

**Amherst Island Wind Energy
Project,
Erosion and Sediment Control
and Stormwater Management
Plan Report, Phase 3**



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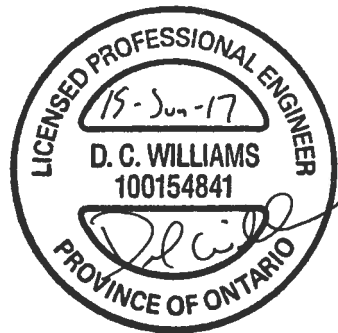
June 15, 2017

Sign-off Sheet

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1.0 INTRODUCTION

Stantec Consulting Ltd. (Stantec) was retained by Windlectric Inc. (the Proponent) to assess and review the need for erosion and sediment control (ESC) and stormwater management (SWM) measures associated with the proposed development of the Amherst Island Wind Energy Project (herein referred to as the "Project"). This report is intended to address the requirements for SWM measures as described in Section H of the project's REA Approval (#7123-9W9NH2) and supplement the information included as part of the application for a Renewable Energy Approval (the REA Application).

Phase 3 of the Project includes the construction of access roads and turbine pads for the turbines which do not require a Cataraqui Region Conservation Authority (CRCA) regulated culvert crossing. These four turbines are S01, S22, S31 and S16. Documentation relating to turbines requiring a CRCA regulated crossing will be provided at a later date.

This ESC/SWM Report summarizes the assessment of potential hydrologic impacts associated with the construction phase (i.e., ESC) and operational phase (i.e., SWM) of the Project. Potential hydrologic impacts assessed include changes to the quality and/or quantity discharged to the surface or sub-surface receiving systems. The objective of the report is to demonstrate that the Project design and proposed mitigation measures associated with the construction and operation phases of the Project, as described in the REA Application, detailed engineering design, and herein, are sufficient to minimize any potential impacts to environmental features within the Project area and, further, to provide details on the mitigation measures and control measures that will be implemented.

1.1 STUDY APPROACH

The study approach involved the following components:

- A qualitative assessment of existing hydrologic conditions of the area and receiving systems.
- A review of the proposed Project activities as described in the REA Application with an emphasis on assessing potential for impacts associated with changes in hydrology.
- A semi-quantitative analysis of existing, construction, and proposed conditions to determine potential for short-term or long-term effects on receiving systems and mitigative approaches, if necessary.
- Development of an erosion and sediment control (ESC) strategy outlining the anticipated approach to minimize impacts related to construction.

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1.2 BACKGROUND INFORMATION

A variety of sources have been referenced during the preparation of this ESC/SWM Report, including project-specific documentation, such as the various reports submitted in support of the REA application, and more general industry-standard design guidance documentation and/or literature references, as follows:

General Guidance Documentation / Literature

- *Low Impact Development Stormwater Management Planning and Design Guide*, Credit Valley Conservation and Toronto and Region Conservation, 2011
- *Erosion and Sediment Control Guideline for Urban Construction (ESC Guidelines)*, Greater Golden Horseshoe Conservation Authorities (GGHCA), Dec. 2006
- *Stormwater Management Planning and Design Manual (SWMPD Manual)*, Ontario Ministry of the Environment and Climate Change (MOECC), March 2003
- *Guidelines for Evaluating Construction Activities on Water Resources*, Ontario Ministry of the Environment, January 1995

Discussions and conclusions reached herein related to the relevance/significance of impervious coverage and its relative impact on the hydrology of receiving systems are based upon widely available literature, readily obtained in any Internet search for related terms such as “impervious coverage and aquatic systems”. Two excellent examples include:

- *Impacts of Impervious Cover on Aquatic System, Watershed Protection Research Monograph No. 1*, Schueler, T., Center for Watershed Protection, March 2003
- *The Importance of Imperviousness, from Watershed Protection Techniques, Vol.1, No.3 – Fall 1994*, Schueler, T., Centre for Watershed Protection, 1994

Project-Specific Consultation / Documentation

- *Amherst Island Wind Energy Project, Erosion and Sediment Control and Stormwater Management Plan Report, Phase 2*, Stantec Consulting Ltd. (February 2017)
- *Amherst Island Wind Energy Project, Erosion and Sediment Control and Stormwater Management Plan Report, Phase 1*, Stantec Consulting Ltd. (October 2016)
- *Hydrogeological Investigation – Proposed Amherst Island Wind Farm*, Stantec Consulting Ltd., January 2016
- *Amherst Island Wind Energy Project: Dock Construction Stormwater Management Brief*, Stantec Consulting Ltd., December 2015
- *Supplementary Geotechnical Investigation – Proposed Amherst Island Wind Farm*, Stantec Consulting Ltd., September 2015
- *Amherst Island Wind Energy Project: Invista Dock – Drainage Assessment*, Stantec Consulting Ltd., August 2015



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- *Geophysical Investigation to Map bedrock in Amherst Island, Ontario*, Geophysics GPR International Inc., June 2015
- *Amherst Island Wind Energy Project: Water Assessment and Waterbody Report (WA/WR)*, Stantec Consulting Ltd., April 2013
- *Amherst Island Wind Energy Project: Design and Operations Report (DOR)*, Stantec Consulting Ltd., December 2013
- *Amherst Island Wind Energy Project: Construction Plan Report*, Stantec Consulting Ltd., December 2013

2.0 ASSESSMENT OF POTENTIAL HYDROLOGIC IMPACTS AND MITIGATION – OPERATIONAL PHASE (SWM)

2.1 EXISTING CONDITIONS

As illustrated in the attached Figure 1, Figure Series 2, and summarized in Table 1, the proposed Project is situated on predominantly agricultural lands with very low existing impervious coverage. Runoff drains overland to local drainage draws, small watercourses, and/or wetland features, ultimately discharging to Lake Ontario. Drainage patterns are to be maintained through the use of limited grading and maintenance of surrounding land uses (e.g., agricultural operations). As such, impervious coverage represents the primary parameter of potential impact to the hydrology of the Project area.

A series of 32 catchment areas were delineated so as to encompass all proposed project infrastructure and, therefore, any hydrologic impacts associated with proposed impervious coverage increases, allowing for a comparison between existing and proposed conditions. As this report focuses on turbines S01, S22, S31 and S16, the catchments analysed are only those which encompass the subject infrastructure and previously documented infrastructure listed previously. Owing to the dispersed characteristic of the proposed wind farm, with infrastructure distributed at very low density across a large area, deriving a reasonable comparison point at which to compare pre- and post-development conditions is somewhat subjective. For the purposes of the analysis described herein, comparison points have been set at the closest downstream road crossing of a given catchment within which development (i.e., the creation of new impervious surfaces) is proposed. These locations have been selected since, should a hydrologic impact occur as a result of development, this is the location at which it would be most noticeable and of most concern to the public. A summary of catchment IDs, areas, and existing conditions impervious coverage statistics is provided in Table 1.

Table 1: Existing Conditions Impervious Coverage

Receivers / Catchment	Drainage Area (ha)	Impervious Coverage	
		(ha)	(%)
1	20.48	0.01	0.05
4	81.16	0.18	0.23
5	7.15	0.04	0.59
9	4.69	0.01	0.12
10	78.68	0.003	0.003
13	35.88	-	-
14	35.59	0.47	1.32
15	76.53	0.60	0.78

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21	822.94	2.28	0.28
23	888.36	5.86	0.66

2.2 PROPOSED CONDITIONS

As described previously, the proposed Phase 3 includes the construction of turbines S01, S22, S31 and S16 and associated infrastructure including access roads.

As described in the *Construction Plan Report*, permanent access roads will be approximately 6 m wide and will not require resizing for the operation phase, with the exception of the entrances off Township or County roads that require wider turning radii, of approximately 50 m, during construction. The access roads will be constructed of engineered compacted fill and/or soil stabilization material. The depth of the roadbed will be approximately 300 mm, subject to geotechnical conditions. Alternatively, soil stabilizer will be utilized with a reduced granular material depth. Typical construction details for the access road can be found appended in Figures 3 through 6.

The construction of roads will include the excavation and removal of topsoil, placing of geotextile fabrics where necessary, placement of aggregate and gravel materials as a road base, and further grading and compaction as necessary. From a hydrologic impact perspective, the access roads are considered generally equivalent to a typical farm access (i.e., driveway). Photographs of a typical wind project access road construction have been appended for reference (Figures 7 – 11).

Lastly, the permanent footprint areas associated with the requisite crane pads (25 m x 60 m = 1,500 m²) and turbine foundations (maximum 19 m diam. = 283.5 m²) represents an additional 7,136 m² (0.71 ha) of impervious coverage.

For the purposes of conservative analysis, all areas proposed for granular surface treatment (e.g., access roads, substation area, and crane pads) have been conservatively considered as 100% impervious within the current analysis. The drainage catchments previously delineated and described under the existing conditions analysis were subsequently analyzed for impervious coverage under proposed conditions, with the results as summarized in Table 2.

Table 2: Proposed Conditions Impervious Coverage

Receivers / Catchment	Drainage Area (ha)	Impervious Coverage	
		(ha)	(%)
1	20.48	0.019	0.93
4	81.16	0.51	0.63
5	7.15	0.19	2.67

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9	4.69	0.10	2.14
10	78.68	0.31	0.39
13	35.88	0.25	0.70
14	35.59	0.67	1.88
15	76.53	2.48	3.24
21	822.94	3.23	0.39
23	888.36	9.03	1.02

2.3 DURING CONSTRUCTION CONDITIONS

During construction, temporary access roads and laydown areas are required to facilitate turbine construction. Turbine components will be delivered directly to a laydown area located at each individual turbine location, running adjacent to the access roads and connecting to the crane pads. For the purposes of this assessment, the laydown areas are assumed to be gravel, however may remain vegetated or a combination of gravel and vegetation. Each of the proposed laydown areas is approximately 10,000 m², inclusive of each respective associated crane pad (approximately 1,500 m²) already considered, representing an additional 34,000 m² (3.4 ha)(8,500 m²/turbine x 4 turbines) of temporary impervious coverage.

The movement of the cranes, or other vehicles, to turbine sites or between turbine sites (i.e. crane paths) will take place along the access and municipal roads. In the event that field crossings are utilized, the crossings will be restricted to follow the underground collector line routes, and have a constructible width of 10 m. Timber or construction crane mats and/or steel plates may be used where required to facilitate the crane or other vehicles moving to the turbine sites through soft or wet areas. Crane paths not located on roads will be rehabilitated to pre-construction conditions.

As described above, temporary road access will be required to accommodate the wider turning radii of the turbine transport vehicles. The drainage catchments previously delineated and described under the existing conditions analysis were subsequently analyzed for impervious coverage under ongoing construction conditions, with the results summarized in Table 3.

Table 3: During Construction Conditions Impervious Coverage

Receivers / Catchment	Drainage Area (ha)	Impervious Coverage	
		(ha)	(%)
1	20.48	1.63	7.96
4	81.16	1.13	1.39
5	7.15	0.44	6.13
9	4.69	0.32	6.77

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10	78.68	0.81	1.03
13	35.88	1.67	4.64
14	35.59	2.41	6.76
15	76.53	18.27	23.87
21	822.94	5.19	0.63
23	888.36	29.51	3.32

Note: Stormwater management controls for proposed infrastructure within Catchment 15 have been documented in *Amherst Island Wind Energy Project, Erosion and Sediment Control and Stormwater Management Plan Report Phase 2* (Stantec, 2017)

2.4 ASSESSMENT OF HYDROLOGIC IMPACTS AND NEED FOR STORMWATER CONTROLS

Industry-standard approaches to assessing the potential for hydrologic impacts related to changes in the amount of urban impervious coverage, as supported by literature (see references in Section 1.2), generally conclude that watersheds typically maintain pre-development hydrology characteristics until they exceed 10-15% impervious coverage.

As illustrated in the calculations above and summarized in Table 4, below, the impervious coverage in 11 of the 12 catchments identified as part of this study remains below 7.96%. The impervious coverage in catchment 15 increases from the existing 0.78% to 23.87% during construction and then drops to 3.24% post construction. Stormwater management controls for catchment 15, to be installed in the during construction phase, are documented in *Amherst Island Wind Energy Project, Erosion and Sediment Control and Stormwater Management Plan Report Phase 2* (Stantec, 2017), which was approved on March 13, 2017 by the MOECC and on April 19, 2017 by the CRCA. It is concluded, therefore, that the development of the Project will have negligible impact on the hydrology of the area and receiving systems.

Table 4: Impervious Coverage Summary

Receivers / Catchment	Drainage Area (ha)	Impervious Coverage %		
		Existing	During Construction	Post Construction
1	20.48	0.05	7.96	0.93
4	81.16	0.23	1.39	0.63
5	7.15	0.59	6.13	2.67
9	4.69	0.12	6.77	2.14
10	78.68	0.003	1.03	0.39
13	35.88	-	4.64	0.70
14	35.59	1.32	6.76	1.88

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15	76.53	0.78	23.87	3.24
21	822.94	0.28	0.63	0.39
23	888.36	0.66	3.32	1.02

Note: Stormwater management controls for proposed infrastructure within Catchment 15 have been documented in *Amherst Island Wind Energy Project, Erosion and Sediment Control and Stormwater Management Plan Report Phase 2* (Stantec, 2017)

Regarding the potential for flow re-direction or obstruction, the REA documents include commitments to minimizing grading and the implementation of drainage infrastructure as necessary to maintain drainage patterns per existing conditions. Care will be taken where construction is proposed in areas of known tile drainage systems to minimize damage to these systems and to repair any inadvertent damage that may occur, maintaining existing conditions drainage characteristics. On-going landowner liaison will occur as any impacts may only become noticeable at a later date.

Given the general maintenance of at-surface drainage conditions (i.e., no substantive grading or re-direction of surface water away from existing features) and vegetative conditions across the majority of the site, and the minimal introduction of impervious coverage, a formal stormwater management system for the access roads and turbine pads is not proposed.

3.0 ASSESSMENT OF POTENTIAL HYDROLOGIC IMPACTS AND MITIGATION – CONSTRUCTION PHASE (ESC)

3.1 ASSESSMENT OF EROSION POTENTIAL

An assessment of the erosion potential of the construction area was completed following the methodology outlined in the *ESC Guidelines* (GGHACA, 2006). The erosion potential is based on an assessment of three primary factors, namely slope gradient, slope length and soil texture (erodibility), with the resultant designation of either “low”, “medium”, or “high” erosion potential. The relative level of erosion potential dictates, to some extent, the comprehensiveness of the resultant ESC system design, monitoring, and maintenance program.

