DISTRICT OF SUMMERLAND

THE CORPORATION OF THE
DISTRICT OF SUMMERLAND
REQUEST FOR DECISION

DATE: April 14, 2020 FILE: 0540-24

TO: Anthony Haddad, Chief Administrative Officer

FROM: Tami Rothery, Sustainability / Alternative Energy Coordinator

SUBJECT: Solar+Storage Project - Detailed Site Analyses Results

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STAFF RECOMMENDATION:

That Council pass the following resolutions:

1. ***THAT the Solar+Storage Project – Detailed Site Analyses Results report of April 14, 2020 be received for information.***

2. ***THAT a presentation of the Solar+Storage Project recommendations, as outlined in the report dated April 14, 2020, be scheduled to the April 27, 2020 Regular (evening) meeting of Council for adoption consideration.***

STRATEGIC PRIORITIES:

Good Governance – Proper assessment and removal of the identified hazardous materials present on site will reduce risks to the public and wildlife, and the image of the District as a careful steward of publicly-owned natural areas will be improved.

Alternative Energy – Completing the Summerland Solar+Storage Project will provide a revenue opportunity for the community that also considers the natural resources and environmental values present.

Community Resilience – The Summerland Solar+Storage Project will provide added resiliency for the community as a localized energy source that can be utilized in case of system outages.

Infrastructure Investment – The system upgrades to be completed through the Project will strengthen the Electrical Utility's capacity to provide services to the community and to bring further generation resources online in the future.

PURPOSE**:**

To receive the results of the detailed site analyses completed in relation to Summerland's Solar+Storage Project, and to schedule a presentation on the recommendations arising from the results in order to provide direction to staff on next steps for the Project.

BACKGROUND and DISCUSSION:

For several years, Summerland has been actively pursuing the opportunity to develop a solar energy project that would provide benefits to the District's electrical utility and to the community at large. The expected outcomes of Summerland's Solar+Storage Project include enhancing the local economy and creating jobs, increasing energy security and independence, supporting innovation, and attracting new residents and visitors. Further, the project will form the basis for an integrated, long-term approach to sustainable energy management within the District, which will provide ongoing opportunities for job creation, community involvement, and partnerships with local businesses, schools, and not-for-profit groups.

Since late 2016, at least twelve dedicated reports and presentations have been provided to Council to share project progress, explain the site selection process and criteria, review the results of project studies completed, and to seek direction on project planning. Additionally, project updates have been given to Council in writing and verbally through strategic priority and budget updates each year. The community has also been engaged with the project since early 2017 via public engagement events, surveys, open house booths, a dedicated webpage, newsletter articles, press releases, and the Summerland solar energy email list (over 230 subscribers currently).

Following a presentation of the thorough review completed of all District-owned properties over 0.5 acres in size (108 parcels) in consideration of the project site, on February 27, 2019, Council identified the site at 13500 Prairie Valley Road/12591 Morrow Street/Denike Street as the prime potential location of the project and directed staff to further engage the community regarding that selected site and to proceed with detailed analysis of the site conditions.

The required detailed analyses included: an environmental inventory and environmental site assessment mapping; a geotechnical assessment; a contaminated soils assessment; a detailed costing study; a review for known on-site First Nations Values; and installation of a solar monitoring station. This report and the accompanying Powerpoint presentation (Attachment 1) provides a summary of the results of those activities, as well as the additional community engagement undertaken over the past year.

Community Engagement

As described above, community engagement on the project has been ongoing since early 2017. This section outlines the engagement activities taken since March 2019, following Council's selection of a preferred site for the project.

On May 6, 2019, staff provided interested community members with an update of the Summerland Solar+Storage Project's progress to date, a review of the preferred site, and next steps for the project at a public meeting in Centre Stage Theatre. The event also included a moderated Q&A session, an informal discussion opportunity, and collection of survey responses and project feedback.

Over 100 people, including council members and staff, attended the May 6 event, and 82 people completed the survey that was offered at the session, posted online, sent to the solar energy email list, and advertised at Municipal Hall for the following 10 days. Informal feedback from the meeting was extremely positive, with the vast majority of comments about the site and project progress being supportive and encouraging.

