

PERMIT TO CONSTRUCT

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 36, 37, 48

Date: **DECEMBER 13, 2019**

File No: **844.097.016.8**
Permit No: **WS10781-2019**

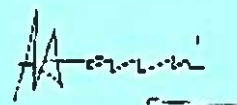
Permit Holder: **City of St. John's
P.O. Box 908
10 New Gower St.
St. John's NL A1C 5M2
swinsor@stjohns.ca**

Attention: **Mr. Scott Winsor, P. Eng.**

Re: **St. John's - Hebron Way Extension and Major's Path Upgrading**

Permission is hereby given for : **the installation of 25 m of 150 mm PVC watermain, 80 m of 200 mm PVC watermain, 500 m of 300 mm DI watermain, 155 m of 200 mm PVC sanitary sewer, related appurtenances and a culvert and pipe crossing across Stick Pond Brook as described in the drawings titled, "Hebron Way Extension and Major's Path Upgrading" as received from Pinnacle Engineering Limited on October 18, 2019.**

- 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*.



(for) MINISTER

APPENDIX A
Terms and Conditions for Permit

Water & Sewer General

1. 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 Municipal Affairs and Environment publication *Guidelines for The Design, Construction, and Operation of Water and Sewerage Systems, 2005*, and as amended from time to time.
2. 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.
3. Liaison is to be maintained with the Environmental Scientist representing the Drinking Water and Wastewater Section of this Department, during the construction and operation of the project. They shall be notified of the pre-construction and post-construction meetings so that they may attend, if deemed necessary. They can be reached at telephone (709) 729-2558.
4. 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.
5. 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.
6. 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.
7. The drinking water and wastewater system shall be operated and maintained in accordance with the Permit to Operate issued by this Department.
8. 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.
9. The Owner must update any drawings maintained of the drinking water or wastewater system to reflect the modification or replacement of the works, where applicable.

Water Systems

10. Wherever possible, water distribution system layouts should be designed to eliminate dead-end sections. Where dead-end mains cannot be avoided, they should be provided with a fire hydrant, blow off, or other acceptable measures taken to prevent problems associated with stagnation.
11. Under no circumstances shall sewage be permitted to enter the waterline trench during or after construction.
12. All new waterlines and appurtenances shall be hydrostatically tested in accordance with the *Municipal Water, Sewer and Roads Specifications*.

13. 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.
14. Backflow prevention devices should/must be installed on service connections where there is a high risk of contamination of the potable water supply.
15. Drains in valve chambers shall be equipped with a backwater valve and screening to prevent the entry of insects, birds, and rodents.
16. When crossing watercourses which are greater than 4.5 m in width, valves should be provided at both ends of water crossings so that the section can be isolated for testing or repair and the valves shall be easily accessible and not subject to flooding.
17. 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.
18. After final flushing and before the new water main is commissioned into service, bacteriological sampling must be conducted as per the latest edition of the AWWA C651 Standard for Disinfecting Watermains. Two acceptable options are available: (1) two consecutive sets of bacteriological samples, taken at least 16 hours apart, must be collected and tested for bacteriological quality, or (2) following a 16 hour rest period two consecutive sets of samples, taken 15 minutes apart, must be collected and tested for bacteriological quality. Sets of samples shall be collected for every 366 m of new water main including the end of the main line and the end of each branch line. These sampling locations shall be determined by the engineer. **A copy of test results must be submitted to this Department (Water Resources Management Division) before the new watermain is placed into service.** In the event of any bacteria detected in the sample results, flushing and re-sampling may be attempted or the disinfection process will need to be repeated until results for two consecutive sets of samples are bacteria free. Where necessary, this Department should be contacted to determine provisions for the disposal of heavily chlorinated water.
19. For the purpose of disinfecting new or upgraded watermains, connection may only be made to the existing watermain provided a valve is installed that maintains a water tight seal. This valve may be operated to flush the new water extension before disinfection and post disinfection provided adequate measures and procedures are followed to avoid a backflow and contamination of the existing system.
20. Drain lines from air release/vacuum valves shall not discharge at the bottom of the chamber next to the floor drain unless there is an air gap on the line to prevent any possibility of backsiphonage of chamber water back into the potable water system. The air gap shall be located at a location on the line just above the crown of the watermain. If an air gap is not possible in this area, the drain line shall be shortened so it discharges higher than the crown of the watermain.

Sewer Systems

21. Storm water drainage, including roof drains, weeping tile drains, and street drainage, shall not be connected to the sanitary sewer system.
22. In the event that private or existing sewer lines are disturbed during construction, the lines are to be restored to their original *working* condition. Care shall be taken to ensure that soil or other material does not enter the lines to cause blockage.
23. The flow channel through manholes should be made to conform in shape and slope to that of the sanitary sewer.
24. The direct connection of sanitary sewer service lines to manholes is prohibited unless the service enters at the flow line of the manhole. In this instance, filleting must be provided to prevent solids deposition.
25. All sanitary sewers shall be laid or covered with sufficient depth of suitable material to prevent frost penetration and damage from traffic loading.

26. Where storm sewer and sanitary sewer service laterals are extended to property boundaries for future connections, the stub ends must be clearly marked to identify storm and sanitary lines to prevent possible cross-connections.

