

Environmental Assessment Report for EIA:

**Repairs to Retaining Wall at 11 Southers Road (Summerville)
Adjacent to Wetland**

October 22, 2018

Name of Proponent: Lisa McGeachy, Saint John, NB

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Repairs to Retaining Wall at 11 Southers Road (Bayswater) Adjacent to Wetland

Name of Proponent

Lisa McGeachy

Address of Proponent

82 Summer Street, Saint John, NB E2K 3X9

lisamcgeachy@gmail.com

207 404 6638

Principal proponent contact

Lisa McGeachy 207 404 6638 lisamcgeachy@gmail.com

Sandi McGeachy, Ph.D. 506 454 9360 mcgeachys@rogers.com

Principal contact person for purposes of EIA

Sandi McGeachy, Ph.D. 506 454 9360

Property Ownership

- Lisa McGeachy 207 404 6638

THE PROJECT DESCRIPTION

Project Name

Repairs to Retaining Wall at 11 Southers Road (Bayswater) Adjacent to Wetland

Project Overview

The project involves the construction of a retaining wall adjacent to the failing crib worked wall on a private residential property (11 Southers Road, PID 30036008; see Figure 1). The existing wall was impacted by the historic floods of 2018 and now the embankment is eroding and falling into the protected wetland (See Figure 2). The existing fence at the edge of the embankment will need to be removed during the construction of the retaining wall. The fence will be re-installed using as much of the original fence that is possible and replacing any portions that have not survived the erosion or dismantling. The stairs to the beach were detached this spring (caused by the flood of 2018). They will be re-attached and reused after the wall is completed. Any instability around the pool will be reinforced once the wall is in place. Once constructed, the wall will need little maintenance and there will be no future modifications or extensions needed. This new wall will help protect further erosion into the wetland and provide support and security to keep the house in its existing location.

Over all the project will replace or upgrade an existing retaining wall (crib-work wall) which was impacted by the historic floods of 2018 as the embankment is eroding and falling into the protected wetland. The new wall will help protect further erosion into the wetland and provide support and security to keep the house in its existing location.

Figure 1. Aerial View of 11 Southers Road.

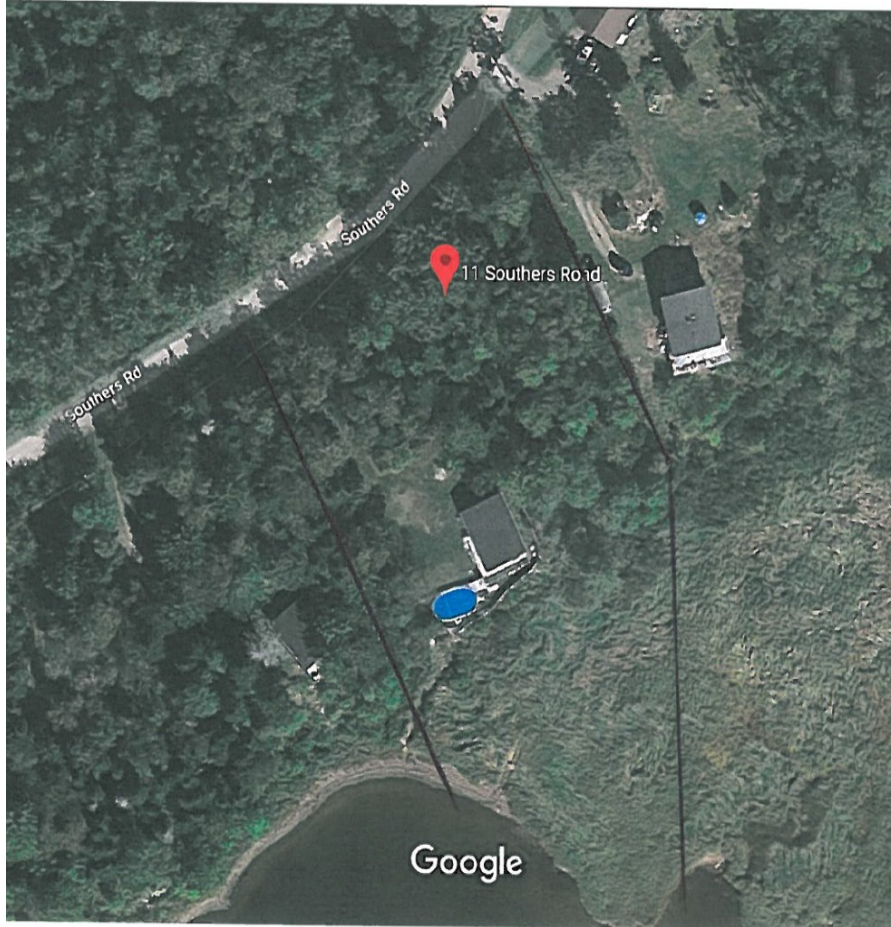
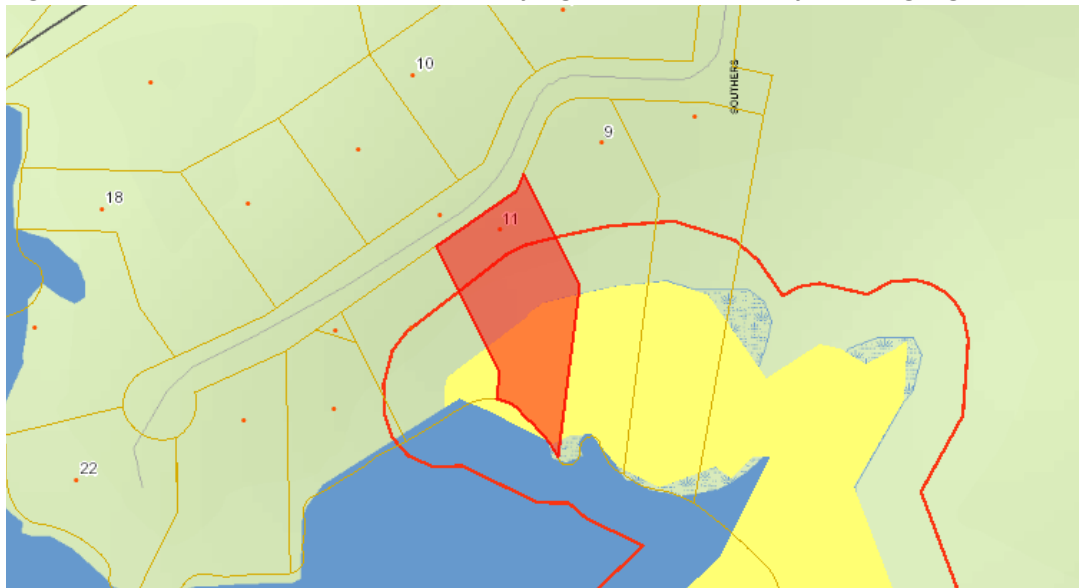


