

PERMIT TO CONSTRUCT

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

Date: **OCTOBER 13, 2021**

File No: **844.066.072**
Permit No: **WS12127-2021**

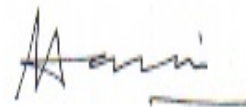
Permit Holder: **Fairview Investment Limited**
360 Topsail Road
St. John's NL A1E 5Y7
bclarke@fairviewinvestments.com

Attention: **Mr. Barry Clarke**

Re: **Paradise - Kilburn Avenue Residential Subdivision**

Permission is hereby given for : **the installation of approximately 200 m of 200 mm PVC watermain, 115 m of 200 mm PVC sanitary sewer and related appurtenances and stormwater detention pond to develop 28 new lots as described in the drawings titled, "Proposed Residential Subdivision Kilburn Avenue Paradise, NL" as received from MAE Design Limited on August 19, 2021.**

- 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

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 this Department.
4. All waste materials resulting from this project must be disposed of at a site approved by the Department of Digital Government and 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 this Department's 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 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.
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. 12127 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. 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.
14. The Permit holder 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

15. 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.
16. Under no circumstances shall sewage be permitted to enter the waterline trench during or after construction.
17. All new waterlines and appurtenances shall be hydrostatically tested in accordance with the *Municipal Water, Sewer and Roads Specifications*.
18. 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.
19. Backflow prevention devices should/must be installed on service connections where there is a high risk of contamination of the potable water supply.
20. 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.
21. 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.
22. 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.
23. The additional maximum demand for water exerted by consumers who are serviced by this project must not result in an exceedance of the available yield of the water source, maximum rated capacity of the water distribution system, or drinking water treatment plant as specified in the Permit to Operate.
24. Additional water services resulting from this project will not adversely affect the distribution system's ability to maintain a minimum pressure of 140 kPa (20 psi) at ground level at all points in the distribution system under maximum day demand plus fire flow conditions.

Sewer Systems

25. Storm water drainage, including roof drains, weeping tile drains, and street drainage, shall not be connected to the sanitary sewer system.
26. 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.
27. The flow channel through manholes should be made to conform in shape and slope to that of the sanitary sewer.
28. 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.
29. All sanitary sewers shall be laid or covered with sufficient depth of suitable material to prevent frost penetration and damage from traffic loading.
30. 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.

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.

Dam/Reservoir Design

33. 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 section downstream channel.
34. The dam and appurtenant structures shall be constructed at the following coordinates:

Name	Datum	Northing (m)	Easting (m)	Zone
Kilburn Avenue Stormwater Detention Pond	83	5266390.650	313591.128	21

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

Name	Height of Dam (m)	Maximum Water Elevation (m)	Minimum Water Elevation (m)
Kilburn Avenue Stormwater Detention Pond	1.77	134.418	132.870

36. 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)
Kilburn Avenue Stormwater Detention Pond	100	2.305

37. 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, and surveillance of dams.

38. The dam and associated works shall be designed according to the Canadian Dam Association Dam Safety Guidelines and associated Bulletins (most recent edition).

Dam Construction

39. The detention pond must be constructed such that detained water has sufficient retention time to mimic natural flow conditions as if the catchment area had remained undeveloped.

40. The detention pond must provide enough storage for any captured sediment.

41. Embankment dam and outlet control structure foundations shall be prepared to ensure a clean, stable, competent foundation.

42. Reservoir shorelines with moderately steep slopes or vulnerability to wave induced erosion, must be adequately protected with armour stone, rip-rap, or by other suitable measures.

43. Ditch discharges are to be constructed with rip-rap sufficient to prevent erosion.

44. The finished upstream sides of the earthen dam structures shall have a minimum slope of 2 horizontal to 1 vertical. The finished downstream sides of the earthen dam structures shall have a minimum slope of 2 horizontal to 1 vertical.

45. The dam shall be constructed with a storm sewer inlet with an invert elevation of 132.87 m, two stormwater outlet 900 mm diameter pipes with an invert elevation of 132.87 m.