Beyond the three-parameter approach described by the Guidelines, it is often also appropriate to account for the relative sensitivity of the receiving systems as it relates to potential sediment transport offsite during construction. While never leading to a *reduction* in assessed erosion potential, such an assessment could result in a conclusion that diligence in excess of that already assessed is warranted. In this particular case, the receiving system is Lake Ontario which, should a spill occur, presents cleanup challenges if any sediment is to migrate into the Lake. It would be incumbent upon the proponent and contractor to elevate the level of attention paid to protecting the Lake against construction related impacts.

The existing and proposed (post-construction) condition gradients on the Project site can be classified as moderate (2 – 10% - Overland flow paths) to steep (>10% - Access road embankments), with predominantly long slopes (greater than 30 m). Site soils are comprised primarily of sand and silt tills, which are considered to represent a high erodibility potential (Table A1, ESC Guidelines). Therefore, based on this classification, the site has a “high” erosion potential.

The setbacks provided between the proposed project infrastructure, the surface water receiving features, the existing agricultural land uses surrounding the proposed infrastructure, and the features are such that the derivation of an ESC strategy in accordance with the “high” erosion potential assessment should satisfactorily address the potential impacts to the water features.

3.2 DURING CONSTRUCTION DEWATERING

As per the Construction Plan Report, it is not expected that the water table will be intercepted by any construction activities, though it is possible. Should dewatering be required, such would be temporary and any potential impact would be limited to the local near-surface water table. Post-construction, the water table would return to pre-construction levels and the relatively small ‘footprint’ of the road base and turbine pads would not affect flow volumes or patterns, or the deep groundwater regime. Pumping rates are not anticipated to exceed 50,000 litres per day or the requirements of an Environmental Activity Sector Registration application approval.

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Any required dewatering operations will be completed such that discharge rates will not cause any flooding and erosion concerns for the downstream natural areas. In order to prevent sediment migration to the downstream areas dewatering discharges may be treated with a variety of measures including but not limited to filter socks, sediment traps, and “frog’s foot” dissipaters at the discretion of the contractor. Dewatering discharges will be directed through the sediment control measures to a gently sloped vegetated area greater than 30 m from any watercourse or wetland feature. If a vegetated area is not available alternative measures such as splash pads or infiltration basins may be considered.

Detailed pumping records will be kept on site to ensure that maximum pumping rates are not exceeded.

3.3 EROSION AND SEDIMENTATION CONTROL PLAN

As described in the *Construction Plan Report*, the various construction activities required to develop the site include topsoil removal, minor grading activities, infrastructure installation, and general construction traffic. If left unmitigated, these activities will result in impacts ranging from disturbance of at-surface soils and exposure of the native sub-soils to potential erosion and sediment transport to offsite locations.

Erosion control will be achieved primarily through the use of rig-mats as temporary vehicle roads, and by limiting the duration of exposure of disturbed sub-soils inherent in the construction process. Further, at any given location, these works will be completed in short order (1-2 days expected), providing little opportunity for sub-soils to be disturbed and entrained in storm runoff.

In addition to limiting the potential for erosion, sediment control measures will be implemented prior to any grading or servicing works commencing as shown on the accompanying Plans (Figures 3-7), and include, but not necessarily be limited to, the following items:

- Sediment and erosion control measures should be implemented prior to construction and maintained during the construction phase to prevent entry of sediment into the water:
 - Erect silt fence (per OPSD 219.110) within the constructible limits, along all access roads and turbine pads;
 - Temporarily stockpiled excavated native materials and imported materials with a D_{50} less than 4.75 mm (typical D_{50} of Granular A) will be covered with rolled erosion control products when the material is expected to be left in place in excess of 10 days, while imported materials with a D_{50} of 4.75 mm or greater can remain uncovered. Granular A and B (Type II) gradation requirements allow up to 55% percent passing a 4.75 mm sieve (#4 sieve), and may be stockpiled without covering with rolled erosion control products. Uncovered stockpiles will be surrounded with a double layer of light duty silt fence (1 m separation between layers) to provide a secondary layer of protection from sediment migration;

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- Topsoil stockpiles expected to be left in place in excess of 30 days may be stabilized with vegetation, i.e. Hydroseeding as referenced in the GGHA ESC Guidelines (GGHCA, 2006) instead of a rolled erosion control product;
- Stockpiles should be sufficiently distant from watercourses to preclude sediment inputs due to erosion of stored soil materials;
- No equipment should be permitted to enter any natural areas beyond the silt fencing during construction;
- If the sediment and erosion control measures are not functioning properly, no further work should occur until the sediment and/or erosion problem is addressed;
- In the event of inclement weather or unfavourable terrain for construction, construction best practices such as temporary rig-mats may be used to prevent disruption of surface soils and vegetative cover by construction vehicles and equipment. As these measures are within the constructible areas of the project, it is not anticipated that offsite flows will increase from proposed conditions.
- Additional erosion and sediment controls may be required due to unforeseen circumstances, changing site conditions or if the proposed controls do not achieve their anticipated result. In these circumstances, additional controls may be installed consistent with GGHCA ESC Guidelines and MOECC SWMPD Manual. The locations and application of the controls will be approved by a qualified erosion and sediment control inspector prior to their installation.
- When possible, complete work in and around watercourses when the features are at their driest. All in-water work should be completed within MNRF timing windows to protect local fish populations during their spawning and egg incubation periods. A typical construction timing window for warmwater streams in the Peterborough District is July 1st to March 31st.
- All materials and equipment used for the purpose of site preparation and Project construction should be operated and stored in a manner that prevents any deleterious substance (e.g., petroleum products, silt, etc.) from entering the water:
 - Any stockpiled materials should be stored and stabilized away from the water;
 - Refuelling and maintenance of construction equipment should occur in designated areas, a minimum of 100 m from a water body;
 - Spills should be reported to the MOE Spills Action Centre;
 - Any part of equipment entering the water should be free of fluid leaks and externally cleaned/degreased to prevent any deleterious substance from entering the water; and
 - Only clean material, free of fine particulate matter should be placed in the water.
- Revegetate all disturbed areas where construction is not expected for 30 days with a minimum 50 mm of topsoil and hydro-seeding or other stabilizing vegetation / erosion protection measures (per OPSS 804). If given seasonal restriction or other revegetation

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limiting factors, the disturbed area should be stabilized against erosion impacts by non-vegetated means such as erosion control blankets or other means approved by a qualified erosion and sediment control inspector.

The ESC measures shall be maintained in good repair during the entire construction period, and removed as contributing drainage areas are restored and stabilized. ESC measures shall not be removed until a qualified inspector determines that the measures are no longer required and the risk of surface water and environmental impacts from construction activities are negligible. In addition, the condition of erosion control works, their overall performance, and any repairs, replacement, or modifications to the installed item shall be noted in logbooks to be kept on-site.

3.4 EROSION AND SEDIMENTATION CONTROL MONITORING PLAN

In order to ensure the effectiveness of the various erosion and sediment control measures, a routine program should be implemented which includes the inspection of the erosion and sediment controls daily and after each significant rainfall event (10 mm), and immediate repair of any deficiencies resulting in sediment discharges to the downstream environment.

Non-urgent repairs (i.e., no immediate risk of sediment discharges to the downstream environment) will be completed within 48 hours of identifying the deficiency, or prior to the next anticipated rainfall event, whichever is less. This program will consist of the following activities:

- Visual inspection of the ESC measures to ensure discharged flows are generally free of sediment and turbidity
- Inspection of vegetation protection and silt fencing to ensure that they are maintained in good repair
- Removal of construction debris that may accumulate
- Implementation of remedial measures including erosion stabilization, repair of damaged fencing and any other remediation, where required.

If the monitoring program outlined above indicates a persistent problem then the following steps should be undertaken to determine appropriate mitigative measures (if step 1 does not resolve the issue, proceed to step 2):

1) Analysis of the monitoring information and field visits as required, determine the cause of the problem, and develop a mitigation plan to address the issue in consultation with a certified ESC inspector.

a) Implement additional mitigation measures and monitor the results.

2) Convene a meeting *with* the appropriate review agencies to discuss the problem.

a) Develop a consensus on a proposed plan of action to resolve the problem in consultation with agency staff.

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- b) Implement additional mitigation measures and monitor the results

3.5 LONG TERM EROSION AND SEDIMENT CONTROL

Per the *Construction Plan Report*, upon the completion of backfilling and the subsequent disposition of excess soil elsewhere within the properties by the property owners, replanting with native vegetation will be undertaken in areas where active agricultural use is not anticipated.

Approximately one year after construction a survey will be undertaken to ensure that long-term erosion control measures have been effective. Seeded or replanted areas will be inspected to ensure that revegetation measures were successful and reseeding or replanting will occur where necessary.

If erosion control measures are found to be less than fully effective during this survey, reseeding or replanting of problem areas will take place. Should there be residual effects noted during post-construction monitoring, advice on contingency measures will be sought out and applied.

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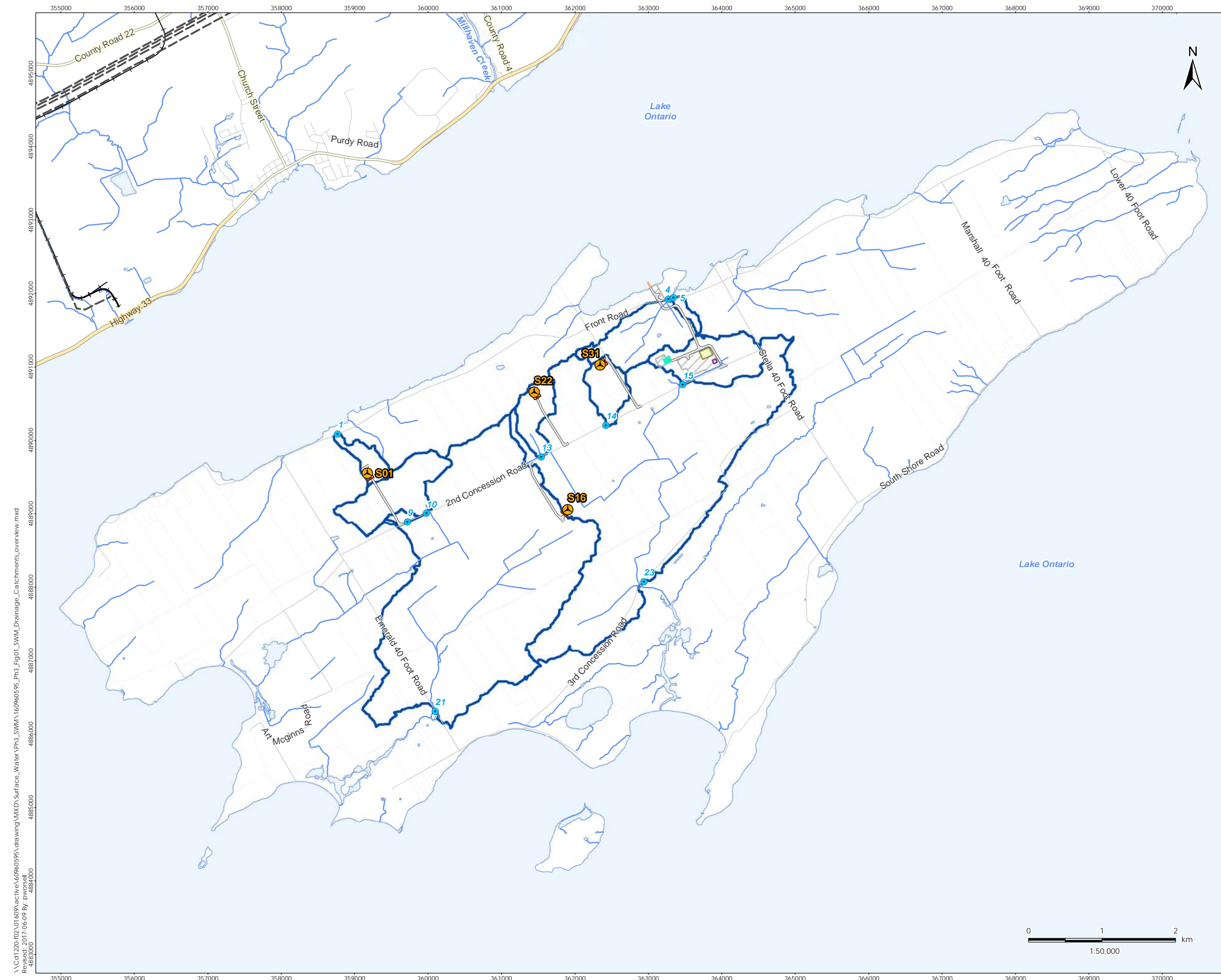
Conclusions
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4.0 CONCLUSIONS

It is concluded that both the relative lack of change in impervious coverage associated with the under construction and proposed development conditions are sufficiently limited as to not impact the pre-development hydrologic characteristics of the area during construction or long-term operation of the facility. There should be negligible change/impact on the quality and/or quantity of surface water runoff and/or groundwater recharge as a result of the construction of turbines S01, S22, S31 and S16 and associated access roads and, therefore, no requirement for the implementation of formal stormwater quality or quantity controls.

While the site assessment yields a "high" erosion potential classification, a number of factors combine to limit the potential for impact on the receiving systems. Specifically the relatively small area proposed to be disturbed, the short-term nature of the disturbance prior to stabilization whether through granular placement or re-vegetation, and the existing land use of the surrounding area as agricultural operations all combine to create a condition where a "standard" approach to erosion and sediment control will suffice to minimize potential for off-site impacts. The proposed erosion and sediment control plan accompanied by a monitoring and maintenance program will be implemented to prevent migration of sediment to downstream features during the construction phase of the Project.

ATTACHMENTS



- Legend**
- Point of Interest
 - ▲ Turbine
 - Access Road
 - Laydown Area and Crane Pad
 - Expressway / Highway
 - Major Road
 - Minor Road
 - Railway
 - Hydro Line
 - Watercourse
 - Batch Plant
 - Site Office
 - Central Staging Area
 - Island Dock
 - Substation
 - Point of Interest Catchment
 - Property Boundary
 - Waterbody



Notes

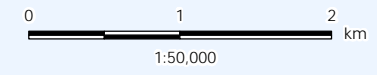
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June 2017
133560104

Client/Project
Windlectric Inc.
Amherst Island Wind Energy Project

Figure No.
1

Title
SWM Drainage Catchments - Phase 3



\\C01220-102\01609\active\6960595\drawing\MXD\Surface_Water\Ph3_SWM\160960595_Ph3_Fig01_SWM_Drainage_Catchments_overview.mxd
 Revised: 2017-06-09 By: p.worsell

Legend

- Point of Interest
- Surface Water Catchment Area
- Project Components**
- Turbine
- Access Road
- Laydown Area and Crane Pad
- Constructible Area
- Turbine Blade Tip
- Existing Features**
- Road
- Topographic Contour (metres AMSL)
- Watercourse
- Property Line



Notes

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Client/Project

Windlectric Inc.
Amherst Island Wind Energy Project

Figure No.

