

PERMIT TO ALTER A BODY OF WATER

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 48

Date: **AUGUST 03, 2018**

File No: **534-01**
Permit No: **ALT9821-2018**

Permit Holder: **Department of Natural Resources
P.O. Box 8700
50 Elizabeth Avenue
St. John's NL A1B 4J6**

Attention: **Mr. Darren Pittman**

Re: **Minworth Tailings Dam Rehabilitation (OAM)**

Permission is hereby given for : **rehabilitation of the Minworth (OAM) tailings dam including removal of the concrete spillway, breaching of the western section of the dam, new drainage ditching, perimeter interceptor ditches, flattening downstream dam slopes, and associated appurtenances and activities as detailed in the application received from Englobe on June 26, 2018 and additional documentation received on July 12, 2018 and August 3, 2018.**

- This Permit does not release the Permit Holder from the obligation to obtain appropriate approvals from other concerned municipal, provincial and federal agencies.
- The Permit Holder must obtain the approval of the Crown Lands Administration Division if the project is being carried out on Crown Land.
- This Permit is subject to the terms and conditions indicated in Appendices A and B (attached).
- It should be noted that prior to any significant changes in the design or installation of the proposed works, or in event of changes in ownership or management of the project, an amendment to this Permit must be obtained from the Department of Municipal Affairs and Environment under Section 49 of the *Water Resources Act*.
- Failure to comply with the terms and conditions will render this Permit null and void, place the Permit Holder and their agent (s) in violation of the *Water Resources Act* and make the Permit Holder responsible for taking any remedial measures as may be prescribed by this Department.



MINISTER

APPENDIX A
Terms and Conditions for Permit

Dam/Reservoir Design

1. Reservoirs must be provided with a spillway of adequate capacity to safely discharge design flows at non-erosive velocities without causing flooding of the reservoir or damage to the spillway or downstream channel.
2. The dam and appurtenant structures shall be constructed at the following coordinates:

Name	Datum	Northing (m)	Easting (m)	Zone
Minworth Tailing Dam	NAD83	5195041.44	622034.29	21

3. The dam(s) must have the following dimensions:

Name	Height/ Elev of Dam (m)	Minimum Water Elevation (m)
Minworth Tailings Dam	2.8/34.5	32.4

4. To safely convey peak flows the dam(s) must be designed according to the following hydraulic criteria:

Name	Design Return Period (years)	Minimum Flow Capacity (m ³ /s)
Minworth Tailings Dam	1000	1.7

General Alterations

5. Any work that must be performed below the high water mark must be carried out during a period of low water levels.
6. Any flowing or standing water must be diverted around work sites so that work is carried out in the dry.
7. Water pumped from excavations or work areas, or any runoff or effluent directed out of work sites, must have silt and turbidity removed by settling ponds, filtration, or other suitable treatment before discharging to a body of water. Effluent discharged into receiving waters must comply with the *Environmental Control Water and Sewage Regulations, 2003*.
8. All operations must be carried out in a manner that prevents damage to land, vegetation, and watercourses, and which prevents pollution of bodies of water.
9. The use of heavy equipment in streams or bodies of water is not permitted. The operation of heavy equipment must be confined to dry stable areas.
10. All vehicles and equipment must be clean and in good repair, free of mud and oil, or other harmful substances that could impair water quality.
11. Any areas adversely affected by this project must be restored to a state that resembles local natural conditions. Further remedial measures to mitigate environmental impacts on water resources can and will be specified, if considered necessary in the opinion of this Department.
12. The bed, banks and floodplains of watercourses, or other vulnerable areas affected by this project, must be adequately

protected from erosion by seeding, sodding or placing of rip-rap.

13. All waste materials resulting from this project must be disposed of at a site approved by the Department of Service NL.
14. Care must be taken to prevent spillage of pollutants into the water.
15. The owners of structures are responsible for any environmental damage resulting from dislodgement caused by wind, wave, ice action, or structural failure.
16. Sediment and erosion control measures must be installed before starting work. All control measures must be inspected regularly and any necessary repairs made if damage is discovered.
17. Fill material must be of good quality, free of fines or other substances including metals, organics, or chemicals that may be harmful to the receiving waters.
18. The attached Completion Report (Appendix C) for Permit No. 9821 must be completed and returned to this Department upon completion of the approved works. Pictures must be submitted along with the completion report, showing the project site prior to and after development.
19. This Permit is valid for two years from the date of issue. Work must be completed by that date or the application and approval procedure must be repeated. The following terms are valid for the life cycle of the dam structure: 21, 49.
20. The location of the work is highlighted on the Location Map for this Permit attached as Appendix D.

