Social, economic and environmental impacts Cambridge Bay Solar and Storage Project, NU

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Prepared by:

AURORA ENERGY SOLUTIONS

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EXECUTIVE SUMMARY

This report presents the findings of a socio-economic and environmental impact assessment for the proposed Cambridge Bay Solar and Storage (CBSS) Project in Nunavut, Canada. Led by Kitikmeot Corporation and supported by High Latitude Consulting and Aurora Energy Solutions, the CBSS project is designed to deliver 4 MW DC of solar power and 3 MWh of battery storage capacity, significantly reducing diesel dependence in the region by an estimated 1.2 million litres annually. The project responds to local and territorial priorities for clean energy development and community resilience.

The report incorporates extensive community engagement, technical assessments, and environmental due diligence. It confirms strong community support for renewable energy development in the community, identifies minimal potential adverse environmental impacts, and numerous positive economic and social impacts. The selected project site—across the bay from Cambridge Bay—is municipally owned, flat, dry, and unencumbered by competing land uses or ecological sensitivities. Anticipated benefits include potential long-term energy cost stability, employment opportunities, infrastructure improvements, and enhanced Inuit economic participation.

Environmental risks such as permafrost degradation, sediment disturbance, and battery containment have been addressed through forward-looking mitigation strategies, including climate-resilient foundation design, monitoring of permafrost and runoff, and the use of solid-state battery technologies. The project aligns closely with Inuit Qaujimajatuqangit (IQ) principles, particularly in community participation, sustainability, and stewardship of the land.

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1 Introduction

This report presents a comprehensive socio-economic and environmental impact assessment for a proposed large-scale solar and battery energy storage infrastructure project in Cambridge Bay, Nunavut. The assessment has been undertaken in accordance with the regulatory requirements of the Nunavut Impact Review Board (NIRB), which oversees the integrated assessment of potential impacts of major development projects in Nunavut.

The purpose of this report is to evaluate the potential positive and negative effects of the proposed project on the environment, economy, and social fabric of the community. It aims to support informed decision-making by identifying all areas of potential concern. This will be done through assessing the project's impacts based on the authors' in-depth knowledge of the community, through extensive community engagement, and through using several technical reports, at which point mitigation strategies will be proposed. This process includes an analysis of current and historical environmental conditions, community support, employment opportunities, and cultural & land-use considerations.

This assessment seeks to ensure that the project aligns with the values and priorities of Nunavummiut, while contributing to the territory's long-term goals for energy security, economic development, and environmental sustainability.

2 Project Description

The Kitikmeot Corporation retained the services of High Latitude Consulting and Aurora Energy Solutions to assess the feasibility of a large scale solar & battery system for Cambridge Bay, Nunavut, under the Government of Nunavut's Independent Power Purchaser program. This project is funded by Natural Resources Canada's Clean Energy for Rural and Remote Communities Program (CERRC). The Cambridge Bay Solar + Storage project, hereafter referred as the *CBSS project*, has the proposed specifications:

- **Solar Photovoltaic Sizing:** 4 MW DC / 2.96 MW AC. Approximately 7,700 ground mounted solar panels will be installed on site.
- **Battery Energy Storage System (BESS):** 2 x 1.5 MW/ 1.5 MWh Lithium Ion batteries (Total storage 3 MW / 3 MWh). This sizing may change depending on the outcome of the Connection Impact Assessment. There will be two (2) inverters for the batteries, capable of providing Grid Forming services. Currently the batteries are planned to be co-located with the solar infrastructure. However, co-locating with the plant may be preferred as the project develops.
- **E-Building:** will house the controls and monitor equipment.
- **Transmission Line Connection:** A 4km long combination of underground high voltage cables and overhead power lines will link the project site to the community electricity grid interconnection point and will also facilitate connections to other future renewable generation expansions in the area.

The system is expected to generate 4,339 MWh/year displacing 1.2 million litres of diesel per year. This is enough to power all residential units in Cambridge Bay (700 homes) for one year.

A conceptual rendering of the project at the proposed site is depicted in Figure 1.

Figure 1: Rendering of the proposed Cambridge Bay Solar and Storage Project

Location: The proposed site is located across the bay from the community, near "Old Town". Refer to Appendix A Site Location. There is an existing unmaintained access road that leads from the crossing at Fresh Water Creek all the way along the project site that will serve as seasonal access. The land identified for the solar farm development is located south of two Nav Canada lots: Lot #1008, Quad 077D/02, Plan 3197 and Lot #1011, Quad 077D/02, Plan 3197. In order to connect the solar infrastructure to the nearest power pole situated north of the site and east of the Stone Church, an underground interconnection power cable must run along the road at the edge of NAV Canada Lot #1011. The Proponent has secured a letter of no objection from Nav Canada and Transport Canada.

Though Cambridge Bay is surrounded by a seemingly vast amount of land, much of it is inaccessible because of the North Warning System land utilization, water supply setbacks, and proximity to waste dumps. The project site is also one of the rare locations close to the community that has a very flat, even, and dry surface, and is in proximity to a newly constructed high voltage power line that connects to the community grid. Finally, the site benefits from low traffic in the area, which would cut down on dust covering the panels, a significant factor in the summer season.

The status of the project site land is vacant untitled municipal land. The lot did not previously exist; as part of the feasibility study, and after extensive engagements with the municipal council and the Government of Nunavut Community and Government Services, a formal lot was created. The site location is legally

surveyed and has received final approval from the Government of Nunavut (May 2025). The registration is currently undergoing the final steps at the Land Title Office. Please refer to Appendix B for a copy of the Final Survey.

Timeline: This project is at the feasibility study stage and technical specifications are subject to adjustments. The potential timeline for construction is June 2026 to October 2027. A 30-year operation lifetime is planned, from October 2027 to October 2057. Decommission can occur over one year, from October 2057 to October 2058.

3 Approach

3.1 Community and Stakeholders Engagement Process

Over the past several years, the Proponent has carried out a comprehensive community and stakeholder engagement process to gauge community support, identify potential environmental, social, and economic concerns, and integrate this feedback into the project design.

- **Community Energy Plan (CEP) (2022-2024):** Engagement activities included a launch event, surveys, business interviews, and a community energy week. The community expressed strong interest in renewable energy and energy efficiency projects, with 74% of survey respondents supporting a community-scale solar farm.
- **Stakeholder Engagement (2023):** Building on CEP findings, the Proponent conducted targeted sessions with key stakeholders such as the local MLA, Elders, and businesses to inform the feasibility study. Details are provided in Appendix C.
- **Community Engagement – Feasibility Study (2024):** Following the release of the preliminary design of the large-scale solar and battery system, the Proponent led intensive engagement activities to gather feedback from the community. Findings are summarized in Appendix D.
- **Engagement with the Ekaluktutiak Hunters & Trappers Organization (EHTO):** The EHTO is a key stakeholder in the CBSS project, expected to provide important input on the proposed project scope and location. To date, formal engagement with the organization has not been possible due to recent turnover on the EHTO Board. Nonetheless, meaningful engagement with EHTO remains a priority activity within the ongoing feasibility study. The CBSS team has held informal discussions with both current and former EHTO members, who have expressed general support for the project. A formal letter of support from the EHTO Board will be obtained and submitted once it becomes available. As part of the formal engagement process, the CBSS team intends to consult the EHTO Board on the following key questions regarding the project site and its use:
    - Does the area fall within a known wildlife migration route?

- Is it used as a nesting ground for birds or other species? Are any of the identified species listed under the Canada's Species at Risk Act?
- Is the site currently used or historically known for harvesting activities?
- Are there any concerns regarding the proposed location or intended use of the land?

3.2 Technical Studies

This report also draws from two technical studies:

Archeological Study

In the summer of 2024, the project team retained the services of Nunami Stantec Limited to carry out an Archaeological Impact Assessment (AIA) for the proposed project. This assessment aimed to ensure due diligence given the region's rich archaeological heritage, address questions raised by the community—particularly Elders—regarding the presence of potential archaeological sites, and fulfill the requirements of the Nunavut Impact Review Board. The study was conducted under a Class 2 Archaeologist's Permit (2024-21A). The AIA focused on evaluating the proposed project footprint in relation to known and potential archaeological resources. As part of the assessment, an archaeologist conducted a pedestrian survey of the solar farm site to identify and document any archaeological features. Additional targeted inspections were conducted in surrounding areas to confirm and officially record reported sites. The assessment resulted in the identification of six new archaeological sites, none of which were found to be in conflict with the planned development. Additional information and findings are included in Section 7 Social Impacts Assessment. The Archeological Impact Assessment is included in the NIRB application.

Geotechnical Investigations

In the fall of 2023, the Proponent retained the service of PRI Engineering to conduct a geotechnical field evaluation of the proposed lot. In addition to a site reconnaissance and desktop review, a total of twelve (12) test pits were advanced in the project area. The report provided recommendations for geo-ballast foundations and included that an adfreeze or rock socket foundation design option could be developed, but would require a drill program to verify the permafrost characteristics and depth to bedrock throughout the site. The team conducted a high-level climate risk assessment and after review of the climate data, discussion with the residents in the community and the lead geotechnical scientist at Polar Knowledge, the Proponent identified that the location of the future solar farm might be highly sensitive to climate change and in particular to permafrost degradation. This would, in turn, impact the foundation of the solar panels and the longevity of this large-scale renewable energy project. In order to ensure that the first community solar infrastructure of the region is climate resilient and that the design minimizes potential negative impacts on the area's permafrost, the Proponent applied and received funding from the Climate Change Preparedness in the North program (CCPN). The program is currently on-going. Additional information is included in Section 8 Environmental Impacts Assessment. A copy of the project workplan can be shared with the Nunavut Impact Review Board. A separate NPC/NIRB application will be submitted.

