

**WELCOME!**

Thank you for attending the Second Public Meeting Under the Renewable Energy Approval (REA) Process for the **Barlow Solar Energy Centre!**

We are happy to meet with you again to share new information about this clean, **renewable energy** project. Today's intent is to present the draft reports of studies conducted during the past few months and keep collecting additional input from the community to be considered for integration into our design.

Please review the display boards and feel free to ask us any questions you may have.

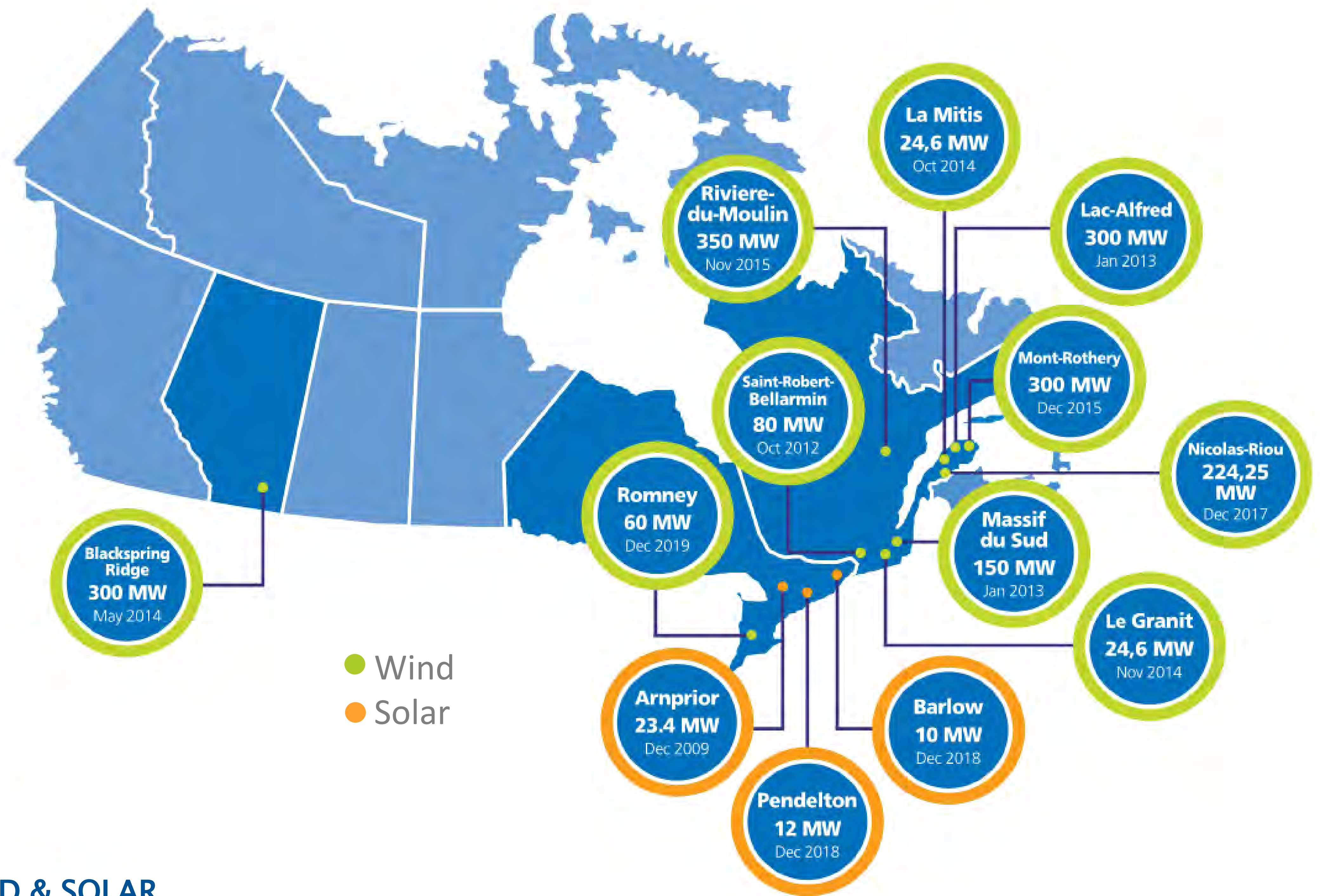
**We want to hear from you!**

Please complete a comment form to share your feedback! If you would like to be added to the Project mailing list, please sign up at the front desk.

# EDF EN CANADA

## 1 680 MW

Put into Service,  
Under Construction,  
or In Development



### WIND & SOLAR

**1 374 MW** (350 000 homes) Commissioned Capacity

**224 MW** (54 900 homes) Under Construction

**82 MW** (20 100 homes) In Development

### OPERATIONS & MAINTENANCE

**1 061 MW** Wind

**516 MW** Solar

**> \$3.5 billion** invested  
in Canada since 2008



# PROJECT OVERVIEW

**PROJECT NAME:** Barlow Solar Energy Centre

**PROJECT OWNERS:** EDF EN Canada and the Algonquins of Pikwàkanagàn First Nation

**HOST MUNICIPALITIES:** Township of South Stormont and City of Cornwall

**RENEWABLE FUEL:** Non-Rooftop Solar

**CONTRACT CAPACITY:** 10 MWac

## PROPOSED CONNECTION POINT

Located within the City of Cornwall, on an existing distribution line along Power Dam Drive, about 600 metres east of the Project Location near the intersection of Cornwall Centre Road and Power Dam Drive.