Dam Safety

21. The dam has been conditionally classified in the SIGNIFICANT Consequence category based on the 2007 Canadian Dam Association (CDA) guidelines. To meet the CDA's Dam Safety guidelines (Current Edition) for dams of this classification, the owner must:
 - Carry out a Dam Safety Review and submit a Dam Safety Review Report to this Department a maximum of every ten years from the last report,
 - Carry out an annual Dam Safety Inspection and provide the results to this Department,
 - Carry out dam operation, maintenance and surveillance operations in accordance with the OMS Manual and any recommendations of the most recent Dam Safety Review so that an acceptable level of the dam safety is ensured.

Special Conditions

22. The dam and associated works shall be designed according to the Canadian Dam Association Dam Safety Guidelines and associated Bulletins (most recent edition).
23. The dam and associated works must be designed and constructed under the direct supervision of an engineer eligible for membership with the Professional Engineers and Geoscientists of Newfoundland and Labrador (or equivalent Canadian organization) who is able to demonstrate competence in the design, construction, surveillance and decommissioning of dams.
24. The dam will not be considered fully decommissioned and reclassified as a landform until the dam owner has been able to demonstrate the physical, chemical, ecological and social stability of the decommissioned structure.
25. Erosion control features are to be removed and disposed of upon completion of the work.
26. Work in the exposed tailings area should be kept to a minimum and should not take place unless the surface is well dried out.

Dam Construction

27. The existing concrete spillway shall be removed and the right abutment of the Minworth tailings dam breached approximately 20 m to allow for construction of a new drainage ditch to divert water from the reservoir.
28. Fill material must be obtained from an approved quarry site or taken from the existing tailings management area. It must not be taken from beaches or streams, and must not be dredged from a body of water.
29. A minimum 500 mm layer of clean well-graded rock fill material shall be placed at the downstream toe of the dam and overlain by typical fill material as part of the downstream slope flattening to permit drainage.
30. The downstream slope of the dam shall be 2H:1V.

31. Unsuitable materials disposal areas shall have a maximum height of 1.0 m from the existing ground, side slopes of 2.5H:1V, and be capped with a 300 mm thick layer of suitable well-graded rock fill material.
32. Exposed tailings shall be covered with a 300-500 mm layer of suitable well-graded rock fill material.
33. Prior to any fill placement or regrading of existing embankments, any loose or softened soils, debris or other unsuitable materials shall be removed to the underlying compact natural ground or compact fill soils, as applicable, as part of site preparation.
34. Work on flattening the downstream dam embankment slope should not proceed until after construction of the drainage ditching.
35. Excavations extending deeper than 200 mm at the base of the dam are not permitted unless reviewed and approved on-site by an Engineer.
36. The transportation of labour and materials to the site must be along existing access roads.

Stream Diversion Design

37. An approximately 1420 m long permanent diversion channel may be excavated to divert and redirect waters from the Minworth Tailings Dam reservoir.
38. The new channel must provide adequate capacity to safely discharge flood flows at a velocity no greater than that which would occur in the natural downstream channel.
39. A minimum freeboard of 0.3 metres must be provided between the design high water level and the top of the channel bank to prevent overtopping.
40. The central tailings drainage ditch must have the following dimensions:

Bottom Width (m)	Depth of Channel (m)	Bank Slope (H:V)	Drainage Area (m ²)	Bed Slope (%)
1.0	1.0-6.0	2.5H:1V	179,000	1-6.37

41. To safely convey peak flows, the central tailings drainage ditch must be designed according to the following hydraulic criteria:

Design Return Period (years)	Maximum Flow Capacity (m ³ /s)	Maximum Flow Velocity (m/s)
100	1.12	1.44

Stream Diversion Construction

42. The central tailings drainage ditch up to approximately the 1+360 m mark shall be lined with a minimum of 400 mm of well graded rock fill material with a D50 of approximately 100 mm.
43. The central tailings drainage ditch from approximately marker 1+360 m onward shall be lined with a minimum of 1000 mm of D50 260 mm rip rap.
44. Perimeter ditching shall have bank slopes of 2H:1V, a bottom width of 1 m, a minimum depth of 1 m from existing ground level, and bed slope of between 1-3%.
45. The Permit Holder must prevent erosion of drainage ditches, streams or other natural bodies of water by installing rip-rap and/or sodding.
46. The new channel must be excavated in the dry beginning from the downstream end.