Figure 2: 11 Southers Road and Provincially Significant Wetland (yellow highlight).



Purpose/Rationale/ Need for the Undertaking

To build a retaining wall on the edge of the property overlooking and facing the wetland for the multipurpose of stabilizing the slope, preventing the erosion from causing the house to go over the embankment, reinforcing the retaining wall and minimizing the impact to the provincially significant wetland.

Due to spring flooding of 2018, the edge of the property is eroding and has weakened or impacted the existing retaining (cribwork) wall (Figure 3). The house is at risk of falling over the embankment and into the protected wetland as the house /pool/fence are protected with cribwork which consists of “railway tie” type cribs of wood that are coated in creosote. This existing cribwork has been damaged from the 2018 flood and is no longer properly supporting the property and its infrastructure. The integrity of the cribwork is failing and the soils and fill are being washed away (See Figure 4 and 5). The house/pool and fence are at risk of going over the bank. The high water and winds in the spring has caused whatever material was stabilizing the cribwork to be washed away. The Engineering Report (Appendix 1) does not recommend touching the existing wall as this could cause imminent failure and damage to the house, as well as the wetlands. The original rationale for this project is summed up in the letter from Fundy Engineering (Appendix 2) and the enclosed final design of the wall (Appendix 3).

Should nothing be done to prevent this, it is entirely possible that when the cribwork continues to fail, it will topple over into the provincial significant wetland, destroying the house and negatively impacting the wetland. These pieces of wood are coated in creosote, and will cause greater harm to the wetland. There is concern, as well, that when the cribwork fails, the house and pool, could also collapse and end up over the bank, into the wetland as well. Due to the specific location, this is the only retaining wall the engineer (Fundy Engineering) recommends to both save the property and minimize the footprint to the wetland. (See Fundy Engineering Letter and Design, Appendix 1 and 2).

Fundy Engineering have reviewed the project and retaining wall design. A 2:1 ratio was considered as an option for the retaining wall, but it was felt that there would have been too much impact on the wetland, thus a 1:1 ratio has been recommended to minimize the foot print. (See Appendix 1 and 2, Fundy Engineering letters and Appendix 3 – Design Sketch of the Retaining Wall).

Project Location

Address 11 Southers Road, Summerville, NB E5S 1H4 PID 30036008 (Figures 1, 2 and 3)

Local Service District of Westfield, Kings County.

Lat/Long 45.354469, -66.127737

Figure 3. Aerial Photo showing location of existing cribwork retaining wall in relation to the house/cottage and lower photo of the property from the wetland.

