

**Public Draw for Crown Land
Recreational Cottage Lots
Placentia Junction Cottage Area**

2018

**Septic Site Evaluation
Lots 51 & 52**

Note:

This document provides evaluations on the capability of each site for installation of on-site septic systems.

The attached reports in this document are not system designs. Any person intending to install on-site septic systems must submit a design that has been prepared by an approved on-site system designer to the Department of Service NL for approval.

For a list of approved septic system designers please contact the Department of Service NL for approval at:

Mount Pearl: (709) 729-3699

Clarenville: (709) 466-4060

Harbour Grace: (709) 945-3107

Gander: (709) 256-1420

Grand Falls-Windsor: (709) 292-4206

(709) 292-4259

Springdale: (709) 673-4218

(or any other Service NL location)

MAE PROJECT NO 2013.108

ENGINEERING REPORT FOR

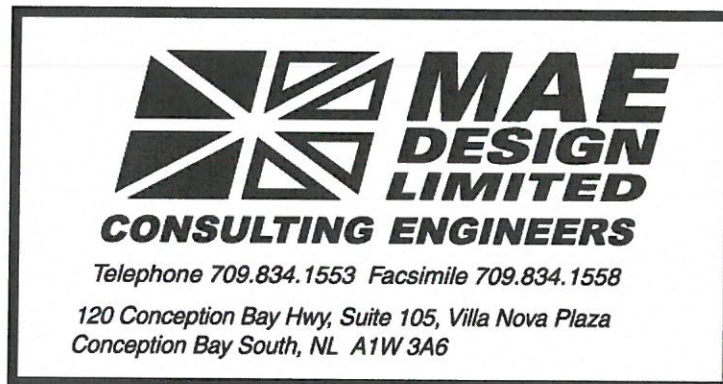
CENTRAL AVALON COTTAGE INFILL

SEPTIC SYSTEM SITE EVALUATIONS

18 LOTS

Contract No. 004-13-E

PREPARED BY



August 26, 2013

MAE PROJECT NO. 2013.108

REPORT TO

**LAND MANAGEMENT DIVISION.
DEPT. OF ENVIRONMENT & CONSERVATION
P.O. BOX 8700, HOWLEY BUILDING, HIGGINS LINE
ST. JOHN'S, NL
A1B 4J6**

ON

**ENGINEERING REPORT FOR
CENTRAL AVALON COTTAGE INFILL
SEPTIC SYSTEM SITE EVALUATIONS**

18 LOTS

CONTRACT NO. 004-13-E

PREPARED BY

**MAE DESIGN LIMITED
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AUGUST 26, 2013

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1.0 Introduction

The Land Management Division of the Department of Environment and Conservation issued a request for proposals to undertake a septic system site evaluation of eighteen (18) proposed cottage lots in the Central Avalon region of the island portion of the province. The Terms of Reference of the proposal call are included in Appendix A. Mae Design Limited submitted a proposal and was awarded the contract to undertake this evaluation on August 2, 2013.

2.0 Location

The proposed eighteen (18) cottage lots are located in three (3) different locations within the Central Avalon area. The first location contains one (1) cottage lot and is located on Pioneer Line off of Vineland Road off of Salmonier Line (Route 90)(Lot 38 - see Map 2 in Appendix A). The second location contains four (4) lots and is located on Nine Island Pond Road off of Roaches Line(Route 70) off of Conception Bay North By-Pass (Route 75)(Lots 39 to 42 - see Map 3 in Appendix A). The third location contains thirteen (13) cottage lots and is located in Placentia Junction off of the Argentia Access Road (Route 100)(Lots 43 to 55 - see Map 4 in Appendix A).

3.0 Methodology

To undertake the evaluation of the cottage lots and to determine the suitability of the lots for septic system installations, the following work was completed:

- A test pit was excavated on each of the eighteen (18) lots to determine the soil characteristics, water table elevation if encountered and bedrock elevation if encountered,
- A percolation test was completed or attempted on each of the eighteen (18) lots to determine the soil absorption and permeability characteristics,
- Lot dimensions and areas were evaluated to determine the lot size suitability,
- Lot slopes were evaluated to determine lot slope suitability,
- A complete walkover of the property was completed to note existing site conditions and to determine the suitability of the lots for development.

The results of the evaluation tasks are outlined in the following sections.

4.0 Evaluation

4.1 Test Pits

One (1) test pit was excavated on each of the proposed eighteen (18) lots. A track excavator was used to excavate the test pits which were dug to a depth ranging between 0.91 and 1.98 meters. A summary of the test pit observations for each lot is included in the following Tables 4.11, 4.12 and 4.13. Test pit logs are included with the lot data sheets in Appendix B.

Table 4.11 Test Pit Observations (Pioneer Line Lot 38)

Lot Number	Test Pit Description	Depth to Ground Water	Depth to Rock	Depth of Test Pit
38.	Grubbing followed by saturated light grey silty gravel followed by a saturated dark grey gravel with cobbles	1.07 Meters	Not Encountered	1.22 Meters

Table 4.12 Test Pit Observations (Nine Island Pond Road Lots 39 to 42)

Lot Number	Test Pit Description	Depth to Ground Water	Depth to Rock	Depth of Test Pit
39.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
40.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
41.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters

Lot Number	Test Pit Description	Depth to Ground Water	Depth to Rock	Depth of Test Pit
42.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	1.52 Meters	1.52 Meters	1.52 Meters

Table 4.13 Test Pit Observations (Placentia Junction Lots 43 to 55)

Lot Number	Test Pit Description	Depth to Ground Water	Depth to Rock	Depth of Test Pit
43.	Grubbing followed by saturated reddish brown sand followed by a saturated light grey silty gravel with cobbles	Not Encountered	Not Encountered	1.68 Meters
44.	Grubbing followed by reddish brown sand followed by a brown silty gravel with cobbles	Not Encountered	Not Encountered	1.98 Meters
45.	Grubbing followed by a brown silty gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
46.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.98 Meters
47.	Grubbing followed by a brown silty gravel with cobbles	1.83 Meters	Not Encountered	1.83 Meters
48.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	1.83 Meters	Not Encountered	1.83 Meters

Lot Number	Test Pit Description	Depth to Ground Water	Depth to Rock	Depth of Test Pit
49.	Grubbing followed by bog with boulders	0.91 Meters	Not Encountered	0.91 Meters
50.	Grubbing followed by reddish brown silty clay followed by a dark grey gravel with cobbles	1.83 Meters	Not Encountered	1.83 Meters
51.	Grubbing followed by a saturated dark grey gravel with cobbles	1.83 Meters	Not Encountered	1.83 Meters
52.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
53.	Grubbing followed by a saturated brown silty gravel with cobbles	1.98 Meters	Not Encountered	1.98 Meters
54.	Grubbing followed by a brown silty gravel with cobbles	Not Encountered	Not Encountered	1.83 Meters
55.	Grubbing followed by reddish brown sand followed by a dark grey gravel with cobbles	Not Encountered	1.68 Meters	1.68 Meters

4.2 In-Situ Soil Permeability

Percolation testing was attempted or completed on all of the eighteen (18) lots. On some lots the percolation testing was not possible due to the depth of ground water encountered. Percolation pits were excavated to a depth below any organic or unsuitable material. A summary of the permeability test results for each lot is included in the following Tables 4.21, 4.22 and 4.23. Permeability test logs are included with the lot data sheets in Appendix B.

