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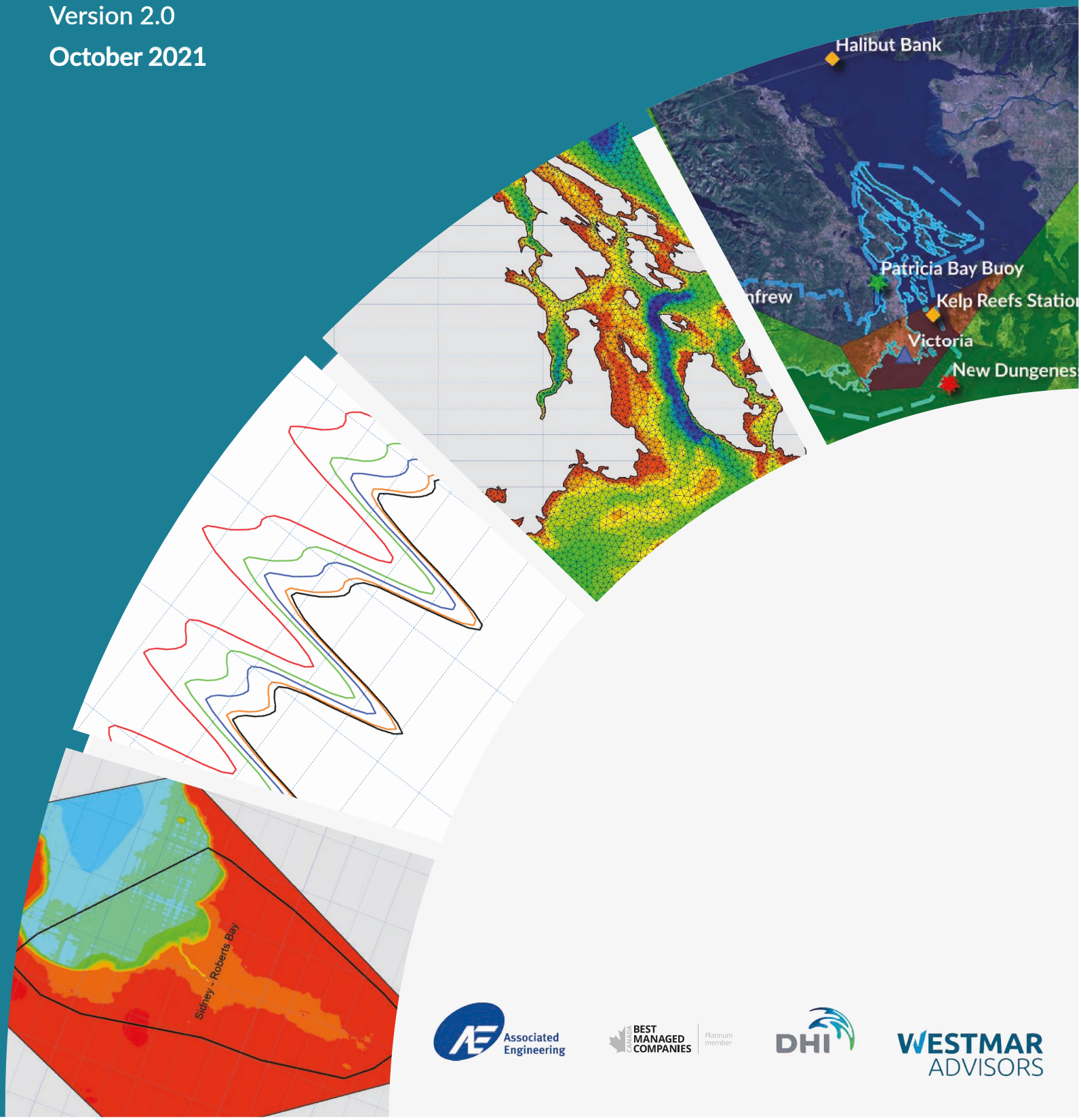
Task 2 – Sea Level Rise Modelling and Mapping Report

Capital Region Coastal Flood Inundation Mapping Project

Version 2.0

October 2021



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EXECUTIVE SUMMARY

PROJECT CONTEXT

In recent years, scientific studies and measured observations have demonstrated that climate change is causing global mean sea levels to increase at an accelerated rate. Communities located along the British Columbia coastline have the potential to be negatively impacted in the coming years as flood events become more frequent and intensive in both depth and extent. This risk is compounded by the fact that BC is located within a seismologically-active zone, with a demonstrated history of tsunami hazard from a number of potential sources including the Cascadia Subduction Zone, the Alaska-Aleutian Subduction Zone and local shallow crustal faults. As such, the Capital Regional District (CRD) and its project partners recognised the need for detailed inundation mapping from both Sea Level Rise and Tsunamis for the capital region, on southern Vancouver Island; thereby commissioning the Capital Region Coastal Flood Mapping Project.

The purpose of this project is to help inform the CRD, its local governments, First Nations, and other interested stakeholders of the hazard of coastal flooding due to sea level rise and tsunamis, and the subsequent impacts as a result of inundation. The results of this project should be used to develop flood construction policy by the region's respective local governments and to further inform emergency mitigation and evacuation plans.

This is the second report of three that form the overarching Coastal Flood Inundation Mapping Project; the complete collection of reports is as follows:

- Task 1 – DEM Development Report
- Task 2 – Sea Level Rise Modelling and Mapping Report
- Task 3 – Tsunami Modelling and Mapping Report

This report summarises the work performed by the project team to meet the objectives defined for 'Task 2 – Sea Level Rise Modelling and Mapping'. The project team consists of Associated Engineering, DHI and Westmar Advisors. Dr. Michael Isaacson, P.Eng. (working on behalf of Westmar) contributed to the Intertidal Risk Assessment section of this work, as well as being a senior technical reviewer.

