

PERMIT TO CONSTRUCT

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 37

Date: **JUNE 20, 2016**

File No: **844.048.1**
Permit No: **WS8705-2016**

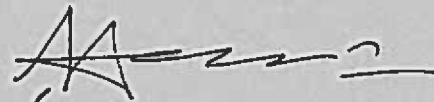
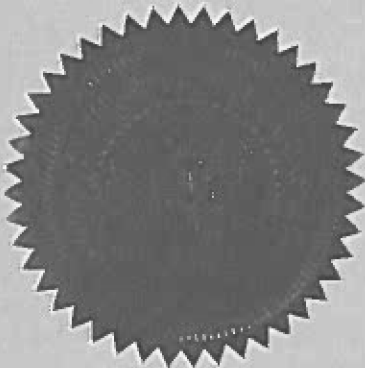
Permit Holder: **Town of Sunnyside
PO Box 89
Sunnyside NL A0B 3J0**

Attention: **Mr. Philip Smith, Town Manager**

Re: **Sunnyside - Filtration Pilot Project**

Permission is hereby given for : the installation of two rapid sand deep bed filters with a combined capacity of 150 USGPM, two chemical feed pumps, two 205 L chemical solution tanks for sodium hydroxide and polyaluminum chloride, in-line pH analyzer, a 5300 L backwash storage tank, backwash pump and related works and appurtenances as described in the drawings titled, "Sunnyside Optimization Stage" and the design brief titled, "Town of Sunnyside Optimization Stage Design Brief" as received from SanEcoTec Ltd. on May 18, 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

APPENDIX A
Terms and Conditions for Permit

Water & Sewer General

1. 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*.
2. 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.
3. 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.
4. All waste materials resulting from this project must be disposed of at a site approved by the Department of Service NL.
5. The works proposed must satisfy the requirements of the latest applicable codes and standards, and be consistent with or otherwise address the design criteria set out in the Department of Environment and Conservation publication *Guidelines for The Design, Construction, and Operation of Water and Sewerage Systems, 2005*, and as amended from time to time.
6. The work must be undertaken in strict compliance with the submitted documents and the latest version of the *Municipal Water, Sewer and Roads Master Construction Specifications*. A copy of all documents, including the *Municipal Water, Sewer and Roads Master Construction Specifications* must be available for viewing at the construction site office at all times.
7. Liaison is to be maintained with the Design Approval Specialist representing the Community Water and Wastewater Section of this Department, during the construction and operation of the project. The Specialist shall be notified of the pre-construction and post-construction meetings so that she may attend, if deemed necessary. She can be reached at telephone (709) 729-2558.
8. Officials of this Department may visit the project from time to time to ensure that work is carried out within the provisions of this Permit, and is not creating any environmental hazard.
9. Any changes in the approved works, or works other than those specified in the application, must be submitted, in writing, to this Department, and approved, in the form of an Amendment to this Permit, prior to any work.
10. Copies of this Permit, as well as any subsequent Amendments, must be provided to the contractor(s) who will be carrying out these works, and to the engineer's site representative.
11. The attached Completion Report (Appendix C) for Permit No. 8705 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.
12. 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.
13. The drinking water system shall be operated and maintained in accordance with the Permit to Operate issued by this Department.
14. Management of stormwater is the responsibility of the municipality or LSD. Stormwater management should focus on ensuring that the post-development stormwater runoff rate will be equal to or less than the pre-development runoff rate. Any stormwater runoff has the potential to contribute to flooding downstream which may have liability issues for the municipality or LSD if not managed properly.
15. The Owner must update any drawings maintained of the drinking water system to reflect the modification or replacement of the works, where applicable.

Water Systems

16. All new waterlines and appurtenances shall be hydrostatically tested in accordance with the *Municipal Water, Sewer and Roads Specifications*.

17. All components, lubricants and chemicals provided shall be compatible for use with drinking water and shall meet the requirements of ANSI/NSF 60 Drinking Water Treatment Chemical Standard and ANSI/NSF 61 Drinking Water and System Component Standard and any other standard applicable to potable water.
18. All new lines and appurtenances must be disinfected by an approved method described in the latest edition of the AWWA C651 Standard for Disinfecting Watermains and using only chlorine products that meet the NSF 60 standard.