Table 4.21 Percolation Test Results (Pioneer Line Lot 38)

Lo Number	Average Percolation Rate
38.	Unable to Complete

Table 4.22 Percolation Test Results (Nine Island Pond Road Lots 39 to 42)

Lot	Average Percolation Rate	Lot Number	Average Percolation Rate
39.	1 Min. 25 Sec.	41.	3 Min. 50 Sec.
40.	6 Min. 10 Sec.	42.	3 Min. 10 Sec.

Table 4.23 Percolation Test Results (Placentia Junction Lots 43 to 55)

Lot Number	Average Percolation Rate	Lot Number	Average Percolation Rate
43.	Unable to Complete	50.	9 Min. 20 Sec.
44.	1 Min. 30 Sec.	51.	8 Min. 30 Sec.
45.	4 Min. 05 Sec.	52.	1 Min. 40 Sec.
46.	1 Min. 05 Sec.	53.	Greater than 20 Minutes
47.	1 Min. 32 Sec.	54.	5 Min. 04 Sec.
48.	1 Min. 22 Sec.	55.	9 Min. 18 Sec.
49.	Unable to Complete		

4.3 Lot Dimensions and Areas

GSC regulatory standards require minimum lot areas for septic system installations to be 1860 square meters and minimum lot widths to be 30.0 meters at the septic field location. Proposed lot boundaries and lot locations were provided to Mae Design Limited by the Land Management Division of the Department of Environment and Conservation in the form of a table. Based on this information the lot dimensions and areas were taken from the digital file and compared to the GSC regulatory requirements.

The determined lot dimensions and areas are illustrated in Table 4.31.

Table 4.31 Lot Dimensions and Areas

Lot Number	Lot area (Square Meters)	Lot Width Along Road (meters)	Meets Regulatory Standards (yes / no)
38.	3930.0	44.0	Yes
39.	3200.0	59.0	Yes
40.	3880.0	65.0	Yes
41.	3810.0	45.0	Yes
42.	3750.0	45.0	Yes
43.	4100.0	45.0	Yes
44.	4060.0	45.0	Yes
45.	4130.0	46.5	Yes
46.	4210.0	48.5	Yes
47.	4480.0	54.5	Yes
48.	4480.0	54.5	Yes
49.	4770.0	61.0	Yes
50.	4400.0	53.0	Yes
51.	3960.0	45.0	Yes
52.	3960.0	45.0	Yes
53.	3830.0	45.0	Yes
54.	3830.0	45.0	Yes
55.	3960.0	45.0	Yes

4.4 Lot Slopes

GSC regulatory standards require lot slopes to be less than 30% for septic system installations. During the field assessment of the property the lot profile and slopes were observed and estimated

by visual observation. All lot slopes were estimated to be less than 30%. Sketches of property profiles from front to back are included with the lot data sheets in Appendix B.

5.0 Comments and Recommendations

5.1 General

- GSC regulatory standards require that individual septic system designs be completed for each individual lot. The suitability of the specific soil types encountered, the design elevation of the septic disposal pipe and the specific septic system location for each lot will be the responsibility of the septic system designer. These individual assessments will be more specific and provide greater detail as to the site requirements.
- GSC regulatory standards state that a minimum of 0.30 meters of good original ground is required above the water table and a minimum of 1.15 meters of good drainage soil is required between the invert of the septic field piping and the water table elevation. Imported fill with a good percolation rate can be used to achieve this requirement. Typical lot development sketches are provided in Appendix C, drawings Sk-1 and Sk-2 and a typical sections through septic fields are included as drawing Sk-3.
- GSC regulatory standards state that a minimum of 0.30 meters of good original ground is required above any possible bedrock and a minimum of 1.15 meters of good drainage soil is required between the invert of the septic field piping and the bedrock elevation. Imported fill with a good percolation rate can be used to achieve this requirement.
- All 18 lots assessed satisfied the GSC regulatory requirements for area, width and slope.
- Lot 49 was found to be unacceptable as a lot for onsite sewage disposal.

5.2 Pioneer Line - Lot 38

- The soil types encountered were a saturated light grey silty gravel followed by a dark grey gravel with cobbles. This material is not acceptable as a septic field drainage medium. Site work is required to reduce the water content in the soil on these lots in order to make them suitable to support a septic field drainage area.
- A percolation rate was not determined due to a large volume of surface water

entering the test pit which did not allow for a percolation rate to be determined. The minimum 0.3 meters of good original ground requirement set by the Department of Government Services Private Sewage Disposal and Water Supply Standards was observed on this lot. Site work in the form of on site ditching along property lines or around the septic field area could be utilized to reduce the amount of water on the site.

- Ground water was observed in the test pit on this lot. The septic field distribution pipe is required to be installed a minimum of 1.15 meters above the water table elevation.
- Recommendation Sketch SK-2 should be followed for this lot.

5.3 Nine Island Pond Road - Lots 39 to 42

- In general the soil types encountered were a reddish brown sand followed by a dark grey gravel with cobbles. The soil percolation rates were favorable on lots 39- 42 and the existing material on these lots is acceptable as a septic field drainage medium.
- Ground water and bedrock was observed in the test pit on lot 42. The septic field distribution pipe is required to be installed a minimum of 1.15 meters above the water table and bedrock elevation.
- Recommendation Sketch SK-1 should be followed for lots 39-42.

5.4 Placentia Junction - Lots 43 to 55

5.41 Lots 43-48, 50-52, and 54-55

- In general the soil types encountered were either a reddish brown sand or a brown silty gravel followed by a dark grey gravel with cobbles or a light grey silty gravel with cobbles. The soil percolation rates were favorable on lots 44-48, 50-52, and 54-55, and the existing material on these lots is acceptable as a septic field drainage medium.
- Lots 43 and 51 had a large volume of surface water entering the test pit which did not allow for a percolation rate to be determined. The minimum 0.3 meters of good original ground requirement set by the Department of Government Services Private Sewage Disposal and Water Supply Standards was observed on this lot. Site work in the form of on site ditching along property lines or around the septic field area could be utilized to reduce the amount of water on the site.

- Ground water was observed in the test pits on lots 47-48 and 50-51. The septic field distribution pipe is required to be installed a minimum of 1.15 meters above the water table elevation.
- Bedrock was observed in the test pit on lot 55. The septic field distribution pipe is required to be installed a minimum of 1.15 meters above the bedrock elevation.
- Recommendation Sketch SK-2 should be followed for lots 43-48, 50-52 and 54-55.

