Newfoundland Labrador

Government of Newfoundland and Labrador
Department of Environment and Conservation
Water Resources Management Division

PERMIT TO ALTER A BODY OF WATER

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

Date: **MARCH 03, 2016**

File No: 523-08, 560-03
Permit No: ALT8163-2016

Permit Holder: **Department of Transportation and Works**
6th Floor, Confederation Building (W)
PO Box 8700
St. John's NL A1B 4J6

Attention: **Ms. Natasha Smith**

Re: **Portugal Cove - St. Philip's (Broad Cove River) - Access Road, Stream Diversion, Box Culvert, and Pipe Crossing in 1:20 year and 1:100 Flood Zones**

Permission is hereby given for : **the construction of access road, stream diversion, box culvert, and pipe crossing in the 1:20 year and 1:100 year flood zones of the Broad Cove River for the New 5-9 Grade School Project in the Town of Portugal Cove - St. Philip's, with reference to the application dated June 5, 2015 and additional information received on July 8, July 13, August 12, October 28, November 19, 2015 and February 8, 2016.**

- 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 Environment and Conservation 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

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Environment and Conservation

File No: **523-08, 560-03**
Permit No: **ALT8163-2016**

APPENDIX A

Terms and Conditions for Permit

Stream Diversion Design

1. An approximately 86 metre long permanent diversion channel may be excavated to carry the waters of Broad Cove River within the proponent's legal property boundaries.

2. The new channel must have the following dimensions:

   Bottom width - 2.0m (minimum)
   Depth of channel - 1.5m (minimum)
   Bank slope - 2H:1V to 4H:1V
   Flow area - 1.92m^2 (minimum)
   Bed slope - 2.83% (average)

3. 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 channel.

4. To safely convey peak flows, the new channel must be designed according to the following hydraulic criteria:

   Design return period - 100 years
   Minimum flow capacity - 25.7 m^3/s
   Maximum flow velocity - 2.14 m/s

5. A minimum freeboard of 0.6 metre must be provided between the design high water level and the top of the channel bank to prevent overtopping.

Stream Diversion Construction

6. Alteration of the natural minimum streamflow is not permitted in order to preserve aquatic life.

7. The old channel must be closed to all flow of water. The fill or structure diverting flows into the new channel must be adequately protected from erosion.

8. The Permit Holder must prevent erosion of drainage ditches, streams or other natural bodies of water by installing rip-rap and/or sodding.

9. Where pumping is used to bypass flow, cofferdams must be installed both above and below areas of construction. The Permit Holder must provide pumps with sufficient capacity to prevent washout of cofferdams.

10. Cofferdams must be properly designed and constructed of suitable materials to prevent leakage and to resist loss of any material as a result of erosion. Cofferdams must be removed upon completion of their intended function. All material must be removed carefully to prevent disturbance of the water body and to prevent water quality degradation.

11. The new channel must be excavated in the dry beginning from the downstream end.

12. 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.

13. 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.

14. 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.

15. A water quality monitoring program is not required at this time. However, the Department reserves the right to require that the Permit Holder sample, analyse, and submit results of water quality tests, for the purpose of ensuring that the water quality is maintained within acceptable guidelines. All analyses must be undertaken by a C.A.E.A.L. accredited laboratory.

16. All work must be carried out within the proponent's legal property boundaries.

17. The toe of the stream bank must be stabilized with fitted rock. The bank must be covered with an adequate layer of topsoil and seeded or sodded. The channel bed must be stabilized with a layer of clean gravel to resemble natural stream conditions.

Culvert Design

18. A 29 metres long 6m x 2m concrete box culvert may be installed across the Broad Cove River in the Town of Portugal Cove - St. Philip's.

19. The crossing structure must provide adequate capacity to safely discharge flood flows without causing backwater effects upstream or increased flow velocity downstream.

20. To safely convey peak flows the culvert installation must be designed according to the following hydraulic criteria:

Design return period - 100 years

Maximum flow capacity - 25.7 m^3/s

Maximum flow velocity - 2.14 m/s

21. To safely convey peak flows the culvert installations must be designed according to the following hydraulic criteria:

Crossing Name / No.	Design Return Period (years)	Design Flow (m^3/s)	Minimum Size (mxm)	Number of Boxes	Length (m)
Thorburn Road/Rainbow Gully Road	100	25.7	6m x 2m	1	29

Culvert Installation

22. Drainage ditches must collect and transport surface runoff in a manner that does not cause flooding, erosion or sedimentation of adjacent land or receiving waters.

