



GL Garrad Hassan



**GLENARM SOLAR PROJECT - DRAFT PROJECT
DESCRIPTION REPORT**

Client	SkyPower Limited
Contact	Grace Pasceri
Document No	792
Issue	C
Status	Final
Classification	Client's Discretion
Date	October 25 2010

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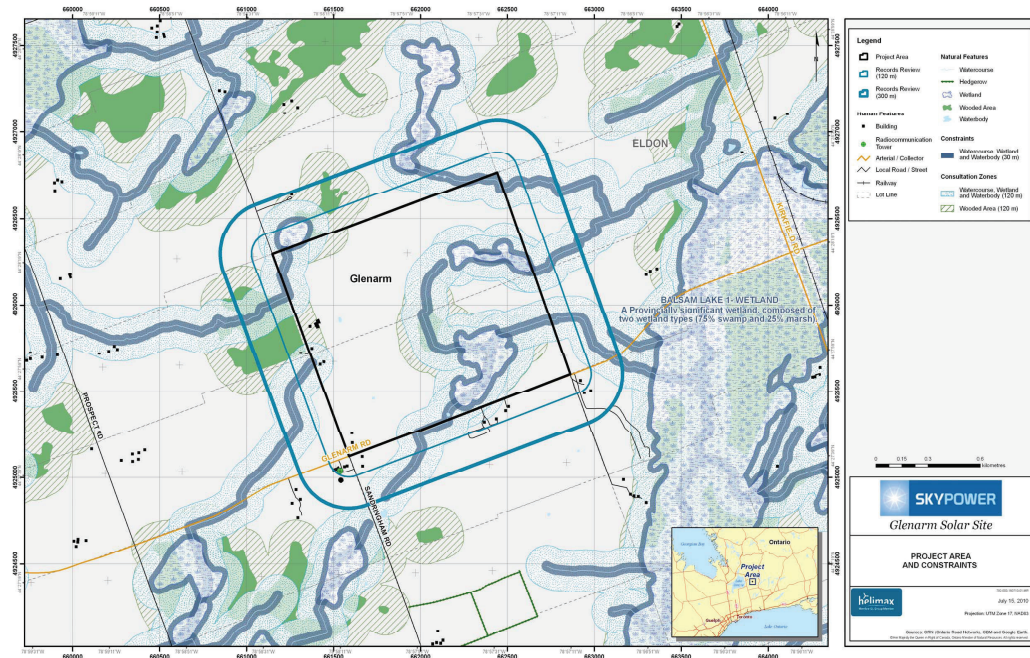
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REVISION HISTORY

Issue	Issue date	Summary
A	30.07.2010	Original issue (electronic version only)
B	24.09.2010	Subsequent to SkyPower edits
C	19.10.2010	Final Edits



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1 INTRODUCTION

SkyPower Glenarm LP is proposing to develop the Glenarm Solar Power Project which is subject to Ontario Regulation 359/09 (Renewable Energy Approvals (REA) [1] under Part V.0.1 of the Ontario Environmental Protection Act (EPA)). SkyPower Glenarm LP has received a contract from the Ontario Power Authority (OPA) for the purchase of electricity generated by photovoltaic solar panels through the Province's Feed-in Tariff (FIT) Program.

SkyPower Glenarm LP is seeking a Renewable Energy Approval from the Ontario Ministry of the Environment (MOE). This Project Description Report (PDR) is one of the required documents under the REA process.

At the request of SkyPower Glenarm LP (the Client or SkyPower), GL Garrad Hassan, through its subsidiary Helimax Energy Inc. is conducting the environmental assessment, as per the REA, for the Glenarm Project.

This Project Description Report, is delivered to the MOE as per the requirements of the REA process, as well as to receive the List of Aboriginal Communities, as detailed in Section 14 of Ontario Regulation 359/09. A first Project Description Report for the Glenarm site was submitted to the MoE in June 2010, but was deemed incomplete. Comments were provided by the MoE and this second submission of the Glenarm PDR adequately addresses the previously noted comments. Furthermore, this Project Description Report was put together based on the guidance provided by the MoE's Technical Bulletin 1¹.