Miscellaneous

27. The Permit Holder must prevent erosion of drainage ditches, streams or other natural bodies of water by installing rip-rap and/or sodding.
28. This project involves the handling and/or dealing with asbestos cement pipe from certain portions of the work area. Any removal, handling or transport and disposal of asbestos must be carried out in accordance with the Asbestos Abatement Regulations 1998 under the Occupational Health and Safety Act. For further information, contact a Hazardous Materials Officer with Service NL, Occupational Health & safety Division at (709) 729-5536 or 729-7037.
29. All drains and vents shall be equipped with screens to prevent the entry of insects, birds and rodents.
30. 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.

Water & Sewer Installation

31. Where the horizontal separation between watermains (including hydrant leads and drains) and gravity sanitary sewers is less than 3.0 metres, the watermain shall be laid in a separate trench, or on an undisturbed earth shelf located on one side of the sanitary sewer and at such an elevation that the invert of the watermain shall be a minimum of 450 mm above the crown of the sanitary sewer and 300 mm horizontally from the sanitary sewer measured edge to edge.
32. Watermains (including hydrant leads) crossing gravity sanitary sewers should be laid to provide a minimum vertical distance of 450 mm between the outside of the watermain and the outside of the sanitary sewer. This should be the case where the watermain is either above or below the sanitary sewer with preference to the watermain located above the sanitary sewer. At crossings, above or below, one full length of water pipe shall be located so both joints will be as far from the sanitary sewer as possible. Special structural support for the water and/or sewer pipes may be required.

Pipe Crossing

33. 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.
34. 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.
35. 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.
36. 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

37. The proposed culvert and pipe crossing are within the flood plain for Stick Pond Brook in the City of St. John'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*.
38. 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*.

- 39. The proposed use of the facility and site will not involve any storage of pollutants such as fuels, chemicals, pesticides, etc.
- 40. The structure will not interfere with the flow of water or displace water such that it creates a worse flooding situation for other properties.

Culvert Design

- 41. A 22.5 metre long - 1800 mm diameter CSP culvert may be installed across Stick Pond Brook in the City of St. John's.
- 42. The crossing structure must provide adequate capacity to safely discharge flood flows without causing backwater effects upstream or increased flow velocity downstream.
- 43. 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 (mm)	Number of Pipes	Length (m)
Stick Pond Brook	100	3.87	1800	1	22.5

Culvert Installation

- 44. 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.
- 45. Inlet and outlet areas of culvert installations must be adequately protected from erosion by placing rip-rap, fitted stone, or concrete headwalls.
- 46. 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.
- 47. 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.
- 48. 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.
- 49. 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.
- 50. 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.
- 51. Grading and finishing of roadways or road embankments must not cause damage to culverts or allow road material to enter the watercourse.
- 52. Roadside embankments near the watercourse must be adequately protected from erosion by sodding, seeding or placing of rip-rap.

53. 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.
54. The inlet and outlet of culverts must be clearly marked so that operators of road grading and snow clearing equipment can avoid blocking culverts.
55. 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.
56. 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).

General Alterations

57. Any work that must be performed below the high water mark must be carried out during a period of low water levels.
58. Any flowing or standing water must be diverted around work sites so that work is carried out in the dry.
59. 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*.
60. 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.
61. 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.
62. 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.
63. 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.
64. 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.
65. 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.
66. 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.
67. All waste materials resulting from this project must be disposed of at a site approved by the Department of Service NL.
68. 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.
69. The owners of structures are responsible for any environmental damage resulting from dislodgement caused by wind, wave, ice action, or structural failure.

70. 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.
71. 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.
72. The attached Completion Report (Appendix C) for Permit No. 10781 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.
73. 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.
74. The location of the work is highlighted on the Location Map for this Permit attached as Appendix D.
75. All work must be carried out within the Permit Holder's legal property boundaries.

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: Mr. Adam Harvey
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- cc: Amir Ali Khan, Ph.D., P.Eng.
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Water Resources Management Division
Department of Municipal Affairs and Environment
P.O. Box 8700
4th Floor, West Block, Confederation Building
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akhan@gov.nl.ca
- cc: File Copy for Binder
- cc: Ms. Deneen Spracklin, P.Eng.
Environmental Engineer, Drinking Water and Wastewater Section
Water Resources Management Division
Department of Municipal Affairs and Environment
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Ecosystem Management Branch
Fisheries and Oceans Canada
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- cc: Ms. Tammy McDonald
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- cc: Frank Norman (Eastern)
Land Management Specialist
Crown Lands Administration
Howley Building
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Appendix C - Completion Report

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 36, 37, 48

Date: **DECEMBER 13, 2019**

File No: **844.097.016.8**
Permit No: **WS10781-2019**

Permit Holder: **City of St. John's**
P.O. Box 908
10 New Gower St.
St. John's NL A1C 5M2
swinsor@stjohns.ca

Attention: **Mr. Scott Winsor, P. Eng.**

Re: **St. John's - Hebron Way Extension and Major's Path Upgrading**

Permission was given for : the installation of 25 m of 150 mm PVC watermain, 80 m of 200 mm PVC watermain, 500 m of 300 mm DI watermain, 155 m of 200 mm PVC sanitary sewer, related appurtenances and a culvert and pipe crossing across Stick Pond Brook as described in the drawings titled, "Hebron Way Extension and Major's Path Upgrading" as received from Pinnacle Engineering Limited on October 18, 2019.

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