47. Flow must not be diverted into the new channel until all excavation, lining and bank stabilization work has been completed. Water from the old channel must be diverted into the new channel gradually. The channel must be monitored visually for any indications of excessive erosion or other problems.
48. The channel, including any areas up to the high water mark, must be kept free of all excavated or unused construction materials at all times.
49. The channel must be inspected regularly and maintained to ensure that there is no erosion of the channel. Any debris causing a blockage must be removed when necessary.

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Municipal Affairs and Environment

File No: 534-01
Permit No: ALT9821-2018

APPENDIX B
Special Terms and Conditions for Permit

1. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall keep all systems and works in good condition and repair and in accordance with all laws, by-laws, directions, rules and regulations of any governmental authority. The Permit Holder or its agent(s), subcontractor(s), or consultant(s) shall immediately notify the Minister if any problem arises which may threaten the structural stability of the systems and works, endanger public safety and/or the environment or adversely affect others and/or any body of water either in or outside the said Project areas. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall be responsible for all damages suffered by the Minister and Government resulting from any defect in the systems and works, operational deficiencies/inadequacies, or structural failure.
2. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall operate the said Project and its systems and works in a manner which does not cause any water related and/or environmental problems, including but not limited to problems of erosion, deposition, flooding, and deterioration of water quality and groundwater depletion, in or outside the said Project areas. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall be responsible for any and all damages associated with these problems caused as a result of changes, deficiencies, and inadequacies in the operational procedures by the Permit Holder or its agent(s), subcontractor(s), or consultant(s).
3. If the Permit Holder or its agent(s), subcontractor(s), or consultant(s) fails to perform, fulfil, or observe any of the terms and conditions, or provisions of this Permit and/or Ministerial orders and guidelines, as determined by this Department, the Minister may, after providing ten (10) day notice to the Permit Holder, amend, modify, suspend or cancel this Permit in accordance with the *Water Resources Act*.
4. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) indemnify and hold the Minister and Government harmless against any and all liabilities, losses, claims, demands, damages or expenses including legal expenses of any nature whatsoever whether arising in tort, contract, statute, trust or otherwise resulting directly or indirectly from granting this Permit, systems and works in or outside the said Project areas, or any act or omission of the Permit Holder or its agent(s), subcontractor(s), or consultant(s) in or outside the said Project areas, or arising out of a breach or non-performance of any of the terms and conditions, or provisions of this Permit by the Permit Holder or its agent(s), subcontractor(s), or consultant(s).
5. This Permit is subject to all provisions of the *Water Resources Act* and any regulations in effect either at the date of this Permit or hereafter made pursuant thereto or any other relevant legislation enacted by the Province of Newfoundland and Labrador in the future.
6. This Permit shall be construed and interpreted in accordance with the laws of the Province of Newfoundland and Labrador.

cc: Ms. Paula Dawe, P.Eng.
Manager, Drinking Water and Wastewater Section
Water Resources Management Division
Department of Municipal Affairs and Environment
P.O. Box 8700
4th Floor, West Block, Confederation Building
St. John's, NL A1L 4J6
pauladawe@gov.nl.ca

cc: Mr. Alex Smith, P. Eng.
Director, Mineral Development Division
Department of Natural Resources
50 Elizabeth Avenue, P.O. Box 8700
St. John's, NL A1B 4J6
asmith@gov.nl.ca

cc: Fisheries Protection Division
Ecosystem Management Branch
Fisheries and Oceans Canada
P.O. Box 5667
St. John's, NL A1C 5X1
FPP-NL@dfo-mpo.gc.ca

cc: Erich Lenz
Englobe
39 Sagona Avenue
Mount Pearl, NL, A1N 4P9
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cc: File Copy for Binder



Government of Newfoundland and Labrador
Department of Municipal Affairs and Environment
Water Resources Management Division

Appendix C - Completion Report

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 48

Date: **AUGUST 03, 2018**

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P.O. Box 8700
50 Elizabeth Avenue
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I (the Permit Holder named above or agent authorized to represent the Permit Holder) do hereby certify that the project described above was completed in accordance with the plans and specifications submitted to the Department of Municipal Affairs and Environment and that the work was carried out in strict compliance with the terms and conditions of the Permit issued for this project.

Date: _____ Signature: _____

This completion report must be completed and forwarded to the following address upon completion of the approved work.

Department of Municipal Affairs and Environment
Water Resources Management Division
PO Box 8700
St. John's NL A1B 4J6

APPENDIX D
Location Map for Permit