A detailed report on the outcomes of the event was given to Council on May 27, 2019, including the survey results (Attachment 2). Some of those results were:

- 78% of respondents indicated they would be interested in a “Solar Farm Share” program, and this was the top response for areas of interest/excitement and the second most common response for questions about the project.
- Financial savings for the community, community resiliency, and environmental protection /taking climate action were the top indicated areas of interest/excitement after being able to be involved on an individual basis.
- Six individuals listed the site as the project aspect they were most interested in/excited about; nine individuals listed the site as something they had questions or concerns about, including concerns about protecting the environmental attributes on site by only developing on previously disturbed areas and the potential for other uses such as residential development.
- The top three amenities where support was indicated for District funding were: maps/trail signage, parking area, and garbage and recycling bins.

In addition to the Project Update event, a dedicated website was created and widely advertised as a repository for project information and related reports. Staff have also provided information on the project at a range of public events, including the 2019 and 2020 budget open houses, 2019 Earth Week, Distributed Generation (net metering) Program re-launch, and through the District newsletter. Additionally, staff maintain an email list of interested parties and send an update approximately once a month on items related to solar energy in Summerland; there are currently over 230 subscribers to this list.

Throughout the public engagement activities, and through passive communications (email, drop-ins, phone calls), the vast majority of feedback received related to the project site and overall planning has been extremely positive.

Environmental Inventory & Environmental Site Assessment Mapping

As the site falls within the District’s Environmentally Sensitive Areas Development Permit Area, a Qualified Environmental Professional (QEP) was commissioned to complete an inventory of on-site environmental values and preliminary impact mitigation strategies for the site (Attachment 3).

The primary deliverables of the report included an inventory of plants, wildlife, and ecosystems found on the property, and classification of on-site environmentally sensitive areas (ESAs). The District’s *Terms of Reference: Environmental Assessment Reports* was applied and guided the work of the QEP.

While a detailed site plan will be completed as part of the Engineering phase of the project, the environmental inventory shows that there appears to be an adequate area available on site for the development of the Solar+Storage Project as currently envisioned; however, the project footprint is constrained by the surrounding environmentally-sensitive portions of the parcel.

The report specifies that for planning and design, the project footprint should be focused on the historical and current disturbance areas, except for where they may overlap with ESA-1 values (e.g., trails passing through ESA-1 polygons should be decommissioned and restored rather than continue to be utilized); in other words, ESA-1 should be avoided, and restored where

previously disturbed. ESA-2 within the previously disturbed areas should not be impacted more than 10%, or 800m^2, and to maintain a buffer to ESA-1 and overall wildlife corridors.

Other key findings of the report as it related to the project design included: the identification of an on-site wetland habitat, which now falls under the *Water Sustainability Act* and needs to be protected appropriately; the identification of wildlife trees to be maintained and protected; most of the plant communities that occur on the site are listed provincially as "at-risk"; species at risk known or likely to occur include Lewis's Woodpecker, Tiger Salamander, Great Basin Spadefoot, Great Basin Gophersnake, and Western Rattlesnake; and direction to ensure the design of fencing and slopes allows for continued wildlife movement through the site.

Critical Habitat for species subject to persecution (e.g., snakes) overlaps the property proposed for solar development. Protection of Critical Habitat on private land is generally accomplished by voluntary stewardship, however some prohibitions under the *Species at Risk Act, Migratory Birds Convention Act, and Wildlife Act* apply to birds and aquatic species; these would have an impact on development outside the disturbance footprint where attributes are present.

To ensure this project is completed in accordance with the District's *Terms of Reference: Environmental Assessment Reports*, once the site design is further established, a Protection, Mitigation, Compensation and Implementation Strategy will be completed in consultation with a Qualified Environmental Professional.

In summary, the Environmental Inventory provides a clear footprint within which the project can be developed in accordance with the District's Environmentally Sensitive Development Permit Area guidelines. The available footprint presents some logistical challenges and constrains the ability of the array to be greatly expanded in the future; however, staff are confident that these challenges can be overcome with careful planning and that creative design opportunities exist to maximize the use of the available land for the project.