Version 2.0 of this Sea Level Rise Modelling and Mapping Report replaces the previous Version 1.0 report, published in June 2020. The project team and the CRD produced an FAQ memo for municipal partners that summarises the key differences between each Version.

TASK OBJECTIVES

The primary objective of Task 2 - Sea Level Rise Modelling and Mapping was to assess sea level rise inundation hazard along the capital region coastline, as well as provide potential Flood Construction Levels (FCLs) at a discrete number of locations to support future planning policy. A secondary objective of this report was to assess, qualitatively, the risk to intertidal areas within the capital region as a result of rising sea levels; and how this may affect resident ecosystems and culturally-important sites.

Sea level rise in this project was assessed for four different 'Relative Sea Level Rise' (RSLR) scenarios: 0.0 m, 0.5 m, 1.0 m and 2.0 m. RSLR is an absolute increase in mean sea level, incorporating the effects of land subsidence or uplift.

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Due to the uncertainty in both anticipated sea level rise projections and land subsidence/uplift rates, these RSLR scenarios have not been formally assigned an expected 'year of occurrence' (i.e. 1.0 m at year 2100). However, some guidance is given on potential time-horizons, based on Provincial standards (Section 2.4.1). Total water levels, based on the above RSLR scenarios, were produced for five different probability events, as tabulated below:

Table ES-1
Probabilities/Return Periods of Events Used in this Project

Return Period (year)	10	20	50	100	200
Annual Exceedance Probability (AEP)	10%	5%	2%	1%	0.5%

With respect to Flood Construction Levels (FCL = total water level plus freeboard); the 200-year / 0.5% AEP is the governing return period set by Provincial guidance. Proposed FCL mapping and results can be found in **Appendices B** and **C** for 0.0 m, 0.5m, 1.0 m and 2.0 m RSLR scenarios. Proposed FCLs for the 0.0 m and 0.5 m RSLR scenarios are given in tabulated form in the attached appendices for information only. It is recommended that neither are adopted for planning purposes, in keeping with Provincial guidance.

In addressing this task, the project team relied on a number of overarching local and international guidelines and best-practises. The Province of British Columbia and other professional associations such as Engineers & Geoscientists BC have a number of different publications that inform the methodology for assessing coastal flooding, and subsequently, influence development and emergency planning policy in the province. These publications were supplemented by U.S. Federal Emergency Management Agency (FEMA) approaches. A summary of the primary guidance documents consulted for this project are as follows:

- Amendment to Sections 3.5 and 3.6 of the Flood Hazard Land Use Management Guidelines.
- BC Ministry of Environment Guidelines for Management of Coastal Flood Hazard Land Use.
- BC Ministry of Forest, Lands, Natural Resource Operations and Rural Development Coastal Floodplain Mapping – Guidelines and Specifications.
- BC Ministry of Environment Sea Dike Guidelines.
- Professional Practice Guideline: Legislated Flood Assessments in a Changing Climate in BC v2.1 (EGBC).
- Flood Mapping in BC, APEGBC Professional Practice Guidelines v1.0 (EGBC, 2017).

All of these documents are inter-related and typically guide this type of project. In this report, these documents are collectively referred to as the 'Provincial Guidelines'.

SUMMARY OF TECHNICAL APPROACH FOR TASK 2 – SEA LEVEL RISE MODELLING & MAPPING

The primary objective of this Task was to assess and map the sea level rise (coastal storm) inundation and consequent FCLs for the project area. This was done using two distinct technical approaches for assessing coastal flood hazard:

- Transect (1D) analysis at 222 locations within the capital region.
- Detailed inundation (2D) modelling at five distinct low-lying locations with exposed populations.

Transect analysis involves extracting a one dimensional profile from the foreshore, perpendicular to the coastline, and estimating the expected total water level at that location (see **Section 3.3**) using numerical techniques.

Adding freeboard to the 0.5% AEP total water level (TWL) gives the Flood Construction Level for that particular location. The placement of each transect is intended to be representative of the immediate surrounding coastline. Therefore, the transect spacing density is greater in areas with higher population density and complex shorelines. This analysis is technically robust and is suitable when project scope and schedule does not allow for detailed inundation modelling throughout each reach.

Detailed inundation modelling was carried out in MIKE 21 HD FM (2D) software at five specific model domain locations (see **Section 3.5**):

1. Victoria Harbour
2. Oak Bay - McNeill Bay
3. Saanich - Cadboro Bay
4. Sidney - Ferry Terminal
5. Sidney - Roberts Bay

These areas were selected on the basis of their low-lying topography, potential susceptibility to coastal inundation and their relatively high population density. It was decided to only simulate the flood associated with the 0.5% AEP for all four RSLR scenarios in each area, thus yielding a total of 20 model simulations. This will help local governments and project stakeholders get a better sense of potential inundation extents for the 200-year provincial flood standard. It is important to note that FCL values presented herein are based on 1D transect analysis, even where detailed 2D local surge analysis was completed.

This project used an adapted form of the 'Probabilistic Method' from the aforementioned *Amendment to Section 3.5 and 3.6 of the Flood Hazard Land Use Management Guidelines* to estimate the total water levels for the four RSLR scenarios, for all five annual exceedance probabilities (see **Section 2.2**). More specifically, a continuous hindcast simulation approach was used by the project team. This accounts for the joint probability of occurrence of all the different processes contributing to coastal flooding: sea level rise, tide, local and regional surge and wave effects (setup and runup). This project's probabilistic methodology is consistent with other detailed studies carried out in the Province and allows for direct comparison against observed, 'real-world' flood events (see **Section 3.4**).

