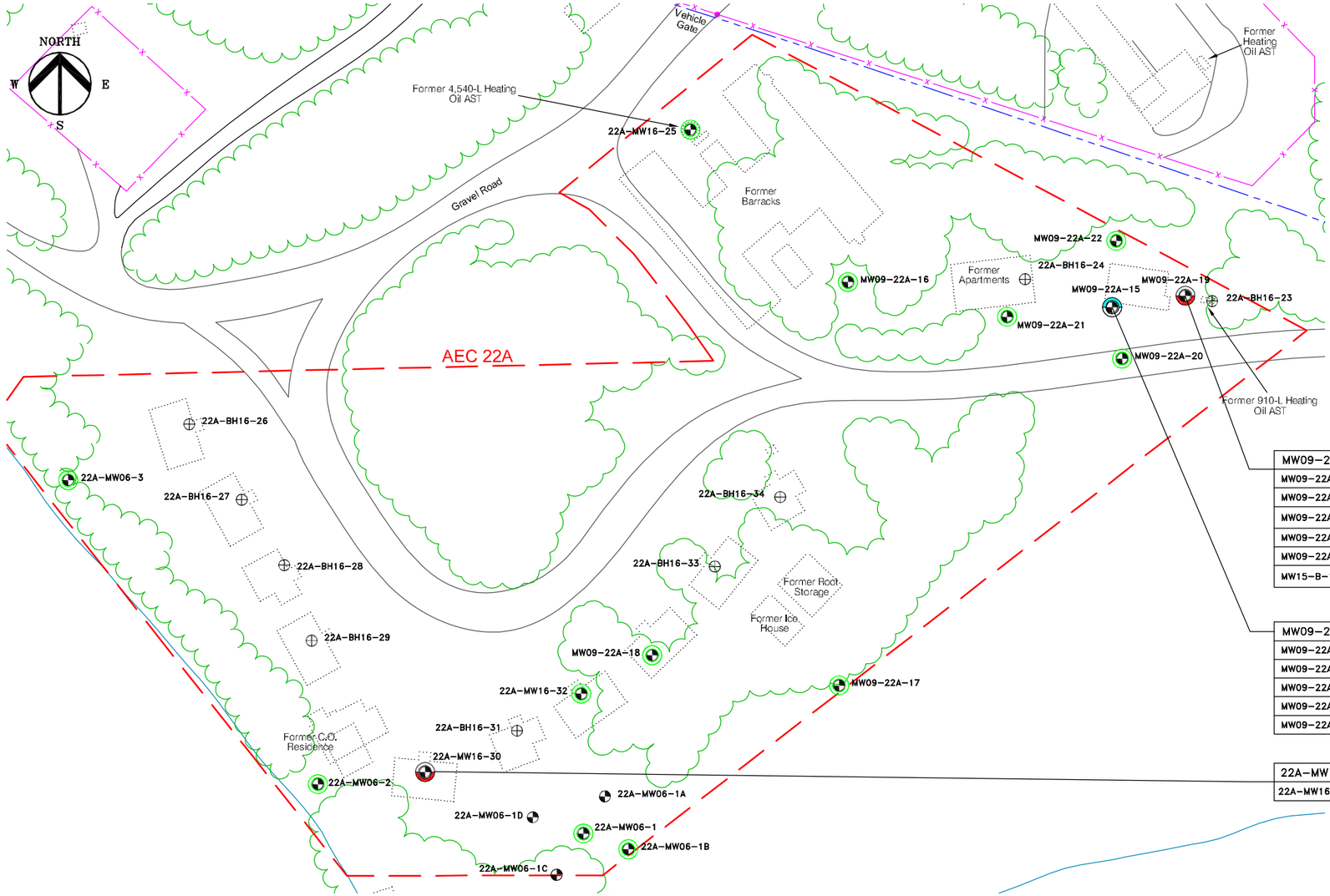

MW09-22A-19	Sample Date	BTEX	VHw	VPH	EPHw	LEPHw	PAH	Metals
MW09-22A-19-091120	2009 11 20	–	–	–	3,400	3,400	<STD	–
MW09-22A-19-110214	2011 02 14	–	–	–	<80	<80	<STD	–
MW09-22A-19-140602	2014 06 02	<STD	<100	<100	570	570	<STD	Fe,Mn>DW
MW09-22A-19-150723	2015 07 23	–	–	–	170	170	<STD	–
MW09-22A-19-160202	2016 02 02	<STD	<100	<100	220	210	<STD	–
MW15-B-160202	DUP. OF ABOVE	<STD	<100	<100	240	240	<STD	–

MW09-22A-15	Sample Date	BTEX	VHw	VPH	EPHw	LEPHw	PAH
MW09-22A-15-090926	2009 09 26	<STD	<100	<100	1,000	1,000	<STD
MW09-22A-15-110214	2011 02 14	–	–	–	180	180	<STD
MW09-22A-15-150723	2015 07 23	–	–	–	<100	<100	<STD
MW09-22A-15-160202	2016 02 02	<STD	<100	<100	2,100	2,100	<STD
MW09-22A-15-161102	2016 11 02	–	–	–	<200	<200	<STD

22A-MW16-30	Sample Date	BTEX	VHw	VPH	EPHw	LEPHw	PAH	Metals
22A-MW16-30-161214	2016 12 14	<STD	<STD	<STD	<STD	900	<STD	<STD

	VHw	VPH	EPHw	LEPHw	PAH	Metals
YUKON CSR DW STANDARDS (µg/L)	15,000	N/A	5,000	N/A	SEE TABLES	SEE TABLES
YUKON CSR AW STANDARDS (µg/L)	15,000	1,500	5,000	500	SEE TABLES	SEE TABLES

ANALYTICAL GROUNDWATER RESULTS

LOCATION → MW09-22A-19	Sample Date	BTEX	VHw	VPH	EPHw	LEPHw	PAH	Metals
MW09-22A-19-140602	2014 06 02	<STD	<100	<100	570	570	<STD	Fe,Mn>DW

SAMPLE ID

SAMPLE DATE (YYYY MM DD)

GREEN – CONCENTRATION LESS THAN OR EQUAL TO THE APPLICABLE YUKON CSR STANDARDS

CYAN – CONCENTRATION GREATER THAN THE APPLICABLE YUKON CSR AW STANDARDS

RED – CONCENTRATIONS GREATER THAN THE APPLICABLE YUKON CSR DW STANDARDS

B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	XYLENES
VHw6–10	VOLATILE HYDROCARBONS
VPHw	VOLATILE PETROLEUM HYDROCARBONS (C6–C10)
EPHw10–19	EXTRACTABLE PETROLEUM HYDROCARBONS
LEPHw	LIGHT EXTRACTABLE PETROLEUM HYDROCARBONS (C10–C19)
HEPH	HEAVY EXTRACTABLE PETROLEUM HYDROCARBONS
PAH	POLYCYCLIC AROMATIC HYDROCARBONS
Fe	IRON
Mn	MANGANESE
<	DENOTES CONCENTRATION LESS THAN INDICATED DETECTION LIMIT
–	NOT ANALYZED FOR

LEGEND

0 10 20 30 40 METRES

- AIRPORT BOUNDARY
- AREA OF ENVIRONMENTAL CONCERN
- FOREST (TREE LINE)
- FORMER STRUCTURE
- CURRENT FENCE
- BOREHOLE
- MONITORING WELL
- CONCENTRATION(S) LESS THAN OR EQUAL TO THE APPLICABLE YUKON CSR STANDARDS
- CONCENTRATION(S) ARE GREATER THAN THE APPLICABLE YUKON CSR DW STANDARDS (µg/L)
- CONCENTRATION(S) ARE GREATER THAN THE APPLICABLE YUKON CSR AW STANDARDS (µg/L)

NOTES

1. ORIGINAL DRAWING IN COLOUR.

REFERENCE DRAWINGS

–	–	–
DWG. NO.	DATE	DESCRIPTION

REVISIONS

REV.	DATE	DESCRIPTION	BY	CHK
1	2017–03–23	ISSUED TO CLIENT	PES	MR
0	2017–01–04	ISSUED TO CLIENT AS DRAFT	PES	MR

SNC·LAVALIN

CLIENT NAME: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

PROJECT LOCATION: WATSON LAKE AIRPORT YUKON, YT

TITLE: **SUMMARY OF GROUNDWATER ANALYTICAL RESULTS - AEC 22A**

DWN BY: PES | SCALE: 1:800 | DATE: 2017–01–03 | DWG No: 640752-004 | REV.: 1

CHK'D: MR | PLOT: 20170323.1007 | CADFILE: 640752–R3

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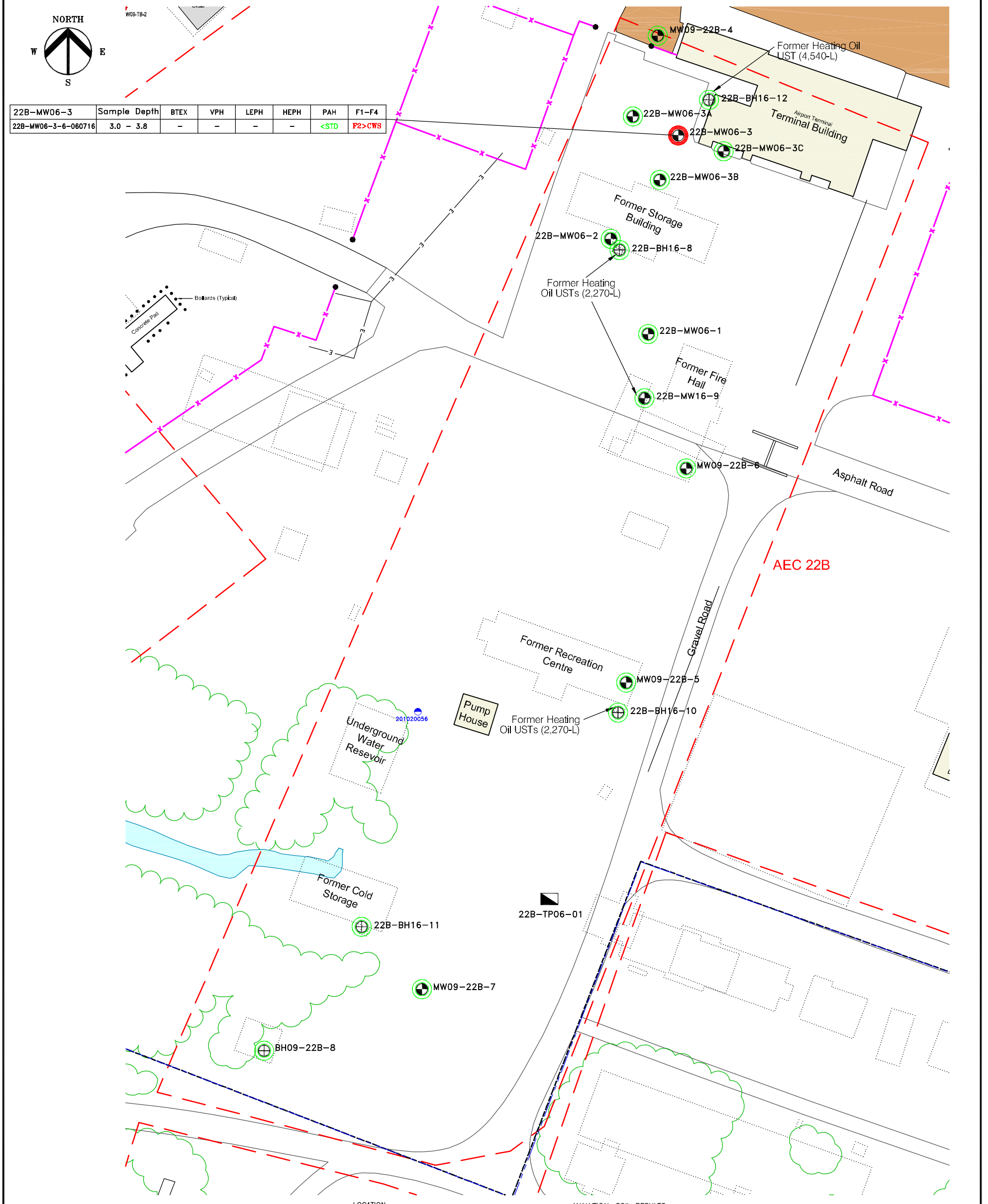

22B-MW06-3	Sample Depth	BTEX	VPH	LEPH	HEPH	PAH	F1-F4
22B-MW06-3-6-060716	3.0 - 3.8	-	-	-	-	<STD	F2>CWS

	VPH	LEPH	HEPH	PAH
YUKON CSR CL STANDARDS (µg/g)	200	2,000	5,000	SEE TABLES

	F2
CWS GUIDELINES (µg/g)	760

LOCATION

22B-MW06-3	Sample Depth	BTEX	VPH	LEPH	HEPH	PAH	F1-F4
22B-MW06-3-6-060716	3.0 - 3.8	<STD	<STD	<STD	<STD	<STD	F2>CWS

ANALYTICAL SOIL RESULTS

SAMPLE ID

DEPTH OF SAMPLE (m)

RED - CONCENTRATION GREATER THAN THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES

GREEN - CONCENTRATION LESS THAN OR EQUAL TO THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES

B BENZENE
T TOLUENE
E ETHYLBENZENE
X XYLENES
VPH VOLATILE PETROLEUM HYDROCARBONS (C6-C10)
LEPH LIGHT EXTRACTABLE PETROLEUM HYDROCARBONS (C10-C19)
HEPH HEAVY EXTRACTABLE PETROLEUM HYDROCARBONS (C19-C32)
PAH POLYCYCLIC AROMATIC HYDROCARBONS
< DENOTES CONCENTRATION LESS THAN INDICATED DETECTION LIMIT
- NOT ANALYZED FOR

LEGEND

0 10 30 METRES

- AIRPORT BOUNDARY
- AREA OF ENVIRONMENTAL CONCERN
- FOREST (TREE LINE)
- FORMER STRUCTURE
- CURRENT FENCE
- CONCENTRATION(S) LESS THAN OR EQUAL TO THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES
- CONCENTRATION(S) ARE GREATER THAN THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES
- WATER WELL
- BOREHOLE
- MONITORING WELL
- TEST PIT

NOTES

1. ORIGINAL DRAWING IN COLOUR.

REFERENCE DRAWINGS

DWG. NO.	DATE	DESCRIPTION
-	-	-

REVISIONS

REV.	DATE	DESCRIPTION	BY	CHK
1	2017-03-23	ISSUED TO CLIENT	PES	MR
0	2017-01-04	ISSUED TO CLIENT AS DRAFT	PES	MR

SNC·LAVALIN

CLIENT NAME: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

PROJECT LOCATION: WATSON LAKE AIRPORT YUKON, YT

TITLE: **SUMMARY OF SOIL ANALYTICAL RESULTS - AEC 22B**

DWN BY: PES | SCALE: 1:750 | DATE: 2017-01-03 | DWG No: 640752-005 | REV.: 1

CHK'D: MR | PLOT: 20170323.1009 | CADFILE: 640752-R3

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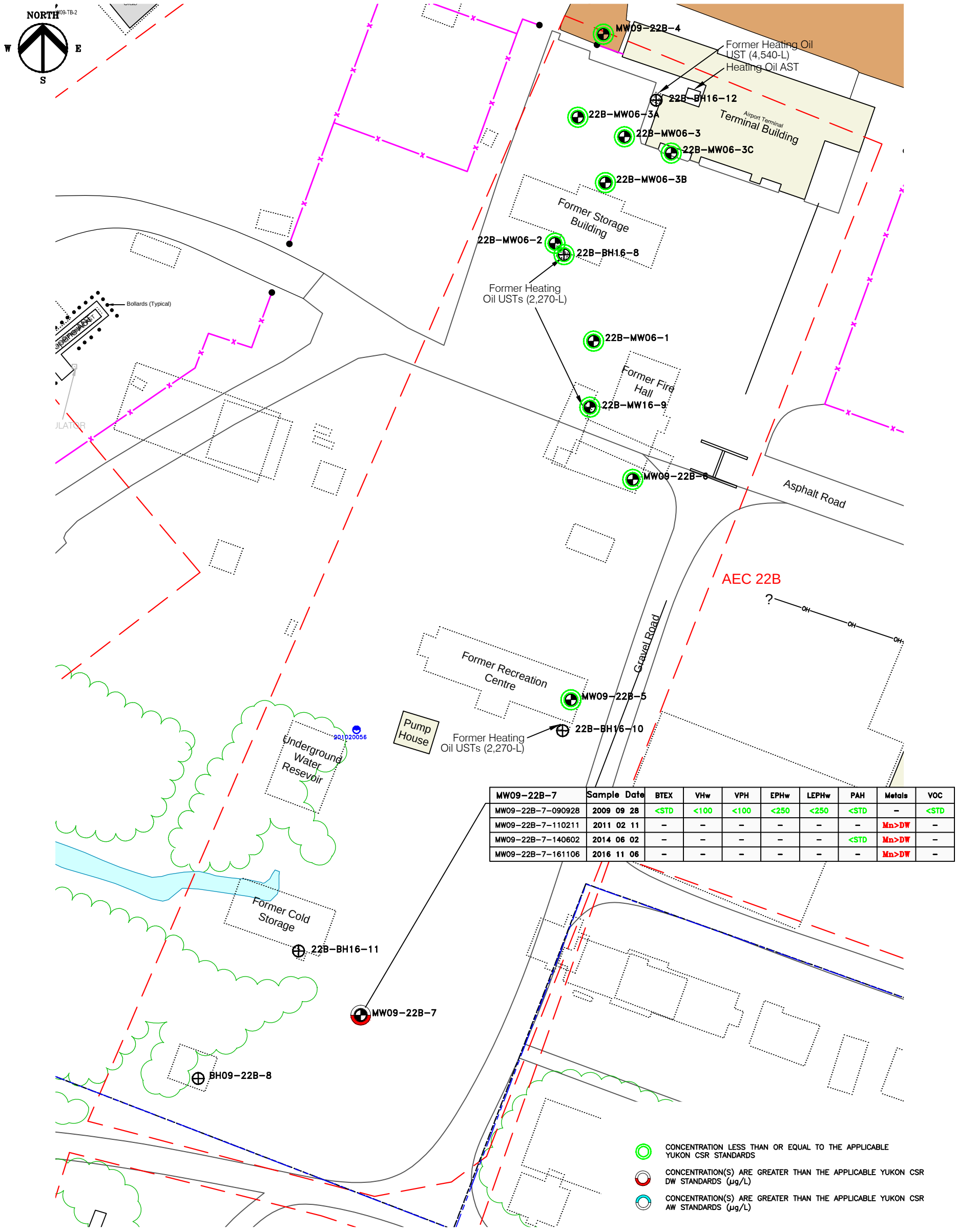

MW09-22B-7	Sample Date	BTEX	VHw	VPH	EPHw	LEPHw	PAH	Metals	VOC
MW09-22B-7-090928	2009 09 28	<STD	<100	<100	<250	<250	<STD	–	<STD
MW09-22B-7-110211	2011 02 11	–	–	–	–	–	–	Mn>DW	–
MW09-22B-7-140602	2014 06 02	–	–	–	–	–	<STD	Mn>DW	–
MW09-22B-7-161106	2016 11 06	–	–	–	–	–	–	Mn>DW	–

LOCATION

ANALYTICAL GROUND WATER RESULTS

22C-MW06-2	Sample Date	BTEX	VHw	VPH	EPHw	LEPHw	PAH	Metals	VOC
22C-MW06-2-060723	2006 07 23	<STD	<100	<100	<250	<250	–	Fe>DW	–

DATE OF SAMPLE

GREEN – CONCENTRATION LESS THAN OR EQUAL TO THE APPLICABLE STANDARD

RED – CONCENTRATION GREATER THAN THE APPLICABLE STANDARD

	VHw	VPH	EPHw	LEPHw
YUKON CSR DW STANDARDS (µg/L)	15000	N/A	5000	N/A
YUKON CSR AW STANDARDS (µg/L)	15000	1500	5000	500

NOTES

1. ORIGINAL DRAWING IN COLOUR.

LEGEND

0 10 30 METRES

- AIRPORT BOUNDARY
- AREA OF ENVIRONMENTAL CONCERN
- FOREST (TREE LINE)
- FORMER STRUCTURE
- CURRENT FENCE
- BOREHOLE
- MONITORING WELL

REFERENCE DRAWINGS

DWG. NO.	DATE	DESCRIPTION
–	–	–

REVISIONS

REV.	DATE	DESCRIPTION	BY	CHK
0	2017-01-04	ISSUED TO CLIENT AS DRAFT	PES	MR

SNC·LAVALIN

CLIENT NAME: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

PROJECT LOCATION: WATSON LAKE AIRPORT YUKON, YT

TITLE: SUMMARY OF GROUNDWATER ANALYTICAL RESULTS - AEC 22B

DWN BY: PES	SCALE: 1:750	DATE: 2017-01-03	DWG No: 640752-006 REV.: 0
CHK'D: MR	PLOT: 20170317.1424	CADFILE: 640752-R2	

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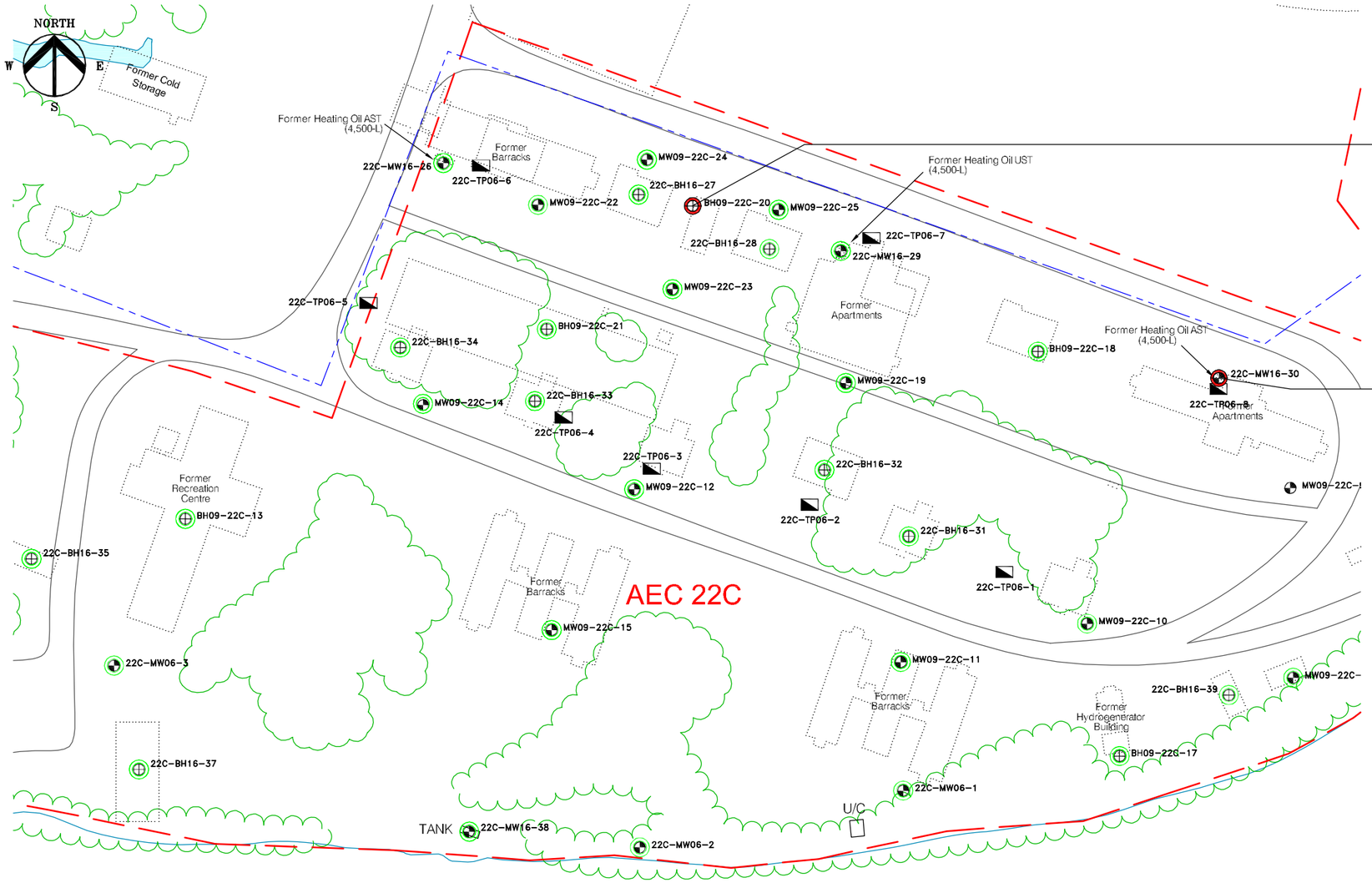

BH09-22C-20	Sample Depth	BTEX	VPH	LEPH	HEPH	PAH	Metals	VOC
BH09-22C-20-4	2.7 – 2.9	<STD	<100	<250	<250	<STD	As>CL	<STD
BH09-22C-20-4(M)	DUP. OF ABOVE	<STD	<100	<250	<250	–	–	–
BH09-22C-20-6(M)	4.2 – 4.4	<STD	<100	<250	<250	–	–	–
BH09-22C-20-6	4.2 – 4.5	<STD	<100	<250	<250	–	–	–

22C-BH16-30	Sample Depth	BTEX	VPH	LEPH	HEPH	PAH	Metals
22C-BH16-30-1	0.9 – 1.2	<STD	<10	<100	<100	<STD	<STD
22C-BH16-30-2	2.9 – 3.2	<STD	160	5,400	220	<STD	–
22C-BH16-30-3	DUP. OF ABOVE	<STD	60	4,400	200	<STD	–

	VPH	LEPH	HEPH	PAH	Metals	VOC
YUKON CSR CL STANDARDS (µg/g)	200	2,000	5,000	SEE TABLES	SEE TABLES	SEE TABLES

	F4
CWS GUIDELINES (µg/g)	3,300

LOCATION

BH09-22A-15	Sample Depth	BTEX	VPH	LEPH	HEPH	PAH	Metals	VOC
BH09-22A-15-4(M)	2.7 – 2.9	<STD	<100	4,300	<250	–	–	–

ANALYTICAL SOIL RESULTS

SAMPLE ID

DEPTH OF SAMPLE (m)

RED – CONCENTRATION GREATER THAN THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES

GREEN – CONCENTRATION LESS THAN OR EQUAL TO THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES

B BENZENE
T TOLUENE
E ETHYLBENZENE
X XYLENES
VPH VOLATILE PETROLEUM HYDROCARBONS (C6–C10)
LEPH LIGHT EXTRACTABLE PETROLEUM HYDROCARBONS (C10–C19)
HEPH HEAVY EXTRACTABLE PETROLEUM HYDROCARBONS (C19–C32)
PAH POLYCYCLIC AROMATIC HYDROCARBONS
VOC VOLATILE ORGANIC COMPOUNDS
As ARSENIC
< DENOTES CONCENTRATION LESS THAN INDICATED DETECTION LIMIT
– NOT ANALYZED FOR

LEGEND

0 10 20 30 40 METRES

- AIRPORT BOUNDARY
- AREA OF ENVIRONMENTAL CONCERN
- FOREST (TREE LINE)
- FORMER STRUCTURE
- CURRENT FENCE
- BOREHOLE
- MONITORING WELL
- TEST PIT
- CONCENTRATION(S) LESS THAN OR EQUAL TO THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES
- CONCENTRATION(S) ARE GREATER THAN THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES

NOTES

1. ORIGINAL DRAWING IN COLOUR.
2. YUKON CSR PL STANDARDS ONLY APPLIED TO AEC 22A, 22C AND 22D.
3. (M) INDICATES SAMPLE ANALYZED AT MOBILE LABORATORY.