Geotechnical Engineering Assessment

In order to assess the suitability of the site for the project from a geotechnical perspective and to gain insights into the most appropriate types of footings to be used given the on-site conditions, a professional engineering firm was hired to complete a preliminary Geotechnical Engineering Assessment of the site for the purposes of developing a solar and battery storage project (Attachment 4).

The assessment found that based on the soil and groundwater conditions encountered as well as the ground conditions of the slopes around the proposed development area, the site is suitable to support the proposed solar array from a geotechnical perspective. Two areas with over-steepened cut slopes which may be subject to localized sloughing and/or surface ravelling were identified which will need to be considered during detailed design.

Other key findings of the geotechnical aspects of the site include: the site soil was found to be "essentially non-corrosive" and are unlikely to cause corrosion of iron-based elements in the ground. In addition, the test results indicate a negligible degree of exposure to sulfate attack on concrete in contact with the soils. Given these findings and the soil composition on the site, it is expected that driven piles are most suitable for the site; however, the final determination on footings will be made during the Engineering phase of the project.

Recommendations for shallow footings, site drainage, the pavement structure of the access road, other general construction considerations for the site, and guidance on additional work and geotechnical reviews to be completed as the project progresses were also included in the assessment.

In summary, the Geotechnical Engineering Assessment found that the on-site geotechnical conditions appear appropriate for the development of the Solar+Storage Project, and that several options for footings are available for consideration during detailed design.

Contaminated Soils & Hazardous Materials Assessment

Given the known history of the site as a works yard and storage area, and the presence of on-site debris, a professional environmental consulting firm was hired to undertake a Stage 1 Preliminary Site Investigation (PSI) (Attachment 5) for due diligence purposes in order to assess if any Areas of Potential Environmental Concern (APECs) were present, and if so to identify where on the site they were located. During the investigation, Potential Contaminants of Concern (PCOCs) were identified within four (4) on-site APECs, which were then mapped and summarized.

Based on the reviewed information, a sub-surface investigation in the form of a Stage 2 PSI in the area of identified APECs was recommended at the Site. The Stage 1 PSI also recommended general housekeeping throughout the site including removal of various debris piles and disposal of the stored miscellaneous pipes, noting that depending on the content of the debris piles, hazardous materials sampling of debris and transformer/pipe materials may be required prior to disposal.

A Stage 2 PSI (Attachment 6) was completed to assess the presence of soil and/or groundwater impacts and identify the potential need to assess for soil vapour impacts at the site due to the identified APECs and PCOCs in the Stage 1 PSI. In addition, suspected asbestos containing pipe wrap noted in the Stage 1 PSI was sampled and analyzed for asbestos content.

The results of the soil analytical program found that the concentrations of PCOCs in the borehole and surficial soil samples were all below British Columbia Contaminated Site Regulations. While not suspected, the report also notes that hidden sources of contamination may still be present on site in areas that were not tested during the Stage 2 PSI, and any discovery of suspected areas of contamination would require further testing.

Groundwater was not assessed as the installed wells did not produce a viable volume during the Stage 2 PSI. While the report found that it is unlikely that groundwater contamination is present, an additional round of groundwater monitoring during spring freshet will be undertaken to assess groundwater within the installed wells and if present, it will be sampled and analyzed for PCOCs.

The Stage 2 PSI found a number of hazardous materials present on site which require special handling and disposal, including: asbestos-containing pipe mastic; asbestos cement pipes; pipes with suspected lead content (further testing required); and concrete structures suspected to contain crystalline silica. The Stage 2 PSI recommended a risk assessment for these materials be completed and that a post-removal inspection be completed to confirm that all hazardous materials have been removed.

In summary, while a number of Potential Contaminants of Concern were identified on the site, a Stage 2 PSI found no soil impacts that exceeded Provincial guidelines for the intended development as a solar array. Groundwater was not present in sufficient quantities during the Stage 2 PSI and was therefore unable to be tested; another attempt will take place in June 2020 to confirm the absence of groundwater contamination on site. The Stage 2 PSI identified hazardous materials that require special handling and disposal, to be guided by a remedial action/risk management plan for the site.