3.3 Federal Agencies

The Proponent consulted with Nav Canada and Transport Canada regarding the site's proximity to federal lands and secured letters of no objection from both agencies.

3.4 Inuit Qaujimaningit (IQ) Principles

The Inuit Qaujimajatuqangit (IQ) principles are foundational cultural values and knowledge, emphasizing the importance of community engagement, sustainability, and respect for the environment. Here's how our project and engagement efforts aligned with these principles:

1. **ᐱᓵᖅᓯᓂᖅ— Pijitsirniq: Serving and providing for family and/or community.**

   This project was designed to serve the community by planning for a sustainable energy future, thereby improving the quality of life and reducing the impact of climate change.

2. **ᐊᔾᔨᖁᑎᒋᔭᐅᖅ— Aajiiqatigiinniq: Decision-making through discussion and consensus.**

   Several engagement and information sessions, along with community events and surveys, allowed for broad community input and consensus-building. This was built upon the residents' priorities for their community.

3. **ᐃᑲᔪᖅᑎᒋᔭᐅᖅ— Ikajuqtigiinniq: Working together for a common cause.**

   The inclusive approach ensured that all community members, including Elders, youth, businesses, and residents, were involved in the process. This collective effort towards a common goal demonstrated strong community collaboration.

4. **ᖁᓇᓂᖅᑐᓂᖅ— Qanuqtuurniq: Being innovative and resourceful.**

   The project showcases northern innovation in its design, technical input & knowledge, and engagement strategies. The team is using community-based personnel and expertise to solve novel technical challenges and modernize the local energy system.

5. **ᐊᕿᑎᑦᑎᓐᓂᒃ ᖃᒪᓕᕆᓂᖅ— Avatittinnik Kamatsiarniq: Respect and care for the land, animals, and the environment.**

   By focusing on reducing fossil fuel consumption and planning for renewable energy, the plan shows a commitment to environmental stewardship.

6. **ᐱᓕᒪᒃᑲᓂᖅ— Pilimmaksarniq: Development of skills through observation, mentoring, practice, and effort.**

   The engagement events not only gathered input but also served as educational platforms, increasing the community's knowledge about renewable energy. The Proponent developed several supporting documents, such as Infographics to further educate the community through highly visual and engaging deliverables.

7. **ᐃᓄᖅᑲᑎᑦᓯᐊᖅᓂᖅ— Inuuqatigiitsiarniq: Respecting others, relationships, and caring for people.**

   The CBSS project core focus is the well-being of the residents, fostering a healthier environment, reducing energy poverty, and enhancing energy sovereignty.

8. **ᑐᙵᓚᓐᓂᖅ— Tunnganarniq: Fostering good spirit by being open, welcoming, and inclusive.**

   The process included all perspectives, respecting divergent opinions, and engaging with everyone in the community. These projects include technical content that can deter or intimidate non-experts. Efforts were made to ensure that community stakeholders felt comfortable participating in discussions.

Through these efforts, the project not only aligned with the IQ principles, but also strengthened the community's capacity to address energy and environmental challenges collectively.

4 Project Boundaries

The project boundaries encompass the future site location and the transmission line connection route (a 4km long combination of underground high voltage cables and overhead power lines will link the project site to the community electricity grid interconnection point). Refer to Figure 2 below.

Figure 2: Project Boundaries

The construction of the CBSS infrastructure will require the transport of materials and equipment across Freshwater Creek at two bridge locations approximately 2.5 km to the northeast. Currently, the second bridge spanning the crossing of a small parallel portion of Freshwater creek is not sufficient to support construction vehicles. Community heavy equipment has historically crossed this section by driving heavier/larger vehicles across directly on the riverbed, which causes minimal damage. The project team has identified that a temporary construction bridge will be needed to cross that small portion of the river with a large volume of construction vehicles, without causing degradation of the riverbanks or bed. To support this, the Proponent is preparing a separate project that will be submitted to the Nunavut Impact Review Board (NIRB) later. Engagement with the Department of Fisheries and Oceans (DFO) has already begun to establish the necessary processes for obtaining authorizations for the creek crossings.

5 Description of Existing Conditions

5.1 Community Information

Situated on the southern coast of Victoria Island within the Nunavut's Kitikmeot region, the Municipality of Cambridge Bay is the largest regional settlement, with a population of 1,760 (2021 census). Its traditional Inuinnaqtun name, Iqaluktuuttiaq, translates to "good fishing place." Cambridge Bay is the administrative and transportation hub of the Kitikmeot region, headquarters for several Inuit associations, and a regional center for businesses in western Nunavut. It is also a significant hub for Arctic Ocean navigation, particularly for research and passenger vessels traversing the Northwest Passage.

Figure 3: Cambridge Bay Aerial View

The Inuit's presence in this region dates back over 4,000 years, beginning with the pre-Dorset people who left early traces of settlement. The Dorset people arrived around 500 CE, succeeded by the Tuniit

approximately 300 years later. Around 1250 CE, the Thule people, who are the ancestors of today's Inuit, migrated here from Alaska. Roughly 500 years ago, the modern Inuit emerged, adopting similar hunting and fishing methods as the Thule. Notable groups such as the Copper Inuit (Inuinnait), who utilized native copper for tools, were prominent in this region.

Inuit have traveled, hunted, and fished in this area for hundreds of years. Although it was used as a fishing and meeting place, few Inuit lived year-round at the site before the 1950s. Permanent settlement began when the Hudson's Bay Company set up a trading post in 1921. The construction of the Cambridge Bay LORAN Tower post-World War II and the establishment of a Distant Early Warning (DEW) Line site in 1955 further catalyzed community growth. In the present day, the DEW Line site has been converted to a North Warning Station. Cambridge Bay evolved into an administrative center within the Northwest Territories before becoming part of the newly formed Kitikmeot administrative region of Nunavut in 1999. Today the community has municipality status and operates under the direction of a mayor and council.

Energy infrastructure

In the fiscal year of 2019-2020, the community consumed about 400,000 GJ (or 110,000 MWh) of energy for electricity, heating, and transportation services, the equivalent of 10 million litres of diesel costing $12 million, based on the 2019 fuel rates (*Cambridge Bay Community Energy Plan*). All the energy came from imported petroleum products (diesel and gasoline). A dwelling in Cambridge Bay consumes approximately 6.2 MWh and 5,000 L of diesel yearly for its electricity and heating respectively.

The power plant, owned and operated by Qulliq Energy Corporation, was built in 1967 and is now operating beyond its intended service life. Plans are underway to build a new power plant within the next five years, which will include modifications to the power distribution system as part of its integration.

As of 2025, only three buildings in the community are partially powered by renewable energy, which are the Kuugalaaq Cultural Campus, Canadian High Arctic Research Station, and a residential multiplex. The generation capacity of these installations is quite small and have a negligible impact on the overall community generation mix.

A large number of community members have embraced renewable energy for off-grid applications at recreational cabins outside of the community. Both small wind and solar generation have been popular choices with a recent spike in solar generation adoption due to the Government of Nunavut's Renewable Energy Cabin Grant Program. This program has been a great success in building awareness around the viability of renewable energy in the North.

5.2 Physical Environment:

Based on the first geotechnical investigation (2023) and preliminary results from the second geotechnical study, the following site characteristics are present:

- The site is located approximately 130 meters east of the Coronation Gulf and has an area of approximately 35.6 acres. Ground surface elevations range from 6 meters above seal level (mASL)

to 15 masl. The change in elevation is predominantly due to an outcrop southwest of the site, as the site is generally flat.

- Surface water pooling and a bedrock outcrop are present on site.
- A surficial layer of topsoil was encountered at most test pits, up to depths ranging from approximately 0.10 mBGS to 0.15 mBGS, with the exception of two (2) test pits where layers of boulders and cobbles were observed at the surface.
- Light brown sand and gravel, gravelly sand to sandy gravel was encountered in half the test pits, while the other test pits were layers of brown silt and sand/silty sand and sandy silt.
- Bedrock was not encountered at any of the twelve (12) test pit locations investigated in 2023. Based on preliminary results from the geophysical analysis, bedrock surface likely varies from 5 mBGS to 8 mBGS across most of the site, with some areas as shallow as 2 mBGS to 4 mBGS. It generally shallows from east to west. The maximum depth to bedrock is likely 10 mBGS to 12 mBGS. This will be confirmed during the geotechnical field investigation in summer 2025.
- Depths to permafrost ranges on average between 1 and 2 mBGS.
- Most test pits were dry, except for two (2) test pits located on the northwest side of the site where groundwater levels were at 0.5 mBGS.
- Cambridge Bay lies withing a zone of continuous permafrost. Cambridge Bay has a mean annual air temperature of -13.9°C (1976-2005), which is expected to rise to -10.7°C for the period of 2021-2050.

5.3 Biological Environment

The region is characterized by moist tundra dominated by low shrubs, forbs, grasses, and cryptogams. Approximately 150 species of vascular plants are found in the area. The arthropod community near Cambridge Bay is relatively diverse, comprising hundreds of insect and spider species. Cambridge Bay serves as a key fishing area for Arctic char and lake trout, supporting a small commercial fishery. Southern Victoria Island is an important staging and nesting habitat for numerous migratory bird species, especially shorebirds, and supports healthy populations of caribou, muskoxen, Arctic hares, Arctic foxes, and Arctic wolves[1].

