Ministry of Tourism, Culture and Sport Confirmation Letter Dated: September 12, 2012

Ministry of Tourism, Culture and Sport Ministère du Tourisme, de la Culture et du Sport

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September 12, 2012

Saturn Power Inc. 110 Mill Street, Unit F New Hamburg, Ontario N3A 2K6

RE: David Brown Solar Park

Part lots 20-24, Concession 2, Township of South Stormont, Counties of Stormont, Dundas, Glengarry, Ontario

FIT-F2J4W2H

MTCS PIF Numbers: P002-249-2011 (Stage 1), P052-355-2012 (Stage 2)

MTCS RIMs Number: HD00392

Dear Proponent:

This letter constitutes the Ministry of Tourism and Culture's written comments as required by s. 22(3)(a) of O. Reg. 359/09 under the *Environmental Protection Act* regarding archaeological assessments undertaken for the above project.

Based on the information contained in the reports you have submitted for this project, the Ministry believes the archaeological assessment complies with the *Ontario Heritage Act's* licensing requirements, including the licence terms and conditions and the Ministry's 2011 Standards and Guidelines for Consultant Archaeologists. Please note that the Ministry makes no representation or warranty as to the completeness, accuracy or quality of the reports.*

The reports recommend the following:

Stage 1 Archaeological Assessment, Proposed David Brown Solar Park, Part Lots 20-24, Concession 2, Township of Osnabruck, United Counties of Stormont, Dundas, Glengarry, Ontario, FIT-F2J4W2H," Revised Report Dated August 17, 2012, Filed by MTCS Toronto Office on August 28, 2012, MTCS Project Information Form Number P002-249-2011, MTCS RIMS Number HD00392

• Given the elevated archaeological potential for both prehistoric and historic period archaeological resources within the Project Area noted on Figure 9 it is recommended that any of the locations of

elevated archaeological potential within the Project Area undergo Stage 2 Archaeological Assessment prior to any ground disturbances.

Stage 2 Archaeological Assessment of Proposed David Brown Solar Park, Part of Lots 20-24, Concession 2, Township of South Stormont, United Counties of Stormont, Dundas, Glengarry, Ontario," Dated July 9, 2012, Received by MTCS Toronto Office on July 18, 2012, MTCS Project Information Form Number P052-355-2012, OPA FIT Number FIT-F2J4W2H, MTCS RIMS Number HD00392

• The stage 2 survey did not identify any archaeological sites requiring further assessment or mitigation of impacts and it is recommended that no further archaeological assessment of the property be required.

The Ministry is satisfied with these recommendations.

This letter does not waive any requirements which you may have under the Ontario *Heritage Act*. A separate letter addressing archaeological licensing obligations under the Act will be or has been sent to the archaeologists who completed the assessment and will be copied to you.

This letter does not constitute approval of the renewable energy project. Approvals of the project may be required under other statutes and regulations. It is your responsibility to obtain any necessary approvals or licences.

Please feel free to contact me if you have questions or require additional information.

Sincerely,

Wai Kok Archaeology Review Officer

cc. Colin Varley, Stantec Keith Powers, The Archaeologist Inc.

^{*}In no way will the Ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report(s) or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent.

Stage 1 Archaeological Assessment Date: October 31, 2011



DRAFT REPORT

Stage 1 Archaeological Assessment, Proposed David Brown Solar Park, Part Lots 20 - 24, Concession 2, Township Of Osnabruck, United Counties of Stormont, Dundas, Glengarry, Ontario

Prepared for:

Saturn Power Inc. 100 Mill Street Unit F New Hamburg, ON N3A 2K6

Prepared by: Colin Varley, Licence # P002 Stantec Consulting Ltd 2791 Lancaster Rd., Suite 200 Ottawa, ON K1B 1A7

October 31, 2011

CIF # P002-249-2011

Project No.: 161011028

EXECUTIVE SUMMARY

Saturn Power Inc. (Saturn) has proposed to construct the David Brown Solar Park (the Project) a solar power generating facility in Part Lots 20 to 24, Concession 2, in the Township of South Stormont, United Counties of Stormont, Dundas and Glengarry, Ontario. The Project Location includes approximately 346 ha (140 acres) of private industrial zoned land bounded to the north by Highway 401, the south by the CN Rail corridor, to the east by Dickinson Road and the west by the extension of Farrans Point Road.

The total nameplate capacity of the proposed Project is 10 MW (mega watts). The components of the Project include 45,000 to 55,000 solar panels, rows of steel racking systems installed into the ground, approximately ten inverter/step-up transformer combination units, aboveground and underground cabling, access roads, a perimeter fence and an interconnection station. Temporary project components will include laydown areas for equipment storage and staging.

As part of the proposed project a Stage 1 Archaeological Assessment (AA) was required in support of environmental permitting for the project. This Stage 1 AA has been conducted in accordance with the 2011 *Standards and Guidelines for Consultant Archaeologists* prepared by the Ministry of Tourism and Culture (MTC).