Tides, wind setup (local surge), storm surge, wave conditions and wave effects were continuously hindcast on an hourly basis over a period of 40 years by a combination of measurements (whenever available) and model results (when needed). RSLR was applied directly. The resultant time series of total water levels was used as input to extreme value analyses (EVA) to determine the 10%, 5%, 2%, 1% and 0.5% AEP total water levels. Freeboard was then added to the 0.5% AEP values to give appropriate FCLs at each location. A graphical depiction of the methodology is shown below:

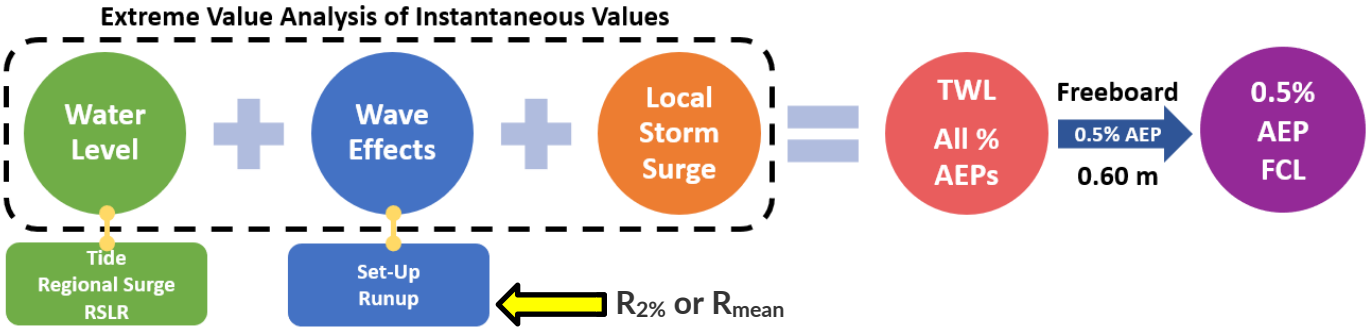

Figure ES-1
Project Methodology for the Estimation of Total Water Level and the Flood Construction Level

At each transect, two distinct FCL values were calculated for each RSLR scenario; an FCL derived using mean wave runup (R_{mean}) and an FCL derived using 2% wave runup ($R_{2\%}$). The $R_{2\%}$ FCL is always higher than R_{mean} as it is estimated using a larger wave effect contribution only exceeded by 2% of waves; it is the recommended wave effect value for establishing FCLs in an exposed coastal setting in BC, as per the *BC Ministry of Environment Sea Dike Guidelines*. However, wave effects are typically constrained to a relatively narrow strip along the foreshore, where waves runup, overtop and splash. This is referred to as the 'splash zone', or for the purposes of this report, the **'Primary Wave Effect Zone'**. $R_{2\%}$ FCL values are higher if the foreshore is particularly steep, or if there is some form of structure such as a pier or seawall which can direct the waves to 'shoot' upwards, resulting in spray and splash. The vertical rise of the wave impact incorporated into the $R_{2\%}$ FCLs can result in elevations much higher along the foreshore compared to that experienced in setback areas. The application of the $R_{2\%}$ FCL along the entire transect would consequently result in a conservative representation of flood hazard in backshore areas. As such, FCL values in the Primary Wave Effect Zone are based on $R_{2\%}$ values whereas FCL values in the backshore are based on R_{mean} values. Further details are given in Section 3.3.

KEY FINDINGS & RECOMMENDATIONS

- The majority of the capital region's coastline rises rapidly, such that the general risk of extensive inundation is low. However, low-lying areas in the region are susceptible to coastal storm flooding – the extents of which are set to increase due to sea level rise.
- The low-lying areas chosen for detailed 2D inundation modelling show increasing vulnerability to coastal flooding as mean sea levels increase. In particular, McNeill Bay is acutely affected in the 2.0 m RSLR scenario, with substantial flow routes developing from the north and south (see Appendix E).
- The Flood Construction Levels presented herein differ in comparison to previously established levels and studies completed in the capital region (see **Section 6.4**). This difference can be attributed to the following:
  - Differences in project scope and objectives;
  - Differences in the application of the Provincial Guidelines and engineering assumptions required to estimate resultant FCLs. These assumptions can include target return period, transect placement and density, wave modelling methodology etc.
- FCL values at each reach have been provided for 2% wave runup ($R_{2\%}$) and mean wave runup (R_{mean}). It is proposed that $R_{2\%}$ FCLs are applied to the foreshore area, an approximately 30 m wide strip measured inland from the 0.5% AEP SWL (still water level) contour (i.e. within the Primary Wave Effect Zone; for each RSLR scenario). Beyond that strip, FCL values can be relaxed to R_{mean} or existing ground (whichever is greater), to reflect wave dissipation before reaching the backshore. The 1 m RSLR 0.5% AEP SWL contour is used as the

elevation to define the start of the Primary Wave Effect Zone as it is anticipated that the coastline's Natural Boundary will change as sea levels increase due to climate change.

- While the selection of FCLs is the responsibility of each local government, this report provides recommendations on selecting appropriate FCLs in a tsunami-prone region, depending on if sea level rise or tsunami risk governs at that particular transect location (see **Section 6.5**). Average and 95%'ile statistics have been calculated from the $R_{2\%}$ FCL results and are presented in the table below for RSLR flooding (see **Section 4.3**). This table illustrates how FCLs at the foreshore can vary significantly within a particular municipality and adoption of a blanket value per municipality would not necessarily be appropriate.