5.42 Lot 53

- In general the soil type encountered was a saturated brown silty gravel with cobbles. This material is not acceptable as a septic field drainage medium. Site work is required to reduce the water content in the soil on this lot in order to make it suitable to support a septic field drainage area.
- A percolation rate greater than 20 minutes was revealed. Material in the septic field area on this lot should be removed and replaced with a suitable fill source either from a different location on the lot or from a different site in the area. Imported material should have a good percolation rate in the range of 5-10 minutes.
- Ground water was observed in the test pit on this lot. The septic field distribution pipe is required to be installed a minimum of 1.15 meters above the water table elevation.
- This lot had a large volume of surface water entering the test pit which did not allow for a percolation rate to be determined. Site work in the form of on site ditching along property lines or around the septic field area could be utilized to reduce the amount of water on site.
- Recommendation Sketch SK-1 should be followed for lot 53

5.43 Lot 49

- A percolation rate was not determined due to the high water table. The minimum 0.3 meters of good original ground requirement set by the Department of Government Services Private Sewage Disposal and Water Supply Standards was not observed on this lot. This lot was therefore found to be unacceptable as a lot for onsite sewage disposal.

- Ground water was observed in the test pit on this lot. The septic field distribution pipe is required to be installed a minimum of 1.15 meters above the water table elevation.
- Recommendation Sketch SK-1 should be followed for lot 49

6.0 Scope of Work Requirements

6.1 Pioneer Line - Lot 38

- Due to a poor percolation rate this lot requires the material in the septic field area to be removed ($\pm 400 \text{ m}^3$) and replaced with a suitable fill material with a percolation rate between 5-10 minutes. The fill area should encompass the septic field area and extend 4.5 meters on all sides before sloping. A standard septic field including the 4.5 meter perimeter will occupy ± 300 square meters.
- Requires additional fill to be placed in the septic field area to bring the invert of the perforated septic field lines to the required 1.15 meters above the water table elevation. Based on the groundwater elevation observed the fill required for the septic field construction would be approximately 160 m^3 . A suitable fill should be chosen with a percolation rate between 5-10 minutes. The fill area should encompass the septic field area and extend 4.5 meters on all sides before sloping. A standard septic field including the 4.5 meter perimeter will occupy ± 300 square meters.
- Requires placement of an on site septic system and drilling or excavation of a well on the lot. Excavation will be needed to complete the placement of the septic system. Crushed stone will be required to be placed above and below the perforated disposal field lines. As per the Department of Government Services "Private Sewage Disposal and Water Supply Standards" crushed stone should be in the range of 1.9 cm(0.75") minimum to 6 cm(2.5") maximum. A non treated building paper or other suitable material will be required to be placed over the crushed stone in the trenches of the disposal field to prevent clogging, but not to inhibit evapotranspiration. Backfilling of the excavated areas and site grading will be required.
- Ditching may or may not be needed around the septic field area depending on the possibility of encountering surface water during construction/excavation.

6.2 Nine Island Pond Drive - Lots 39 to 42

- Lot 42 may require additional fill to be placed in the septic field area to bring the invert

of the perforated septic field lines to the required 1.15 meters above the water table/bedrock elevation. Based on the groundwater/bedrock elevation observed the fill required for the septic field construction would be approximately 75 m³. A suitable fill should be chosen with a percolation rate between 5-10 minutes. The fill area should encompass the septic field area and extend 4.5 meters on all sides before sloping. A standard septic field including the 4.5 meter perimeter will occupy ± 300 square meters.

- Requires placement of an on site septic system and drilling or excavation of a well on each lot. Excavation will be needed to complete the placement of the septic system. Crushed stone will be required to be placed above and below the perforated disposal field lines. As per the Department of Government Services "Private Sewage Disposal and Water Supply Standards" crushed stone should be in the range of 1.9 cm(0.75") minimum to 6 cm(2.5") maximum. A non treated building paper or other suitable material will be required to be placed over the crushed stone in the trenches of the disposal field to prevent clogging, but not to inhibit evapotranspiration. Backfilling of the excavated areas and site grading will be required.
- Ditching may or may not be needed around the septic field area depending on the possibility of encountering surface water during construction/excavation.

6.3 Placentia Junction

6.31 Lots 44 to 48, 50 and 54

- Requires placement of an on site septic system and drilling or excavation of a well on each lot. Excavation will be needed to complete the placement of the septic system. Crushed stone will be required to be placed above and below the perforated disposal field lines. As per the Department of Government Services "Private Sewage Disposal and Water Supply Standards" crushed stone should be in the range of 1.9 cm(0.75") minimum to 6 cm(2.5") maximum. A non treated building paper or other suitable material will be required to be placed over the crushed stone in the trenches of the disposal field to prevent clogging, but not to inhibit evapotranspiration. Backfilling of the excavated areas and site grading will be required.
- Ditching may or may not be needed around the septic field area depending on the possibility of encountering surface water during construction/excavation.

6.32 Lots 43 and 53

- Due to a poor percolation rate this lot requires the material in the septic field area to be

removed ($\pm 400 \text{ m}^3$) and replaced with a suitable fill material with a percolation rate between 5-10 minutes. The fill area should encompass the septic field area and extend 4.5 meters on all sides before sloping. A standard septic field including the 4.5 meter perimeter will occupy ± 300 square meters.

- Requires placement of an on site septic system and drilling or excavation of a well on each lot. Excavation will be needed to complete the placement of the septic system. Crushed stone will be required to be placed above and below the perforated disposal field lines. As per the Department of Government Services "Private Sewage Disposal and Water Supply Standards" crushed stone should be in the range of 1.9 cm(0.75") minimum to 6 cm(2.5") maximum. A non treated building paper or other suitable material will be required to be placed over the crushed stone in the trenches of the disposal field to prevent clogging, but not to inhibit evapotranspiration. Backfilling of the excavated areas and site grading will be required.
- Ditching may or may not be needed around the septic field area depending on the possibility of encountering surface water during construction/excavation.

6.33 Lot 51

- Requires ditching around the disposal field area or along property boundaries. Ditching should be deep enough to capture surface water and to discharge the water to roadside ditching.
- Requires placement of an on site septic system and drilling or excavation of a well on each lot. Excavation will be needed to complete the placement of the septic system. Crushed stone will be required to be placed above and below the perforated disposal field lines. As per the Department of Government Services "Private Sewage Disposal and Water Supply Standards" crushed stone should be in the range of 1.9 cm(0.75") minimum to 6 cm(2.5") maximum. A non treated building paper or other suitable material will be required to be placed over the crushed stone in the trenches of the disposal field to prevent clogging, but not to inhibit evapotranspiration. Backfilling of the excavated areas and site grading will be required.
- Ditching may or may not be needed around the septic field area depending on the possibility of encountering surface water during construction/excavation.