2

Title

SWM Drainage Catchments -
Drainage Area #1

\\Cd1220-102\01609\active\60960595\drawing\MXD\Surface_Water\Ph3_SWM\160960595_Ph3_Fig02_SWM_Drainage_Catchments_mapbook.mxd
 Revised: 2017-06-09 By: pworsell

Legend

- Point of Interest
- Surface Water Catchment Area
- Project Components**
- Turbine
- Access Road
- Laydown Area and Crane Pad
- Constructible Area
- Turbine Blade Tip
- Batch Plant
- Central Staging Area
- Island Dock
- Substation
- Existing Features**
- Road
- Topographic Contour (metres AMSL)
- Watercourse
- Property Line



Notes

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June 2017
160960595

Client/Project

Windlectric Inc.
Amherst Island Wind Energy Project

Figure No.

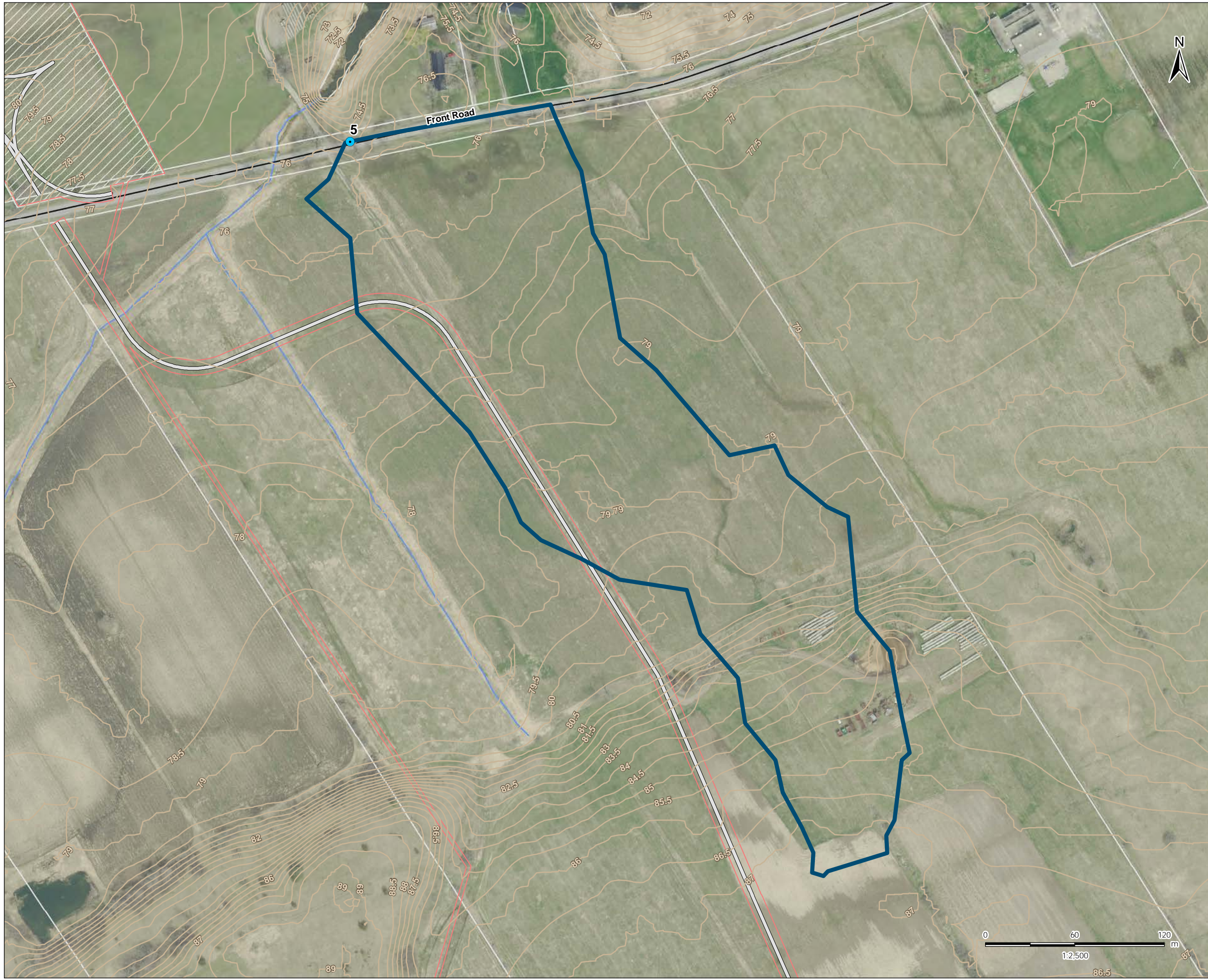
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Title

SWM Drainage Catchments -
Drainage Area #4

\\C01220-102\01609\active\60960595\drawing\MXD\Surface_Water\Ph3_SWM\160960595_Ph3_Fig02_SWM_Drainage_Catchments_mapbook.mxd
 Revised: 2017-06-09 By: pworsell

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Revised: 2017-06-09 By: pwnorsell



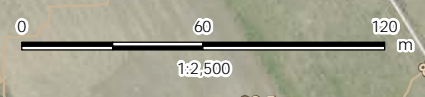
- Legend
- Point of Interest
 - ▭ Surface Water Catchment Area
 - ▬ Access Road
 - ▭ Constructible Area
 - ▨ Central Staging Area
- Existing Features
- ▬ Road
 - ▬ Topographic Contour (metres AMSL)
 - ▬ Watercourse
 - ▭ Property Line

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Client/Project
Windlectric Inc.
Amherst Island Wind Energy Project

Figure No.
2

Title
SWM Drainage Catchments -
Drainage Area #5



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Revised: 2017-06-09 By: pworsell



- Legend
- Point of Interest
 - ▭ Surface Water Catchment Area
 - ▬ Access Road
 - ▭ Constructible Area
- Existing Features
- ▬ Road
 - ▬ Topographic Contour (metres AMSL)
 - ▬ Watercourse
 - ▭ Property Line

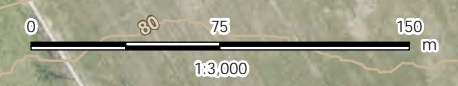
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Client/Project
Windlectric Inc.
Amherst Island Wind Energy Project

Figure No.
2

Title
SWM Drainage Catchments -
Drainage Area #9



- Legend
- Point of Interest
 - Surface Water Catchment Area
- Project Components
- Turbine
 - Access Road
 - Laydown Area and Crane Pad
 - Constructible Area
 - Turbine Blade Tip
- Existing Features
- Road
 - Topographic Contour (metres AMSL)
 - Watercourse
 - Property Line



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Client/Project

Windlectric Inc.
Amherst Island Wind Energy Project

Figure No.
2

Title
SWM Drainage Catchments -
Drainage Area #10

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 Revised: 2017-06-09 By: pwnorsell

June 2017
160960595

Legend

- Point of Interest
- Surface Water Catchment Area
- Project Components**
- Turbine
- Access Road
- Laydown Area and Crane Pad
- Constructible Area
- Turbine Blade Tip
- Existing Features**
- Road
- Unopened Road Allowance
- Topographic Contour (metres AMSL)
- Watercourse
- Property Line



Notes

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Client/Project

Windlectric Inc.
Amherst Island Wind Energy Project

Figure No.

2

Title

SWM Drainage Catchments -
Drainage Area #13



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 Revised: 2017-06-09 By: pwnorsell

Legend

- Point of Interest
- Surface Water Catchment Area
- Project Components**
- Turbine
- Access Road
- Laydown Area and Crane Pad
- Constructible Area
- Turbine Blade Tip
- Central Staging Area
- Existing Features**
- Road
- Topographic Contour (metres AMSL)
- Watercourse
- Property Line



Notes

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Client/Project

Windlectric Inc.
Amherst Island Wind Energy Project

Figure No.

2

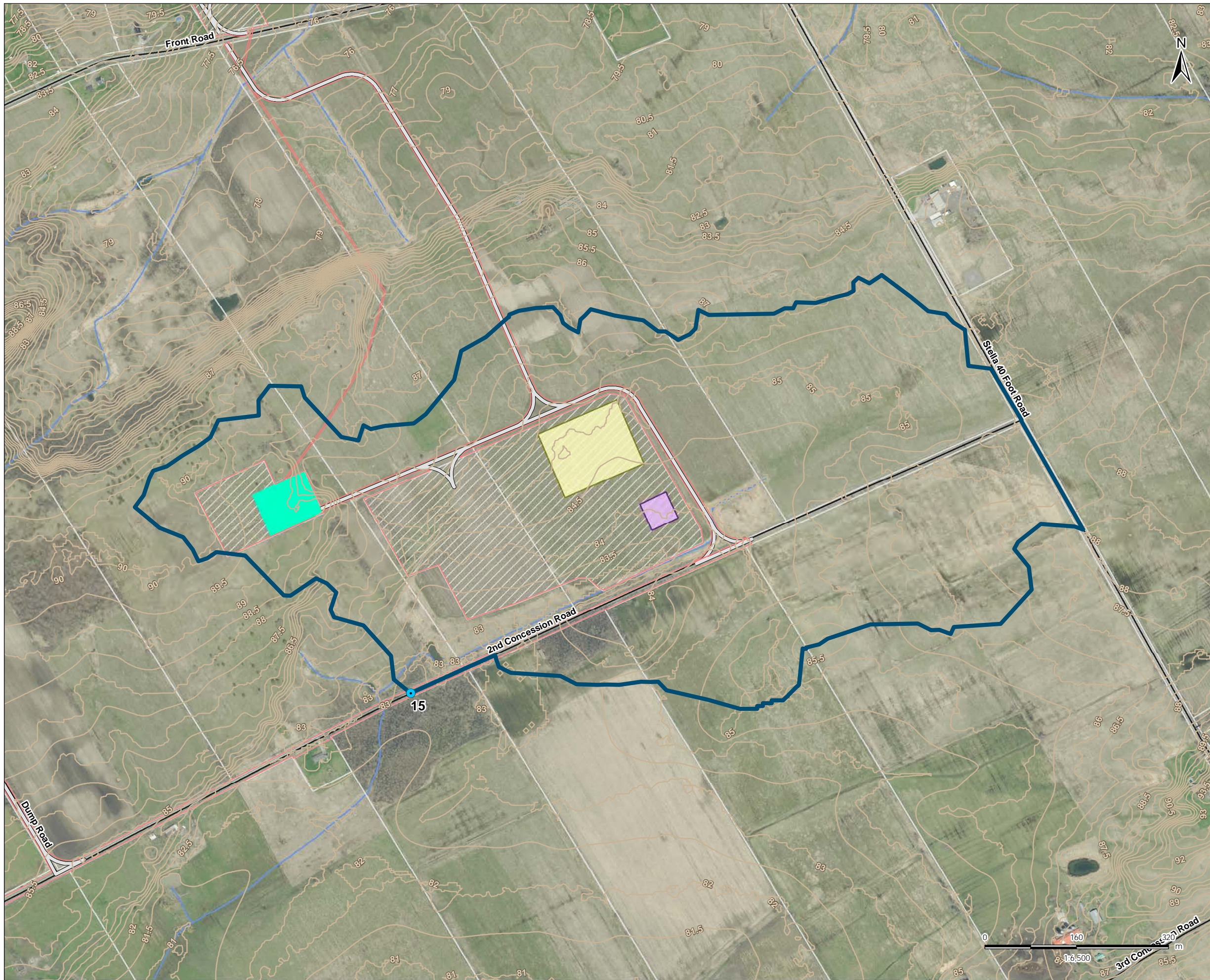
Title

SWM Drainage Catchments -
Drainage Area #14



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 Revised: 2017-06-09 By: pworsell

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Revised: 2017-06-09 By: pwnorsell



Legend

- Point of Interest
 - Surface Water Catchment Area
 - Access Road
 - Constructible Area
 - Batch Plant
 - Site Office
 - Central Staging Area
 - Substation
- Existing Features
- Road
 - Unopened Road Allowance
 - Topographic Contour (metres AMSL)
 - Watercourse
 - Property Line

Notes

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Amherst Island Wind Energy Project

Figure No.

2

Title

SWM Drainage Catchments -
Drainage Area #15

Legend

- Point of Interest
- Surface Water Catchment Area
- Project Components**
- ⊙ Turbine
- Access Road
- Laydown Area and Crane Pad
- Constructible Area
- Turbine Blade Tip
- Existing Features**
- Road
- Unopened Road Allowance
- Watercourse
- Property Line



Notes

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Client/Project

Windlectric Inc.
Amherst Island Wind Energy Project

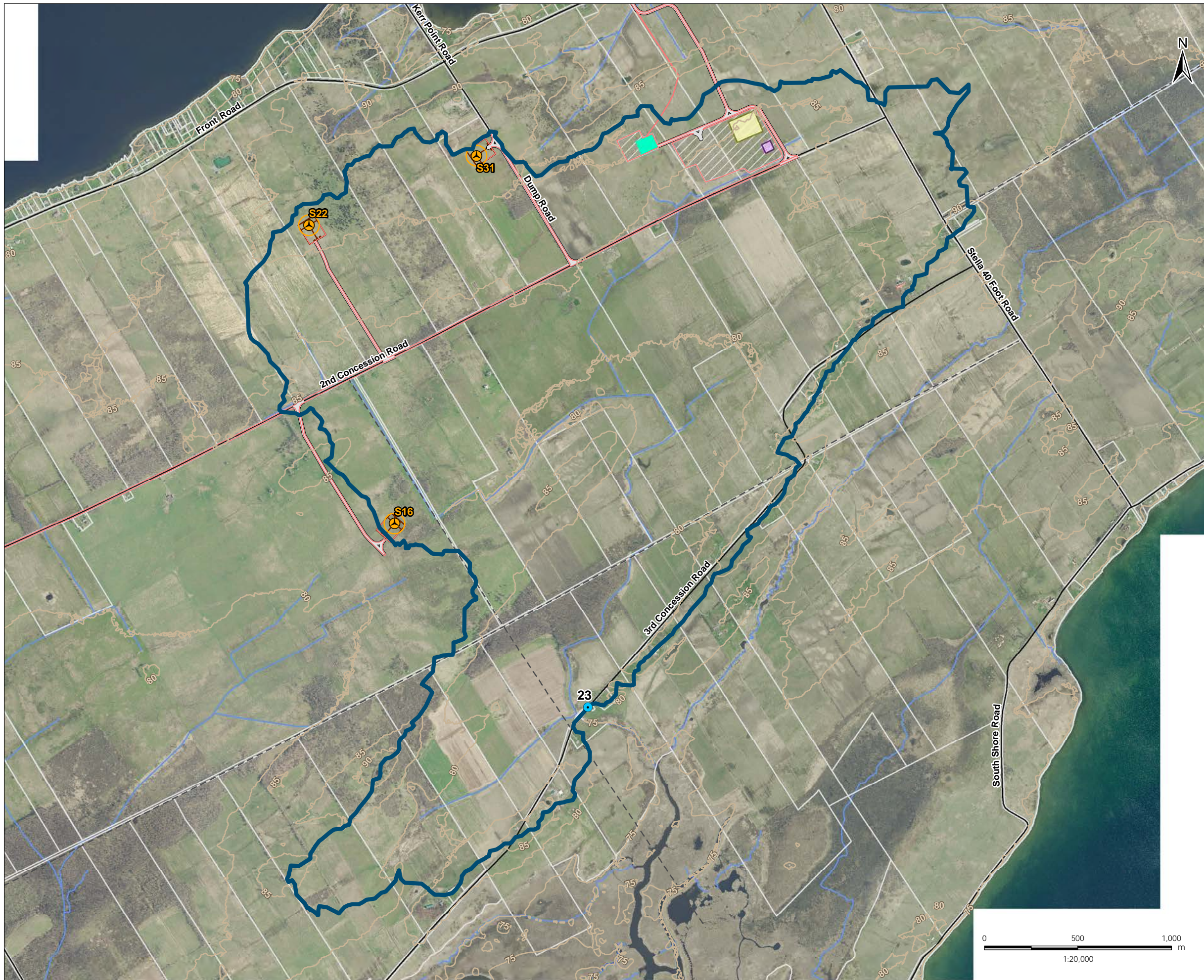
Figure No.