Table ES-2

Summary of 95%'ile Flood Construction Levels broken down by local government/electoral area ($R_{2\%}$ FCL)

Local Government/ Electoral Area	0.0 m RSLR FCL (m CGVD2013)		0.5 m RSLR FCL (m CGVD2013)		1.0 m RSLR FCL (m CGVD2013)		2.0 m RSLR FCL (m CGVD2013)	
	Ave.	95%ile	Ave.	95%ile	Ave.	95%ile	Ave.	95%ile
Central Saanich	4.13	6.49	4.64	7.00	5.14	7.50	6.14	8.51
Colwood	3.75	4.47	4.25	4.97	4.75	5.48	5.75	6.49
Esquimalt	5.17	7.81	5.69	8.32	6.19	8.83	7.21	9.85
Highlands	5.09	6.28	5.59	6.78	6.09	7.28	7.11	8.29
Juan de Fuca Electoral Area	5.03	8.03	5.53	8.53	6.03	9.03	7.04	10.04
Langford	2.76	2.76	3.27	3.27	3.77	3.77	4.83	4.83
Metchosin	5.30	9.70	5.81	10.22	6.32	10.74	7.33	11.76
North Saanich	4.56	7.09	5.08	7.62	5.59	8.13	6.59	9.14
Oak Bay	5.70	8.19	6.33	8.70	6.98	9.22	8.41	11.25
Saanich	4.61	6.90	5.15	7.41	5.68	8.33	6.69	9.38
Salt Spring Electoral Area	4.53	6.94	5.03	7.45	5.53	7.95	6.53	8.95
Sidney	4.74	6.62	5.38	7.65	6.05	8.85	7.37	11.34
Sooke	4.20	8.12	4.81	9.20	5.51	10.78	6.89	13.86
Southern Gulf Islands Electoral Area	5.30	9.10	5.80	9.59	6.32	10.08	7.32	11.06
Victoria	5.28	8.41	5.84	9.23	6.34	9.77	7.34	10.79
View Royal	3.12	3.66	3.64	4.22	4.15	4.78	5.19	5.91

- Further work should include increasing the number of detailed (2D or 3D) inundation model domains to include exposed areas such as Port Renfrew, Sooke and other relatively low-lying locations to help improve

understanding of potential flood risk. The proposed FCLs contained within this report will be helpful when informing municipalities' development strategies.

However, the detailed inundation models are able to provide additional spatial information including locally-specific flood depths and velocities. This would supplement the total water level information at each transect (see **Section 6.6**).

USES & LIMITATIONS

This project builds upon previously completed coastal inundation studies for the capital region and a number of its member local governments. Detailed probabilistic analyses were completed to determine the potential impacts of sea level rise inundation. The proposed 200-year (0.5% AEP) Flood Construction Levels (FCLs) contained herein were produced to provide each constituent local government, First Nations community and interested stakeholder with a comprehensive picture of flood hazard at their particular coastline location. However, the ultimate responsibility to establish FCLs and hazard assessment areas for development lies with each constituent local government.
The primary purpose of this project is to equip decision makers with the information necessary to make informed decisions.

TABLE OF CONTENTS

SECTION			PAGE NO.
Executive Summary			i
Table of Contents			vii
List of Tables			x
List of Figures			xi
Glossary			xiii
1	Introduction		1-1
	1.1	Project Background	1-1
	1.2	Study Area	1-3
2	Sea Level Rise Modelling - Methodology		2-1
	2.1	Provincial Context	2-1
	2.2	Selection of Flood Construction Level Method	2-2
		2.2.1 Provincial Methods	2-2
		2.2.2 FEMA 'Response-Based' Method	2-3
	2.3	Project Methodology Overview	2-4
	2.4	Analytical Inputs	2-6
		2.4.1 Sea Level Rise	2-6
		2.4.2 Local Storm Surge	2-10
		2.4.3 Tidal Record	2-12
		2.4.4 Wind Data	2-14
		2.4.5 Summary of Information Reviewed	2-18
3	Sea Level Rise Modelling - Analysis		3-1
	3.1	Wave Modelling	3-1
		3.1.1 Wave Model Preparation	3-2
		3.1.2 Wave Model Calibration/Validation	3-9
		3.1.3 Wave Model Simulations and Results	3-11
	3.2	Local Surge Analysis	3-12
	3.3	Transect Analysis	3-12
		3.3.1 Transect Analysis – An Overview	3-12
		3.3.2 Transect Analysis – Wave Effects Estimation	3-14
		3.3.3 Transect Analysis – Limitations of Use	3-16
		3.3.4 Transect Analysis – Wave Runup & FCL Mapping Approach	3-17
		3.3.5 Transect Analysis – Extreme Value Analysis (EVA)	3-22
	3.4	Validation of the Hindcast Record	3-23
		3.4.1 Coburg Peninsula & Ocean Boulevard	3-23

3.4.2 Dallas Road 3-25
3.4.3 McNeill Bay 3-27
3.4.4 Cordova Bay Park 3-28
3.4.5 Sidney Fishing Pier 3-29
3.4.6 Otter Bay Ferry Terminal (North Pender Island) 3-30
3.4.7 Validation Conclusions 3-31
3.5 Detailed Inundation Modelling 3-31
3.5.1 Model Mesh and Bathymetry 3-33
3.5.2 Floodplain Roughness Representation 3-38
3.5.3 Boundary Conditions 3-40
3.5.4 Length of Simulation Period 3-41
4 Task Results & Mapping 4-1
4.1 Reported Results 4-1
4.2 GIS Deliverables 4-2
4.3 Results Summary 4-3
4.3.1 Flood Construction Levels 4-3
4.3.2 Detailed Inundation Modelling Results 4-4
4.3.3 Comparison Between Flood Construction Levels and Detailed Inundation Model Results 4-9
4.3.4 FCL Contour Lines 4-10
5 Intertidal Risk Assessment 5-1
5.1 Methodology Overview 5-1
5.2 Identification of Hazards 5-1
5.2.1 Intertidal Zones 5-1
5.2.2 Ecosystem and Cultural Site Inventory 5-3
5.3 Results 5-4
5.3.1 Terrestrial Ecosystem Intertidal Zone Maps 5-4
5.3.2 Documented Archaeological and Historical Area Heat Maps 5-5
6 Conclusions 6-1
6.1 Summary of Methodology to Derive FCLs 6-1
6.2 Commentary on Provincial Guidelines 6-2
6.3 Coastal Storm Flooding Risk in the Capital Region 6-3
6.4 Comparison with Previous SLR and FCL Studies 6-3
6.4.1 2017 District of North Saanich Flood Construction Levels for 0.5 m and 1.0 m Sea Level Rise Report 6-4
6.4.2 2015 Capital Regional District Coastal Sea Level Rise Risk Assessment 6-4
6.5 Flood Construction Level Policy 6-5
6.6 Recommendations for Further Analysis 6-10
References