6.34 Lot 55

- Requires additional fill to be placed in the septic field area to bring the invert of the perforated septic field lines to the required 1.15 meters above the bedrock elevation.

Based on the bedrock elevation observed the fill required for the septic field construction would be approximately 40 m³. A suitable fill should be chosen with a percolation rate between 5-10 minutes. The fill area should encompass the septic field area and extend 4.5 meters on all sides before sloping. A standard septic field including the 4.5 meter perimeter will occupy ± 300 square meters.

- Requires placement of an on site septic system and drilling or excavation of a well on each lot. Excavation will be needed to complete the placement of the septic system. Crushed stone will be required to be placed above and below the perforated disposal field lines. As per the Department of Government Services "Private Sewage Disposal and Water Supply Standards" crushed stone should be in the range of 1.9 cm(0.75") minimum to 6 cm(2.5") maximum. A non treated building paper or other suitable material will be required to be placed over the crushed stone in the trenches of the disposal field to prevent clogging, but not to inhibit evapotranspiration. Backfilling of the excavated areas and site grading will be required.
- Ditching may or may not be needed around the septic field area depending on the possibility of encountering surface water during construction/excavation.

APPENDIX A

Terms of Reference



Government of Newfoundland and Labrador
Department of Environment & Conservation
Lands Branch
Land Management Division

**CENTRAL AVALON
COTTAGE INFILL**

18 COTTAGE LOTS

TERMS OF REFERENCE

FOR

SEPTIC SYSTEM SITE EVALUATIONS

CONTRACT NO. 004-13-E

August 2013

TERMS OF REFERENCE

CENTRAL AVALON COTTAGE INFILL

SEPTIC SYSTEM SITE EVALUATIONS

CONTRACT NO. 004-13-E

1. PROJECT DESCRIPTION

This project consists of septic system site evaluations of 18 proposed cottage lots located at various locations in the central Avalon region as per Maps 1 to 4 (attached). It will include all work required in accordance with the **Private Sewage Disposal and Water Supply Standards (Dept. of Government Services, January 2006)** to determine whether each lot is suitable for operation of sub-surface septic disposal systems. The successful bidder **will not** be required to complete a full engineering study as per **Appendix C** of the aforementioned Standards. The successful bidder **will be** required to supply a report verifying whether each individual lot is capable of supporting a sub-surface septic system or not, including any mitigating measures required.

2. SCOPE OF WORK

The report will address the following factors that might affect each site's suitability for installation of an underground septic system:

- a) size of lot
- b) slope of the lot
- c) type and permeability of the soil as determined by percolation tests
- d) measurement of the soil's capacity to absorb liquid (percolation test)
- e) depth of ground water table
- f) presence of bedrock
- g) distances of septic tank and disposal field from buildings, watercourses, wells, roads, property lines, driveways, water service lines, etc.
- h) site up-grading specifications and cost estimate if lot is to be found substandard.

3. SCHEDULING

3.1 Commencement Date

The commencement date of the work shall be within three days from the signature date of the contract or the date the bidder is notified in writing of the acceptance of the bid offer, exclusive of that date. The successful bidder must contact the Land Management Division to arrange for site visits with Lands staff prior to commencing site work.

3.2 Completion Date

All work must be completed and submitted to the Department within thirty (30) days, inclusive of the commencement date.

4. REPORTING PROCEDURE

4.1 The preliminary report of the field assessment will be submitted to the Land Management Division in writing and by telephone within 5 days of the completion of the field evaluation.

4.2 The final report must be submitted in both printed hard copy and in digital format. The report will be provided for public viewing at the time of cottage lot selection and will also be posted on Lands web site.

4.3 Final text documents may be submitted in MS Word or pdf format. Preferably all text, maps and diagrams will be combined within one single pdf document. Maps and diagrams must be submitted in a digital image format such as jpg or pdf if not incorporated within the digital text document.

5. QUALIFICATIONS

Bidders/bidding firms shall hold a certificate as a Professional Engineer, Certified Engineering Technologist, Certified Engineering Technician, Certified Public Health Inspector or approved Septic System Designer/Installer under the Sanitation Regulations under the *Public Health Act* (OC96-442).

6. BIDS

Bidders are advised to conduct site inspections prior to submitting their bid. Lots have been identified in the field with flagging tape. Bids shall clearly identify the following:

6.1 the total price for professional services, inclusive of all related costs, with and without HST;

6.2 the commencement and completion dates of the evaluation.

7. DEADLINE FOR BIDS

Bids must be clearly marked “**Central Avalon Cottage Lot Infill Septic System Site Evaluations, Contract No. 004-13-E**” and received at the Land Management Division no later than **11:00 am, Friday, August 2nd, 2013**. No bid will be accepted after the specified deadline. Public bid opening time will be **11:15 am, Friday, August 2nd, 2013** at the Land Management Division.

Bids may be sent by fax or e-mail to the Land Management Division before the specified closing time. The fax or e-mail must include the items specified in Section 6 (above). The time and date printed on the bid pages by the fax machine or the received time recorded on the e-mail shall be considered the time of receipt.

Bids that are submitted by fax or e-mail are not considered confidential. Lands Branch cannot guarantee the confidentiality of such bids. These bids are submitted at the discretion of the bidder.

It is the responsibility of the bidder to ensure that any bid submitted by fax or e-mail has been received by the Land Management Division. It is strongly advised that bidders call to confirm receipt of bids.