2

Title

SWM Drainage Catchments -
Drainage Area #21

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 Revised: 2017-06-09 By: pwnorsell



- Legend**
- Point of Interest
 - Surface Water Catchment Area
 - Project Components**
 - ⊙ Turbine
 - Access Road
 - Laydown Area and Crane Pad
 - Constructible Area
 - Turbine Blade Tip
 - Batch Plant
 - Site Office
 - Central Staging Area
 - Substation
 - Existing Features**
 - Road
 - Unopened Road Allowance
 - Watercourse
 - Property Line

- Notes**
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Client/Project
Windlectric Inc.
Amherst Island Wind Energy Project

Figure No.
2

Title
SWM Drainage Catchments -
Drainage Area #23

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 Revised: 2017-06-09 By: pworsell



NOTES:

EROSION AND SEDIMENT CONTROL NOTES (SEE DETAILS THIS SHEET)

1. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM DURING CONSTRUCTION ACTIVITIES. THIS INCLUDES LIMITING THE AMOUNT AND DURATION OF EXPOSED SOIL AND INSTALLING SILT FENCES AND OTHER SEDIMENT TRAPS/FILTERS SIMILAR TO THOSE ILLUSTRATED HEREIN.
2. EROSION AND SEDIMENT CONTROL WORKS SHALL BE INSTALLED AND IN WORKING CONDITION PRIOR TO COMMENCEMENT OF CONSTRUCTION RELATED ACTIVITIES.
3. SEDIMENT CONTROL MEASURES ADJACENT TO CONSTRUCTION AREAS MAY REQUIRE REMOVAL/RELOCATION IN ORDER TO COMPLETE SPECIFIC CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL ENSURE THAT ADEQUATE SEDIMENT CONTROL MEASURES ARE IN PLACE AT ALL TIMES.
4. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE MAINTAINED AND IMPROVED UPON AS NECESSARY TO KEEP THEM EFFECTIVE AND MINIMIZE THE POTENTIAL FOR EROSION AND MIGRATION OF SEDIMENT TO THE DOWNSTREAM NATURAL ENVIRONMENT.
5. AT THE DISCRETION OF THE OWNER OR OWNER'S CONSULTANT, ADDITIONAL SILT CONTROL DEVICES SHALL BE INSTALLED AT DESIGNATED LOCATIONS.
6. SEDIMENT THAT IS ACCUMULATED BY THE TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED IN A MANNER THAT AVOIDS ESCAPE OF THE SEDIMENT TO THE DOWNSTREAM SIDE OF THE CONTROL MEASURE AND AVOIDS DAMAGE TO THE CONTROL MEASURE. ALL SEDIMENT SHALL BE REMOVED AND TOPSOIL WITH SEED TO BE ADDED IF NECESSARY.
A) ACCUMULATED SEDIMENT IS TO BE REMOVED AND DISPOSED OF AS PER OPSS 180, PRIOR TO THE REMOVAL OF ANY CONTROL MEASURE.
7. STOCKPILED MATERIAL IS TO BE STORED AWAY FROM POTENTIAL RECEIVERS (E.G. WATERCOURSES), AND BE SURROUNDED BY EROSION CONTROL MEASURES WHERE MATERIAL IS TO BE LEFT IN PLACE IN EXCESS OF 10 DAYS OR PRIOR TO A RAIN EVENT, WHICHEVER OCCURS SOONER.
8. REMOVAL OF SEDIMENT CONTROL MEASURES AND COLLECTION OF ACCUMULATED SEDIMENT SHALL OCCUR FOLLOWING SUBSTANTIAL COMPLETION OF CONSTRUCTION (90%-100%) AND SITE STABILIZATION TO 90%.
9. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN AND BOLSTER EROSION AND SEDIMENT CONTROL MEASURES AS NECESSARY TO KEEP THEM EFFECTIVE AND MINIMIZE THE POTENTIAL FOR EROSION.
10. IN ADDITION TO BEING RESPONSIBLE FOR ENSURING THAT THE PRESCRIBED MEASURES ARE INSTITUTED AND FUNCTIONING AS INTENDED THE CONTRACTOR IS ALSO RESPONSIBLE FOR IMPLEMENTING ANY INTERIM OR EMERGENCY MEASURES AS NECESSARY, TO ENSURE THAT NO SEDIMENT IS DISCHARGED TO THE NATURAL ENVIRONMENT. THE FOLLOWING EXTRA EQUIPMENT/MATERIALS ARE TO BE KEPT ON SITE AS A CONTINGENCY, IN CASE THE PROPOSED CONTROL MEASURES ARE BREACHED.

- SILT FENCE
- FILTER CLOTH
- PUMPS
- CLEAN RIP-RAP (FREE OF FINES) FOR ROCK CHECK DAMS
- SAND BAGS AND CLEAN (FREE OF FINES) GRAVEL

ANY ADDITIONAL MATERIAL DEEMED NECESSARY TO REPAIR/REMEDiate PROPOSED MEASURES, OR TO ADEQUATELY DEAL WITH UNEXPECTED HIGH FLOWS

11. EROSION AND SEDIMENT CONTROL MONITORING RECORDS SHALL BE KEPT AND MADE AVAILABLE TO THE MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE AND CATARAQUI REGION CONSERVATION AUTHORITY UPON REQUEST.
12. IN THE EVENT OF INCLEMENT WEATHER OR UNFAVOURABLE TERRAIN FOR CONSTRUCTION, CONSTRUCTION BEST PRACTICES, SUCH TEMPORARY RIG-MATS MAY BE USED TO PREVENT DISRUPTION OF SURFACE SOILS AND VEGETATIVE COVER BY CONSTRUCTION VEHICLES AND EQUIPMENT.
13. ADDITIONAL CONTROLS MAY BE REQUIRED DUE TO UNFORESEEN CIRCUMSTANCES, CHANGING SITE CONDITIONS OR IF THE PROPOSED CONTROLS DO NOT ACHIEVE THEIR ANTICIPATED RESULT, IN THESE CIRCUMSTANCES, ADDITIONAL CONTROLS MAY BE INSTALLED CONSISTENT WITH THE "EROSION AND SEDIMENT CONTROL GUIDELINE FOR URBAN CONSTRUCTION - GREATER GOLDEN HORSESHOE AREA CONSERVATION AUTHORITIES." THE LOCATIONS AND APPLICATION OF THE CONTROLS WILL BE APPROVED BY THE INSPECTOR PRIOR TO THEIR INSTALLATION.

AREA GRADING NOTES

PRIOR TO SITE WORKS

1. INSTALL ALL SILT FENCE AND PROTECTIVE FENCING AS SHOWN ON THE PLANS AND MAINTAIN DURING CONSTRUCTION.

DURING AREA GRADING

1. TOPSOIL IS TO BE STRIPPED ONLY IN AREAS REQUIRING EARTHWORKS AND PLACED IN STOCK PILES AT THE LOCATIONS SHOWN ON THE PLANS OR AS APPROVED BY THE QUALIFIED ENVIRONMENTAL SITE INSPECTOR.
2. TEMPORARY TOPSOIL STOCKPILES ARE TO HAVE CONTINUOUS SILT FENCE PLACED IMMEDIATELY AROUND THE ENTIRE PERIMETER.
3. ROADWAYS AND LAY DOWN YARDS ARE TO BE PLACED ON NATIVE GROUND AFTER TOPSOIL HAS BEEN STRIPPED.
4. ALL TOPSOIL IS TO BE RE-SPREAD ON CONSTRUCTION IMPACTED AREAS AFTER FINAL GRADING IS COMPLETE TO A MINIMUM DEPTH OF 150MM.
5. SILT FENCE AND EROSION CONTROL STRUCTURES TO BE CHECKED DAILY AND AFTER EACH RAINFALL >10MM FOR UNDERMINING OR DETERIORATION OF THE FABRIC. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL OF SEDIMENT DEPOSITION REACHES ONE THIRD OF THE WAY TO THE TOP OF THE BARRIER.

AFTER AREA GRADING

1. ALL AREAS WHERE ACTIVE CONSTRUCTION IS NOT EXPECTED FOR 2 WEEKS SHALL BE RE-SEEDED WITH NATIVE PLANT SPECIES.
2. REMOVAL OF SEDIMENT CONTROL MEASURES AND COLLECTION OF ACCUMULATED SEDIMENT SHALL OCCUR FOLLOWING SUBSTANTIAL COMPLETION OF CONSTRUCTION (90%-100%) AND SITE STABILIZATION TO 90%.

SLOPE PROTECTION NOTES

1. EITHER ROLLED EROSION CONTROL PRODUCTS (RECP) OR MULCHMAX ULTRA AT 500 KG/HA ARE TO BE USED ON 3:1 SLOPES OR GREATER.
2. RECP PRODUCTS ARE TO BE BIODEGRADABLE. STRAW, COIR, WOOD EXCELSIOR ARE SAMPLE MATERIALS THAT CAN BE USED.
3. RECP PRODUCTS ARE TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS. INSTALLATION TO BE INSPECTED AND REPAIRED AS NEEDED.
4. RECP ARE TO BE APPLIED AS SOON AS POSSIBLE FOLLOWING GRADING AND SEEDING OF SUBJECT AREAS.
5. SURFACES ARE TO BE SMOOTH AND FREE OF STONES AND DEBRIS OR OTHER WEED CLUMPS PRIOR TO RECP PRODUCTS BEING INSTALLED.
6. CONTRACTOR TO ENSURE THAT RILLING/GULLING IS RECTIFIED PRIOR TO RECP OR MULCHMAX ULTRA INSTALLATION. CONTRACTOR TO MONITOR RUNOFF UNDER THE RECP FOLLOWING INSTALLATION.
7. CONTRACTOR TO ENSURE THAT RECP IS SECURED AT THE TOP OF THE SLOPE IN A TRENCH AND OVERLAP (SIDE TO SIDE AND BOTTOM TO TOP)
8. CONTRACTOR TO INSPECT THE SITE DAILY OR AFTER SIGNIFICANT RAINFALL EVENTS (10MM) AND IDENTIFY AREAS OF EROSION OR POTENTIAL EROSION. BEST MANAGEMENT PRACTICES ARE TO BE USED TO CONTROL THE EROSION. METHODS OF CONTROL MAY INCLUDE THE USE OF EROSION CONTROL BLANKETS C/W SEEDING, HYDRAULIC MULCH OR STRAW MULCH, OR SOIL BINDER. SOILS ARE TO BE STABILIZED AS SOON AS AREAS ARE IDENTIFIED TO PREVENT FURTHER EROSION.

SILT FENCE NOTES (SEE DETAIL OPSD 219.110)

1. STAKES ARE TO BE INSTALLED ON THE DOWNSTREAM SIDE OF THE BARRIER
2. CONTRACTOR TO MONITOR SILT FENCE FOR UV DEGRADATION
3. SILT FENCE IS TO BE CLEANED OUT ONCE SEDIMENT REACHES MAXIMUM 1/3 OF THE FENCE HEIGHT

HYDRAULIC MULCH NOTES

1. COORDINATE/CONSULT WITH OWNER PRIOR TO UTILIZING ANY HYDRAULIC MULCH. TIMELINES AND SEEDING METHODS NEED TO BE CAREFULLY CONSIDERED PRIOR TO IMPLEMENTATION.
2. ENSURE THAT A TACKIFIER IS USED TO KEEP PRODUCT IN PLACE
3. APPLY SEED MIX PRIOR TO MULCH WITH TACKIFIER
4. HYDRAULIC MULCH IS TO BE APPLIED AS SOON AS GRADING AND SEEDING WORK IS COMPLETE TO ENSURE STABILIZATION OF SOILS.
5. RE-APPLY HYDRAULIC MULCH IF THE SUBJECT AREA IS DAMAGED OR ERODED BY WIND OR WATER

GENERAL

1. EQUIPMENT AND CONSTRUCTION MATERIAL SHALL BE STORED AWAY FROM THE WATER IN A MANNER THAT PREVENTS ANY DELETERIOUS SUBSTANCE FROM ENTERING THE WATER. REFUELING OF MACHINERY AND GENERATORS SHALL NOT BE CONDUCTED WITHIN 30 M OF A WATERCOURSE AND SHALL BE COMPLETED IN A CONTROLLED MANNER WITH ADEQUATE SPILL PROTECTION ON SITE.