Based on a review of aerial imagery, existing archaeological potential maps, information regarding registered archaeological sites in the vicinity, local physiography and topography, Census returns, 19th century maps of the project area and soil integrity, parts of the Project Area are considered to have elevated potential for the presence of previously unknown archaeological resources of both prehistoric and historic disposition.

Given the elevated archaeological potential for both prehistoric and historic period archaeological resources within the Project Area it is recommended that lands within the zone of archaeological potential which are planned to be disturbed for any development activity (including construction laydowns, temporary storage areas, etc.) undergo Stage 2 AA prior to any ground disturbances. Stage 2 AA will require both pedestrian and test pit excavation survey methodologies.

As per the 2010 MTC *Archaeology and the Green Energy Act* Memorandum, where a Stage 1 archaeological assessment determines that a Stage 2 archaeological assessment is required for the project lands, this must be completed and the report reviewed and accepted by MTC prior to them issuing written comments to the applicant for the REA application.

If archaeological resources are identified during Stage 2, further archaeological assessment and stages of work may be required but can be completed during the development process. A REA approval could be issued based on the Stage 2 assessment, but would include a requirement for future assessment work as a condition of the REA approval.

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PROJECT PERSONNEL

Project Director	Colin Varley, M.A., R.P.A. (Licence # P002)
Archival Research	Colin Varley, M.A., R.P.A.
Site Reconnaissance	Colin Varley, M.A., R.P.A. Sarah Rogers, BSc. Hons., G. Dip.
Report	Christienne Uchiyama, B.A. (Hons) Colin Varley, M.A., R.P.A. Sarah Rogers, BSc. Hons., G. Dip.

1 INTRODUCTION

Saturn Power Inc. (Saturn) has proposed to construct the David Brown Solar Park (the Project) a solar power generating facility in Part Lots 20 to 24, Concession 2, in the Township of South Stormont (historical Township of Osnabruck), United Counties of Stormont, Dundas and Glengarry, Ontario. The Project Location includes approximately 346 ha (140 acres) of private industrial zoned land bounded to the north by Highway 401, the south by the CN Rail corridor, to the east by Dickinson Road and the west by the extension of Farrans Point Road.

The total nameplate capacity of the proposed Project is 10 MW (megawatt). The components of the Project include 45,000 to 55,000 solar panels, rows of steel racking systems installed into the ground, approximately ten inverter/step-up transformer combination units, aboveground and underground cabling, access roads, a perimeter fence and an interconnection station. Temporary project components will include laydown areas for equipment storage and staging.

As part of the proposed project a Stage 1 Archaeological Assessment (AA) was required in support of environmental permitting for the project under the *Renewable Energy Act*. The project was initiated during the pre-submission phase of the development process. This Stage 1 AA has been conducted in accordance with the 2011 *Standards and Guidelines for Consultant Archaeologists* prepared by the Ministry of Tourism and Culture (MTC) and with regard to the 2010 "Archaeology and the Green Energy Act" memorandum issued by the MTC.

2 **PROJECT CONTEXT**

2.1 Development Context

2.1.1 **Project Description**

Saturn Power Inc. (Saturn) has proposed to construct the David Brown Solar Park (the Project) a solar power generating facility in Part Lots 20 to 24, Concession 2, in the Township of South Stormont (historical Township of Osnabruck), United Counties of Stormont, Dundas and Glengarry, Ontario (Figure 1). The Project Location includes approximately 346 ha (140 acres) of private industrial zoned land bounded to the north by Highway 401, the south by the CN Rail corridor, to the east by Dickinson Road and the west by the extension of Farrans Point Road.

The total nameplate capacity of the proposed Project is 10 MW. The components of the Project include 45,000 to 55,000 solar panels, rows of steel racking systems installed into the ground, approximately ten inverter/step-up transformer combination units, aboveground and underground cabling, access roads, a perimeter fence and an interconnection station. Temporary project components will include laydown areas for equipment storage and staging.

2.1.2 O.Reg. 359/09 Requirements, Archaeological Assessment

This Stage 1 Archaeological Assessment Report has been conducted in accordance with O.Reg. 359/09, s.22 (1), (2) and (3). O. Reg. 359/09 s.22 states that:

22. (1) This section applies to a person if,

(a) as a result of the consideration mentioned in subsection 20 (1), the person concludes that engaging in the renewable energy project may have an impact on an archaeological resource described in paragraph 1 of subsection 20 (1); or

(b) the person concludes, after complying with section 21, that the project location is situated as described in subclause 21 (2) (a) (i) or (ii) or clause 21 (2) (b). O. Reg. 359/09, s. 22 (1).

(2) A person to whom this section applies shall ensure that,

(a) an archaeological assessment is conducted by a consultant archaeologist; and

(b) an archaeological assessment report is prepared by the consultant archaeologist mentioned in clause (a) and submitted to the Ministry of Culture. O. Reg. 359/09, s. 22 (2).