Certification Page
Appendix A –Spectral Wave Model Validation Results
Appendix B – Flood Construction Level Results
Appendix C – Flood Construction Level Mapping
Appendix D - Total Water Level (TWL) Results
Appendix E - Detailed Inundation Mapping
Appendix F - Relative Sea Level Rise (RSLR) Inundation Mapping
Appendix G – Still Water Levels (SWL) Results
Appendix H - Intertidal Risk Analysis - Sensitive Ecosystem Inventory Area Mapping
Appendix I - Intertidal Risk Analysis - Potential for the Presence of Archaeological and Historic Sites Vulnerable to Intertidal Change Mapping
Appendix J - Datum Conversion

LIST OF TABLES

PAGE NO.

Table 1-1 Probabilities Selected for Analysis 1-2
Table 2-1 Coastal Model Input and Calibration Data 2-18
Table 3-1 Spectral Wave Calibration Periods 3-9
Table 3-2 Validated Spectral Wave Model Parameters 3-10
Table 3-3 Land Use Codes, Typical Manning's n and Adopted Values of Manning's M 3-39
Table 4-1 Summary of 95%'ile Flood Construction Levels Broken Down by Local Government/Electoral Area ($R_{2\%}$ FCL) 4-3
Table 5-1 Tidal Elevations (referenced to m CGVD2013) 5-2
Table 5-2 Potential Area of Sensitive Ecosystems at Risk in the Intertidal Zone 5-4
Table 6-1 Comparison of 1m RSLR ($R_{2\%}$) "Foreshore" FCLs and CSZ-NS Maximum Water Surface Elevations 6-9

LIST OF FIGURES

PAGE NO.

Figure 1-1 Overview of Task 2 Workflow 1-3
Figure 1-2 Study Area 1-4
Figure 1-3 First Nations Map 1-5
Figure 2-1 Provincial Probabilistic Method for the Derivation of Flood Construction Levels 2-4
Figure 2-2 Task 2 Analysis Methodology 2-5
Figure 2-3 NASA Satellite Data for Observed Sea Level 2-6
Figure 2-4 Recommended Global Sea Level Rise Curve for Planning and Design in BC (Figure 1, BC MoE 2017) 2-8
Figure 2-5 Coastal Storm Flooding Schematic 2-11
Figure 2-6 Reference Tide Levels at a Coastal Location 2-12
Figure 2-7 Example Water Level Time Series from Project Area 2-13
Figure 2-8 Wind Rose Plot for Victoria Gonzales 2-15
Figure 2-9 Wind Rose Plot for Halibut Bank 2-16
Figure 2-10 Wind Rose Plot for New Dungeness 2-17
Figure 3-1 Spectral Wave Modelling Process 3-2
Figure 3-2 MIKE 21 Spectral Wave Model Domain 3-3
Figure 3-3 Mesh Definition Within the MIKE 21 SW Model Domain 3-4
Figure 3-4 Extraction of Global Wave Parameter Data at the Domain Boundary 3-5
Figure 3-5 2D Wind Map Input Data Areas and Stations 3-7
Figure 3-6 2D Water Level Grid Input Data Areas and Stations 3-8
Figure 3-7 Dungeness Bay Buoy Calibration Plot for Period p01 3-11
Figure 3-8 Typical Coastal Transect Configuration 3-13
Figure 3-9 Example of Transect and Associated Profile 3-14
Figure 3-10 Example of Shore Zone Oblique imagery used in reach review 3-17
Figure 3-11 Recommended application of FCLs at Capital Region Coastline 3-18
Figure 3-12 Example Application of R2% and Rmean FCLs 3-19
Figure 3-13 2011 Guidelines for Management of Coastal Flood Hazard Land Use – Definition of Estimated Natural Boundary (Figure 2-2) 3-21
Figure 3-14 Frequency-Response Curve for Transect 052, RSLR 1.0 m 3-22
Figure 3-15 Existing topography at Colwood Waterfront and Coburg Peninsula 3-23
Figure 3-16 Post Dec. 12, 2015 event photograph of Coburg Peninsula (Photo credit: Linda Gower) 3-24
Figure 3-17 Hindcast Results for Dec. 12, 2015 Event at Ocean Blvd. and Coburg Peninsula, Colwood 3-25
Figure 3-18 Oct. 14, 2016 event at Dallas Road 3-26
Figure 3-19 Hindcast results for Nov. 17, 2015 and Oct.14, 2016 events along the seawall at Dallas Road near Pilot Street 3-27
Figure 3-20 Hindcast results for Dec. 12, 2015 event at McNeill Bay 3-28
Figure 3-21 Location of Cordova Bay Park Validation Transect 3-28
Figure 3-22 AE's hindcast results for Nov. 24, 2011 at Cordova Bay Park 3-29
Figure 3-23 Location of additional validation event (Dec. 12, 2015) at Sidney Fishing Pier 3-29
Figure 3-24 AE's hindcast results for Dec. 12, 2015 event at Sidney Fishing Pier 3-30
Figure 3-25 Location of Otter Bay Dec. 20, 2018 validation event 3-30
Figure 3-26 AE's hindcast results for Dec. 20, 2018 event at Otter Bay, North Pender Island 3-31