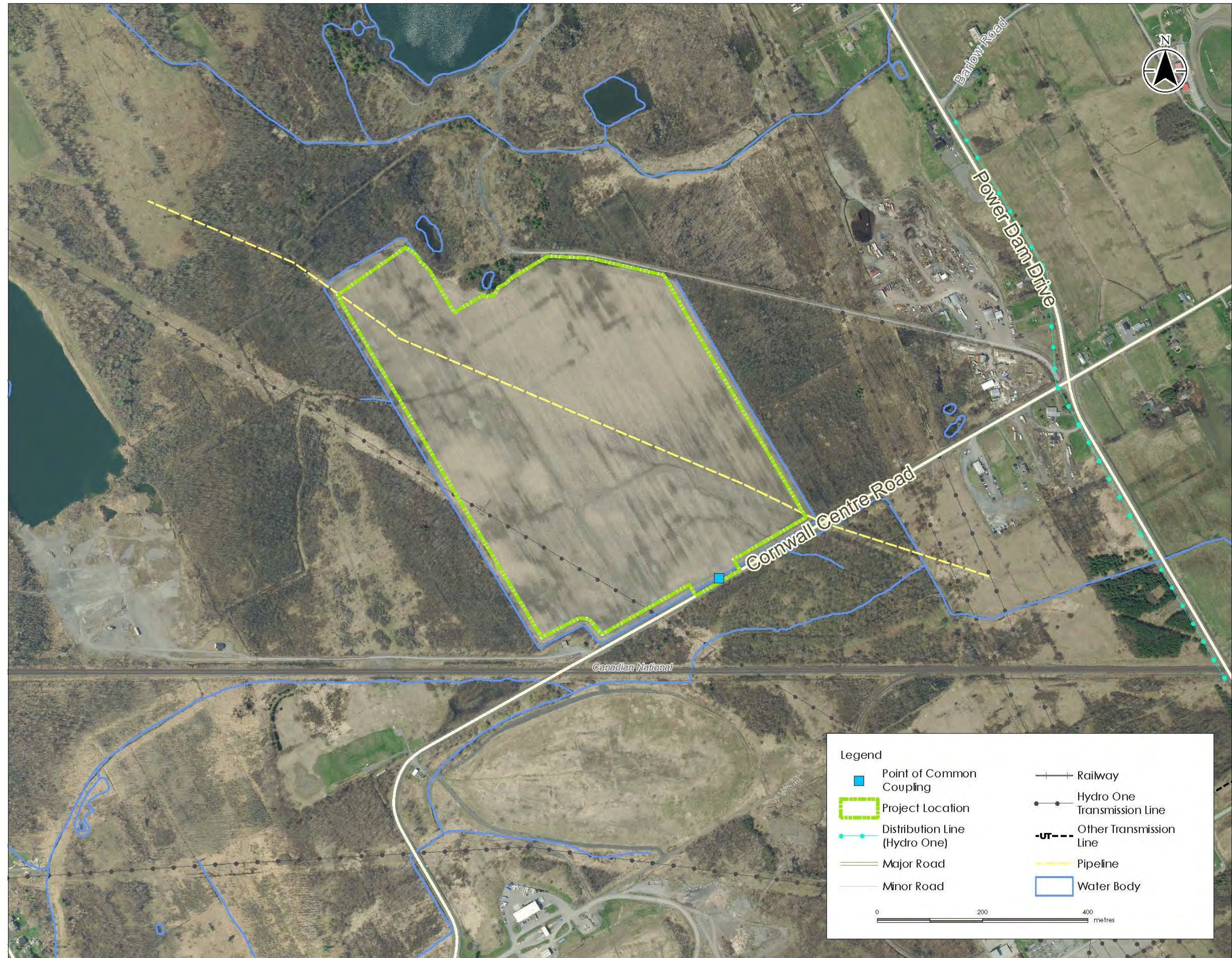
## CONNECTION LINE

The Connection Line will run approximately 900 m eastward along Cornwall Centre Road, using the road allowance belonging to the City of Cornwall, from the Project Location to the Connection Point.



# PROJECT LOCATION

Located in the Township of South Stormont and the City of Cornwall.





# BEING A GOOD NEIGHBOUR

When it comes to environmental benefits, solar can offer more than clean electricity



EDF EN Canada, working closely with local stakeholders, took advantage of the wild flowers and clover that typically grow within a solar park and installed beehives in the vicinity of Arnprior Solar park to enhance the biodiversity of the project by producing honey.

To further increase solar honey production, more hives are planned for 2017. Collection of more than 350 jars are anticipated. The honey produced is given as a gift to company employees, partners and project stakeholders.

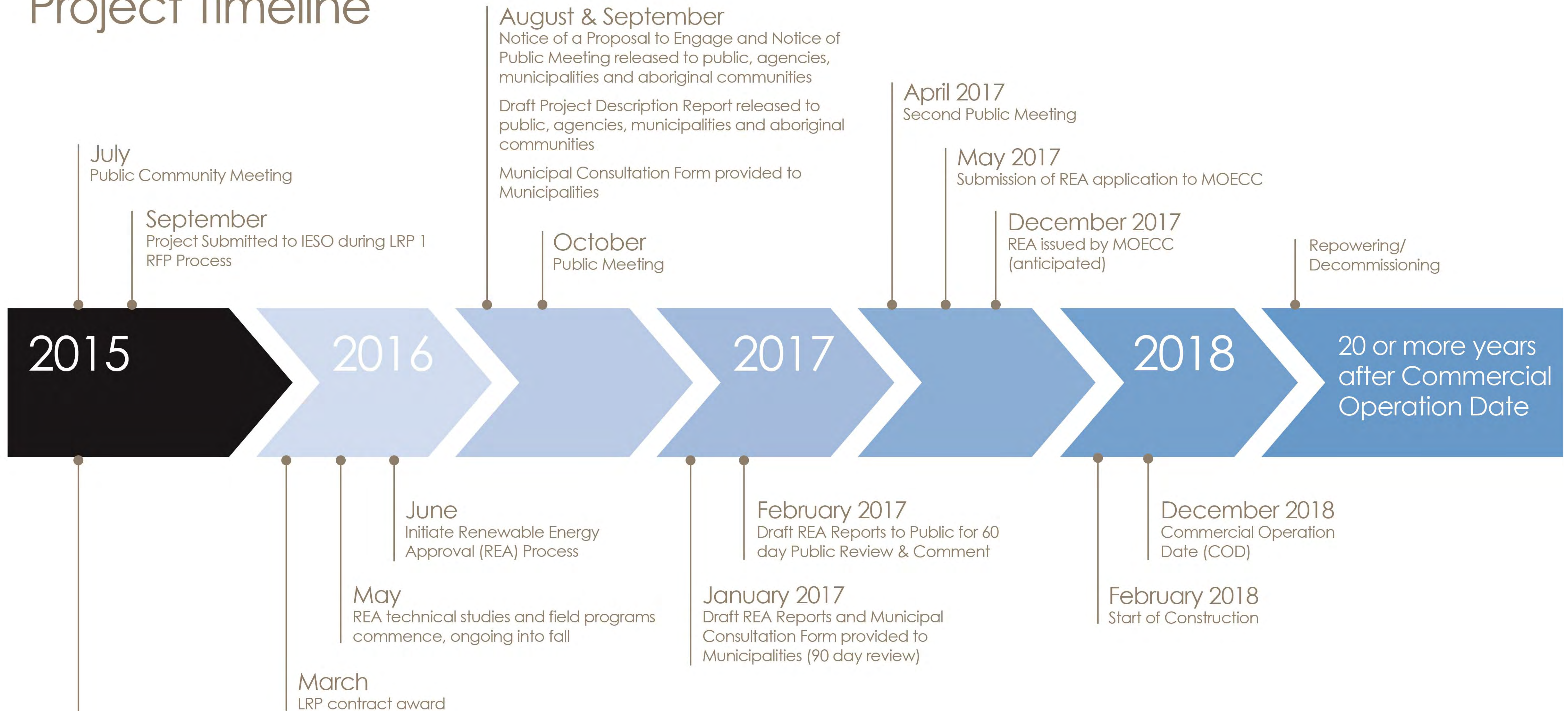
**SUNNY & HONEY**  
**100%**  
**ARNPRIOR SOLAR**  
**HONEY**

Beehive installed by EDF EN Canada at Arnprior Solar in Ottawa area made possible by planting vegetation such as clover beneath solar panels.