References are highlighted throughout the report with the use of brackets "[]" and a list of references is provided at the end of this report.

¹ Technical Bulletin 1 guidance for Preparing the Project Description Report as apart of an application under O. Reg. 359/09. Ontario Ministry of the Environment, March 2010.

4 REFERENCES

1. Ontario Regulation 359/09, made under the Environmental Protection Act, Renewable Energy Approvals under Part 1.0 of the Act.
2. Scalett Janusas Archaeological and heritage Consulting and Education. 2010. Cultural Heritage Assessment - Proposed Glenarm Solar Farm - Lots 11 and 12, Concession 6 -Geographic Township of Eldon - Victoria County - Municipality of Kawartha Lakes, Ontario.
3. Scalett Janusas Archaeological and heritage Consulting and Education. 2010. Stage 1 Archaeological Assessment - Proposed Glenarm Solar Farm - Lots 11 and 12, Concession 6 - Geographic Township of Eldon – Former County of Victoria - Municipality of Kawartha Lakes, Ontario.
4. City of Kawartha Lakes Official Plan. May 2010.
5. Ontario Ministry of Natural Resources, Ecological Land Classification Land Primer, March 2007

3.4.10 Land Use and Resources, Provincial and Local Infrastructure

The only potential effect of the Project on land use is the reduction of land for pasture purposes. Sited on privately-owned pasture land, the PV panels, access roads, and substation will occupy a measurable area of land. For the life duration of the Project, these surfaces will not be used for pasture practices. The proposed solar energy Project is physically low-profile and would be non-obtrusive to the surrounding community.

3.4.11 Areas Protected under Provincial Plans and Policies

According to the Ontario Ministry of Natural Resources and the latest version of City of Kawartha Lakes Official Plan, the Project site does not overlap any protected areas [2]. This differs from the findings of the Records Review which was based on a previous version of the Official plan [4].

3.4.12 Land Use And Resources

Only the use of local roads, during construction, will be required in terms of local infrastructure. Any local roads damaged during construction will be repaired by SkyPower Limited. No other municipal services are anticipated to be required.

3.4.13 Public Health And Safety

Potential impacts to public health and safety are minimal but include those generally related to construction. Noise, vibration, dust and emissions expected during construction will likely be small, localized and temporary in nature. Noise (and vibration) generated by construction machinery and equipment will be temporary and localized, and mitigation measures will be implemented to address or eliminate the impacts.

2 GENERAL INFORMATION

2.1 Project Name, Location and Land Ownership

The proposed Project is named the Glenarm Solar Project and is located in the community of Glenarm, which is part of the Township of Eldon and the City of Kawartha Lakes. The Project is located west of the town of Glenarm, and approximately 25 km north of Lindsay. More specifically, the Project is located on the northeast corner of the intersection of County Road 8 (Glenarm Road) and Sandringham Road. The proposed site is an area of approximately 255 ha located on private property with geographic coordinates as follows:

- Latitude: 44°27'36.98" N
- Longitude: 78°57'53.66"W

The map in Appendix 1 presents the Project Area. The Project Area refers to the area which encompasses the "leased" or "optioned" property within which the Project components will be sited and a 300 m strip around these properties.

The land is privately owned and SkyPower Glenarm LP will have rights to purchase the land. The legal description for the property is fronting on the North side of Glenarm Road, Concession 6, Part Lot 11 and 12, Eldon Township, City of Kawartha Lakes.

The land inside the Project Area and within 300m is relatively flat, with an elevation of 281 m to 295 m above mean sea level. Three-quarters of the area consists of pasture lands. The remaining area consists of woodlands and wetlands. The woodlots tend to be isolated stands surrounded by fields. The diversity of tree species is low and typically consists of a mix of conifers and deciduous species. The following picture illustrates the predominance of pasture land on site.

