

PERMIT TO CONSTRUCT A NON-DOMESTIC WELL

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 58

Date: **AUGUST 10, 2022**

File No: **NDOM22-016**
Permit No: **GW12696-2022**

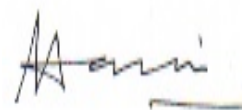
Permit Holder: **Town of Stephenville
P.O. Box 420
125 Caroline Ave
Stephenville, NL A2N 2Z5
Ted.Gracie@stephenville.ca**

Attention: **Ted Gracie**

Re: **Town of Stephenville - Installation of new municipal well to replace existing Well #8,
Stephenville**

Permission is hereby given for : **Installation of new municipal well to replace existing Well #8.**

- 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 Climate Change under Section 49 of the *Water Resources Act*.



(for) MINISTER

APPENDIX A
Terms and Conditions for Permit

Non-Domestic (General)

1. The well must be drilled and completed by a water well driller licenced by the Government of Newfoundland and Labrador, and constructed according to the Water Resources Act and the Well Drilling Regulations under that Act.
2. The existing well must not be sealed as per guidelines until after the new well is active and tested as required. Only after the pumping test and new well connection to the distribution system is complete will consideration be given to sealing the existing well.
3. A Completion Report must be provided to this department within 30 days after well construction is complete.
4. Water well construction data including Drilled Water Well Record(s) and pumping test results for the well must be attached to the Completion Report.
5. This permit is valid for one (1) year from the date of issuance.
6. The well owner is responsible for compliance with this permit.
7. Pesticides, herbicides and fertilizers must not be used within a 100 metre radius of the wellhead.

Non-Domestic (Location)

8. The well must be located outside the right-of-way, or a minimum of 30 metres from the centre line, which ever is greater, of any road, street or highway.
9. The well must not be located within 30 metres of another well water supply or nearby furnace oil storage tanks.
10. The well must not be located within a minimum of 16 metres and/or down gradient of sewage disposal field or septic tank.
11. The well must not be drilled within 15 metres of any water body as defined under the Water Resources Act.

Non-Domestic (Construction)

12. Water disinfected by a National Sanitation Foundation (NSF) certified chlorine product must be used for the drilling and clean up operations.
13. Construction of each well must include carbon steel casing to a minimum depth that extends 6 meters into the bedrock and impedes flow of potentially contaminated surface water and/or shallow groundwater to the well. A drive shoe must be used to set the casing into the bedrock.
14. Casing joins must be of continuous weld.

15. The well annulus must be a minimum of 50 millimetres (2 inches) from the outside of the casing to the wall of the borehole and sealed with appropriate grout and/or cement from the bottom of the well casing/drive shoe to the ground surface. If a 150 millimetre (6 inch) casing is used, then a minimum of a 250 millimetre (10 inch) borehole is required.
16. In the course of drilling the well and during the development stage, if salty, sulphurous, or other water that might impair the quality of potable water is encountered, the well driller must seal off that water by a method approved by the Minister.
17. The well driller must take all other reasonable measures necessary to ensure that contaminated surface water, shallow groundwater, and/or other water that might impair the quality of potable water will not enter the well.
18. Water well construction data must include the precise location of the newly completed well taken in latitude/longitude format.

Non-Domestic-Finished Wellhead

19. The area immediately surrounding the well must be sloped away from the well and grass covered to a minimum distance of 5 metres in all directions.
20. The wellhead must be completed to a minimum height of 0.6 metres above finished grade.
21. The wellhead must be completed with a double vented (screened) metal vermin-proof well cap with electrical access through the well cap.
22. Water supply from the well must utilize a pitless adaptor installed below the frost line.
23. There must be no holes, slots, or other openings made in the well casing except for the installation of a properly sealed pitless adapter.
24. If an electrical ground wire or other such attachment to the well casing is necessary, it must be attached to a steel anchor that has been welded to the outside of the well casing.
25. If a well pump is to be suspended, it must be done utilizing a stainless steel cable attached to an industry approved well hanger inside the wellhead.
26. The well casing and finished wellhead must be sealed (water tight) except for the screened vent.
27. If finished outside, the wellhead must not be enclosed in a protective enclosure, finished below ground level, in a concrete pit, or any other such enclosure unless the method of enclosure is approved by this department.
28. The well must not be located inside, under, or too close to a building unless provision is made in the construction of the building to allow access to the well for cleaning, treatment, repair, testing and inspection of the well.
29. A wellhead located inside a building must be finished in the same manner as an outside well, i.e., to a minimum height of 0.6 metres above floor level, utilizing a pitless adaptor (installed above floor level), and utilizing a double vented screened vermin proof well cap.
30. For public water supply wells, a permanent sampling port must be located in the discharge from the well, before chlorination and/or treatment is applied, for the purpose of source water quality monitoring.