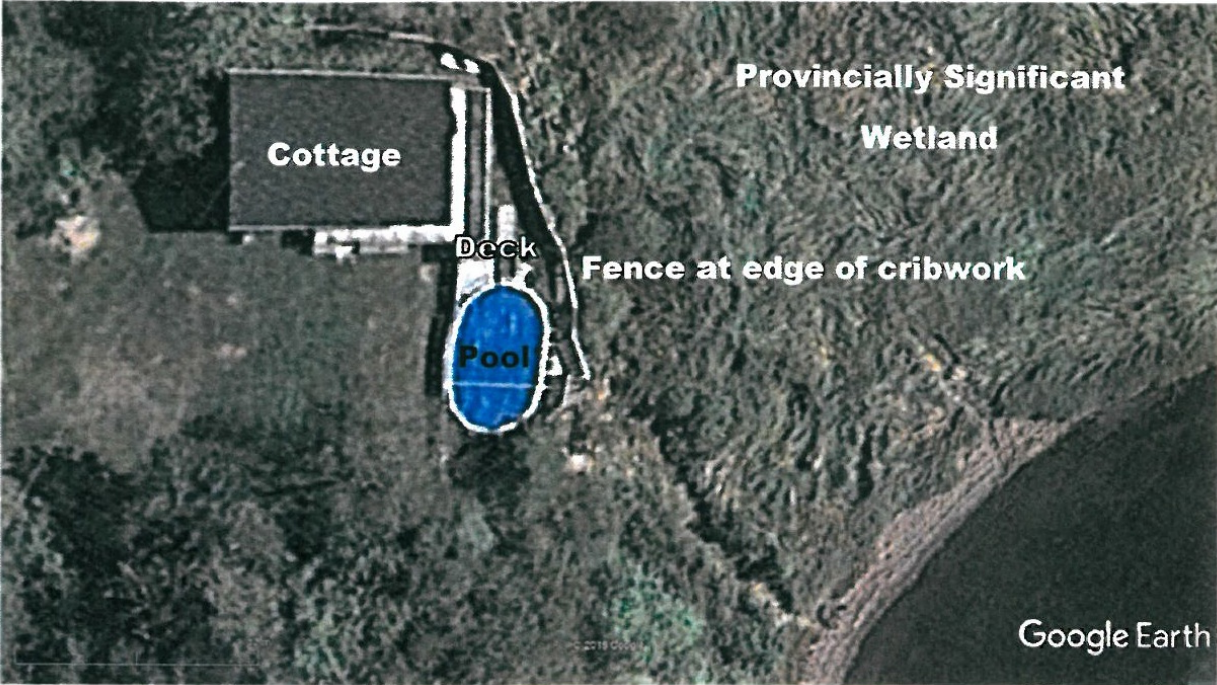


Figure 4: Two Photos of Erosion at Base of Fence. Retaining Wall on Opposite Side.



Erosion of Fence due to Weakening of Retaining Wall. Fence side.

Figure 5: Existing Retaining Wall at Base of Fence Damaged by Spring 2018 Flood



Sitting Considerations

In consultation with a professional engineer from Fundy Engineering, the enclosed design was the only design that he felt would prevent the further erosion and offer a minimum impact into the waterway. Usually this type of retaining wall is a 2:1 v: H. That footprint would be just too large into the wetland. Fundy Engineering accommodated and designed a 1:1 wall (see Fundy Engineering Letters in Appendix 1 and 2). A WAWA permit was granted to do test holes and samples were taken to decide on which design would be the best for this location. (see Appendix 4, WAWA permit approval).

The goal of the project is to protect the private property (house and pool) and that as a result, no alternative sites for the project are feasible. There have been discussions with Fundy Engineering (See Appendix 1 and 2) as well as consultations with DELG staff regarding the project. There does not appear to be any alternatives for this work.

As the wall will impede 408 square meters of wetland, consultation with Ducks Unlimited have taken place and an arrangement is agreeable to compensate Ducks Unlimited for the 408 square meters (See Appendix 5).

The proponent has been in contact via phone, with the MLA (Bill Oliver), the chair of the LSD for Westfield's Advisory Committee (Brenda Rathbun) and Brian Shannon, building inspector for the area (See also Appendix 6 for Public Project Notification).

A wetland Functional Assessment was performed on the site and no rare and/or endangered flora were observed within the wetland during the field assessment (see Appendix 7).

Physical Components and Dimensions of the Project

See site plan from Fundy Engineering can be found in Appendix 3.

Sketch of Temporary Access Road can be found in Appendix 8.

See also aerial photo in Figures 1 and 3 and the wetland report provided by Fundy Engineering (Appendix 7).

Construction Details

Timing is of utmost importance to have this work completed this fall to prevent further erosion and collapse of the house.

The construction is thought to take approximately 4 weeks. Stage 1 will be building the access road shown in Appendix 8 will take approximately 4 days. Step 2 of removing the overburden will take approximately 3 days and the final Step will take approximately 2-3 weeks and consist of layering the rock and fill.

Hours of construction will be from 8am to 6pm (daylight hours only) Monday to Fridays. Work will be during daylight hours, so any noise will not be after 6pm or before 8am.