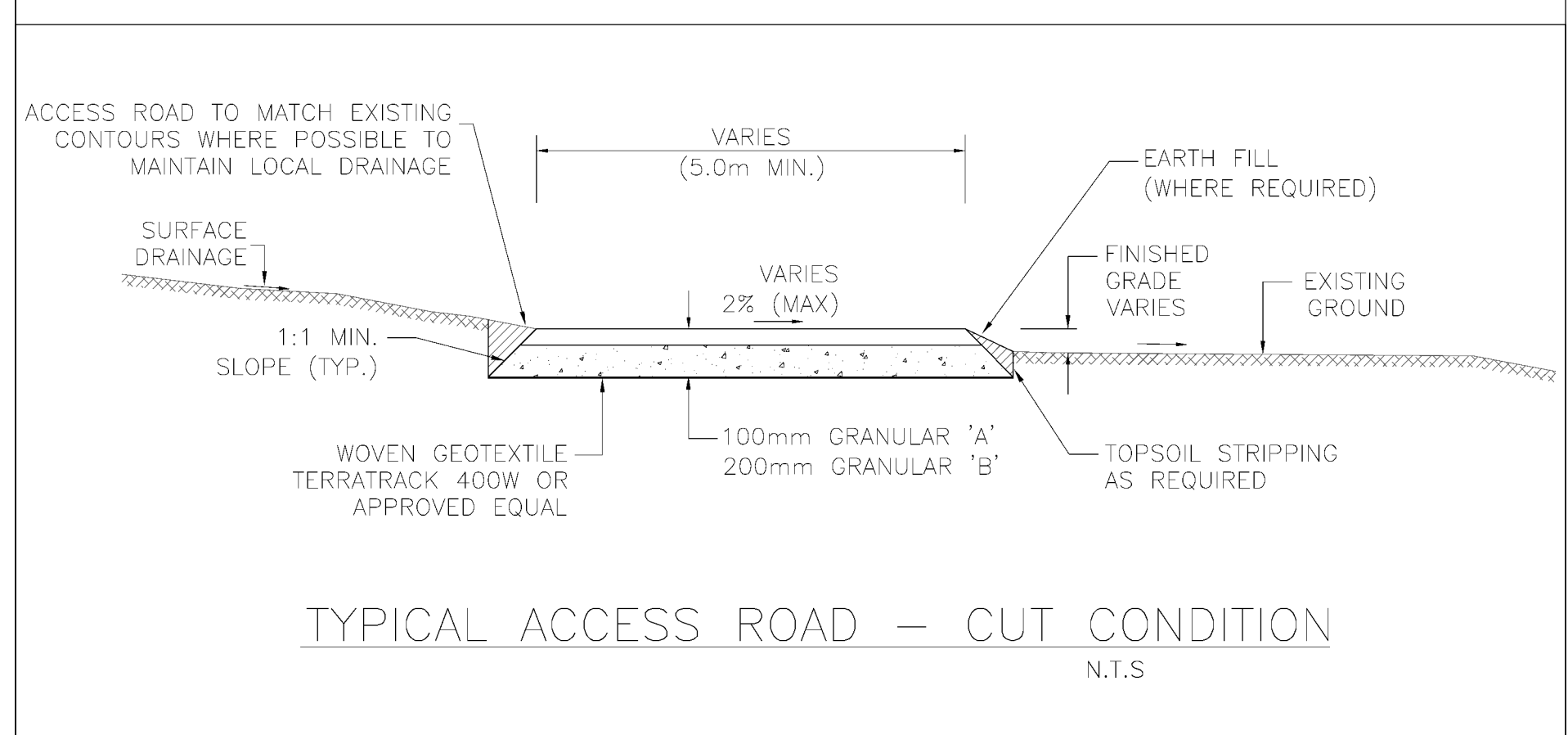
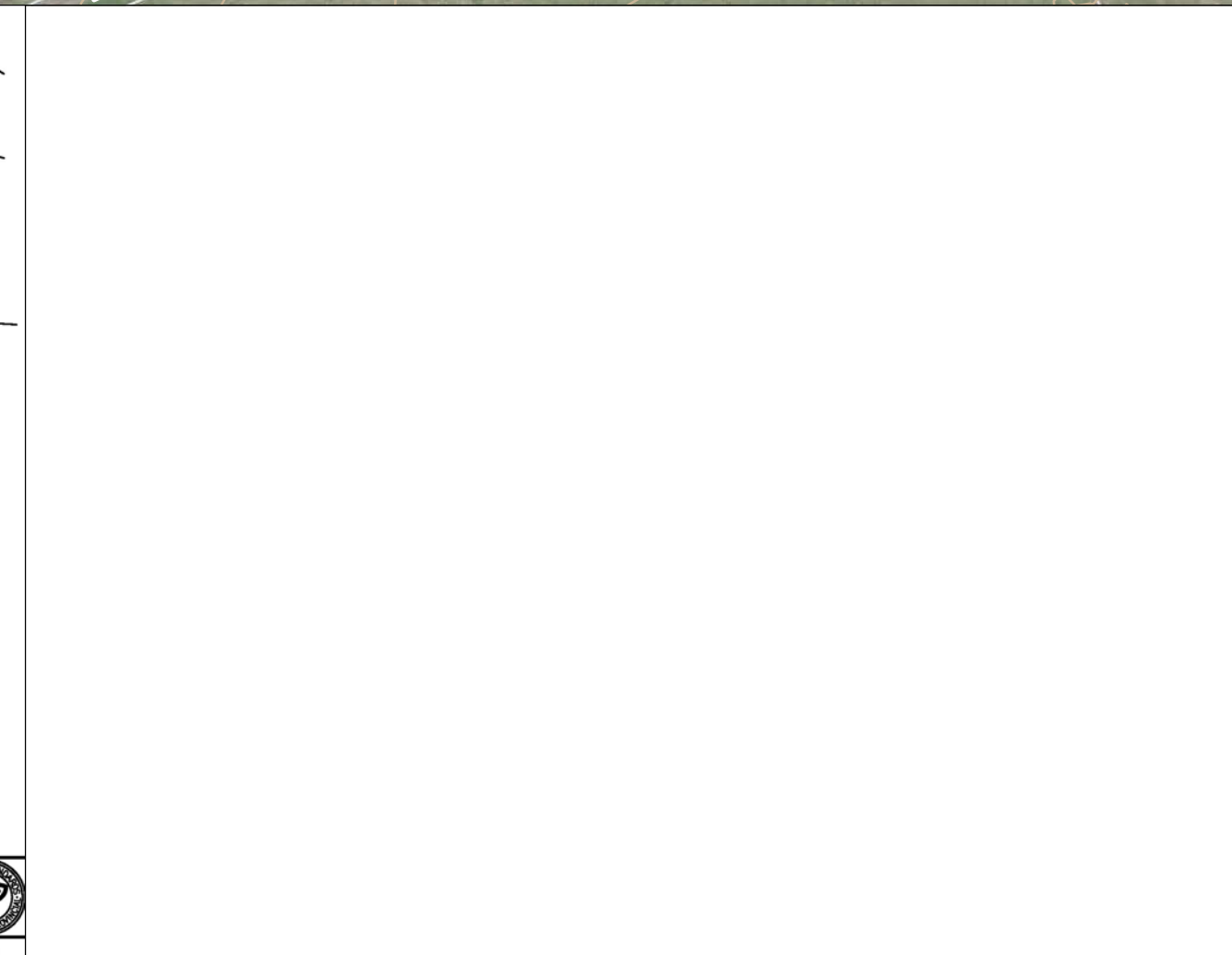
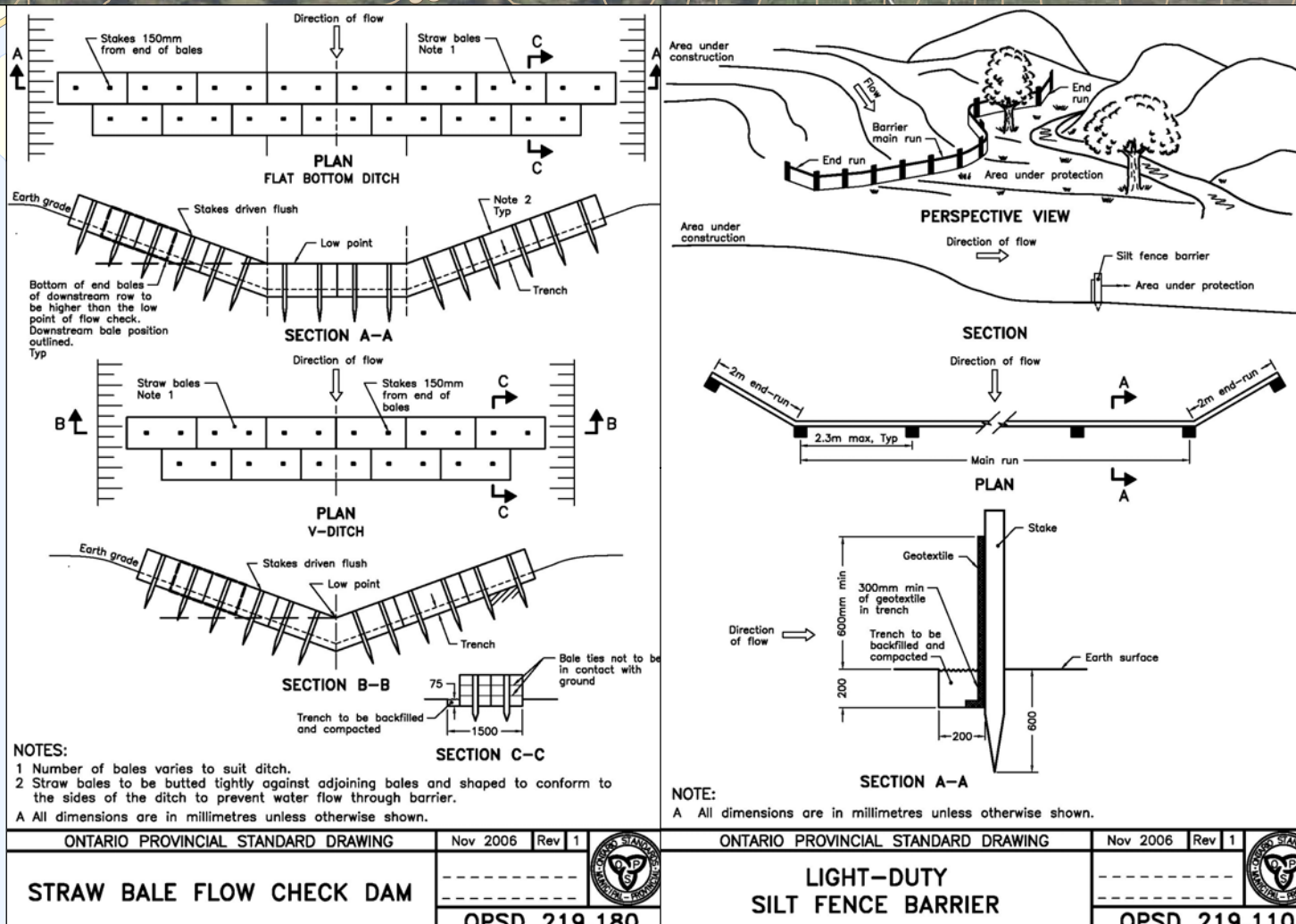
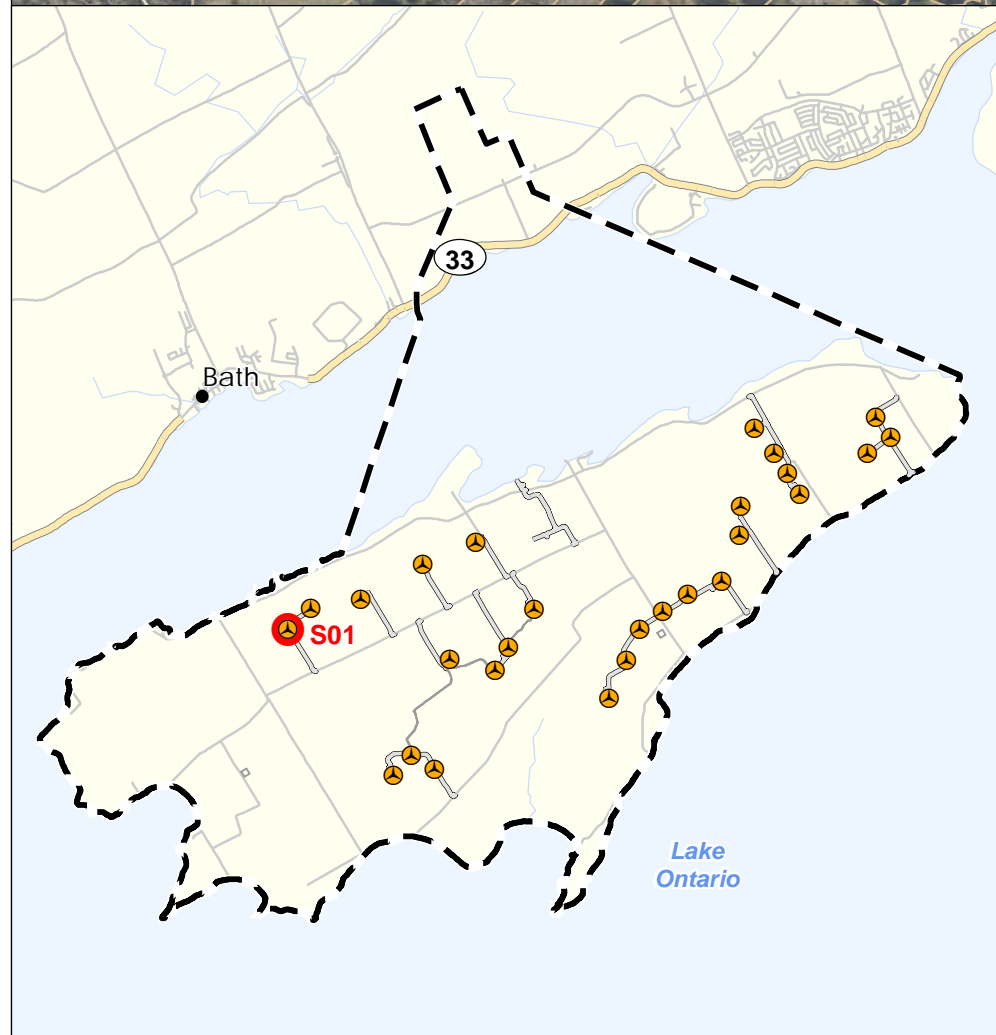
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Consultants

Legend

- Silt Fence
- Turbine Location
- Ground Topographic Contour (metres AMSL)
- Access Road
- Collector Line
- Laydown Area and Crane Pad
- Turbine Blade Tip
- Constructible Area
- Property Line
- Fill: 75m³ (assumed)
- Top Soil: 150m³ (assumed)



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5. AT THE DISCRETION OF THE OWNER OR OWNER'S CONSULTANT, ADDITIONAL SILT CONTROL DEVICES SHALL BE INSTALLED AT DESIGNATED LOCATIONS.
6. SEDIMENT THAT IS ACCUMULATED BY THE TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED IN A MANNER THAT AVOIDS ESCAPE OF THE SEDIMENT TO THE DOWNSTREAM SIDE OF THE CONTROL MEASURE AND AVOIDS DAMAGE TO THE CONTROL MEASURE. ALL SEDIMENT SHALL BE REMOVED AND TOPSOIL WITH SEED TO BE ADDED IF NECESSARY.
A) ACCUMULATED SEDIMENT IS TO BE REMOVED AND DISPOSED OF AS PER OPSS 180, PRIOR TO THE REMOVAL OF ANY CONTROL MEASURE.
7. STOCKPILED MATERIAL IS TO BE STORED AWAY FROM POTENTIAL RECEIVERS (E.G. WATERCOURSES), AND BE SURROUNDED BY EROSION CONTROL MEASURES WHERE MATERIAL IS TO BE LEFT IN PLACE IN EXCESS OF 10 DAYS OR PRIOR TO A RAIN EVENT, WHICHEVER OCCURS SOONER.
8. REMOVAL OF SEDIMENT CONTROL MEASURES AND COLLECTION OF ACCUMULATED SEDIMENT SHALL OCCUR FOLLOWING SUBSTANTIAL COMPLETION OF CONSTRUCTION (90%-100%) AND SITE STABILIZATION TO 90%.
9. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN AND BOLSTER EROSION AND SEDIMENT CONTROL MEASURES AS NECESSARY TO KEEP THEM EFFECTIVE AND MINIMIZE THE POTENTIAL FOR EROSION.
10. IN ADDITION TO BEING RESPONSIBLE FOR ENSURING THAT THE PRESCRIBED MEASURES ARE INSTITUTED AND FUNCTIONING AS INTENDED THE CONTRACTOR IS ALSO RESPONSIBLE FOR IMPLEMENTING ANY INTERIM OR EMERGENCY MEASURES AS NECESSARY, TO ENSURE THAT NO SEDIMENT IS DISCHARGED TO THE NATURAL ENVIRONMENT. THE FOLLOWING EXTRA EQUIPMENT/MATERIALS ARE TO BE KEPT ON SITE AS A CONTINGENCY, IN CASE THE PROPOSED CONTROL MEASURES ARE BREACHED.