## Project Timeline

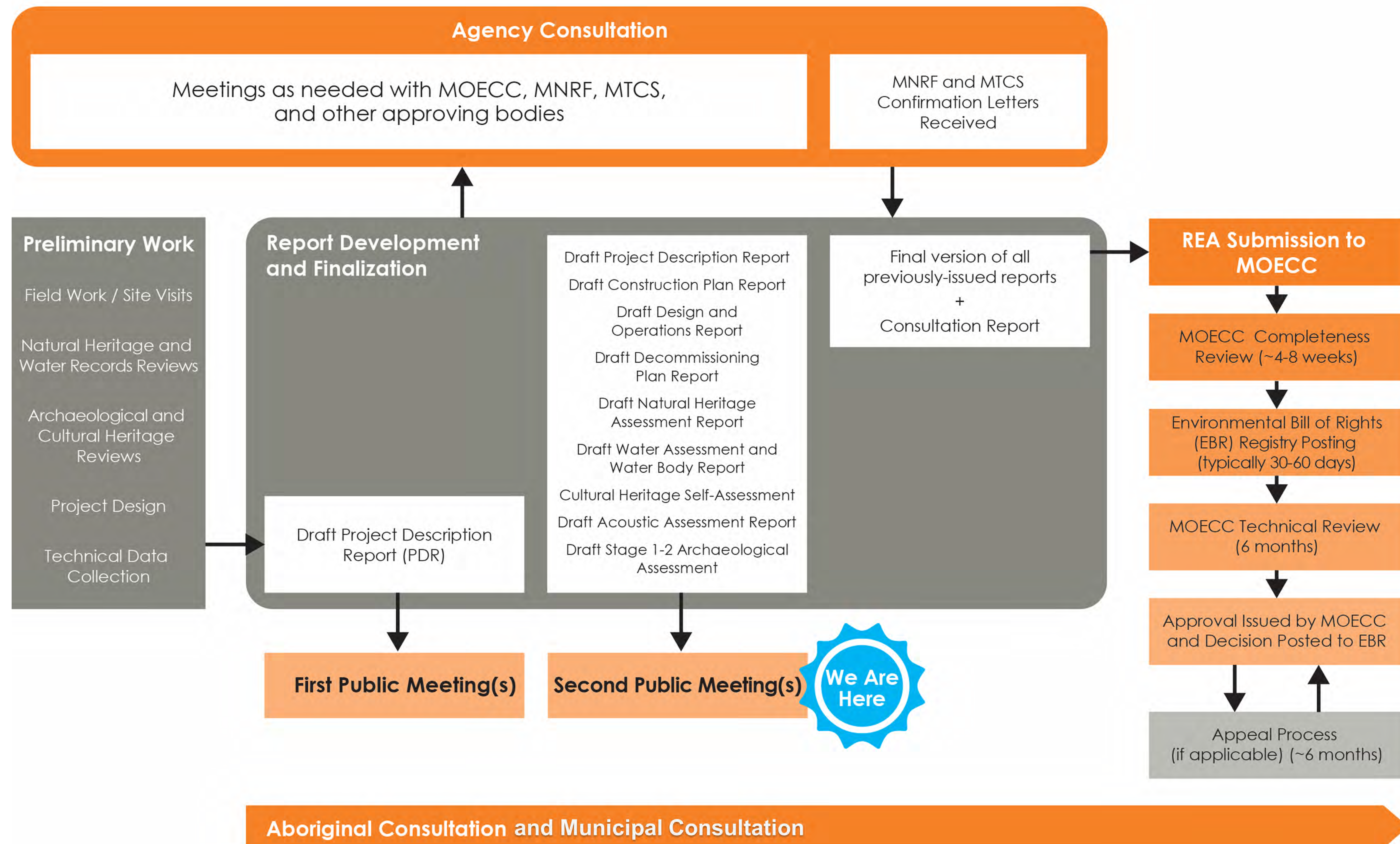


*Ongoing consultation with municipal staff, landowners, aboriginal communities, government agencies, special interest groups and members of the community.*



# THE RENEWABLE ENERGY APPROVAL PROCESS

## Overview of Renewable Energy Approval Process



- Issued under Ontario Regulation 359/09 under the *Environmental Protection Act*.
- Stringent environmental approval process that needs to be satisfied before construction.
- Specifies how the Project will be designed, built, operated and decommissioned so that the environment is protected.



- **The Construction Plan Report** includes a summary of project construction and installation activities, potential construction environmental effects, and any necessary mitigation and monitoring measures.
- The Report addresses the construction period of the Project, scheduled to be Q1 2018 through to the end of Q4 2018.
- Environmental components addressed in the **Construction Plan Report** include:
  - ✓ Cultural Heritage and Archaeological Resources
  - ✓ Natural Heritage Features
  - ✓ Water Bodies & Aquatic Resources
  - ✓ Air Quality & Environmental Noise
  - ✓ Land Use and Socio-Economic Resources
  - ✓ Existing Utilities and Infrastructure
  - ✓ Waste Material Disposal & Accidental Spills

## Report Summary

The Project has been sited in a manner that will minimize environmental effects. Construction of the Project can be completed using standard, well-known techniques to prevent, manage or mitigate potential effects to the environment.

- Before construction, a **Construction Environmental Management Plan (CEMP)** will be developed. The Project owner and its contractors will implement the **CEMP** to protect the environment and ensure compliance with the Renewable Energy Approval. As appropriate, the **CEMP** will also include procedures and plans for the following:

- Traffic Management Plan
- Waste Management Plan
- Emergency Response and Communications Plan
- Complaint Response Protocol

- During construction, a **Construction Environmental Effects Monitoring Plan (CEEMP)** will be implemented to assess the impacts of construction activities on environmental features and check that mitigation measures and contingency planning are effectively implemented. This will include trained, on site personnel responsible for monitoring implementation of the **CEEMP**.



- The Design and Operations Report describes the operational details of the project, its site plan, potential operational environmental effects, and any necessary mitigation and monitoring measures.
- The Report addresses the operations period of the Project, scheduled for a 20-year period, beginning in Q4 2018.
- Environmental components addressed in the Design and Operations Report are similar to the Construction Plan Report.
- In addition, the Design and Operations Report includes a site plan, facility design plan, and a facility operations plan.

## Report Summary

The Project has been designed and will be operated in a manner that will minimize environmental effects. Operation of the Project will include continuous remote monitoring, and regular maintenance and inspection. These activities can be completed in a manner that will prevent, manage or mitigate potential effects to the environment.

- Prior to operation, an **Emergency Response and Communications Plan** will be developed for use by Project employees. The Plan will establish and maintain emergency procedures required to effectively deal with an emergency situation and minimize potential effects. The Plan will be used throughout the operational life stage of the Project.
- During operation, an **Environmental Effects Monitoring Plan (EEMP)** will be implemented to ensure mitigation measures and contingency planning are effectively implemented. The plan will describe activities during operation and how monitoring and contingency measures described in the **Design and Operations Report** will be implemented. This may include things such as:

- Monitoring ditches and culverts to ensure proper site drainage
- Vegetation management and monitoring
- Noise monitoring, if required



- The **Decommissioning Plan Report (DPR)** provides a summary of project decommissioning activities, potential decommissioning environmental effects and any necessary mitigation and monitoring measures.
- The Project is expected to have an operational lifespan of 20 or more years, beginning in Q4 2018.
- At the end of the Project lifespan, it may be decommissioned or “repowered” with updated technology and continue to generate renewable energy.
- The **DPR** has assumed that the land will be returned to its current agricultural use. However, the **DPR** will be updated in advance of decommissioning to reflect the actual conditions, plans for the site and regulatory requirements in effect at that future time.

## Report Summary

The Project can be decommissioned in a manner that will minimize environmental effects and restore the land to its current, pre-Project use. Decommissioning of the Project essentially reverses the construction sequence and can be completed using standard, well-known techniques to prevent, manage or mitigate potential effects to the environment.

Decommissioning of the project would generally consist of removal of all above-ground Project equipment, including:

- Solar panels, racking and inverter stations
- Substation, collection system, storage infrastructure and perimeter fencing
- Piles, foundations and buried cables at least one meter below surface

- A Rehabilitation plan would be developed to guide restoration of the site to agricultural use, or to a state suitable for the use planned at that time.
- Environmental mitigation and monitoring requirements would be defined to ensure protection of nearby environmental features.
- **Emergency Response and Communications Plans** that are relevant to decommissioning will be brought forward from the operations phase of the Project, such as procedures to address accidental spills and releases, waste management, and erosion and sediment control. This Plan will also remain in effect during decommissioning.