The project is located in the Lake Simcoe-Rideau Ecoregion (6E) per MNR's Ecological Land Classification Primer (March 2007). An ecoregion is defined by a characteristic range and pattern in climatic variables including temperature, precipitation and humidity. The climate within an ecoregion has a profound influence on the vegetation types, soil formation, other ecosystem processes and biota associated with the ecoregion. Currently, 57% of the ecoregion exists as agricultural land, with deciduous and mixed forests covering a majority of the remaining natural landscape.



Figure 2.1-1: Glenarm Project Area as seen from Glenarm Road

2.2 Contacts - Project Proponent

SkyPower Glenarm LP is in association with SkyPower Limited. SkyPower Limited is Canada's leading developer of solar energy, with projects representing thousands of megawatts of green energy. The main contact at SkyPower Glenarm LP is as follows:

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gracep@skypower.com

Further information about SkyPower Limited can be found at: www.skypower.com, and additional information about the Glenarm Project can be found at: www.glenarmsolar.com.

2.3 Contacts - Project Consultant

GL Garrad Hassan & Partners Ltd is a member of the Germanischer Lloyd AG (GL) group of companies, and is part of GL's renewable energy consulting business, trading under the GL Garrad Hassan brand. The GL group of companies include: Garrad Hassan, Windtest, Helimax and Noble Denton.

The Environmental and Permitting Services team of GL Garrad Hassan has completed mandates throughout Canada, the United States and in many other parts of the world. These mandates include more than 20 complete environmental assessments for wind projects totalling more than 3,000 MW and various environmental studies for more than 10,000 MW of wind and solar-PV projects.

GL Garrad Hassan has no equity stake in any device or project. This rule of operation is central to its philosophy, something which sets it apart from many other players and underlines its independence.

GL Garrad Hassan has been retained to lead the environmental assessment for the Glenarm Solar Power Project. The contact information is as follows:

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3.4.9 Acoustic Environment

Potential effects to the acoustic environment include:

- Increase in ambient noise levels during Construction and Decommissioning.
- Increase in ambient noise levels during operations.

Increase in Ambient Noise Levels during Construction and Decommissioning

Construction and decommissioning activities will generate noise from the use of heavy machinery and vehicles. The contribution to noise levels is only expected on site – a low population density area – and during a short period of time, i.e. the few months of planned work during the construction/decommissioning periods. Increased truck transport is not expected to significantly increase ambient noise levels on existing roadways, due to the already existing truck traffic on these roads. Increased noise levels will be of short duration, intermittent and local to the municipal access roads and immediate surroundings.

Increase in Ambient Noise Levels during Operations

The substation and the PV panel inverters will generate low level noise during the Operations Phase. A noise impact assessment will be prepared and submitted to the MoE.

3.4.8 Air, Odour and Dust

Construction and decommissioning activities can affect air quality by producing dust and fugitive emissions (i.e., tailpipe exhaust emitting CO₂ and nitrous and sulphuric oxides) mainly due to heavy machinery use and transportation. PV panels do not produce air emissions.

The potential of a decrease in air quality associated with the Project; notably during construction- and decommissioning-related activities are:

- Dust emissions;
- Criteria Air Contaminant (CAC) emissions;
- Greenhouse Gas (GHG) emissions.

Dust emissions

Construction-related activities, including stripping of topsoil, access road construction and upgrading, installation of infrastructures and electrical lines, as well as restoration of the Project Area, might create or stir up dust and temporarily increase particulate matter concentrations. Transportation of the Project equipment, as well as traffic generated by workers might also create dust, particularly on the access roads that will be used to access the PV panels sites. However, no significant concentrations of dust emissions that could affect air quality for a long period of time are anticipated.