(3) As part of an application for the issue of a renewable energy approval, a person to whom this section applies shall submit,

(a) written comments provided by the Ministry of Culture in respect of the archaeological assessment conducted under clause (2) (a);

(b) the archaeological assessment report prepared under clause (2) (b); and

(c) if the project location is on property described in subclause 21 (2) (a) (ii), a copy of the permit issued by the Minister of Culture to excavate or alter the property or to remove an artifact from that property, as the case may be. O. Reg. 359/09, s. 22 (3).

2.1.3 Project Area

The Project Area is composed of approximately 346 ha (140 acres) of mostly undeveloped land in Part of Lots 20-24, Concession 2, in the former Township of Osnabruck, now Township of South Stormont, United Counties of Stormont, Dundas and Glengarry, Ontario (Figure 2). The Project Area, measuring approximately 1800 m (E-W) by 290 m (N-S), is bounded to the north by Highway 401, the south by the CN Rail corridor, to the east by Dickinson Road and the west by the extension of Farrans Point Road. Permission to enter the property for the archaeological assessment was provided to Stantec by the proponent.

The Project Area is located in the Glengarry Till Plain physiographic region of Ontario, an area of low relief located between the east end of the Ottawa River and the St. Lawrence River (Chapman and Putnam, 1984). The physiographic region is characterised by the presence of a large number of small streams, many of which are slow-flowing for great distances from their headwaters. The major physiographic characteristic of the region is the stoniness of the till soil (Chapman and Putnam, 1984).

The surficial geology of the Project Area is composed of three soil types: Morrisburg Clay Loam, an imperfectly drained and moderately stony heavy textured till; Grenville Loam, a fine textured moderately stony till with good drainage; and very poorly drained muck soils, associated with the wetland at the west end of the Project Area (Matthews and Richards, 1954) (Figure 3). Ecological land classification of the property completed for this project indicates that there are three areas of swamp/marsh, an area of maple and ash forest, and two grasslands within the property, along with a disturbed area from a former quarrying operation and an agricultural field.

Stage 1 Archaeological Assessment, Proposed David Brown Solar Park, Part Lots 20 - 24, Concession 2, Township Of Osnabruck, United Counties of Stormont, Dundas, Glengarry, Ontario

2.2 Historical Context

2.2.1 Archaeological Culture History of Eastern Ontario

Overall, archaeological research in many parts of eastern Ontario has been fairly limited, at least compared to adjoining areas in Southern Ontario and northern New York State, resulting in only a limited understanding of the cultural processes that occurred in this part of the province. The following summary of the prehistoric occupation of Eastern Ontario (see Table 1 for chronological chart) is based on syntheses in Archaeologix (2008), Ellis and Ferris (1990), Jacques Whitford (2008), Pilon (1999) and Wright (1995).

Identifiable human occupation of Ontario begins just after the end of the Wisconsin Glacial period. The first human settlement can be traced back 11,000 years, when this area was settled by Native groups that had been living to the south of the emerging Great Lakes. This initial occupation is referred to as the "Palaeo-Indian" archaeological culture.

Table 1 - Eastern Ontario Prehistoric Cultural Chronology, Years Before Present (BP)							
ARCHAEOLOGICAL PERIOD	ТІМЕ	CHARACTERISTICS					
Early Paleo-Indian	11,000–10,400 BP	caribou and extinct Pleistocene mammal hunters, small camps					
Late Paleo-Indian	10,400–10,000 BP	smaller but more numerous sites					
Early Archaic	10,000-8,000 BP	slow population growth, emergence of woodworking industry, development of specialised tools					
Middle Archaic	8,000–4,500 BP	environment similar to present, fishing becomes important component of subsistence, wide trade networks for exotic goods					
Late Archaic	4,500-3,100 BP	increasing site size, large chipped lithic tools, introduction of bow hunting					
Terminal Archaic	3,100-2,950 BP	emergence of true cemeteries with inclusion of exotic trade goods					
Early Woodland	2,950-2,400 BP	introduction of pottery, continuation of Terminal Archaic settlement and subsistence patterns					
Middle Woodland	2,400-1,400 BP	increased sedentism, larger settlements in spring and summer, dispersed smaller settlement in fall and winter, some elaborate mortuary ceremonialism					
Transitional Woodland	1,400-1,100 BP	incipient agriculture in some locations, seasonal hunting & gathering					
Late Woodland (Early Iroquoian)	1,100-700 BP	limited agriculture, development of small village settlement, small communal longhouses					
Late Woodland (Middle Iroquoian)	700-600 BP	shift to agriculture as major component of subsistence, larger villages with large longhouses, increasing political complexity					
Late Woodland (Late Iroquoian)	600- 350 BP	very large villages with smaller houses, politically allied regional populations, increasing trading network					

Early Palaeo-Indian (EPI) (11,000-10,400 before present BP) settlement patterns suggest that small groups, or "bands", followed a pattern of seasonal mobility extending over large territories. Many (although by no means all) of the EPI sites were located on former beach ridges associated with Lake Algonquin, the post-glacial lake occupying the Lake Huron/Georgian Bay basin, and research/evidence indicates that the vegetative cover of these areas would have consisted of open spruce parkland, given the cool climatic conditions. Sites tend to be located on well-drained loamy soils, and on elevations in the landscape, such as knolls. The fact that assemblages of artifacts recovered from EPI sites are composed exclusively of stone skews our

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understanding of the general patterns of resource extraction and use. However, the taking of large game, such as caribou, mastodon and mammoth, appears to be of central importance to the sustenance of these early inhabitants. Moreover, EPI site location often appears to be located in areas which would have intersected with migratory caribou herds. In the Ottawa Valley it appears that the palaeo-environement had not recovered sufficiently from the former glaciations to have allowed an EPI occupation. There is, however, some evidence of EPI incursion to the Rideau Lakes area.