- SILT FENCE
- FILTER CLOTH
- PUMPS
- CLEAN RIP-RAP (FREE OF FINES) FOR ROCK CHECK DAMS
- SAND BAGS AND CLEAN (FREE OF FINES) GRAVEL

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AREA GRADING NOTES

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1. TOPSOIL IS TO BE STRIPPED ONLY IN AREAS REQUIRING EARTHWORKS AND PLACED IN STOCK PILES AT THE LOCATIONS SHOWN ON THE PLANS OR AS APPROVED BY THE QUALIFIED ENVIRONMENTAL SITE INSPECTOR.
2. TEMPORARY TOPSOIL STOCKPILES ARE TO HAVE CONTINUOUS SILT FENCE PLACED IMMEDIATELY AROUND THE ENTIRE PERIMETER.
3. ROADWAYS AND LAY DOWN YARDS ARE TO BE PLACED ON NATIVE GROUND AFTER TOPSOIL HAS BEEN STRIPPED.
4. ALL TOPSOIL IS TO BE RE-SPREAD ON CONSTRUCTION IMPACTED AREAS AFTER FINAL GRADING IS COMPLETE TO A MINIMUM DEPTH OF 150MM.
5. SILT FENCE AND EROSION CONTROL STRUCTURES TO BE CHECKED DAILY AND AFTER EACH RAINFALL >10MM FOR UNDERMINING OR DETERIORATION OF THE FABRIC. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL OF SEDIMENT DEPOSITION REACHES ONE THIRD OF THE WAY TO THE TOP OF THE BARRIER.

AFTER AREA GRADING

1. ALL AREAS WHERE ACTIVE CONSTRUCTION IS NOT EXPECTED FOR 2 WEEKS SHALL BE RE-SEEDED WITH NATIVE PLANT SPECIES.
2. REMOVAL OF SEDIMENT CONTROL MEASURES AND COLLECTION OF ACCUMULATED SEDIMENT SHALL OCCUR FOLLOWING SUBSTANTIAL COMPLETION OF CONSTRUCTION (90%-100%) AND SITE STABILIZATION TO 90%.

SLOPE PROTECTION NOTES

1. EITHER ROLLED EROSION CONTROL PRODUCTS (RECP) OR MULCHMAX ULTRA AT 500 KG/HA ARE TO BE USED ON 3:1 SLOPES OR GREATER.
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1. COORDINATE/CONSULT WITH OWNER PRIOR TO UTILIZING ANY HYDRAULIC MULCH. TIMELINES AND SEEDING METHODS NEED TO BE CAREFULLY CONSIDERED PRIOR TO IMPLEMENTATION.
2. ENSURE THAT A TACKIFIER IS USED TO KEEP PRODUCT IN PLACE
3. APPLY SEED MIX PRIOR TO MULCH WITH TACKIFIER
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5. RE-APPLY HYDRAULIC MULCH IF THE SUBJECT AREA IS DAMAGED OR ERODED BY WIND OR WATER

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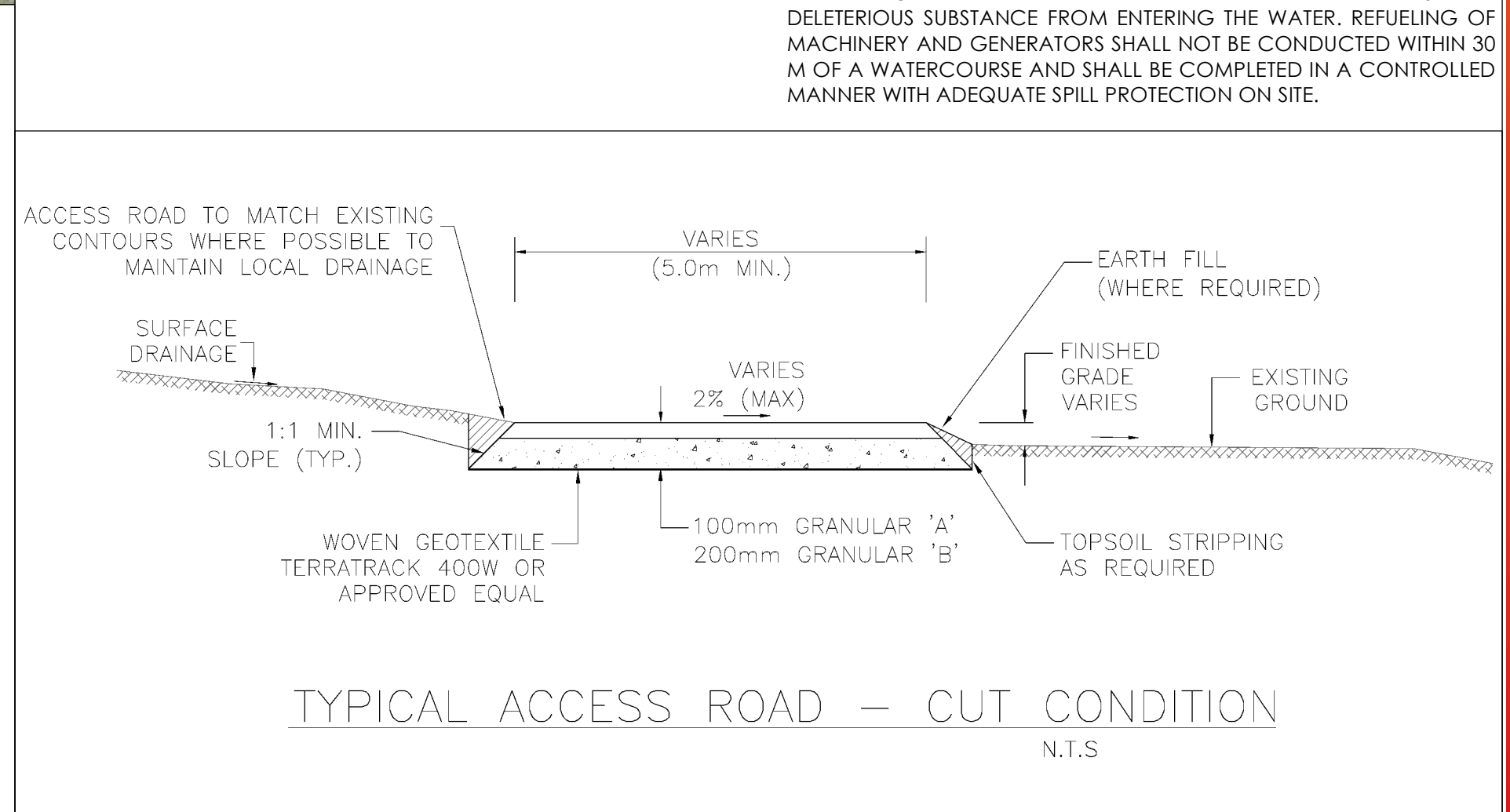
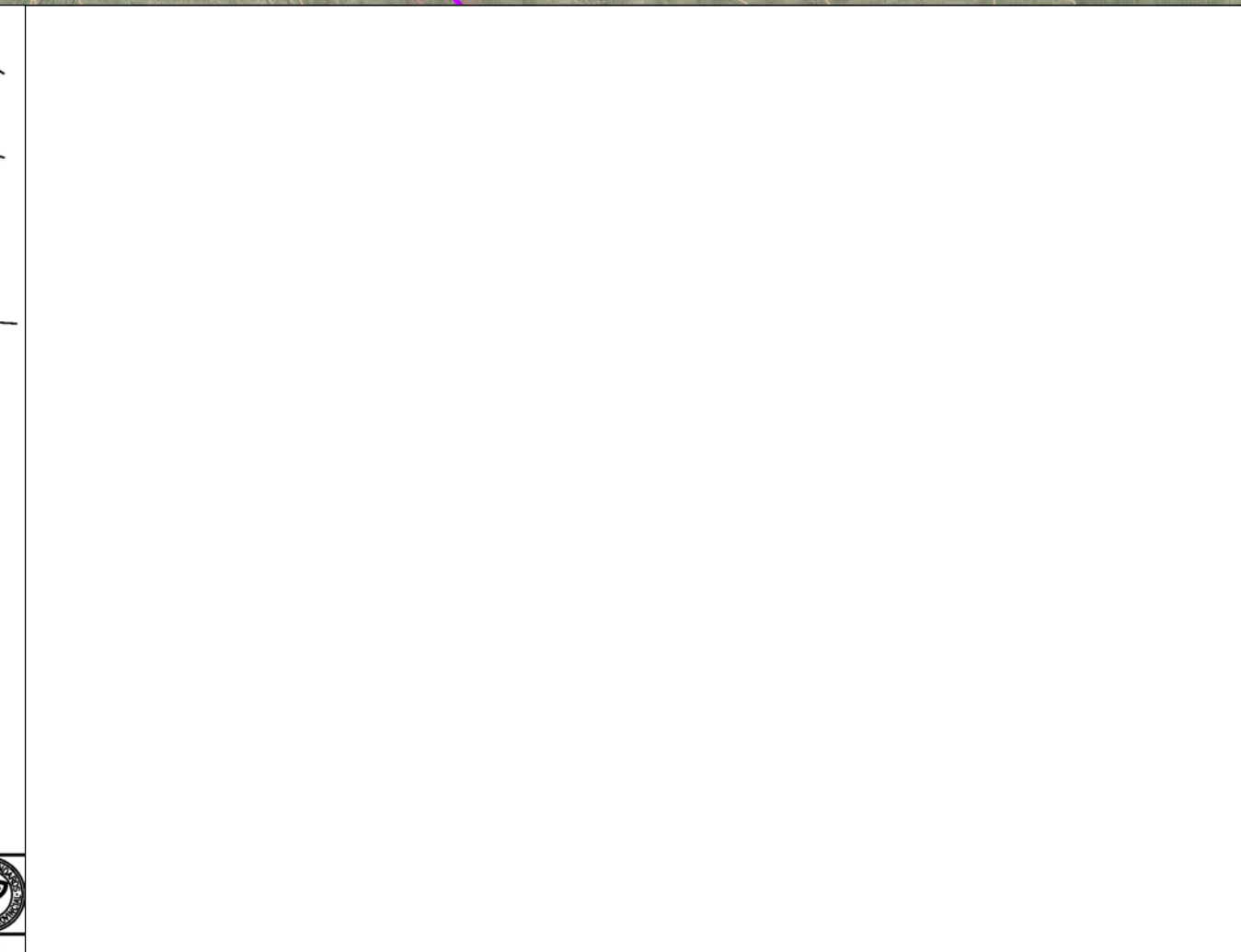
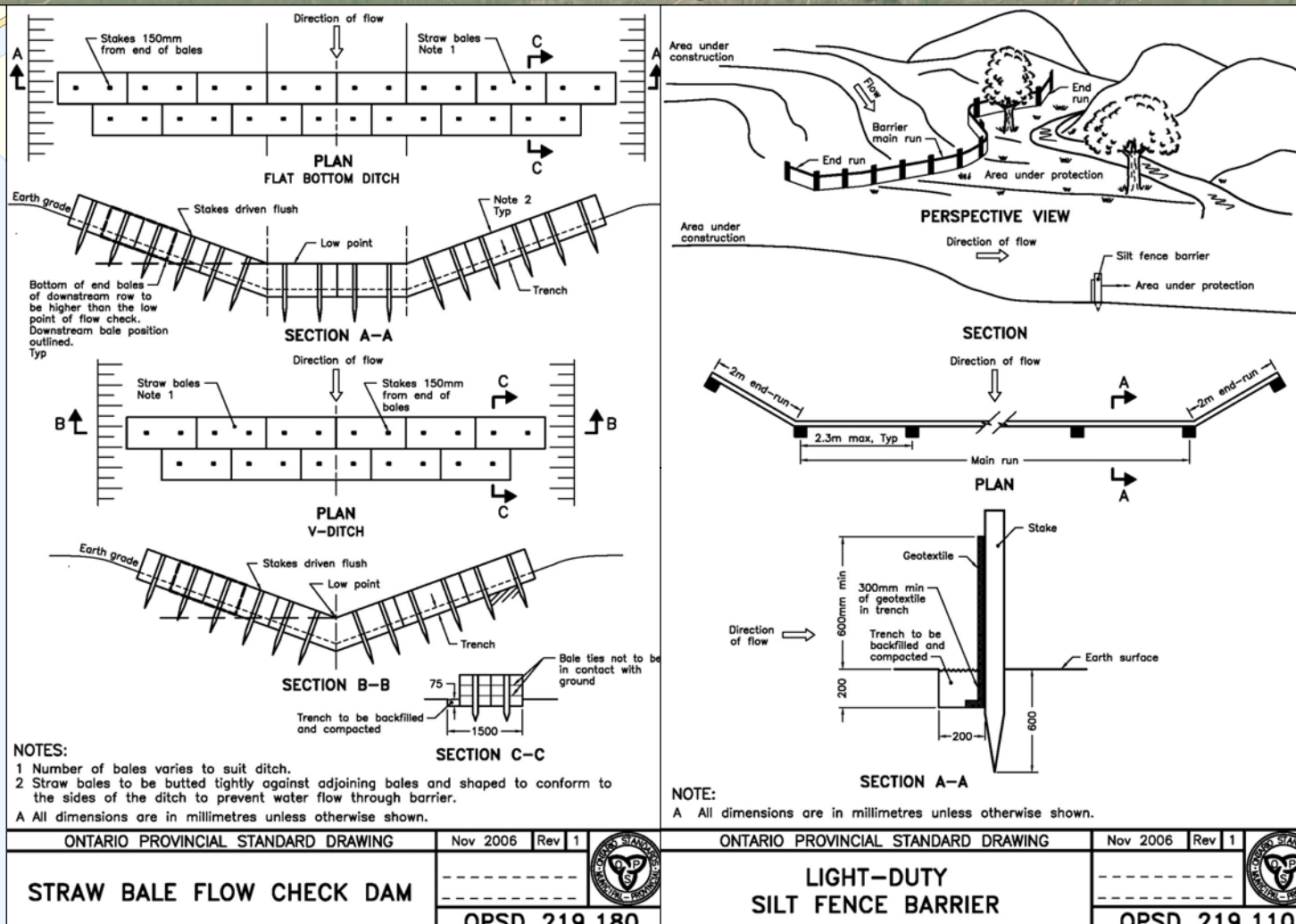
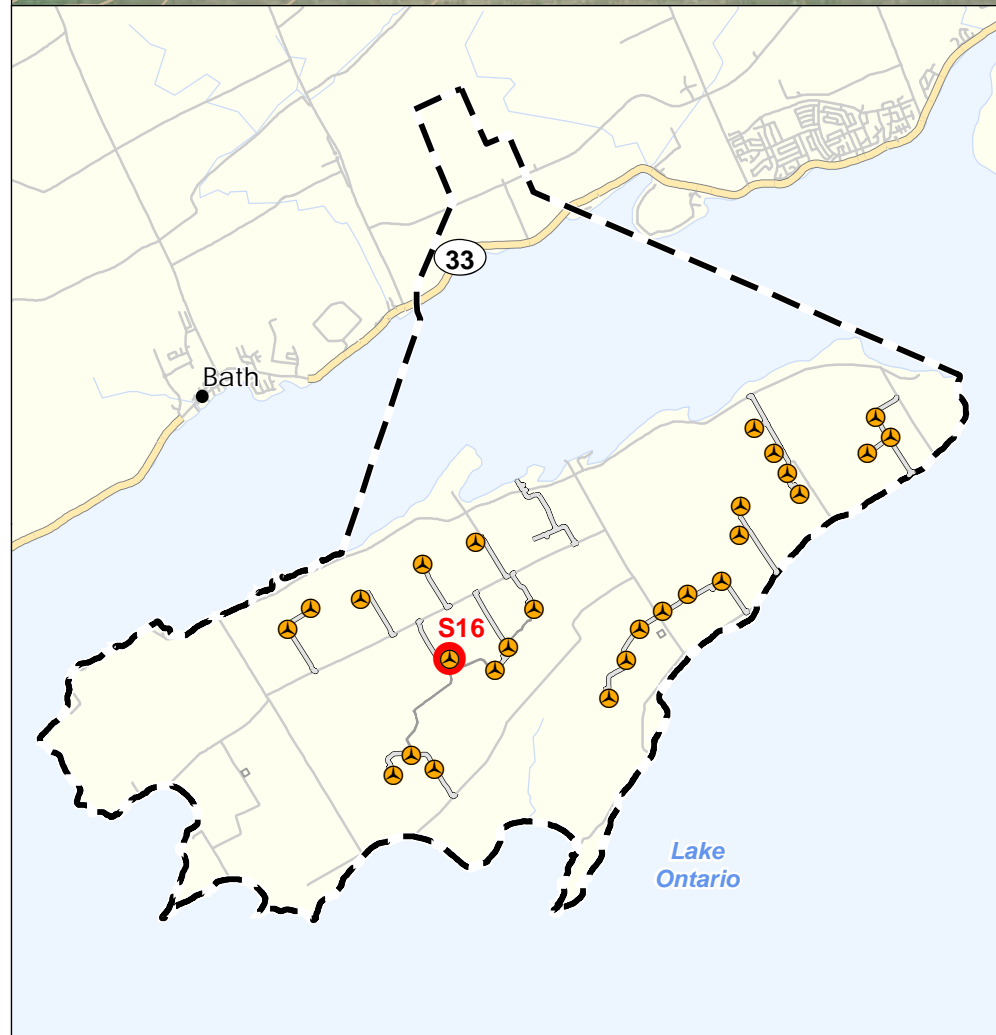
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Consultants