Cambridge Bay serves as a vital habitat for numerous migratory bird species. The Ahiak Migratory Bird Sanctuary, located south of Cambridge Bay, is Canada's largest federally protected nature preserve and supports one of the world's largest concentrations of nesting geese2. A total of 79 bird species have been documented in the Cambridge Bay area, with common sightings including Thayer's Gull, Sabine's Gull, King Eider, Long-tailed and Parasitic Jaegers, various shorebirds, and Pacific Loon[3].

[1] https://www.interact-gis.org/Home/Station/57
[2] https://www.canada.ca/en/environment-climate-change/services/migratory-bird-sanctuaries/locations/ahiak.html
[3] https://www.1000towns.ca/birding-cambridge-bay/

6 Economic Impacts Assessment

The introduction of a large-scale renewable energy infrastructure in Cambridge Bay presents an opportunity for long-term economic development and community prosperity. The preliminary analysis highlights significant potential impacts across various economic indicators during both the construction and operation phases of the project.

6.1 Energy Affordability

The adoption of renewable energy in Nunavut has significant potential to improve energy affordability, particularly when pricing structures go beyond simply reflecting avoided diesel fuel costs. The Qulliq Energy Corporation (QEC)'s 2021 renewable energy pricing strategy[4], as reinforced by a 2024 backgrounder from the Pembina Institute[5], recommends a comprehensive approach to energy purchase agreement (EPA) rates. This includes accounting for non-fuel operations and maintenance savings, avoided government subsidies on diesel, and broader social and environmental benefits such as carbon reductions. Under this model, the EPA rate could be set at $0.402/kWh—substantially higher than the current $0.248/kWh rate—without increasing costs to customers, as only the $0.27/kWh reflecting direct QEC savings would be paid by ratepayers. The remaining portion would be covered by contributions from the Government of Nunavut and the federal government. Additionally, the strategy supports a further adder of $0.04–$0.08/kWh for Inuit-owned projects, recognizing the need for equitable energy development aligned with territorial policy. By properly valuing these broader benefits, this integrated pricing model would increase revenues for renewable projects by up to 62%, making them more viable while maintaining affordability for Nunavummiut.

To date the Qulliq Energy Corporation has not made any modifications to the IPP pricing structure. However, territorial developers and renewable energy stakeholders continue to lobby and advocate for improvements to be made to policy, including the need for the Government of Nunavut to modernize the territory's energy strategy and update QEC's mandate.

6.2 Project spending within the community

The project is expected to generate both direct and indirect employment opportunities during construction and operations.

Although precise figures are still being finalized, a significant share of the construction-phase budget is expected to be allocated to local contractors, suppliers, and service providers. The specific breakdown of these allocations will ultimately depend on how the developer's general contractor manages the project. This may include activities such as civil construction, logistics, equipment handling, accommodations support, and related services.

[4] InterGroup Consultants Ltd. (2021). *Specialized Pricing Strategy for Renewable Energy Suppliers to QEC: Final Report – August 2021.* Prepared for Qulliq Energy Corporation.
[5] He, E. (2024, January). *Rethinking energy purchase agreement rates in Nunavut: InterGroup study recommendations to QEC would increase revenues for renewable energy projects.*

The following table outlines high level estimates on cost components that could be spent within the community. However, these estimates are subject to refinement as the design progresses and is finalized.

Table 1: CBSS Community Economic Inputs

Service Type/Materials	Estimated Expenditure in Community	Notes
Accommodations	$135,000.00	Crew hotels
Food	$81,000.00	Crew meals
Granular Materials	$200,000.00	Gravel, sand, etc.
Heavy Equipment Support	$2,500,000.00	Excavator, loaders, drills, etc.
Vehicle Rentals	$80,000.00	Crew pick-up trucks and ATVs
Total	**$2,996,000.00**	

During the construction phase, which is anticipated to span two construction seasons (end of June to early October), the project will require a variety of skilled and general labor positions. At least four local contractors have been identified as capable of delivering key components of the work. Work assignments will be distributed based on technical competency, safety compliance, and capacity, with an emphasis on equitable distribution among local providers.

The following table summarizes the types of labour positions that will be created by the CBSS project:

Table 2: Expected job creation during the construction phase

Position Title	Est. # of Positions	Duration	Notes
Installation Labourer	8	2 years seasonal	Local work force
Electrician	4	2 years seasonal	Some capacity from out of town
Heavy Equipment Operator	3	2 years seasonal	Mixture of local and transient work force
Maintenance Technician	1-2	Long term (Completion onward) 40yrs	Local work force trained in Cambridge Bay

Indirect economic benefits are also expected through increased demand for accommodations and hospitality services. During construction, tradespeople and technical staff from outside the community will require lodging and meals, which will drive revenue for local hotels, restaurants, and stores. The presence of visiting workers and project partners also provides secondary business opportunities in areas such as transport, equipment rental, and guiding services. Cambridge Bay boasts a well-established hospitality sector, including several hotels, suites, restaurants. Additionally, local artisans may experience increased demand from visiting personnel and associated economic activity. Sales of locally produced carvings, prints, and textiles can benefit from temporary markets created during the project construction.

Beyond construction, the operation and maintenance of the facility will generate long-term employment opportunities and increase workload for certain existing roles. This may include technicians, road & infrastructure maintenance, and administrative or logistical support positions. During community engagement sessions, the Proponent received early expressions of interest from local residents, indicating strong community support and a willingness to participate in the renewable energy transition. More broadly, infrastructure projects like CBSS contribute to the local economy by stimulating demand for services and personnel. A key objective is to ensure that the resulting economic benefits remain within Cambridge Bay to the greatest extent possible.

6.3 Other Infrastructure Development

The construction of renewable energy infrastructure—such as access roads, solar or wind installations, and battery storage systems—will require physical upgrades that can provide lasting benefits. For example, roads built or improved as part of the project may enhance access to hunting grounds, support land-based activities, or contribute to the town development across the bay.

The existing access road to the project site is currently unmaintained and dates back to the establishment of the “Old Town” area during the construction of the Distant Early Warning (DEW) Line site. Today, it continues to be used by community members accessing traditional camping and fishing areas. To support a smooth construction process and enable efficient transport of granular materials, a minor resurfacing is planned from the river crossing to the project site. As a result, the main access road, along with two adjacent trails near the project site, will be upgraded from their current condition.

6.4 Inuit Economic Involvement

In support of Inuit economic participation, the Proponent is committed to prioritizing the employment of local Inuit workers and contracting Inuit-owned businesses wherever possible. This aligns with the broader goal of fostering self-determined economic development and ensuring that renewable energy investment contributes meaningfully to Inuit prosperity.

However, the scale of potential impact reinforces the need for continued planning to ensure capacity-building, skills training, and equitable distribution of benefits.

7 Social Impacts Assessment

The proposed renewable energy infrastructure project was met with widespread community support during the engagement process. Community members expressed a strong preference for sustainable energy development and showed no opposition to the project's scale or objectives. This section summarizes the potential social impacts of the project and outlines how identified concerns will be addressed through mitigation and community benefit measures.

7.1 Land Use Compatibility and Site Selection

The selected project site lies within municipal boundaries and was identified in collaboration with local leadership as a preferred location for development.

- The chosen site received broad approval, with many participants noting it is not heavily used and is visually unobtrusive.
- The area is bordered by two trails leading to Back Point and Aptalok Bay. While there were concerns about potential disruption during construction, the project design ensures continued public access and protection of these trails and surrounding tundra. Any disturbance will be restored post-construction.
- The site falls within municipal boundaries and has received formal approval from the municipal council. The land has been officially transferred from municipal reserve, and a lot number has been obtained.

Although the site is bordered by two trails leading to Back Point and Aptalok Bay, these trails are not expected to be significantly impacted. The project design prioritizes protection of surrounding tundra and trail access. Any temporary disruption during the construction phase will be mitigated and the site restored upon project completion.

7.2 Traditional Land Use and Cultural Resources

Based on community engagement activities carried out in 2024, feedback from local knowledge holders and the Archeological Impact Assessment (Nunami Stantec Limited, 2025):

- Community members did not identify the area as being used for hunting, fishing, harvesting, or other traditional activities.
- No concerns were raised regarding harvesting grounds or the presence of burial sites, caches, or culturally significant land uses.
- The Archeological Impact Assessment recorded six new archaeological sites; all located outside of the project area.
- No impacts are anticipated on traditional travel or harvesting routes.

Community consultation confirmed that the site does not hold cultural significance. Although outside of the project area, the archaeological sites identified through the Archaeological Impact Assessment will be actively avoided during both construction and operation of the project. If any future development proposes to disturb these sites, further archaeological investigation will be undertaken in accordance with applicable regulations.

7.3 Community Infrastructure and Benefits

Several positive outcomes are anticipated:

- The project will include upgrades to the existing access road between the community and the eastern side of the Bay, which will improve year-round access for community members traveling to Aptalok Bay and nearby areas.
- The establishment of a formal municipal right-of-way through a segment currently owned by Transport Canada will increase local control over road infrastructure and improve community access to the project site area and beyond.
- No housing displacement, land use conflicts, or interference with municipal services are expected.