The Late Palaeo-Indian (LPI) period (10,400-10,000 BP) is poorly understood compared to the EPI, the result of less research focus than the EPI. As the climate warmed the spruce parkland was gradually replaced and the vegetation of Southern Ontario began to be dominated by closed coniferous forests. As a result many of the large game species that had been hunted in the EPI period either moved north with the more open vegetation, or became locally extinct. Like the EPI, LPI peoples covered large territories as they moved around to exploit different resources. Environmental conditions in Eastern Ontario and the Ottawa Valley were sufficient to allow for a Late Palaeo-Indian occupation, although the evidence of such is still very limited.

The transition from the Palaeo-Indian period to the Archaic archaeological culture of Ontario prehistory is evidenced in the archaeological record by the development of new tool technologies, the result of utilising an increasing number of resources as compared to peoples from earlier archaeological cultures, and developing a broader based series of tools to more intensively exploit those resources. During the Early Archaic period (10,000-8,000 BP), the jack and red pine forests that characterized the LPI environment were replaced by forests dominated by white pine with some associated deciduous elements. Early Archaic projectile points differ from Palaeo-Indian forms most notably by the presence of side and corner notching on their bases. A ground stone tool industry, including celts and axes, also emerges, indicating that woodworking was an important component of the technological development of Archaic peoples. Although there may have been some reduction in the degree of seasonal mobility, it is still likely that population density during the Early Archaic was low, and band territories large.

The development of more diversified tool technology continued into the Middle Archaic period (8,000-4,500 BP). The presence of grooved stone net-sinkers suggests an increase in the importance of fishing in subsistence activities. Another new tool, the bannerstone, also made its first appearance during this period. Bannerstones are ground stone weights that served as counterbalance for "atlatls" or spear-throwers, again indicating the emergence of a new technology. The increased reliance on local, often poor quality chert resources for chipped stone tools suggests that in the Middle Archaic groups inhabited smaller territories lacking high quality raw materials. In these instances lower quality materials which had been glacially deposited in local tills and river gravels were used.

This reduction in territory size appears to have been the result of gradual region-wide population growth, which forced a reorganization of subsistence patterns, as a larger population had to be supported from the resources of a smaller area. Stone tools designed specifically for the preparation of wild plant foods suggest that subsistence catchment was being widened and new resources being more intensively exploited. A major development of the later part of the Middle Archaic period was the initiation of long distance trade. In particular, native copper tools manufactured from sources near Lake Superior were being widely traded.

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During the later part of the Middle Archaic (5,500-4,500 BP) a distinctive occupation, or tradition, known as the Laurentian Archaic, appears in south-eastern Ontario, western Quebec, northern New York and Vermont. Laurentian Archaic sites are found only within the transitional zone between the deciduous forests to the south and coniferous forests to the north known as the Canadian Biotic Province and are identifiable through the association of certain diagnostic tool types, including ground slate semi-lunar knives (or "ulus"), plummets for use in fishing, ground slate points and knives, and ground stone gouges, adzes and grooved axes. It is thought that there was less reliance on plant foods and a greater reliance on hunting and fishing in this region than for Archaic peoples in southern and south-western Ontario. Laurentian Archaic sites have been found in the middle Ottawa River valley, along the Petawawa River and Trent River watersheds and at Brockville.

The trend towards decreased territory size and a broadening subsistence base continued during the Late Archaic (4,500-2,900 BP). Late Archaic sites are far more numerous than either Early or Middle Archaic sites. It appears that the increase in numbers of sites at least partly represents an increase in population. However, around 4,500 BP water levels in the Great Lakes began to rise, taking their modern form. It is likely that the relative paucity of earlier Archaic sites is due to their being inundated under the rising lake levels.

The appearance of the first true cemeteries occurs during the Late Archaic. Prior to this period, individuals were interred close to the location where they died. However, with the advent of the Late Archaic and local cemeteries individuals who died at a distance from the cemetery would be returned for final burial at the group cemetery often resulting in disarticulated skeletons, occasionally missing minor bone elements (e.g. finger bones). The emergence of local group cemeteries has been interpreted as being a response to both increased population densities and competition between local groups for access to resources, in that cemeteries would have provided symbolic claims over a local territory and its resources.

Increased territoriality and more limited movement are also consistent with the development of distinct local styles of projectile points. The trade networks which began in the Middle Archaic expand during this period, and begin to include marine shell artifacts (such as beads and gorgets) from as far away as the Mid-Atlantic coast. These marine shell artifacts and native copper implements show up as grave goods, indicating the value of the items. Other artifacts such as polished stone pipes and slate gorgets also appear on Late Archaic sites. One of the more unusual of the Late Archaic artifacts is the "birdstone", small, bird-like effigies usually manufactured from green banded slate.