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- Silt Fence
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- Access Road
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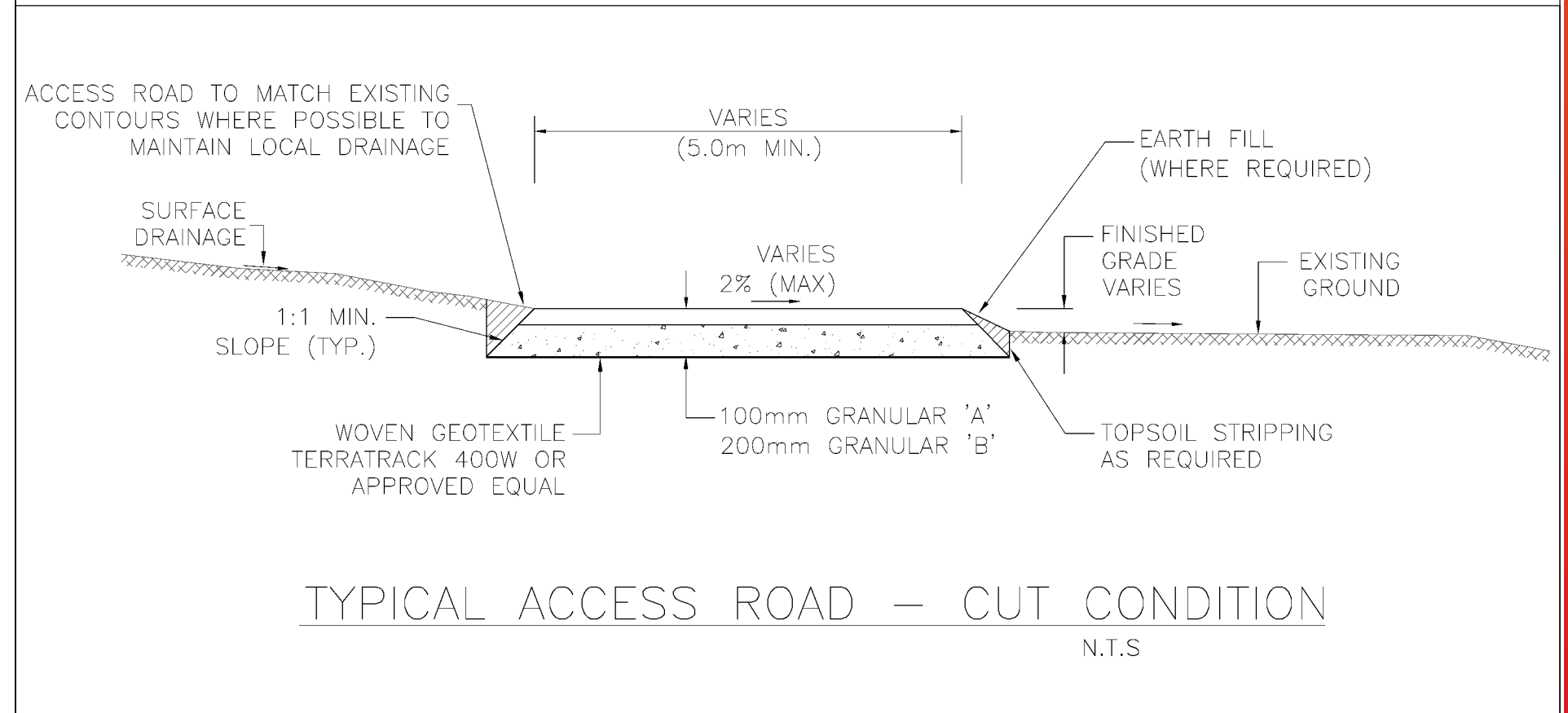
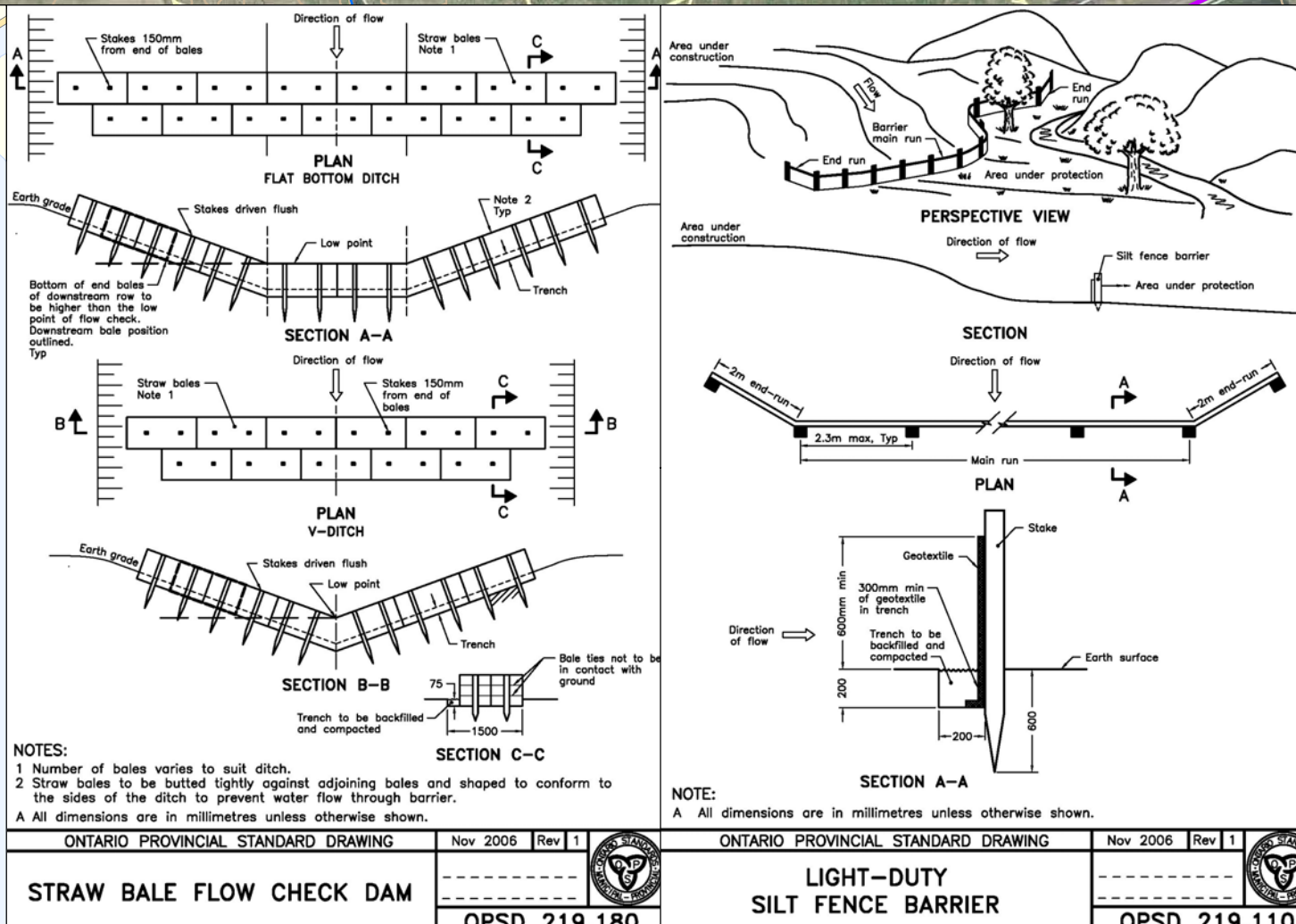
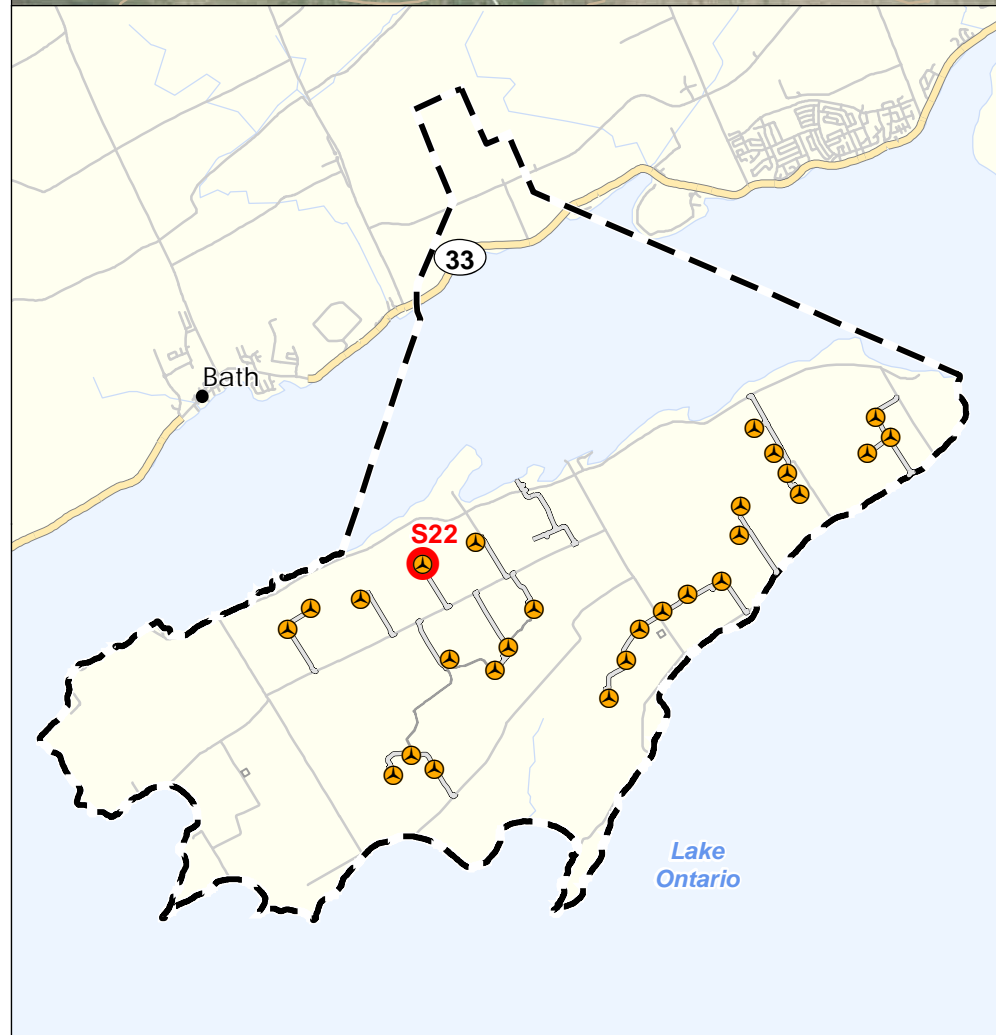
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Consultants

Legend

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- Turbine Location
- Ground Topographic Contour (metres AMSL)
- Access Road
- Collector Line
- Laydown Area and Crane Pad
- Turbine Blade Tip
- Constructible Area
- Property Line
- CA Regulation Limit
- Fill: 75m³ (assumed)
- Top Soil: 150m³ (assumed)



Notes:
1. Coordinates System: NAD 1983 UTM Zone 18N
2. Soil features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2017.
3. Orthomagey © Cataraqui Region Conservation Authority, 2017. Imagery taken in 2014.