The effect of these activities is limited to the Project Area itself, located in a low population density agricultural area. Though dust could theoretically affect temporary users immediately adjacent to the Project Area, such as local residents and farmers, both are unlikely to be frequenting the area during construction or decommissioning activities.

Criteria Air Contaminant (CAC) emissions

The main contributors to criteria air contaminant (CAC) emissions of the Project will be heavy machinery and truck transportation during the Construction and Decommissioning Phases. Machinery and vehicles will run for the most part on diesel fuel. Emissions generated during construction and decommissioning are considered to be similar to those produced for similar small-scale construction projects. During operations, fugitive CAC emissions are only associated with maintenance activities which require the use of light trucks.

Greenhouse Gases

It is anticipated that the production of electricity from the sun rather than from the fossil fuels will more than offset any pollution emissions associated with production, construction, operations and decommissioning of solar energy projects.

2.4 Authorizations Required

Under the REA process and prior to final MOE approval, the Glenarm Project will have to obtain clearance from the Ministry of Tourism and Culture (MTC) with respect to archaeological and heritage resources; and a confirmation from the Ministry of Natural Resources (MNR) with respect to Natural heritage and water features.

In addition to the REA, the Glenarm Solar Project will require local approvals such as municipal building permits and water crossing permits obtained through the Kawartha Conservation Authority.

2.5 Federal Involvement

There are no federal environmental assessment requirements for this Project.

3 PROJECT INFORMATION

3.1 Energy Source, Facility Classification and Nameplate Capacity

This energy generation facility will convert solar kinetic energy into electricity using photovoltaic panels (PV), creating direct current electricity. The electricity generated will feed into the Hydro One transmission system. The proposed Glenarm Solar Project will have a maximum name plate capacity of 10 MW and is therefore considered a Class 3 solar facility.

The site was selected by considering daily average solar radiation, ease of access to the local electrical system and environmental considerations. The location of the Project and various components are shown on the Constraints Analysis map in Appendix 1.

3.2 Project Components

All Project components; including solar modules and electrical facilities such as inverters, transformers, substation and electrical lines will be located on private land or municipal right-of-way.

The Project will be made up of the following components – both permanent and temporary – that will be used to construct, maintain and decommission the solar energy facility. The key facilities, equipment and technologies are:

- Photovoltaic Modules (solar panels);
- Inverters;
- Racking system;
- Access Roads;
- Collector system and Substation;
- Maintenance Building and Storage Infrastructure;
- Perimeter Fence;
- Temporary office buildings;

3.4.7 Water Bodies and Aquatic Habitats

As a result of the potential layouts for access roads and PV panels, the following potential effects on water bodies (e.g., wetland, stream) and aquatic habitat may be encountered during the Construction and Decommissioning Phases of the Project:

- Direct impacts from crossing;
- Barriers to fish passage;
- Sedimentation;
- Contaminant spills.

Direct Impacts from Crossing

Aquatic habitat can be affected by the physical loss of habitat at a watercourse crossing. There will likely be areas where the access roads and underground cabling will cross agricultural drains and/or watercourses.

Barriers to Fish Passage

Barriers to fish passage can potentially limit the normal movement patterns of fish species. However, the proper installation of appropriate crossing structures will mitigate this potential impact to fish passage. Recommended crossing structure and installation requirements will be outlined during the permitting phase by the overseeing agencies.

Sedimentation

The effects of erosion and sedimentation are potential concerns at any watercourse crossing. In general, bare soils will be exposed during site prospecting, construction of the access roads, preparation of concrete foundations and the installation of the electrical network, as well as during the removal of these components during decommissioning. Rainfall and surface water runoff will result in erosion of exposed soils and potential movement of sediment-laden runoff to water bodies. Sediment can negatively alter the aquatic habitat in any water body, and destabilize the existing erosion and sediment transport regimes of watercourses.

Contamination from Spills

During the Construction and Decommissioning Phases, the potential for hazardous material spills must be considered. This potential effect should be given particular attention at new access road crossings and any existing road crossings of watercourses that will be used to transport hazardous materials to and from work sites.