7.4 Conclusion

The project is not anticipated to generate adverse social impacts, provided that access is maintained and mitigation measures are implemented. No significant issues related to land use, cultural resources, or social services were identified during the engagement process. The project is expected to support broader community goals related to infrastructure improvement and clean energy development.

8 Environmental Impacts Assessment

The proposed large-scale renewable energy project has been designed with a strong commitment to sustainable development and respect for local ecosystems. This chapter outlines the known historical and current environmental conditions, identifies potential risks associated with the project during construction and operation, and identifies planned mitigation measures throughout the life of the project.

8.1 Environmental Site Conditions

Historical Land Use

During the community engagement in early 2024, residents raised concerns about the possibility of site contamination, citing remnants of the “Old Town”, including abandoned concrete footings and anecdotal reports of buried fuel barrels.

While no physical evidence of contamination was observed during preliminary site inspections, the Proponent retained Nunami Stantec to carry out a Phase I Environmental Site Assessment (ESA) with limited soil sampling as a due diligence measure. This assessment will formally document historical land use, identify any recognized environmental conditions, and inform the need for further investigation or remediation, if warranted. During the site visit, limited soil sampling will be conducted to provide additional, limited information about areas of potential contamination identified during the Phase I ESA records review and site visit. Samples will be collected for analysis of COCs, including benzene, toluene, ethylbenzene, xylene(s) (BTEX), petroleum hydrocarbon (PHC) fractions F1 through F4, grain-size, and

polycyclic aromatic hydrocarbons (PAHs). Other CoCs may be analyzed if identified during the historical records review and site visits as being applicable to the site or the surrounding properties.

The Phase I EAS report will be sent to the Nunavut Impact Review Board as soon as available.

Current Land Use

The project site is located within the municipal boundaries of Cambridge Bay. No areas of heightened ecosystem sensitivity or protected environmental zones have been identified within the proposed project footprint. The area is currently accessed via an existing road, which will be used and improved during the project, thereby avoiding the need for new access routes and minimizing ground disturbance.

8.2 Potential Environmental Impacts

Construction Phase

Construction activities—such as the transportation of personnel and equipment, road access improvements, and the installation of the solar array—may temporarily disturb the environment. Identified potential adverse effects include:

- Noise and visual disturbance to migratory and non-migratory birds and other wildlife, particularly during peak construction activities.
- Potential adverse impacts on surface water quality due to sediment runoff or accidental releases.
- Disturbance to vegetation and topsoil, which could impact soil stability and habitat cover.
- Permafrost disruption.
- Exposed rock or soil materials from the quarry might release acidic water and harmful metals when disturbed. However, the CBSS project will use pre-stockpiled granular materials and quarry operators to regularly monitor process materials for contaminants and other important markers to ensure contamination is not dispersed into the community.

No concerns were raised during community engagement sessions in 2024, by Elders or other community members, regarding the location or ecological impact of the project. The CBSS team has held informal discussions with both current and former EHTO members, who have expressed general support for the project. A formal letter of support from the EHTO Board will be obtained and submitted once it becomes available.

Operation Phase

Permafrost Degradation: As discussed in Section 3.2 Technical Studies, the initial foundation option was a geo ballast solution in the form of gabion rock baskets. Through consultation with permafrost experts, there are concerns that this option may pose a risk to the infrastructure under certain future climate change scenarios due to the destabilization of the permafrost. As observed in Old Crow, Yukon, unplanned permafrost degradation can significantly affect solar panel foundations, reducing their lifespan and increasing maintenance costs. Additionally, the impact of the solar infrastructure on the permafrost and

ground surface over the long term is not well understood. To our knowledge this kind of analysis has never been done in Nunavut for large scale renewable energy projects. The Proponent has identified the following risks:

- The solar panels, racking, and foundations might cause significant heat transfer to the ground, due to their high thermal conductivity. Heat transfer could have a significant impact on the active layer, especially considering our warming climate. Foundation piles are made of steel and penetrate deep into the permafrost, often into bedrock. These piles can introduce a heating effect deep into the permafrost disrupting what was previously continuous permafrost which would thaw adjacent ice lenses.
- Solar infrastructure, specifically racking designs with geoballast foundations, has significant potential to create snow accumulation and drifting as a result of introducing obstructions on previously and otherwise wide-open tundra. Snow accumulation will insulate the ground against the deep winter cold, preventing it from being exposed to the effects of deep-freezing, and as such deepening the active layer. In turn, high winds contribute to thinner snow covers which helps protect the permafrost.

Mitigation measured are discussed in Section 8.5.

Battery leakage: Solid-state lithium batteries that would be used for this project represent a significant advancement in safety over traditional liquid electrolyte batteries. Unlike their liquid filled counterparts, solid-state batteries using the latest chemistries, such as lithium iron-phosphate, use solid components which eliminate the risk of liquid leakage, reduce the risk of thermal runaway in faulty conditions, and greatly reduce the likelihood of fire and explosions. Consequently, solid-state batteries offer a more stable and safer option, particularly in large-scale energy storage applications where safety and reliability are paramount. Proper maintenance routine and predictive maintenance will be planned and implemented in collaboration with the equipment manufacturers. There may be special considerations for first responders such as the fire department responding to the BESS. However, those specific instructions will be created in the construction phase of the project, as exact battery chemistry may vary.

No other measurable environmental effects are anticipated during the operational phase. The solar array and supporting infrastructure are passive and non-emitting, and routine maintenance will be limited in scale and frequency. The physical footprint will remain unchanged, and no further disturbance to land, water, or wildlife is expected.

8.3 Geographic Scope of the Project

The physical footprint of the proposed project remains entirely within the boundaries of the Hamlet of Cambridge Bay. It does not encroach on traditional harvesting areas or designated wildlife habitats.

No construction camps will be required, as proximity to the community allows the project to rely on local accommodations and contractors. This reduces the need for land clearance and associated environmental disruption.

The existing access road will be used and improved. In fact, improvements made to the road and a temporary bridge during construction may provide lasting benefits for community access while minimizing ecological disturbance.

8.4 Ecosystem Sensitivity and Habitat Concerns

To the best of the team's knowledge, the preliminary review of the project footprint has not identified any species at risk, nesting grounds, or areas of elevated ecological sensitivity. The site does not overlap with protected or ecologically significant areas, nor with known wildlife corridors. This assessment will be further confirmed through upcoming engagement with the local Hunters and Trappers Organization (EHTO).

Nonetheless, the project team remains committed to the monitoring and adaptive management of the site. Any incidental findings of environmental sensitivity during construction will trigger a review and application of enhanced mitigation measures as necessary.

8.5 Mitigation Measures

To manage potential risks during construction and ensure environmental protection, the Proponent will implement the following measures:

Pollution and Waste Management

All hazardous and non-hazardous waste will be managed to prevent environmental release and harm to wildlife.

Waste will be segregated, stored, and transported according to territorial and federal regulations.

Fuel and Chemical Handling

Fuel and Chemical Storage: Fuel will be stored in compliance with regulatory standards, using secondary containment systems and spill kits readily available at storage areas.

Personnel will be trained in spill response procedures, and fueling activities will be monitored and recorded.

Surface and Groundwater Protection

Erosion and sediment control measures will be implemented to protect nearby water bodies.

Construction activities will be timed and designed to reduce the potential for runoff or sedimentation.

Site Restoration

The Proponent commits to restoring disturbed areas to a natural condition, including revegetation where feasible.

Permafrost disruption

The Proponent applied to and received funding from the Climate Preparedness in the North Program (CCPN). Under this funding program, our team is exploring alternative designs, such as pile foundations, that are more resilient to climate change. This requires a comprehensive analysis of permafrost conditions and climate sensitivity of the site to fully understand the subsurface environment. Additionally, the impact of the solar infrastructure on permafrost, which may exacerbate the effects of climate change, is not currently well understood. The Proponent is currently conducting an in-depth study to:

- Collect additional geotechnical and climate data to inform the design of the solar array foundations.
- Install permafrost monitoring stations to capture pre-construction baseline data and to assess potential permafrost degradation resulting from the installation of the solar infrastructure, if any. This work will be submitted under another NPC/NIRB application.
- Conduct a snow drifting study before and after construction.

Capturing baseline permafrost and active layer performance data ahead of construction is critical for understanding the true effects of the infrastructure on the site. Preliminary results can be shared with NIRB upon request.

Acid Rock Drainage (ARD) and Metal Leaching (ML) Analysis

During the Phase I ESA site visit, Nunami Stantec will evaluate the ARD/ML potential of the quarry materials intended for project use and will collect surface water samples (if present) from two unique locations: (1) water that has been in contact with the quarry material at the proposed quarry source, and (2) water from areas where quarried rock has previously been used in road, bridge, or culvert construction. Water sampling at the quarry will provide baseline geochemical data on the unaltered source material, helping to predict its ARD/ML potential prior to future use. In contrast, sampling water near previous construction sites will provide some information about the actual ARD/ML potential of the material under field conditions, where it is exposed to weathering, runoff, and mechanical disturbance.

Others

The Proponent further undertakes to prevent new occurrences of pollution, garbage, or contamination and to remediate any incidental impacts during the course of the project.

8.6 Proponent Commitments

Based on current planning and community feedback, the proposed renewable energy project is not expected to result in significant adverse environmental effects. The Proponent has integrated community concerns and site knowledge, and best environmental practices into project design and planning. The operational footprint is minimal, and the long-term benefits—both environmental and socio-economic—are expected to significantly outweigh short-term impacts.