REFERENCE DRAWINGS

–	–	–
DWG. NO.	DATE	DESCRIPTION

REVISIONS

REV.	DATE	DESCRIPTION	BY	CHK
1	2017-03-23	ISSUED TO CLIENT	PES	MR
0	2017-01-04	ISSUED TO CLIENT AS DRAFT	PES	MR

SNC·LAVALIN

CLIENT NAME: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

PROJECT LOCATION: WATSON LAKE AIRPORT YUKON, YT

TITLE: **SUMMARY OF SOIL ANALYTICAL RESULTS - AEC 22C**

DWN BY: PES	SCALE: 1:800	DATE: 2017-01-03	DWG No: REV.: 1
CHK'D: MR	PLOT: 20170323.1013	CADFILE: 640752-R3	640752-007

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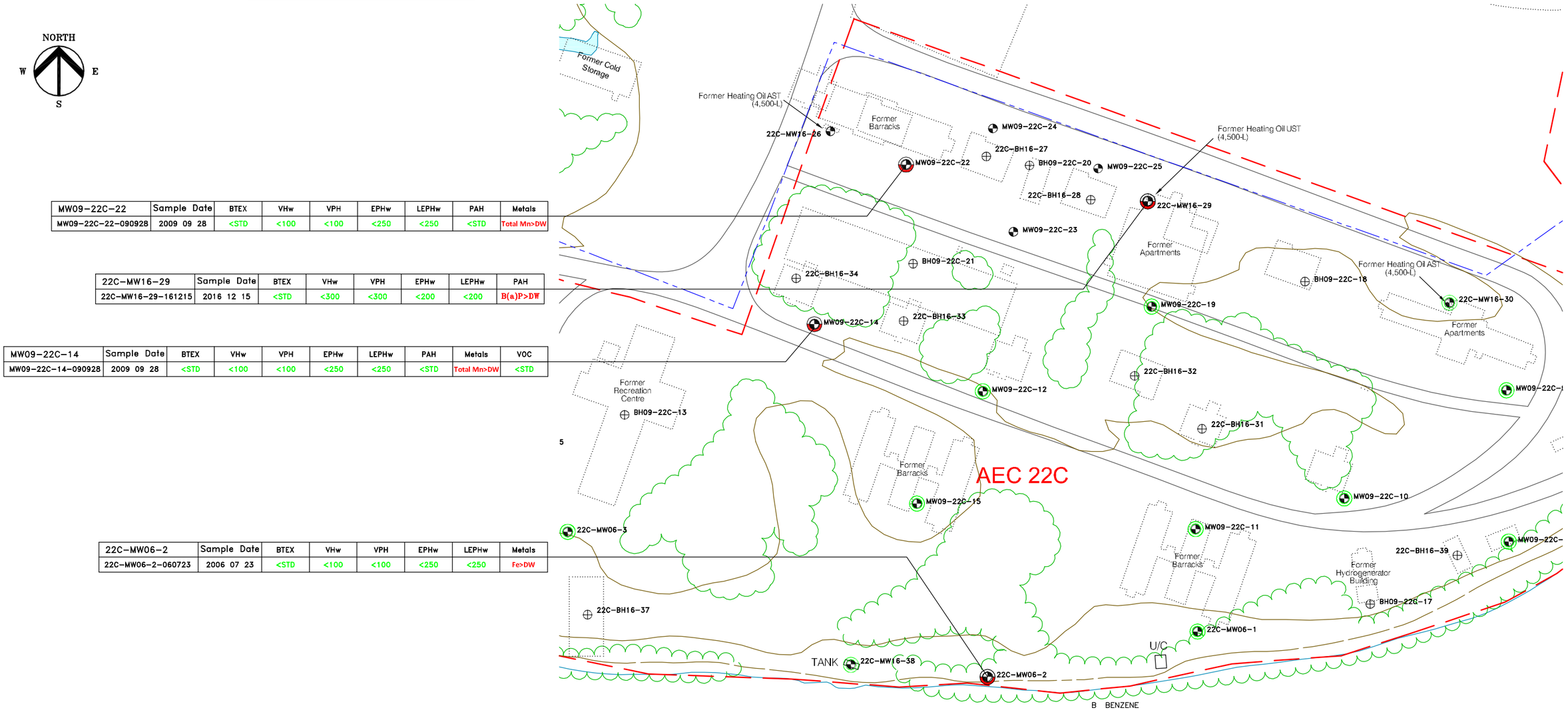

MW09-22C-22	Sample Date	BTEX	VHw	VPH	EPHw	LEPHw	PAH	Metals
MW09-22C-22-090928	2009 09 28	<STD	<100	<100	<250	<250	<STD	Total Mn>DW

22C-MW16-29	Sample Date	BTEX	VHw	VPH	EPHw	LEPHw	PAH
22C-MW16-29-161215	2016 12 15	<STD	<300	<300	<200	<200	B(a)P>DW

MW09-22C-14	Sample Date	BTEX	VHw	VPH	EPHw	LEPHw	PAH	Metals	VOC
MW09-22C-14-090928	2009 09 28	<STD	<100	<100	<250	<250	<STD	Total Mn>DW	<STD

22C-MW06-2	Sample Date	BTEX	VHw	VPH	EPHw	LEPHw	Metals
22C-MW06-2-060723	2006 07 23	<STD	<100	<100	<250	<250	Fe>DW

	VHw	VPH	EPHw	LEPHw	PAH	Metals	VOC
YUKON CSR DW STANDARDS (µg/L)	15,000	N/A	5,000	N/A	SEE TABLES	SEE TABLES	SEE TABLES
YUKON CSR AW STANDARDS (µg/L)	15,000	1,500	5,000	500	SEE TABLES	SEE TABLES	SEE TABLES

LOCATION

ANALYTICAL GROUNDWATER RESULTS

MW09-22A-19	Sample Date	BTEX	VHw	VPH	EPHw	LEPHw	PAH	Metals
MW09-22A-19-140602	2014 06 02	<STD	<100	<100	570	570	<STD	Fe,Mn>DW

SAMPLE ID

SAMPLE DATE (YYYY MM DD)

GREEN – CONCENTRATION LESS THAN OR EQUAL TO THE APPLICABLE YUKON CSR STANDARDS

CYAN – CONCENTRATION GREATER THAN THE APPLICABLE YUKON CSR AW STANDARDS

RED – CONCENTRATIONS GREATER THAN THE APPLICABLE YUKON CSR DW STANDARDS

B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	XYLENES
VHw6-10	VOLATILE HYDROCARBONS
VPHw	VOLATILE PETROLEUM HYDROCARBONS (C6-C10)
EPHw10-19	EXTRACTABLE PETROLEUM HYDROCARBONS
LEPHw	LIGHT EXTRACTABLE PETROLEUM HYDROCARBONS (C10-C19)
HEPH	HEAVY EXTRACTABLE PETROLEUM HYDROCARBONS
PAH	POLYCYCLIC AROMATIC HYDROCARBONS
B(A)P	BENZO(A)PYRENE
Fe	IRON
Mn	MANGANESE
VOC	VOLATILE ORGANIC COMPOUNDS
<	DENOTES CONCENTRATION LESS THAN INDICATED DETECTION LIMIT
–	NOT ANALYZED FOR

LEGEND

0 10 20 30 40 METRES

- AIRPORT BOUNDARY
- AREA OF ENVIRONMENTAL CONCERN
- FOREST (TREE LINE)
- FORMER STRUCTURE
- CURRENT FENCE
- BOREHOLE
- MONITORING WELL
- CONCENTRATION(S) LESS THAN OR EQUAL TO THE APPLICABLE YUKON CSR STANDARDS
- CONCENTRATION(S) ARE GREATER THAN THE APPLICABLE YUKON CSR DW STANDARDS (µg/L)
- CONCENTRATION(S) ARE GREATER THAN THE APPLICABLE YUKON CSR AW STANDARDS (µg/L)

NOTES

1. ORIGINAL DRAWING IN COLOUR.

REFERENCE DRAWINGS

–	–	–
DWG. NO.	DATE	DESCRIPTION

REVISIONS

1	2017-03-23	ISSUED TO CLIENT	PES	MR
0	2017-01-04	ISSUED TO CLIENT AS DRAFT	PES	MR
REV.	DATE	DESCRIPTION	BY	CHK

SNC·LAVALIN

CLIENT NAME: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

PROJECT LOCATION: WATSON LAKE AIRPORT YUKON, YT

TITLE:

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS - AEC 22C

DWN BY: PES	SCALE: 1:800	DATE: 2017-01-03	DWG No: REV.: 1
CHK'D: MR	PLOT: 20170323.1015	CADFILE: 640752-R3	640752-008

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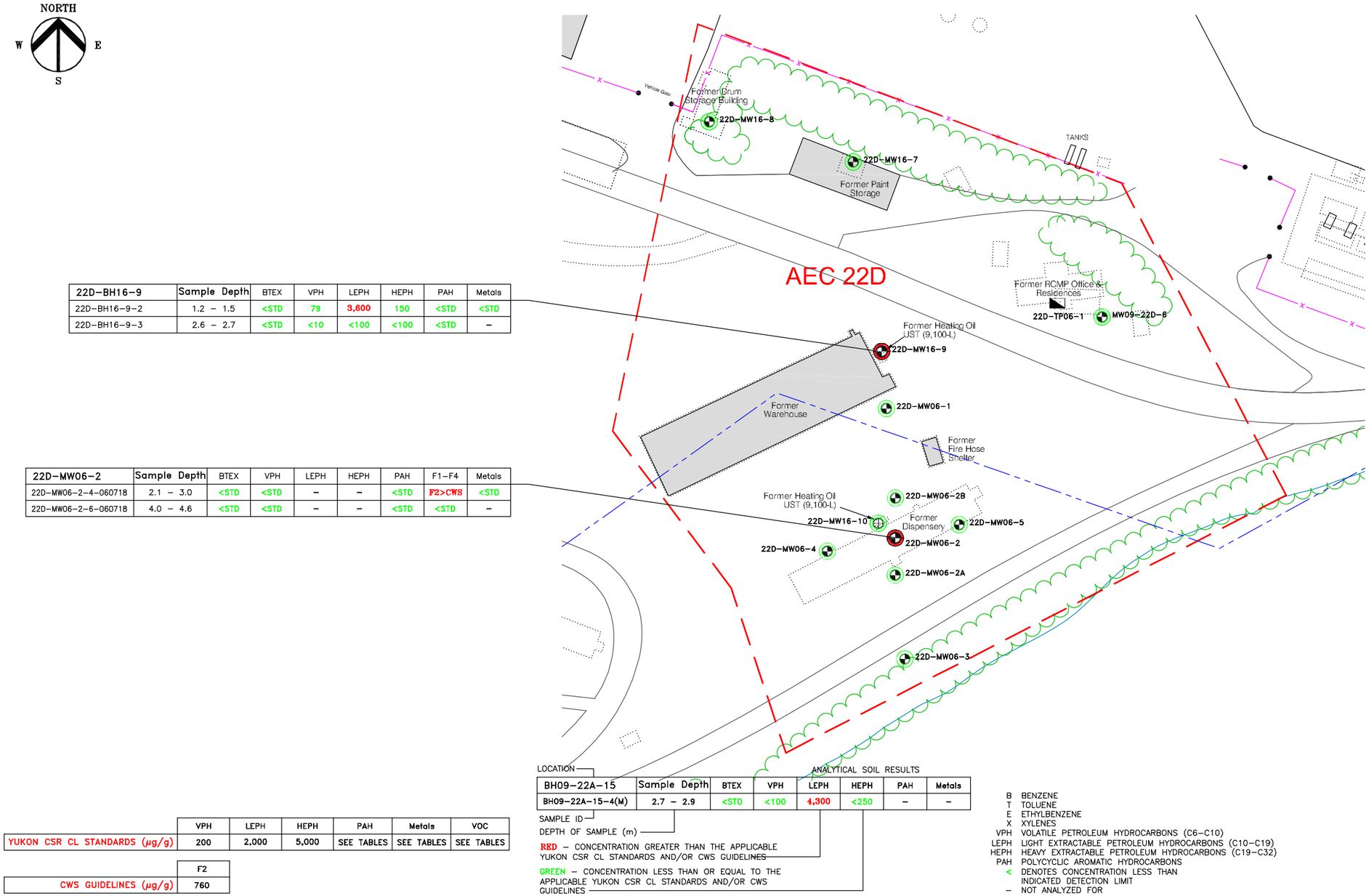

22D-BH16-9	Sample Depth	BTEX	VPH	LEPH	HEPH	PAH	Metals
22D-BH16-9-2	1.2 – 1.5	<STD	79	3,600	150	<STD	<STD
22D-BH16-9-3	2.6 – 2.7	<STD	<10	<100	<100	<STD	–

22D-MW06-2	Sample Depth	BTEX	VPH	LEPH	HEPH	PAH	F1-F4	Metals
22D-MW06-2-4-060718	2.1 – 3.0	<STD	<STD	–	–	<STD	F2>CWS	<STD
22D-MW06-2-6-060718	4.0 – 4.6	<STD	<STD	–	–	<STD	<STD	–

	VPH	LEPH	HEPH	PAH	Metals	VOC
YUKON CSR CL STANDARDS (µg/g)	200	2,000	5,000	SEE TABLES	SEE TABLES	SEE TABLES

	F2
CWS GUIDELINES (µg/g)	760

LOCATION

BH09-22A-15	Sample Depth	BTEX	VPH	LEPH	HEPH	PAH	Metals
BH09-22A-15-4(M)	2.7 – 2.9	<STD	<100	4,300	<250	–	–

ANALYTICAL SOIL RESULTS

SAMPLE ID

DEPTH OF SAMPLE (m)

RED – CONCENTRATION GREATER THAN THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES

GREEN – CONCENTRATION LESS THAN OR EQUAL TO THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES

B BENZENE
T TOLUENE
E ETHYLBENZENE
X XYLENES
VPH VOLATILE PETROLEUM HYDROCARBONS (C6-C10)
LEPH LIGHT EXTRACTABLE PETROLEUM HYDROCARBONS (C10-C19)
HEPH HEAVY EXTRACTABLE PETROLEUM HYDROCARBONS (C19-C32)
PAH POLYCYCLIC AROMATIC HYDROCARBONS
< DENOTES CONCENTRATION LESS THAN INDICATED DETECTION LIMIT
– NOT ANALYZED FOR

LEGEND

0 10 20 30 40 METRES

- AIRPORT BOUNDARY
- AREA OF ENVIRONMENTAL CONCERN
- FOREST (TREE LINE)
- FORMER STRUCTURE
- CURRENT FENCE
- BOREHOLE
- MONITORING WELL
- TEST PIT
- CONCENTRATION(S) LESS THAN OR EQUAL TO THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES
- CONCENTRATION(S) ARE GREATER THAN THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES

NOTES

1. ORIGINAL DRAWING IN COLOUR.
2. YUKON CSR PL STANDARDS ONLY APPLIED TO AEC 22A, 22C AND 22D.
3. (M) INDICATES SAMPLE ANALYZED AT MOBILE LABORATORY.

REFERENCE DRAWINGS

DWG. NO.	DATE	DESCRIPTION
–	–	–

REVISIONS

REV.	DATE	DESCRIPTION	BY	CHK
1	2017-03-23	ISSUED TO CLIENT	PES	MR
0	2017-03-01	ISSUED TO CLIENT AS DRAFT	DM	MR

SNC·LAVALIN

CLIENT NAME: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

PROJECT LOCATION: WATSON LAKE AIRPORT YUKON, YT

TITLE: **SUMMARY OF SOIL ANALYTICAL RESULTS - AEC 22D**

DWN BY: PES | SCALE: 1:800 | DATE: 2017-01-03 | DWG No: 640752-009 | REV.: 1

CHK'D: MR | PLOT: 20170323.1018 | CADFILE: 640752-R3

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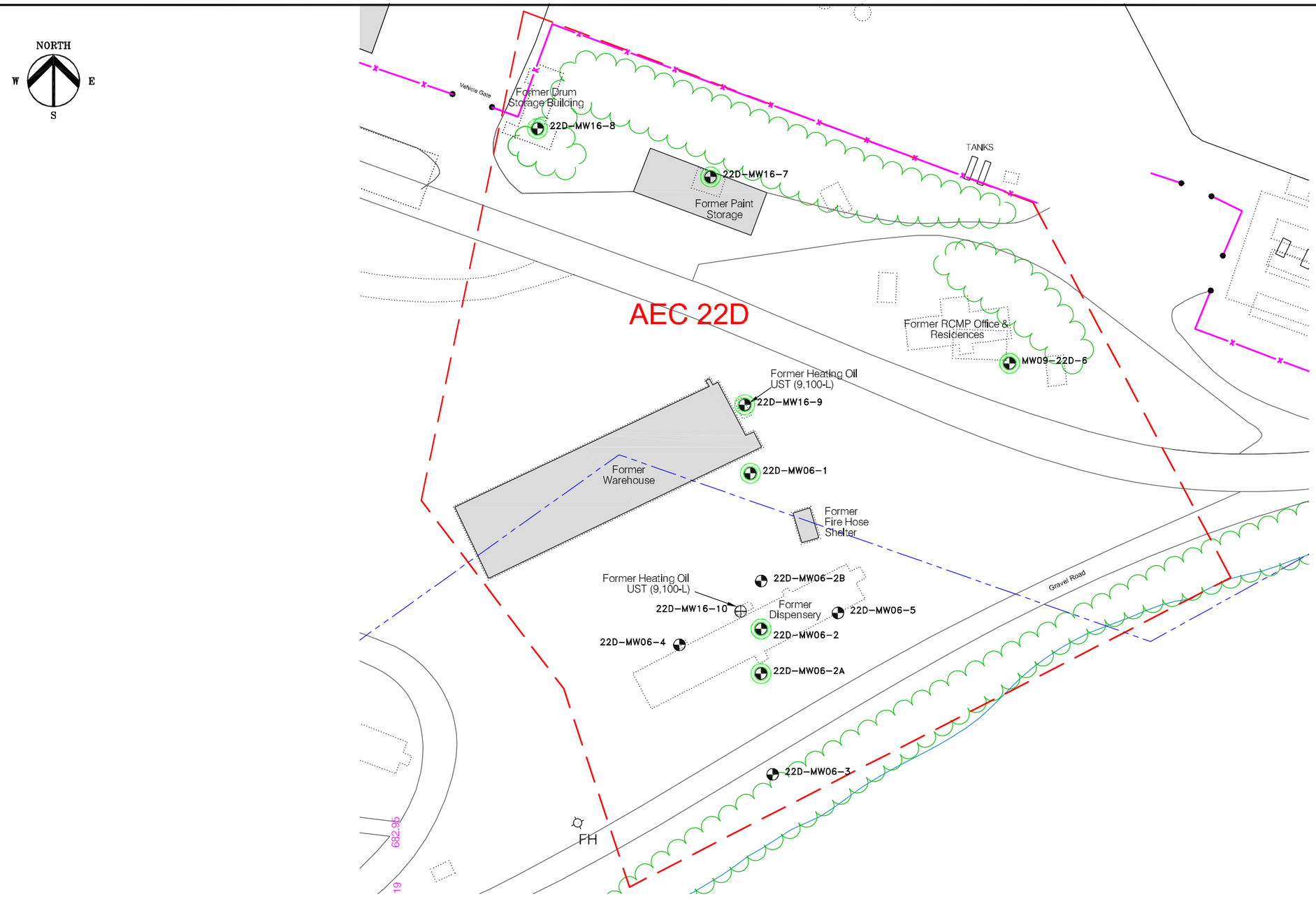

LEGEND

0 10 20 30 40 METRES

- AIRPORT BOUNDARY
- AREA OF ENVIRONMENTAL CONCERN
- FOREST (TREE LINE)
- FORMER STRUCTURE
- CURRENT FENCE
- BOREHOLE
- MONITORING WELL
- CONCENTRATION(S) LESS THAN OR EQUAL TO THE APPLICABLE YUKON CSR STANDARDS
- CONCENTRATION(S) ARE GREATER THAN THE APPLICABLE YUKON CSR DW STANDARDS (µg/L)
- CONCENTRATION(S) ARE GREATER THAN THE APPLICABLE YUKON CSR AW STANDARDS (µg/L)

NOTES

1. ORIGINAL DRAWING IN COLOUR.

REFERENCE DRAWINGS

DWG. NO.	DATE	DESCRIPTION
–	–	–

REVISIONS

REV.	DATE	DESCRIPTION	BY	CHK
1	2017-03-23	ISSUED TO CLIENT	PES	MR
0	2017-01-04	ISSUED TO CLIENT AS DRAFT	PES	MR

SNC·LAVALIN

CLIENT NAME: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

PROJECT LOCATION: WATSON LAKE AIRPORT YUKON, YT

TITLE:

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS - AEC 22D

DWN BY: PES	SCALE: 1:800	DATE: 2017-01-03	DWG No: REV.: 1
CHK'D: MR	PLOT: 20170323.1019	CADFILE: 640752-R3	640752-010

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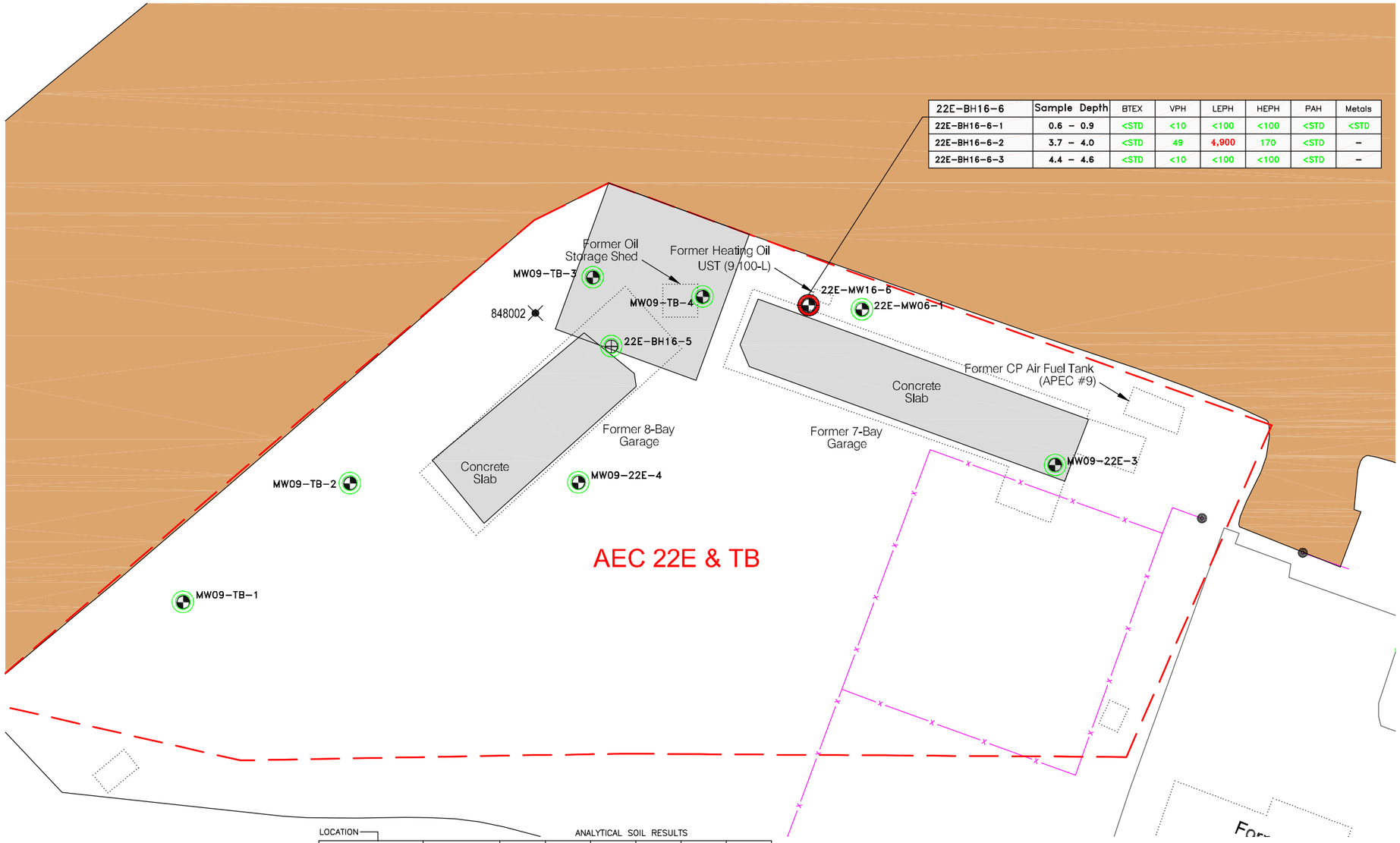
NORTH

W E

S

22E-BH16-6	Sample Depth	BTEX	VPH	LEPH	HEPH	PAH	Metals
22E-BH16-6-1	0.6 – 0.9	<STD	<10	<100	<100	<STD	<STD
22E-BH16-6-2	3.7 – 4.0	<STD	49	4,900	170	<STD	–
22E-BH16-6-3	4.4 – 4.6	<STD	<10	<100	<100	<STD	–



	VPH	LEPH	HEPH	PAH	Metals
YUKON CSR CL STANDARDS (µg/g)	200	2,000	5,000	SEE TABLES	SEE TABLES

	F4
CWS GUIDELINES (µg/g)	3,300

LOCATION — ANALYTICAL SOIL RESULTS

BH09-22A-15	Sample Depth	BTEX	VPH	LEPH	HEPH	PAH	Metals
BH09-22A-15-4(M)	2.7 – 2.9	<STD	<100	4,300	<250	–	–

SAMPLE ID

DEPTH OF SAMPLE (m)

RED – CONCENTRATION GREATER THAN THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES

GREEN – CONCENTRATION LESS THAN OR EQUAL TO THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES

B BENZENE
T TOLUENE
E ETHYLBENZENE
X XYLENES
VPH VOLATILE PETROLEUM HYDROCARBONS (C6–C10)
LEPH LIGHT EXTRACTABLE PETROLEUM HYDROCARBONS (C10–C19)
HEPH HEAVY EXTRACTABLE PETROLEUM HYDROCARBONS (C19–C32)
PAH POLYCYCLIC AROMATIC HYDROCARBONS
< DENOTES CONCENTRATION LESS THAN INDICATED DETECTION LIMIT
– NOT ANALYZED FOR