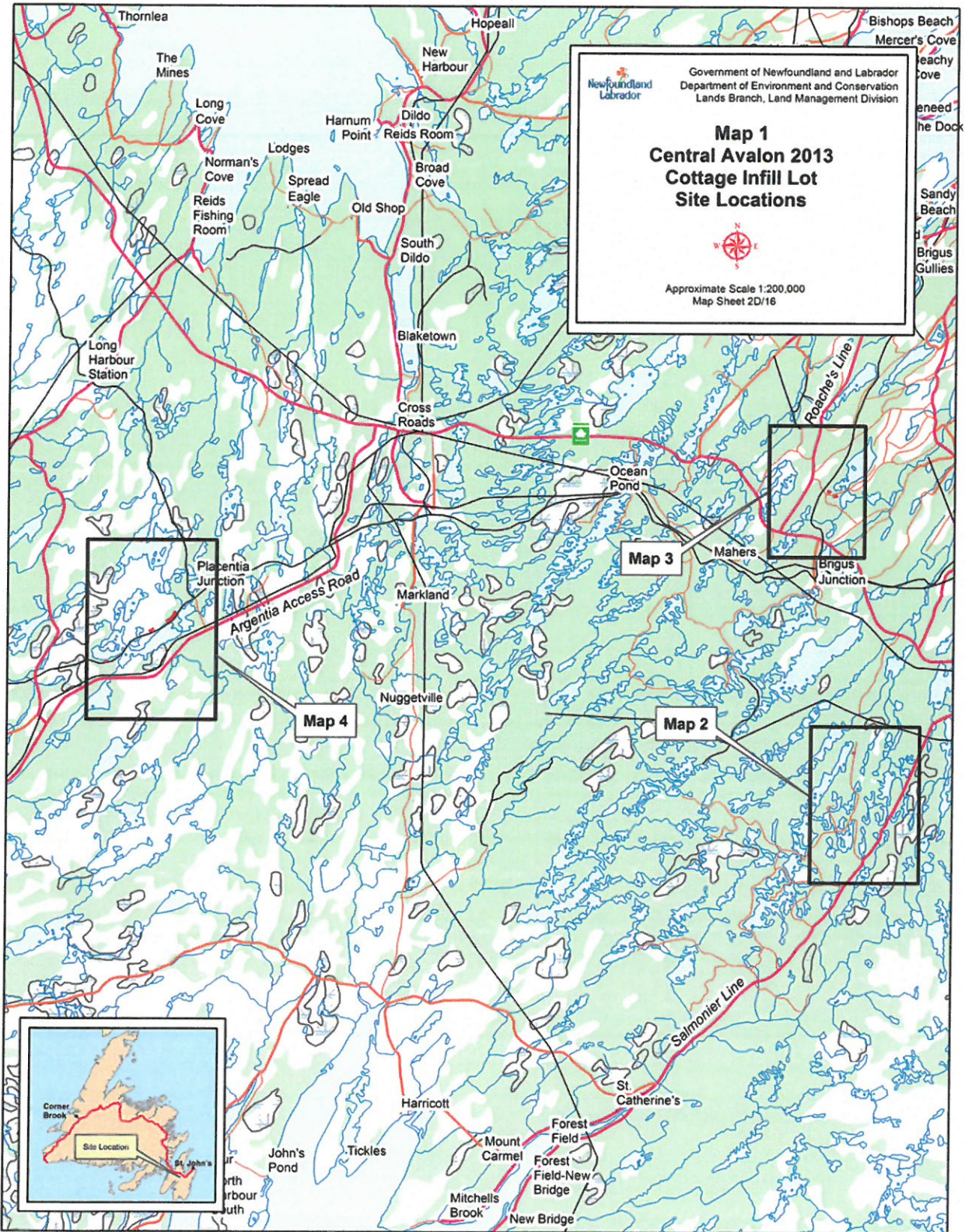
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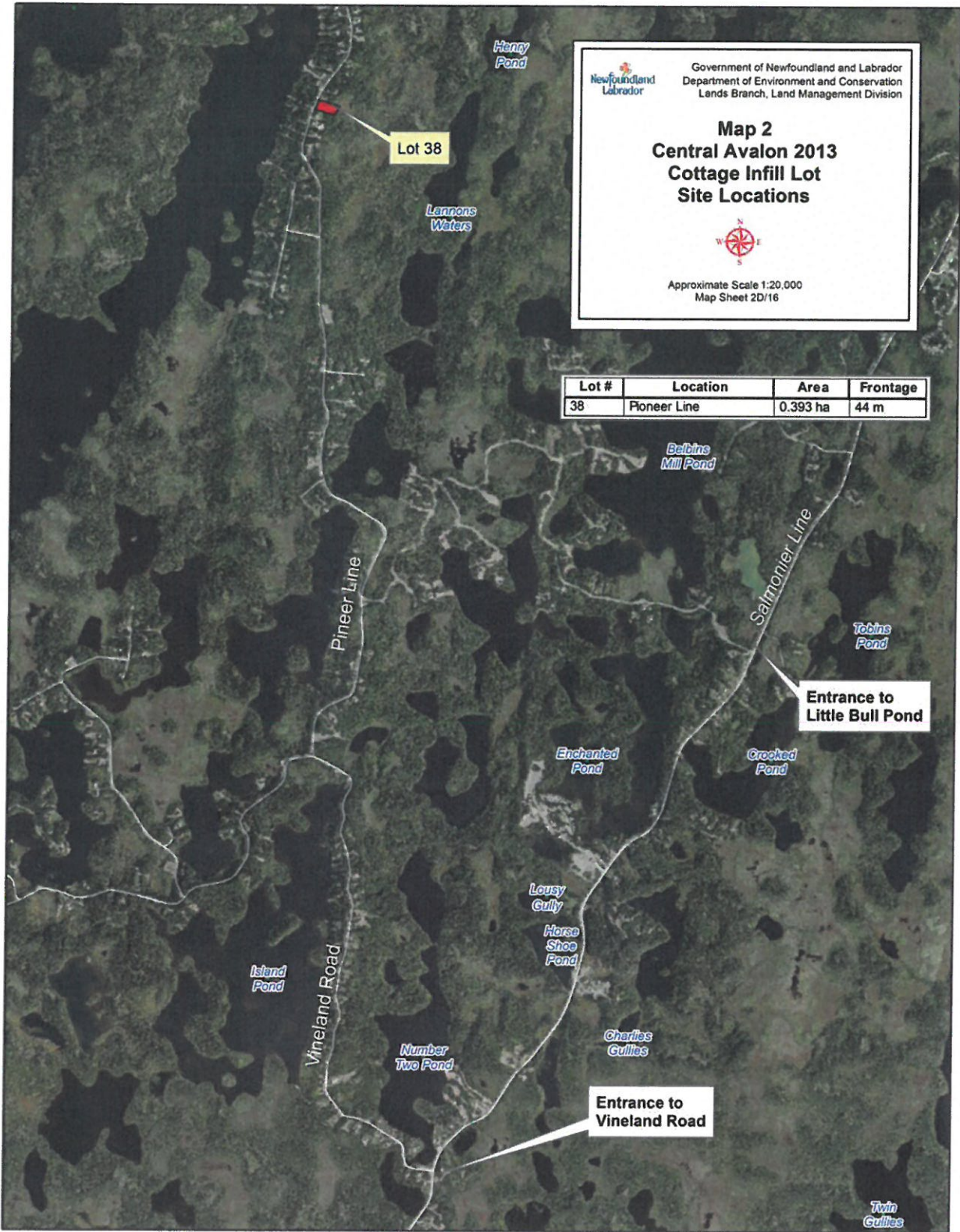
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Lands Branch
Department of Environment and Conservation
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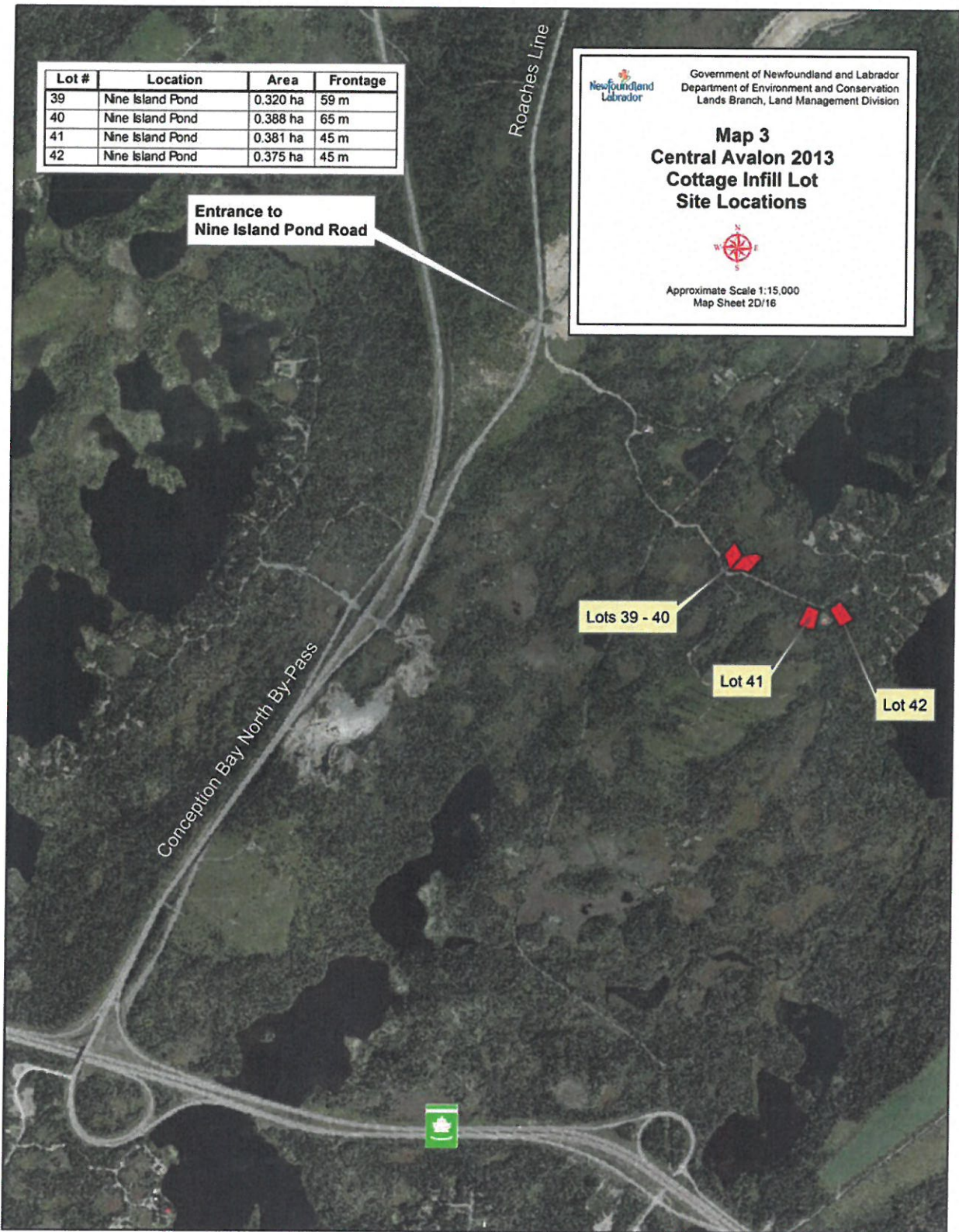