The Proponent makes the following environmental commitments:

- Conduct a Phase I ESA, limited soil sampling and ARD/ML testing as due diligence based on community concerns.
- Employ best practices for waste and spill management.
- Utilize existing infrastructure and avoid unnecessary land disturbance.
- Avoid construction camps and prioritize the use of local contractors and accommodations.
- Ensure the site is restored and revegetated where applicable, after construction.
- Monitor and adapt mitigation measures as necessary throughout project execution.

9 Conclusion

The CBSS Project represents a major milestone in the energy transition for Cambridge Bay. This assessment finds that the project is fully supported by the community, will provide local economic growth, and is environmentally sound, provided that recommended mitigation and monitoring measures are fully implemented. Through meaningful engagement, careful site selection, and a commitment to local benefit, the project is positioned to deliver long-term value to the community while reducing greenhouse gas emissions and advancing Nunavut's renewable energy goals.

While final design elements and permitting processes remain underway, no significant barriers have been identified. The project team recommends continued collaboration with community stakeholders and regulatory agencies to ensure that all environmental, cultural, and economic considerations are addressed as the project progresses to implementation. With appropriate support and continued transparency, the CBSS Project has the potential to serve as a model for sustainable, community-driven energy infrastructure in the Canadian Arctic.

10 Closure

Should you have questions regarding this report, please do not hesitate to contact the undersigned.

Regards,

Tom Rutherdale

President, Aurora Energy Solutions

APPENDIX A

CAMBRIDGE BAY SOLAR AND STORAGE PROJECT LOCATION AND LAND SKETCH

Figure A: Project Location (in blue)

Legend

Survey Boundary

Existing legal survey

New Lots

New Roads

Date: June 28, 2024

Scale: 1 : 5,000

Survey Sketch

Untitled Municipal Lands

Notes:

- Untitled Municipal Lands
- All measurements are in meters, are approximate, and are to be confirmed upon survey
- Survey to be tied to all control points in the vicinity
- Ties are required to all buildings and improvements including roads, lakes and ponds

N

Council Approval

Motion No.

Approved Subject to Conditions Listed in Attached Letter

Director of Planning / Date

Sketch Name: **SK-CAMB-0x-2024 - Cambridge Bay Solar + Storage Project**

Initials:

APPENDIX B

CAMBRIDGE BAY SOLAR AND STORAGE PROJECT OFFICIAL SURVEY

UTM COORDINATES NAD83-CSRS (EPOCH 2010.0) ZONE 13 CENTRAL MERIDIAN 105° WEST					
POINT	NORTHING	EASTING	ELEVATION	CSF	ACCURACY
61900	7666582.34	499142.55	-13.18	0.9996021	0.05
5009007	7667714.56	498669.89	-22.42	0.9996035	0.05

COORDINATES WERE DERIVED FROM GNSS OBSERVATIONS HOLDING STATION GCP61900 FIXED.

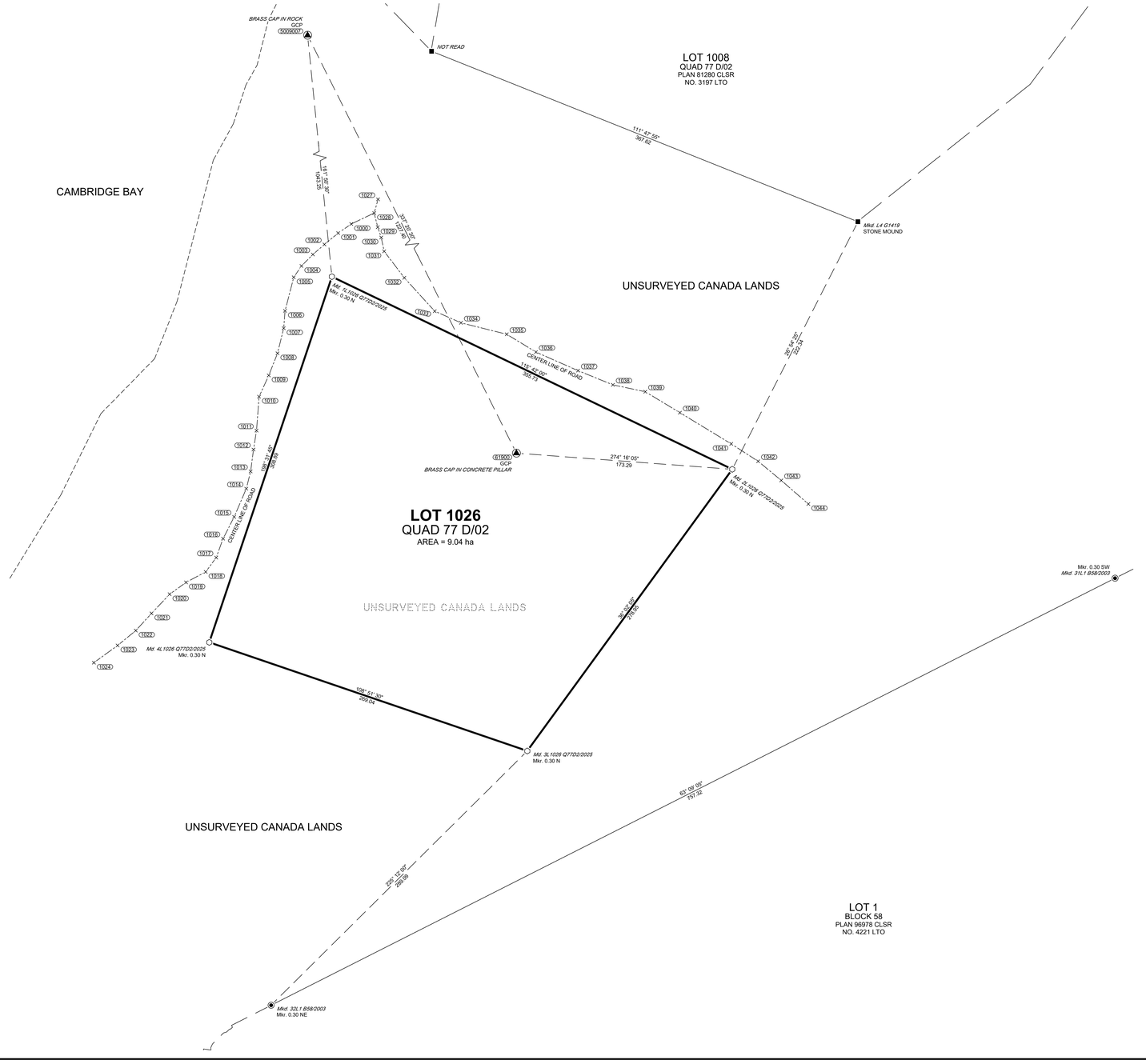
THE COORDINATES AND ACCURACY OF GCP61900 WERE DERIVED FROM THE NATURAL RESOURCES CANADA PRECISE POINT POSITIONING (PPP) SERVICE.

THE PUBLISHED ESTIMATED ABSOLUTE HORIZONTAL ACCURACIES ARE AT THE 95% CONFIDENCE LEVEL.

ELEVATIONS ARE ELLIPSOIDAL.

CSF STANDS FOR COMBINED SCALE FACTOR.

TIES TO FEATURES UTM COORDINATES NAD 83-CSRS (EPOCH 2010.0) ZONE 13 CENTRAL MERIDIAN 105° WEST			
POINT	NORTHING	EASTING	DESCRIPTION
1000	7666765.82	499010.36	CENTER LINE OF ROAD
1001	7666758.54	498999.89	CENTER LINE OF ROAD
1002	7666749.46	498988.90	CENTER LINE OF ROAD
1003	7666741.42	498979.67	CENTER LINE OF ROAD
1004	7666732.21	498970.52	CENTER LINE OF ROAD
1005	7666723.15	498964.34	CENTER LINE OF ROAD
1006	7666696.27	498957.38	CENTER LINE OF ROAD
1007	7666682.39	498956.33	CENTER LINE OF ROAD
1008	7666662.31	498951.33	CENTER LINE OF ROAD
1009	7666644.61	498944.37	CENTER LINE OF ROAD
1010	7666627.55	498936.57	CENTER LINE OF ROAD
1011	7666600.44	498934.56	CENTER LINE OF ROAD
1012	7666585.24	498932.15	CENTER LINE OF ROAD
1013	7666567.75	498929.84	CENTER LINE OF ROAD
1014	7666553.86	498926.34	CENTER LINE OF ROAD
1015	7666531.28	498916.64	CENTER LINE OF ROAD
1016	7666513.90	498907.78	CENTER LINE OF ROAD
1017	7666498.72	498902.28	CENTER LINE OF ROAD
1018	7666487.28	498893.88	CENTER LINE OF ROAD
1019	7666478.90	498878.13	CENTER LINE OF ROAD
1020	7666469.42	498865.01	CENTER LINE OF ROAD
1021	7666454.08	498850.52	CENTER LINE OF ROAD
1022	7666440.31	498837.90	CENTER LINE OF ROAD
1023	7666428.39	498823.38	CENTER LINE OF ROAD
1024	7666414.62	498804.42	CENTER LINE OF ROAD
1027	7666785.54	499031.79	CENTER LINE OF ROAD
1028	7666774.56	499028.71	CENTER LINE OF ROAD
1029	7666763.30	499031.56	CENTER LINE OF ROAD
1030	7666755.01	499034.35	CENTER LINE OF ROAD
1031	7666743.96	499036.70	CENTER LINE OF ROAD
1032	7666722.74	499052.83	CENTER LINE OF ROAD
1033	7666696.01	499077.18	CENTER LINE OF ROAD
1034	7666686.70	499098.20	CENTER LINE OF ROAD
1035	7666677.52	499134.82	CENTER LINE OF ROAD
1036	7666663.29	499158.17	CENTER LINE OF ROAD
1037	7666648.41	499191.87	CENTER LINE OF ROAD
1038	7666637.05	499219.76	CENTER LINE OF ROAD
1039	7666631.52	499245.67	CENTER LINE OF ROAD
1040	7666614.77	499273.40	CENTER LINE OF ROAD
1041	7666589.80	499314.43	CENTER LINE OF ROAD
1042	7666575.86	499336.00	CENTER LINE OF ROAD
1043	7666560.54	499354.50	CENTER LINE OF ROAD
1044	7666541.65	499376.20	CENTER LINE OF ROAD



This plan is filed in the Land Titles Office for NUNAVUT, as

_____

PLAN OF SURVEY
OF
LOT 1026, QUAD 77 D/02

CAMBRIDGE BAY, NUNAVUT

NOTE: LANDS DEALT WITH BY THIS PLAN COMPRISES OF UNSURVEYED CANADA LANDS.

