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CORPORATE REPORT

NO: **R073** COUNCIL DATE: **May 4, 2020**

REGULAR COUNCIL

TO:	**Mayor & Council**	DATE:	**April 30, 2020**
FROM:	**General Manager, Engineering**	FILE:	**6020-010/01**
SUBJECT:	**Award of Contract No. 6020-010 D1 Design of Serpentine River Sea Dam Replacement**		

RECOMMENDATION

The Engineering Department recommends that Council:

1. Award Consultant Design Agreement No. 6020-010 D1 for the design of the Serpentine River Sea Dam Replacement to Associated Engineering (B.C.) Ltd. at an estimated fee limit of $1,039,327.80 (including GST);

2. Set the expenditure authorization limit for Consultant Design Agreement No. 6020-010 D1 at $1,143,260.58 (including contingencies and GST);

3. Authorize the General Manager, Engineering to execute Consultant Design Agreement No. 6020-010 D1; and

4. Authorize the inclusion in the Consultant Design Agreement an option in favour of the City to retain Associated Engineering (B.C.) Ltd. to provide engineering services for the optional tendering and construction services of the Serpentine River Sea Dam Replacement at an estimated fee limit of $1,135,858.91 (including contingencies and GST).

INTENT

The intent of this report is to obtain approval to award an agreement for engineering services for the design of the Serpentine River Sea Dam Replacement, as illustrated on the map attached to this report as Appendix "I".

BACKGROUND

The Serpentine River Sea Dam Replacement is included as part of the Surrey Disaster Mitigation and Adaptation Fund ("DMAF") program involving the implementation of a comprehensive flood protection strategy that will seek to reduce Surrey's vulnerability to coastal flooding and sea level rise. This project represents one of the 13 projects identified under the DMAF program, as listed in the attached Appendix "II", and shown on the map attached as Appendix "III", which all projects are planned to be completed by 2028 in order to remain eligible for the Federal government contribution grant.

As part of the DMAF program, the Serpentine River Sea Dam replacement involves the replacement of the over 100-year-old sea dam structure. The existing sea dam structure will be over-topped as a result of projected sea level rise associated with climate change. Furthermore, the existing sea dam structure does not meet current seismic standards and has limited periods of fish passage, as fish passage is only provided during times the sea dam gates are open, which is typically during lower tides..

The new sea dam structure is proposed to be located west of Highway 99, which will be downstream from its current location at King George Boulevard. The new structure will improve seismic resiliency, improve fish passage, and provide protection to surrounding agricultural area from flooding due to tidal surges and future sea level rise associated with climate change.

SCOPE OF WORK

Work within this Design Contract involves engineering services for the design of the Serpentine River Water Sea Dam Replacement and associated work. Specifically, the Design Contract will include engineering services for the following improvements:

- Design for a new sea dam structure that will account for improved seismic and flood resiliency and improved fish passage; and
- A decommissioning plan for the existing sea dam structure and associated work.

At this time, a Contract will be awarded for the design services only, with the option to award construction services upon successful completion of the design phase. The design phase involves overall project management, design works, acquiring regulatory approvals, while the construction phase includes tendering, contract administration, inspection, and post construction services.

The design work is expected to start early May 2020 and be completed by Fall 2022. Construction of this project is anticipated to be $19 million and will be completed before the Federal government grant contribution deadline of 2028.

EVALUATION

The City invited four pre-qualified engineering consultants to respond to a Request for Proposals ("RFP"):

- Associated Engineering (B.C.) Ltd.;
- Kerr Wood Leidal Consulting Engineers;
- Mott MacDonald Canada Limited; and
- Parsons Inc.

The proposals were evaluated using the following criteria:

- Understanding of assignment;
- Experience relative to assignment;
- Strength of project manager and project team;
- Work plan and schedule; and
- Financial considerations.

All four submissions were carefully reviewed for accuracy and completeness by a panel of four staff members, following a structured and standard evaluation process.