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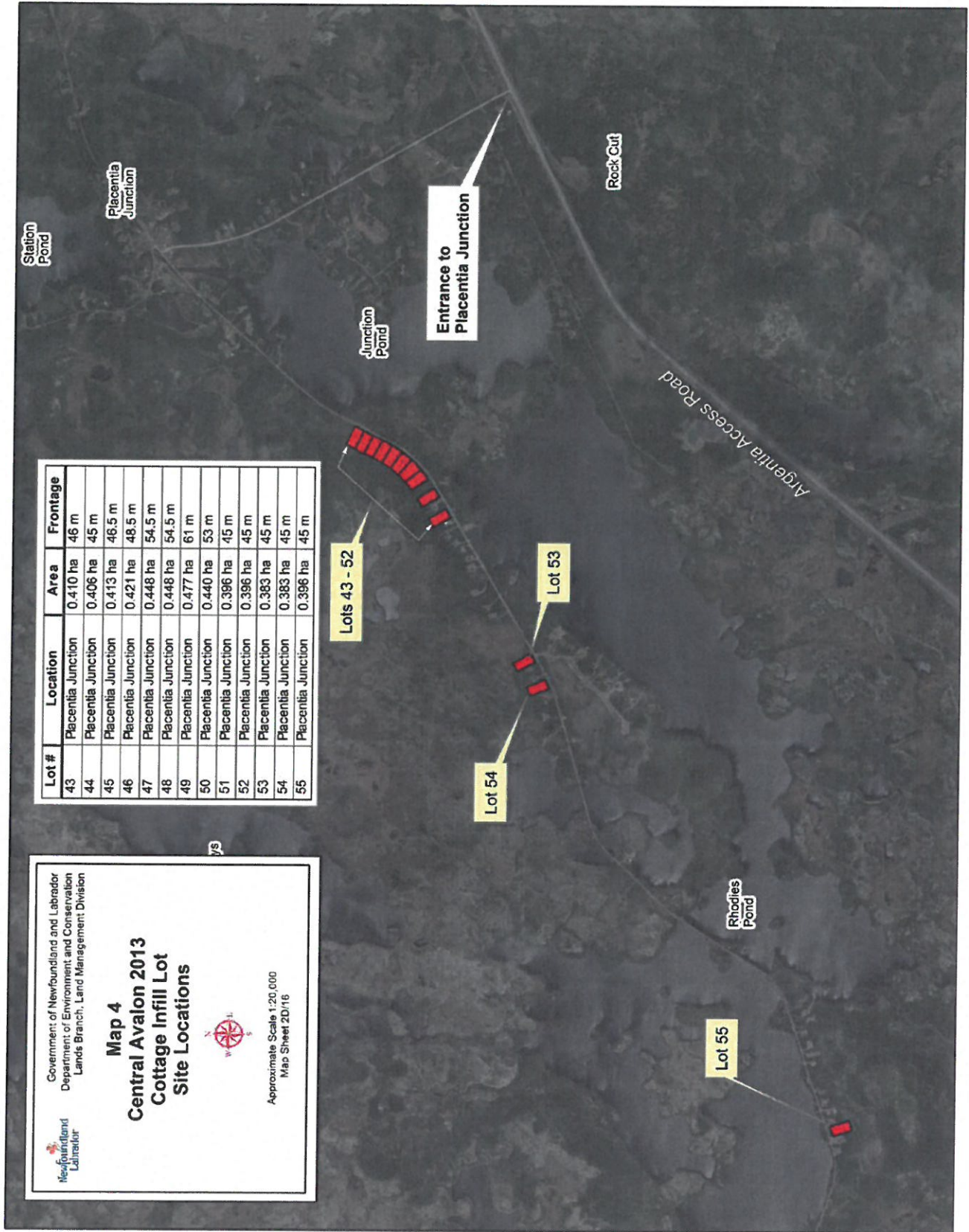
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Tel: (709) 729-0501
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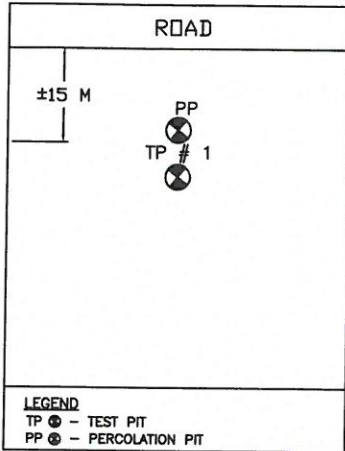