LEGEND

0 10 20 30 40 METRES

- AIRPORT BOUNDARY
- AREA OF ENVIRONMENTAL CONCERN
- FOREST (TREE LINE)
- FORMER STRUCTURE
- CURRENT FENCE
- BOREHOLE
- MONITORING WELL
- CONCENTRATION(S) LESS THAN OR EQUAL TO THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES
- CONCENTRATION(S) ARE GREATER THAN THE APPLICABLE YUKON CSR CL STANDARDS AND/OR CWS GUIDELINES

NOTES

1. ORIGINAL DRAWING IN COLOUR.

REFERENCE DRAWINGS

–	–	–
DWG. NO.	DATE	DESCRIPTION

REVISIONS

REV.	DATE	DESCRIPTION	BY	CHK
1	2017-03-23	ISSUED TO CLIENT	PES	MR
0	2017-03-01	ISSUED TO CLIENT AS DRAFT	DM	MR

SNC·LAVALIN

CLIENT NAME: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

PROJECT LOCATION: WATSON LAKE AIRPORT YUKON, YT

TITLE: **SUMMARY OF SOIL ANALYTICAL RESULTS - AEC 22E**

DWN BY: PES	SCALE: 1:800	DATE: 2017-01-03	DWG No: REV.: 1
CHK'D: MR	PLOT: 20170323.1020	CADFILE: 640752-R3	640752-011

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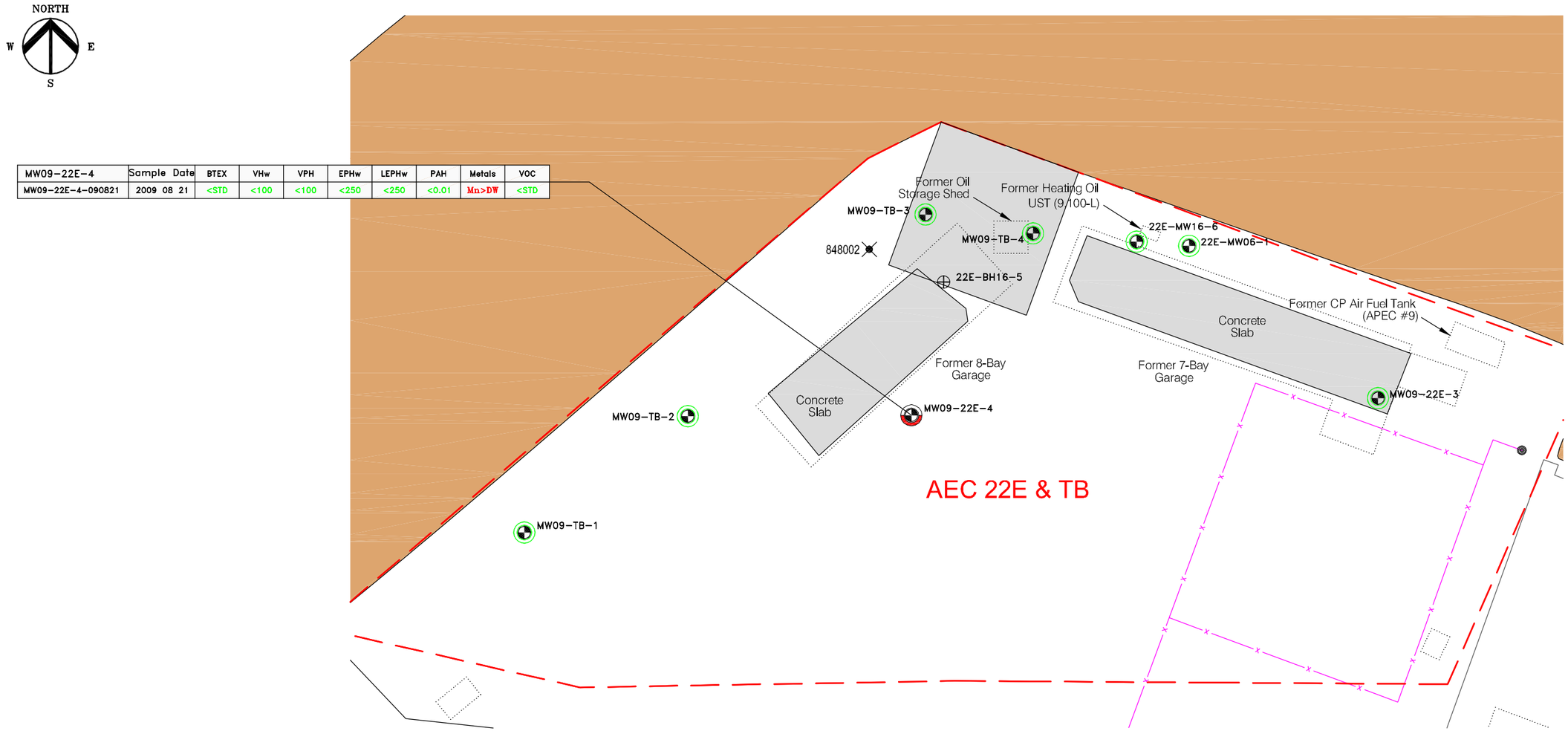

LOCATION

ANALYTICAL GROUNDWATER RESULTS

MW09-22A-19	Sample Date	BTEX	VHw	VPH	EPHw	LEPHw	PAH	Metals
MW09-22A-19-140602	2014 06 02	<STD	<100	<100	570	570	<STD	Fe,Mn>DW

SAMPLE ID

SAMPLE DATE (YYYY MM DD)

GREEN – CONCENTRATION LESS THAN OR EQUAL TO THE APPLICABLE YUKON CSR STANDARDS

CYAN – CONCENTRATION GREATER THAN THE APPLICABLE YUKON CSR AW STANDARDS

RED – CONCENTRATIONS GREATER THAN THE APPLICABLE YUKON CSR DW STANDARDS

	VHw	VPH	EPHw	LEPHw	PAH	Metals	VOC
YUKON CSR DW STANDARDS (µg/L)	15,000	N/A	5,000	N/A	SEE TABLES	SEE TABLES	SEE TABLES
YUKON CSR AW STANDARDS (µg/L)	15,000	1,500	5,000	500	SEE TABLES	SEE TABLES	SEE TABLES

B BENZENE
T TOLUENE
E ETHYLBENZENE
X XYLENES
VHw6-10 VOLATILE HYDROCARBONS
VPHw VOLATILE PETROLEUM HYDROCARBONS (C6-C10)
EPHw10-19 EXTRACTABLE PETROLEUM HYDROCARBONS
LEPHw LIGHT EXTRACTABLE PETROLEUM HYDROCARBONS (C10-C19)
HEPH HEAVY EXTRACTABLE PETROLEUM HYDROCARBONS
PAH POLYCYCLIC AROMATIC HYDROCARBONS
Mn MANGANESE
VOC VOLATILE ORGANIC COMPOUNDS
< DENOTES CONCENTRATION LESS THAN INDICATED DETECTION LIMIT
– NOT ANALYZED FOR

LEGEND

0 10 20 30 40 METRES

- AIRPORT BOUNDARY
- AREA OF ENVIRONMENTAL CONCERN
- FOREST (TREE LINE)
- FORMER STRUCTURE
- CURRENT FENCE
- BOREHOLE
- MONITORING WELL
- CONCENTRATION(S) LESS THAN OR EQUAL TO THE APPLICABLE YUKON CSR STANDARDS
- CONCENTRATION(S) ARE GREATER THAN THE APPLICABLE YUKON CSR DW STANDARDS (µg/L)
- CONCENTRATION(S) ARE GREATER THAN THE APPLICABLE YUKON CSR AW STANDARDS (µg/L)

NOTES

1. ORIGINAL DRAWING IN COLOUR.

REFERENCE DRAWINGS

–	–	–
DWG. NO.	DATE	DESCRIPTION

REVISIONS

REV.	DATE	DESCRIPTION	BY	CHK
1	2017-03-23	ISSUED TO CLIENT	PES	MR
0	2017-03-01	ISSUED TO CLIENT AS DRAFT	DM	MR

SNC·LAVALIN

CLIENT NAME: PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

PROJECT LOCATION: WATSON LAKE AIRPORT YUKON, YT

TITLE:

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS - AEC 22E&TB

DWN BY: PES | SCALE: 1:500 | DATE: 2017-01-03 | DWG No: 640752-012 | REV.: 1

CHK'D: MR | PLOT: 20170323.1022 | CADFILE: 640752-R3

PATH: P:\CURRENT PROJECTS\PWGSC\640752 WATSON LK APEC 22\4.0 EXECUTION\4.5 GIS AND DRAWINGS\GEOMATICS\CAD\640752-R3.DWG

TABLE 1a: Summary of Analytical Results for Soil - Hydrocarbons (AEC 22B, AEC 22E)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Depth Interval (m)	Field Screen[b] (ppm)	Monocyclic Aromatic Hydrocarbons					Gross Parameters					MTBE
					Benzene µg/g	Ethylbenzene µg/g	Toluene µg/g	Xylenes µg/g	Styrene µg/g	VPH (C6-C10) µg/g	EPH (C10-C19)[d] µg/g	LEPH (C10-C19) µg/g	EPH (C19-C32)[c] µg/g	HEPH (C19-C32) µg/g	MTBE µg/g
AEC 22B															
BH09-22B-4	BH09-22B-4-2	2009 09 12	1.2 - 1.4	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	-	-	-	-	-
	BH09-22B-4-2(M)	2009 09 12	1.2 - 1.4	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22B-4-5	2009 09 12	3.3 - 3.5	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22B-4-5(M)	2009 09 12	3.3 - 3.5	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22B-5	BH09-22B-5-4	2009 09 12	2.7 - 2.9	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22B-5-4(M)	2009 09 12	2.7 - 2.9	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22B-5-6	2009 09 12	4.2 - 4.4	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	-	< 250	-	-
	BH09-22B-5-6(M)	2009 09 12	4.2 - 4.4	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22B-6	BH09-22B-6-5	2009 09 12	3.3 - 3.5	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22B-6-5(M)	2009 09 12	3.3 - 3.5	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22B-6-6	2009 09 12	4.2 - 4.5	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	-	< 250	-	-
	BH09-22B-6-6(M)	2009 09 12	4.2 - 4.5	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22B-7	BH09-22B-7-4	2009 09 12	2.7 - 2.9	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	-	< 250	-	-
	BH09-22B-7-4(M)	2009 09 12	2.7 - 2.9	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22B-7-6	2009 09 12	4.2 - 4.5	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22B-7-6(M)	2009 09 12	4.2 - 4.5	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22B-8	BH09-22B-8-4	2009 09 12	2.7 - 2.9	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22B-8-4(M)	2009 09 12	2.7 - 2.9	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22B-8-8	2009 09 12	5.8 - 6.2	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22B-8-8(M)	2009 09 12	5.8 - 6.2	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
22B-BH16-8	22B-BH16-8-2	2016 11 06	2.1 - 2.4	0	< 0.0050	0.35	0.039	1.2	< 0.030	61	280	280	< 100	< 100	< 0.10
	22B-BH16-8-3	Duplicate	2.1 - 2.4	0	< 0.0050	0.20	0.043	0.73	< 0.030	39	160	160	< 100	< 100	< 0.10
	QA/QC RPD%				*	55	*	49	*	*	*	*	*	*	*
	22B-BH16-8-4	2016 11 06	3.4 - 3.5	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22B-BH16-9	22B-BH16-9-1	2016 11 06	0.8 - 0.9	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22B-BH16-9-2	2016 11 06	2.6 - 2.7	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22B-BH16-10	22B-BH16-10-1	2016 11 06	0.2 - 0.3	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22B-BH16-10-2	2016 11 06	2.6 - 2.7	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22B-BH16-11	22B-BH16-11-1	2016 11 06	0.5 - 0.6	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22B-BH16-11-2	2016 11 06	1.7 - 2.0	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22B-BH16-12	22B-BH16-12-2	2016 11 06	3.5 - 3.7	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22B-BH16-12-3	2016 11 06	4.6 - 4.7	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
AEC 22E															
BH09-22E-3	BH09-22E-3-1(M)	2009 08 26	0.3 - 0.6	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	2,100	-	-
	BH09-22E-3-2(M)	2009 08 26	0.9 - 1.2	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	1,800	-	-
	BH09-22E-3-3(M)	2009 08 26	1.8 - 2.3	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22E-3-4(M)	2009 08 26	2.6 - 2.9	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	DUP-04S-22E(M)	Duplicate	2.6 - 2.9	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	QA/QC RPD%				*	*	*	*	-	*	*	-	*	-	-
	BH09-22E-3-5	2009 08 19	3.4 - 3.6	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22E-3-5(M)	2009 08 26	3.4 - 3.6	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22E-3-6(M)	2009 08 26	4.2 - 4.5	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22E-4	BH09-22E-4-1	2009 08 19	0.3 - 0.4	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22E-4-1(M)	2009 08 26	0.3 - 0.4	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22E-4-2(M)	2009 08 26	0.9 - 0.8	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22E-4-3(M)	2009 08 26	2.1 - 2.4	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22E-4-4(M)	2009 08 26	2.4 - 2.7	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22E-4-5(M)	2009 08 26	3.3 - 3.5	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	DUP-05S-22E(M)	Duplicate	3.3 - 3.5	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	QA/QC RPD%				*	*	*	*	-	*	*	-	*	-	-
	BH09-22E-4-6(M)	2009 08 26	4.1 - 4.2	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
22E-BH16-5	22E-BH16-5-1	2016 11 01	0.8 - 1.1	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	120	120	390	390	< 0.10
	22E-BH16-5-2	2016 11 01	2.4 - 3.0	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	290	290	< 0.10
22E-BH16-6	22E-BH16-6-1	2016 11 01	0.6 - 0.9	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22E-BH16-6-2	2016 11 01	3.7 - 4.0	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	49	**4,900**	**4,900**	170	170	< 0.10
	22E-BH16-6-3	2016 11 05	4.4 - 4.6	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
Yukon Standard															
Yukon CSR Commercial Land Use (CL)[c]					0.04	7	2.5	20	50	200	2,000	2,000	5,000	5,000	n/a

Associated Maxxam file(s): B699544, B6A0684, B6A0697.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
RPD Denotes relative percent difference.
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.
(M) Sample analyzed at mobile laboratory.

SHADOW Concentration greater than Yukon CSR Commercial Land Use (CL) Standard

[a] Laboratory detection limit exceeds regulatory standard/guideline.
[b] Field screening results are measured based on a 'dry headspace' method using a combustible gas meter calibrated to a hexane standard.
[c] The site-specific factors used for determining the matrix standards for this site include: intake of contaminated soil, groundwater used for drinking water, toxicity to soil invertebrates and plants, and groundwater flow to surface water used by freshwater aquatic life (whichever is most stringent).
[d] EPH has no applicable CSR standard, however results have been compared to LEPH and HEPH standards, which are conservative comparisons.

TABLE 1b: Summary of Analytical Results for Soil - Hydrocarbons (AEC 22A, AEC 22C, AEC 22D)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Depth Interval (m)	Field Screen[b] (ppm)	Monocyclic Aromatic Hydrocarbons					Gross Parameters					MTBE
					Benzene µg/g	Ethylbenzene µg/g	Toluene µg/g	Xylenes µg/g	Styrene µg/g	VPH (C6-C10) µg/g	EPH (C10-C19)[d] µg/g	LEPH (C10-C19) µg/g	EPH (C19-C32)[d] µg/g	HEPH (C19-C32) µg/g	MTBE µg/g
AEC 22A															
BH09-22A-15	BH09-22A-15-4	2009 09 15	2.7 - 2.9	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	1,800	1,800	< 250	< 250	-
	BH09-22A-15-4(M)	2009 09 13	2.7 - 2.9	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	**4,300**	-	< 250	-	-
	BH09-22A-15-5(M)	2009 09 13	3.9 - 4.2	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22A-16	BH09-22A-16-3(M)	2009 09 14	1.8 - 2.0	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22A-16-6	2009 09 14	4.2 - 4.4	-	-	-	-	-	-	-	< 250	< 250	< 250	< 250	-
	BH09-22A-16-6(M)	2009 09 14	4.2 - 4.4	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22A-17	BH09-22A-17-2	2009 09 14	1.2 - 1.4	-	-	-	-	-	-	-	< 250	< 250	< 250	< 250	-
	BH09-22A-17-2(M)	2009 09 14	1.2 - 1.4	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22A-17-4(M)	2009 09 14	2.7 - 2.9	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22A-18	BH09-22A-18-4(M)	2009 09 15	2.7 - 2.9	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22A-18-5	2009 09 15	3.9 - 4.2	-	-	-	-	-	-	-	< 250	< 250	< 250	< 250	-
	BH09-22A-18-5(M)	2009 09 15	3.9 - 4.2	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22A-19	BH09-22A-19-1	2009 10 22	0.9 - 1.1	-	-	-	-	-	-	-	< 250	< 250	< 250	< 250	-
	BH09-22A-19-2	2009 10 22	3.9 - 4.1	-	-	-	-	-	-	-	< 250	< 250	< 250	< 250	-
BH09-22A-20	BH09-22A-20-1	2009 10 22	0.6 - 0.9	-	-	-	-	-	-	-	< 250	< 250	< 250	< 250	-
	BH09-22A-20-3	2009 10 22	1.5 - 1.7	-	-	-	-	-	-	-	< 250	< 250	540	540	-
	BH09-22A-20-5	2009 10 22	2.7 - 2.9	-	-	-	-	-	-	-	< 250	< 250	< 250	< 250	-
BH09-22A-21	BH09-22A-21-1	2009 10 21	0.3 - 0.5	-	-	-	-	-	-	-	< 250	< 250	< 250	< 250	-
	BH09-22A-21-2	2009 10 22	1.2 - 1.4	-	-	-	-	-	-	-	< 250	< 250	< 250	< 250	-
	BH09-22A-21-3	2009 10 22	1.8 - 2.1	-	-	-	-	-	-	-	< 250	< 250	< 250	< 250	-
BH09-22A-22	BH09-22A-22-1	2009 10 22	0.3 - 0.5	-	-	-	-	-	-	-	< 250	< 250	< 250	< 250	-
	BH09-22A-22-3	2009 10 22	1.5 - 1.7	-	-	-	-	-	-	-	< 250	< 250	< 250	< 250	-
	BH09-22A-22-2	2009 10 22	2.7 - 3.0	-	-	-	-	-	-	-	< 250	< 250	< 250	< 250	-
	BH09-DUP-26	Duplicate	2.7 - 3.0	-	-	-	-	-	-	-	< 250	< 250	< 250	< 250	-
	QA/QC RPD%				-	-	-	-	-	-	*	*	*	*	-
22A-BH16-23	22A-BH16-23-2	2016 11 03	1.8 - 2.0	0	-	-	-	-	-	-	220	220	< 100	< 100	-
	22A-BH16-23-3	Duplicate	1.8 - 2.0	0	-	-	-	-	-	-	820	820	< 100	< 100	-
	QA/QC RPD%				-	-	-	-	-	-	*	*	*	*	-
	22A-BH16-23-4	2016 11 03	3.7 - 3.8	0	-	-	-	-	-	-	< 100	< 100	< 100	< 100	-
22A-BH16-24	22A-BH16-24-1	2016 11 03	0.5 - 0.8	0	-	-	-	-	-	-	< 100	< 100	< 100	< 100	-
	22A-BH16-24-2	2016 11 03	2.7 - 2.9	0	-	-	-	-	-	-	< 100	< 100	< 100	< 100	-
22A-BH16-25	22A-BH16-25-1	2016 11 03	0.3 - 0.5	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22A-BH16-25-2	2016 11 03	2.7 - 2.9	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22A-BH16-26	22A-BH16-26-1	2016 11 03	0.6 - 0.8	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22A-BH16-26-2	2016 11 03	3.0 - 3.2	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22A-BH16-27	22A-BH16-27-1	2016 11 03	0.6 - 0.8	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22A-BH16-27-2	2016 11 03	2.3 - 2.4	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22A-BH16-28	22A-BH16-28-1	2016 11 04	0.3 - 0.5	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	160	160	< 0.10
	22A-BH16-28-2	2016 11 04	3.0 - 3.2	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22A-BH16-29	22A-BH16-29-1	2016 11 04	0.6 - 0.8	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	190	190	< 100	< 100	< 0.10
	22A-BH16-29-2	2016 11 04	3.2 - 3.4	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22A-BH16-30	22A-BH16-30-1	2016 11 04	0.5 - 0.6	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22A-BH16-30-2	2016 11 04	1.7 - 2.0	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22A-BH16-31	22A-BH16-31-1	2016 11 04	0.6 - 0.9	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22A-BH16-31-2	2016 11 04	3.4 - 3.7	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22A-BH16-32	22A-BH16-32-1	2016 11 04	0.3 - 0.6	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	230	230	130	130	< 0.10
	22A-BH16-32-2	2016 11 04	3.0 - 3.4	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22A-BH16-32-3	Duplicate	3.0 - 3.4	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	QA/QC RPD%				*	*	*	*	*	*	*	*	*	*	*
22A-BH16-33	22A-BH16-33-1	2016 11 04	0.3 - 0.5	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22A-BH16-33-2	2016 11 04	5.2 - 5.3	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22A-BH16-34	22A-BH16-34-1	2016 11 04	0.8 - 0.9	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22A-BH16-34-2	2016 11 04	6.1 - 6.4	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
AEC 22C															
BH09-22C-9	BH09-22C-9-1(M)	2009 08 18	0.4 - 0.6	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-9-2(M)	2009 08 18	1.0 - 1.3	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-9-3(M)	2009 08 18	1.7 - 1.9	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-9-4(M)	2009 08 18	2.6 - 2.8	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-9-5	2009 08 18	3.4 - 3.7	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	-	< 250	-	-
	BH09-22C-9-5(M)	2009 08 18	3.4 - 3.6	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-9-6	2009 08 18	4.0 - 4.4	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
BH09-22C-10	BH09-22C-10-1(M)	2009 08 18	0.3 - 0.5	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-10-2(M)	2009 08 18	1.0 - 1.3	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-10-3	2009 08 18	1.8 - 2.1	-	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	-	< 250	< 250	< 250	< 250	-
	BH09-22C-10-4(M)	2009 08 18	2.5 - 2.8	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-10-5	2009 08 18	3.2 - 3.5	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	-	< 250	-	-
	BH09-22C-10-5(M)	2009 08 18	3.2 - 3.5	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-10-6(M)	2009 08 18	4.1 - 4.4	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22C-11	BH09-22C-11-1(M)	2009 08 18	0.3 - 0.5	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-11-2(M)	2009 08 18	1.0 - 1.3	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-11-3	2009 08 18	2.0 - 2.3	-	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	-	< 250	< 250	< 250	< 250	-
	BH09-22C-11-4	2009 08 18	2.6 - 2.8	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	-	< 250	-	-
	BH09-22C-11-4(M)	2009 08 18	2.6 - 2.8	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-11-5	2009 08 18	3.5 - 3.7	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	-	< 250	-	-
	BH09-22C-11-5(M)	2009 08 18	3.5 - 3.8	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-11-6(M)	2009 08 18	3.9 - 4.2	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	DUP-05S (M)	Duplicate	3.9 - 4.2	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	QA/QC RPD%				*	*	*	*	-	*	*	-	*	-	-
BH09-22C-12	BH09-22C-12-1(M)	2009 08 18	0.3 - 0.5	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-12-2(M)	2009 08 18	1.0 - 1.3	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-12-3(M)	2009 08 18	2.0 - 2.3	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-12-4(M)	2009 08 18	2.6 - 2.9	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-12-5	2009 08 18	3.3 - 3.6	-	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	-	< 250	< 250	< 250	< 250	-
	BH09-22C-12-6	2009 08 18	4.2 - 4.5	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22C-12-6(M)	2009 08 18	4.2	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22C-13	BH09-22C-13-5	2009 12 09	3.6 - 3.9	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22C-13-5(M)	2009 09 12	3.6 - 3.9	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-13-8	2009 09 12	5.4 - 5.8	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22C-13-8(M)	2009 09 12	5.5 - 5.7	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22C-14	BH09-22C-14-5	2009 09 12	3.6 - 3.9	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22C-14-5(M)	2009 09 12	3.6 - 3.9	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-14-6	2009 09 12	4.2 - 4.5	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22C-14-6(M)	2009 09 12	4.2 - 4.5	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
Yukon Standard															
Yukon CSR Commercial Land Use (CL)[c]					0.04	7	2.5	20	50	200	2,000	2,000	5,000	5,000	n/a

Associated Maxxam file(s): B699546, B699547, B6A0687, B6A0692.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
RPD Denotes relative percent difference.
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.
(M) Sample analyzed at mobile laboratory.

SHADOW Concentration greater than Yukon CSR Commercial Land Use (CL) Standard

[a] Laboratory detection limit exceeds regulatory standard/guideline.
[b] Field screening results are measured based on a 'dry headspace' method using a combustible gas meter calibrated to a hexane standard.
[c] The site-specific factors used for determining the matrix standards for this site include: intake of contaminated soil, groundwater used for drinking water, toxicity to soil invertebrates and plants, and groundwater flow to surface water used by freshwater aquatic life (whichever is most stringent).
[d] EPH has no applicable CSR standard, however results have been compared to LEPH and HEPH standards, which are conservative comparisons.