Non-Domestic (Pumping Test)

31. A 72 hour aquifer pumping test is required for the well in accordance with the Water Resources Management Division document Guidelines for Aquifer Pumping Tests. A final report, written by a hydrogeologist or qualified person and providing the information as stated in the guidelines, including chemical analyses of the water, must be forwarded to this department. This report must be submitted with the completion report.
32. Prior to commencing a long-term aquifer test, a step drawdown test must be conducted to estimate the rate that can be maintained by the well for extended periods of time. The step drawdown test should consist of at least 4 steps and each step should be of at least 30 minutes duration. The pumping rates that are used for this test are determined from the driller's estimate of the well yield. If four steps are used, the first should be conducted at a rate of about one-quarter of the well yield estimate provided by the driller. This rate is maintained for 30 to 60 minutes and then the next step is begun without stopping for recovery. Each successive step should be run at a rate that is approximately double the rate of the step prior. The step drawdown test must be evaluated by a qualified professional prior to the constant rate pumping test to evaluate a sustainable pumping rate.

Non-Domestic (Water Quality)

33. A minimum of two water samples must be collected from the well at the wellhead during the aquifer pumping test utilizing proper sampling protocol. The first water sample must be collected not less than 30 minutes or more than two hours into the pumping period, and the second or last water sample must be collected during the last hour of the pumping period. Water samples must be submitted to an accredited water analysis laboratory for testing as per the attached parameter list. As a part of the completion report, a copy of the analytical results must be sent to this department.
34. After the well has been completed as a source water supply, a bacteriological water sample must be collected from the well before chlorination and/or treatment is applied, utilizing proper sampling protocol, and submitted to Service NL for analysis between 10-15 days after well disinfection. As a part of the completion report, a copy of the bacteriological results must be submitted to this department.
35. The completed well must not be utilized as a source water supply until all required water quality analytical results have been received and approved by this department.
36. A take-off valve is required in the discharge from the well, located before chlorination and/or treatment is applied, for the purpose on water quality monitoring.
37. A permanent sampling port is also recommended in the discharge from chlorination or other treatment device for the purpose of measuring effectiveness of treatment.

Non-Domestic (Abandonment)

38. If the completed well can not meet its intended purpose as stated in the application, or if it has no further use at any time after it has been drilled or in service, for any reason including poor water quality or insufficient yield, the well must be sealed as per the Water Resources Management Division document Guidelines for Sealing Groundwater Wells, available on our web site at <https://www.gov.nl.ca/ecc/files/waterres-cycle-groundwater-well-guidelines-for-sealing-groundwater-wells.pdf>

Non-Domestic (Completion)

39. The signed completion report must include: all completed Drilled Water Well Records for each water well or borehole constructed; aquifer pumping test results (including calculations); water quality results; and any other reports related to the construction or abandonment of water wells or boreholes.
40. All non-domestic wells and boreholes are subject to inspections to ensure compliance with the terms and conditions of this permit. Upon completion of the inspection, a wellhead inspection report will be sent to the well owner.

Development in WPWSA

41. All persons working on this project must be informed that they are within a Wellhead Protected Water Supply Area and must be made aware of all conditions of this Permit. A copy of this Permit must be on site during construction.
42. All equipment must be in good working order with no leaking fuel or oil. Refueling of heavy equipment is not allowed on site.
43. Any spills of gasoline, fuel or oil, regardless of volume, must be reported immediately to the Environmental Scientist at (709) 729-2539. Furthermore, all spills in excess of 70 litres shall be reported immediately to the 24 hour spill report line at (709) 772-2083 (call collect) or 1-800-563-9089.
44. All operations must be carried out in a manner that minimizes damage to land, vegetation and water courses, and which prevents pollution of water bodies. Please note that groundwater aquifers are considered water bodies.
45. The use of treated wood, including the use of treated utility poles, is limited to wood protected by copper azole preservative.
46. During construction and after the project is complete, the use and/or storage of fertilizers, pesticides, herbicides, petroleum solvents, chlorinated solvents, and preservatives is limited or restricted. Please contact the Environmental Scientist at (709)729-2539 for more information.
47. The parking, storage, and maintenance of heavy equipment is prohibited.
48. Equipment storage and maintenance facilities associated with this project must not be located within the Wellhead Protected Water Supply Area, and all maintenance other than emergency repairs must be performed outside the Wellhead Protected Water Supply Area.
49. Bulk fuel storage, including home heating fuel, is prohibited.
50. The use and/or storage of fertilizers, pesticides, herbicides, petroleum solvents, chlorinated solvents, and preservatives are prohibited.
51. Fuel/gasoline storage is limited to one 23 litre (5 Imperial gallon) approved container during both the construction and occupation period of the property. Furthermore, every precaution shall be made to prevent spills, leaks, or other discharges while filling from the container.
52. Liaison must be maintained with the appropriate Municipal Authority and Department official. If there are any specific problems (i.e., fuel spill or other potential water quality impairment), the Town Manager/Clerk and/or Mayor must be notified immediately, as well as the Environmental Scientist at (709)729-2539.
53. Officials of the Department and the appropriate Municipal Authority, Operator, or Wellhead Protection Committee may visit the site from time to time to ensure compliance with this Permit.
54. Any areas adversely affected by this project must be restored to a state that resembles the local natural conditions or must be grass covered. Further remedial measures to mitigate environmental impacts on water resources can and will be specified, if necessary in the opinion of the Department.
55. The Department reserves the right to require the proponent to cover all costs incurred by the proponent or this department that is associated with any water quality monitoring program that may be ordered by the Minister for the purpose of ensuring that the water quality is maintained within acceptable guidelines.