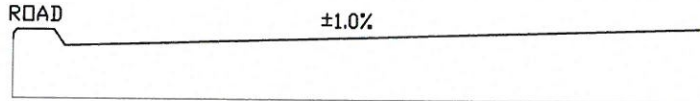
APPENDIX B

Lot Data Sheets

SITE SKETCH:

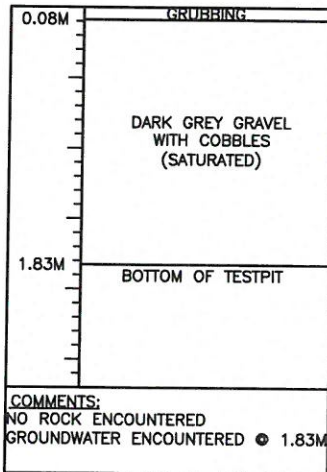


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD.
1	8 MIN. 30 SEC.	DATE: AUGUST 19, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554

TEST PIT/PERCOLATION DATA
 CENTRAL AVALON COTTAGE
 INFILL



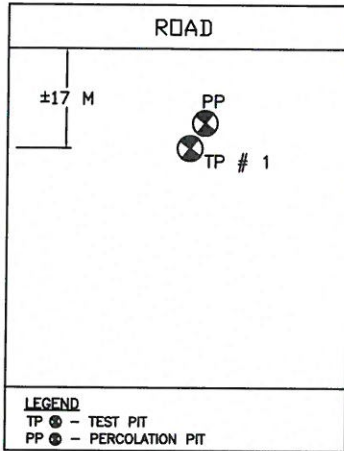
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

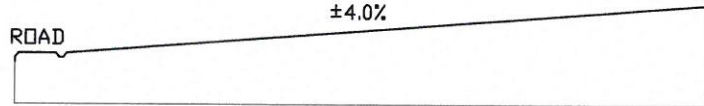
LOT#51

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 26/13		S.POWER			NTS	2013.108

SITE SKETCH:

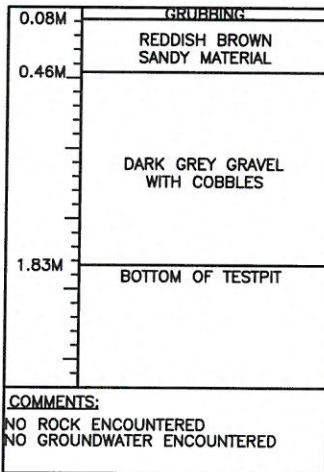


SITE PROFILE SKETCH:



TEST PIT RESULTS:

TEST PIT #1:



LOT PHOTOGRAPH TAKEN FROM ROAD:



PERCOLATION TEST RESULTS:

PERCOLATION PIT	TIME TO FALL 25mm (T)	CONDUCTED BY: CHRIS FIFIELD/MAE DESIGN LTD. SUPERVISED BY: STEPHEN POWER P.ENG./MAE DESIGN LTD. DATE: AUGUST 19, 2013 REGISTRATION NO: AD-2009-105692 TELEPHONE NO. 834-1554
1	1 MIN. 40 SEC.	

TEST PIT/PERCOLATION DATA
 CENTRAL AVALON COTTAGE
 INFILL



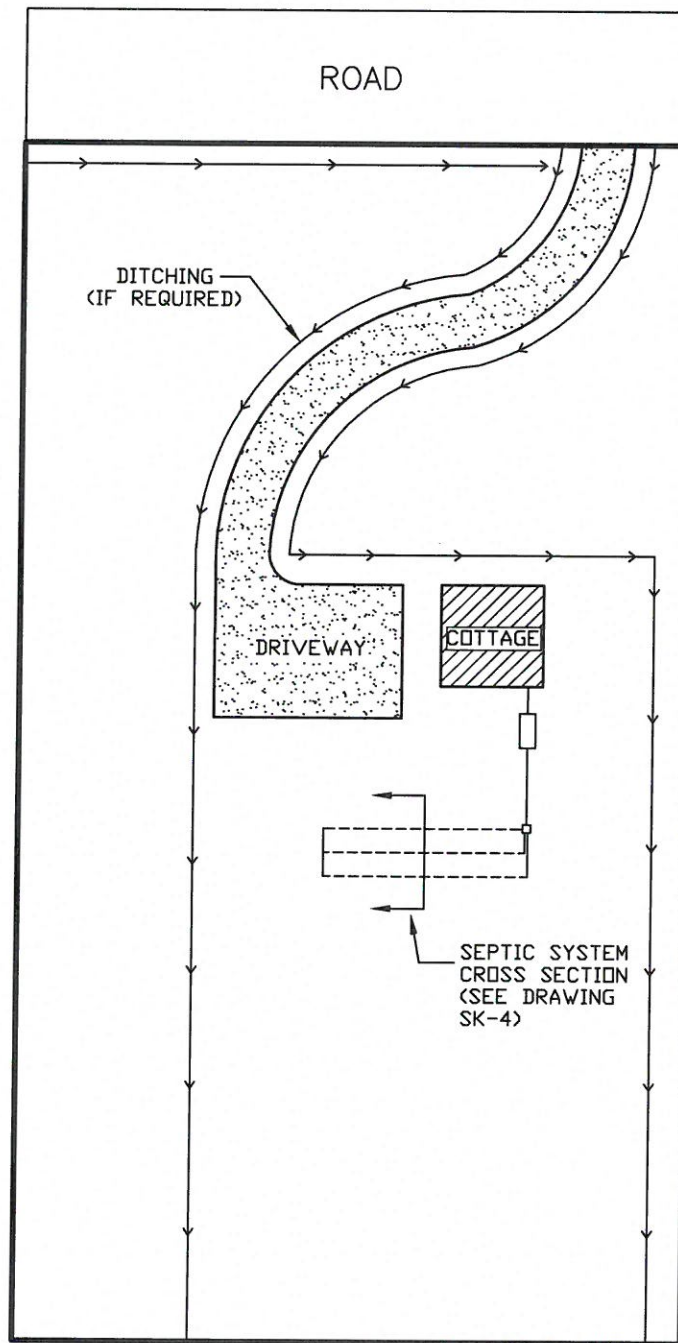
TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