The Early Woodland period (2,900-2,200 BP) is distinguished from the Late Archaic period primarily by the addition of ceramic technology. While the introduction of pottery provides a useful demarcation point for archaeologists, it may have made less difference in the lives of the Early Woodland peoples. The first pots were very crudely constructed, thick walled, and friable. It has been suggested that they were used in the processing of nut oils by boiling crushed nut fragments in water and skimming off the oil. These vessels were not easily portable, and individual pots must not have enjoyed a long use life. There have also been numerous Early Woodland sites located at which no pottery was found, suggesting that these poorly constructed, undecorated vessels had yet to assume a central position in the day-to-day lives of Early Woodland peoples.

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Other than the introduction of this rather limited ceramic technology, the life-ways of Early Woodland peoples show a great deal of continuity with the preceding Late Archaic period. For instance, birdstones continue to be manufactured, although the Early Woodland varieties have "pop-eyes" which protrude from the sides of their heads. Likewise, the thin, well-made projectile points which were produced during the terminal part of the Archaic period continue in use. However, the Early Woodland variants were side-notched rather than corner-notched, giving them a slightly altered and distinctive appearance. The trade networks which were established in the Middle and Late Archaic also continued to function, although there does not appear to have been as much traffic in marine shell during the Early Woodland period. These trade items were included in increasingly sophisticated burial ceremonies, some of which involved construction of burial mounds.

In terms of settlement and subsistence patterns, the Middle Woodland (2,200 B.C.-1,100 BP) provides a major point of departure from the Archaic and Early Woodland periods. While Middle Woodland peoples still relied on hunting and gathering to meet their subsistence requirements, fish were becoming an even more important part of the diet. Middle Woodland vessels are often heavily decorated with hastily impressed designs covering the entire exterior surface and upper portion of the vessel interior. Consequently, even very small fragments of Middle Woodland vessels are easily identifiable.

It is also at the beginning of the Middle Woodland period that rich, densely occupied sites appear along the margins of major rivers and lakes. While these areas had been utilized by earlier peoples, Middle Woodland sites are significantly different in that the same location was occupied off and on for as long as several hundred years. Because this is the case, rich deposits of artifacts often accumulated. Unlike earlier seasonally utilized locations, these Middle Woodland sites appear to have functioned as base camps, occupied off and on throughout the course of the year. There are also numerous small upland Middle Woodland sites, many of which can be interpreted as special purpose camps from which localized resource patches were exploited. This shift towards a greater degree of sedentism continues the trend witnessed from the Middle Archaic, and provides a prelude to the developments that follow during the Late Woodland period.

There are three complexes of Middle Woodland culture in Ontario. The complex specific to eastern Ontario is known as "Princess Point" most notably represented by ceramics decorated with a stamped zigzag pattern applied at various angles to the exterior of the vessel, known as "pseudo scallop shell". Another common decorative style is the dentate stamp, a comb-like tool creating square impressions.

The relatively brief period of the Transitional Woodland period is marked by the acquisition of cultivar plants species, such as maize and squash, from communities living south of the Great Lakes. The appearance of these plants began a transition to food production, which consequently led to a much reduced need to acquire naturally occurring food resources. Sites were thus occupied for longer periods and by larger populations. Transitional Woodland sites have not been discovered in eastern Ontario.

The Late Woodland period in southern Ontario is associated with societies referred to as the Ontario Iroquois Tradition. This period is often divided into three temporal components; Early, Middle and Late Iroquoian (see Table 1). In eastern Ontario, especially in the Ottawa River

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Valley, there is considerable overlap of people continuing to practice a hunting and gathering economy and those using limited horticulture as a supplement to gathered plants. For the most part, however, classic Late Woodland sites in eastern Ontario are limited to an area at the east end of Lake Ontario and along the St. Lawrence River valley. Early Iroquoian components have been identified near Pembroke on the Muskrat River; however, there is evidence for only limited use of cultivated plants. Middle Iroquoian sites have not been identified east of the Kingston area.

During the Late Iroquoian period a distinctive material culture emerges at the east end of Lake Ontario and along the St. Lawrence River up to Québec City, known as the St. Lawrence Iroquois (SLI). SLI sites are characterised by large semi-permanent villages and associated satellite settlements. The inhabitants of these villages and satellites practiced horticulture of staple crops which made up the bulk of their diet. Other food resources were hunted, fished and gathered. SLI village sites can be extensive, up to 10 acres or more in size and composed of a number of longhouse structures. Special purpose satellite settlements, such as hunting and fishing camps, are smaller in area and in the number and size of structures within the settlement.

While the early-contact period descendants of the Late Woodland SLI and Huron used the Ottawa River and its tributaries as transportation routes between the St. Lawrence River and the interior, Late Woodland village sites are have not been identified along this area.