- Solar photovoltaic panels do not produce any acoustic emissions.
- However, some acoustic emissions are generated when the facility is operating (during daylight hours) by the four (4) inverters and inverter step-up transformers, and one (1) main power transformer.
- An **Acoustic Assessment** was completed for the Project to ensure it is designed in a manner that keeps acoustic emissions below 40 dB at applicable neighboring receptors, in compliance with Ministry of Environment and Climate Change (MOECC) requirements.
- This **Acoustic Assessment Report** was prepared based on MOECC requirements described in the following documents:
  - ✓ NPC-300, Environmental Noise Guideline.
  - ✓ Basic Comprehensive Certificates of Approval, User Guide v2.0, Appendix A, "Supporting Information to be Submitted for an Acoustic Assessment Report or Vibration Assessment Report Required by a Basic Comprehensive C of A", April 2004.

- The **Acoustic Assessment** used a very conservative scenario where all equipment is operating at maximum capacity and no additional mitigation is incorporated. Also, any acoustic shielding by solar panels was not considered in the assessment.
- All receptors (including vacant lots where a receptor could be built) within one kilometer of the Project Location were considered.

## Report Summary

The Project design meets MOECC requirements for a Class 3 solar facility.

- The analysis demonstrated that the Project acoustic emissions comply with MOECC limits at all receptors within 1 km of the Project, without the need for any additional mitigation measures.
- Once operational, a noise audit will be completed to ensure the Project is operating in compliance with the Renewable Energy Approval. If the audit identifies higher acoustic emissions then mitigation measures will be implemented.



The Project Location is situated within an active agricultural area and not within a natural feature.

Natural heritage features located within 50 m of the Project Location (i.e., Zone of Influence) were assessed for significance.

Field surveys included:

- Vegetation Community & Vascular Plants Assessment
- Wetland & Woodland Confirmation and Delineation (through Ecological Land Classification and Ontario Wetland Evaluation Survey Methods)
- Wildlife & Wildlife Habitat Assessment Surveys

No significant features were found within the Project Location Boundary. Five wetland and four woodland features are located within 50 m of the Project Location and are considered significant.

The report is currently under review with the Ministry of Natural Resources & Forestry.

## Mitigation Measures

All Project components are sited outside wetland and woodland feature boundaries. Some standard best management practices to be applied to all construction activities include:

- No development permitted within the boundaries of significant wetlands or woodlands
- Edge of the work zone will be flagged/staked prior to construction
- Silt barriers will be erected along the edge of wetland/woodland boundaries where within 30 m of Project Location
- Environmental inspector(s) will monitor construction
- Maintenance activities, vehicle refueling or washing, and storage of chemicals and equipment will occur in properly protected and sealed areas located more than 30 m from significant wetlands/woodlands

Additional mitigation measures are listed in the [Natural Heritage Assessment & Environmental Impact Study, Construction Plan Report, and Design & Operations Report](#). The application of these mitigation measures are expected to address negative environmental effects of construction, operation and decommissioning of the Project on the natural heritage features located within the Project Location/Zone of Influence and their associated ecological functions.



- Field surveys included:
  - ✓ Investigation of water features mapped within the Project Location and within 120 m of the Project Location
  - ✓ Classification of water features as “REA-defined Water Bodies” if they met the specific definition in O. Reg. 359/09
  - ✓ General fish habitat assessment
- Five water bodies were confirmed during site investigations. One water body crosses the Project Location on the north side of Cornwall Centre Road.
- The records review suggested the presence of 2 water bodies in the southern and northern portion of the Project Location. Based on the findings of the water assessment, these 2 features are not considered “REA-defined Water Bodies”.
- Groundwater investigations and/or monitoring requirements will be verified during the REA process.

## Mitigation Measures

Some standard best management practices to be applied to all construction activities include:

- Complete in-water work within MNRF timing windows to protect local fish populations during their spawning and egg incubation periods (i.e., no in-water work between March 15 and July 15)
- Operate and store materials and equipment used for the purpose of site preparation and Project construction in a manner that reduces the risk of the entry of deleterious substances into surface waters
- Implement erosion and sediment control measures prior to construction and maintain measures during the construction phase to reduce the risk of the entry of sediment into the water

Mitigation measures will be further determined through consultation with the municipality and the DFO, and are dependent on project details (i.e., culvert size and construction methods).

Additional mitigation measures are listed in the [Water Assessment & Water Body Report](#), [Construction Plan Report](#), and [Design & Operations Report](#). Based on the current Project layout and proposed environmental mitigation measures, no net effects to water bodies are expected to occur as a result of the Project.



## Stage 1 & 2 Archaeological Assessment Report

- Heritage and archaeological studies were completed according to the requirements of the Ministry of Tourism, Culture and Sport (MTCS).
- No built resources were identified within the Project Location and no cultural heritage landscapes or protected properties were identified in, or adjacent to, the Project Location.

## Consideration of Potential for Heritage Resources

- Based on the [Stage 1 Archaeological Assessment](#), archaeological potential for Aboriginal and historic Euro-Canadian sites was deemed moderate to high. As such, a [Stage 2 Archaeological Assessment](#) was completed.
- No archaeological resources were found during the Stage 2 assessment of the Project Location.
- The [Stage 1 & 2 Archaeological Assessment](#) has been reviewed and accepted by the MTCS.
- No effects to archaeological or [heritage resources](#) are anticipated as a result of the Project.

## Mitigation Measures

If any artifacts, soil features, or other cultural features of note are discovered during groundwork for the Project, the following procedures shall be adhered to:

- Work in the area of the site or artifacts shall halt immediately and the general contractor notified of the discovery
- The area of the site, along with a buffer zone of 5 m (as available) shall be cordoned off using a barrier/stakes and flagging tape
- The regional archaeologist from the MTCS shall be contacted to determine the appropriate course of action
- If human remains are discovered during Project activities the following procedures shall be adhered to:

- All work shall cease in the immediate area of the discovery and the environmental inspector notified immediately
- Remains shall be covered as soon as possible
- Local police and/or coroner shall be contacted immediately

Mitigation measures are not required for built resources, cultural heritage landscapes or protected properties as none exist within or adjacent to the Project Location.

