

PERMIT TO CONSTRUCT

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

Date: **OCTOBER 29, 2015**

File No: 844.044.005
Permit No: WS8307-2015

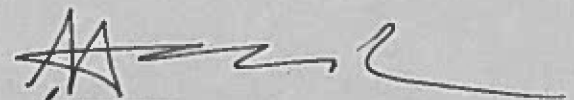
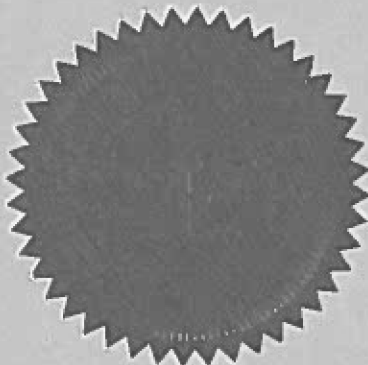
Permit Holder: **Karwood Estates Inc.**
1429 C Topsail Road
Paradise NL A1L 1P9

Attention: **Mr. Hubert Hussey**

Re: **Spaniard's Bay - Veterans Memorial Business Park Phase 2**

Permission is hereby given for : to install approximately 30 m of 200 mm PVC watermain, 740 m of 300 mm PVC watermain, 750 m of 250 mm PVC sanitary sewer, 890 m of 200 mm HDPE sanitary sewer force main, triplex sewage lift station and related appurtenances as described in the drawings titled, "Veteran's Memorial Business Park Phase 2 - Tilton Road Access" as received from exp Services Inc. on September 11, 2015 and additional information on October 21, 2015 and install one (1) 26 metre - 2200 mm diameter culvert on unnamed body of water at Tilton Road, in the Town of Spaniard's Bay, in reference to the application dated August 3, 2015 and additional information provided on September 10, 2015.

- 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. 8307 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. 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.
20. 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 the Regional Department of Environment and Conservation Office (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, the Department of Environment and Conservation should be contacted to determine provisions for the disposal of heavily chlorinated water. **Bacteriological results along with completion reports for projects (Appendix C of the Permit to Construct) must be forwarded to the Regional Department of Environment and Conservation Office.**
21. 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.

Sewer Systems

22. Safety landings to be installed in all manholes over 5m in depth and in accordance with the Municipal Master Specification.
23. Storm water drainage, including roof drains, weeping tile drains, and street drainage, shall not be connected to the sanitary sewer system.
24. The flow channel through manholes should be made to conform in shape and slope to that of the sanitary sewer.
25. 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.
26. All sanitary sewers shall be laid or covered with sufficient depth of suitable material to prevent frost penetration and damage from traffic loading.

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.

Water & Sewer Installation

28. 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.
29. 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.

Culvert Design

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

31. 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 Diameter (mm) | Number of Pipes | Length (m) |
|---------------------|------------------------------|---------------------------------|-----------------------|-----------------|------------|
| Tilton Road | 100 | 12.7 | 2200 | 1 | 26 |

Culvert Installation

- 32. 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.
- 33. Inlet and outlet areas of culvert installations must be adequately protected from erosion by placing rip-rap, fitted stone, or concrete headwalls.
- 34. 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.
- 35. 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.
- 36. 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.
- 37. 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.
- 38. Grading and finishing of roadways or road embankments must not cause damage to culverts or allow road material to enter the watercourse.
- 39. Roadside embankments near the watercourse must be adequately protected from erosion by sodding, seeding or placing of rip-rap.
- 40. 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.
- 41. The inlet and outlet of culverts must be clearly marked so that operators of road grading and snow clearing equipment can avoid blocking culverts.
- 42. 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.
- 43. 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).

Lift Stations and Forcemains

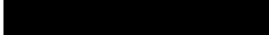
- 44. The sewage lift station must be equipped with a manual line transfer switch to accommodate an auxiliary power source during power outages.
- 45. There shall be at least 3.0 m horizontal separation between water mains and sanitary sewer forcemains. Watermains crossing forcemains shall be laid to provide a minimum vertical separation of 450 mm between the crown of the forcemain and the invert of the watermain. Also in this regard, one full length of watermain should be centered over the forcemain so that both joints will be as far from the forcemain as possible.
- 46. Forcemains shall enter the gravity sanitary sewer at a point not more than 600 mm above the flow line of the receiving manhole.
- 47. The direct connection of sanitary sewer services to sewage lift stations is not permitted. Connection may be made to a sanitary sewer main leading to the sewage lift station, or to a manhole immediately prior to the sewage lift station provided the sanitary sewer service

lateral enters the manhole at the flow line.

48. Automatic air relief valves shall be placed at all high points in the forcemain to prevent air locking
49. Contingency plans must be established for mechanical and extended electrical failure for all sewage pumping stations. Alarm systems shall be activated in cases of power failure, pump failure, unauthorized entry, or any cause of pump station malfunction.
50. The proposed lift pump station must be in compliance with the Department of Municipal and Intergovernmental Affairs *Municipal Water, Sewer and Roads Master Construction Specifications*.
51. All septic sludge and grit removed from the lift station chamber must be disposed of by a licensed hauler to an approved waste disposal site.

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. Abdel-Zaher Kamal Abdel-Razek, Ph. D., P.Eng
Manager, Water Rights and Investigations Section
Water Resources Management Division
Department of Environment and Conservation
P.O. Box 8700
St. John's NL A1B 4J6
- cc: Ms. Deneen Spracklin, P.Eng.
Environmental Engineer, Community Water and Wastewater
Water Resources Management
Environment and Conservation
PO Box 8700
St. John's NL A1B 4J6
- cc: Mr. Calvin Adams, Regional Manager
Service NL
Regional Government Services Centre
PO Box 512
Harbour Grace NL A0A 2M0
- cc: Town of Spaniard's Bay
Mr. Tony Ryan
PO Box 190
Spaniard's Bay, NL A0A 3X0
- cc: 
exp Services Inc.
Suite 200, 60 Pippy Place
St. John's NL A1B 4H7



Appendix C - Completion Report

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

Date: **OCTOBER 29, 2015**

File No: **844.044.005**
Permit No: **WS8307-2015**

Permit Holder: **Karwood Estates Inc.
1429 C Topsail Road
Paradise NL A1L 1P9**

Attention: **Mr. Hubert Hussey**

Re: **Spaniard's Bay - Veterans Memorial Business Park Phase 2**

Permission was given for : to install approximately 30 m of 200 mm PVC watermain, 740 m of 300 mm PVC watermain, 750 m of 250 mm PVC sanitary sewer, 890 m of 200 mm HDPE sanitary sewer force main, triplex sewage lift station and related appurtenances as described in the drawings titled, "Veteran's Memorial Business Park Phase 2 - Tilton Road Access" as received from exp Services Inc. on September 11, 2015 and additional information on October 21, 2015 and install one (1) 26 metre - 2200 mm diameter culvert on unnamed body of water at Tilton Road, in the Town of Spaniard's Bay, in reference to the application dated August 3, 2015 and additional information provided on September 10, 2015.

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