2.2.2 Historic Period Occupation

The Township of Osnabruck was originally established in 1784 as part of the original eight "Royal Townships" along the north shore of the St. Lawrence River, in the then Province of Quebec, which were designated for the settlement of United Empire Loyalists after the conclusion of the American Revolution. Osnabruck, then designated as Township # 4, was one of the five townships settled by the First Battalion of the King's Royal Regiment of New York (Fryer, 1984). Of the original eight townships Osnabruck received the fewest number of settlers, 75 in total (Gentilcore *et al.*, 1998). Of these 75 settlers approximately 70% were men, with women and children making up about 15% each of the settlers, indicating that most of these settlers were unmarried, and possibly younger, men. This is in sharp contrast to most of the other townships, where the distribution of settlers was far more equitable (Gentilcore *et al.*, 1998).

The 1852 Maclear map of the townships between the Ottawa and St. Lawrence Rivers suggests that there was little development in the township north of the riverfront (Figure 4). Aside from the road along the river between Dickensons Landing and Charlesville there are only two roads indicated within the township, one generally following along present day Highway 14 in the centre of the township and the other where present day Highway 12 is located at the east end of the township. More detailed evaluations of whether specific lots were occupied are difficult due to the loss of the 1851 census records.

If the Maclear map is accurate with regard to the level of development in township then there must have been a considerable boom in settlement in the ensuing decade as the 1862 Walling map indicates (Figure 5). By 1862 there was a wide network of roads, and all of the lots within the Project Area were occupied. Of note, several houses along the Dafoe Road are indicated

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with a T.H., for Temperance House, indicating that that household was dry, or teetotalling. The temperance movement had originated in the early 19th century but became much more prominent after the establishment in Canada of the Sons of Temperance lodge, a fraternal and prohibitionist society modeled on the Odd Fellows.

All of the houses indicated on the Walling map fronted very closely to the road. The south side of Dafoe Road eventually became the route of the Macdonald-Cartier Freeway (Highway 401), the construction of which removed those houses, or their remnants. The current Project Area lies immediately south of the location of those houses (Figure 5).

The 1868 Gatey map of Osnabruck Township indicates several features, including the location of buildings, type and quality of roads and areas of clay soils (Figure 6). At that time only five buildings are indicated along the south side of the Dafoe Road. Dafoe Road itself is described on the map as a "good road, except after rain". Farrans Point Road is indicated as being only a "fair road but bad after rain" (Figure 6). No churches, schools or commercial enterprises (blacksmiths, mills) are shown as being located in any proximity to the Project Area.

The 1879 Belden Atlas map shows that some consolidation of lands had occurred within the Project Area, as some earlier farmers sold their properties to others and then moved on (Figure 7). Five houses continue to be shown along the south side of Dafoe Road in the same general location as those shown in 1862 and 1868. By this time, however, there was a schoolhouse located on the north side of the road in Lot 19 (Figure 7).

2.3 Archaeological Context

There is at present one registered p archaeological site within a 1 km radius of the Project Area (MCL, 2011b). This site, the Osnabruck Station Meter site (BgFr-3), is a historic period homestead site dating to the mid to late 19th century and composed of a log cabin foundation and 1,500 artifacts. The site is located to the north-east of the Project property and its presence does not influence the specific archaeological potential of the Project Area.

The assessment of archaeological potential for the site considered both prehistoric and historic period resources. Archaeological potential modeling for prehistoric era sites is based largely on the identification of landscape features which are either known to have attracted past habitation or land use, or which appear to have potential for attracting human use. These features include: navigable rivers and lakes; confluences of watercourses; smaller sources of potable water; ridges or knolls that overlook areas of resource potential; outcrops of high-quality stone for tool making; and, most importantly, combinations of these features. In general it has been demonstrated that areas within 200-300 m of watercourses, or other significant bodies of water (ASI, 1990; Cox, 1989), and in particular those areas with multiple water sources (Young et al., 1995), are considered to be of elevated archaeological potential.

Patterns of land use by historic Euro-Canadians to some extent mirror those of the prehistoric period. This is not surprising, since the same general needs must be met, i.e., proximity to potable water, access to natural resources, and a level, well drained habitation site. On the other hand, the Euro-Canadian conversion of both fertile and more marginal land for agricultural purposes, the development of non-water travel routes, the exploitation of different resources such as subsurface mineral deposits, and other differences in land use patterns make potential

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modeling of Euro-Canadian and other non-Aboriginal historic sites somewhat less reliable. Fortunately, these sites are more visible than their prehistoric counterparts, which helps offset this lower level of predictive reliability.

3 FIELD METHODS

A visual assessment of the Project Area and its environs was made on October 12, 2011. The visual assessment of the site was conducted in order to confirm the general assessment of portions of the property as having archaeological potential and to identify any areas of extensive and intensive disturbances (other than agricultural activities) that were not readily identifiable on air photos or by other means. Permission to enter the property was granted by the proponent.