Equipment used: 319 Caterpillar Excavator and mini 303 Caterpillar Excavator. Twin Steer Dump Trucks and Tandem dump Trucks will be used to haul rock and gravel for the access road.

We propose to start as soon as possible as the permit allows. It is getting late in the season and while it is a good time to be in the wetland, we are concerned that the weather will soon impede this project.

There will be 3 employees on site during the construction phase.

The machines are new (less than 3000hr /and 1200hr respectively) and regularly checked for leaks. Will be certain they do not leak before accessing property.

Approximately 3 feet of mud will be dislocated for the base of the wall to be constructed. This material will be re-used on the top of the base and to create the slope. The access road will be constructed off the main private driveway on the property (see Appendix 8).

As it is private property there will be no public access and the access road will be gated daily and after the construction is completed.

Grubbing will be disposed of in local dump sites.

Rock and fill will be accessed from Keith Cosman's site located at Route 845, Pollysam Point Road, within 3km of the work site, thus minimizing the environmental impact by being so close to the work site. Also, by completing the construction this fall, there will be less impact to the wetland.

It is anticipated that the lifespan of the new retaining wall will be 50 years and will require little to no maintenance. The intention is to construct a more robust retaining wall to withstand flooding greater than 2018. There will be basic maintenance activity once the wall is built to ensure that the wall will continue to serve its intended function.

Operation and Maintenance Details

Not applicable to this project. The design of the wall requires no maintenance and will not require replacement for more than 50 years.

Future Modifications, Extensions or Abandonment

The existing fence at the edge of the embankment will need to be removed during the construction of the retaining wall and will be re-installed (if necessary) re-using as much of the fence that is possible and replacing any portions that did not survive the erosion or dismantling. The stairs to the beach were detached this spring, they will be re attached after the wall is complete. Any instability around the pool will be reinforced once the wall is in place. As the wall is expected to last 50+ years there are no anticipated future modifications, extensions or abandonment.

Documents Related to Undertaking

Please see Appendices 1, 2 and 3.

Wetland Functional Assessment report from Fundy Engineering (Appendix 7).

DESCRIPTION OF THE EXISTING ENVIRONMENT

Physical and Natural Features

Please see Appendix 7 (Functional Wetland Assessment) by Fundy Engineering for a description of the wetland and natural features. From this report, there were no rare and / or endangered flora observed within the wetland during the field assessment, and that It is unlikely that there will be long-term impact as a result of the emergency remedial work required to secure the house and associated infrastructure on the lot.

Cultural Features

None identified.

Existing and Historic Land Uses

Archaeological Services Branch (Anne Hamilton, Coordinator Archaeological Engagement) has completed a desktop review of the property and has concluded that an Archaeological Impact Assessment must be completed by a professional archaeologist prior to any ground disturbance. However, Fundy Engineering does not feel that this would be warranted since there will be no materials excavated and removed from the property. Instead, clean material will be imported to the site from a quarry 3 km away to build the new retaining wall.

IDENTIFICATION OF ENVIRONMENTAL IMPACTS

The footprint of the retaining wall into the wetland will be 408sq m.

Please see Appendix 7 by Fundy Engineering for a description of the wetland and natural features. This report indicates that no rare and / or endangered flora were observed within the wetland during the field assessment, and that It is unlikely that there will be long-term impact as a result of the emergency remedial work required to secure the house and associated infrastructure on the lot.

SUMMARY OF PROPOSED MITIGATION

Impact Avoidance

Unfortunately, the nature of the property necessitates the wall being built where requested. The wall will prevent further damage to the wetland by preventing the house and creosote coated cribwork from falling into the wetland

Impact Reduction

Originally walls of this nature are built in a 2:1 ratio. This design has reduced the footprint into the wetland by using 1:1 ratio.

By using a rock quarry that is about 3 km from the 11 Southers Road, this will minimize the environmental impact.

Impact Compensation

After Consultation with Ducks Unlimited there will be compensation made to restore or enhance a comparable wetland to mitigate the loss sustained by the footprint of the retaining wall. See Appendix 5 letter from Ducks Unlimited.

PUBLIC AND FIRST NATIONS INVOLVEMENT

The local MLA, Chair of the LSD Advisory Committee, and local building inspector have been contacted via phone. Arrangements will be made to follow up with the report when it is on-line. Arrangements have been made to deliver a letter to residents of Southers Road, as well as have available the printed report at two locations on the Kingston Peninsula. (Whitehead Store, and Fullerton's Store).

Summary Report

In summary this proposal is to build a retaining wall at a private residence at 11 Southers Road, Summerville, NB to prevent the further destruction of house and property. The 2018 spring flooding caused irreparable damage to the existing retaining wall (cribwork wall) and the house is in imminent danger of falling over the embankment into the provincially significant waterway as well as losing the house this will cause major damage to the wetland as the current failing retaining wall is comprised of creosote² soaked railway ties. Time is of the essence as the house is in imminent danger, and will not survive another flooding, and construction season is quickly coming to a close

Approval of the Project

Funding

As this is private property and the reason is to mitigate further damage to house and property, there is no government funding.