23. Inlet and outlet areas of culvert installations must be adequately protected from erosion by placing rip-rap, fitted stone, or concrete headwalls.

24. Culvert installations must follow the stream channel gradient to the maximum extent possible and placed in line with the direction of the main flow to minimize disturbance to the channel. Culverts must not disrupt the flow of water or cause ponding at the upstream side of the installation.

25. In multiple culvert installations, one culvert must be set a minimum of 150 mm lower than the others to provide adequate water depth and velocity for fish passage during low flow conditions. In addition, multiple culverts must be installed within 0.6 to 0.9 metres apart for maximum stability.

26. Where pumping is used to bypass flow, cofferdams must be installed both above and below areas of construction. The Permit Holder must provide pumps with sufficient capacity to prevent washout of cofferdams.

27. Cofferdams must be properly designed and constructed of suitable materials to prevent leakage and to resist loss of any material as a result of erosion. Cofferdams must be removed upon completion of their intended function. All material must be removed carefully to prevent disturbance of the water body and to prevent water quality degradation.

28. All work involving minor alteration to the stream channel to permit culvert placement must be carried out at a time of low flow, and in a manner that prevents downstream siltation and unnecessary alteration of the channel.

29. Grading and finishing of roadways or road embankments must not cause damage to culverts or allow road material to enter the watercourse.

30. Roadside embankments near the watercourse must be adequately protected from erosion by sodding, seeding or placing of rip-rap.

31. Culverts must be inspected regularly so that immediate action can be taken to clear blockages caused by ice or debris or to undertake repairs as required.

32. The inlet and outlet of culverts must be clearly marked so that operators of road grading and snow clearing equipment can avoid blocking culverts.

33. Any damage to culverts during installation or due to inadequate capacity and/or improper construction must be reported to this Department. Damaged culverts must be replaced immediately to prevent overtopping, erosion, or flooding.

34. If a culvert is installed in natural fish habitat it must be embedded a minimum of 150 mm below the natural streambed (up to a maximum of 1/3 of the culvert diameter/height).

Pipe Crossing

35. Infilling must not cause increased water elevation upstream or increase flow velocity downstream of the site. Reduction of the natural cross sectional area of any watercourse is not permitted.

36. Completed pipe crossings must provide a minimum cover of 0.6 metres of stable compacted material sufficient to resist scouring and erosion. The finished surface cover must not extend above the original grade of the channel.

37. Where pumping is used to bypass flow, cofferdams must be installed both above and below areas of construction. The Permit Holder must provide pumps with sufficient capacity to prevent washout of cofferdams.

38. Cofferdams must be properly designed and constructed of suitable materials to prevent leakage and to resist loss of any material as a result of erosion. Cofferdams must be removed upon completion of their intended function. All material must be removed carefully to prevent disturbance of the water body and to prevent water quality degradation.

39. A temporary diversion channel adequate to convey flow without causing erosion or downstream siltation may be employed during construction of the stream crossing. After the installation is complete, all flow must be diverted back into the fully reinstated original channel. The temporary channel must be permanently closed to all flow, backfilled and the area must be restored to its original condition.

40. The installation of the water supply pipe must comply with the manufacturers specifications, particularly with regard to pipe zone bedding material, degree of compaction, and maximum - minimum pipe cover for design loadings.

Flood Zone Development

41. The proponent's property is within the designated flood plain for the Town of Portugal Cove - St. Philip's. This development, and future development at the site, must comply with this Department's policy directive for *Flood Plain Management W.R. 96-1*.

42. The top of the school access road must be constructed 0.6 m above the estimated 1:100 year climate change flood elevation for the area.

43. The structure will not interfere with the flow of water or displace water such that it creates a worse flooding situation for other properties

44. All structures and associated utilities must be designed and constructed in accordance with the flood proofing guidelines of this Department, including that the entrances and exits can be safely used in the event of a flood.