The Project Area is comprised of several general areas of undisturbed, disturbed and wet lands. In general disturbed land is located in the north-east corner of the property and is the result of a former quarrying operation (Photos 1-2 and 4-6; Figure 8). The disturbances include removal of topsoil and below grade soil and rock, areas where soils have been pushed and moved, and road construction. To the south, and comprising most of the south-east part of the property, is an agricultural field (Photos 3, 7 and 12). Open areas of low brush and grasses comprise the majority of the property, and are found along the north edge of the property and through much of the central part of the property (Photos 8-11 and 15). The remaining parts of the property are composed of low, poorly drained or chronically wet ground. The bulk of this is located along the west end of the property (Photos 16-18). A smaller area of poorly drained ground is located in the middle of the property (Photos 13 and 14).

4 ANALYSIS AND CONCLUSIONS

Based on a review of aerial imagery, existing archaeological potential maps, information regarding registered archaeological sites in the vicinity, local physiography and topography, Census returns, 19th century maps of the project area and soil integrity, portions of the Project Area are considered to have elevated potential for the presence of previously unknown archaeological resources of both prehistoric and historic disposition (Figure 9 and Appendix A).

Given the presence of secondary water sources (a small water course and the wetlands to the west) the property has been determined to exhibit characteristics consistent with elevated potential for pre-contact period archaeological resources. As the historic maps have indicated, historic occupation of the lots suggest that there is potential for the presence of historic period archaeological resources, although it is unlikely that those resources will include house foundations or other built features.

The disturbed and low, poorly drained portions of the property are considered to have low archaeological potential (Figure 9). The remaining parts of the property are considered to have sufficient soil integrity to warrant further archaeological assessment.

5 **RECOMMENDATIONS**

Given the elevated archaeological potential for both prehistoric and historic period archaeological resources within the Project Area noted on Figure 9 it is recommended that any of the locations of elevated archaeological potential within the Project Area which are planned to be disturbed for any Project related construction activity (including construction laydowns, temporary storage areas, etc.) undergo Stage 2 Archaeological Assessment prior to any ground disturbances.

Due to the mixed cleared and wooded nature of the Project Area it is recommended that Stage 2 AA be conducted using a combination of pedestrian survey and test pit excavation strategies, as per the 2011 *Standards and Guidelines for Consultant Archaeologists*. The following standards will apply, as appropriate, for Stage 2 AA pedestrian survey:

- Actively or recently cultivated agricultural land must be assessed by pedestrian survey;
- Land to be surveyed must be recently ploughed. Use of chisel ploughs is not acceptable. In heavy clay soils ensure furrows are disked after ploughing to break them up further;
- Land to be surveyed must be weathered by one heavy rainfall or several light rains;
- Ensure that ploughing is deep enough to provide total topsoil exposure, but not deeper than previous ploughing;
- At least 80% of the ploughed ground surface must be visible. If surface visibility is below 80% (e.g., due to crop stubble, weeds, young crop growth), ensure the land is re-ploughed before surveying;
- Space survey transects at maximum intervals of 5 m;
- When archaeological resources are found, decrease survey transects to 1 m intervals over a minimum of a 20 m radius around the find to determine whether it is an isolated find or part of a larger scatter. Continue working outward until the full extent of the surface scatter has been defined. Record the location of the resources using a GPS;
- Collect all formal artifact types and diagnostic categories. For 19th century archaeological sites, collect all refined ceramic sherds (or, for larger sites collect a sufficient sample to form the basis for accurate dating).

The following standards will apply, as appropriate, for Stage 2 AA test pit survey:

- Test pit survey only on terrain where ploughing is not possible or viable, such as:
 - wooded areas;
 - pasture with high rock content;
 - abandoned farmland with heavy brush and weed growth;
 - orchards and vineyards that cannot be strip-ploughed (planted in rows 5 m apart or less), gardens, parkland or lawns;
 - properties where existing landscaping or infrastructure would be damaged;
 - narrow (10 m or less) linear survey corridors (e.g., water or gas pipelines, road widening). This includes situations where there are planned impacts 10 m or less beyond the previously impacted limits on both sides of an existing linear corridor (e.g., two linear survey corridors on either side of an existing roadway);
- Space test pits at maximum intervals of 5 m (400 test pits per hectare) in areas less than 300 m from any feature of archaeological potential;
- Space test pits at maximum intervals of 10 m (100 test pits per hectare) in areas more than 300 m from any feature of archaeological potential;
- When positive test pits are encountered:

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- Continue test pit excavation on the survey grid to determine whether there are further positive test pits. This may produce sufficient archaeological resources to meet the criteria for making a recommendation to carry out a Stage 3 assessment;
- If insufficient archaeological resources are found through continued survey on the grid to meet the criteria for continuing to Stage 3, intensify survey coverage around the positive test pit at 2.5 m interval to determine whether a recommendation for a Stage 3 assessment can be supported.
- Test pit to within 1 m of built structures (both intact and ruins), or until test pits show evidence of recent ground disturbance;
- Ensure that test pits are at least 30 cm in diameter;
- Excavate each test pit, by hand, into the first 5 cm of subsoil and examine the pit for stratigraphy, cultural features, or evidence of fill;
- Screen soil through mesh no greater than 6 mm;
- Collect all artifacts according to their associated test pit; and,
- Backfill all test pits unless instructed not to by the landowner.