THIS SURVEY WAS EXECUTED DURING THE PERIOD APRIL 15 AND 16, 2025
BY GREGORY D. HARTEL, C.L.S.

SCALE 1 : 1500

50 0 25 50 100 metres

THE PLOT SIZE THAT WILL PROVIDE TRUE SCALE AND OPTIMUM READABILITY FOR THIS PLAN IS 609MM BY 1100MM.

LEGEND

BEARINGS ARE GRID, DERIVED FROM GNSS OBSERVATIONS AND ARE REFERRED TO THE CENTRAL MERIDIAN OF U.T.M. ZONE 13 (105° WEST).

THIS PLAN SHOWS HORIZONTAL GROUND LEVEL DISTANCES IN METRES AND DECIMALS THEREOF. TO COMPUTE GRID DISTANCES, MULTIPLY GROUND LEVEL DISTANCES BY THE AVERAGE COMBINED SCALE FACTOR OF 0.9996021

ALL POSTS PLACED IN THE COURSE OF THIS SURVEY ARE MARKED WITH APPROPRIATE LOT AND QUAD NUMBERS, AND THE YEAR 2025.

REAL TIME KINEMATIC GNSS OBSERVATIONS WERE USED TO DETERMINE ALL BOUNDARY DIMENSIONS SHOWN ON THIS SURVEY.

GEO-REFERENCED CONTROL POINT (GCP) .....

CLS STANDARD POST FOUND SHOWN THUS .....

OLD PATTERN IRON POST FOUND SHOWN THUS .....

CLS '77 POST PLACED SHOWN THUS .....

LANDS DEALT WITH BY THIS PLAN BOUNDED THUS .....

TIES SHOWN THUS .....

CENTER LINE OF ACCESS ROAD SHOWN THUS .....

BACKGROUND NATURAL FEATURES ARE COPIED FROM N.T.S. MAP SHEET 77 D/02

RE: SECTION 38, CANADA LANDS SURVEYORS REGULATIONS

CERTIFIED CORRECT

ACLS CHECKLIST NO: 11895

PROJECT: 202420090

KITIKMEOT CHALLENGER

DWG. No.

73052

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Building Nunavut Together
Nunavuliuqatigiingniq
Bâtir le Nunavut ensemble

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Nunavut

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Department of Community Services
Nunalingni Pivikhaqautikkut Havagvia
Ministère des Services communautaires

May 12, 2025

CS File No. CAMB-410(40-2)24-002
NRCan Item No. 2024-20-090

Jim McEachern
Chief Administrative Officer
Municipality of Cambridge Bay

Re: FINAL SURVEY PLAN APPROVAL
Proposed Solar Farm
Plan of Survey of Lot 1026, Quad 77 D/02, Cambridge Bay, Nunavut

Please be advised that the Department of Community Services, Planning and Lands Division, has reviewed and approved the attached Survey Plan.

Should you have any questions, please contact Olivier Forbes-Bouillon, A/Manager, Community Planning, at (867) 982-7653 and quote HQ File No. CAMB-410(40-2)24-002.

Sincerely,

William Patch

William Patch, RPP, MCIP
Director, Planning and Lands
Department of Community Services
Government of Nunavut

ATT.: Scan of eApproval summary
202420090SF_signed

CC: Colin Dickie, Planning and Land Administrator, Hamlet of Cambridge Bay
Tom Rutherdale, Aurora Energy Solutions
Sophie Pantin, Aurora Energy Solutions
Elise Durie, Community Planner, Northern Futures Planning
Safia Khan, Community Planner, Northern Futures Planning
Corey Dimitruk, Senior Community Planner, CGS Cambridge Bay
Danny Zita, A/Territorial Land Administrator, CGS Kugluktuk

P.O. Box 272
Kugluktuk, Nunavut X0B 0E0

C.P. Box 272
Kugluktuk, Nunavut X0B 0E0

T (867) 982-7653
F (867) 982-7695
www.gov.nu.ca

Status	Approved on 2025-05-12 by William Patch	**Project #**	202420090
Survey type	Parcel Survey (North)	**Checklist**	11895
Canada lands	QUAD 077D/02 (077D/02) CAMBRIDGE BAY (69500)	**Surveyor**	HARTEL, GREGORY
Date sent by SGB	2025-05-09	**CLSR Number**	Not available
Description	Solar Farm Parcel		

File	Checklist	Purpose(s)	Date uploaded
202420090SF_signed.pdf	11895	Survey plan digitally signed using Entrust	2025-04-30

Nunavut Community and Government Services Approval

Checklist for Nunavut Community and Government Services. Pursuant to the Canada Lands Survey Act (CLSA), Natural Resources Canada is responsible for surveys with respect to Canada Lands. The Surveyor General Branch (SGB) of Natural Resources Canada and Nunavut Community and Government Services, collaborated to improve survey processes and procedures in order to reduce costs and streamline the survey plan approval process. Review and approval of Nunavut Community and Government Services (NCGS) plans will be completed by NCGS via the MyCLSS web application for their plan related requirements. SGB will continue to review the plans for the requirements of the survey Standards.

Results

Boundaries

Are the boundaries consistent with the approved Survey Sketch?

Approved or Yes

Conditions

Did you obtain the Council Minutes?

Approved or Yes

Did you obtain the Rezoning?

N/A

Did you obtain the Variance?

N/A

Was the plan endorsed by the private land owner or municipality (for titled lands only)?

N/A

Subdivision Approval

This plan complies with Nunavut Planning Act and the respective zoning By-Law

Approved or Yes

Authority

I have authority to provide this approval as or on behalf of the Nunavut Planning and Lands Division?

Approved or Yes

You need to add a comment if any of the above are rejected

Justification / Comment

No answer provided

Other

CGS Project Number:

CAMB-410(40-2)24-002

APPENDIX C

STAKEHOLDER ENGAGEMENT REPORT (2023)

Date	October 25, 2023
Topic	Overview of Past Community Engagement Activities

Timeline

Community Energy Plan (CEP) Launch Event	October 13, 2022
CEP Survey 1: Energy Use Habits	October 2022 – March 2023
CEP Survey 2: A Vision for the Community	March – May 2023
Pitquhirnikkut Ilihautiniq / Kitikmeot Heritage Society Board of Elders	March 29, 2023
Cambridge Bay Housing Association	March 31, 2023
MLA Pamela Gross	April 3, 2023
Community Energy Plan (CEP) Feast	April 4, 2023
Elementary and High Schools Activities	April 2023
Presentation to Hamlet Council	July 11, 2023
Engagement with Business Owners	February 2023 - Ongoing
Pitquhirnikkut Ilihautiniq / Kitikmeot Heritage Society Board of Elders	October 19, 2023

Main takeaways:

The CEP engagement work shows that there is a strong support from the community for large scale renewable energy projects. Many community members and decision makers don't have a good understanding of what "large scale" looks like and so further education would be needed to help them visualize these projects. Next step is seeking approval for site location.

CEP data show that distributed solar is not a short-term priority at the residential level. The priority for residential and public housing sector is energy retrofit.

Keys to success: community should be **informed, engaged and involved**.

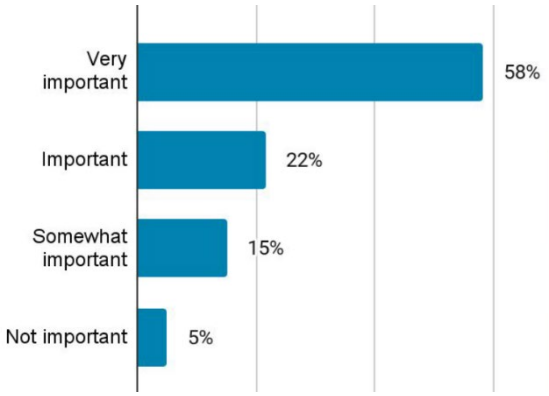
Be ready to answer the following questions during engagement:

- Distributed solar vs solar farm.
- Solar vs wind power.
- Financial impacts & local economic development.
- Showcase the work of other communities, invite guest speakers.
- Presentations to show that this a technically viable project.