Figure 3-27 Local Areas Selected for Detailed Inundation Modelling 3-32
Figure 3-28 Model Bathymetry for Local Area Victoria Harbour 3-34
Figure 3-29 Model Bathymetry for Local Area McNeill Bay 3-35
Figure 3-30 Model Bathymetry for Local Area Cadboro Bay 3-36
Figure 3-31 Model Bathymetry for Local Area Sidney Ferry Terminal 3-37
Figure 3-32 Model Bathymetry for Local Area Sidney Roberts Bay 3-38
Figure 3-33 Map of Manning's M Values for Cadboro Bay Area 3-40
Figure 3-34 Time Series of Water Levels Applied at the Open Boundary of the Detailed Hydrodynamic Model of Sidney Roberts Bay for Different RSLR Scenarios. the Original Record is Shown in Black for Reference 3-42
Figure 4-1 Maximum Extent and Depth of Flooding in Local Area Victoria Harbour for 0.0 m RSLR Scenario. AEP = 0.5% 4-5
Figure 4-2 Maximum Extent and Depth of Flooding in Local Area McNeill Bay for 0.0 m RSLR Scenarios. AEP = 0.5% 4-6
Figure 4-3 Maximum Extent and Depth of Flooding in Local Area Cadboro Bay for 0.0 m RSLR Scenarios. AEP = 0.5% 4-7
Figure 4-4 Maximum Extent and Depth of Flooding in Local Area Sidney Ferry Terminal for 0.0 m RSLR Scenarios. AEP = 0.5% 4-8
Figure 4-5 Maximum Extent and Depth of Flooding in Local Area Sidney Roberts Bay for 0.0 m RSLR Scenarios. AEP = 0.5% 4-9
Figure 4-6 Example of FCL Contour Lines 4-11
Figure 6-1 Recommendations for Flood Construction Level Practises in the Capital Region, as per BC MoE 2017 6-5
Figure 6-2 Decision Tree for Establishment of FCLs in the Capital Region 6-8
Figure 6-3 Example of an Infrastructure Risk Analysis Heat Map 6-12
Figure 6-4 Example of Depth-Damage Curve 6-13
Figure 6-5 Example of using a risk assessment to inform investment decisions 6-14

GLOSSARY

AE	Associated Engineering	
AEP	Annual Exceedance Probability	The probability of a specific event occurring, or being exceeded, in any given year. The statistical equivalent to the concept of 'return period': • 10% AEP = 1:10-year return period • 5% AEP = 1:20-year return period • 2% AEP = 1:50-year return period • 1% AEP = 1:100-year return period • 0.5% AEP = 1:200-year return period
CD	Chart Datum	The local datum for oceanographic measurements (e.g. tides) at a specific location, port or harbour.
CRD	Capital Regional District	The regional government for 13 local governments and 3 electoral areas on southern Vancouver Island and the Gulf Islands. CRD refers to the government entity, while 'capital region' refers to the geographical area.
CGVD1928	Canadian Geodetic Vertical Datum 1928	Vertical elevation reference system, which is to be superseded by CGVD2013.
CGVD2013	Canadian Geodetic Vertical Datum 2013	Vertical elevation reference system, which supersedes CGVD1928.
CHS	Canadian Hydrographic Service	
CSRS	Canadian Spatial Reference System	
CSZ	Cascadia Subduction Zone	
DEM	Digital Elevation Model	
DFL	Designated Flood Level	Total sea level for a given return period, including sea level rise allowance, tide and storm surge (and excluding wave effects).
DS	Designated Storm	
DTM	Digital Terrain Model	
ECCC	Environment and Climate Change Canada	
FCL	Flood Construction Level	As per Provincial Guidelines, defined as the underside elevation of a wooden floor system, or the top elevation of a concrete slab, for habitable buildings.
FCRP	Flood Construction Reference Plane	Total sea level (tides, surge and waves) event having a 200-year return period.
FEMA	Federal Emergency Management Agency	
GIS	Geographic Information Systems	
HAT	Habitat Acquisition Trust	
HHWLT	Higher High-Water Large Tide	The average of the annual highest tides (AMAX series) over the 18.6-year tide cycle.

HHWMT	Higher High-Water Mean Tide	The average from all the higher high waters from a 18.6-year tide cycle.
H_{m0}	Significant wave height	The average height of the one-third highest waves of a given wave group.
IPCC	UN Intergovernmental Panel on Climate Change	
LiDAR	Light Detection and Ranging	
LLWLT	Lower Low Water Large Tide	The average of the lowest low waters, one from each a 18.6 year tide cycle.
MFLNRORD	BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development	
MWD	Mean wave direction	
MWL	Mean Water Level	The average of all hourly water levels over the available period of record.
NAD83	North American Datum of 1983	
NOAA	National Oceanic and Atmospheric Administration	
PAR	Population at Risk	
PWD	Peak wave direction	
$R_{mean}/\bar{R}$	Mean wave runup	
$R_{2\%}$	2% wave runup	
ROI	Return on Investment	
RSLR	Relative Sea Level Rise	RSLR is an absolute increase in mean sea level, incorporating the effects of land subsidence or uplift.
SEI	Sensitive Ecosystem Inventory	
SLR	Sea Level Rise	Sea level rise is the increase in mean sea level without incorporating an adjustment due to local land subsidence or uplift.
T_{02}	Zero-crossing wave period	
T_p	Peak wave period	
SWL	Still Water Level	Total sea level for a given return period, including sea level rise allowance, tide and storm surge; analogous to the DFL for 0.5% AEP.
TWL	Total Water Level	Total sea level (tides, surge and waves) for a given return period.
UTM	Universal Transverse Mercator	

1 INTRODUCTION

1.1 Project Background

Associated Engineering (AE), DHI Water & Environment Inc. (DHI) and Westmar Advisors (Westmar) were appointed by the Capital Regional District (CRD), as per an agreement executed on August 8, 2019, to undertake the "Capital Region Coastal Flood Inundation Mapping Project"; hereafter referred to as the "project" or the "study". The CRD is the regional government that includes 13 local governments and three electoral areas on southern Vancouver Island and the Gulf Islands. The term 'capital region' refers to the specific geographic area within the CRD's jurisdictional boundaries. These definitions are used throughout this report.