Preliminary Financial Analysis

As the final details of the project (such as the specific battery chemistry and other hardware chosen) will influence the overall costs and payback, a detailed costing study cannot be completed until the Engineering phase has advanced. A specialized energy storage and renewable energy consulting and engineering firm was hired to complete a preliminary financial analysis of the project utilizing actual utility data to model expected system performance and results.

Four possible configurations for the energy storage system were contemplated in the analysis. For each scenario, the results showed that taking the $6M in grant funding the District has received for the project into account, the project will have a positive financial return for the community and would also roughly break-even without grant funding.

The expected payback period of the District's financial contribution to the project ($980,000) is 5.3 years or less. As outlined below, the monitoring station data collected since the report has supported this projected timeline.

On-Site First Nations Values

A search of the Remote Access to Archaeological Data (RAAD) system was completed to confirm if any known First Nations Values are present on the project site – none were identified. In addition, staff contacted the Provincial Archaeological Report Library (PARL) for more detailed individual reports. The RAAD findings and PARL reports are not publicly available and are therefore not included with this report.

The information provided by the PARL shows some areas that have high potential for unknown/unrecorded archaeological deposits within the land parcels that are intended for the project; however, those areas do not fall within the intended development footprint and there is no legislative requirement to undertake further assessments of the site as a result of these findings. Further, because of the previous uses of the site (i.e., gravel extraction), it is expected that any on-site values that may have been present would have been disturbed during historical activities.

While there are no known on-site First Nations Values in the expected development area of the site and none are expected to be found given the minimal amount of ground disturbance anticipated through the project, once the Engineering phase of the project is complete and a detailed site map is completed, staff intend to further engage the Provincial Archaeology Branch for guidance on what steps should be taken to ensure the project is completed with utmost care and respect for any possible on-site values. This may take the form of a Preliminary Field Reconnaissance and/or an Archaeological Impact Assessment.

Solar Monitoring Station Results

In order to ground-truth the assumptions made in the Pre-Feasibility Study and the System Impact & Interconnection Study for the project, as well as the preliminary financial analysis, the District installed a solar monitoring station at the site in May 2019. The monitoring station measures, among other variables, the amount of solar radiance at the site and the resulting amount of power able to be derived by a solar installation.

The data collected from the monitoring station will also be used during the Engineering phase of the project to inform the project design, including the footing design (wind speed/load, snow weighting) and the orientation and tilt of the panels. It will also provide the District with accurate on-site data against which the performance of the installed system can be assessed, assisting staff with ensuring that the system is performing as expected.

An analysis of the monitoring station data from May-August 2019 showed the monitoring station data was 94.4% of the initial production forecast. According to the consultants hired to assist with this analysis, the 5.6% difference is reasonable considering that year to year variability can be as much as 20%. Staff are comfortable with these results and will continue to monitor the results through the start of 2020 to ensure the annual production remains comparable with the modelled expectations.

Summary of Detailed Site Analyses & Recommendations

Following the direction of Council, a series of detailed site analyses have been completed in order to confirm the suitability of the prime potential location of the project (13500 Prairie Valley Road/12591 Morrow Street/Denike Street) including: an environmental inventory and environmental site assessment mapping; a geotechnical assessment; a contaminated soils assessment; a preliminary financial analysis; a review for known on-site first nations values; and installation of a solar monitoring station.

These analyses have determined that no significant technical barriers to proceeding with the prime potential site exist that would deem the site infeasible for the purposes of the Solar+Storage Project. Some remediation work required to safely dispose of hazardous materials present on site in a way that minimizes risk to workers and the public was identified, which can be completed as part of the site preparation (construction).

Given these findings, staff recommend that Council consider the following resolutions at the April 27, 2020 Regular (evening) meeting of Council:

> *THAT staff be directed to complete a remedial action / risk management plan for 13500 Prairie Valley Road/12591 Morrow Street/Denike Street as part of the Solar+Storage Project;*
>
> *AND THAT staff be directed to proceed with completion of the Engineering, Procurement, and Construction phases of the Solar+Storage Project at 13500 Prairie Valley Road/12591 Morrow Street/Denike Street.*

Alternative Options

Should Council determine for any reason that the results of the detailed site analyses present unreasonable barriers to proceeding at the prime potential site, staff will require direction on

what next steps to take and what resources are available to complete the work directed. One possibility is Council may choose to direct staff to complete detailed site analyses on an alternative site, such as one outlined in the Potential Back-up Sites report of June 24, 2019, which was received by Council for information – or alternative sites as directed by Council.