Details of engagement activities:

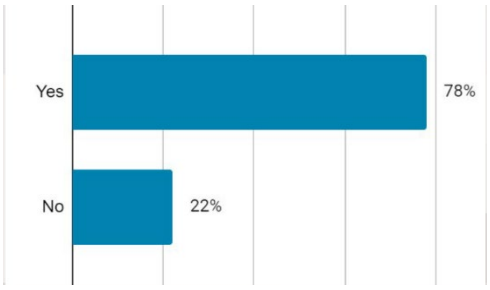
Activity: Community Energy Plan (CEP) Events **Date: October 13, 2022 & April 4, 2023**
Key Results
Introduce the idea of renewable energy projects and energy efficiency. High level of engagement (200 + residents attended); good format for the community
Additional Information
Both events conducted at the Community Hall - At onset of the project to introduce project and start survey work. - At mid-point to present results of energy inventory, GHG portfolio and Survey #1 results. Country food, activities for kids, energy focused prizes Presentations and tables highlighting other community energy projects. Q&A sessions

Activity: CEP Survey 1: Energy Use Habits **Date: October 2022 – March 2023**
Key Results
Online engagement was not successful. Most residents pay for electricity, but not all pay for diesel. **60%**: Energy costs don't have a negative impact on quality of life. **67%:** Home energy efficiency is top of mind. **80%**: Want to learn more about renewable energy at home level.
Additional Information
Ethelo Platform In person at Launch Event/Co-Op. Focused on resident's energy habits. **13%** of the community responded. Good representation of the different housing (public housing, homeowners, renters etc.).

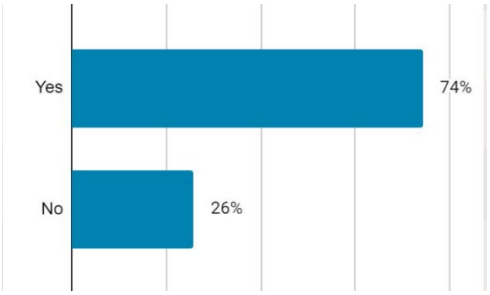
Activity: CEP Survey 2: A Vision for the Community **Date: March – May 2023**
Key Results
67%: moderately to extremely concerned about climate change **66%**: were not aware that QEC is building a new power plant; most respondents were not concerned. Communities priorities: "**protect our environment**", "**make our homes more comfortable and energy efficient**", "**ensure energy is reliable**" and "**develop jobs in the energy sector"** Strong support for large scale renewable energy projects. Question: *How important is it to you for Cambridge Bay to have part of its electricity supplied by clean energy sources such as solar or wind generations?* 

Questions: *In an effort to reduce the amount of diesel used for electricity generation, would you support (n=134):*

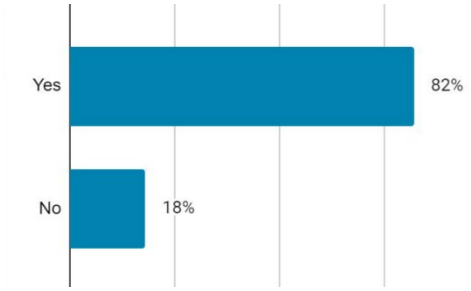
Distributed Solar



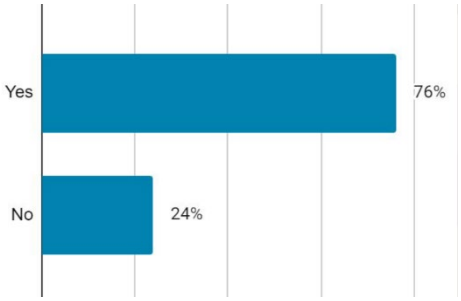
Community Scale Solar Farm



1 or 2 small wind turbines close to town



Several large wind turbines outside of town



Additional Information

Ethelo Platform.

In person at Launch Event/Co-Op.

Focused on community priorities.

10% of the community responded.

Activity: Pitquhirnikkut Ilihautiniq / Kitikmeot Heritage Society Board of Elders **Date: March 29, 2023**
Key Results
In strong support of the solar project Cautioned to take into account extreme weather patterns. Concerns: 1) readiness of technology, 2) burial/archeological/sacred place on proposed site location and 3) community takes control over its energy future Recommendations: 1) Need to show the community that it works, 2) Research & show the community what others are doing in NU and across the North, 3) Keep the community engaged and informed/seek approval before moving ahead and 4) Site visit to the proposed locations
Additional Information
N/A

Activity: Cambridge Bay Housing Association **Date: March 31, 2023**
Key Results
Concentrate on energy efficiency retrofits Distributed solar is not a short term priority. Building local capacity in energy related jobs Requested support on reducing operational costs
Additional Information
N/A

Activity: MLA Pamela Gross **Date: April 3, 2023**
Key Results
In **strong support** of large-scale solar project but also need to increase energy efficiency of the community building portfolio New power plant and tanks farm didn't account for Nunavut 3000 Solar revenue be directed into community improvement fund
Additional Information
N/A

Activity: Informal Discussion with Mayor Derek Elias **Date: July 05, 2023**
Key Results
Tom Rutherdale met with Mayor Derek Elias to gather his feedback on large scale renewable energy projects. Derek commented that he was in support of the collective efforts of reducing fossil fuel emissions through a combination of energy efficiency as well as renewable energy projects. AES asked his opinion of the site across the bay being used for a large scale renewable project and he supported that concept due to the history of that area being used for wind generation and it being far out of the way where vandalism and dust wouldn't be an issue.
Additional Information
N/A

Activity: Presentation to Hamlet Council **Date: July 11, 2023**
Key Results
The Mayor and Council voiced support for efforts to transition to clean energy as long as there was a proper plan in place to manage and dispose of system components such as batteries and solar modules at end of life. Council will be interested to learn in more detail about how the project will benefit the community. Aurora explained that an initial resolution of support for the project would be required for the funding applications as confirmation that community administration aligned with the project goals. **Passed resolution** to support CBSS Feasibility Project, requested updates throughout the project. **Passed resolution** to support initial project site location at the old wind turbine site across the bay. Council supported the initial proposed project site near the old wind towers.
Additional Information
AES presented the project to Municipal Council and explained how the project ties into the CEP

Activity: Others **Date: March & April 2023**
Key Results
Presentations were given at the Elementary School and High School during energy week in March 2023. The concept of energy efficiency was discussed, and students participated in hands on demonstrations of wind, solar and hydro generation using small learning models. Some businesses have shown interest in transitioning to clean energy on their assets. There is a lack of financial supports and incentives for businesses which is why many have been reluctant to move forward. Some business owners have agreed that across the bay would be a good location for a project since it is out of site and not using up any space within the main area of the community.
Additional Information
Informal Discussion with business owners

Activity: Pitquhirnikkut Ilihautiniq / Kitikmeot Heritage Society Board of Elders **Date: October 19, 2023**
Key Results
As a follow up to the March 29, 2023 engagement session, AES scheduled a site visit on October 19, 2023 to show the KHS Board the new proposed project site South of the original site. Explanations were made about why the project site had changed and we requested their feedback on whether they supported the new location. They give their support for the new project location. AES explained that the site would still undergo formal archeological assessment as part of the review process.
Additional Information
The KHS Board explained that they were unaware of any cultural or historical significance of the location. The new location is far enough away from the coastline that they don't feel that it was an area that was used for settlement historically. The visit was photo documented.

APPENDIX D

CBSS FEASIBILITY STUDY COMMUNITY ENGAGEMENT REPORT (2024)

Date	February 26, 2024
Topic	Cambridge Bay Solar and Storage Project, Community Engagement Activities, February 2024

I. Introduction

1. Background

Findings from the Community Energy Plan (CEP) showed that community support is strong for large scale renewable energy projects. As part of the CEP, multiple stakeholder and resident' engagements were conducted and showed that future engagement regarding large scale renewable energy should address the following questions and concerns from the community:

- Community members do not have a good understanding of what "large scale" entails. Visual support and infographics could help residents conceptualize these projects.
- Any large-scale project should be seeking approval for site location and gather community feedback on site topography, local knowledge and concerns during construction and operation of the project.
- Community should be informed, engaged and involved. It is important to show that every step is taken to ensure the technical viability of the projects.
- The potential for wind power should be addressed and a rational for project prioritization should be clearly laid out.
- Residents wanted to know more about what other communities in Nunavut are planning and constructing with regards to renewable energy.

The Cambridge Bay Solar and Storage Project feasibility study was first announced on July 23, 2024. Posters were distributed in the community and shared through the community Facebook page.

AES Team presenting project details to community members

Cambridge Bay Community Energy Plan Infographics

CBSS Project Renderings and FAQs

Information shared on Nunavut Projects

Sharing project details with community elders

2. Activities and Engagement Format

The goals of the February 2024 engagement activities were to:

- Formally introduce the project,
- Ensure that the community still approved of the project,
- Present preliminary data and renderings,
- Get feedback on the project, especially regarding the proposed location,
- Identify potential issues that the site could present for construction and operation,
- Gather collect community knowledge of the site for the first high level climate risk assessment of the project.

Engagement activities were conducted over the course of several days: 1) the team used the Cambridge Bay Trade Show February 5-7, 2024 as an opportunity to informally present the project ahead of the main community event; 2) the main engagement event occurred on Tuesday February 20, 2024, 3) this event was followed by an afternoon at the Kitikmeot Corporation Office to provide an alternative for those who could not attend day before, 4) informal discussions with community members during the week of February 20th, 5) a presentation was given to students attending the Kullik Ilihakvik Elementary School (6th grade).