3.4.6 Natural Heritage Resources - Terrestrial Fauna

The assessment of environmental effects on terrestrial fauna will consider all of the Project Phases; Construction, Operations and Decommissioning. The potential effects are:

- Loss of habitat and movement corridors;
- Noise impacts on wildlife;
- Wildlife mortality due to traffic;

Loss of Habitat and Movement Corridors

Many terrestrial animals, including reptiles, amphibians, and mammals, utilize fields and woodlots for habitat or passage through the area. The presence of equipment, materials and workers during Construction and Decommissioning, and the presence of a fenced facility during operation will cause a loss of habitat and may obstruct the movement of animals through the area.

Noise Impacts on Wildlife

Some noise will be produced during the Construction and Decommissioning Phases, such as site prospecting, transport, construction and dismantling of the access roads, stake foundations, and electrical network and PV panels. It is expected that wildlife will avoid the areas under construction.

Wildlife Mortality due to Traffic

Traffic is a consideration during Project activities that require site access such as site prospecting, transport, construction of the access roads, and installation of electrical network and PV panels, as well as decommissioning.

3.2.1 Photovoltaic Modules

Photovoltaic (PV) modules will be used to convert solar radiance into electricity. The electricity is collected from the modules as direct current (DC) electricity which is transformed into alternating current (AC) by inverters.

Solar modules vary in material, size, and output. Approximately 50,000 to 200,000 PV panels (60 to 270 W each), depending on panel model, are proposed to be installed for the Project, for a maximum installed capacity of 10 MW. Final selection of the modules will be made following the evaluation of available Ontario content compliant modules.

3.2.2 Inverters

The role of the inverter is to convert DC power from the solar modules into AC power for local grid distribution. Utility scale inverters are typically sized between 250 kW and 1000 kW. Power from the inverters will be routed to nearby transformers to step the voltage up to the medium voltage of the underground AC collection system.

3.2.3 Racking

Modules are mounted on racks with steel and/or aluminum posts driven or screwed into the ground as foundations. The modules are clamped to a steel or aluminum table. The racks are arranged such that the modules face south, are titled to an angle that optimizes power output, and spaced such that shading from one rack to the next is limited. Depending on the size of the module and how many rows of modules are installed on a rack, the spacing between rows generally ranges between 18 and 25 feet.

3.2.4 Access Roads

The site will be accessed from Glenarm Rd. On-site access roads will be developed. Row to row rack spacing will be large enough such that service vehicles can access modules and wiring for maintenance. A central on-site road will allow a service vehicle to laterally access each inverter directly.

3.2.5 Collector System, Substation and Transmission System

Several modules are connected together electrically in a series to form a string. Strings are connected together electrically in parallel with combiner boxes. The combined electricity is carried to inverters by larger cables that can accommodate the higher electrical current output from the combiner boxes.

As described in Section 3.2.2, the inverters convert the direct current electricity generated by the solar modules to alternating current electricity. The output power from one or more inverters is connected to a nearby pad mount transformer where the electrical voltage is stepped up to a medium voltage. Underground electrical cables collect the AC power generated by the inverters and deliver it to an onsite Project substation. This substation will contain a pole mounted circuit breaker to isolate the facility from Hydro One's network and contain a step up transformer that will increase the collector system's medium voltage to Hydro One's distribution system operating voltage (44 kV).

3.2.6 Maintenance Building and Storage Infrastructure

The maintenance building will be located on-site. The maintenance building will be used as a maintenance tools and spare parts warehouse. Sanitary installations will connect to the municipal infrastructure.

3.2.7 Perimeter Fence

Under ESA requirements and for safety and security purposes, a chain link fence will be installed around the entire site perimeter.