LOT#52

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG. 26/13		S.POWER			NTS	2013.108

APPENDIX C
Recommendation Sketches



TYPICAL COTTAGE
 LOT PLAN
 LOTS 39-42, 49 AND 53

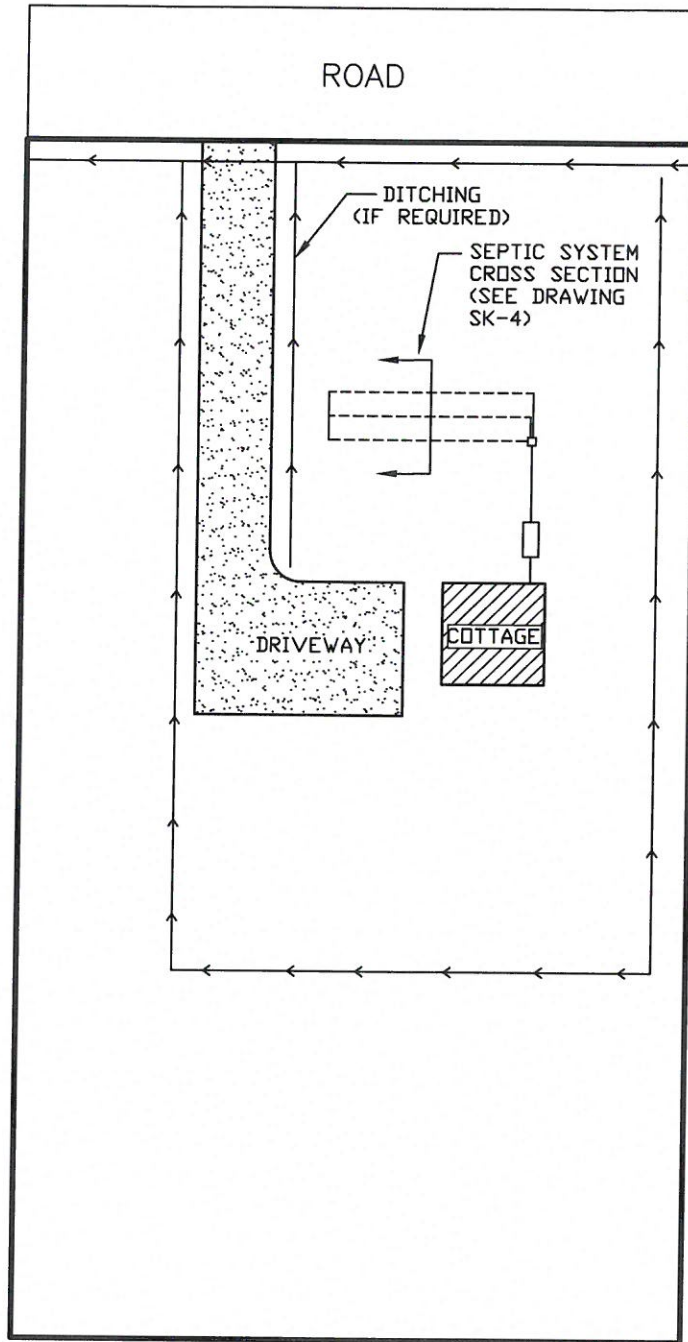


TEL (709) 834-1554 FAX (709) 834-1558

DRAWING NO.

SK-1

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG 26/13			S. POWER		NTS	2013.108



TYPICAL COTTAGE
 LOT PLAN
 LOTS 38, 43-48, 50-52 AND
 54-55



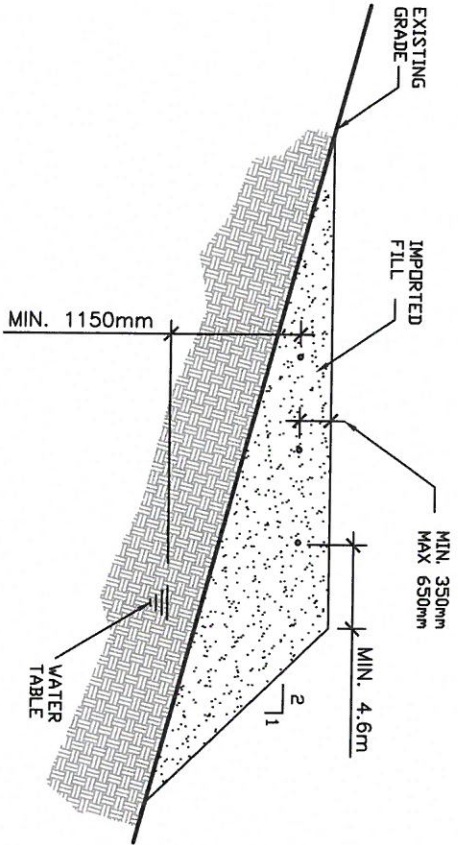
DRAWING NO.

SK-2

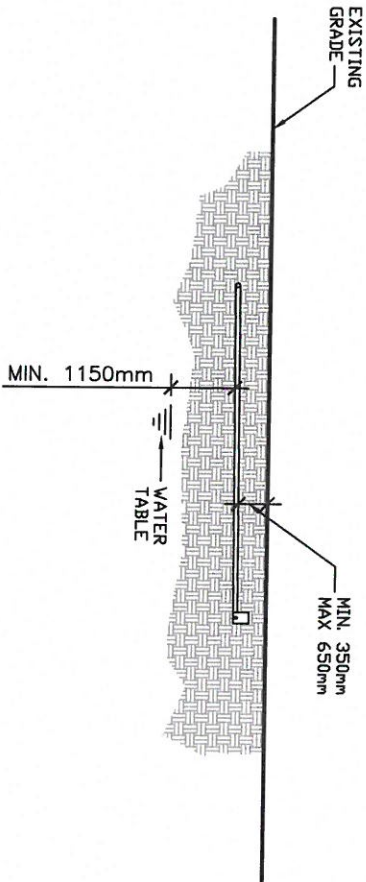
TEL (709) 834-1554

FAX (709) 834-1558

DATE	DESIGNED BY	DRAWN BY	APPROVED	CHECKED	SCALE	CONTRACT NO.
AUG 26/13			S. POWER		NTS	2013.108



TYPICAL SECTION THROUGH SEPTIC FIELD WHEN INSTALLED IN IMPORTED FILL.



TYPICAL SECTION THROUGH SEPTIC FIELD WHEN INSTALLED IN EXISTING GRADE.

TYPICAL SECTIONS THROUGH SEPTIC FIELD

DATE		DESIGNED BY		DRAWN BY		APPROVED		CHECKED		SCALE		CONTRACT NO.	
AUG 26/13		S. POWER		S. POWER						NTS		2013.108	



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SK-3

DRAWING NO.