TABLE 1b (Cont'd): Summary of Analytical Results for Soil - Hydrocarbons (AEC 22A, AEC 22C, AEC 22D)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Depth Interval (m)	Field Screen[b] (ppm)	Monocyclic Aromatic Hydrocarbons					Gross Parameters					MTBE
					Benzene µg/g	Ethylbenzene µg/g	Toluene µg/g	Xylenes µg/g	Styrene µg/g	VPH (C6-C10) µg/g	EPH (C10-C19)[d] µg/g	LEPH (C10-C19) µg/g	EPH (C19-C32)[d] µg/g	HEPH (C19-C32) µg/g	MTBE µg/g
AEC 22C															
BH09-22C-15	BH09-22C-15-5	2009 09 13	3.6 - 3.8	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22C-15-5(M)	2009 09 13	3.6 - 3.9	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-15-8	2009 09 13	5.4 - 5.8	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	-	< 250	-	-
	BH09-22C-15-8(M)	2009 09 13	5.4 - 5.8	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22C-16	BH09-22C-16-4	2009 09 13	2.4 - 2.8	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	-	< 250	-	-
	BH09-22C-16-4(M)	2009 09 13	2.4 - 2.8	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-16-5	2009 09 13	3.0 - 3.2	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22C-16-5(M)	2009 09 13	3.0 - 3.3	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22C-17	BH09-22C-17-5	2009 09 13	3.3 - 3.6	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22C-17-5(M)	2009 09 13	3.3 - 3.5	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-17-8	2009 09 13	5.7 - 5.9	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	-	< 250	-	-
	BH09-22C-17-8(M)	2009 09 13	5.7 - 5.9	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22C-18	BH09-22C-18-3	2009 09 13	1.8 - 2.1	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	-	< 250	-	-
	BH09-22C-18-3(M)	2009 09 13	1.8 - 2.1	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-18-5	2009 09 13	3.0 - 3.3	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22C-18-5(M)	2009 09 13	3.3 - 3.5	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22C-19	BH09-22C-19-4	2009 09 13	2.7 - 2.9	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22C-19-4(M)	2009 09 13	2.7 - 2.9	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-19-6	2009 09 13	3.9 - 4.2	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	-	< 250	-	-
	BH09-22C-19-6(M)	2009 09 13	3.9 - 4.2	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22C-20	BH09-22C-20-4	2009 09 13	2.7 - 2.9	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22C-20-4(M)	2009 09 13	2.7 - 2.9	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-20-6	2009 09 13	4.2 - 4.5	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	-	< 250	-	-
	BH09-22C-20-6(M)	2009 09 13	4.2 - 4.4	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22C-21	BH09-22C-21-4	2009 09 13	2.4 - 2.6	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	-	< 250	-	-
	BH09-22C-21-4(M)	2009 09 13	2.4 - 2.8	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-21-6	2009 09 13	3.9 - 4.2	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22C-21-6(M)	2009 09 13	3.9 - 4.2	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
BH09-22C-22	BH09-22C-22-4	2009 09 13	2.7 - 2.9	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22C-22-4(M)	2009 09 13	2.7 - 2.9	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22C-22-6	2009 09 13	4.2 - 4.4	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	-	< 250	-	-
	BH09-22C-22-6(M)	2009 09 13	4.2 - 4.4	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
22C-BH16-26	22C-BH16-26-1	2016 11 01	0.9 - 1.2	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	BH09-22C-22-6(M)	2009 09 13	4.2 - 4.4	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
22C-BH16-26	22C-BH16-26-1	2016 11 01	0.9 - 1.2	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22C-BH16-26-2	2016 11 01	3.4 - 3.7	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22C-BH16-27	22C-BH16-27-1	2016 11 01	0.6 - 0.9	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22C-BH16-27-2	2016 11 01	3.2 - 3.5	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22C-BH16-28	22C-BH16-28-1	2016 11 01	0.6 - 0.9	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	600	600	110	110	< 0.10
	22C-BH16-28-2	Duplicate	0.6 - 0.9	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	670	670	150	150	< 0.10
	QA/QC RPD%				*	*	*	*	*	*	11	11	*	*	*
	22C-BH16-28-3	2016 11 01	3.4 - 3.7	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	1,200	1,200	110	110	< 0.10
22C-BH16-29	22C-BH16-29-1	2016 11 02	0.9 - 1.2	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22C-BH16-29-2	2016 11 02	3.7 - 4.0	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22C-BH16-30	22C-BH16-30-1	2016 11 02	0.9 - 1.2	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22C-BH16-30-2	2016 11 02	2.9 - 3.2	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	160	**5,400**	**5,400**	220	220	< 0.10
	22C-BH16-30-3	Duplicate	2.9 - 3.2	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	60	**4,400**	**4,400**	200	200	< 0.10
	QA/QC RPD%				*	*	*	*	*	91	20	20	*	*	*
22C-BH16-31	22C-BH16-31-1	2016 11 02	0.6 - 0.9	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	870	870	< 0.10
	22C-BH16-31-2	2016 11 02	3.2 - 3.5	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22C-BH16-32	22C-BH16-32-1	2016 11 02	0.3 - 0.6	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22C-BH16-32-2	2016 11 02	3.0 - 3.4	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22C-BH16-33	22C-BH16-33-1	2016 11 02	0.6 - 0.9	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	260	260	< 0.10
	22C-BH16-33-2	2016 11 02	3.0 - 3.4	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22C-BH16-34	22C-BH16-34-1	2016 11 02	0.3 - 0.5	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22C-BH16-34-2	2016 11 02	3.0 - 3.4	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22C-BH16-35	22C-BH16-35-1	2016 11 02	0.3 - 0.6	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22C-BH16-35-2	2016 11 02	2.6 - 2.9	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22C-BH16-36	22C-BH16-36-1	2016 11 03	0.5 - 0.8	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22C-BH16-36-2	2016 11 03	2.9 - 3.2	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22C-BH16-37	22C-BH16-37-1	2016 11 03	0.3 - 0.6	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22C-BH16-37-2	2016 11 03	2.7 - 3.0	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22C-BH16-38	22C-BH16-38-1	2016 11 03	0.8 - 0.9	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22C-BH16-38-2	2016 11 03	1.8 - 2.1	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	17	< 100	< 100	< 100	< 100	< 0.10
	22C-BH16-38-3	Duplicate	1.8 - 2.1	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	12	< 100	< 100	< 100	< 100	< 0.10
	QA/QC RPD%				*	*	*	*	*	*	*	*	*	*	*
22C-BH16-39	22C-BH16-39-1	2016 11 03	0.6 - 0.9	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22C-BH16-39-2	2016 11 03	3.0 - 3.4	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
AEC 22D															
BH09-22D-6	BH09-22D-6-2	2009 09 13	0.9 - 1.1	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22D-6-2(M)	2009 09 13	0.9 - 1.1	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
	BH09-22D-6-6	2009 09 13	4.2 - 4.5	-	< 0.04	< 0.5	< 0.5	< 0.1	< 0.1	< 100	< 250	< 250	< 250	< 250	-
	BH09-22D-6-6(M)	2009 09 13	4.2 - 4.5	-	< 0.5[a]	< 0.5	< 0.5	< 0.5	-	< 100	< 250	-	< 250	-	-
22D-BH16-7	22D-BH16-7-1	2016 11 05	0.3 - 0.5	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22D-BH16-7-2	2016 11 05	2.6 - 2.9	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22D-BH16-7-3	Duplicate	2.6 - 2.9	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	QA/QC RPD%				*	*	*	*	*	*	*	*	*	*	*
22D-BH16-8	22D-BH16-8-1	2016 11 05	0.3 - 0.5	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22D-BH16-8-2	2016 11 05	3.4 - 3.7	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22D-BH16-9	22D-BH16-9-2	2016 11 05	1.2 - 1.5	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	79	**3,600**	**3,600**	150	150	< 0.10
	22D-BH16-9-3	2016 11 05	2.6 - 2.7	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
22D-BH16-10	22D-BH16-10-2	2016 11 05	2.1 - 2.4	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	22D-BH16-10-3	Duplicate	2.1 - 2.4	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
	QA/QC RPD%				*	*	*	*	*	*	*	*	*	*	*
	22D-BH16-10-4	2016 11 05	3.2 - 3.4	0	< 0.0050	< 0.010	< 0.020	< 0.040	< 0.030	< 10	< 100	< 100	< 100	< 100	< 0.10
Yukon Standard															
Yukon CSR Commercial Land Use (CL)[c]					0.04	7	2.5	20	50	200	2,000	2,000	5,000	5,000	n/a

Associated Maxxam file(s): B699546, B699547, B6A0687, B6A0692.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
RPD Denotes relative percent difference.
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.
(M) Sample analyzed at mobile laboratory.

SHADOW Concentration greater than Yukon CSR Commercial Land Use (CL) Standard

[a] Laboratory detection limit exceeds regulatory standard/guideline.
[b] Field screening results are measured based on a 'dry headspace' method using a combustible gas meter calibrated to a hexane standard.
[c] The site-specific factors used for determining the matrix standards for this site include: intake of contaminated soil, groundwater used for drinking water, toxicity to soil invertebrates and plants, and groundwater flow to surface water used by freshwater aquatic life (whichever is most stringent).
[d] EPH has no applicable CSR standard, however results have been compared to LEPH and HEPH standards, which are conservative comparisons.

TABLE 2a: Summary of Analytical Results for Soil - Polycyclic Aromatic Hydrocarbons (AEC 22B, AEC 22E)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Depth Interval (m)	Field Screen[a] (ppm)	Polycyclic Aromatic Hydrocarbons																	
					Naphthalene µg/g	2-Methylnaphthalene µg/g	Acenaphthylene µg/g	Acenaphthene µg/g	Fluorene µg/g	Phenanthrene µg/g	Anthracene µg/g	Fluoranthene µg/g	Pyrene µg/g	Benzo(a) anthracene µg/g	Chrysene µg/g	Benzo(b) fluoranthene µg/g	Benzo(b+j) fluoranthene µg/g	Benzo(k) fluoranthene µg/g	Benzo(a) pyrene µg/g	Indeno(1,2,3-cd) pyrene µg/g	Dibenz(a,h) anthracene µg/g	Benzo(g,h,i) perylene µg/g
AEC 22B																						
BH09-22B-4	BH09-22B-4-5	2009 09 12	3.3 - 3.5	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22B-5	BH09-22B-5-4	2009 09 12	2.7 - 2.9	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22B-6	BH09-22B-6-5	2009 09 12	3.3 - 3.5	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22B-7	BH09-22B-7-6	2009 09 12	4.2 - 4.5	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22B-8	BH09-22B-8-4	2009 09 12	2.7 - 2.9	-	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	BH09-22B-8-8	2009 09 12	5.8 - 6.2	-	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
22B-BH16-8	22B-BH16-8-2	2016 11 06	2.1 - 2.4	0	2.5	2.9	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22B-BH16-8-3	Duplicate	2.1 - 2.4	0	1.7	1.6	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	QA/QC RPD%				38	58	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	22B-BH16-8-4	2016 11 06	3.4 - 3.5	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22B-BH16-9	22B-BH16-9-1	2016 11 06	0.8 - 0.9	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22B-BH16-9-2	2016 11 06	2.6 - 2.7	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22B-BH16-10	22B-BH16-10-1	2016 11 06	0.2 - 0.3	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22B-BH16-10-2	2016 11 06	2.6 - 2.7	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22B-BH16-11	22B-BH16-11-1	2016 11 06	0.5 - 0.6	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22B-BH16-11-2	2016 11 06	1.7 - 2.0	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22B-BH16-12	22B-BH16-12-2	2016 11 06	3.5 - 3.7	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22B-BH16-12-3	2016 11 06	4.6 - 4.7	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
AEC 22E																						
BH09-22E-3	BH09-22E-3-5	2009 08 19	3.4 - 3.6	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22E-4	BH09-22E-4-1	2009 08 19	0.3 - 0.4	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
22E-BH16-5	22E-BH16-5-1	2016 11 01	0.8 - 1.1	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.45	0.072	0.75	0.61	0.28	0.41	0.34	0.54	0.18	0.32	0.21	0.061	0.28
	22E-BH16-5-2	2016 11 01	2.4 - 3.0	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.34	0.054	0.52	0.40	0.19	0.26	0.20	0.34	0.11	0.21	0.11	< 0.050	0.15
22E-BH16-6	22E-BH16-6-1	2016 11 01	0.6 - 0.9	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22E-BH16-6-2	2016 11 01	3.7 - 4.0	0	< 0.050	2.1	< 0.050	0.23	0.62	0.23	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22E-BH16-6-3	2016 11 05	4.4 - 4.6	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Yukon Standard																						
Yukon CSR Commercial Land Use (CL)[b]					50	n/a	n/a	n/a	n/a	50	n/a	n/a	100	10	n/a	10	n/a	10	10	10	10	n/a

Associated Maxxam file(s): B699544, B6A0684, B6A0697.

All terms defined within the body of SNC-Lavalin's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard/guideline.

RPD Denotes relative percent difference.

* RPDs are not calculated where one or more concentrations are less than five times RDL.

RDL Denotes reported detection limit.

SHADOW Concentration greater than Yukon CSR Commercial Land Use (CL) Standard

[a] Field screening results are measured based on a 'dry headspace' method using a combustible gas meter calibrated to a hexane standard.

[b] The site-specific factors used for determining the matrix standards for this site include: intake of contaminated soil, groundwater used for drinking water, toxicity to soil invertebrates and plants, and groundwater flow to surface water used by freshwater aquatic life (whichever is most stringent).

TABLE 2b: Summary of Analytical Results for Soil - Polycyclic Aromatic Hydrocarbons (AEC 22A, AEC 22C, AEC 22D)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Depth Interval (m)	Field Screen[a] (ppm)	Polycyclic Aromatic Hydrocarbons																	
					Naphthalene µg/g	2-Methylnaphthalene µg/g	Acenaphthylene µg/g	Acenaphthene µg/g	Fluorene µg/g	Phenanthrene µg/g	Anthracene µg/g	Fluoranthene µg/g	Pyrene µg/g	Benzo(a) anthracene µg/g	Chrysene µg/g	Benzo(b) fluoranthene µg/g	Benzo(b+j) fluoranthene µg/g	Benzo(k) fluoranthene µg/g	Benzo(a) pyrene µg/g	Indeno(1,2,3-cd) pyrene µg/g	Dibenz(a,h) anthracene µg/g	Benzo(g,h,i) perylene µg/g
AEC 22A																						
BH09-22A-15	BH09-22A-15-4	2009 09 15	2.7 - 2.9	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22A-16	BH09-22A-16-6	2009 09 14	4.2 - 4.4	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22A-17	BH09-22A-17-2	2009 09 14	1.2 - 1.4	-	0.06	0.16	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22A-18	BH09-22A-18-5	2009 09 15	3.9 - 4.2	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22A-19	BH09-22A-19-1	2009 10 22	0.9 - 1.1	-	< 0.01	< 0.02	< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
	BH09-22A-19-2	2009 10 22	3.9 - 4.1	-	< 0.01	< 0.02	< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
BH09-22A-20	BH09-22A-20-1	2009 10 22	0.6 - 0.9	-	< 0.01	< 0.02	< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
	BH09-22A-20-3	2009 10 22	1.5 - 1.7	-	< 0.01	< 0.02	< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
	BH09-22A-20-5	2009 10 22	2.7 - 2.9	-	< 0.01	< 0.02	< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
BH09-22A-21	BH09-22A-21-1	2009 10 21	0.3 - 0.5	-	< 0.01	< 0.02	< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
	BH09-22A-21-2	2009 10 22	1.2 - 1.4	-	< 0.01	< 0.02	< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
	BH09-22A-21-3	2009 10 22	1.8 - 2.1	-	< 0.01	< 0.02	< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
BH09-22A-22	BH09-22A-22-1	2009 10 22	0.3 - 0.5	-	< 0.01	< 0.02	< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
	BH09-22A-22-2	2009 10 22	2.7 - 3.0	-	< 0.01	< 0.02	< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
	BH09-DUP-26	Duplicate	2.7 - 3.0	-	< 0.01	< 0.02	< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
	QA/QC RPD%				*	*	*	*	*	*	*	*	*	*	*	-	*	*	*	*	*	*
	BH09-22A-22-3	2009 10 22	1.5 - 1.7	-	< 0.01	< 0.02	< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
22A-BH16-23	22A-BH16-23-2	2016 11 03	1.8 - 2.0	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22A-BH16-23-3	Duplicate	1.8 - 2.0	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	QA/QC RPD%				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	22A-BH16-23-4	2016 11 03	3.7 - 3.8	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22A-BH16-24	22A-BH16-24-1	2016 11 03	0.5 - 0.8	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22A-BH16-24-2	2016 11 03	2.7 - 2.9	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22A-BH16-25	22A-BH16-25-1	2016 11 03	0.3 - 0.5	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22A-BH16-25-2	2016 11 03	2.7 - 2.9	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22A-BH16-26	22A-BH16-26-1	2016 11 03	0.6 - 0.8	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22A-BH16-26-2	2016 11 03	3.0 - 3.2	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22A-BH16-27	22A-BH16-27-1	2016 11 03	0.6 - 0.8	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22A-BH16-27-2	2016 11 03	2.3 - 2.4	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22A-BH16-28	22A-BH16-28-1	2016 11 04	0.3 - 0.5	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22A-BH16-28-2	2016 11 04	3.0 - 3.2	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22A-BH16-29	22A-BH16-29-1	2016 11 04	0.6 - 0.8	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22A-BH16-29-2	2016 11 04	3.2 - 3.4	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22A-BH16-30	22A-BH16-30-1	2016 11 04	0.5 - 0.6	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22A-BH16-30-2	2016 11 04	1.7 - 2.0	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22A-BH16-31	22A-BH16-31-1	2016 11 04	0.6 - 0.9	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22A-BH16-31-2	2016 11 04	3.4 - 3.7	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22A-BH16-32	22A-BH16-32-1	2016 11 04	0.3 - 0.6	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22A-BH16-32-2	2016 11 04	3.0 - 3.4	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22A-BH16-32-3	Duplicate	3.0 - 3.4	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	QA/QC RPD%				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22A-BH16-33	22A-BH16-33-1	2016 11 04	0.3 - 0.5	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22A-BH16-33-2	2016 11 04	5.2 - 5.3	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22A-BH16-34	22A-BH16-34-1	2016 11 04	0.8 - 0.9	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22A-BH16-34-2	2016 11 04	6.1 - 6.4	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
AEC 22C																						
BH09-22C-9	BH09-22C-9-6	2009 08 18	4.0 - 4.4	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22C-10	BH09-22C-10-3	2009 08 18	1.8 - 2.1	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22C-11	BH09-22C-11-3	2009 08 18	2.0 - 2.3	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22C-12	BH09-22C-12-5	2009 08 18	3.3 - 3.6	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	BH09-22C-12-6	2009 08 18	4.2 - 4.5	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Yukon Standard																						
Yukon CSR Commercial Land Use (CL)[b]					50	n/a	n/a	n/a	n/a	50	n/a	n/a	100	10	n/a	10	n/a	10	10	10	10	n/a

Associated Maxxam file(s): B699546, B699547, B6A0687, B6A0692.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
RPD Denotes relative percent difference.
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

SHADOW Concentration greater than Yukon CSR Commercial Land Use (CL) Standard

[a] Field screening results are measured based on a 'dry headspace' method using a combustible gas meter calibrated to a hexane standard.
[b] The site-specific factors used for determining the matrix standards for this site include: intake of contaminated soil, groundwater used for drinking water, toxicity to soil invertebrates and plants, and groundwater flow to surface water used by freshwater aquatic life (whichever is most stringent).

TABLE 2b (Cont'd): Summary of Analytical Results for Soil - Polycyclic Aromatic Hydrocarbons (AEC 22A, AEC 22C, AEC 22D)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Depth Interval (m)	Field Screen[a] (ppm)	Polycyclic Aromatic Hydrocarbons																	
					Naphthalene µg/g	2-MethylNaphthalene µg/g	Acenaphthylene µg/g	Acenaphthene µg/g	Fluorene µg/g	Phenanthrene µg/g	Anthracene µg/g	Fluoranthene µg/g	Pyrene µg/g	Benzo(a) anthracene µg/g	Chrysene µg/g	Benzo(b) fluoranthene µg/g	Benzo(b+j) fluoranthene µg/g	Benzo(k) fluoranthene µg/g	Benzo(a) pyrene µg/g	Indeno(1,2,3-cd) pyrene µg/g	Dibenz(a,h) anthracene µg/g	Benzo(g,h,i) perylene µg/g
AEC 22C																						
BH09-22C-13	BH09-22C-13-5	2009 12 09	3.6 - 3.9	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	BH09-22C-13-8	2009 09 12	5.4 - 5.8	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22C-14	BH09-22C-14-5	2009 09 12	3.6 - 3.9	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	BH09-22C-14-6	2009 09 12	4.2 - 4.5	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22C-15	BH09-22C-15-5	2009 09 13	3.6 - 3.8	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22C-16	BH09-22C-16-5	2009 09 13	3.0 - 3.2	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22C-17	BH09-22C-17-5	2009 09 13	3.3 - 3.6	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22C-18	BH09-22C-18-5	2009 09 13	3.0 - 3.3	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22C-19	BH09-22C-19-4	2009 09 13	2.7 - 2.9	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22C-20	BH09-22C-20-4	2009 09 13	2.7 - 2.9	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22C-21	BH09-22C-21-6	2009 09 13	3.9 - 4.2	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
BH09-22C-22	BH09-22C-22-4	2009 09 13	2.7 - 2.9	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
22C-BH16-26	22C-BH16-26-1	2016 11 01	0.9 - 1.2	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22C-BH16-26-2	2016 11 01	3.4 - 3.7	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22C-BH16-27	22C-BH16-27-1	2016 11 01	0.6 - 0.9	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22C-BH16-27-2	2016 11 01	3.2 - 3.5	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22C-BH16-28	22C-BH16-28-1	2016 11 01	0.6 - 0.9	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22C-BH16-28-2	Duplicate	0.6 - 0.9	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	QA/QC RPD%				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	22C-BH16-28-3	2016 11 01	3.4 - 3.7	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22C-BH16-29	22C-BH16-29-1	2016 11 02	0.9 - 1.2	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22C-BH16-29-2	2016 11 02	3.7 - 4.0	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22C-BH16-30	22C-BH16-30-1	2016 11 02	0.9 - 1.2	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22C-BH16-30-2	2016 11 02	2.9 - 3.2	0	0.093	1.4	< 0.050	0.84	0.74	0.21	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22C-BH16-30-3	Duplicate	2.9 - 3.2	0	0.070	1.2	< 0.050	0.67	0.57	0.18	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	QA/QC RPD%				28	15	*	23	26	15	*	*	*	*	*	*	*	*	*	*	*	*
22C-BH16-31	22C-BH16-31-1	2016 11 02	0.6 - 0.9	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.059
	22C-BH16-31-2	2016 11 02	3.2 - 3.5	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22C-BH16-32	22C-BH16-32-1	2016 11 02	0.3 - 0.6	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22C-BH16-32-2	2016 11 02	3.0 - 3.4	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22C-BH16-33	22C-BH16-33-1	2016 11 02	0.6 - 0.9	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.21	< 0.050	0.31	0.31	0.13	0.15	0.095	0.17	0.055	0.14	0.068	< 0.050	0.087
	22C-BH16-33-2	2016 11 02	3.0 - 3.4	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22C-BH16-34	22C-BH16-34-1	2016 11 02	0.3 - 0.5	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22C-BH16-34-2	2016 11 02	3.0 - 3.4	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22C-BH16-35	22C-BH16-35-1	2016 11 02	0.3 - 0.6	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22C-BH16-35-2	2016 11 02	2.6 - 2.9	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22C-BH16-36	22C-BH16-36-1	2016 11 03	0.5 - 0.8	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22C-BH16-36-2	2016 11 03	2.9 - 3.2	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22C-BH16-37	22C-BH16-37-1	2016 11 03	0.3 - 0.6	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22C-BH16-37-2	2016 11 03	2.7 - 3.0	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22C-BH16-38	22C-BH16-38-1	2016 11 03	0.8 - 0.9	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22C-BH16-38-2	2016 11 03	1.8 - 2.1	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22C-BH16-38-3	Duplicate	1.8 - 2.1	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	QA/QC RPD%				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22C-BH16-39	22C-BH16-39-1	2016 11 03	0.6 - 0.9	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22C-BH16-39-2	2016 11 03	3.0 - 3.4	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
AEC 22D																						
BH09-22D-6	BH09-22D-6-2	2009 09 13	0.9 - 1.1	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
	BH09-22D-6-6	2009 09 13	4.2 - 4.5	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Yukon Standard																						
Yukon CSR Commercial Land Use (CL)[b]					50	n/a	n/a	n/a	n/a	50	n/a	n/a	100	10	n/a	10	n/a	10	10	10	10	n/a

Associated Maxxam file(s): B699546, B699547, B6A0687, B6A0692.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
RPD Denotes relative percent difference.
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

SHADOW Concentration greater than Yukon CSR Commercial Land Use (CL) Standard

[a] Field screening results are measured based on a 'dry headspace' method using a combustible gas meter calibrated to a hexane standard.
[b] The site-specific factors used for determining the matrix standards for this site include: intake of contaminated soil, groundwater used for drinking water, toxicity to soil invertebrates and plants, and groundwater flow to surface water used by freshwater aquatic life (whichever is most stringent).

TABLE 2b (Cont'd): Summary of Analytical Results for Soil - Polycyclic Aromatic Hydrocarbons (AEC 22A, AEC 22C, AEC 22D)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Depth Interval (m)	Field Screen[a] (ppm)	Polycyclic Aromatic Hydrocarbons																	
					Naphthalene µg/g	2-Methylnaphthalene µg/g	Acenaphthylene µg/g	Acenaphthene µg/g	Fluorene µg/g	Phenanthrene µg/g	Anthracene µg/g	Fluoranthene µg/g	Pyrene µg/g	Benzo(a) anthracene µg/g	Chrysene µg/g	Benzo(b) fluoranthene µg/g	Benzo(b+j) fluoranthene µg/g	Benzo(k) fluoranthene µg/g	Benzo(a) pyrene µg/g	Indeno(1,2,3-cd) pyrene µg/g	Dibenz(a,h) anthracene µg/g	Benzo(g,h,i) perylene µg/g
AEC 22D																						
22D-BH16-7	22D-BH16-7-1	2016 11 05	0.3 - 0.5	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22D-BH16-7-2	2016 11 05	2.6 - 2.9	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22D-BH16-7-3	Duplicate	2.6 - 2.9	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	QA/QC RPD%				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22D-BH16-8	22D-BH16-8-1	2016 11 05	0.3 - 0.5	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22D-BH16-8-2	2016 11 05	3.4 - 3.7	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22D-BH16-9	22D-BH16-9-2	2016 11 05	1.2 - 1.5	0	< 0.050	< 0.050	< 0.050	0.10	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22D-BH16-9-3	2016 11 05	2.6 - 2.7	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
22D-BH16-10	22D-BH16-10-2	2016 11 05	2.1 - 2.4	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	22D-BH16-10-3	Duplicate	2.1 - 2.4	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
	QA/QC RPD%				*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	22D-BH16-10-4	2016 11 05	3.2 - 3.4	0	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Yukon Standard																						
Yukon CSR Commercial Land Use (CL)[b]					50	n/a	n/a	n/a	n/a	50	n/a	n/a	100	10	n/a	10	n/a	10	10	10	10	n/a

Associated Maxxam file(s): B699546, B699547, B6A0687, B6A0692.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
RPD Denotes relative percent difference.
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

SHADOW Concentration greater than Yukon CSR Commercial Land Use (CL) Standard

[a] Field screening results are measured based on a 'dry headspace' method using a combustible gas meter calibrated to a hexane standard.
[b] The site-specific factors used for determining the matrix standards for this site include: intake of contaminated soil, groundwater used for drinking water, toxicity to soil invertebrates and plants, and groundwater flow to surface water used by freshwater aquatic life (whichever is most stringent).