Signature

Lisa McGeachy

Electronically signed.

Oct 22.18

Appendix 1: Fundy Engineering Supporting Current Design.



☎ 877.635.1566 ✉ fundy@fundyeng.com 🌐 www.fundyeng.com

**Jay-L Carpentry
% Jason LeBlanc
385 Titusville Road
Titusville, N.B.
E2L 3J4**

**September 27, 2018
File# 13342**

ATTN: Jason LeBlanc

**RE: ARMOUR STONE FOUNDATION PROTECTION
 11 Southers Road, Summerville, N.B.**

Dear Mr. LeBlanc,

As a follow up to the stamped design prepared by Fundy Engineering, the armoured slope design was completed with the principal concern of creating protection for the existing soils retention cribwork and the foundations of the residential structure. The design was also created to occupy the smallest Engineered footprint by utilizing a 1:1 outside slope with both outside armour and interior core materials being high angle of friction crushed rock.

The cribwork has failed in a number of areas and we will not entertain a design that will require its removal!

The uncertainty of consequences for the remaining supporting soils within the cribwork and by extension the dwellings foundations if the cribwork was removed, is not a risk Fundy Engineering is willing to take.

Per the request by Christy Ward of the Department of Environment, Andrew Toole, P. Eng., has created a rendering of the drawing which calculates that the overall footprint of the base of the design slope will cover the Provincially Significant Wetland is 408m². Drawing attached.

Should you have any questions or require any additional information please contact the undersigned at your convenience via telephone at 506.674.9410 or by email at andy.macvey@fundyeng.com.

Sincerely,
Fundy Engineering & Consulting Ltd.

**Andrew MacVey, P. Eng.
Geotechnical Engineer**

Appendix 2: Fundy Engineering Letter page 1 of 2.

FUNDY Engineering

☎ 677.536.1865

✉ fundy@fundyeng.com

🌐 www.fundyeng.com

Jay-L Carpentry
% Jason LeBlanc
385 Titusville Road
Titusville, N.B.
E2L 3J4

September 7, 2018
File# 13342

ATTN: Jason LeBlanc

RE: **ARMOUR STONE FOUNDATION PROTECTION**
11 Southers Road, Summerville, N.B.

Dear Mr. LeBlanc,

Further to our meeting and completion of test pits on the above noted site, in conjunction with Andrew Toole, P. Eng. of Don-More Surveys, we have completed an Engineering Design in order to protect the foundation area of the residence structure at 11 Southers Road in Summerville, NB. The recommended type of protection method is the construction of an armour stone slope adjacent to the in place crib wall, as well as backfilling the void areas within the existing cribs as the slope is constructed. The design is attached as Sheet 1.

The test pits were completed to establish the condition of the underlying soils to accept the placement of the base of the armour slope and to create the important key area in which the base of the slope is to be founded. The base of the slope is dictated by the required height of the slope and the creation of the slope with a 1:1 (H:V) to the top of the existing failed wooden crib wall system. This will necessary to protect the base of the existing foundations as observed on site.

The excavation equipment working in the area of the slope base will be required to follow the DOE requirements and engage all required prevention measures, such as silt fencing and spill kits will be in place.

Construction notes:

- The overburden materials have to be removed to the surface of the noted underlying soils prior to placement of the armoured slopes core fills,
- The toe of the slope is to be excavated the above noted depths plus 1.0 m below the surface to establish the toe,
- Site conditions may dictate placement of the toe.
- Top of slope should be 2.0 m outside of the existing crib and, subject to foundation footing elevation, be ~1.0 – 1.5 m above that elevation,
- Any back fill over existing surface soils around the cottage between the foundation and the armour slope may be a pit run material with geo fabric separation from armour stone,

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27 Wellington Row
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902.536.1865

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185AA Upper New Brunswick Road
Clyde River, PE C0A 1R1
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HALIFAX OFFICE
PO Box 20864
Halifax, NS
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Appendix 2: Fundy Engineering Letter page 2 of 2.