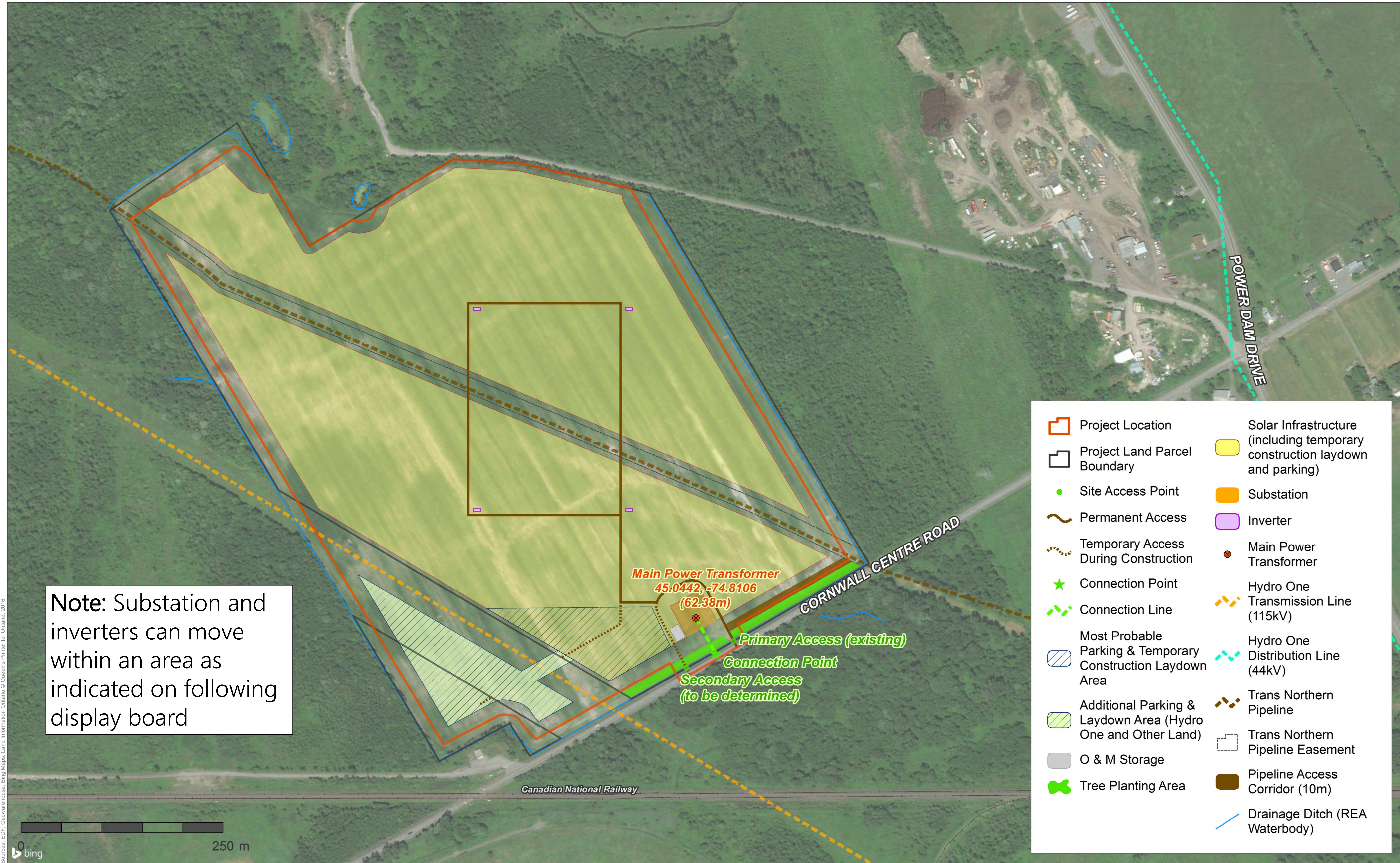


# REA STUDIES & REPORTS

All reports, with the exception of the Consultation Report, were made available in draft form for public review and comment more than 60 days prior to this Public Meeting. Reports can also be found on the website, and hard copies are available here today.

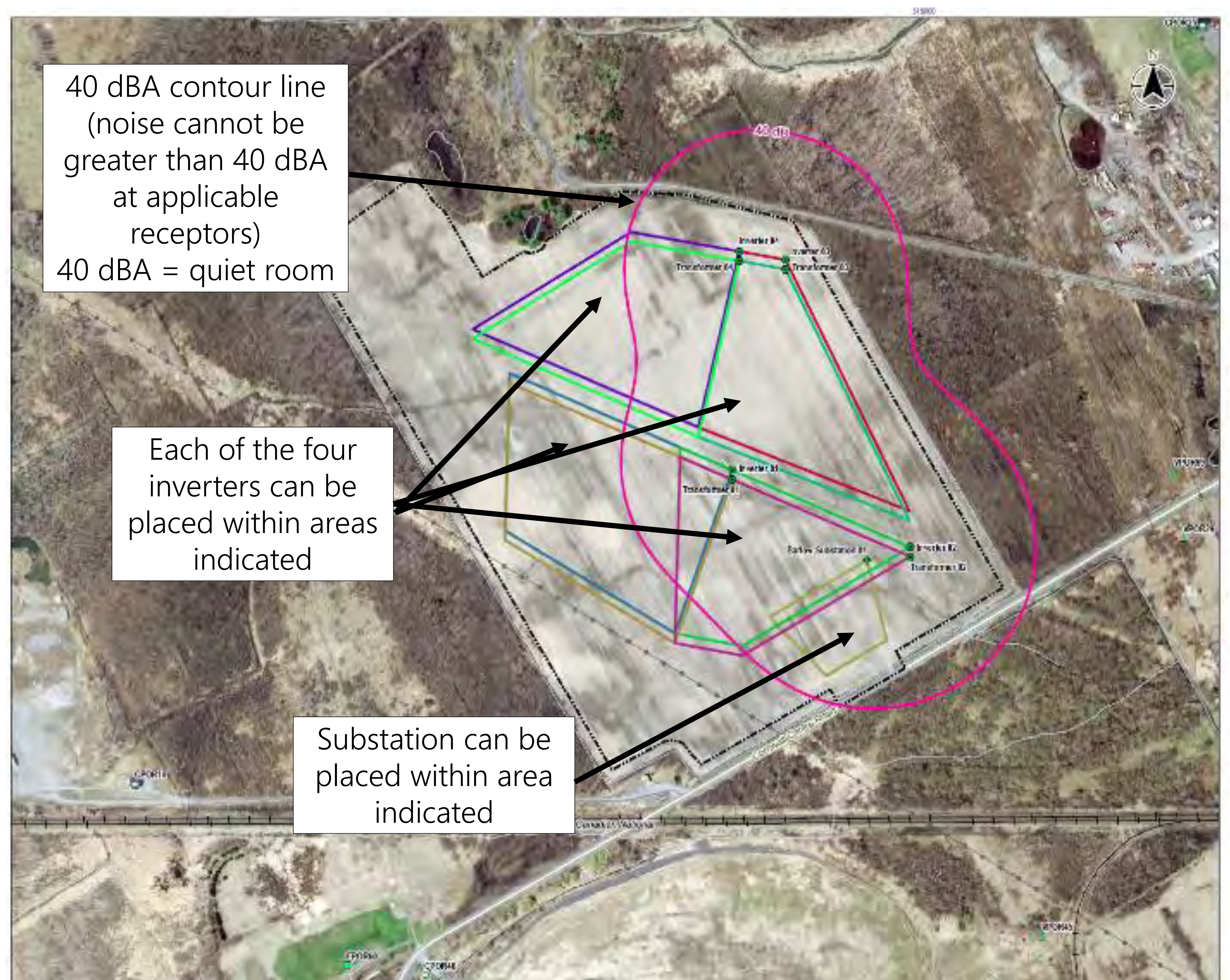
REA DOCUMENTS	SUMMARY
PROJECT SUMMARY REPORT	A summary of each of the project reports identified below
PROJECT DESCRIPTION REPORT	Outlines the project including project components, anticipated schedule, authorizations potentially required and potential environmental effects.
CONSTRUCTION PLAN REPORT	Includes a summary of project construction and installation activities, potential construction environmental effects and mitigation measures.
DESIGN AND OPERATIONS REPORT	Provides an overview of the project site plan, as well as potential operational environmental effects and mitigation. Includes discussion on emergency response and communications plan.
DECOMMISSIONING PLAN REPORT	A summary of project decommissioning activities, potential decommissioning environmental effects and mitigation measures.
STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT	Provides an overview of the methodology and results of the Stage 1 (desktop) and Stage 2 (field study), and outlines the potential for the existence of archaeological resources within the Project Location boundary.
NATURAL HERITAGE ASSESSMENT / ENVIRONMENTAL IMPACT STUDY	Summarizes the findings of the terrestrial background research and field studies undertaken for the project. Identifies and proposes mitigation measures for significant natural heritage features identified within and surrounding the Project Location.
WATER ASSESSMENT AND WATER BODY REPORT	Summarizes the findings of the aquatic background research and field studies undertaken for the project. Identifies and proposes mitigation measures for water bodies identified within and adjacent to the Project Location.
ACOUSTIC ASSESSMENT REPORT	Identifies receptors and the propagation of sound from the facility to predict if sound from project will be limited to 40 dB (equivalent to a quiet room), at applicable neighboring receptors.