TABLE 3a: Summary of Analytical Results for Soil - Total Metals (AEC 22B, AEC 22E)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Depth Interval (m)	pH	Total Metals																				
				pH pH	Antimony µg/g	Arsenic µg/g	Barium µg/g	Beryllium µg/g	Cadmium µg/g	Chromium µg/g	Cobalt µg/g	Copper µg/g	Lead µg/g	Lithium µg/g	Manganese µg/g	Mercury µg/g	Molybdenum µg/g	Nickel µg/g	Selenium µg/g	Silver µg/g	Strontium µg/g	Thallium µg/g	Tin µg/g	Uranium µg/g	Vanadium µg/g	Zinc µg/g
AEC 22B																									
BH09-22B-4	BH09-22B-4-5	2009 09 12	3.3 - 3.5	7.9	< 10	< 10	27	< 1	< 0.5	4	2	4	< 5	-	104	0.02	< 4	7	< 2	< 2	6	-	< 5	-	4	11
BH09-22B-5	BH09-22B-5-4	2009 09 12	2.7 - 2.9	7.6	< 10	< 10	58	< 1	< 0.5	9	3	6	< 5	-	90	0.11	< 4	7	< 2	< 2	9	-	< 5	-	11	18
BH09-22B-6	BH09-22B-6-5	2009 09 12	3.3 - 3.5	7.1	< 10	< 10	30	< 1	< 0.5	6	2	6	5	-	224	0.03	< 4	8	< 2	< 2	4	-	< 5	-	5	12
BH09-22B-7	BH09-22B-7-6	2009 09 12	4.2 - 4.5	7.2	< 10	< 10	60	< 1	< 0.5	9	3	7	< 5	-	344	0.03	< 4	12	< 2	< 2	5	-	< 5	-	7	15
BH09-22B-8	BH09-22B-8-4	2009 09 12	2.7 - 2.9	5.8	< 10	< 10	139	< 1	< 0.5	19	3	11	5	-	82	0.1	< 4	14	< 2	< 2	13	-	< 5	-	15	22
22B-BH16-8	22B-BH16-8-2	2016 11 06	2.1 - 2.4	8.22	1.07	5.07	117	< 0.40	0.288	19.6	8.85	12.3	13.4	6.3	335	< 0.050	0.56	30.0	< 0.50	0.068	19.8	0.060	0.26	0.436	18.3	49.0
	22B-BH16-8-3	Duplicate	2.1 - 2.4	8.29	0.72	4.71	117	< 0.40	0.243	16.8	6.73	11.0	13.3	6.1	303	< 0.050	0.55	21.3	< 0.50	0.057	18.7	0.058	0.24	0.365	16.1	44.9
	QA/QC RPD%			*	39	7	0	*	*	15	27	11	1	*	10	*	2	34	*	*	6	*	*	18	13	*
22B-BH16-9	22B-BH16-9-1	2016 11 06	0.8 - 0.9	8.12	0.59	4.94	95.0	< 0.40	0.151	13.9	5.01	12.1	12.0	5.5	277	0.074	0.60	16.6	< 0.50	0.070	12.1	< 0.050	0.17	0.359	16.0	32.8
22B-BH16-10	22B-BH16-10-1	2016 11 06	0.2 - 0.3	6.65	0.40	4.49	96.5	< 0.40	0.123	15.1	5.27	10.2	5.96	5.3	227	0.184	0.44	17.8	< 0.50	< 0.050	11.9	< 0.050	0.17	0.423	16.1	30.0
22B-BH16-11	22B-BH16-11-1	2016 11 06	0.5 - 0.6	6.54	0.61	4.39	89.3	< 0.40	0.206	11.6	4.34	19.5	30.1	< 5.0	556	0.076	0.49	14.9	< 0.50	0.050	6.55	0.052	0.14	0.419	11.8	39.2
22B-BH16-12	22B-BH16-12-2	2016 11 06	3.5 - 3.7	6.90	0.20	2.46	38.7	< 0.40	0.071	5.4	2.55	5.52	2.91	< 5.0	66.5	< 0.050	0.36	7.51	< 0.50	< 0.050	5.56	< 0.050	< 0.10	0.377	6.9	16.0
AEC 22E																									
BH09-22E-3	BH09-22E-3-5	2009 08 19	3.4 - 3.6	7	< 10	< 10	36	< 1	< 0.5	7	2	5	< 5	-	164	0.02	< 4	9	< 2	< 2	5	-	< 5	-	6	13
22E-BH16-5	22E-BH16-5-1	2016 11 01	0.8 - 1.1	6.65	0.53	5.19	125	< 0.40	0.356	12.3	5.71	15.7	9.26	5.6	239	0.068	0.53	14.5	< 0.50	0.084	12.8	0.053	0.44	0.660	14.1	41.2
22E-BH16-6	22E-BH16-6-1	2016 11 01	0.6 - 0.9	7.69	0.66	4.77	73.8	< 0.40	0.114	14.1	4.29	9.58	4.54	< 5.0	293	< 0.050	0.49	14.7	< 0.50	< 0.050	6.61	< 0.050	< 0.10	0.280	12.2	21.8
Yukon Standard																									
Yukon CSR Commercial Land Use (CL)[a]				n/a	40	15	2,000	8	1.5-100[b]	60	300	200-250[b]	100-1,000[b]	n/a	n/a	40	40	500	10	40	n/a	n/a	300	n/a	n/a	150-600[b]

Associated Historic file(s): .
Associated Maxxam file(s): B699544, B6A0684.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
RPD Denotes relative percent difference.
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

SHADOW Concentration greater than Yukon CSR Commercial Land Use (CL) Standard

[a] The site-specific factors used for determining the matrix standards for this site include: intake of contaminated soil, groundwater used for drinking water, toxicity to soil invertebrates and plants, and groundwater flow to surface water used by freshwater aquatic life (whichever is most stringent).
[b] Standard is pH dependent.

TABLE 3b: Summary of Analytical Results for Soil - Total Metals (AEC 22A, AEC 22C, AEC 22D)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Depth Interval (m)	pH	Total Metals																					
				pH pH	Antimony µg/g	Arsenic µg/g	Barium µg/g	Beryllium µg/g	Cadmium µg/g	Chromium µg/g	Cobalt µg/g	Copper µg/g	Lead µg/g	Lithium µg/g	Manganese µg/g	Mercury µg/g	Molybdenum µg/g	Nickel µg/g	Selenium µg/g	Silver µg/g	Strontium µg/g	Thallium µg/g	Tin µg/g	Uranium µg/g	Vanadium µg/g	Zinc µg/g
AEC 22A																										
BH09-22A-15	BH09-22A-15-4	2009 09 15	2.7 - 2.9	6.6	< 10	< 10	52	< 1	< 0.5	10	3	6	< 10	-	80	0.02	< 4	10	< 2	< 2	5	-	< 5	-	7	18
BH09-22A-16	BH09-22A-16-6	2009 09 14	4.2 - 4.4	6.6	< 10	< 10	38	< 1	< 0.5	9	3	5	< 5	-	168	0.02	< 4	12	< 2	< 2	5	-	< 5	-	6	14
BH09-22A-17	BH09-22A-17-2	2009 09 14	1.2 - 1.4	6.6	< 10	< 10	119	< 1	< 0.5	17	6	9	9	-	285	0.03	< 4	16	< 2	< 2	8	-	< 5	-	16	32
BH09-22A-18	BH09-22A-18-5	2009 09 15	3.9 - 4.2	6.6	< 10	< 10	56	< 1	< 0.5	6	2	7	< 5	-	69	0.03	< 4	8	< 2	< 2	4	-	< 5	-	6	15
22A-BH16-23	22A-BH16-23-2	2016 11 03	1.8 - 2.0	6.27	0.45	3.92	92.1	< 0.40	0.198	13.2	5.16	9.00	15.9	< 5.0	112	< 0.050	0.36	13.2	< 0.50	0.052	6.41	< 0.050	0.28	0.341	13.9	36.2
	22A-BH16-23-3	Duplicate	1.8 - 2.0	6.14	0.49	3.75	103	< 0.40	0.205	18.2	5.74	10.2	11.1	< 5.0	133	< 0.050	0.41	16.8	< 0.50	0.078	7.95	< 0.050	0.35	0.399	14.7	33.2
	QA/QC RPD%			*	*	4	11	*	*	32	11	12	36	*	17	*	*	24	*	*	21	*	*	16	6	*
22A-BH16-24	22A-BH16-24-1	2016 11 03	0.5 - 0.8	6.28	0.53	5.31	175	< 0.40	0.260	24.3	6.52	12.1	10.5	8.9	439	< 0.050	0.56	20.1	< 0.50	0.103	21.9	0.067	0.42	0.793	26.4	52.6
22A-BH16-25	22A-BH16-25-1	2016 11 03	0.3 - 0.5	6.82	0.90	6.37	58.5	< 0.40	0.110	26.0	5.93	11.7	5.73	< 5.0	249	< 0.050	0.86	19.7	< 0.50	< 0.050	5.85	< 0.050	0.17	0.293	17.8	28.4
22A-BH16-26	22A-BH16-26-1	2016 11 03	0.6 - 0.8	7.36	0.61	3.97	132	< 0.40	0.161	17.8	5.26	9.91	8.97	5.3	245	< 0.050	0.38	15.6	< 0.50	0.083	12.8	< 0.050	0.55	0.398	17.8	31.1
22A-BH16-27	22A-BH16-27-1	2016 11 03	0.6 - 0.8	6.49	0.46	5.34	177	< 0.40	0.276	25.5	8.79	9.26	8.00	10.0	397	< 0.050	0.57	20.6	< 0.50	0.069	17.1	0.069	0.29	0.454	28.7	51.5
22A-BH16-28	22A-BH16-28-1	2016 11 04	0.3 - 0.5	7.27	1.09	**15.8**	567	0.90	0.684	36.9	10.1	33.2	21.0	17.8	881	< 0.050	1.74	35.7	1.77	0.302	48.9	0.108	0.48	2.80	42.4	113
22A-BH16-29	22A-BH16-29-1	2016 11 04	0.6 - 0.8	6.58	0.77	4.80	89.8	< 0.40	0.186	15.6	5.24	10.9	11.6	5.2	290	0.076	0.42	16.4	< 0.50	0.054	7.23	< 0.050	0.25	0.302	15.0	42.1
22A-BH16-30	22A-BH16-30-1	2016 11 04	0.5 - 0.6	7.09	0.34	3.33	61.9	< 0.40	0.058	16.5	4.10	12.4	6.75	< 5.0	113	< 0.050	0.23	17.4	< 0.50	< 0.050	8.80	< 0.050	< 0.10	0.212	12.0	26.4
22A-BH16-31	22A-BH16-31-1	2016 11 04	0.6 - 0.9	6.80	0.53	5.70	98.3	< 0.40	0.255	20.7	5.87	13.3	11.5	< 5.0	333	0.086	0.41	19.4	< 0.50	< 0.050	6.97	< 0.050	0.35	0.354	15.9	60.0
22A-BH16-32	22A-BH16-32-1	2016 11 04	0.3 - 0.6	6.07	0.54	6.21	174	< 0.40	0.264	18.9	5.86	15.7	19.1	7.4	425	0.091	0.62	19.4	0.51	0.106	17.1	0.059	0.17	0.946	18.5	53.4
22A-BH16-33	22A-BH16-33-1	2016 11 04	0.3 - 0.5	6.88	0.51	5.43	140	< 0.40	0.254	30.6	7.07	6.30	10.6	12.2	244	< 0.050	0.62	25.5	< 0.50	0.210	19.9	0.076	0.61	0.367	45.5	65.4
22A-BH16-34	22A-BH16-34-1	2016 11 04	0.8 - 0.9	6.07	0.71	6.63	68.3	< 0.40	0.131	20.5	6.55	11.3	5.60	< 5.0	201	< 0.050	0.57	22.3	< 0.50	< 0.050	5.68	< 0.050	< 0.10	0.271	15.7	28.7
AEC 22C																										
BH09-22C-9	BH09-22C-9-6	2009 08 18	4.0 - 4.4	5.5	< 10	< 10	38	< 1	< 0.5	8	2	8	< 5	-	86	0.05	< 4	9	< 2	< 2	5	-	< 5	-	7	16
BH09-22C-10	BH09-22C-10-3	2009 08 18	1.8 - 2.1	5.6	< 10	< 10	42	< 1	< 0.5	10	3	7	< 5	-	88	0.04	< 4	9	< 2	< 2	4	-	< 5	-	6	16
BH09-22C-11	BH09-22C-11-3	2009 08 18	2.0 - 2.3	5.9	< 10	< 10	74	< 1	< 0.5	7	3	3	< 5	-	57	0.03	< 4	9	< 2	< 2	4	-	< 5	-	5	13
BH09-22C-12	BH09-22C-12-5	2009 08 18	3.3 - 3.6	5.8	< 10	< 10	58	< 1	< 0.5	9	3	7	< 5	-	236	0.04	< 4	9	< 2	< 2	5	-	< 5	-	7	15
BH09-22C-13	BH09-22C-13-5	2009 12 09	3.6 - 3.9	6.7	< 10	< 10	66	< 1	< 0.5	9	5	9	< 5	-	164	0.04	< 4	13	< 2	< 2	6	-	< 5	-	7	23
BH09-22C-14	BH09-22C-14-5	2009 09 12	3.6 - 3.9	6.8	< 10	< 10	52	< 1	< 0.5	10	3	8	< 5	-	291	0.03	< 4	10	< 2	< 2	5	-	< 5	-	7	18
BH09-22C-15	BH09-22C-15-5	2009 09 13	3.6 - 3.8	7	< 10	< 10	82	< 1	< 0.5	7	7	9	< 5	-	391	0.06	< 4	14	< 2	< 2	5	-	< 5	-	7	19
BH09-22C-16	BH09-22C-16-5	2009 09 13	3.0 - 3.2	6.9	< 10	< 10	48	< 1	< 0.5	9	3	7	< 5	-	81	0.04	< 4	10	< 2	< 2	5	-	< 5	-	7	16
BH09-22C-17	BH09-22C-17-5	2009 09 13	3.3 - 3.6	7.1	< 10	< 10	53	< 1	< 0.5	8	2	6	< 5	-	58	0.02	< 4	10	< 2	< 2	4	-	< 5	-	6	15
BH09-22C-18	BH09-22C-18-5	2009 09 13	3.0 - 3.3	7.1	< 10	< 10	10	< 1	< 0.5	3	1	2	< 5	-	26	< 0.01	< 4	3	< 2	< 2	2	-	< 5	-	2	8
BH09-22C-19	BH09-22C-19-4	2009 09 13	2.7 - 2.9	6.9	< 10	< 10	49	< 1	< 0.5	16	3	7	< 5	-	294	0.03	< 4	12	< 2	< 2	5	-	< 5	-	6	16
BH09-22C-20	BH09-22C-20-4	2009 09 13	2.7 - 2.9	7	< 10	**22**	74	< 1	< 0.5	6	3	9	6	-	334	0.02	< 4	323	< 2	< 2	6	-	< 5	-	8	16
BH09-22C-21	BH09-22C-21-6	2009 09 13	3.9 - 4.2	7.1	< 10	< 10	55	< 1	< 0.5	13	3	8	< 5	-	138	0.1	< 4	11	< 2	< 2	5	-	< 5	-	6	14
BH09-22C-22	BH09-22C-22-4	2009 09 13	2.7 - 2.9	7.1	< 10	< 10	645	< 1	0.7	8	10	21	5	-	5,620	0.05	< 4	37	2	< 2	8	-	< 5	-	8	20
BH09-22C-23	BH09-22C-23-1	2009 10 22	0.9 - 1.1	7.2	0.7	6.5	56	< 1	< 0.2	20	5	12	6.9	-	281	0.06	0.4	24	0.3	< 0.1	6	< 0.1	< 5	-	12	23
	BH09-22C-23-2	2009 10 22	2.7 - 2.9	7.2	< 0.1	1.7	96	< 1	< 0.2	7	2	5	2.4	-	64	0.02	0.2	7	0.3	0.1	5	< 0.1	< 5	-	6	11
	BH09-22C-23-3	2009 10 22	4.2 - 4.5	6.8	< 0.1	2.5	32	< 1	< 0.2	8	2	6	2.1	-	125	0.03	0.3	8	< 0.2	< 0.1	5	< 0.1	< 5	-	6	14
BH09-22C-24	BH09-22C-24-1	2009 10 22	1.2 - 1.5	6.4	0.5	5.3	47	< 1	< 0.2	18	4	10	5.6	-	192	0.05	0.4	19	0.3	< 0.1	5	< 0.1	< 5	-	11	20
	BH09-22C-24-2	2009 10 22	2.7 - 3.0	7	< 0.1	2.7	104	< 1	0.2	12	3	6	2.9	-	709	0.04	0.4	13	0.4	< 0.1	5	< 0.1	< 5	-	7	14
	BH09-DUP-27	Duplicate	2.7 - 3.0	7.2	< 0.1	2.7	67	< 1	< 0.2	11	3	6	2.8	-	242	0.05	0.3	12	0.2	< 0.1	7	< 0.1	< 5	-	7	15
	QA/QC RPD%			3	*	0	43	*	*	9	*	0	4	-	98	*	*	8	*	*	33	*	*	-	0	*
	BH09-22C-24-3	2009 10 22	4.2 - 4.5	6.8	< 0.1	2.2	30	< 1	< 0.2	6	2	5	2.3	-	131	0.02	0.2	7	< 0.2	< 0.1	4	< 0.1	< 5	-	5	12
BH09-22C-25	BH09-22C-25-1	2009 10 22	0.9 - 1.1	6.5	0.5	5.6	51	< 1	< 0.2	15	5	11	4	-	268	0.05	0.4	20	< 0.2	< 0.1	5	< 0.1	< 5	-	11	20
	BH09-22C-25-2	2009 10 22	2.7 - 2.9	7.3	< 0.1	2.1	99	< 1	< 0.2	15	3	6	3.2	-	634	0.03	0.6	14	0.3	< 0.1	5	< 0.1	< 5	-	5	29
	BH09-22C-25-4	2009 10 22	4.2 - 4.5	6.4	< 0.1	4.3	31	< 1	< 0.2	8	2	-	2.6	-	64	0.01	0.2	8	0.3	< 0.1	5	< 0.1	< 5	-	7	16
22C-BH16-26	22C-BH16-26-1	2016 11 01	0.9 - 1.2	7.05	0.42	4.00	94.0	< 0.40	0.174	13.4	6.07	9.44	5.96	< 5.0	275	0.052	0.38	14.1	< 0.50	0.073	9.58	< 0.050	0.52	0.285	14.9	30.5
22C-BH16-27	22C-BH16-27-1	2016 11 01	0.6 - 0.9	6.62	0.40	4.97	113	< 0.40	0.128	23.5	6.26	8.03	6.04	6.9	295	< 0.050	0.58	16.4	< 0.50	0.074	8.80	0.052	0.32	0.321	24.6	39.5
22C-BH16-28	22C-BH16-28-1	2016 11 01	0.6 - 0.9	6.69	0.43	5.80	49.2	< 0.40	0.107	17.0	4.99	9.87	5.57	< 5.0	187	< 0.050	0.41	17.2	< 0.50	< 0.050	4.78	< 0.050	0.16	0.279	12.9	23.1
	22C-BH16-28-2	Duplicate	0.6 - 0.9	6.65	0.47	6.20	46.6	< 0.40	0.121	14.2	4.22	9.33	5.12	< 5.0	165	0.109	0.44	14.8	< 0.50	< 0.050	4.09	< 0.050	0.14	0.263	12.7	21.3
	QA/QC RPD%			*	*	7	*	*	*	18	*	6	8	*	12	*	*	15	*	*	*	*	*	6	2	*
22C-BH16-29	22C-BH16-29-1	2016 11 02	0.9 - 1.2	7.16	0.52	4.09	74.2	< 0.40	0.188	12.5	4.51	9.42	11.3	< 5.0	218	< 0.050	0.34	13.9	< 0.50	0.057	7.11	< 0.050	0.34	0.309	14.3	33.1
22C-BH16-30	22C-BH16-30-1	2016 11 02	0.9 - 1.2	8.28	0.30	3.91	66.5	< 0.40	0.077	11.6	3.48	5.66	3.84	< 5.0	140	< 0.050	0.34	10.7	< 0.50	< 0.050	9.57	< 0.050	0.14	0.227	11.9	19.4
22C-BH16-31	22C-BH16-31-1	2016 11 02	0.6 - 0.9	7.12	0.64	4.31	121	< 0.40	0.344	18.3	5.55	11.8	55.0	5.3	252	0.056	0.57	16.5	< 0.50	0.070	10.3	< 0.050	0.60	0.426	16.6	105
Yukon Standard																										
Yukon CSR Commercial Land Use (CL)[a]				n/a	40	15	2,000	8	1.5-100[b]	60	300	200-250[b]	100-1,000[b]	n/a	n/a	40	40	500	10	40	n/a	n/a	300	n/a	n/a	150-600[b]

Associated Maxxam file(s): B699546, B699547, B6A0687, B6A0692.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
RPD Denotes relative percent difference.
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

SHADOW Concentration greater than Yukon CSR Commercial Land Use (CL) Standard

[a] The site-specific factors used for determining the matrix standards for this site include: intake of contaminated soil, groundwater used for drinking water, toxicity to soil invertebrates and plants, and groundwater flow to surface water used by freshwater aquatic life (whichever is most stringent).

TABLE 3b (Cont'd): Summary of Analytical Results for Soil - Total Metals (AEC 22A, AEC 22C, AEC 22D)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Depth Interval (m)	pH	Total Metals																					
				pH pH	Antimony µg/g	Arsenic µg/g	Barium µg/g	Beryllium µg/g	Cadmium µg/g	Chromium µg/g	Cobalt µg/g	Copper µg/g	Lead µg/g	Lithium µg/g	Manganese µg/g	Mercury µg/g	Molybdenum µg/g	Nickel µg/g	Selenium µg/g	Silver µg/g	Strontium µg/g	Thallium µg/g	Tin µg/g	Uranium µg/g	Vanadium µg/g	Zinc µg/g
AEC 22C																										
22C-BH16-32	22C-BH16-32-1	2016 11 02	0.3 - 0.6	7.44	0.64	4.11	101	< 0.40	0.488	16.7	5.65	19.1	76.7	< 5.0	358	0.069	0.75	14.3	< 0.50	0.079	8.17	< 0.050	1.76	0.328	12.2	60.0
22C-BH16-33	22C-BH16-33-1	2016 11 02	0.6 - 0.9	6.72	0.53	6.23	274	0.46	0.545	25.7	7.17	20.3	27.5	9.6	564	0.069	0.94	21.5	< 0.50	0.180	29.0	0.083	0.55	1.28	28.2	97.4
22C-BH16-34	22C-BH16-34-1	2016 11 02	0.3 - 0.5	6.57	0.60	5.26	104	< 0.40	0.210	21.0	6.09	10.7	8.05	5.6	408	0.057	0.50	19.8	< 0.50	0.063	8.18	0.056	0.33	0.313	20.3	36.9
22C-BH16-35	22C-BH16-35-1	2016 11 02	0.3 - 0.6	5.52	0.61	5.68	73.7	< 0.40	0.138	23.2	6.64	12.0	5.91	5.5	201	< 0.050	0.52	17.8	< 0.50	< 0.050	6.70	< 0.050	0.19	0.359	20.1	28.1
22C-BH16-36	22C-BH16-36-1	2016 11 03	0.5 - 0.8	6.28	0.39	3.18	83.1	< 0.40	0.109	17.0	6.16	9.16	7.05	< 5.0	172	3.11	0.49	16.8	< 0.50	0.068	6.74	< 0.050	0.24	0.214	15.6	25.3
22C-BH16-37	22C-BH16-37-1	2016 11 03	0.3 - 0.6	5.97	0.51	4.93	99.2	< 0.40	0.152	17.7	5.46	10.9	14.5	< 5.0	316	0.050	0.68	15.0	< 0.50	0.067	8.23	0.061	0.39	0.345	14.9	33.7
22C-BH16-38	22C-BH16-38-1	2016 11 03	0.8 - 0.9	6.52	< 0.10	< 0.50	65.9	< 0.40	< 0.050	6.7	1.15	1.56	1.71	< 5.0	34.3	< 0.050	0.11	4.60	< 0.50	0.051	4.37	< 0.050	< 0.10	0.247	5.7	8.2
22C-BH16-39	22C-BH16-39-1	2016 11 03	0.6 - 0.9	7.48	0.55	6.17	64.1	< 0.40	0.130	25.0	5.64	10.1	5.06	< 5.0	332	< 0.050	0.72	22.6	< 0.50	< 0.050	6.27	< 0.050	0.12	0.263	13.8	22.7
AEC 22D																										
BH09-22D-6	BH09-22D-6-2	2009 09 13	0.9 - 1.1	6.7	< 10	< 10	57	< 1	< 0.5	9	5	8	8	-	145	0.03	< 4	12	< 2	< 2	5	-	< 5	-	8	20
22D-BH16-7	22D-BH16-7-1	2016 11 05	0.3 - 0.5	8.66	0.50	9.34	68.9	< 0.40	0.125	10.1	5.76	11.1	6.17	< 5.0	155	< 0.050	0.42	12.7	< 0.50	0.096	11.3	0.052	0.15	0.309	13.7	20.4
22D-BH16-8	22D-BH16-8-1	2016 11 05	0.3 - 0.5	5.65	0.48	6.66	92.7	< 0.40	0.178	15.3	7.23	10.5	8.62	5.7	221	< 0.050	0.82	16.0	< 0.50	0.063	7.12	0.055	0.13	0.415	17.1	39.4
22D-BH16-9	22D-BH16-9-2	2016 11 05	1.2 - 1.5	6.88	0.22	1.55	29.4	< 0.40	0.398	4.7	5.75	5.00	2.37	< 5.0	39.8	< 0.050	0.22	13.2	< 0.50	< 0.050	8.80	0.071	< 0.10	0.197	5.7	14.7
22D-BH16-10	22D-BH16-10-2	2016 11 05	2.1 - 2.4	7.14	0.31	2.37	41.5	< 0.40	0.085	9.3	3.15	5.78	2.91	< 5.0	165	< 0.050	0.19	9.26	< 0.50	< 0.050	7.28	< 0.050	< 0.10	0.229	8.2	16.3
	22D-BH16-10-3	Duplicate	2.1 - 2.4	7.09	0.19	2.58	46.8	< 0.40	0.094	7.0	2.82	4.07	2.74	< 5.0	165	< 0.050	0.18	8.96	< 0.50	< 0.050	8.05	< 0.050	< 0.10	0.217	7.0	14.7
	QA/QC RPD%			*	*	*	*	*	*	28	*	35	6	*	0	*	*	3	*	*	10	*	*	*	16	*
Yukon Standard																										
Yukon CSR Commercial Land Use (CL)[a]				n/a	40	15	2,000	8	1.5-100[b]	60	300	200-250[b]	100-1,000[b]	n/a	n/a	40	40	500	10	40	n/a	n/a	300	n/a	n/a	150-600[b]

Associated Maxxam file(s): B699546, B699547, B6A0687, B6A0692.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
RPD Denotes relative percent difference.
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

SHADOW Concentration greater than Yukon CSR Commercial Land Use (CL) Standard

[a] The site-specific factors used for determining the matrix standards for this site include: intake of contaminated soil, groundwater used for drinking water, toxicity to soil invertebrates and plants, and groundwater flow to surface water used by freshwater aquatic life (whichever is most stringent).