56. Any changes in the Town of Stephenville Wellhead Protected Water Supply water quality resulting directly from this project, rendering the water unsuitable as a public water supply, are the responsibility of the proponent. The Minister may order the proponent to provide an alternate source of potable water to the affected community until water quality returns to an acceptable level.
57. A water quality monitoring program is not required at this time. However, the Department reserves the right to require that the proponent sample, analyze, and submit results of water quality tests, for the purpose of ensuring that the water quality of the surrounding aquifer(s), is maintained within acceptable guidelines. All analyses must be undertaken by a CALA accredited laboratory.
58. The permit holder, contractor, subcontractor or other persons associated with this project shall not cross, operate in, or disturb any body of water, either directly or by means of installing a bridge or culvert, without first obtaining a permit under Section 48 of the Water Resources Act SNL 2002 cW-4.01
59. Any significant changes in the permitted operations, developments or activities other than those specified in the application must be submitted in writing to the Department, and permitted in the form of an Amendment to this Permit, before they are undertaken.
60. Renewal of this permit shall require the submission of a written application, on the prescribed form, to the Department, and is subject to review by this Department and the appropriate Municipal Authority, Operator or Wellhead Protection Committee.

Non-domestic (GPS Coordinates)

61. The well and/or borehole must be constructed at or near the given coordinate as provided in the non-domestic well application: N 48.58540, W 58.57215. Any additional information on well or borehole locations can be acquired by contacting the groundwater environmental scientist at (709) 729-2539 or GroundwaterSection@gov.nl.ca.

Special Conditions

62. The Permit Holder must obtain a Permit to Construct Drinking Water Infrastructure under the Water Resources Act prior to connecting to the existing infrastructure. Contact Deneen Spracklin (dspracklin@gov.nl.ca).

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, as determined by this Department, the Minister may, without notice, 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. John Gale
FracFlow Consultants Inc.
154 Major's Path
St. John's, NL, A1A 5A1
john_ffc@nfld.net
- cc: Groundwater Section File Copy
Groundwater Section
Water Resources Management
Dept. Environment and Climate Change
groundwatersection@gov.nl.ca
- cc: Janice McCarthy
Senior Engineer
Water Resources Management Division
Dept of Municipal Affairs and Environment
JaniceMcCarthy@gov.nl.ca
- cc: Ms. Deneen Spracklin, P.Eng.
Environmental Engineer, Drinking Water and Wastewater Section
Water Resources Management Division
Department of Environment and Climate Change
P.O. Box 8700
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dspracklin@gov.nl.ca



Government of Newfoundland and Labrador
Department of Environment and Climate Change
Water Resources Management Division

Appendix C - Completion Report

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 58

Date: **AUGUST 10, 2022**

File No: **NDOM22-016**
Permit No: **GW12696-2022**

Permit Holder: **Town of Stephenville**
P.O. Box 420
125 Caroline Ave
Stephenville, NL A2N 2Z5
Ted.Gracie@stephenville.ca

Attention: **Ted Gracie**

Re: **Town of Stephenville - Installation of new municipal well to replace existing Well #8, Stephenville**

Permission was given for : **Installation of new municipal well to replace existing Well #8.**

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 Climate Change 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 Climate Change
Water Resources Management Division
PO Box 8700
St. John's NL A1B 4J6

General Water Quality Parameter List for Groundwater

Alkalinity
Aluminum
Ammonia
Antimony
Arsenic
Barium
Boron
Bromide
Cadmium
Calcium
Chloride
Chromium
Colour (true)
Conductivity
Copper
Dissolved Organic Carbon
Fluoride
Hardness
Iron
Kjeldahl Nitrogen
Lead
Magnesium
Manganese
Mercury
Nickel
Nitrate/Nitrite
pH
Potassium
Selenium
Sodium
Sulphate
Total Dissolved Solids
Total Phosphorus
Turbidity
Uranium
Zinc