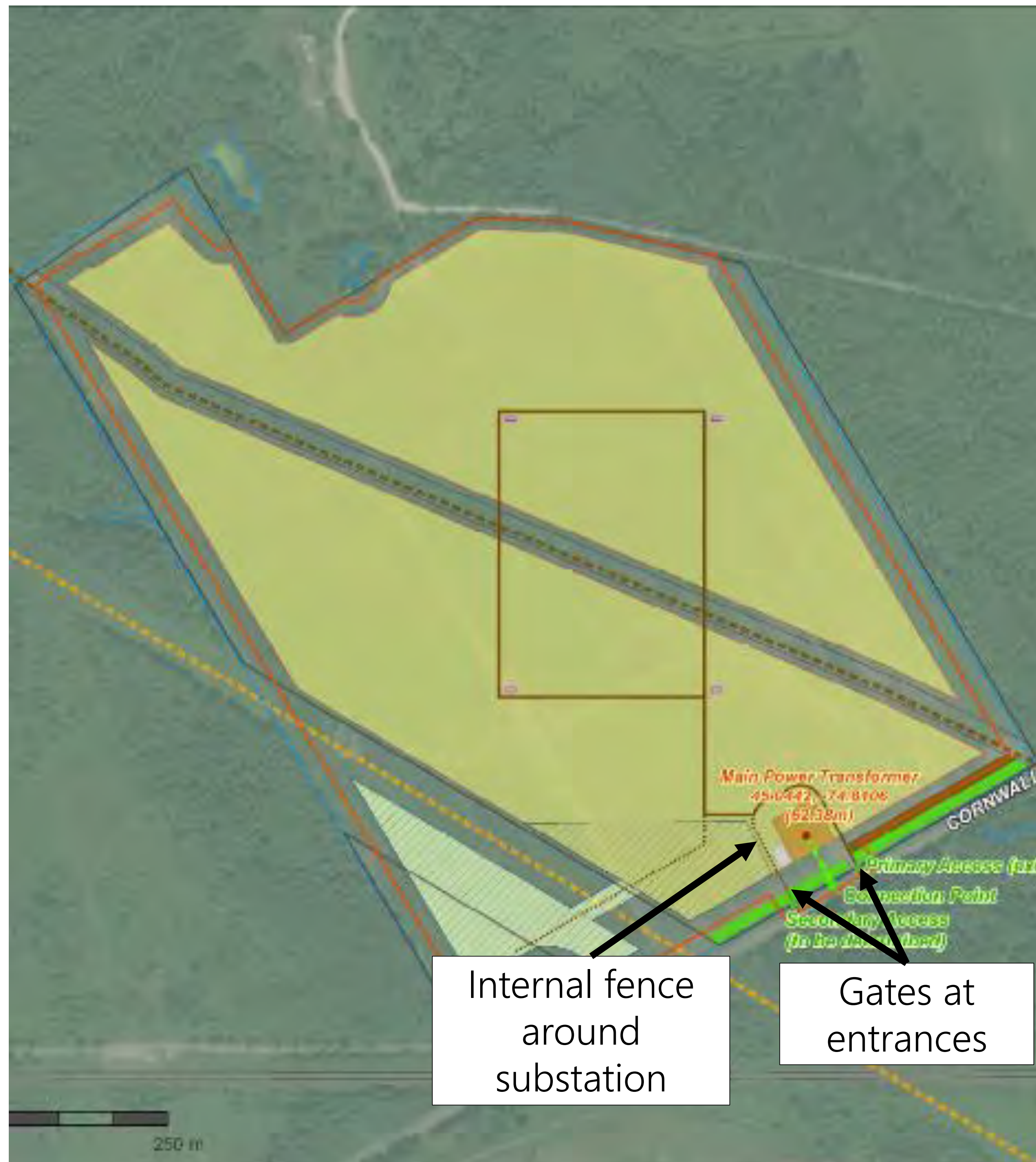




- Using polygon multiple method
- Determine shapes within which noise-generating equipment can be moved around, but remain within noise guidelines at applicable receptors
- Renewable Energy Approval permit may allow flexibility to move equipment within polygons where demonstrated that noise will remain in compliance





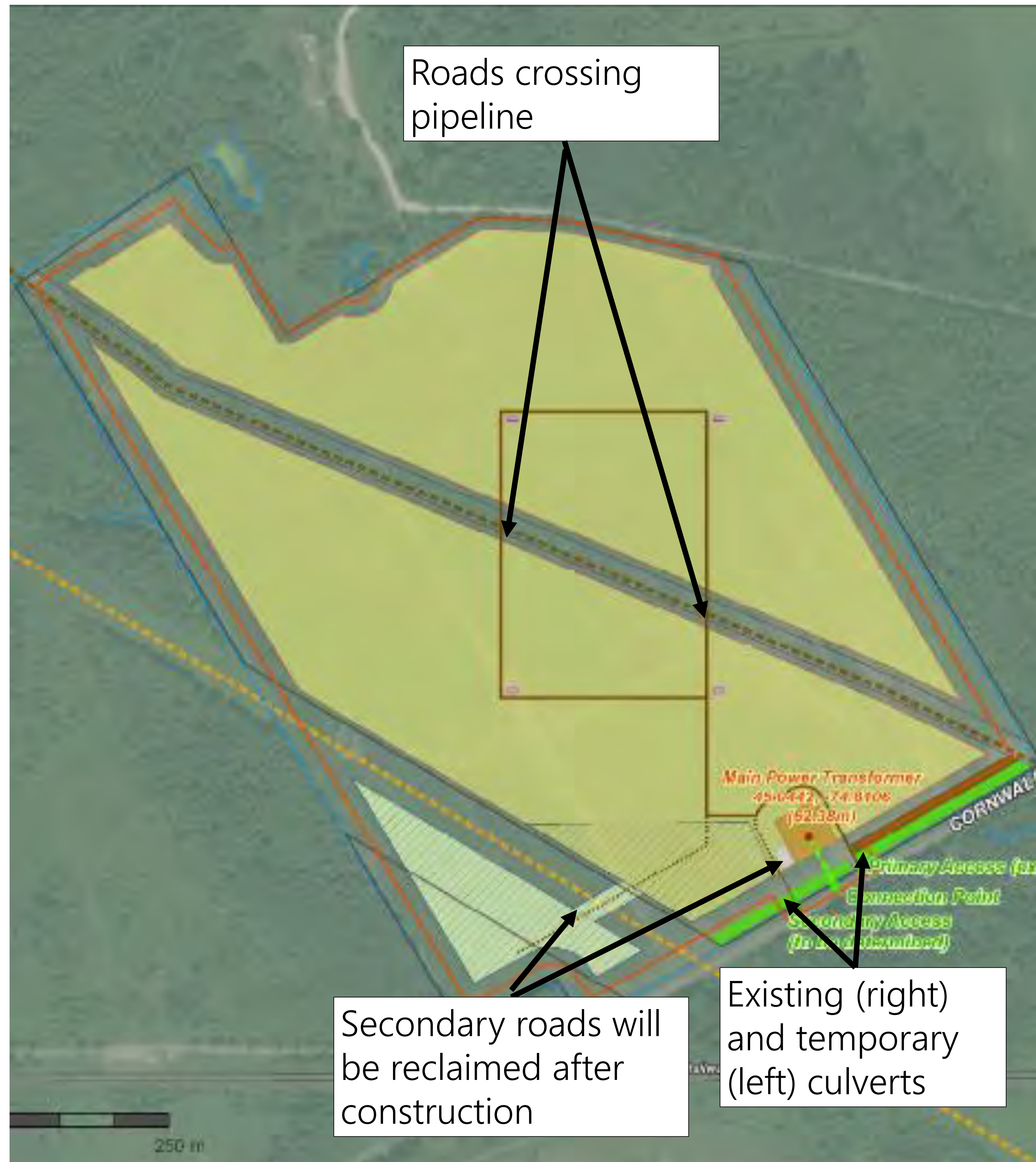


- 1.8 m high steel chain link fence topped with barbed wire around site perimeter
- Manual locking gates installed at primary entrances and possibly secondary entrance