TABLE 4a: Summary of Analytical Results for Soil - Volatile Organic Compounds (AEC 22B, AEC 22E)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Depth Interval (m)	Field Screen[a] (ppm)	Volatile Organic Compounds																																				
					Bromo dichloro methane µg/g	Bromo form µg/g	Bromo methane µg/g	Carbon tetra chloride µg/g	Chloro benzene µg/g	Chloro ethane µg/g	Chloro form µg/g	Chloro methane µg/g	Dibromo chloro methane µg/g	1,2-Di bromo ethane µg/g	1,2-Di chloro benzene µg/g	1,3-Di chloro benzene µg/g	1,4-Di chloro benzene µg/g	Dichloro difluoro methane µg/g	1,1-Dichloro ethane µg/g	1,2-Dichloro ethane µg/g	1,1-Dichloro ethylene µg/g	cis-1,2-Dichloro ethylene µg/g	trans-1,2-Dichloro ethylene µg/g	Dichloro methane µg/g	1,2-Dichloro propane µg/g	cis-1,3-Dichloro propene µg/g	trans-1,3-Dichloro propene µg/g	Hexa chloro butadiene µg/g	2-Hexanone µg/g	Methyl ethyl ketone µg/g	Methyl isobutyl ketone µg/g	Methylene bromide µg/g	1,1,1,2-Tetra chloroethane µg/g	1,1,2,2-Tetra chloroethane µg/g	Tetra chloro ethylene µg/g	1,2,3-Trichloro benzene µg/g	1,2,4-Trichloro benzene µg/g	1,1,1-Tri chloro ethane µg/g	1,1,2-Tri chloro ethane µg/g	Trichloro ethylene µg/g	Trichloro fluoro methane µg/g	Vinyl chloride µg/g
AEC 22B																																									
BH09-22B-6	BH09-22B-6-5	2009 09 12	3.3 - 3.5	-	< 0.03	< 0.03	< 0.12	< 0.03	< 0.03	< 0.06	< 0.03	< 0.12	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.06	< 0.03	< 0.06	< 0.03	< 0.03	< 0.03	< 0.1	< 0.03	< 0.03	< 0.03	-	< 1.5	< 1.5	< 0.6	< 0.03	-	< 0.03	< 0.03	-	-	< 0.03	< 0.03	< 0.01	< 0.03	< 0.06
BH09-22B-8	BH09-22B-8-4	2009 09 12	2.7 - 2.9	-	< 0.03	< 0.03	< 0.12	< 0.03	< 0.03	< 0.06	< 0.03	< 0.12	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.06	< 0.03	< 0.06	< 0.03	< 0.03	< 0.03	< 0.1	< 0.03	< 0.03	< 0.03	-	< 1.5	< 1.5	< 0.6	< 0.03	-	< 0.03	< 0.03	-	-	< 0.03	< 0.03	< 0.01	< 0.03	< 0.06
	BH09-22B-8-8	2009 09 12	5.8 - 6.2	-	< 0.03	< 0.03	< 0.12	< 0.03	< 0.03	< 0.06	< 0.03	< 0.12	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.06	< 0.03	< 0.06	< 0.03	< 0.03	< 0.03	< 0.1	< 0.03	< 0.03	< 0.03	-	< 1.5	< 1.5	< 0.6	< 0.03	-	< 0.03	< 0.03	-	-	< 0.03	< 0.03	< 0.01	< 0.03	< 0.06
BH09-22E-3	BH09-22E-3-5	2009 08 19	3.4 - 3.6	-	< 0.03	< 0.03	< 0.12	< 0.03	< 0.03	< 0.06	< 0.03	< 0.12	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.06	< 0.03	< 0.06	< 0.03	< 0.03	< 0.03	< 0.1	< 0.03	< 0.03	< 0.03	-	< 1.5	< 1.5	< 0.6	< 0.03	-	< 0.03	< 0.03	-	-	< 0.03	< 0.03	< 0.01	< 0.03	< 0.06
AEC 22E																																									
22E-BH16-5	22E-BH16-5-1	2016 11 01	0.8 - 1.1	0	< 0.050	< 0.050	< 0.30	< 0.025	< 0.025	< 0.10	< 0.050	-	< 0.050	< 0.025	< 0.025	< 0.025	< 0.025	-	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.10	< 0.025	< 0.050	< 0.050	< 0.20	-	-	-	-	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.0050	< 0.20	< 0.060
Yukon Standard																																									
Yukon CSR Commercial Land Use (CL)[b]					n/a	n/a	n/a	50	10	50	50	50	50	n/a	10	10	10	50	50	50	50	50	50	50	50	50	50	50	n/a	n/a	n/a	n/a	50	50	5	10	n/a	50	50	0.15	50	50

Associated Maxxam file(s): B699544.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
RPD Denotes relative percent difference.
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

SHADOW Concentration greater than Yukon CSR Commercial Land Use (CL) Standard

[a] Field screening results are measured based on a 'dry headspace' method using a combustible gas meter calibrated to a hexane standard.
[b] The site-specific factors used for determining the matrix standards for this site include: intake of contaminated soil, groundwater used for drinking water, toxicity to soil invertebrates and plants, and groundwater flow to surface water used by freshwater aquatic life (whichever is most stringent).

TABLE 4b: Summary of Analytical Results for Soil - Volatile Organic Compounds (AEC 22A, AEC 22C, AEC 22D)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Depth Interval (m)	Field Screen (ppm)	Volatile Organic Compounds																																				
					Bromo dichloro methane µg/g	Bromo form µg/g	Bromo methane µg/g	Carbon tetra chloride µg/g	Chloro benzene µg/g	Chloro ethane µg/g	Chloro form µg/g	Chloro methane µg/g	Dibromo chloro methane µg/g	1,2-Di bromo ethane µg/g	1,2-Di chloro benzene µg/g	1,3-Di chloro benzene µg/g	1,4-Di chloro benzene µg/g	Dichloro difluoro methane µg/g	1,1-Dichloro ethane µg/g	1,2-Dichloro ethane µg/g	1,1-Dichloro ethylene µg/g	cis-1,2-Dichloro ethylene µg/g	trans-1,2-Dichloro ethylene µg/g	Dichloro methane µg/g	1,2-Dichloro propane µg/g	cis-1,3-Dichloro propene µg/g	trans-1,3-Dichloro propene µg/g	Hexa chloro butadiene µg/g	2-Hexanone µg/g	Methyl ethyl ketone µg/g	Methyl isobutyl ketone µg/g	Methylene bromide µg/g	1,1,1,2-Tetra chloroethane µg/g	1,1,2,2-Tetra chloroethane µg/g	Tetra chloro ethylene µg/g	1,2,3-Trichloro benzene µg/g	1,2,4-Trichloro benzene µg/g	1,1,1-Tri chloro ethane µg/g	1,1,2-Tri chloro ethane µg/g	Trichloro ethylene µg/g	Trichloro fluoro methane µg/g	Vinyl chloride µg/g
AEC 22A																																									
BH09-22A-15	BH09-22A-15-4	2009 09 15	2.7 - 2.9	-	< 0.03	< 0.03	< 0.12	< 0.03	< 0.03	< 0.06	< 0.03	< 0.12	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.06	< 0.03	< 0.06	< 0.03	< 0.03	< 0.03	< 0.1	< 0.03	< 0.03	< 0.03	-	< 1.5	< 1.5	< 0.6	< 0.03	-	< 0.03	< 0.03	-	-	< 0.03	< 0.03	< 0.01	< 0.03	< 0.06
AEC 22C																																									
BH09-22C-10	BH09-22C-10-3	2009 08 18	1.8 - 2.1	-	< 0.03	< 0.03	< 0.12	< 0.03	< 0.03	< 0.06	< 0.03	< 0.12	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.06	< 0.03	< 0.06	< 0.03	< 0.03	< 0.03	< 0.1	< 0.03	< 0.03	< 0.03	-	< 1.5	< 1.5	< 0.6	< 0.03	-	< 0.03	< 0.03	-	-	< 0.03	< 0.03	< 0.01	< 0.03	< 0.06
BH09-22C-11	BH09-22C-11-3	2009 08 18	2.0 - 2.3	-	< 0.03	< 0.03	< 0.12	< 0.03	< 0.03	< 0.06	< 0.03	< 0.12	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.06	< 0.03	< 0.06	< 0.03	< 0.03	< 0.03	< 0.1	< 0.03	< 0.03	< 0.03	-	< 1.5	< 1.5	< 0.6	< 0.03	-	< 0.03	< 0.03	-	-	< 0.03	< 0.03	< 0.01	< 0.03	< 0.06
BH09-22C-12	BH09-22C-12-5	2009 08 18	3.3 - 3.6	-	< 0.03	< 0.03	< 0.12	< 0.03	< 0.03	< 0.06	< 0.03	< 0.12	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.06	< 0.03	< 0.06	< 0.03	< 0.03	< 0.03	< 0.1	< 0.03	< 0.03	< 0.03	-	< 1.5	< 1.5	< 0.6	< 0.03	-	< 0.03	< 0.03	-	-	< 0.03	< 0.03	< 0.01	< 0.03	< 0.06
BH09-22C-13	BH09-22C-13-5	2009 12 09	3.6 - 3.9	-	< 0.03	< 0.03	< 0.12	< 0.03	< 0.03	< 0.06	< 0.03	< 0.12	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.06	< 0.03	< 0.06	< 0.03	< 0.03	< 0.03	< 0.1	< 0.03	< 0.03	< 0.03	-	< 1.5	< 1.5	< 0.6	< 0.03	-	< 0.03	< 0.03	-	-	< 0.03	< 0.03	< 0.01	< 0.03	< 0.06
	BH09-22C-13-8	2009 09 12	5.4 - 5.8	-	< 0.03	< 0.03	< 0.12	< 0.03	< 0.03	< 0.06	< 0.03	< 0.12	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.06	< 0.03	< 0.06	< 0.03	< 0.03	< 0.03	< 0.1	< 0.03	< 0.03	< 0.03	-	< 1.5	< 1.5	< 0.6	< 0.03	-	< 0.03	< 0.03	-	-	< 0.03	< 0.03	< 0.01	< 0.03	< 0.06
BH09-22C-14	BH09-22C-14-5	2009 09 12	3.6 - 3.9	-	< 0.03	< 0.03	< 0.12	< 0.03	< 0.03	< 0.06	< 0.03	< 0.12	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.06	< 0.03	< 0.06	< 0.03	< 0.03	< 0.03	< 0.1	< 0.03	< 0.03	< 0.03	-	< 1.5	< 1.5	< 0.6	< 0.03	-	< 0.03	< 0.03	-	-	< 0.03	< 0.03	< 0.01	< 0.03	< 0.06
BH09-22C-15	BH09-22C-15-5	2009 09 13	3.6 - 3.8	-	< 0.03	< 0.03	< 0.12	< 0.03	< 0.03	< 0.06	< 0.03	< 0.12	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.06	< 0.03	< 0.06	< 0.03	< 0.03	< 0.03	< 0.1	< 0.03	< 0.03	< 0.03	-	< 1.5	< 1.5	< 0.6	< 0.03	-	< 0.03	< 0.03	-	-	< 0.03	< 0.03	< 0.01	< 0.03	< 0.06
BH09-22C-16	BH09-22C-16-5	2009 09 13	3.0 - 3.2	-	< 0.03	< 0.03	< 0.12	< 0.03	< 0.03	< 0.06	< 0.03	< 0.12	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.06	< 0.03	< 0.06	< 0.03	< 0.03	< 0.03	< 0.1	< 0.03	< 0.03	< 0.03	-	< 1.5	< 1.5	< 0.6	< 0.03	-	< 0.03	< 0.03	-	-	< 0.03	< 0.03	< 0.01	< 0.03	< 0.06
BH09-22C-18	BH09-22C-18-5	2009 09 13	3.0 - 3.3	-	< 0.03	< 0.03	< 0.12	< 0.03	< 0.03	< 0.06	< 0.03	< 0.12	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.06	< 0.03	< 0.06	< 0.03	< 0.03	< 0.03	< 0.1	< 0.03	< 0.03	< 0.03	-	< 1.5	< 1.5	< 0.6	< 0.03	-	< 0.03	< 0.03	-	-	< 0.03	< 0.03	< 0.01	< 0.03	< 0.06
BH09-22C-20	BH09-22C-20-4	2009 09 13	2.7 - 2.9	-	< 0.03	< 0.03	< 0.12	< 0.03	< 0.03	< 0.06	< 0.03	< 0.12	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.06	< 0.03	< 0.06	< 0.03	< 0.03	< 0.03	< 0.1	< 0.03	< 0.03	< 0.03	-	< 1.5	< 1.5	< 0.6	< 0.03	-	< 0.03	< 0.03	-	-	< 0.03	< 0.03	< 0.01	< 0.03	< 0.06
BH09-22C-22	BH09-22C-22-4	2009 09 13	2.7 - 2.9	-	< 0.03	< 0.03	< 0.12	< 0.03	< 0.03	< 0.06	< 0.03	< 0.12	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.06	< 0.03	< 0.06	< 0.03	< 0.03	< 0.03	< 0.1	< 0.03	< 0.03	< 0.03	-	< 1.5	< 1.5	< 0.6	< 0.03	-	< 0.03	< 0.03	-	-	< 0.03	< 0.03	< 0.01	< 0.03	< 0.06
22C-BH16-26	22C-BH16-26-1	2016 11 01	0.9 - 1.2	0	< 0.050	< 0.050	< 0.30	< 0.025	< 0.025	< 0.10	< 0.050	-	< 0.050	< 0.025	< 0.025	< 0.025	< 0.025	-	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.10	< 0.025	< 0.050	< 0.050	< 0.20	-	-	-	-	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.0050	< 0.20	< 0.060
AEC 22D																																									
BH09-22D-6	BH09-22D-6-2	2009 09 13	0.9 - 1.1	-	< 0.03	< 0.03	< 0.12	< 0.03	< 0.03	< 0.06	< 0.03	< 0.12	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.06	< 0.03	< 0.06	< 0.03	< 0.03	< 0.03	< 0.1	< 0.03	< 0.03	< 0.03	-	< 1.5	< 1.5	< 0.6	< 0.03	-	< 0.03	< 0.03	-	-	< 0.03	< 0.03	< 0.01	< 0.03	< 0.06
22D-BH16-7	22D-BH16-7-2	2016 11 05	2.6 - 2.9	0	< 0.050	< 0.050	< 0.30	< 0.025	< 0.025	< 0.10	< 0.050	-	< 0.050	< 0.025	< 0.025	< 0.025	< 0.025	-	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.10	< 0.025	< 0.050	< 0.050	< 0.20	-	-	-	-	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.0050	< 0.20	< 0.060
	22D-BH16-7-3	Duplicate	2.6 - 2.9	0	< 0.050	< 0.050	< 0.30	< 0.025	< 0.025	< 0.10	< 0.050	-	< 0.050	< 0.025	< 0.025	< 0.025	< 0.025	-	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.10	< 0.025	< 0.050	< 0.050	< 0.20	-	-	-	-	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.0050	< 0.20	< 0.060
	QA/QC RPD%				*	*	*	*	*	*	*	-	*	*	*	*	*	-	*	*	*	*	*	*	*	*	*	*	-	-	-	-	*	*	*	*	*	*	*	*	*
22D-BH16-8	22D-BH16-8-1	2016 11 05	0.3 - 0.5	0	< 0.050	< 0.050	< 0.30	< 0.025	< 0.025	< 0.10	< 0.050	-	< 0.050	< 0.025	< 0.025	< 0.025	< 0.025	-	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.10	< 0.025	< 0.050	< 0.050	< 0.20	-	-	-	-	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.0050	< 0.20	< 0.060
Yukon Standard																																									
Yukon CSR Commercial Land Use (CL)[b]					n/a	n/a	n/a	50	10	50	50	50	50	n/a	10	10	10	50	50	50	50	50	50	50	50	50	50	50	n/a	n/a	n/a	n/a	50	50	5	10	n/a	50	50	0.15	50	50

Associated Maxxam file(s): B699547, B6A0692.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard/guideline.
RPD Denotes relative percent difference.
* RPDs are not calculated where one or more concentrations are less than five times RDL.
RDL Denotes reported detection limit.

SHADOW Concentration greater than Yukon CSR Commercial Land Use (CL) Standard

[a] Field screening results are measured based on a 'dry headspace' method using a combustible gas meter calibrated to a hexane standard.
[b] The site-specific factors used for determining the matrix standards for this site include: intake of contaminated soil, groundwater used for drinking water, toxicity to soil invertebrates and plants, and groundwater flow to surface water used by freshwater aquatic life (whichever is most stringent).

TABLE 5a: Summary of Analytical Results for Groundwater - Hydrocarbons (AEC 22B, AEC 22E)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Monocyclic Aromatic Hydrocarbons				Gross Parameters					
			Benzene (µg/L)	Ethyl-benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	VHw6-10 (µg/L)	VPHw (C6-C10) (µg/L)	EPHw10-19 (µg/L)	LEPHw (C10-C19) (µg/L)	EPHw19-32 (µg/L)	MTBE (µg/L)
AEC 22B												
H-1	H-1	2001 09 22	< 0.5	< 0.5	< 0.5	< 0.5	< 100	< 100	< 100	< 100[c]	< 100	-
H-2	H-2	2001 09 22	< 0.5	< 0.5	< 0.5	< 0.5	< 100	< 100	< 100	< 100[c]	< 100	-
22B-MW06-1	22B-MW06-1	2006 07 22	-	-	-	-	-	-	< 80	< 80[c]	< 80	-
22B-MW06-2	22B-MW06-2	2006 07 22	-	-	-	-	-	-	< 80	< 80[c]	< 80	-
	22B-MW06-02	2013 08 19	< 0.4	< 0.4	< 0.4	< 0.4	< 300	< 300	< 200	< 200	< 200	< 4
22B-MW06-3	22B-MW06-3-82607	2007 08 26	-	-	-	-	-	-	130	130	< 80	-
	22B-MW06-3	2008 07 30	-	-	-	-	-	-	< 80	< 80	< 80	-
	22B-MW06-3	2009 08 12	-	-	-	-	-	-	< 250	< 250	< 250	-
22B-MW06-3A	22B-MW06-3A-82607	2007 08 26	-	-	-	-	-	-	< 80	< 80	< 80	-
	22B-MW06-3A	2009 08 12	-	-	-	-	-	-	< 250	< 250	< 250	-
22B-MW06-3B	22B-MW06-3B-82607	2007 08 26	-	-	-	-	-	-	< 80	< 80	< 80	-
	22B-MW06-3B	2009 08 12	-	-	-	-	-	-	< 250	< 250	< 250	-
22B-MW06-3C	22B-MW06-3C	2009 08 12	-	-	-	-	-	-	< 250	< 250	< 250	-
MW09-22B-4	MW09-22B-4	2009 09 28	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	< 250	< 250	< 250	-
MW09-22B-5	MW09-22B-5	2009 09 28	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	< 250	< 250	< 250	-
MW09-22B-6	MW09-22B-6	2009 09 28	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	< 250	< 250	< 250	-
MW09-22B-7	MW09-22B-7	2009 09 28	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	< 250	< 250	< 250	-
22B-BH11-9	22B-BH11-9	2013 08 19	< 0.4	< 0.4	< 0.4	< 0.4	< 300	< 300	< 200	< 200	< 200	< 4
AEC 22E												
22E-MW06-1	22E-MW06-1	2006 07 22	-	-	-	-	-	-	< 80	< 80[c]	< 80	-
MW09-22E-3	MW09-22E-3	2009 08 21	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	< 250	< 250	< 250	-
MW09-22E-4	MW09-22E-4	2009 08 21	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	< 250	< 250	< 250	-
22E-MW16-6	22E-MW16-6-161215	2016 12 15	< 0.40	< 0.40	< 0.40	< 0.40	< 300	< 300	< 200	< 200	< 200	< 4.0
Yukon Standards												
Yukon CSR Drinking Water (DW)			5	2.4	24	300	n/a	n/a	n/a	n/a	n/a	20
Yukon CSR Aquatic Life (AW)[a]			4,000	2,000	390	n/a	n/a	1,500	n/a	500	n/a	34,000
Yukon CSR Standards Irrespective of Water Use (NAPL)[b]			n/a	n/a	n/a	n/a	15,000	n/a	5,000	n/a	n/a	n/a

Associated Maxxam file(s): B6B2850.

All terms defined within the body of SNC-Lavalin's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard.

* RPDs are not normally calculated where one or more concentrations are less than five times MDL.

BOLD Concentration greater than or equal to Yukon CSR Drinking Water (DW) standard.

SHADOW Concentration greater than or equal to Yukon CSR Aquatic Life (AW) standard.

INVERSE Concentration greater than the EPHw or VHw standard "could be considered proof of non-aqueous phase liquids presence" (per CSR Protocol 7).

[a] Standard to protect freshwater aquatic life.

[b] Applicable at all sites irrespective of water use.

[c] EPHw10-19 concentration has been compared to the CSR AW standard for LEPHw, which is a conservative comparison.

TABLE 5b: Summary of Analytical Results for Groundwater - Hydrocarbons (AEC 22A, AEC 22C, AEC 22D)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Monocyclic Aromatic Hydrocarbons				Gross Parameters					
			Benzene (µg/L)	Ethyl-benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	VHw6-10 (µg/L)	VPHw (C6-C10) (µg/L)	EPHw10-19 (µg/L)	LEPHw (C10-C19) (µg/L)	EPHw19-32 (µg/L)	MTBE (µg/L)
AEC 22A												
22A-MW06-1	22A-MW06-1	2006 07 23	-	-	-	-	-	-	< 80	< 80[c]	< 80	-
	22A-MW06-1	2009 08 13	-	-	-	-	-	-	< 250	< 250	< 250	-
22A-MW06-1B	22A-MW06-1B	2009 08 13	-	-	-	-	-	-	< 250	< 250	< 250	-
22A-MW06-2	22A-MW06-2	2006 07 22	-	-	-	-	-	-	< 80	< 80	< 80	-
22A-MW06-3	22A-MW06-3	2006 07 22	-	-	-	-	-	-	< 80	< 80	< 80	-
MW09-22A-15	MW09-22A-15	2009 09 26	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	1,000	**1,000**	< 250	-
	MW09-22A-15	2011 02 14	-	-	-	-	-	-	180	180	< 80	-
	MW09-22A-15-150723	2015 07 23	-	-	-	-	-	-	< 100	< 100	< 100	-
	MW09-22A-15-160202	2016 02 02	< 0.5	< 0.5	< 0.5	< 1	< 100	< 100	2,100	**2,100**	130	< 1
	MW09-22A-15-161102	2016 11 02	-	-	-	-	-	-	< 200	< 200	< 200	-
MW09-22A-16	MW09-22A-16	2009 09 26	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	-	-	-	-
	MW09-22A-16	2009 10 22	-	-	-	-	-	-	< 250	< 250	< 250	-
	MW09-22A-16	2014 06 02	< 0.5	< 0.5	< 0.5	< 1	< 100	< 100	< 100	< 100	< 100	< 1
MW09-22A-17	MW09-22A-17	2009 09 25	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	< 250	< 250[c]	< 250	-
MW09-22A-18	MW09-22A-18	2009 09 26	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	-	-	-	-
	MW09-22A-18	2009 10 22	-	-	-	-	-	-	< 250	< 250	< 250	-
MW09-22A-19	MW09-22A-19	2009 11 20	-	-	-	-	-	-	3,400	**3,400**	< 250	-
	MW09-22A-19	2011 02 14	-	-	-	-	-	-	< 80	< 80	< 80	-
	MW09-22A-19	2014 06 02	< 0.5	< 0.5	< 0.5	< 1	< 100	< 100	570	**570**	200	< 1
	MW09-22A-19-150723	2015 07 23	-	-	-	-	-	-	170	170	< 100	-
	MW09-22A-19-160202	2016 02 02	< 0.5	< 0.5	< 0.5	< 1	< 100	< 100	220	210	< 100	< 1
	MW15-B-160202	Duplicate	< 0.5	< 0.5	< 0.5	< 1	< 100	< 100	240	240	< 100	< 1
	QA/QC RPD%		*	*	*	*	*	*	*	*	*	*
Yukon Standards												
Yukon CSR Drinking Water (DW)			5	2.4	24	300	n/a	n/a	n/a	n/a	n/a	20
Yukon CSR Aquatic Life (AW)[a]			4,000	2,000	390	n/a	n/a	1,500	n/a	500	n/a	34,000
Yukon CSR Standards Irrespective of Water Use (NAPL)[b]			n/a	n/a	n/a	n/a	15,000	n/a	5,000	n/a	n/a	n/a

Associated AGAT files: 15V000058, 16V066320.

Associated Maxxam file(s): B699514, B6B2798, B6B2838, B6B2856.

All terms defined within the body of SNC-Lavalin's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard.

* RPDs are not normally calculated where one or more concentrations are less than five times MDL.

BOLD Concentration greater than Yukon CSR Drinking Water (DW) standard

SHADOW Concentration greater than or equal to Yukon CSR Aquatic Life (AW) standard.

INVERSE Concentration greater than the EPHw or VHw standard "could be considered proof of non-aqueous phase liquids presence" (per CSR Protocol 7).

[a] Standard to protect freshwater aquatic life.

[b] Applicable at all sites irrespective of water use.

[c] EPHw10-19 concentration has been compared to the CSR AW standard for LEPHw, which is a conservative comparison.