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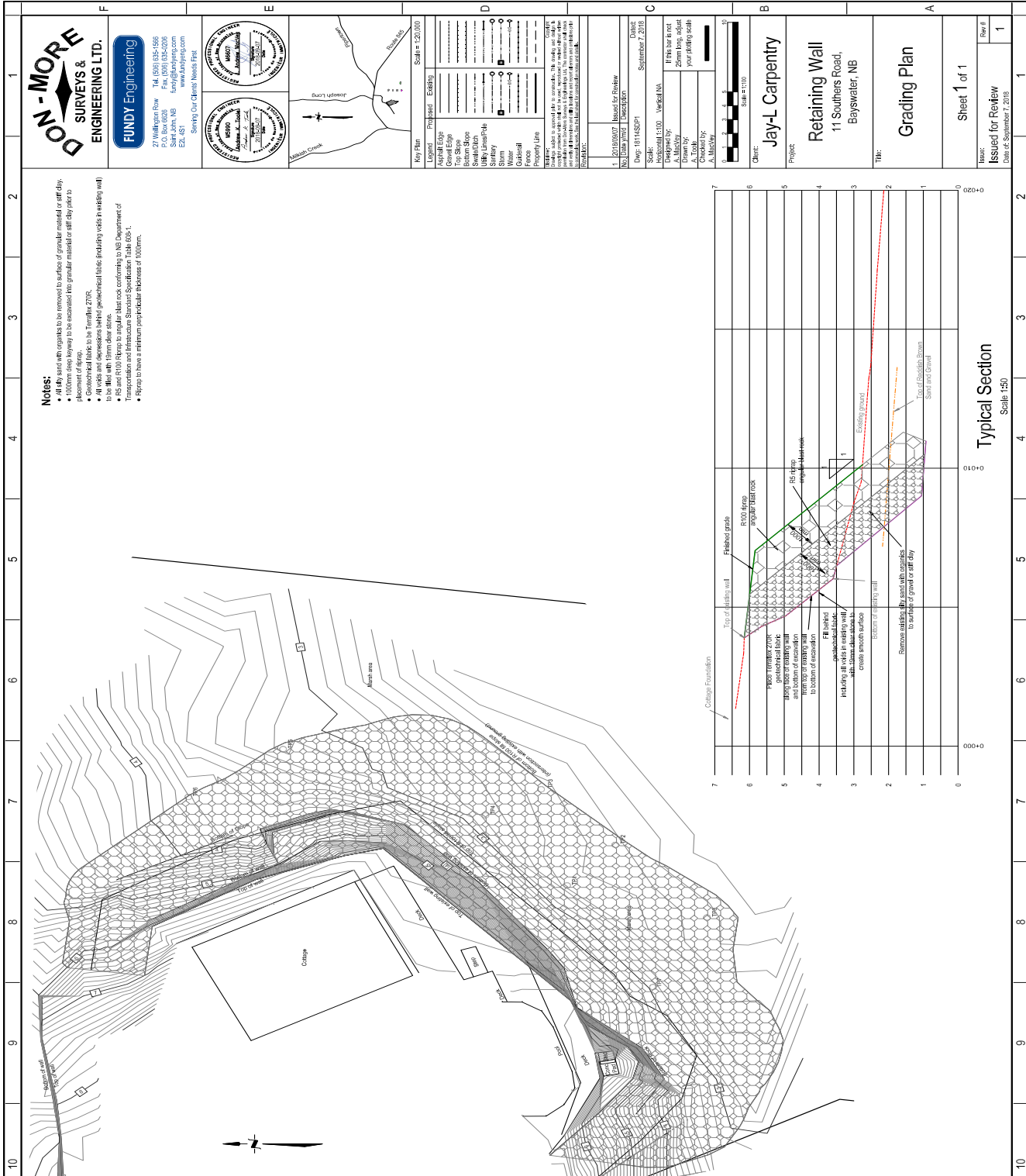
- All excavated materials from the base area of the armoured slope are to be disposed of or reused on site subject to the direction of the DOE.

Should you have any questions or require any additional information please contact the undersigned at your convenience via telephone at 506.674.9410 or by email at andy.macvey@fundyeng.com.

Sincerely,
Fundy Engineering & Consulting Ltd.

Andrew MacVey, P. Eng.
Geotechnical Engineer

Appendix 3: Engineering Design Sketch of the Retaining Wall.



Appendix 4: WAWA Permit approval, Page 1 of 2.



**PERMIT FOR WATERCOURSE AND WETLAND ALTERATION
ALT 44523'18 Original**

(Regulations 90-80 under the Clean Water Act Chapter C-6.1, Act of New Brunswick 1989)

PERMITTEE Lisa Mcgeachy

LOCATIONS

Latitude	Longitude	Datum	To	Latitude	Longitude	Datum
45.3536	-66.1275	WGS 84				
Affected Watercourse/Tributary: Saint John River / Fundy, Bay of;						
Affected Regions: ENV - 4			DFO - GULF	DNR - 3		
1:50.000 Maps - 21 G/08		Countv - Kings	Parish - Westfield			

PERMIT VALID FOR THIS PERIOD FROM 2018/08/24 TO 2018/09/30
(yyyy/mm/dd) (yyyy/mm/dd)

Description of Watercourse/Wetland Alteration(s):

This project consists of geotechnical work to dig a hole for testing soil stability. This project is located on PID 30036008.