The main event was advertised through posts on the community Facebook page and announcements were posted in several locations including the Hamlet and KIA offices, grocery stores, retail stores, public housing office and the public library. The team rented the Luke Novoligak Community Hall for the day (10:00 am – 9:00 pm, and residents could stop by at any time. Food and refreshments were available. Upon entry all attendants received a raffle ticket for various solar energy related prizes, which facilitated participation counts. Transportation was arranged for a group of Elders and those wanting to attend but

who didn't have a car, and an Inuinnaqtun translator was on site all day. Finally, a table with coloring and balloons was organized for the children attending the event. There were draws for renewable energy related prizes such as solar powered lanterns and solar powered cabin kits that were won by attendees.

Key attendees of the engagement event included municipal staff, the Mayor, NIRB team members and community elders.

The team provided several different supporting documents and visuals to facilitate the project description and to gather feedback:

- Background infographics on the Community Energy Plan were provided to remind participants of the strong support for renewable energy development and to explain the rational for the CBSS feasibility study.
- To address the questions and concerns raised during the CEP engagement, as described in Section 1. Introduction, the team created several posters describing the feasibility study process (transparency on the assessment of the technical viability of the project), prepared infographics explaining the project potential impacts on diesel reduction and grid composition, and created high resolution renderings of the project by superimposing solar panels, battery storage system and fence onto a drone photograph of the site.
- A "frequently asked questions" booklet was prepared and distributed participants. This FQA covered several subject such as solar energy questions (for example what happens during the winter months when there is no daylight), community benefits if the project, and technical explanations (such as the definition of "diesel off").
- The participants could provide their feedback through several avenues including a box with anonymous comments, emails, and in person.
- A large map of Nunavut was created depicting renewable energy projects and studies currently on going in the Territory. Additionally, information on the Government of Nunavut cabin and home owners solar grants was provided.

II. Main Takeaways

1. Format

We estimate that we reached approximately 90 residents throughout the week of February 20th. In addition to that engagement there were over 300 interactions through the Kitikmeot trade show event with a mixture of local residents and visiting delegates and exhibitors. AES representatives attended a science workshop at the Canadian High Arctic Research Station where presentations were given to young students on how solar power works. The students were shown what the project could look like and asked what they thought. There was plenty of positive feedback from the students on the concept at the in-school and research station presentations.

From our perspective, the walk-in format was successful. Two AES staff were present all day and constantly attending to new participants dropping in. This format allowed for quality one-on-one with those genuinely interested in the project, and allowed the staff to gather in depth feedback. The event was

attended by a variety of stakeholders including Elders, Hamlet staff, Government representative, Kitikmeot Corporation, NICB and QEC employees, and residents interested in the project.

The project supporting documents including the renderings and infographics were appreciated by many participants, who praised their appealing lay out and accessible explanation of technical findings. NIRB representatives informed us that they will be using our renderings as example of good practices for community engagement and participation. One participant suggested to organize a talk show on the radio for residents to call in with their questions.

Finally, residents appreciated that an alternative date was provided for those who could not attend the main event.

2. General Project Feedback

Overall, we received overwhelming support for the project moving forward. Residents were excited about the potential to be powered by clean electricity and there was no concern with the size of the project.

Some participants were under the impression that solar energy is not a viable technology in the Arctic due to the total darkness during certain months of the year. The education component of our engagement allowed them to learn about solar potential and they left feeling informed and confident in the project.

3. Site Location

Most participants approved of the site location, often describing it as out of sight and not heavily used.

We received one negative feedback from an Elder being concerned with losing land for the community. In particular, they were worried about the Elders not being able to access other places further away from the community, which leaves only the places close to town, like this site, accessible to them. They proceeded to say that they would support the project for future generations. The other Elders present were in support of the project and didn't have an issue with the location.

The proposed location is bordered by two trails used for the Back Point and Aptalok Bay areas and residents wanted to ensure that the site would not impact their accessibility. Participants commented that the area along the shoreline and the road are busy during the summer, and they must remain accessible to the general public.

The current community growth being constricted by federal lands, location of sewage lagoon, drinking water source and town disposal facility, several participants were worried about future town expansion in this area if the solar project is built. It should be noted that the Hamlet Land Planner and the Mayor participated in the event, and that the Municipal Council gave their approval for the location of the project. One participant wondered how close one can built to a solar farm, should residents want to build cabins along the shoreline.

One resident was concerned with the look of the solar farm and wished it would be further away from the community as to not disturb the view. One Elder reported that they had no concerns about visual impact of the site or even wind turbines in the area. From their perspective, no one was concerned about the wind turbines in the past and as such they didn't feel anyone would have an issue with the visual impact of this project now.

4. Site Characteristics

In effort to gather valuable information to guide the design and construction of the project, as well as insight of potential future impacts of climate change on the site, AES asked specific questions about the conditions of the proposed location; the following comments were made:

- The site can be spongy and wet in certain areas,
- Surface water might be present on the northwest end of property, as seen on satellite imagery.
- Snow drift will be an issue in this location,
- Participants were not aware of any burial grounds or caches,
- Participants were not aware of any hunting in the area,
- There were concerns that the site might be contaminated, due to the remnants of the Old Town including old concrete footings and buried fuel barrels.

5. Construction

To access the site during construction, heavy equipment and construction material will have to be hauled across two riverbeds of Freshwater Creek. There are several points to be considered during construction:

- The start of the main part of construction season is often marked with the busiest time of year at the river mouth where people often fish the char run. Will construction activities impact the fishing season, i.e. would it require road closures, or would the community still be able to access the fishing spots?
- Although there is a new bridge on the first river crossing that can handle the weight of heavy equipment without disturbance to the riverbank, contractors raised concerns over the weight of gravel trucks on the second bridge. Alternative sources of gravel on this side of the bay might be considered for this project.
- NIRB representatives confirmed that considerations about crossing the river will be an issue for DFO and the Water Board.
    - From AES experience building the new power line to the tower site (adjacent to the current project location), the project team worked with DFO for approval of heavy equipment crossing the second river in August, once water flow was reduced and river was low.

In general, residents would like to see no impact on accessibility of the road leading to the construction site, as this is a busy travel road in the summertime. Additionally, residents were wondering if there would be roads improvement completed on the stretch of road between the bridges and the project site, which could benefit the community travelling to and from the bay.
There were concerns about the construction impacting the land around the project site and in particular the two trails straddling the project site. The trails and tundra around the project site should be protected or restored after construction.

6. Maintenance

The residents would like clarification on the frequency of maintenance required and the kind of maintenance vehicle that will be travelling on the access road. As mentioned previously this is a well travel road, for pedestrians and vehicles alike. Participants were also wondering if the site will need to be accessed during the winter, as the road is currently not plowed.

In the winter, snow drifting cold be a major concern on the site, and snow fences on the north side of the site might be considered a viable option. Participants felt that the panels will still be buried in June, unless frequent clearing of the panels is done throughout the winter. Finally, contractors recommended to pay close attention to the fence height. As currently seen at the tank farm, fences are not high enough during the winter due to snow accumulation; residents and children in particular could easily access the site in the wintertime.

7. Approval and Permitting

Several team members from the Nunavut Impact and Review Board attended the engagement event and commented that it was good effort to educate the community about the project, and that the resources provided were well done. The AES team discussed the NIRB review process at high level and comments were exchanged on what makes a good review submission. The team members emphasized submitting as much documentation as possible on the front end to minimize subsequent back and forth exchanges.

8. Long Term Considerations

Contractors were thinking of the future of construction if renewable energy becomes widely available, namely thinking of electric heat or duel heating system (diesel and electric heat).

A question was asked whether community projects such as greenhouses could be placed adjacent to the site to make use of excess/curtained energy and store it.

Residents were hoping that this project will result in a reduction in the cost of electricity to customers.

III. Next steps

The team will ensure that all questions and concerns raised during the engagement are properly addressed during design, construction and maintenance of the project.

There are several outstanding items to be addressed, including communicating the socio-economic impacts of the project on the community, address concerns from the community about town expansion and meet with the HTO representatives, who could not attend the event.

Another information session should be held at the conclusion of the feasibility study to update community members and stakeholders on the final design and construction plan.

Summary:

Engagement Feedback	Action Item
Event was successful and format of engagement was appropriate for scale of project	None
Community overall approves of the project and location and looks forward to further updates	Update community stakeholders as feasibility work progresses
Project site is bordered by two trails regularly used by the community. Shoreline and road to the west of the project site are heavily used in the summer.	Project site should consider the two travel trails and ensure that 1) the trails are still accessible to the community and 2) any damages done to the trails during construction should be remediated. Access to the road and shoreline should not be restricted.
Land disturbances around project site should be minimized where possible to not negatively impact functionality and aesthetics	Land around the project site, roads and trails should be restored to their original states.
Construction materials will be hauled across two bridges. Start of construction season coincides with peak char fishing season.	Construction plan must be well thought out and consider impacts to people and wildlife
Potential contamination due to the remnants of Old Town and old DEW Line activities	Phase 1&2 ESAs might be required.
Snow drifting and snow accumulation might impact site access and performance of solar panels.	Additional studies and research is warranted to understand impact of snow accumulation on site performance.

AES Team member with Cambridge Bay Mayor Wayne Gregory