As described in the June 24, 2019 report to Council, for any potential alternative site, detailed analyses similar to those completed for the prime potential site will need to be completed. The costs for these analyses will vary from site to site, and their completion will require significant staff time as well as additional financial resources as no further funds are budgeted for this work. It is important to note that the timelines to complete those analyses may also jeopardize the District's ability to complete the overall project within the timeline provided by the $6M funding agreement (September 2023), particularly as the results of the analyses and their implications for the project design are unknown.

LEGISLATION and POLICY:

Based on the results of the Stage 2 PSI, a risk assessment for asbestos-containing materials should be performed prior to work beginning to determine the exposure risk to workers and other persons as per Occupational Health and Safety (OHS) Guidelines and WorkSafeBC publication "Safe Work Practices for Handling Asbestos".

Following completion of the hazardous materials removal, an inspection must be conducted by a Qualified Person to confirm that the hazardous materials have all been removed and an inspection report confirming the removal must be posted on site prior to further work activities.

As the proposed use of the property fits within the current OCP designation and zoning and does not need to re-zoned for the Solar+Storage Project, a Ministry Legal Instrument such as a Determination of Contamination was not determined to be required at this time.

FINANCIAL IMPLICATIONS:

The completion of the remedial action / risk management plan for the site is not expected to require any further budget allocations, as staff have applied for funding through the Federation of Canadian Municipalities' Brownfield funding stream to offset 50% of the costs of the Stage 2 PSI, the remedial action / risk management plan, and a portion of the site redevelopment plan.

Final confirmation of the FCM funding has not yet been announced, but staff have received positive preliminary feedback from the funding coordinator about the application. It should be noted that at least a portion of this funding is likely to be revoked should the project not proceed at the proposed location.

The costs to implement the remedial action plan and remove the identified hazardous materials cannot be estimated at this time, but staff do not expect the amounts to present an unreasonable financial burden to the project. Should Council direct staff to proceed with the completion of the remedial action/risk management plan for the site, costing details will be brought back to Council for discussion and decision as soon as they are available.

Similarly, the completion of the Engineering, Procurement, and Construction phases of the project is not expected to require any further budget allocations as these are the primary costs that have been budgeted for as part of the project planning, and the results of the detailed analyses did not show any significant technical barriers that are expected to increase those projected costs. As the project planning proceeds, and particularly as procurement processes

begin, staff will continue to closely monitor the project budget and will relay to Council any concerns or significant deviations from the planned budget as soon as possible.

No further budget exists for additional detailed analyses for the prime potential site, or for an alternative site, nor has further time for these activities been budgeted in staff's work plans. Should further work be requested by Council, staff will require direction on what resources are available to complete the work directed.

SUPPORTING DOCUMENTS:

1. 2020_04_14 Council Presentation - Detailed Site Analysis Results PowerPoint
2. Solar+Storage Project Update Community Survey Results
3. Summerland Solar & Storage Project Environmental Inventory Phase
4. Summerland Solar Array Geotechnical Engineering Assessment Report
5. Summerland Solar Array Stage 1 Preliminary Site Investigation
6. Summerland Solar Array Stage 2 Preliminary Site Investigation

CONCLUSION:

Staff recommend that Council accept the information presented and schedule a presentation for the April 27, 2020 Regular (evening) meeting of Council on the recommendations arising from the results in order to consider providing direction to proceed with completion of the Engineering, Procurement, and Construction phases of the Solar+Storage Project, including a remedial action / risk management plan for the site.

OPTIONS:

1. Move the motions as recommended by staff.
2. Deny the motions as recommended by staff.
3. Refer to staff for other options.

Respectfully submitted,

Tami Rothery
Sustainability / Alternative Energy Coordinator

Approved for agenda,

Anthony Haddad
Chief Administrative Officer