Associated Engineering (B.C.) Ltd.'s proposal demonstrated a thorough understanding of the scope of work and a strong proposed work plan. Furthermore, Associated Engineering (B.C.) Ltd. have put forth a team with considerable experience related to similar work. Their design fee is also the most competitive and is considered reasonable for this type of engineering assignment. Staff therefore recommend that this assignment be awarded to Associated Engineering (B.C.) Ltd.

SUSTAINABILITY CONSIDERATIONS

The work of this Contract supports the objectives of the City's Sustainability Charter 2.0. In particular, this work relates to Sustainability Charter 2.0 theme of Infrastructure. Specifically, this project supports the following Desired Outcomes ("DO") and Strategic Direction ("SD"):

- All Infrastructure D01: City facilities and infrastructure systems are well managed, adaptable and long lasting, and are effectively integrated into regional systems;
- All Infrastructure D03: Infrastructure systems are designed to protect human health, preserve environmental integrity, and be adaptable to climate change impacts; and
- All Infrastructure SD1: Proactively manage community assets to maintain them over the long-term in a state of good repair.

FUNDING

Funding for this Consultant Design Agreement is being phased over a two-year design period. With funding available this year within the 2020 Drainage Budget and the remaining funding being allocated in the 2021 Drainage Budget. Furthermore, 40% of the project funding is to be contributed under the Federal government contribution grant through the DMAF program as shown in the table below:

Project Description	Design Award Amount (Expenditure Authority)	Federal Government Contribution (40%)	City Contribution
Serpentine Sea Dam (D-16966)	1,143,260.58	$457,304.23	$685,956.35
Total	$1,143,260.58	$457,304.23	$685,956.35

Funding for the remaining costs in subsequent years have been included in the Engineering 10-Year Servicing Plan.

Scott Neuman, P.Eng.
General Manager, Engineering

VJ/AP/cc

Appendix "I" –Map of Project Location – Contract No. 6020-010 D1
Appendix "II" – DMAF Projects
Appendix "III" – Map of DMAF Project Locations

APPENDIX "I"

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Agreement No. 6020-010 D1
Design Services for Serpentine River "Sea Dam" Replacement

ENGINEERING DEPARTMENT

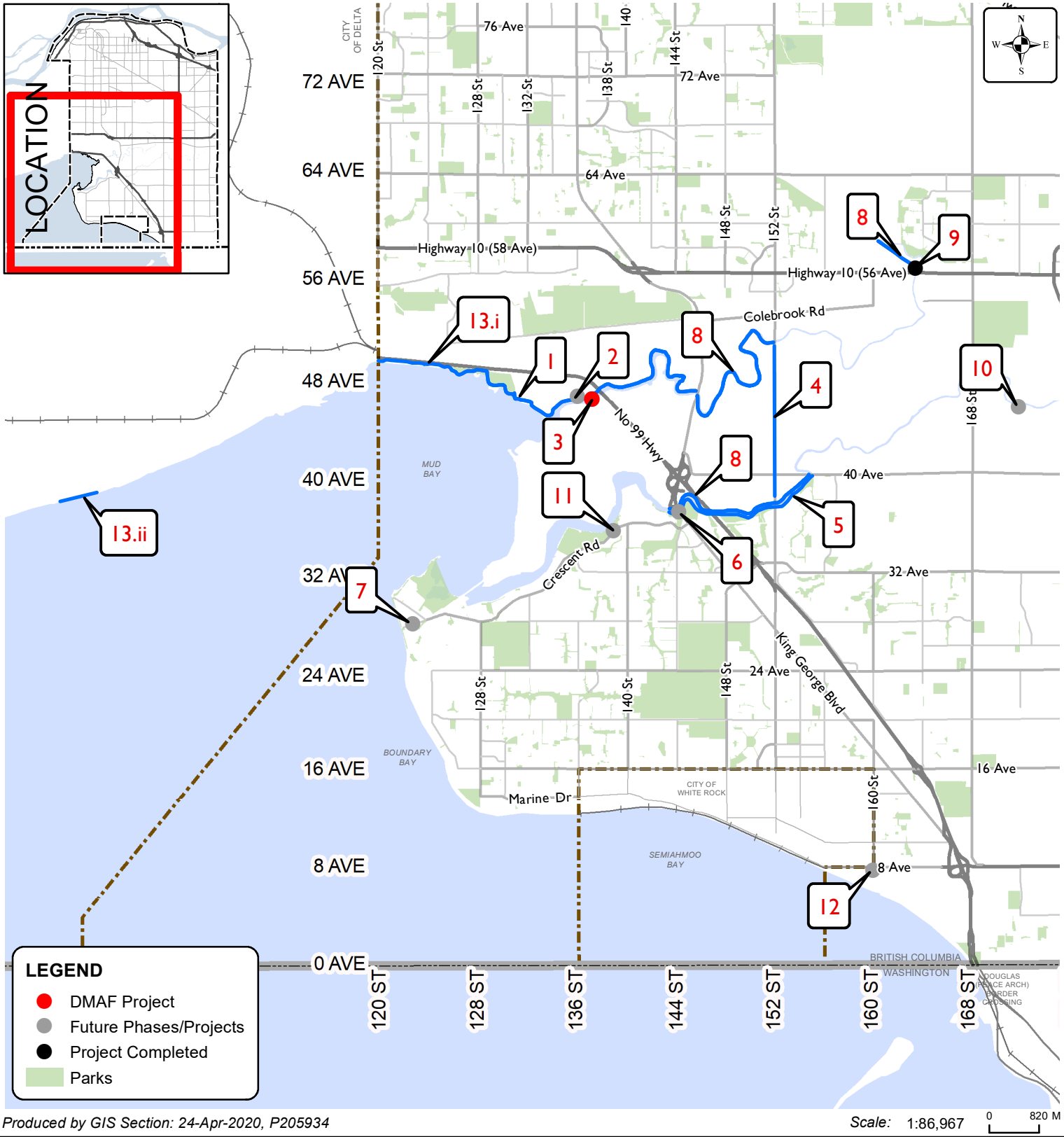
Source: G:\MAPPING\GIS\Maps\CorporateReps\D&C\PS_DesignServicesForSerpentineWaterControlStructure_TA.mxd