TABLE 5b: Summary of Analytical Results for Groundwater - Hydrocarbons (AEC 22A, AEC 22C, AEC 22D)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Monocyclic Aromatic Hydrocarbons				Gross Parameters					
			Benzene (µg/L)	Ethyl-benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	VHw6-10 (µg/L)	VPHw (C6-C10) (µg/L)	EPHw10-19 (µg/L)	LEPHw (C10-C19) (µg/L)	EPHw19-32 (µg/L)	MTBE (µg/L)
MW09-22A-20	MW09-22A-20	2009 11 20	-	-	-	-	-	-	< 250	< 250	< 250	-
	MW09-22A-20	2014 06 02	-	-	-	-	-	-	160	160	120	-
	MW09-22A-20-161102	2016 11 02	-	-	-	-	-	-	< 200	< 200	< 200	-
MW09-22A-21	MW09-22A-21	2009 11 20	-	-	-	-	-	-	**30,000**	**30,000**	1,400	-
	MW09-22A-21	2011 02 14	-	-	-	-	-	-	310	310	< 80	-
	MW09-22A-21	2014 06 02	< 0.5	< 0.5	< 0.5	< 1	< 100	< 100	160	160	< 100	< 1
	MW09-22A-21-160202	2016 02 02	< 0.5	< 0.5	< 0.5	< 1	< 100	< 100	< 100	< 100	< 100	< 1
MW09-22A-22	MW09-22A-22	2009 11 20	-	-	-	-	-	-	< 250	< 250	< 250	-
22A-MW16-25	22A-MW16-25-161214	2016 12 14	< 0.40	< 0.40	< 0.40	< 0.40	< 300	< 300	< 200	< 200	< 200	< 4.0
22A-MW16-30	22A-MW16-30-161214	2016 12 14	< 0.40	< 0.40	< 0.40	1.2	< 300	< 300	900	**900**	< 200	< 4.0
22A-MW16-32	22A-MW16-32-161214	2016 12 14	< 0.40	< 0.40	< 0.40	< 0.40	< 300	< 300	< 200	< 200	< 200	< 4.0
AEC 22C												
22C-MW06-1	22C-MW06-1	2006 07 23	-	-	-	-	-	-	< 80	< 80[c]	< 80	-
22C-MW06-2	22C-MW06-2	2006 07 23	< 0.5	< 0.5	< 0.5	< 0.5	< 100	< 100	< 80	< 80[c]	< 80	< 4
22C-MW06-3	22C-MW06-3	2006 07 23	-	-	-	-	-	-	< 80	< 80[c]	< 80	-
MW09-22C-9	MW09-22C-9	2011 02 13	< 0.5	< 0.5	< 0.5	< 1	< 300	< 300	< 80	< 80	< 80	< 4
MW09-22C-10	MW09-22C-10	2009 08 19	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	< 250	< 250[c]	< 250	-
MW09-22C-11	MW09-22C-11	2009 08 19	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	< 250	< 250	< 250	-
MW09-22C-12	MW09-22C-12	2009 08 19	< 0.1	< 0.1	< 0.1	0.2	< 100	< 100	< 250	< 250	< 250	-
MW09-22C-14	MW09-22C-14	2009 09 28	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	< 250	< 250	< 250	-
MW09-22C-15	MW09-22C-15	2009 09 28	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	< 250	< 250[c]	< 250	-
MW09-22C-16	MW09-22C-16	2009 09 28	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	< 250	< 250[c]	< 250	-
Yukon Standards												
Yukon CSR Drinking Water (DW)			5	2.4	24	300	n/a	n/a	n/a	n/a	n/a	20
Yukon CSR Aquatic Life (AW)[a]			4,000	2,000	390	n/a	n/a	1,500	n/a	500	n/a	34,000
Yukon CSR Standards Irrespective of Water Use (NAPL)[b]			n/a	n/a	n/a	n/a	15,000	n/a	5,000	n/a	n/a	n/a

Associated AGAT files: 15V000058, 16V066320.

Associated Maxxam file(s): B699514, B6B2798, B6B2838, B6B2856.

All terms defined within the body of SNC-Lavalin's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard.

* RPDs are not normally calculated where one or more concentrations are less than five times MDL.

BOLD Concentration greater than Yukon CSR Drinking Water (DW) standard

SHADOW Concentration greater than or equal to Yukon CSR Aquatic Life (AW) standard.

INVERSE Concentration greater than the EPHw or VHw standard "could be considered proof of non-aqueous phase liquids presence" (per CSR Protocol 7).

[a] Standard to protect freshwater aquatic life.

[b] Applicable at all sites irrespective of water use.

[c] EPHw10-19 concentration has been compared to the CSR AW standard for LEPHw, which is a conservative comparison.

TABLE 5b: Summary of Analytical Results for Groundwater - Hydrocarbons (AEC 22A, AEC 22C, AEC 22D)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Monocyclic Aromatic Hydrocarbons				Gross Parameters					
			Benzene (µg/L)	Ethyl-benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	VHw6-10 (µg/L)	VPHw (C6-C10) (µg/L)	EPHw10-19 (µg/L)	LEPHw (C10-C19) (µg/L)	EPHw19-32 (µg/L)	MTBE (µg/L)
AEC 22C												
MW09-22C-19	MW09-22C-19	2009 09 28	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	< 250	< 250	< 250	-
MW09-22C-22	MW09-22C-22	2009 09 28	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	< 250	< 250	< 250	-
22C-MW16-26	22C-MW16-26-161215	2016 12 15	< 0.40	< 0.40	< 0.40	< 0.40	< 300	< 300	< 200	< 200	< 200	< 4.0
22C-MW16-29	22C-MW16-29-161215	2016 12 15	< 0.40	< 0.40	< 0.40	< 0.40	< 300	< 300	< 200	< 200	< 200	< 4.0
22C-MW16-30	22C-MW16-30-161215	2016 12 15	< 0.40	< 0.40	< 0.40	< 0.40	< 300	< 300	< 200	< 200	< 200	< 4.0
22C-MW16-38	22C-MW16-38-161214	2016 12 14	< 0.40	< 0.40	< 0.40	< 0.40	< 300	< 300	< 200	< 200	< 200	< 4.0
	22C-MW16-A-161214	Duplicate	< 0.40	< 0.40	< 0.40	< 0.40	< 300	< 300	< 200	< 200	< 200	< 4.0
	QA/QC RPD%		*	*	*	*	*	*	*	*	*	*
AEC 22D												
22D-MW06-1	22D-MW06-1	2006 07 23	-	-	-	-	-	-	< 80	< 80[c]	< 80	-
22D-MW06-2	22D-MW06-2	2009 08 13	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	< 250	< 250	< 250	-
22D-MW06-2A	22D-MW06-2A	2009 08 13	-	-	-	-	-	-	< 250	< 250	< 250	-
Mw09-22D-6	Mw09-22D-6	2009 09 27	< 0.1	< 0.1	< 0.1	< 0.1	< 100	< 100	< 250	< 250	< 250	-
22D-MW16-7	22D-MW16-7-161216	2016 12 16	< 0.40	< 0.40	< 0.40	< 0.40	< 300	< 300	< 200	< 200	< 200	< 4.0
	22D-MW16-B-161216	Duplicate	< 0.40	< 0.40	< 0.40	< 0.40	< 300	< 300	< 200	< 200	< 200	< 4.0
	QA/QC RPD%		*	*	*	*	*	*	*	*	*	*
22D-MW16-8	22D-MW16-8-161216	2016 12 16	< 0.40	< 0.40	< 0.40	< 0.40	< 300	< 300	< 200	< 200	< 200	< 4.0
22D-MW16-9	22D-MW16-9-161216	2016 12 16	-	-	-	-	-	-	460	460	< 200	-
Yukon Standards												
Yukon CSR Drinking Water (DW)			5	2.4	24	300	n/a	n/a	n/a	n/a	n/a	20
Yukon CSR Aquatic Life (AW)[a]			4,000	2,000	390	n/a	n/a	1,500	n/a	500	n/a	34,000
Yukon CSR Standards Irrespective of Water Use (NAPL)[b]			n/a	n/a	n/a	n/a	15,000	n/a	5,000	n/a	n/a	n/a

Associated AGAT files: 15V000058, 16V066320.

Associated Maxxam file(s): B699514, B6B2798, B6B2838, B6B2856.

All terms defined within the body of SNC-Lavalin's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard.

* RPDs are not normally calculated where one or more concentrations are less than five times MDL.

BOLD Concentration greater than Yukon CSR Drinking Water (DW) standard

SHADOW Concentration greater than or equal to Yukon CSR Aquatic Life (AW) standard.

INVERSE Concentration greater than the EPHw or VHw standard "could be considered proof of non-aqueous phase liquids presence" (per CSR Protocol 7).

[a] Standard to protect freshwater aquatic life.

[b] Applicable at all sites irrespective of water use.

[c] EPHw10-19 concentration has been compared to the CSR AW standard for LEPHw, which is a conservative comparison.

TABLE 6a: Summary of Analytical Results for Groundwater - Polycyclic Aromatic Hydrocarbons (AEC 22B, AEC 22E)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Polycyclic Aromatic Hydrocarbons																			
			Naphthalene (µg/L)	2-Methylnaphthalene (µg/L)	Acenaphthylene (µg/L)	Acenaphthene (µg/L)	Fluorene (µg/L)	Phenanthrene (µg/L)	Anthracene (µg/L)	Acridine (µg/L)	Fluoranthene (µg/L)	Pyrene (µg/L)	Benzo(a) anthracene (µg/L)	Chrysene (µg/L)	Benzo(b) fluoranthene (µg/L)	Benzo(b+j) fluoranthene (µg/L)	Benzo(k) fluoranthene (µg/L)	Benzo(a) pyrene (µg/L)	Indeno(1,2,3-cd) pyrene (µg/L)	Dibenz(a,h) anthracene (µg/L)	Benzo(g,h,i) perylene (µg/L)	Quinoline (µg/L)
AEC 22B																						
22B-MW06-2	22B-MW06-02	2013 08 19	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.05	< 0.02	< 0.02	< 0.01	< 0.05	-	< 0.05	< 0.05	< 0.009	< 0.05	< 0.05	< 0.05	< 0.5
22B-MW06-3	22B-MW06-3-82607	2007 08 26	< 0.01	0.028	< 0.01	0.011	0.036	0.012	< 0.01	< 0.05	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.02	< 0.02	< 0.02	< 0.05
	22B-MW06-3	2008 07 30	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.05	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.02	< 0.02	< 0.02	< 0.05
	22B-MW06-3	2009 08 12	< 0.3	-	< 0.1	< 0.1	0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.5
22B-MW06-3A	22B-MW06-3A-82607	2007 08 26	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.05	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.02	< 0.02	< 0.02	< 0.05
	22B-MW06-3A	2009 08 12	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.5
22B-MW06-3B	22B-MW06-3B-82607	2007 08 26	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.05	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.02	< 0.02	< 0.02	< 0.05
	22B-MW06-3B	2009 08 12	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	0.01	0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.5
22B-MW06-3C	22B-MW06-3C	2009 08 12	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.5
MW09-22B-4	MW09-22B-4	2009 09 28	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.5
MW09-22B-5	MW09-22B-5	2009 09 28	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.5
MW09-22B-6	MW09-22B-6	2009 09 28	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.5
MW09-22B-7	MW09-22B-7	2009 09 28	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.5
	MW09-22B-7	2014 06 02	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	< 0.1
22B-BH11-9	22B-BH11-9	2013 08 19	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.05	< 0.02	< 0.02	< 0.01	< 0.05	-	< 0.05	< 0.05	< 0.009	< 0.05	< 0.05	< 0.05	< 0.5
AEC 22E																						
MW09-22E-3	MW09-22E-3	2009 08 21	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.5
MW09-22E-4	MW09-22E-4	2009 08 21	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.5
22E-MW16-6	22E-MW16-6-161215	2016 12 15	0.15	2.4	< 0.050	0.20	0.45	0.066	< 0.010	< 0.050	< 0.020	< 0.020	< 0.010	< 0.050	-	< 0.050	< 0.050	< 0.0090	< 0.050	< 0.050	< 0.050	< 0.24
Yukon Standards																						
Yukon CSR Drinking Water (DW)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.01	n/a	n/a	n/a	n/a
Yukon CSR Aquatic Life (AW)[b]			10	n/a	n/a	60	120	3	1	0.5	2	0.2	1	n/a	n/a	n/a	n/a	0.1	n/a	n/a	n/a	34

Associated Maxxam file(s): B6B2850.

All terms defined within the body of SNC-Lavalin's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard.

* RPDs are not normally calculated where one or more concentrations are less than five times MDL.

BOLD Concentration greater than or equal to Yukon CSR Drinking Water (DW) standard.

SHADOW Concentration greater than or equal to Yukon CSR Aquatic Life (AW) standard.

[a] Laboratory detection limit exceeds regulatory standard.

[b] Standard to protect freshwater aquatic life.

TABLE 6b: Summary of Analytical Results for Groundwater - Polycyclic Aromatic Hydrocarbons (AEC 22A, AEC 22C, AEC 22D)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Polycyclic Aromatic Hydrocarbons																				
			Naphthalene (µg/L)	2-Methylnaphthalene (µg/L)	Acenaphthylene (µg/L)	Acenaphthene (µg/L)	Fluorene (µg/L)	Phenanthrene (µg/L)	Anthracene (µg/L)	Acridine (µg/L)	Fluoranthene (µg/L)	Pyrene (µg/L)	Benzo(a) anthracene (µg/L)	Chrysene (µg/L)	Benzo(b) fluoranthene (µg/L)	Benzo(b+j) fluoranthene (µg/L)	Benzo(k) fluoranthene (µg/L)	Benzo(a) pyrene (µg/L)	Indeno(1,2,3-cd) pyrene (µg/L)	Dibenz(a,h) anthracene (µg/L)	Benzo(g,h,i) perylene (µg/L)	Benzo(j) fluoranthene (µg/L)	Quinoline (µg/L)
AEC 22A																							
22A-MW06-1	22A-MW06-1	2009 08 13	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.5
22A-MW06-1B	22A-MW06-1B	2009 08 13	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.5
22A-MW06-2	22A-MW06-2	2006 07 22	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.05	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.02	< 0.02	< 0.02	-	< 0.05
22A-MW06-3	22A-MW06-3	2006 07 22	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.05	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.02	< 0.02	< 0.02	-	< 0.05
MW09-22A-15	MW09-22A-15	2009 09 26	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.5
	MW09-22A-15	2011 02 14	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.05	< 0.02	< 0.02	< 0.01	< 0.05	-	< 0.05	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	-	< 0.5
	MW09-22A-15-150723	2015 07 23	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1
	MW09-22A-15-160202	2016 02 02	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1
	MW09-22A-15-161102	2016 11 02	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.050	< 0.010	< 0.050	< 0.020	< 0.020	< 0.010	< 0.050	-	< 0.050	< 0.050	< 0.0090	< 0.050	< 0.050	< 0.050	-	< 0.24
MW09-22A-16	MW09-22A-16	2009 10 22	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.5
	MW09-22A-16	2014 06 02	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	-	< 0.1
MW09-22A-18	MW09-22A-18	2009 10 22	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.5
MW09-22A-19	MW09-22A-19	2009 11 20	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.5
	MW09-22A-19	2011 02 14	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.05	< 0.02	< 0.02	< 0.01	< 0.05	-	< 0.05	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	-	< 0.5
	MW09-22A-19	2014 06 02	0.23	-	< 0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	-	< 0.1
	MW09-22A-19-150723	2015 07 23	0.2	-	< 0.05	< 0.05	0.09	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1
	MW09-22A-19-160202	2016 02 02	0.52	-	< 0.05	< 0.05	0.11	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1
	MW15-B-160202	Duplicate	0.51	-	< 0.05	< 0.05	0.11	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1
	QA/QC RPD%		2	-	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
MW09-22A-20	MW09-22A-20	2009 11 20	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.5
	MW09-22A-20	2014 06 02	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	-	< 0.1
	MW09-22A-20-161102	2016 11 02	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.050	< 0.010	< 0.050	< 0.020	< 0.020	< 0.010	< 0.050	-	< 0.050	< 0.050	< 0.0090	< 0.050	< 0.050	< 0.050	-	< 0.24
MW09-22A-21	MW09-22A-21	2009 11 20	< 3	-	< 1	< 1	< 0.5	< 0.5	< 0.1	< 0.5	< 0.4	< 0.2	< 0.1	< 0.1	< 0.1	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-	< 5
	MW09-22A-21	2011 02 14	0.55	0.65	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.05	< 0.02	< 0.02	< 0.01	< 0.05	-	< 0.05	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	-	< 0.5
	MW09-22A-21	2014 06 02	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	-	< 0.1
	MW09-22A-21-160202	2016 02 02	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.05	< 0.05	< 0.05	< 0.1	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.1
MW09-22A-22	MW09-22A-22	2009 11 20	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.5
22A-MW16-25	22A-MW16-25-161214	2016 12 14	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.050	< 0.010	< 0.050	< 0.020	< 0.020	< 0.010	< 0.050	-	< 0.050	< 0.050	< 0.0090	< 0.050	< 0.050	< 0.050	-	< 0.24
22A-MW16-30	22A-MW16-30-161214	2016 12 14	2.8	8.4	0.11	0.58	0.89	0.21	0.017	< 0.050	< 0.020	< 0.020	< 0.010	< 0.050	-	< 0.050	< 0.050	< 0.0090	< 0.050	< 0.050	< 0.050	-	< 0.24
22A-MW16-32	22A-MW16-32-161214	2016 12 14	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.050	< 0.010	< 0.050	< 0.020	< 0.020	< 0.010	< 0.050	-	< 0.050	< 0.050	< 0.0090	< 0.050	< 0.050	< 0.050	-	< 0.24
AEC 22C																							
MW09-22C-9	MW09-22C-9	2011 02 13	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.05	< 0.02	< 0.02	< 0.01	< 0.05	-	< 0.05	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	-	< 0.5
MW09-22C-11	MW09-22C-11	2009 08 19	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.5
MW09-22C-12	MW09-22C-12	2009 08 19	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.5
MW09-22C-14	MW09-22C-14	2009 09 28	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.5
MW09-22C-19	MW09-22C-19	2009 09 28	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.5
MW09-22C-22	MW09-22C-22	2009 09 28	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.5
22C-MW16-26	22C-MW16-26-161215	2016 12 15	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.050	< 0.010	< 0.050	< 0.020	< 0.020	< 0.010	< 0.050	-	< 0.050	< 0.050	< 0.0090	< 0.050	< 0.050	< 0.050	-	< 0.24
22C-MW16-29	22C-MW16-29-161215	2016 12 15	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.050	< 0.010	< 0.050	< 0.020	< 0.020	0.012	< 0.050	-	< 0.050	< 0.050	***0.011***	< 0.050	< 0.050	< 0.050	-	< 0.24
22C-MW16-30	22C-MW16-30-161215	2016 12 15	< 0.10	0.27	< 0.050	< 0.050	< 0.050	< 0.050	< 0.010	< 0.050	< 0.020	< 0.020	< 0.010	< 0.050	-	< 0.050	< 0.050	< 0.0090	< 0.050	< 0.050	< 0.050	-	< 0.24
22C-MW16-38	22C-MW16-38-161214	2016 12 14	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.050	< 0.010	< 0.050	< 0.020	< 0.020	< 0.010	< 0.050	-	< 0.050	< 0.050	< 0.0090	< 0.050	< 0.050	< 0.050	-	< 0.24
	22C-MW16-A-161214	Duplicate	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.050	< 0.010	< 0.050	< 0.020	< 0.020	< 0.010	< 0.050	-	< 0.050	< 0.050	< 0.0090	< 0.050	< 0.050	< 0.050	-	< 0.24
	QA/QC RPD%		*	*	*	*	*	*	*	*	*	*	*	*	-	*	*	*	*	*	*	-	*
AEC 22D																							
22D-MW06-2	22D-MW06-2	2009 08 13	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.5
22D-MW06-2A	22D-MW06-2A	2009 08 13	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.5
Mw09-22D-6	Mw09-22D-6	2009 09 27	< 0.3	-	< 0.1	< 0.1	< 0.05	< 0.05	< 0.01	< 0.05	< 0.04	< 0.02	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.5
22D-MW16-7	22D-MW16-7-161216	2016 12 16	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.050	< 0.010	< 0.050	< 0.020	< 0.020	< 0.010	< 0.050	-	< 0.050	< 0.050	< 0.0090	< 0.050	< 0.050	< 0.050	-	< 0.24
	22D-MW16-B-161216	Duplicate	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.050	< 0.010	< 0.050	< 0.020	< 0.020	< 0.010	< 0.050	-	< 0.050	< 0.050	< 0.0090	< 0.050	< 0.050	< 0.050	-	< 0.24
	QA/QC RPD%		*	*	*	*	*	*	*	*	*	*	*	*	-	*	*	*	*	*	*	-	*
22D-MW16-8	22D-MW16-8-161216	2016 12 16	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.050	< 0.010	< 0.050	< 0.020	< 0.020	< 0.010	< 0.050	-	< 0.050	< 0.050	< 0.0090	< 0.050	< 0.050	< 0.050	-	< 0.24
22D-MW16-9	22D-MW16-9-161216	2016 12 16	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.050	< 0.010	< 0.050	< 0.020	< 0.020	< 0.010	< 0.050	-	< 0.050	< 0.050	< 0.0090	< 0.050	< 0.050	< 0.050	-	< 0.24
Yukon Standards																							
Yukon CSR Drinking Water (DW)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.01	n/a	n/a	n/a	n/a	n/a
Yukon CSR Aquatic Life (AW)[b]			10	n/a	n/a	60	120	3	1	0.5	2	0.2	1	n/a	n/a	n/a	n/a	0.1	n/a	n/a	n/a	n/a	34

Associated AGAT files: 15V000058, 16V066320.

Associated Maxxam file(s): B699514, B6B2798, B6B2838, B6B2856.

All terms defined within the body of SNC-Lavalin's report.

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- Denotes analysis not conducted.

n/a Denotes no applicable standard.

* RPDs are not normally calculated where one or more concentrations are less than five times MDL.

BOLD Concentration greater than Yukon CSR Drinking Water (DW) standard

SHADOW Concentration greater than or equal to Yukon CSR Aquatic Life (AW) standard.

[a] Laboratory detection limit exceeds regulatory standard.

[b] Standard to protect freshwater aquatic life.

TABLE 7b: Summary of Analytical Results for Groundwater - Inorganics (AEC 22A, AEC 22C)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Ammonia Nitrogen (µg/L)	Nitrate+Nitrite Nitrogen (µg/L)
AEC 22A				
22A-MW06-2	22A-MW06-2	2006 07 22	14	110
AEC 22C				
22C-MW06-2	22C-MW06-2	2006 07 23	89	< 20
Yukon Standards				
Yukon CSR Aquatic Life (AW)[a]			1,310-18,400[b]	400,000

All terms defined within the body of SNC-Lavalin's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard.

SHADOW Concentration greater than or equal to Yukon CSR Aquatic Life (AW) standard.

[a] Standard to protect freshwater aquatic life.

[b] Standard varies with pH.

[c] Standard varies with chloride.

TABLE 8a: Summary of Analytical Results for Groundwater - Dissolved Metals (AEC 22B, AEC 22E)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical	Geochemical Indicators							Dissolved Metals																				
			Hardness (mg/L)	Dissolved Aluminum (µg/L)	Dissolved Calcium (mg/L)	Dissolved Iron (µg/L)	Dissolved Magnesium (mg/L)	Dissolved Manganese (µg/L)	Dissolved Potassium (mg/L)	Dissolved Sodium (mg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Boron (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Lead (µg/L)	Lithium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Selenium (µg/L)	Silver (µg/L)	Thallium (µg/L)	Titanium (µg/L)	Uranium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
AEC 22B																															
22B-BH11-9	22B-BH11-9	2013 08 19	92.7	5.3	27.9	5.8	5.55	< 1	1	3	< 0.5	0.19	128	< 0.1	< 50	0.016	< 1	< 0.5	0.66	< 0.2	< 5	< 0.05	< 1	< 1	0.5	< 0.02	< 0.05	< 5	< 0.1	< 5	< 5
22B-MW06-2	22B-MW06-02	2013 08 19	103	< 3	30.9	< 5	6.25	35.6	0.84	2.05	< 0.5	0.12	204	< 0.1	< 50	0.066	< 1	< 0.5	0.78	< 0.2	< 5	< 0.05	< 1	7.3	1.08	< 0.02	< 0.05	< 5	< 0.1	< 5	7
22B-MW06-3	22B-MW06-3-82607	2007 08 26	114	< 20	35.2	52	6.26	39	< 1	2.13	< 1	2	154	< 0.2	31	0.1	< 5	< 0.5	< 5	< 0.5	-	< 0.05	< 5	< 8	1	< 0.1	< 0.1	< 3	< 0.1	< 5	11
22B-MW06-3A	22B-MW06-3A-82607	2007 08 26	131	< 20	40.4	< 5	7.22	25	1.43	2.72	< 1	1	150	< 0.2	18	< 0.1	< 5	< 0.5	< 5	< 0.5	-	< 0.05	< 5	< 8	< 1	< 0.1	< 0.1	< 3	< 0.1	< 5	< 5
22B-MW06-3B	22B-MW06-3B-82607	2007 08 26	113	< 20	35.1	< 5	6.13	12	1.11	1.94	< 1	2	138	< 0.2	13	< 0.1	< 5	< 0.5	< 5	< 0.5	-	< 0.05	< 5	< 8	2	< 0.1	< 0.1	< 3	< 0.1	< 5	< 5
MW09-22B-7	MW09-22B-7	2011 02 11	121	< 3	37.2	6	6.75	***1,480***	0.62	1.69	< 0.5	0.1	309	< 0.1	< 50	0.23	< 1	< 0.5	0.7	< 0.2	< 5	< 0.02	1	6	< 0.1	< 0.02	< 0.05	< 5	< 0.1	< 5	< 5
	MW09-22B-7	2014 06 02	104	< 2	32.5	< 10	5.47	***1,680***	-	2.12	< 0.2	0.2	338	< 0.01	7	0.29	< 0.5	0.08	2.4	0.15	< 0.5	< 0.01	0.14	8.9	0.8	< 0.02	0.01	0.9	0.01	< 0.5	5
	MW09-22B-7-161106	2016 11 06	126	< 3.0	39.1	10.9	6.83	***900***	0.691	1.61	< 0.50	0.17	294	< 0.10	< 50	0.172	< 1.0	< 0.50	0.61	< 0.20	< 5.0		1.1	4.9	< 0.10	< 0.020	< 0.050	< 5.0	< 0.10	< 5.0	< 5.0
AEC 22E																															
MW09-22E-4	MW09-22E-4	2009 08 21	110	7	33.2	< 50	6.53	***300***	1.2	1.88	< 1	< 1	140	< 1	< 50	< 0.2[a]	< 1	2	< 1	< 1	< 1	< 0.02	0.7	4	< 1	< 0.25	< 0.1	< 1	< 0.5	< 1	< 5
22E-MW16-6	22E-MW16-6-161215	2016 12 15	125	-	-	-	-	-	-	-	-	0.47	-	-	-	< 0.010	< 1.0	-	< 0.20	< 0.20	-	< 0.010	-	2.0	0.47	-	-	-	-	-	< 5.0
Yukon Standards																															
Yukon CSR Drinking Water (DW)			n/a	200	n/a	300	100	50	n/a	200	6	25	1,000	n/a	5,000	5	50	n/a	1,000	10	n/a	1	250	n/a	10	n/a	n/a	n/a	100	n/a	5,000
Yukon CSR Aquatic Life (AW)[b]			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	200	50	10,000	53	n/a	0.1-0.6[c]	10[d]	9	20-90[c]	40-160[c]	n/a	1	10,000	250-1,500[c]	10	0.5-15[c]	3	1,000	3,000	n/a	75-2,400[c]

Associated Maxxam file(s): B6A0649, B6B2850.
All terms defined within the body of SNC-Lavalin's report.
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- Denotes analysis not conducted.
n/a Denotes no applicable standard.
* RPDs are not normally calculated where one or more concentrations are less than five times MDL.

BOLD Concentration greater than or equal to Yukon CSR Drinking Water (DW) standard.

SHADOW Concentration greater than or equal to Yukon CSR Aquatic Life (AW) standard.