Miscellaneous

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

Water Treatment

20. There shall be adequate storage handling facilities for 30 days of chemical supply.
21. All drains and vents shall be equipped with screens to prevent the entry of insects, birds and rodents.
22. The ends of drains and overflows shall be located so as to prevent erosion. Where necessary, concrete or similar splash plates shall be located below the end of the overflow, and the immediate surrounding area shall be filled to a depth of 10 cm with 19 mm minus stone to prevent ponding.
23. A backflow prevention device, in this case a hose connection vacuum breaker, non removable, meeting or exceeding CSA 64.2, shall be attached to any hose bibb connection, to prevent the possibility of contaminants entering the potable water distribution system due to back-siphonage.
24. Chemical mixing tanks shall be located as near as possible to the point of application to minimize the length of feed lines.
25. All components, lubricants and chemicals provided shall be compatible for use with drinking water and shall meet the requirements of ANSI/NSF 60 Drinking Water Treatment Chemical Standard and ANSI/NSF 61 Drinking Water and System Component Standard and any other standard applicable to potable water.
26. Storage tank and pressure tank drain lines and overflows shall not be directly connected to the building floor drain, but shall be separated from the floor drain by an appropriately sized air gap. Drain lines from the storage tank and pressure tanks shall be protected from back-siphonage or back-pressure by an appropriate backflow prevention device.
27. A sample tap shall be provided so that water samples can be obtained from the raw water source and from an appropriate location after chlorination. Taps used shall be of the smooth-nosed type without interior or exterior threads and shall not have a screen, aerator or other such appurtenance.
28. An emergency shower and eye wash station that is in compliance with ANSI Z358.1-2014 and meets the requirements of the appropriate Materials Safety Data Sheet (MSDS) shall be installed in a convenient location(s) within each facility.
29. The owner shall ensure that all chemicals used in the treatment process and all materials contacting the water are of Food Grade quality and meet both the American Water Works Association (AWWA) quality criteria as set out in AWWA standards and the American National Standards Institute (ANSI) and the National Sanitation Foundation (NSF) safety criteria as set out in ANSI/NSF 60 or ANSI/NSF 61 standards and any other applicable standards.
30. The water treatment plant including all interior and exterior water piping systems, all storage tanks including the finished water clear wells, filter media and other receptacles and appurtenances must be disinfected by approved methods such as described in the American Water Works Association Standards, Disinfection of Watermains, C651-99, Disinfection of Water Storage Facilities, C652-92 and Disinfection of Water Treatment Plants C653-87. It should be noted that the filter chambers must be disinfected prior to the placement of filter media and subsequently, the media disinfected as per the above quoted Standards. After final flushing, samples shall be collected and tested for bacteriological quality. The sampling locations shall be determined by the engineer. A copy of the test results shall be submitted to the Regional Environment Office (Water Resources Management Division) before the treatment plant is placed in service.
31. Residuals discharged from the water treatment plant must meet the requirements of the *Environmental Control Water and Sewage Regulations, 2003*.
32. All chemical tanks shall have liquid level indicators and overflows connected to a drain line.
33. Continuous on-line monitoring of pH is required.

Special Conditions

34. A Filtration Pilot Project study shall be submitted to the Department of Environment and Conservation within two months of completing the pilot testing. The formal report shall include the following:
- Introduction
 - Background
 - Methodology
 - Results
 - Conclusions\Recommendations

Commissioning and Monitoring

35. The Department of Environment and Conservation must be informed of the date of commission of the drinking water or wastewater treatment system.
36. The water treatment facility must meet the requirements of the *Drinking Water Treatment Standards for Newfoundland and Labrador*.
37. The Department of Environment and Conservation shall require enhanced monitoring and reporting procedure be undertaken as part of this pilot project. Sampling should be undertaken as per the submitted pilot sampling plan for the duration of the three month pilot. Analysis of water quality grab samples as part of this monitoring plan must be analysed at an accredited lab or in house (as applicable). The monitoring and reporting plan shall at a minimum include the following:
- daily in-house analysis of pH, turbidity and temperature on raw and treated water;
 - bi-weekly chemical and physical analysis of the parameters specified in the *Policy for Drinking Water Quality Monitoring and Reporting for Public Water Supplies* on raw and treated water;
 - monthly trihalomethanes (THMs) and haloacetic acids (HAAs) analysis from one site in the distribution system; and
 - monthly analysis of waste effluent for aluminum and the parameters referenced in Schedule A of the provincial *Environmental Control Water and Sewage Regulations, 2012*.

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: Mr. Inayat Rehman, P.Eng.
Department of Municipal and Intergovernmental Affairs
Main Floor, West Block, Confederation Bldg.
PO Box 8700
St. John's NL A1B 4J6
- cc: Mr. Robert Groves, Regional Manager
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Regional Government Service Centre
8 Myers Avenue
Suite 201
Clareville NL A5A 1T5
- cc: Ms. Sharon Williams, Regional Manager
Service Newfoundland and Labrador
PO Box 8700
St. John's NL A1B 4J6
williams@gov.nl.ca
- cc: Mr. Colin Guthrie
R&D Manager
SanEcoTec. Ltd.
5636 Manotick Main Street, AVIVE House
Ottawa ON K4M 1B3
- cc: Ms. Deneen Spracklin, P.Eng.
Environmental Engineer, Community Water and Wastewater
Water Resources Management Division
Department of Environment and Conservation
PO Box 8700
St. John's NL A1B 4J6
dspracklin@gov.nl.ca

Appendix C - Completion Report

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 37

Date: JUNE 20, 2016

File No: 844.048.1
Permit No: WS8705-2016

Permit Holder: Town of Sunnyside
PO Box 89
Sunnyside NL A0B 3J0

Attention: Mr. Philip Smith, Town Manager

Re: Sunnyside - Filtration Pilot Project

Permission was given for : the installation of two rapid sand deep bed filters with a combined capacity of 150 USGPM, two chemical feed pumps, two 205 L chemical solution tanks for sodium hydroxide and polyaluminum chloride, in-line pH analyzer, a 5300 L backwash storage tank, backwash pump and related works and appurtenances as described in the drawings titled, "Sunnyside Optimization Stage" and the design brief titled, "Town of Sunnyside Optimization Stage Design Brief" as received from SanEcoTec Ltd. on May 18, 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