As per the 2010 MTC *Archaeology and the Green Energy Act* Memorandum, where a Stage 1 archaeological assessment determines that a Stage 2 archaeological assessment is required for the project lands, this must be completed and the report reviewed and accepted by MTC prior to them issuing written comments to the applicant for the REA application.

If archaeological resources are identified during Stage 2, further archaeological assessment and stages of work may be required but can be completed during the development process. A REA approval could be issued based on the Stage 2 assessment, but would include a requirement for future assessment work as a condition of the REA approval.

6 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the Minister of Tourism and Culture as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism and Culture, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*;

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Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Act*; and,

The *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

7 CLOSURE

This report has been prepared for the sole benefit of Saturn Power Inc. and may not be used by any third party without the express written consent of Stantec Consulting Ltd and Saturn Power Inc. Any use which a third party makes of this report is the responsibility of such third party.

We trust this report meets your current requirements. Please do not hesitate to contact us should you require further information or have additional questions about any facet of this project.

Yours truly, Stantec Consulting Ltd.

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8 MAPS



Figure 1 - Location of Project Area





Figure 2 - Project Area, Current Conditions





Figure 3 - Soil Types Within the Project Area





Figure 4 - Project Area As Shown Over 1852 Maclear Map





Figure 5 - Project Area As Shown Over Detail From 1862 Walling Map









Figure 7 - Project Area As Shown Over Detail From 1879 Belden Atlas





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10 IMAGES



Photo 1 - Disturbed Area in North-East Corner of Property, Looking North-WestTo Highway 401



Photo 3 - Agricultural Field in South-East Corner of Property, Looking South



Photo 2 - Disturbed Area, Showing Piled Rocks and Concrete, Looking East



Photo 4 - Ditch Along North edge of Field, Looking East





Photo 5 - Piled Rock In Corner of Disturbed Area, Looking North



Photo 7 - Looking West From Edge of Disturbed Area Over Agricultural Field and Meadow



Photo 6 - Disturbed Area, Access Roads Into Quarry, Looking East to Highway 14



Photo 8 - Area of Cattails Along Ditch Line, Looking West



Photo 9 - Meadow Area Along North Edge of Property, Looking South



Photo 11 - Cattails in Ditch Along North Side of Property, Looking West



Photo 10 - Meadow Area Just North of Agricultural Field, Looking West



Photo 12 - Rocky Meadow North of Agricultural Field, Looking South





Photo 13 - West Edge of Agricultural Field, Looking West Towards Green Ash Swamp



Photo 15 - Overgrown Meadow, Looking North Towards Highway 401



Photo 14 - Green Ash Swamp, Area of Low Potential, Looking South



Photo 16 - Cattail Marsh In North-West Edge of Property, Looking South, Area of Low Potential





Photo 17 - Cattail Marsh, North-West Corner of Property, Looking North to Highway 401, Area of Low Potential



Photo 18 - Green Ash Swamp in South-West Corner of Property, Looking South-West, Area of Low Potential



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APPENDIX A

Archaeological Potential Determination Checklist

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Archaeological Potential Determination Checklist							
	Feature of Archaeological Potential	Yes	No	Not Available	Comment		
1	Known archaeological sites within 250 m?		✓		If Yes, potential determined		
PHY	SICAL FEATURES						
2	Is there water on or near the property?	✓					
2a	Primary water source within 300m		~		If Yes, potential determined		
2b	Secondary water source within 200m	✓			If Yes, potential determined		
2c	Past water source within 300m		\checkmark		If Yes, potential determined		
3	Elevated topography	~			If yes, and Yes for any of 4-9, potential determined		
4	Pockets of sandy soil in a clay or rocky area		~		If yes, and Yes for any of 3, 5-9, potential determined		
5	Distinctive land formations		~		If yes, and Yes for any of 3-4, 6-9, potential determined		
HIS	TORIC USE FEATURES						
6	Associated with food or scarce resource harvest areas			~	If yes, and Yes for any of 3-5, 7-9, potential determined		
7	Indications of early historic settlement	~			If yes, and Yes for any of 3-6, 8-9, potential determined		
8	Associated with historic transportation route	~			If yes, and Yes for any of 3-7 or 9, potential determined		
9	Contains property designated under the Ontario Heritage Act		~		If yes, and Yes for any of 3-8, potential determined		
APPLICATION SPECIFIC INFORMATION							
10	Local knowledge		~		If Yes, potential determined		
11	Recent (post-1960) disturbance (confirmed extensive and intensive)	~			PARTIAL		
	Summersu.						

Summary:

• If Yes to any of 1, 2a-c, or 10

Archaeological Potential is **confirmed**

• If Yes to two or more of 3-9

Archaeological Potential is **confirmed** Low Archaeological Potential is confirmed

• If Yes to 11 or No to 1-10

Based on example in Ontario Ministry of Culture Standards and Guidelines for Consultant Archaeologists, final draft, August 2006, Unit 1C-Stage 1