APPENDIX "II'

DMAF Projects

DMAF Projects	Project Status
1. Colebrook Dyke – Upgrade the earth dike along Mud Bay and the mouth of the Serpentine River, including drainage floodboxes	Design Complete
2. Colebrook Drainage Pump Station – Remove and replace the drainage pump station on the Colebrook Dyke	Design Underway
3. Sea Dam Serpentine River – Remove and replace the flood and irrigation control structure and instrumentation	Design Award *(Subject Report)*
4. 152 Street Road and Raising – Increase the vehicle and multi-modal capacity and resilience of this critical emergency access road and provide secondary flood defense	Design Underway
5. Nicomekl Riverfront Park – Develop a new park that provides increased flood storage, recreation and habitat	Design Request for Proposal
6. King George Boulevard Bridge and Nicomekl River Sea Dam – Remove and replace existing structures with an integrated structure	Design Request for Proposal
7. Crescent Beach Storm Sewer System – Expand the existing storm sewer network to reduce flooding	Design Underway
8. Dyking Lower Reaches of Nicomekl and Serpentine – Raise and widen the existing flood control works	Design Underway
9. Serpentine SRY Rail Link Bridge and Surrey Dyke Crossing– Upgrade crossing to improve flood resilience	Completed
10. Burrows Drainage Pump Station – Increase capacity of existing pump station and upgrade irrigation infrastructure and drainage floodboxes	Under Construction
11. Stewart Farm Sanitary Pump Station – Raise the existing pump station	Under Construction
12. Campbell River Pedestrian and Emergency Access Bridge – Remove and replace the existing bridge	Design Underway
13. i. Foreshore Enhancements and Dyke in Delta – Upgrade existing Boundary Bay Dyke and pilot Living Dyke ii. Foreshore Enhancements in Surrey – Construct foreshore enhancements in front of Colebrook Dyke and instrumentation	Design Request for Proposal

APPENDIX "III"



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CONTRACT No. 6020-001 D1
Design of Serpentine River Sea Dam Replacement

ENGINEERING DEPARTMENT

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