

1 - GENERAL

1.01 RELATED SECTIONS

- .1 Section 01 35 44 - Environmental Mitigation Requirements.
- .2 Section 02 41 16 - Selective Site Demolition.
- .3 Section 02 50 00 - Site Remediation.

1.02 WORK INCLUDED

- .1 Preparation, installation and removal of temporary access roads to provide access to the Site, including reinstatement.
- 2 Preparation and installation of a temporary impervious barrier wall during backfilling of remediation excavation to prevent seepage of LPH from the upgradient DND and Provincial properties.
- .3 Grading and the placement of fill material for the temporary access road.
- .4 Supply, placement and grading of imported clean fill material in excavation areas as approved by the Departmental Representative.
- .5 Reinstatement to proposed grade level in the areas excavated.

1.03 MEASUREMENT FOR PAYMENT

- .1 Excavation of LPH impacted soils will be measured in tonnes of soil materials removed for remediation in accordance with Section 31 23 10 - Excavation, Trenching and Backfilling and Section 02 50 00 - Site Remediation.
- .2 Backfilling of excavation areas with clean, approved, imported backfill will be measured in tonnes of materials supplied, transported, placed to suit existing surrounding grades.
 - .1 Includes placing, spreading/grading and compaction of all materials backfilled or placed.
 - .2 Design, provision and installation of impermeable barrier wall along the western boundary of the remediation excavation to prevent seepage of LPH from upgradient properties will be measured in metres of barrier wall constructed in place. Removal of barrier wall is not required as part of this contract.

**LPH SOIL REMEDIATION
FORMER LANDFILL
AND ASPHALT PLANT
OTTER CREEK
HAPPY VALLEY-GOOSE BAY
NEWFOUNDLAND AND LABRADOR
PROJECT R.082578.001**

**EXCAVATION, TRENCHING
AND BACKFILLING**

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- .3 Shoring, bracing, cofferdams, underpinning and de-watering of excavation will not be measured separately for payment.
- .4 Included under this section will be all tools, equipment required for both excavation and backfilling.
- .5 Mobilization and Demobilization of tool, equipment and supply and delivery of material will be paid under Section 02 41 16. Includes loading and unloading.

2.01 MATERIALS

- .1 Sand: material in accordance with following requirements:
Crushed stone or gravel.
Gradations to be within limits specified when tested to ASTM C136 and ASTM C117. Sieve sizes to CAN/CGSB-8.2.
- .2 Gravel: offsite excavated and screened gravel, free of silt impurities and chemicals or organic matter and well graded from 5mm to 80mm.
- .3 Backfill Material: Backfill/Capping material should be natural soil with no contaminants. It should not contain any brick, ceramics, concrete, asphalt, plastics, wood, glass, food or animal wastes or other materials. It should not contain any petroleum hydrocarbons, polyaromatic hydrocarbons, polychlorinated biphenys or other organic or inorganic contaminants. Soil metal concentrations should be below CCME Soil Quality Guidelines for Agricultural land use. Maximum acceptable concentrations of selected chemicals are provided below.

Metals

Parameter	Maximum Concentration (mg/kg)
Antimony	20
Arsenic	17
Barium	500
Beryllium	4
Cadmium	1.4
Chromium	64
Cobalt	40
Copper	63
Lead	70
Mercury	6.6
Molybdenum	5
Nickel	50
Selenium	1

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Silver	20
Thallium	1
Tin	5
Uranium	23
Vanadium	130
Zinc	200

Polyaromatic Hydrocarbons

1-Methylnaphthalene	0.01
2-Methylnaphthalene	0.01
Acenaphthene	0.01
Acenaphthylene	0.01
Anthracene	0.01
Benzo (a)anthracene	0.01
Benzo (b) pyrene	0.01
Benzo (b) fluoranthene	0.01
Benzo (g,h,i) perylene	0.01
Benzo (j) fluoroanthene	0.01
Benzo (k) fluoranthene	0.01
Chrysene	0.01
Dibenze (a,h) anthracene	0.01
Fluoranthene	0.01
Fluorene	0.01
Indeno (1,2,3-cd)polyrene	0.01
Naphthalene	0.01
Perylene	0.01
Phenanthrene	0.01
Pyrene	0.01

Polychlorinated Biphenyls

Parameter	Maximum Concentration (mg/kg)
Total PCB	0.05

Petroleum Hydrocarbons

Parameter	Maximum Concentration (mg/kg)
Benzene	0.03
Toluene	0.03
Ethylbenzene	0.03
Xylenes	0.05
F1	3
F2	10
F3	20
Modified TPH Tier 1	20

3 - EXECUTION

3.01 GENERAL

- .1 Excavate all types of materials to lines and elevations indicated and as necessary for construction.
- .2 Notify the Departmental Representative if in doubt as to definition of material.
- .3 Select method of excavation, support, and dewatering unless otherwise indicated or directed. Protect property and structures from damage.
- .4 Handle materials in a manner that will not endanger public, personnel, property or the work. Do not reduce sight distances, or obstruct roadways or utilities. Do not obstruct surface drainage or natural watercourses.
- .5 Take care to protect excavated material from the elements.
- .6 Do not stockpile materials alongside of excavations in such a manner that stockpiling will cause side failure or bottom uplift.

3.02 TEMPORARY ACCESS ROADS AND BARRIER WALL

- .1 Temporary access roads and barrier wall to be built as per Section 01 35 44 and Section 02 50 00.
- .2 Install impermeable barrier wall (Figure 2, Appendix B) during backfilling of remediation excavation to prevent seepage of LPH from upgradient properties impacting the TC Site.

3.03 EXCAVATION

- .1 Excavate to lines, grades, elevations and dimensions as indicated.
- .2 Remove all other obstructions encountered during excavation in accordance with Section 02 41 16 - Selective Site Demolition.
- .3 Excavation must not interfere with bearing capacity of adjacent foundations.
- .4 Dispose of surplus and unsuitable excavated material in approved location offsite.
- .5 Do not obstruct flow of surface drainage.
- .6 Earth bottoms of excavations to be undisturbed soil, level, free from loose, soft or organic matter.

3.04 BACKFILLING

- .1 Do not proceed with backfilling operations until Departmental Representative has inspected and approved installations.
- .2 Areas to be backfilled to be free from debris, snow, ice, water and frozen ground.
- .3 Contractor to survey the boundaries of the excavations prior to backfilling.
- .4 If backfill is not supplied from a certified clean source backfill materials supplied will be sampled at a 1 in 250 m³ frequency and analyzed for above noted parameters.

3.05 RESTORATION

- .1 Upon completion of Work, remove waste materials and debris, trim slopes, and correct defects as directed by Departmental Representative.
- .2 Clean and reinstate areas affected by Work as directed by Departmental Representative.
- .3 Restore site to its normal state prior to excavation. Barrier wall to remain in place.

3.06 TOLERANCES

- .1 If any material is deposited in areas that are not designated or approved for fill, remove such material and redeposit it as directed by the Departmental Representative, at no additional cost to the Contract.
- .2 The intention of the above tolerances is that the work will be built generally to the required elevations, slopes and grades and the outer surfaces to the required elevations, slopes and grades and that the outer surfaces shall present a neat and esthetic appearance. Remove or re-work placed material not meeting this intent as directed by the Departmental Representative.

END OF SECTION