The project includes the overarching tasks summarised below:

- **Background Data Collection:** Gathering the available historic reports, analyses and geospatial data.
- **DEM Development:** Creation of a digital elevation model that can be used in hydraulic models to simulate coastal flooding.
- **Sea Level Rise (SLR) Flooding Analysis:** Development of proposed coastal flood construction levels (FCLs) for the capital region using transect (1D) analyses. Development of detailed (2D) inundation modelling in select locations, to increase understanding of potential flood depths, extents, routes etc.
- **Tsunami Source Identification:** Review of available scientific literature and analyses to select appropriate tsunami-generating sources for modelling.
- **Tsunami Modelling:** Development of hydraulic models that can simulate tsunami wave propagation from source to inundation of the coast.
- **Mapping & Reporting:** Summarising the significant volume of technical work completed into concise reporting, accompanied by inundation and proposed Flood Construction Level (FCL) mapping for the entire project area.

The purpose of this report is to describe the coastal flood modelling approach, methodology[1], and results of the Sea Level Rise Modelling and Mapping (Task 2) and to describe how this information can be used to establish FCLs along the coastline of the capital region. In addition, the 'Project Digital Elevation Model' (DEM) is a major input to the sea level rise modelling and mapping. For further information on how the Project DEM was created, refer to Task 1 (DEM Development Report).

Version 2.0 of this Sea Level Rise Modelling and Mapping Report replaces the previous Version 1.0 report, published in June 2020. The project team and the CRD have produced an FAQ memo for municipal partners that summarises the key differences between each Version.

The results of the study include inundation mapping for total water levels (TWL) including tides, surge and waves and FCL values for the 0.5% Annual Exceedance Probability (AEP), for four relative sea level rise scenarios (RSLR) including 0.0 m, 0.5 m, 1.0 m, 2.0 m. These RSLR scenarios have not been formally assigned an expected 'year of occurrence' (i.e. 1.0 m at the year 2100).

[1] This report follows the procedures agreed upon in the Finalized Project Methodology Technical Memorandum, submitted to the CRD in December 2019 (Associated Engineering, 2019).

\\ae.ca\data\projects\van\2019\2676\00_CoastFloodTsunami\Engineering\03.02_Conceptual_Feasibility_Master_Plan_Report\2.0 SLR Report\version 2.0\rpt_crd_task 2_slr modelling_20211020.docx

However, guidance is given in **Section 2.4.1** on potential time-horizons based on Provincial guidance. TWLs were estimated for the following probabilities or return periods, using the aforementioned RSLR values:

Table 1-1
Probabilities Selected for Analysis

Return Period (year)	10	20	50	100	200
Annual Exceedance Probability (AEP)	10%	5%	2%	1%	0.5%

The methodology for the completion of Task 2 - Sea Level Rise Modelling and Mapping is summarized by the following major work-items which is shown graphically in **Figure 1-1**.

- Obtained and reviewed coastal and ocean data for model creation, simulation, calibration, and validation.
- Created a project Digital Elevation Model (DEM) surface comprised of the most recent coastal bathymetry and LiDAR data of the ground surface. This process is detailed in the Task 1 – DEM Development Report (Associated Engineering et al., 2020).
- Simulated 40 years of wave states for the Salish Sea using a spectral wave model (see Section 3.1).
- Estimated hourly coastal storm total water levels using a transect method along the entire capital region coastline for the same 40 years used for the wave hindcast, for a range of storm event probabilities (AEP 10%, 5%, 2%, 1%, 0.5%), across four RSLR scenarios (0.0 m, 0.5 m, 1.0 m, 2.0 m). The hourly estimates of water levels included contributions from tide, regional surge, wind setup (local surge) and wave effects (setup and runup) (see **Section 3.3**).
- Built detailed (2D) inundation models for several key areas with high population density and exposure (see **Section 3.5**).
- Produced coastal flood inundation maps using the results of the inundation models (see **Section 4** and **Appendix E**).
- Produced mapping summarizing the results of the transect analysis; providing proposed FCL values along the entire project coastline (see **Appendices B** and **C**).
- Outlined the approach based on Provincial Guidelines for setting proposed Flood Construction Levels (FCLs), including a discussion of incorporating tsunami hazards (see **Section 6.5**). Results of the detailed tsunami modelling study are included in a separate report titled Task 3 – Tsunami Modelling and Mapping Report (Associated Engineering et al., 2020).