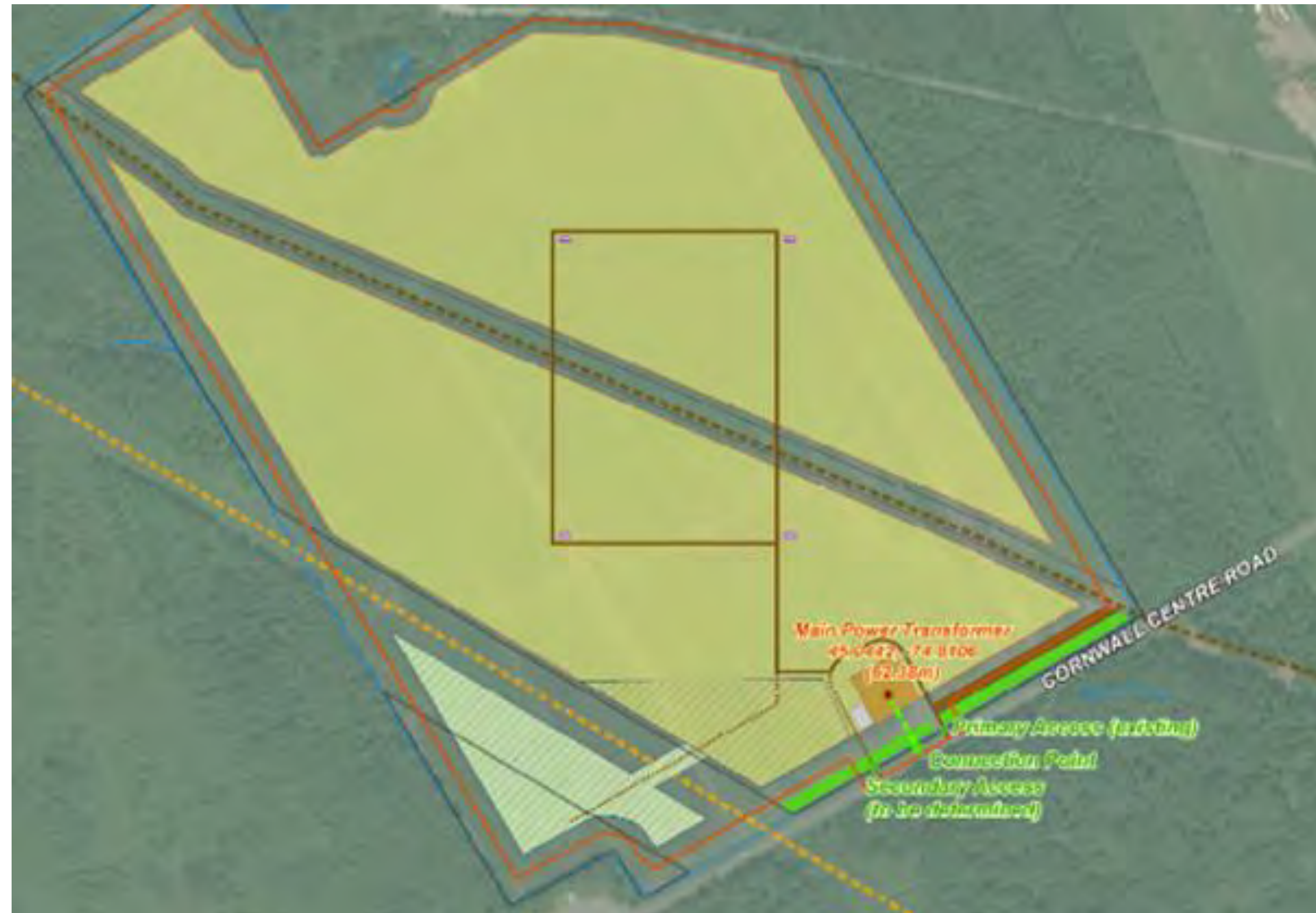
Sample fence





- Amount of roads to be minimized, only to access inverter/transformer skids and substation areas
- 4 m wide gravel roads with 1 m compacted shoulder on each side proposed within the site
- Temporary roads from secondary access point and temporary laydown area will be reclaimed at the end of construction
- Propose to elevate the road from Cornwall centre drive to substation to maintain access in case of flood. Roads to access inverters will be left at current grade
- New culvert and existing culvert will require in-water works (works planned between July 16 and March 14)
- Roads crossing pipeline may need to be elevated to maintain minimum height above pipeline - 1.2 metres clearance required between bottom of road and pipeline





Proposed tree planting – green bar along Cornwall Centre Road  
(north of Road Right of Way and west of Pipeline Easement)

Vegetation around/beneath panels

- Plan to seed the area prior to construction to provide stable ground and prevent erosion during construction
- ✓ Intend to consult with Raisin Region Conservation Authority for suitable seed mix
- Site not disturbed by infrastructure will be vegetated (including under solar panels)
- Following construction, trees will be planted along Cornwall Centre road (except along the pipeline easement)



- Two designs being considered
  - ✓ Fixed tilt
  - ✓ Horizontal single axis tracking (HSAT)