The Permittee may undertake only those Watercourse/Wetland Alteration(s) described above hereby approved by the Minister. Refer to Conditions of Approval stated on the attached Document "A". Responsibility for any action arising from any watercourse/wetland alteration must be borne by the Permittee and no liability shall be incurred by the Minister or the Department. This permit does not exempt or exclude the Permittee from the provisions of any Act of the Legislature of New Brunswick or of Canada to serve as legal defense to any action commenced by landowners who are adversely affected by the alteration.

Number of conditions attached to this permit: 12

Date of Issuance: 2018/08/24
(yyyy/mm/dd)


Minister of Environment and Local Government

Lisa Mcgeachy

Appendix 4: WAWA Permit approval. page 2 of 2.

**DOCUMENT "A" Attached to ALT 44523'18 Original
CONDITIONS OF APPROVAL**

(Regulations 90-80 under the Clean Water Act Chapter C-6.1, Act of New Brunswick 1989)

- (1) The permittee is responsible for obtaining permission from the landowners bordering the watercourse at the project site and all landowners listed on the property where the alteration is to take place before commencement of the work.
- (2) The permittee is responsible for contacting the local planning commission or City/Town prior to commencing the project to ensure that all local/municipal by-laws are adhered to. The permittee is responsible for obtaining all additional permissions and permits prior to work commencement.
- (3) The Regional office of the Department of Environment and Local Government shall be notified at least 2 working days prior to project commencement.
- (4) Other than the alterations described on this permit, no additional alteration shall be carried out in or within 30 metres of the shoulder of the bank of a watercourse/edge of a regulated wetland.
- (5) A copy of this permit, including the "Conditions of Approval", shall be kept at the alteration site throughout the duration of the project, and such copy shall be produced upon the request of an inspector designated to act on behalf of the Minister of Environment and Local Government, or an employee of Fisheries and Oceans Canada.
- (6) When self-propelled equipment is being used, an appropriate emergency spill kit shall be kept on-site and be readily deployable. Any spill, regardless of quantity, must be reported by contacting the Department of Environment and Local Government during business hours or the Canadian Coast Guard Environmental Emergency number (1-800-565-1633) after hours.
- (7) The equipment used shall be in good working order and must not be leaking any fuel, lubricants, or hydraulic fluid.
- (8) Siltation prevention devices competent in quantity, design, diversity, and function to adequately prevent the alterations covered by this permit from having a negative impact on the quality of the stream flow under all runoff conditions, shall be installed prior to exposing erodible soil, and added wherever necessary to prevent sedimentation. These devices shall be maintained such that they perform their intended function until vegetation becomes re-established.
- (9) At the first evidence of the drill rig or self-propelled equipment creating ruts within 30 metres of the shoulder of the bank of a watercourse/edge of a regulated wetland, the ruts shall be immediately smooth graded and blanketed with mulch or slash. The equipment may only advance beyond this point on pre-fabricated/engineered swamp mats which shall be removed as the equipment leaves the area, or when the ground is frozen solid.
- (10) If possible, the boreholes shall be drilled/augered with a hollow stem auger (dry bit), as opposed to a rotary drill, which uses pressurized cooling/flushing fluid.
- (11) All test pits and boreholes shall be backfilled with the excavated material or bentonite to pre-investigation ground level. No debris or fill/spoil piles shall be deposited within 30 metres of the shoulder of the bank of a watercourse/edge of a regulated wetland.
- (12) All exposed erodible soil within 30 metres of the shoulder of the bank of a watercourse/edge of a regulated wetland shall be blanketed with evergreen boughs or mulch immediately following completion of geotechnical drilling/test pitting investigations.



Appendix 5: Letter of Compensation Work by Ducks Unlimited.



October 10th, 2018.

Proponent: Lisa McGeachy
Address: 11 Southers Road, Summerville NB
Wetland alteration: 408m²
PID: 30036008
NB DELG: EIA Application

RE: EIA Application;

Dear Cassandra,

This letter is to confirm that Ducks Unlimited Canada (DUC) is willing to provide 408m² of wetland compensation services for *Lisa McGeachy* as required by New Brunswick Department of Environment and Local Government (NB DELG).

Upon receiving payment in full from *Lisa McGeachy* for wetland compensation services, DUC will send the proponent and NB DELG a Letter of confirmation of Payment. DUC will then take on the responsibility of this wetland compensation requirement.

If you require further information, or have any questions, please feel free to contact me at your convenience.

Best Regards, _____

Wade Lewis,
Head of Restoration and Client Services, Atlantic
Ducks Unlimited Canada.

Suite 201, 420 University Avenue, Charlottetown PE, C1A 7Z5
Phone: (902) 569-2676 Fax: (902) 569-4674,
E-mail: w_lewis@ducks.ca, Website: ducks.ca

Appendix 6: Letter of Project Notification.

Date: October 22, 2018

Concerning Construction/Repairs of Retaining Wall at 11 Southers road.