46. Fill material must be obtained from an approved quarry site. It must not be taken from beaches or streams, and must not be dredged from a body of water.

47. The area to be flooded by the reservoir must be prepared by removing timber, brush, and slash up to the maximum water elevation.

48. The dam and outlet structure must be inspected regularly to identify any indications of structural failure, leaking, erosion or other problems so that immediate action can be taken to rectify the problem.

Dam Safety

49. The dam has been conditionally identified as a very small dam. However, the consequences of failure of the dam should be reviewed periodically, since they may change with downstream development. If the consequences of dam operations or failure are likely to be unacceptable to the public the dam may be classified based on the 2007 Canadian Dam Association (CDA) guidelines and have to meet CDA best practices for that class of dam.

Storm Drainage Works

50. Outfalls 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.
51. 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 CALA accredited laboratory.
52. Adequate erosion protection must be provided in the area where storm/sewer outfall discharges as per detail #560 of the *Municipal Water, Sewer and Roads Specifications*.
53. To prevent erosion and to control sedimentation in drainage ditches with steep gradients, rock check dams must be installed at an interval such that the crest of each dam is level with the base of the one immediately above. The center of each dam must be lower than the sides.

Dredging/Debris Removal

54. The area to be dredged must be enclosed and isolated from the rest of the body of water through the use of a filter fabric curtain or similar method.
55. Dredged material must be disposed of in accordance with the regional Service NL Centre of the Department of Service NL. The Department of Service NL may require samples to be submitted for testing and analysis.

Infilling

56. The constructed works must be inspected regularly so that action can be taken to undertake repairs as required.
57. 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.
58. Infilling must not disrupt the established surface drainage pattern of the area.
59. Before infilling, any vegetation and topsoil must be completely removed and under no circumstances shall it be used as fill material. Topsoil must be stored and reused in final landscaping of the infilled area.

Culvert Installation

60. 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.
61. Inlet and outlet areas of culvert installations must be adequately protected from erosion by placing rip-rap, fitted stone, or concrete headwalls.
62. 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.
63. The inlet and outlet of culverts must be clearly marked so that operators of road grading and snow clearing equipment can avoid blocking culverts.
64. 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.

General Alterations

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

66. Any flowing or standing water must be diverted around work sites so that work is carried out in the dry.
67. 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.
68. 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.
69. 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.
70. 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.
71. 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.
72. The owners of structures are responsible for any environmental damage resulting from dislodgement caused by wind, wave, ice action, or structural failure.
73. 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.
74. 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.

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. Stephen Power, P. Eng
MAE Design Limited
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- cc: Amir Ali Khan, Ph.D., P.Eng.
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Water Resources Management Division
Department of Environment and Climate Change
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- cc: Ms. Deneen Spracklin, P.Eng.
Environmental Engineer, Drinking Water and Wastewater Section
Water Resources Management Division
Department of Environment, Climate Change and Municipalities
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- cc: Ms. Leah Burry
Water Resources Tech II , Water Rights, Investigations & Modeling Section
Water Resources Management Division
Dept. Environment and Climate Change
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Water Resources Management Division
Department of Environment and Climate Change
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- cc: Mr. Rick Curran (Eastern)
Director of Regional Operations Avalon
Digital Government and Service Newfoundland and Labrador
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cc: Fisheries Protection Division
Ecosystem Management Branch
Fisheries and Oceans Canada
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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: **OCTOBER 13, 2021**

File No: **844.066.072**
Permit No: **WS12127-2021**

Permit Holder: **Fairview Investment Limited**
360 Topsail Road
St. John's NL A1E 5Y7
bclarke@fairviewinvestments.com

Attention: **Mr. Barry Clarke**

Re: **Paradise - Kilburn Avenue Residential Subdivision**

Permission was given for : **the installation of approximately 200 m of 200 mm PVC watermain, 115 m of 200 mm PVC sanitary sewer and related appurtenances and stormwater detention pond to develop 28 new lots as described in the drawings titled, "Proposed Residential Subdivision Kilburn Avenue Paradise, NL" as received from MAE Design Limited on August 19, 2021.**

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