Example of Horizontal Single Axis Tracker in Table Position



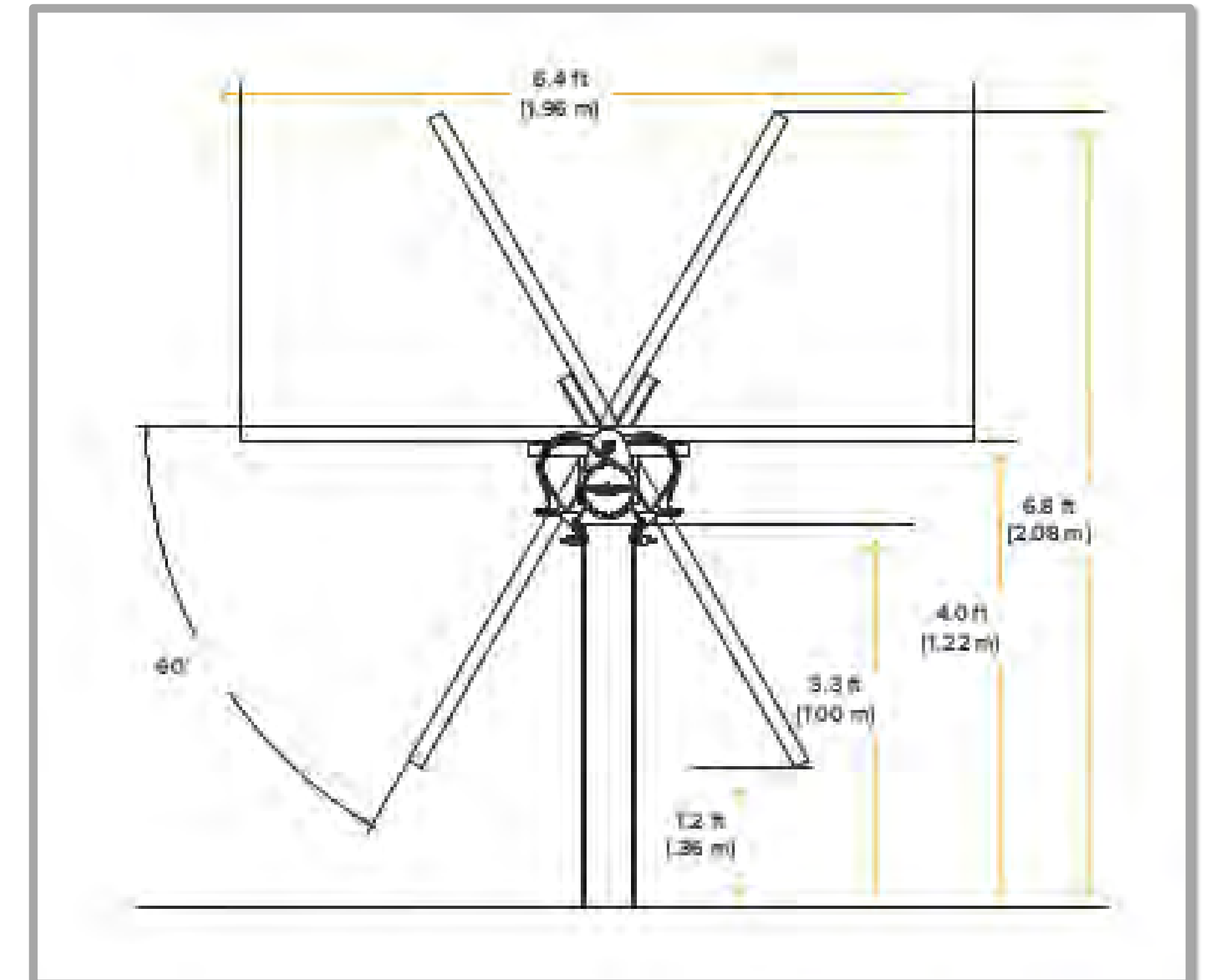
Fixed tilt – bottom of panel > 30 cm above floodplain level

- Both mounted on piles
  - ✓ Fixed tilt lowest part of panel > 30 cm above floodplain
  - ✓ HSAT lowest part of module while in table position (i.e. flat with no east/west inclination) or electrical equipment for tracking > 30 cm above floodplain



# TRACKING SOLAR PANELS HOW DO THEY WORK?

- A **tracker** is a type of racking system that follows the sun as it arcs through the sky – ensuring the panels always face the sun.
- The **motors** may be solar powered, potentially eliminating the need for external power.
- The **panels** are mounted in rows on a north/south axis. A tracking motor is located in the middle of each row.
- **Wireless communication** between each row controls the movement of the panels and alerts operators to any errors.



HSAT Sample Dimensions

Examples of horizontal  
single axis trackers





- Skid-mounted, floor of skid > 30 cm above floodplain
- Supported by helical pile or concrete piers
- Topsoil will be stripped, stockpiled and reused to extent possible during site landscaping



Sample Inverter/Transformer Skids





Sample substation

- Includes control building, storage containers, main power transformer
- Substation area proposed to be built up area of soil/fill/pit run gravel, roughly 25 m x 20 m. Top of mound will be > 30 cm above floodplain level
- Propose that access road to substation be elevated to maintain access vehicular access in case of flood



# LOCAL ECONOMIC BENEFITS

EDF EN Canada values the long-term benefits of working with the local community. We have entered into a **Community Benefit Agreement** that will contribute **\$400 000** to the Township of South Stormont over the life of the project.



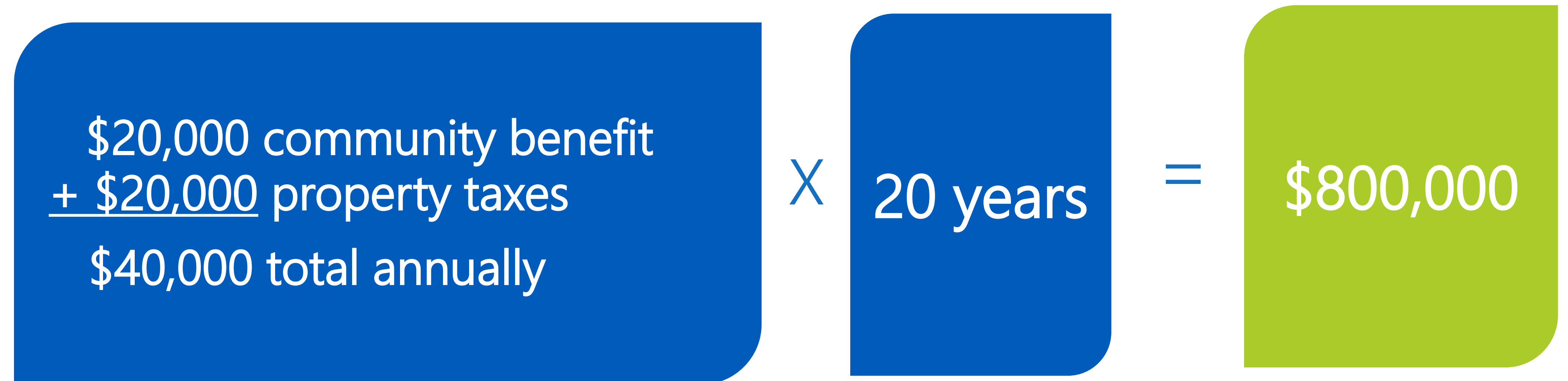
Funds will allow community to support local initiatives such as:  
**INFRASTRUCTURE IMPROVEMENTS • RECREATIONAL FACILITIES • ENVIRONMENTAL  
PROJECTS • EDUCATIONAL PROGRAMS**





## MUNICIPAL AND LOCAL COMMUNITY BENEFITS

- **\$20,000 per year Community Benefit Agreement**  
Contributing funds to the Township of South Stormont;
- **Additional Estimated \$20,000 per year in property tax revenues**


$$\begin{array}{l} \$20,000 \text{ community benefit} \\ + \$20,000 \text{ property taxes} \\ \hline \$40,000 \text{ total annually} \end{array} \times 20 \text{ years} = \$800,000$$

- **Construction jobs**  
About 100 construction jobs anticipated at the peak of construction;
- **Long-term operator positions**  
Possible full-time position within the local community to support and service the facility;
- **Local investment**  
Significant investments into the local economy during the development, construction and operation phases of the Project.



# LOCAL ECONOMIC BENEFITS

## ■ Direct benefits

Surveying

Civil engineering

Mechanical work

Electrical work

Road construction

Transportation equipment

Earthwork activities

Maintenance of vehicle fleet

Maintenance paths

Snow removal

Other related services



## ■ Indirect benefits

Meals and accommodation for construction personnel

Products, services and supplies





**WE WANT  
TO HEAR  
FROM YOU!**

Please share your questions and comments with us by filling out a questionnaire. Feel free to take extra questionnaires with you and share them with your friends and family.

Copies of the display boards from this Public Meeting, Project Newsletters and the Draft Renewable Energy Approval Reports are available on the website.

To learn more about the project proposal, public meeting, or to communicate your interests please contact us!

[BarlowSolar@edf-en.ca](mailto:BarlowSolar@edf-en.ca)

1-844-55-EDF-EN

Website: [www.edf-en.ca/projects/project\\_display/barlow-solar-energy-centre1](http://www.edf-en.ca/projects/project_display/barlow-solar-energy-centre1)

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