I am writing to notify you of a proposed work at 11 Southers Road in Kings County, NB. The work involves the building of a retaining wall on my property to address the damage sustained by this springs flooding and high winds, as well as to prevent further damage in the future. he existing retaining wall is failing and I need to build a new retaining wall in front of the existing one to protect my house and property from washing into the river and wetland.

The undertaking is currently registered for review with the Department of Environment and Local Government under the Environmental Impact Assessment Regulation, Clean Environment Act.

The design and registration document can be viewed at (Lisa you need to provide two publicly accessible locations (Fullerton's Store and Whitehead Store) and online via the Department of Environment and Local Government website.

See attached map.

Comments or questions on the project can be directed to me, Lisa McGeachy, by emailing lisamcgeachy@gmail.com or calling (207) 404-6638 onor before the deadline (25 days from date of the letter).

Sincerely

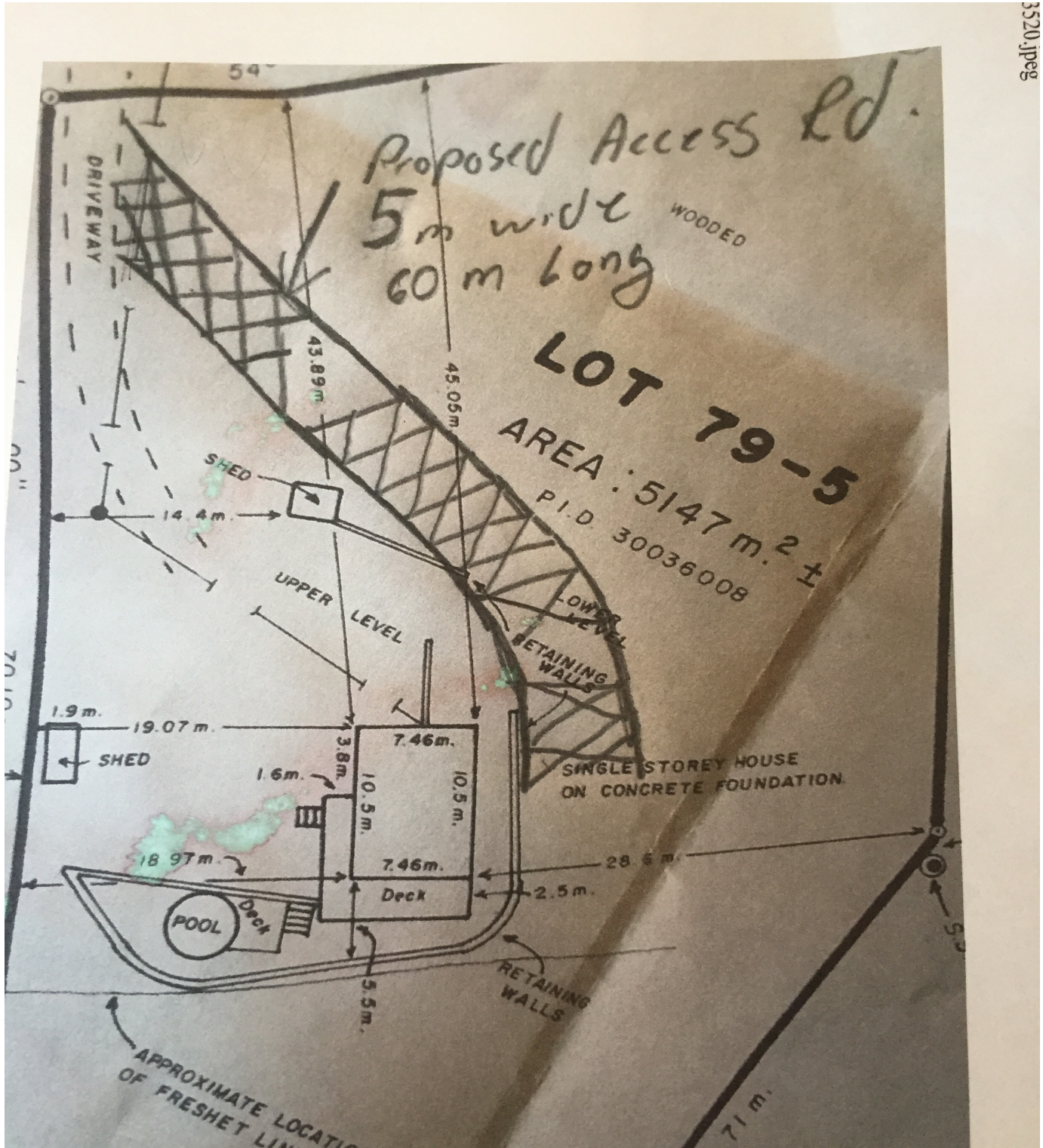
Lisa McGeachy

11 Southers Road

Appendix 7: Wetland Functional Assessment report by Fundy Engineering (Matthew Alexander).

Please see attached as a separate document. Too large to attach here (105 pages).

Appendix 8: Sketch Showing the Access Road.



3520.jpeg