3.2.8 Temporary Office Buildings

Temporary office buildings will be situated within the Project Area. These portable trailers will be located in respect of all REA setbacks during construction period, which is expected to last 4 to 6 months. Once construction is completed, these temporary structures and facilities will be removed.

Habitat Loss

Trees present in the Project Area may provide limited roosting habitat for individual bats, but are not anticipated to support populations of local bat species. Since vegetation clearing is planned to be minimal, the loss of habitat is not considered to be significant.

Potential impacts related to bats will be discussed in greater detail in the Natural Heritage Assessment Report.

- Disruption of bird nests;
- Habitat loss;
- Noise impacts on bird;
- Bird mortality due to power lines.

Potential impacts related to avian fauna will be discussed in greater detail in the Natural Heritage Assessment Report.

Disruption of Bird Nests

The *Migratory Birds Convention Act* prohibits the disruption of birds and their nests. Vegetation clearing is planned to be minimized during the Construction phase. As a result, the disruption to bird nests is not anticipated.

Ground bird nests disruption will also be minimized during the Construction phase. A qualified biologist will be present on site should construction activities take place during the core bird nesting period (May to July).

Habitat Loss

Since vegetation clearing is planned to be minimal, and since ground vegetation will grow back at the end of construction activities, the loss of habitat is not considered to be significant.

Noise Impacts on Birds

Some noise will be produced during Construction and Decommissioning Phases such as site prospecting, transport, construction and dismantling of the access roads, stake foundations, and electrical network and PV panels. It is expected that birds will avoid the areas under construction and decommissioning.

Bird mortality due to Power Lines

The potential of birds colliding with the above ground power lines must be taken into consideration. Since power lines are already present throughout the area, the additional risk to birds from the short length of power lines required for the Project is not considered to be significant.

3.4.5 Natural Heritage Resources - Bats

The assessment of environmental effects on bats will consider all of the Project Phases; Construction, Operations and Decommissioning. The only specific potential effect on bats is:

- Habitat loss.

3.3 Project Activities

A solar energy project includes three main phases: Construction, operation, and decommissioning. This section presents an overview of each phase's activities.

3.3.1 Construction Phase

The main activities during this phase include:

- Grading to ensure drainage and facilitate construction
- Installation of gravel roads to allow for site access, equipment delivery or equipment maintenance;
- Drilling or piling to anchor the racking system in place;
- Trenching for electrical infrastructure;
- Foundation pouring to protect equipment;
- Fencing to ensure safety.

It is expected that construction equipment will be required to facilitate the construction of the Project's various components. The Construction Phase will last 4 to 6 months, and will commence following the receipt of the REA and issuance of the municipal building permits. The anticipated start date is August 2011.

All construction activities will follow appropriate standards and codes and will be trusted to a licensed contractor. All construction activities will abide to local laws and requirements and all construction-related activities will be carried-out on-site. Testing and commissioning will occur over the last few weeks of the Construction Phase according to Hydro One requirements.

The Construction phase will generate waste and emissions typical of heavy construction activities, such as: noise, dust, vehicle and machinery emissions and exhaust.

Details on the Construction phase will be found in the Construction Plan Report.

3.3.2 Operations Phase

Overall, little activity is expected to occur during the Project's Operations Phase. The Project will be monitored and managed remotely and therefore, minimal on-site activity is required for its daily operation. Security and minor maintenance will be the only regular activities anticipated on-site. Occasional activities expected during operation include:

- Maintenance and replacement of equipment as required;
- Ground maintenance on a designated frequency to ensure that weeds are contained and that the panels are not shaded;
- Cleaning of panels and equipment as required;
- Inspections and testing as required by local utility and other governing bodies.

The Project is expected to be operational for at least 20 years from the commissioning date.

Operational activities will generate waste and emissions associated with vehicle operation, emissions and exhaust due to maintenance activities.

Details on the Operations Phase will be found in the Design and Operations Report.