45. The proposed use of the facility and site will not involve any storage of pollutants such as fuels, chemicals, pesticides, etc.

46. Any further development in the flood zone area not specifically covered by this permit will require a separate permit from this

Division under Section 48 of the *Water Resources Act*.

47. Any development which was not identified during the flood risk mapping study of 2015 will have to comply with ENVC's flood plain management policy.

General Alterations

48. Any work that must be performed below the high water mark must be carried out during a period of low water levels.

49. Any flowing or standing water must be diverted around work sites so that work is carried out in the dry.

50. 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*.

51. 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.

52. 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.

53. 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.

54. During the construction of concrete components, formwork must be properly constructed to prevent any fresh concrete from entering a body of water. Dumping of concrete or washing of tools and equipment in any body of water is prohibited.

55. Wood preservatives such as penta, CCA or other such chemicals must not be applied to timber near a body of water. All treated wood or timber must be thoroughly dry before being brought to any work site and installed.

56. 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 the Department.

57. 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.

58. All waste materials resulting from this project must be disposed of at a site approved by the Department of Service NL.

59. Periodic maintenance such as painting, resurfacing, clearing of debris, or minor repairs, must be carried out without causing any physical disruption of any watercourse. Care must be taken to prevent spillage of pollutants into the water.

60. The owners of structures are responsible for any environmental damage resulting from dislodgement caused by wind, wave, ice action, or structural failure.

61. 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.

62. 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.

63. The attached Completion Report (Appendix C) for Permit No. 8163 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.

64. 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.

65. The location of the work is highlighted on the Location Map for this Permit attached as Appendix D.

66. All work must be carried out within the proponent's legal property boundaries.

67. Pictures must be submitted along with the completion report, showing the project site prior to and after development.

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Environment and Conservation

File No: **523-08, 560-03**
Permit No: **AL/T8163-2016**

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: Dr. Amir Ali Khan, P. Eng.
Manager, Hydrologic Modelling Section
Water Resources Management
Environment and Conservation
P.O. Box 8700
4th Floor, West Block, Confederation Building
St. John's, NL A1B 4J8

cc: File Copy for Binder

cc: Mr. Steve Barnable (E)
Manager, Eastern Regional Crown Lands
Crown Lands Administration Division
Dept. of Municipal and Intergovernmental Affairs
PO Box 8700
St. John's NL A1B 4J6

cc: Fisheries Protection Division
Ecosystem Management Branch
Fisheries and Oceans Canada
P.O. Box 5667
St. John's NL A1C 5X1

cc: Town of Portugal Cove-St. Philip's
Ms. Loretta Tucker
1119 Thorburn Road
Portugal Cove-St. Philip's NL A1M 1T6

cc: Mr. Trevor Moore, P.Eng.
Pinnacle Engineering Limited
Suite 202
40 Aberdeen Avenue
St. John's NL A1A 5T3

Government of Newfoundland and Labrador
Department of Environment and Conservation
Water Resources Management Division

Appendix C - Completion Report

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

Date: **MARCH 03, 2016**

File No: **523-08, 560-03**
Permit No: **ALT8163-2016**

Permit Holder: **Department of Transportation and Works**
6th Floor, Confederation Building (W)
PO Box 8700
St. John's NL A1B 4J6

Attention: **Ms. Natasha Smith**

Re: **Portugal Cove - St. Philip's (Broad Cove River) - Access Road, Stream Diversion, Box Culvert, and Pipe Crossing in 1:20 year and 1:100 Flood Zones**

Permission was given for : **the construction of access road, stream diversion, box culvert, and pipe crossing in the 1:20 year and 1:100 year flood zones of the Broad Cove River for the New 5-9 Grade School Project in the Town of Portugal Cove - St. Philip's, with reference to the application dated June 5, 2015 and additional information received on July 8, July 13, August 12, October 28, November 19, 2015 and February 8, 2016.**

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 Environment and Conservation 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 Environment and Conservation
Water Resources Management Division
PO Box 8700
St. John's NL A1B 4J6

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Environment and Conservation

File No: 523-08, 560-03
Permit No: ALT8163-2016

APPENDIX D

Location Map for Permit