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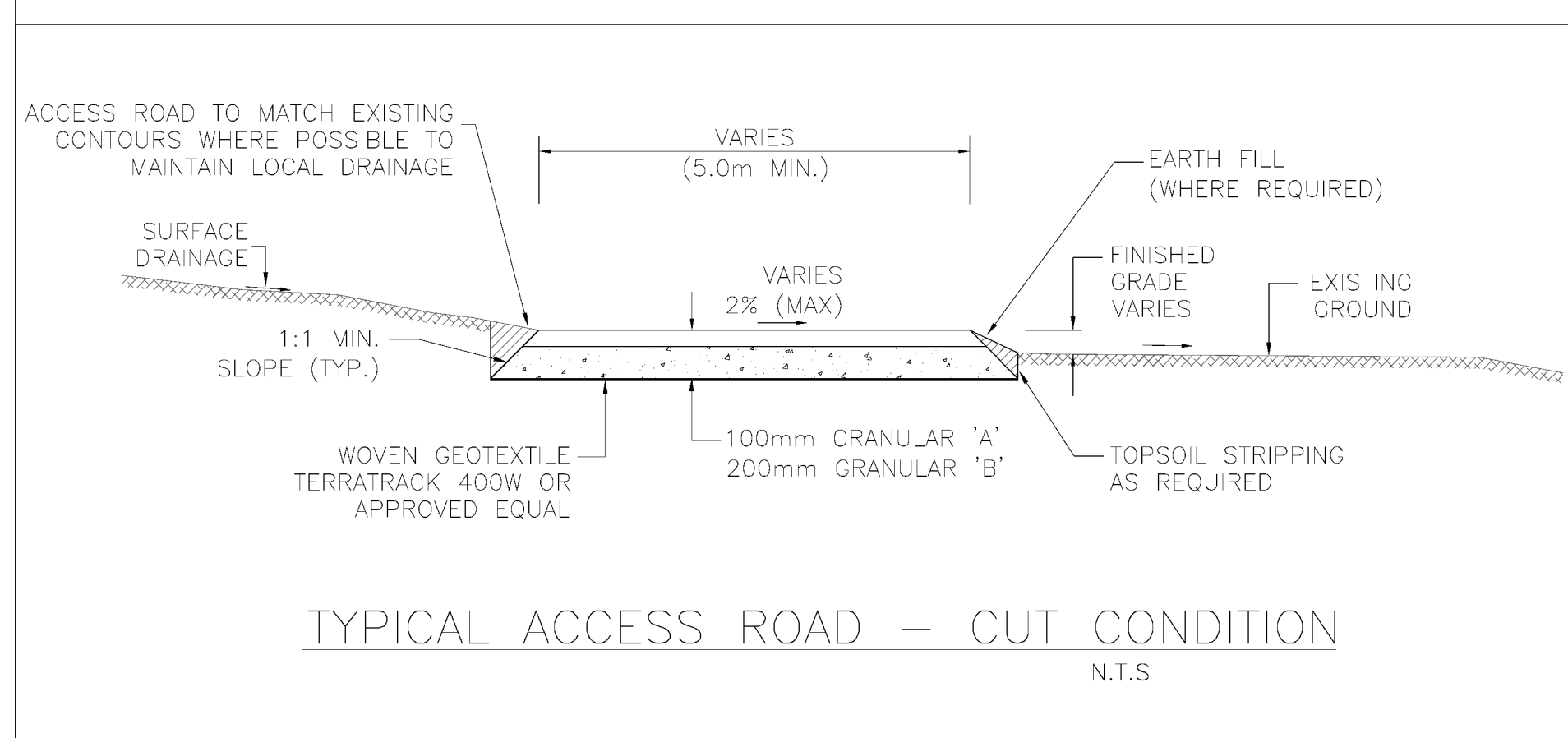
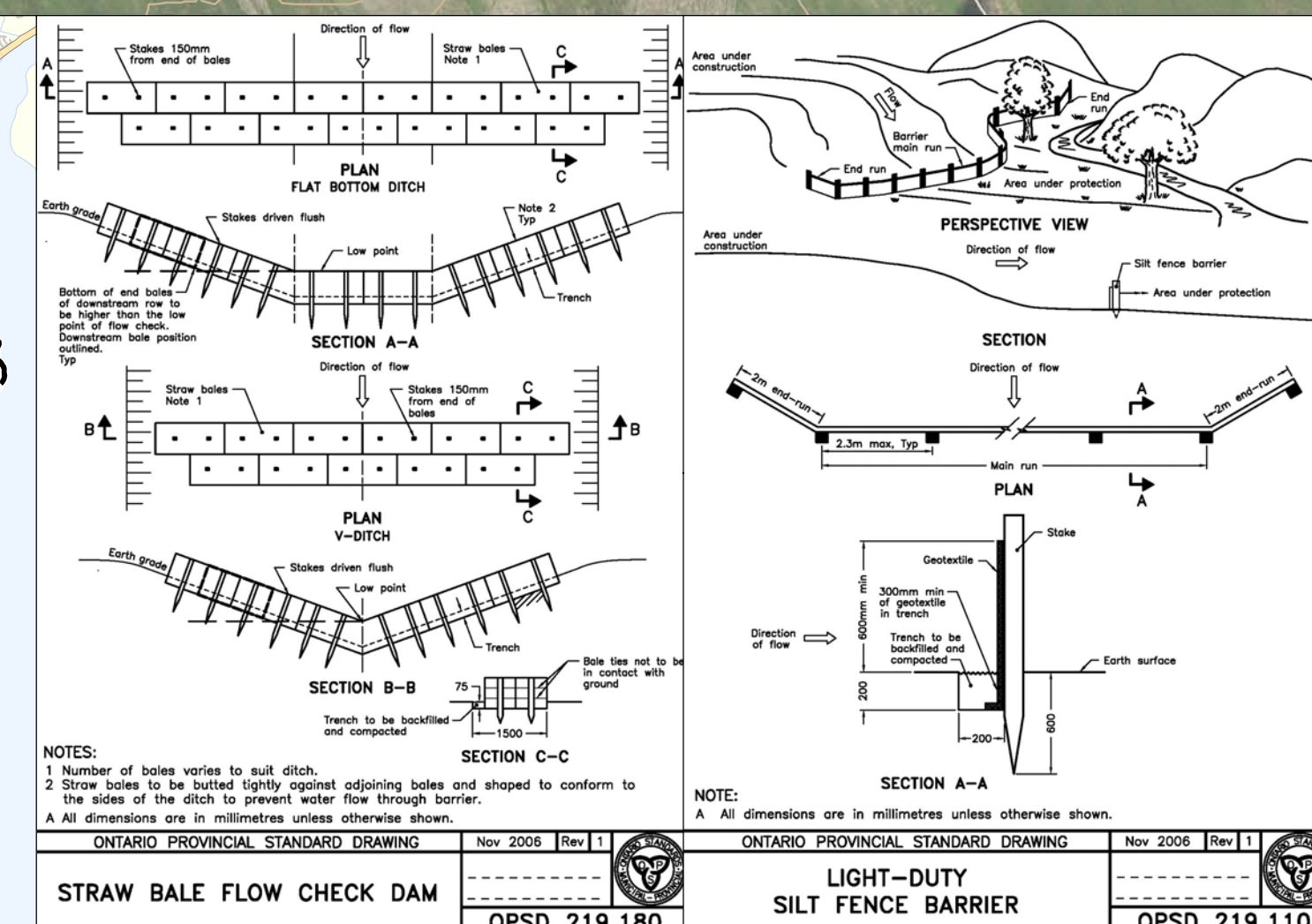
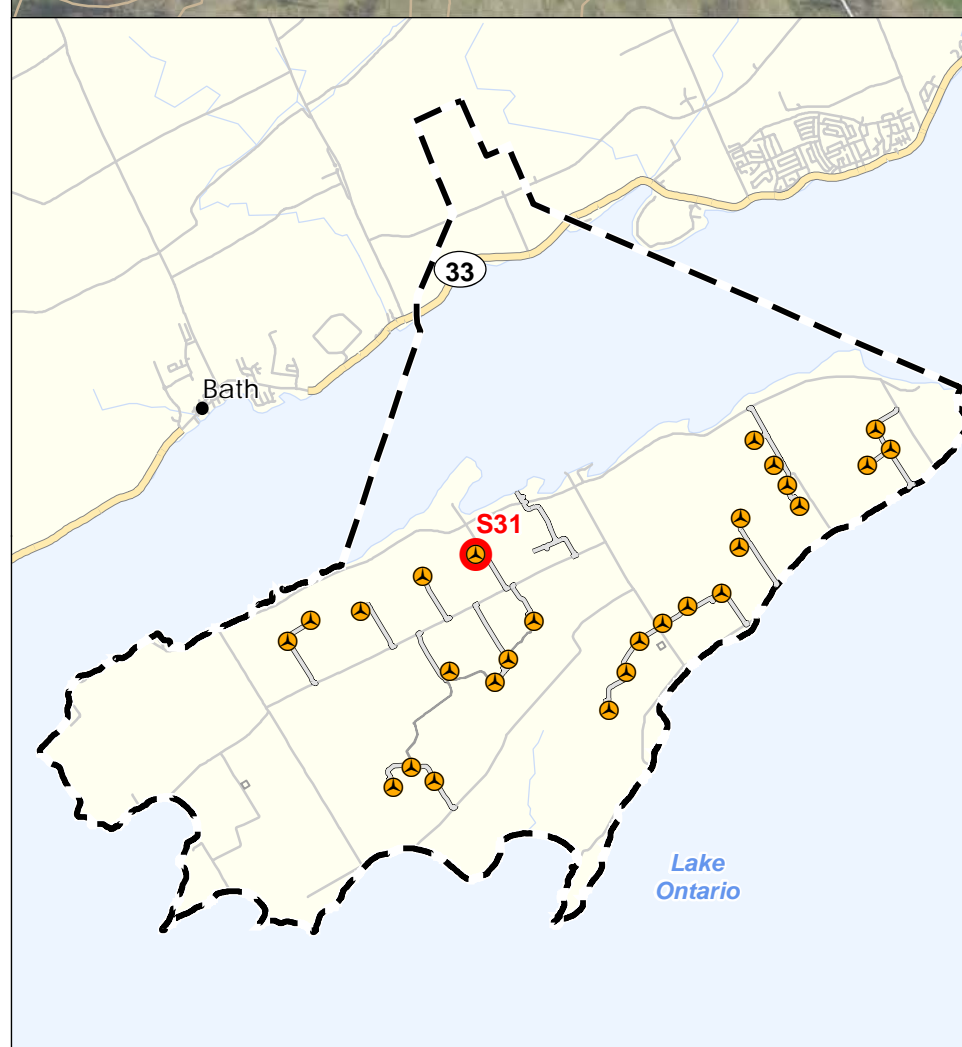
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3. SILT FENCE IS TO BE CLEANED OUT ONCE SEDIMENT REACHES MAXIMUM 1/3 OF THE FENCE HEIGHT

HYDRAULIC MULCH NOTES

1. COORDINATE/CONSULT WITH OWNER PRIOR TO UTILIZING ANY HYDRAULIC MULCH. TIMELINES AND SEEDING METHODS NEED TO BE CAREFULLY CONSIDERED PRIOR TO IMPLEMENTATION.
2. ENSURE THAT A TACKIFIER IS USED TO KEEP PRODUCT IN PLACE
3. APPLY SEED MIX PRIOR TO MULCH WITH TACKIFIER
4. HYDRAULIC MULCH IS TO BE APPLIED AS SOON AS GRADING AND SEEDING WORK IS COMPLETE TO ENSURE STABILIZATION OF SOILS.
5. RE-APPLY HYDRAULIC MULCH IF THE SUBJECT AREA IS DAMAGED OR ERODED BY WIND OR WATER

GENERAL

1. EQUIPMENT AND CONSTRUCTION MATERIAL SHALL BE STORED AWAY FROM THE WATER IN A MANNER THAT PREVENTS ANY DELETERIOUS SUBSTANCE FROM ENTERING THE WATER. REFUELING OF MACHINERY AND GENERATORS SHALL NOT BE CONDUCTED WITHIN 30 M OF A WATERCOURSE AND SHALL BE COMPLETED IN A CONTROLLED MANNER WITH ADEQUATE SPILL PROTECTION ON SITE.



Notes:
1. Coordinate System: NAD 1983 UTM Zone 18N
2. Soil features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2017.
3. Orthorectified © Cataraqui Region Conservation Authority, 2017. Imagery taken in 2014.

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Windtetric Inc.
Amherst Island Wind Energy Project

Figure No.:
6

Date:
June 2017

Erosion and Sediment Control
Turbine: S31
Laydown 1: Eves James Vincent
Laydown 2: Eves John Lortice



Figure 7 Typical access road construction at a wind project



Figure 8 Typical access road construction at a wind project



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SITE:
Amherst Island Wind Energy Project
Erosion and Sediment Control /
Stormwater Management Plan

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Figure 9 Typical access road construction at a wind project



Figure 10 Typical access road construction at a wind project



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Figure 11 Typical access road construction at a wind project