3.4.3 Natural Heritage Resources - Vegetation

The PV panel layout that will be proposed, along with the access roads and transmission facilities will be designed to minimize potential impacts to natural vegetation communities and to avoid as much as possible direct impacts to hedgerow habitats. Indirect impacts on vegetation due to on-site activities will also be examined and addressed, including the creation of bare soils.

The following potential effects may be encountered during the Construction and Decommissioning Phases of this Project:

- Sedimentation;
- Contamination from spills;
- Vegetation clearing.

The Natural Heritage Assessment Report will describe in greater detail the related impacts to vegetation.

Sedimentation

Bare soils will be exposed during site prospecting, construction of the access road, preparation of stake foundations and the installation of the electrical network, as well as during the removal of these components during decommissioning. Rainfall and surface water runoff will result in the potential erosion of soils and sediment-laden runoff potentially entering natural areas. Other drilling by-products such as extracted soil cores may also result in sedimentation.

Contamination from Spills

During the Construction and Decommissioning Phases, the potential for hazardous material spills must be considered. Spills will be minimized by ensuring that proper industry regulations are followed, such as: refuelling construction equipment only at designated areas, storing hazardous materials off-site and maintaining emergency spill kits on the Project site.

Vegetation Clearing

All PV panels will be installed on pastoral lands, resulting in minimal to no removal of natural vegetation. Proper arboreal practices will be utilized during the removal or pruning of any tree.

3.4.4 Natural Heritage Resources - Avian Fauna

The assessment of environmental effects on birds will be considered in all of the Project phases, including Construction, Operations, and Decommissioning. The potential effects on birds include:

3.4.2 Natural Heritage Resources - Terrain, Soils and Ground Water

Construction activities including road building and installation of foundations have the potential to interact with the terrain and soil resources, and water resources, both within and outside of the Project location.

Waste materials will be created as part of this Project and these waste materials will eventually need to be removed from the Project location and recycled or disposed of as per provincial waste management regulations. The final decision on waste disposal or recycling will be trusted to the on-site contractor that will refer to the *Environmental Protection Act* for each waste produced at the facility.

The potential Project-related effects, on the terrain, soils and ground water are the following:

- Change in terrain stability;
- Change in soil compaction;
- Soil contamination from oil or fuel spills.

Change in Terrain Stability

Parameters used to assess terrain stability are thickness and quality of surface deposits, bedrock quality and surface water and groundwater conditions. The assessment of these parameters is based on surface observations. Subsurface investigations, test pits and/or boreholes are recommended prior to construction.

Change in Soil Compaction

Soil compaction occurs when soil particles are pressed together, reducing pore space between them. As the pore space is decreased within a soil, the bulk density is increased. The repetitive passing of construction machinery and trucks on pasture land may have effects on soil compaction. This effect will be limited to the areas used for access roads. It is not an issue to be considered outside the construction footprint.

Contamination of Soils, Surface Water or Ground Water from Oil and Fuel Spills

Spills may occur due to an accident or malfunction during construction activities, operation, and decommissioning.

3.3.3 Decommissioning Phase

According to laws and regulations in effect, the decommissioning of the Glenarm Solar Project may require the dismantling of the components making up the solar Project, such as the PV panels, their concrete foundations, the Substation and the electrical network.

Most of the materials used in a solar power project are reusable or recyclable, and some manufacturers may have “take-back” or recycling requirements. Materials such as steel and/or aluminum used for the racking system, and copper from the electrical components will be removed and recycled. The PV panels will be removed and either returned to the manufacturers in accordance with recycling protocols or refurbished and recycled as possible. Any remaining materials will be removed and disposed off-site to an appropriate location.

During the Decommissioning Phase of the Project, restoration activities will be performed in accordance with the leading authority requirements and regulations considered at the time of decommissioning.

The Decommissioning Phase will generate waste and emissions typical of heavy construction activities; such as: noise, dust, vehicle and machinery emissions and exhaust.

Details on the Decommissioning Phase will be found in the Decommissioning Plan Report.