[a] Laboratory detection limit exceeds regulatory standard.
[b] Standard to protect freshwater aquatic life.
[c] Standard varies with hardness
[d] Individual standards exist for Cr +3 and Cr +6. Reported value represents more stringent standard.

TABLE 8b: Summary of Analytical Results for Groundwater - Dissolved Metals (AEC 22A, AEC 22C, AEC 22D)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical	Geochemical Indicators							Dissolved Metals																				
			Hardness (mg/L)	Dissolved Aluminum (µg/L)	Dissolved Calcium (mg/L)	Dissolved Iron (µg/L)	Dissolved Magnesium (mg/L)	Dissolved Manganese (µg/L)	Dissolved Potassium (mg/L)	Dissolved Sodium (mg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Boron (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Lead (µg/L)	Lithium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Selenium (µg/L)	Silver (µg/L)	Thallium (µg/L)	Titanium (µg/L)	Uranium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
AEC 22A																															
22A-MW06-2	22A-MW06-2	2006 07 22	-	-	-	< 5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW09-22A-16	MW09-22A-16	2009 09 26	87	< 5	25	60	6.04	231	0.81	1.88	< 0.5	< 1	160	< 0.5	150	0.06	< 1	0.9	0.5	< 0.25	0.9	< 0.02	0.6	5	< 1	< 0.2	< 0.1	< 1	< 0.25	< 0.5	< 5
	MW09-22A-16	2014 06 02	95.5	< 2	28.4	53	5.98	17	-	1.54	< 0.2	< 0.1	146	< 0.01	< 2	< 0.01	< 0.5	0.1	1.7	0.15	< 0.5	< 0.01	< 0.05	0.4	0.5	< 0.02	< 0.01	< 0.5	< 0.01	< 0.5	5
MW09-22A-18	MW09-22A-18	2009 09 26	81	5	23.1	80	5.59	227	1.36	2.19	< 0.5	< 1	180	< 0.5	360	0.14	< 1	1.9	1.2	< 0.25	0.9	< 0.02	1	6	< 1	< 0.2	< 0.1	< 1	< 0.25	< 0.5	< 5
MW09-22A-19	MW09-22A-19	2014 06 02	57.4	11	16.8	***3,320***	3.76	***313***	-	1.48	< 0.2	1.5	129	< 0.01	4	0.03	< 0.5	0.68	1.6	0.15	< 0.5	< 0.01	0.09	1.5	1.3	< 0.02	< 0.01	1.3	0.01	< 0.5	7
MW09-22A-21	MW09-22A-21	2014 06 02	61.8	< 2	18	88	4.1	44	-	1.18	< 0.2	0.6	146	< 0.01	3	< 0.01	< 0.5	0.22	0.4	< 0.05	< 0.5	< 0.01	0.06	0.9	0.5	< 0.02	< 0.01	< 0.5	< 0.01	< 0.5	< 2
22A-MW16-25	22A-MW16-25-161214	2016 12 14	118	-	-	-	-	-	-	-	-	0.49	-	-	-	0.033	< 1.0	-	< 0.20	< 0.20	-	< 0.010	-	7.0	0.24	-	-	-	-	-	< 5.0
22A-MW16-30	22A-MW16-30-161214	2016 12 14	115	-	-	-	-	-	-	-	-	1.72	-	-	-	< 0.010	< 1.0	-	< 0.20	< 0.20	-	< 0.010	-	< 1.0	< 0.10	-	-	-	-	-	< 5.0
22A-MW16-32	22A-MW16-32-161214	2016 12 14	124	-	-	-	-	-	-	-	-	0.52	-	-	-	0.010	< 1.0	-	< 0.20	< 0.20	-	< 0.010	-	1.6	< 0.10	-	-	-	-	-	< 5.0
AEC 22C																															
22C-MW06-2	22C-MW06-2	2006 07 23	-	-	-	***909***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW09-22C-9	MW09-22C-9	2011 02 12	80.7	6	26.1	11	3.77	< 1	1.32	1.43	< 0.5	0.1	117	< 0.1	< 50	0.16	< 1	< 0.5	2.6	< 0.2	< 5	< 0.02	< 1	2	0.5	< 0.02	< 0.05	< 5	< 0.1	< 5	18
MW09-22C-11	MW09-22C-11	2009 08 19	130	7	39.8	< 50	7.36	1,240	0.9	2.56	< 1	< 1	210	< 1	< 50	< 0.2	< 1	< 1	< 1	< 1	< 1	< 0.02	< 0.5	2	< 1	< 0.25	< 0.1	< 1	< 0.5	< 1	< 5
MW09-22C-12	MW09-22C-12	2009 08 19	87	8	27.7	50	4.2	190	1.1	1.79	< 1	< 1	120	< 1	< 50	< 0.2	< 1	< 1	2	< 1	< 1	< 0.02	< 0.5	1	< 1	< 0.25	< 0.1	< 1	< 0.5	< 1	13
22C-MW16-26	22C-MW16-26-161215	2016 12 15	93.1	-	-	-	-	-	-	-	-	0.59	-	-	-	0.039	< 1.0	-	0.21	< 0.20	-	< 0.010	-	3.1	0.62	-	-	-	-	-	< 5.0
22C-MW16-29	22C-MW16-29-161215	2016 12 15	74.0	-	-	-	-	-	-	-	-	0.16	-	-	-	0.022	< 1.0	-	0.26	< 0.20	-	< 0.010	-	1.2	0.37	-	-	-	-	-	7.8
22C-MW16-30	22C-MW16-30-161215	2016 12 15	89.2	-	-	-	-	-	-	-	-	0.53	-	-	-	0.028	< 1.0	-	< 0.20	< 0.20	-	< 0.010	-	3.9	< 0.10	-	-	-	-	-	< 5.0
22C-MW16-38	22C-MW16-38-161214	2016 12 14	119	-	-	-	-	-	-	-	-	0.67	-	-	-	< 0.010	< 1.0	-	< 0.20	< 0.20	-	< 0.010	-	2.0	< 0.10	-	-	-	-	-	< 5.0
	22C-MW16-A-161214	Duplicate	120	-	-	-	-	-	-	-	-	0.68	-	-	-	< 0.010	< 1.0	-	< 0.20	< 0.20	-	< 0.010	-	2.0	< 0.10	-	-	-	-	-	< 5.0
	QA/QC RPD%		1	-	-	-	-	-	-	-	-	1	-	-	-	*	*	-	*	*	-	*	-	*	*	-	-	-	-	-	*
AEC 22D																															
Mw09-22D-6	Mw09-22D-6	2009 09 27	78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.02	-	-	-	-	-	-	-	-	-
22D-MW16-7	22D-MW16-7-161216	2016 12 16	78.2	-	-	-	-	-	-	-	-	1.82	-	-	-	0.016	< 1.0	-	< 0.20	< 0.20	-	< 0.010	-	2.1	< 0.10	-	-	-	-	-	< 5.0
	22D-MW16-B-161216	Duplicate	76.7	-	-	-	-	-	-	-	-	1.72	-	-	-	0.014	< 1.0	-	< 0.20	< 0.20	-	< 0.010	-	1.9	< 0.10	-	-	-	-	-	< 5.0
	QA/QC RPD%		2	-	-	-	-	-	-	-	-	6	-	-	-	*	*	-	*	*	-	*	-	*	*	-	-	-	-	-	*
22D-MW16-8	22D-MW16-8-161216	2016 12 16	71.3	-	-	-	-	-	-	-	-	3.52	-	-	-	< 0.010	< 1.0	-	< 0.20	< 0.20	-	< 0.010	-	6.0	< 0.10	-	-	-	-	-	< 5.0
22D-MW16-9	22D-MW16-9-161216	2016 12 16	90.1	-	-	-	-	-	-	-	-	0.13	-	-	-	0.047	< 1.0	-	< 0.20	< 0.20	-	< 0.010	-	4.1	0.24	-	-	-	-	-	< 5.0
Yukon Standards																															
Yukon CSR Drinking Water (DW)			n/a	200	n/a	300	100	50	n/a	200	6	25	1,000	n/a	5,000	5	50	n/a	1,000	10	n/a	1	250	n/a	10	n/a	n/a	n/a	100	n/a	5,000
Yukon CSR Aquatic Life (AW)[a]			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	200	50	10,000	53	n/a	0.1-0.6[c]	10[b]	9	20-90[c]	40-160[c]	n/a	1	10,000	250-1,500[c]	10	0.5-15[c]	3	1,000	3,000	n/a	75-2,400[c]

Associated Maxxam file(s): B6B2798, B6B2838, B6B2856.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a Denotes no applicable standard.
* RPDs are not normally calculated where one or more concentrations are less than five times MDL.

BOLD Concentration greater than or equal to Yukon CSR Drinking Water (DW) standard.

SHADOW Concentration greater than or equal to Yukon CSR Aquatic Life (AW) standard.

[a] Standard to protect freshwater aquatic life.
[b] Individual standards exist for Cr +3 and Cr +6. Reported value represents more stringent standard.
[c] Standard varies with hardness

TABLE 9a: Summary of Analytical Results for Groundwater - Total Metals (AEC 22B)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical	Total Metals																												
			Total Hardness (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Titanium (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)
AEC 22B																																
MW09-22B-4	MW09-22B-4	2009 09 28	98	< 0.005	< 0.0005	< 0.001	0.12	< 0.0005	< 0.025	< 0.00005	28.3	< 0.001	< 0.0005	< 0.0005	0.05	0.0003	0.0008	6.69	0.018	< 0.00002	< 0.0005	0.002	0.78	0.001	< 0.0002	1.71	< 0.0001	< 0.001	< 0.00025	< 0.0005	< 0.005
MW09-22B-7	MW09-22B-7	2009 09 28	120	0.012	< 0.0005	< 0.001	0.36	< 0.0005	< 0.025	0.00025	35.7	< 0.001	< 0.0005	0.0007	< 0.05	0.0004	0.0008	7.47	***0.28***	< 0.00002	0.0012	0.002	0.8	< 0.001	< 0.0002	2.2	< 0.0001	< 0.001	< 0.00025	< 0.0005	0.008
Yukon Standards																																
Yukon CSR Drinking Water (DW)			n/a	0.2	0.006	0.025	1	n/a	5	0.005	n/a	0.05	n/a	1	0.3	0.01	n/a	100	0.05	0.001	0.25	n/a	n/a	0.01	n/a	200	n/a	n/a	0.1	n/a	5
Yukon CSR Aquatic Life (AW)[a,d]			n/a	n/a	0.2	0.05	10	0.053	n/a	0.0001-0.0006[b]	n/a	0.01[c]	0.009	0.02-0.09[b]	n/a	0.04-0.16[b]	n/a	n/a	n/a	0.001	10	0.25-1.5[b]	n/a	0.01	0.0005-0.015[b]	n/a	0.003	1	3	n/a	0.075-2.4[b]

All terms defined within the body of SNC-Lavalin's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard.

BOLD Concentration greater than or equal to Yukon CSR Drinking Water (DW) standard.

SHADOW Concentration greater than or equal to Yukon CSR Aquatic Life (AW) standard.

[a] Standard to protect freshwater aquatic life.

[b] Standard varies with hardness

[c] Individual standards exist for Cr +3 and Cr +6. Reported value represents more stringent standard.

[d] Standards are for dissolved metals. Total concentrations are compared to standards.

TABLE 9b: Summary of Analytical Results for Groundwater - Total Metals (AEC 22C)

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical	Total Metals																										
			Total Hardness (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Titanium (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)
AEC 22C																														
MW09-22C-14	MW09-22C-14	2009 09 28	97	0.014	< 0.0005	< 0.001	0.16	< 0.0005	< 0.025	0.00007	29	< 0.001	0.0014	0.0005	0.07	< 0.00025	0.0006	6.06	***0.228***	< 0.00002	0.001	0.003	0.91	< 0.001	< 0.0002	2.39	< 0.0001	< 0.001	< 0.00025	< 0.0005	< 0.005
MW09-22C-22	MW09-22C-22	2009 09 28	107	< 0.005	< 0.0005	0.004	0.23	< 0.0005	< 0.025	0.00006	31.4	< 0.001	< 0.0005	< 0.0005	3.56	< 0.00025	0.001	6.98	***0.256***	< 0.00002	< 0.0005	< 0.001	0.56	< 0.001	< 0.0002	1.8	< 0.0001	< 0.001	< 0.00025	< 0.0005	< 0.005
Yukon Standards																														
Yukon CSR Drinking Water (DW)			n/a	0.2	0.006	0.025	1	n/a	5	0.005	n/a	0.05	n/a	1	0.3	0.01	n/a	100	0.05	0.001	0.25	n/a	n/a	0.01	n/a	200	n/a	n/a	0.1	n/a	5
Yukon CSR Aquatic Life (AW)[a,d]			n/a	n/a	0.2	0.05	10	0.053	n/a	0.0001-0.0006[b]	n/a	0.01[c]	0.009	0.02-0.09[b]	n/a	0.04-0.16[b]	n/a	n/a	n/a	0.001	10	0.25-1.5[b]	n/a	0.01	0.0005-0.015[b]	n/a	0.003	1	3	n/a	0.075-2.4[b]

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< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard.

BOLD Concentration greater than or equal to Yukon CSR Drinking Water (DW) standard.

SHADOW Concentration greater than or equal to Yukon CSR Aquatic Life (AW) standard.

[a] Standard to protect freshwater aquatic life.

[b] Standard varies with hardness

[c] Individual standards exist for Cr +3 and Cr +6. Reported value represents more stringent standard.

[d] Standards are for dissolved metals. Total concentrations are compared to standards.

TABLE 10a: Summary of Analytical Results for Groundwater - Volatile Organic Compounds (AEC 22B)

AEC		AEC 22B		Yukon Standards	
Sample Location		MW09-22B-4	MW09-22B-7	Yukon CSR	Yukon CSR
Sample ID		MW09-22B-4	MW09-22B-7	Drinking Water	Aquatic Life[a]
Sample Date (yyyy mm dd)		2009 09 28	2009 09 28	(DW)	(AW)
Parameter	**Units**	**Analytical Results**			
Volatile Organic Compounds					
Bromodichloromethane	µg/L	< 0.1	< 0.1	n/a	n/a
Bromoform	µg/L	< 0.2	< 0.2	n/a	n/a
Bromomethane	µg/L	< 0.8	< 0.8	n/a	n/a
Carbon tetrachloride	µg/L	< 0.1	< 0.1	5	130
Chlorobenzene	µg/L	< 0.1	< 0.1	30	13
Chloroethane	µg/L	< 0.4	< 0.4	n/a	n/a
Chloroform	µg/L	< 0.3	< 0.3	100	20
Chloromethane	µg/L	< 0.4	< 0.4	n/a	n/a
Dibromochloromethane	µg/L	< 0.1	< 0.1	n/a	n/a
1,2-Dibromoethane	µg/L	< 0.1	< 0.1	n/a	n/a
1,2-Dichlorobenzene	µg/L	< 0.1	< 0.1	3	n/a
1,3-Dichlorobenzene	µg/L	< 0.1	< 0.1	n/a	1,500
1,4-Dichlorobenzene	µg/L	< 0.1	< 0.1	1	260
Dichlorodifluoromethane	µg/L	< 0.2	< 0.2	n/a	n/a
1,1-Dichloroethane	µg/L	< 0.1	< 0.1	n/a	n/a
1,2-Dichloroethane	µg/L	< 0.4	< 0.4	5	1,000
1,1-Dichloroethylene	µg/L	< 0.1	< 0.1	14	n/a
cis-1,2-Dichloroethylene	µg/L	< 0.1	< 0.1	n/a	n/a
trans-1,2-Dichloroethylene	µg/L	< 0.1	< 0.1	n/a	n/a
Dichloromethane	µg/L	< 6	< 6	50	980
1,2-Dichloropropane	µg/L	< 0.1	< 0.1	n/a	n/a
cis-1,3-Dichloropropylene	µg/L	< 0.1	< 0.1	n/a	n/a
trans-1,3-Dichloropropylene	µg/L	< 0.1	< 0.1	n/a	n/a
2-Hexanone	µg/L	< 20	< 20	n/a	n/a
Methyl ethyl ketone	µg/L	< 5	< 5	n/a	n/a
Methyl isobutyl ketone	µg/L	< 2	< 2	n/a	n/a
Methylene bromide	µg/L	< 0.2	< 0.2	n/a	n/a
1,1,2,2-Tetrachloroethane	µg/L	< 0.2	< 0.2	n/a	n/a
Tetrachloroethylene	µg/L	< 0.1	< 0.1	30	1,100
1,1,1-Trichloroethane	µg/L	< 0.1	< 0.1	n/a	n/a
1,1,2-Trichloroethane	µg/L	< 0.1	< 0.1	n/a	n/a
Trichloroethylene	µg/L	< 0.1	< 0.1	50	200
Trichlorofluoromethane	µg/L	< 0.2	< 0.2	n/a	n/a
Vinyl chloride	µg/L	< 0.2	< 0.2	2	n/a

All terms defined within the body of SNC-Lavalin's report.

< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard.

BOLD Concentration greater than or equal to Yukon CSR Drinking Water (DW) standard.

SHADOW Concentration greater than or equal to Yukon CSR Aquatic Life (AW) standard.

[a] Standard to protect freshwater aquatic life.

TABLE 10b: Summary of Analytical Results for Groundwater - Volatile Organic Compounds (AEC 22A, AEC 22C, AEC 22D)

AEC		AEC 22A		AEC 22C					AEC 22D					Yukon Standards	
Sample Location		MW09-22A-16	MW09-22A-18	MW09-22C-9	MW09-22C-12	MW09-22C-14	MW09-22C-19	22C-MW16-26	Mw09-22D-6	22D-MW16-7			22D-MW16-8	Yukon CSR	Yukon CSR
Sample ID		MW09-22A-16	MW09-22A-18	MW09-22C-9	MW09-22C-12	MW09-22C-14	MW09-22C-19	22C-MW16-26-161215	Mw09-22D-6	22D-MW16-7-161216	22D-MW16-B-161216	QA/QC	22D-MW16-8-161216	Drinking Water	Aquatic Life[a]
Sample Date (yyyy mm dd)		2009 09 26	2009 09 26	2011 02 13	2009 08 19	2009 09 28	2009 09 28	2016 12 15	2009 09 27	2016 12 16	Duplicate	RPD %	2016 12 16	Aquatic Life (DW)	(AW)
Parameter	**Units**	**Analytical Results**													
Volatile Organic Compounds															
Bromodichloromethane	µg/L	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 1.0	< 0.1	< 1.0	< 1.0	*	< 1.0	n/a	n/a
Bromoform	µg/L	< 0.2	< 0.2	< 1	< 0.2	< 0.2	< 0.2	< 1.0	< 0.2	< 1.0	< 1.0	*	< 1.0	n/a	n/a
Bromomethane	µg/L	< 0.8	< 0.8	< 1	< 0.8	< 0.8	< 0.8	< 1.0	< 0.8	< 1.0	< 1.0	*	< 1.0	n/a	n/a
Carbon tetrachloride	µg/L	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 0.50	< 0.1	< 0.50	< 0.50	*	< 0.50	5	130
Chlorobenzene	µg/L	< 0.1	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	< 0.50	< 0.1	< 0.50	< 0.50	*	< 0.50	30	13
Chloroethane	µg/L	< 0.4	< 0.4	< 1	< 0.4	< 0.4	< 0.4	< 1.0	< 0.4	< 1.0	< 1.0	*	< 1.0	n/a	n/a
Chloroform	µg/L	< 0.3	< 0.3	< 1	< 0.3	< 0.3	< 0.3	< 1.0	< 0.3	< 1.0	< 1.0	*	< 1.0	100	20
Chloromethane	µg/L	< 0.4	< 0.4	< 1	< 0.4	< 0.4	< 0.4	< 1.0	< 0.4	< 1.0	< 1.0	*	< 1.0	n/a	n/a
Dibromochloromethane	µg/L	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 1.0	< 0.1	< 1.0	< 1.0	*	< 1.0	n/a	n/a
1,2-Dibromoethane	µg/L	< 0.1	< 0.1	< 0.2	< 0.1	< 0.1	< 0.1	< 0.20	< 0.1	< 0.20	< 0.20	*	< 0.20	n/a	n/a
1,2-Dichlorobenzene	µg/L	< 0.1	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	< 0.50	< 0.1	< 0.50	< 0.50	*	< 0.50	3	n/a
1,3-Dichlorobenzene	µg/L	< 0.1	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	< 0.50	< 0.1	< 0.50	< 0.50	*	< 0.50	n/a	1,500
1,4-Dichlorobenzene	µg/L	< 0.1	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	< 0.50	< 0.1	< 0.50	< 0.50	*	< 0.50	1	260
Dichlorodifluoromethane	µg/L	< 0.2	< 0.2	-	< 0.2	< 0.2	< 0.2	< 2.0	< 0.2	< 2.0	< 2.0	*	< 2.0	n/a	n/a
1,1-Dichloroethane	µg/L	< 0.1	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	< 0.50	< 0.1	< 0.50	< 0.50	*	< 0.50	n/a	n/a
1,2-Dichloroethane	µg/L	< 0.4	< 0.4	< 0.5	< 0.4	< 0.4	< 0.4	< 0.50	< 0.4	< 0.50	< 0.50	*	< 0.50	5	1,000
1,1-Dichloroethylene	µg/L	< 0.1	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	< 0.50	< 0.1	< 0.50	< 0.50	*	< 0.50	14	n/a
cis-1,2-Dichloroethylene	µg/L	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 1.0	< 0.1	< 1.0	< 1.0	*	< 1.0	n/a	n/a
trans-1,2-Dichloroethylene	µg/L	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 1.0	< 0.1	< 1.0	< 1.0	*	< 1.0	n/a	n/a
Dichloromethane	µg/L	< 6	< 6	< 2	< 6	< 6	< 6	< 2.0	< 6	< 2.0	< 2.0	*	< 2.0	50	980
1,2-Dichloropropane	µg/L	< 0.1	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	< 0.50	< 0.1	< 0.50	< 0.50	*	< 0.50	n/a	n/a
cis-1,3-Dichloropropylene	µg/L	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 1.0	< 0.1	< 1.0	< 1.0	*	< 1.0	n/a	n/a
trans-1,3-Dichloropropylene	µg/L	< 0.1	< 0.1	< 1	< 0.1	< 0.1	< 0.1	< 1.0	< 0.1	< 1.0	< 1.0	*	< 1.0	n/a	n/a
Freon 113	µg/L	-	-	-	-	-	-	< 2.0	-	< 2.0	< 2.0	*	< 2.0	n/a	n/a
2-Hexanone	µg/L	< 20	< 20	-	< 20	< 20	< 20	-	< 20	-	-	-	-	n/a	n/a
Hexachlorobutadiene	µg/L	-	-	-	-	-	-	< 0.50	-	< 0.50	< 0.50	*	< 0.50	n/a	1
Methyl ethyl ketone	µg/L	< 5	< 5	-	< 5	< 5	< 5	-	< 5	-	-	-	-	n/a	n/a
Methyl isobutyl ketone	µg/L	< 2	< 2	-	< 2	< 2	< 2	-	< 2	-	-	-	-	n/a	n/a
Methylene bromide	µg/L	< 0.2	< 0.2	-	< 0.2	< 0.2	< 0.2	-	< 0.2	-	-	-	-	n/a	n/a
1,1,1,2-Tetrachloroethane	µg/L	-	-	< 0.5	-	-	-	< 0.50	-	< 0.50	< 0.50	*	< 0.50	n/a	n/a
1,1,2,2-Tetrachloroethane	µg/L	< 0.2	< 0.2	< 0.5	< 0.2	< 0.2	< 0.2	< 0.50	< 0.2	< 0.50	< 0.50	*	< 0.50	n/a	n/a
Tetrachloroethylene	µg/L	< 0.1	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	< 0.50	< 0.1	< 0.50	< 0.50	*	< 0.50	n/a	1,100
1,2,3-Trichlorobenzene	µg/L	-	-	-	-	-	-	< 2.0	-	< 2.0	< 2.0	*	< 2.0	n/a	80
1,2,4-Trichlorobenzene	µg/L	-	-	-	-	-	-	< 2.0	-	< 2.0	< 2.0	*	< 2.0	n/a	240
1,1,1-Trichloroethane	µg/L	< 0.1	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	< 0.50	< 0.1	< 0.50	< 0.50	*	< 0.50	n/a	n/a
1,1,2-Trichloroethane	µg/L	< 0.1	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	< 0.50	< 0.1	< 0.50	< 0.50	*	< 0.50	n/a	n/a
Trichloroethylene	µg/L	< 0.1	< 0.1	< 0.5	< 0.1	< 0.1	< 0.1	< 0.50	< 0.1	< 0.50	< 0.50	*	< 0.50	50	200
Trichlorofluoromethane	µg/L	< 0.2	< 0.2	< 4	< 0.2	< 0.2	< 0.2	< 4.0	< 0.2	< 4.0	< 4.0	*	< 4.0	n/a	n/a
Vinyl chloride	µg/L	< 0.2	< 0.2	< 0.5	< 0.2	< 0.2	< 0.2	< 0.50	< 0.2	< 0.50	< 0.50	*	< 0.50	2	n/a

Associated Maxxam file(s): B6B2798.

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< Denotes concentration less than indicated detection limit or RPD less than indicated value.

- Denotes analysis not conducted.

n/a Denotes no applicable standard.

* RPDs are not normally calculated where one or more concentrations are less than five times MDL.

BOLD Concentration greater than or equal to Yukon CSR Drinking Water (DW) standard.

SHADOW Concentration greater than or equal to Yukon CSR Aquatic Life (AW) standard.

[a] Standard to protect freshwater aquatic life.

Appendix F

Estimated Volumes for Excavation

On-Site	Location	Contamination	Estimated Area of Contaminated Soil (m2)	Estimated Thickness of Contaminated Soil Layer (m)	Estimated Volume of Contaminated Soil (m3)	Estimated Volume of Overburden (m3)	Estimated Volume of 1:1 Side Slopes (m3)
	22B	Soil: CWS F2 (3.0 – 3.8 m)	200	1	300	600	518
		Groundwater: none					
	22E	Soil: LEPH (3.7 – 4.0 m)	500	1	500	1850	844
		Groundwater: none					
Off-Site							
	22A	Soil: CWS F4 (2.4 – 3.0 m)	250	1	250	600	339
		Groundwater: none					
		Soil: EPHC10-C19 (2.7 – 2.9 m)	940	1	940	2600	564
		Groundwater: LEPHw					
	22C	Soil: Arsenic (0.3 – 0.5 m)	20	0.5	10	10	2
		Groundwater: none					
		Soil: Arsenic (2.7 – 2.9 m)	20	0.5	10	60	124
		Groundwater: none					
		Soil: LEPH (2.9 – 3.2 m)	490	1	490	1450	519
		Groundwater: none					
	22D	Soil: CWS F2 (2.1 – 3.0 m)	265	1.5	400	600	347
		Groundwater: none					
		Soil: LEPH (1.2 – 1.5 m)	600	1	600	730	117
		Groundwater: none					0