3.3.4 Hazardous Waste Disposal, Sewage and Stormwater Management and Water-Taking Activities

Hazardous wastes related to a solar project are minimal and primarily consist of fuels and oils. All hazardous material, will not be stored on site, but off-site in a designated safe storage area. Disposal of hazardous wastes will only be required in the case of accidental spills. The effect of accidental spills will be minimized by ensuring that proper industry regulations are followed, such as: refueling construction equipment at designated areas, storing hazardous materials off-site at designated safe storage areas and maintaining emergency spill kits maintained on the Project site.

The final decision on waste disposal or recycling will be trusted to the on-site contractor that will refer to the Environmental Protection Act for each waste produced at the facility.

SkyPower Glenarm LP will not provide any sanitary sewage treatment facilities or provisions of potable water on-site or off-site. Stormwater management will be conducted through the installation of erosion and runoff prevention measures during the Construction and Decommissioning Phases, where necessary. There are no proposed water-taking activities associated with any phase of the Project.

The photovoltaic technology and associated equipment will not produce any solid, liquid or gaseous wastes during any of the Project’s Phases.

3.4 Environmental Effects that May Result from the Project

The potential negative environmental effects resulting from the Project are typical of concerns related to solar facilities. These concerns generally relate to, but are not limited to: noise, the natural environment (wildlife, vegetation and water resources) and heritage and archaeological impacts. The contractors will be required to have an Environmental Management Plan (EMP) in place to ensure that natural features are protected during the Project's Construction and Decommissioning Phases.

The analysis of these environmental effects along with proposed mitigation and monitoring plans will be discussed in detail in the following REA reports:

- Design and Operations
- Construction Plan
- Decommissioning Plan

The sections below describe the potential negative environmental effects resulting from the Project and activities associated with the Project on an environmental component basis.

The potential environmental effects discussed in the sections below will be minimized and mitigated during the design of the Project through the adherence to the REA setbacks, as shown in the constraints map found in Appendix 1. The design of the layout may result in components being placed in a 'consultation zone'; if this occurs then the appropriate reports; such as environmental impact statements and consultation with the appropriate authorities will be conducted as required.

3.4.1 Heritage and Archaeological Resources

Construction activities including road building and installation of foundations have the potential to disturb the heritage and archaeological resource within the Project location. The main potential effects to archaeology and heritage are:

- Loss of heritage resources;
- Loss of archaeological resources.

Loss of Heritage Resources

A Cultural Heritage Assessment was conducted for the Project Area [2]. Three buildings were found to have a heritage value: a house with a moderate heritage value, a log house with possibly a high heritage value, and a schoolhouse with a high heritage value. Furthermore, records show that a now absent schoolhouse existed either on the present schoolhouse property or in the southwest corner of the Project Area.

Neither buildings are designated as a heritage property or recognized for their heritage or cultural value. However, the schoolhouse and a 100m buffer around the building will be avoided. The log cabin will be investigated further prior to construction to determine its authenticity to the site. If confirmed, the log cabin and a 100 m around the building will be avoided. Finally, the southwest corner of the Project Area and the schoolhouse property will also be investigated further prior to construction to determine the location of the original schoolhouse. If the remnants of the original schoolhouse are found, a 100m buffer will be applied around the area, and it will be avoided.

Considering these mitigation measures, no impact is anticipated.

Loss of Archaeological Resources

A Stage 1 archaeological assessment was conducted to identify zones of archaeological potential within the Project Area [3]. The wetland and the areas around the streams (200m), the historic transportation routes (200m) around the Project Area, and the historic structures (100m) were identified as zones of archaeological potential.

A Stage 2 Archaeological Resource Assessment will be conducted prior to construction in zones of archaeological potential. Details of this Stage 2 Archaeological Assessment will be presented to the Ministry of Tourism and Culture.

Considering this mitigation measure, no impact is anticipated.