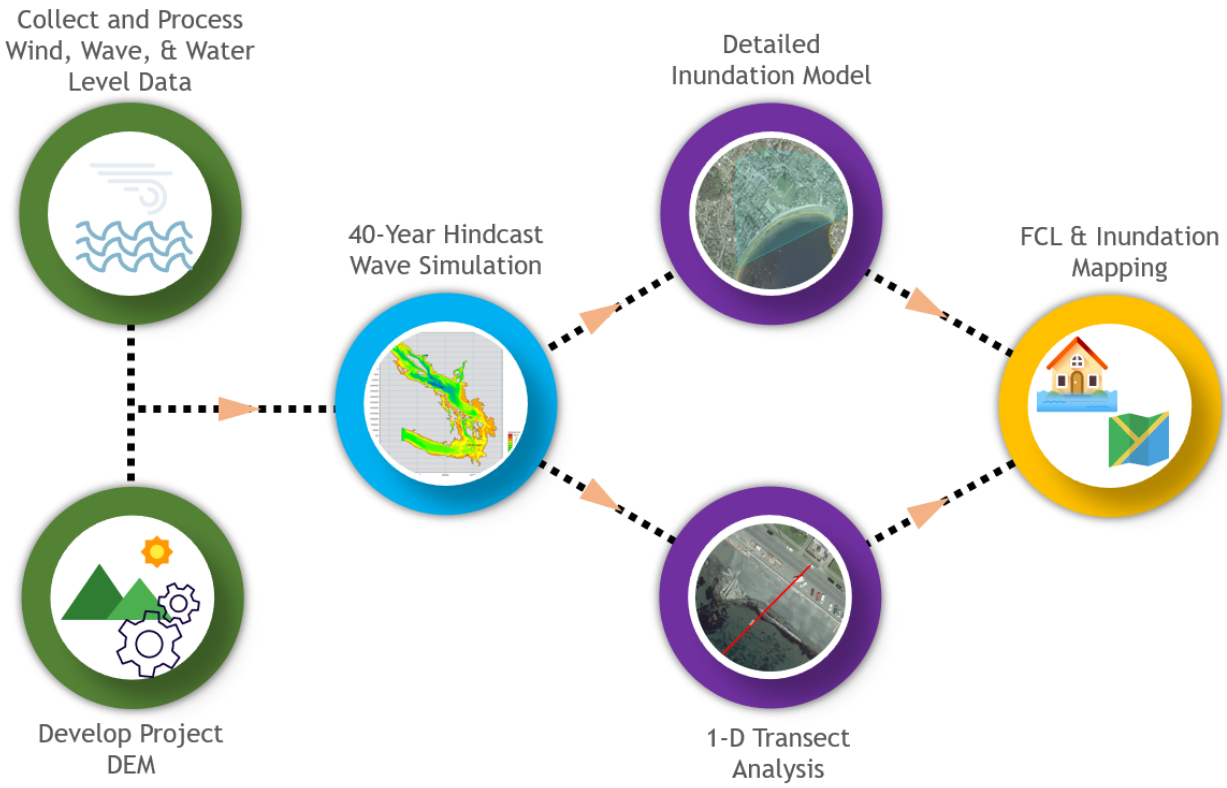

Figure 1-1
Overview of Task 2 Workflow[2]

All deliverables produced for this project are referenced to Canadian Geodetic Vertical Datum 2013 (CGVD2013), unless otherwise stated. Readers of this report may be more familiar with the long-established CGVD28 vertical datum. However, this is currently being phased out in favour of the CGVD2013 datum. Refer to **Appendix J** for a more detailed explanation and further reference sources.

1.2 Study Area

The capital region is located on southern Vancouver Island, with an area of approximately 4,900 km^2. The study's approximately 1,300 km long coastline is bounded by Juan de Fuca Strait to the south-west, Haro Strait to the east and the Strait of Georgia to the north-east. The study area is shown in **Figure 1-2**. There are many First Nations communities and lands within the capital region boundaries, as shown in **Figure 1-3**. The capital region also shares an international boundary with the US State of Washington.

The study area includes the Gulf Islands, of which, Salt Spring Island, Galiano Island, Saturna Island, Mayne Island, North Pender Island and South Pender Island are most notable. Significant population centres of the study area include Victoria and its immediate environs; Saanich, Sidney, Ganges and Sooke.

[2] Icons made by Freepik, SmashIcons and FreeIcons from www.flaticon.com and freeicons.io

The study coastline is extremely complex, varying between steep rocky bluffs, gently sloping beaches and urban marinas/waterfronts. It has many coastal settings with varied exposures and beach composition (shingle, gravel, sand, and silt), estuaries, lagoons, and coves, to name a few. The coastline is well developed, particularly in its eastern extents, with numerous private residences, tourist amenities, commercial industries, transportation facilities and military installations.

The study area is affected by coastal processes originating in the Pacific Ocean and propagating into the study area through Juan de Fuca Strait, as well as locally within the Strait of Georgia. These processes include large tidal variations and ocean swell. Local strong winds can generate moderate local wind waves and storm surge within both straits. The study area is also affected by potential tsunami hazards, including those generated in the areas described below:

- Locally within the Strait of Georgia, Juan de Fuca Strait and the Puget Sound,
- By a major earthquake within the Cascadia Subduction Zone,
- And from other parts of the Pacific Ocean (e.g. Alaska.)

350000E
400000E
450000E
500000E
5400000N
5350000N

N

Salt Spring Island Electoral Area
Southern Gulf Islands Electoral Area
North Saanich
Central Saanich
Sidney
Highlands
Juan de Fuca Electoral Area
Saanich
View Royal
Langford
Sooke
Oak Bay
Victoria
Colwood
Esquimalt
Metchosin

0 10 20 30 40 50 km

Coastal Flood Inundation Mapping Project

Figure 1-2
Study Area

Location



Legend
Project Study Area

Project No. 20192676

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350000E
400000E
450000E
500000E
5400000N
5350000N

N

COLE BAY 3
SENANUS ISLAND 10
SOUTH SAANICH 1
UNION BAY 4
EAST SAANICH 2
NEW SONGHEES 1A
ESQUIMALT
GOLDSTREAM 13
CHATHAM ISLANDS 4
DISCOVERY ISLAND 3
GORDON RIVER 2
PACHEENA 1
T'SOU-KE 1
T'SOU-KE 2
BECHER BAY 1
LAMB ISLAND 5
FRASER ISLAND 6
VILLAGE ISLAND 7
BECHER BAY 2
WHALE ISLAND 8
LONG NECK ISLAND 9

1
2
3
4
5
6
7
8

0 10 20 30 40 50 km

Coastal Flood Inundation Mapping Project

Figure 1-3

Location



Project No. 20192676

Legend

Island Reserve Lands

1 TWIN ISLAND
2 MAYNE ISLAND
3 FULFORD HARBOUR
4 SATURNA ISLAND
5 PENDER ISLAND
6 BARE ISLAND
7 HALKETT ISLAND NO. 2 (DEADMAN'S ISLAND)
8 GALIANO ISLAND

Reserve Lands

CRD Boundary

Making a difference...together

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2 SEA LEVEL RISE MODELLING - METHODOLOGY

The following section describes the technical framework and provincial guidance that drove the analysis for Task 2 of this project. At the outset of this section, it is important to note the following:

- The scope of the Capital Region Coastal Flood Inundation Mapping Project enabled the project team to undertake computationally-intensive, long-term hindcasting of the offshore sea-state, as described in subsequent sub-sections.
- Task 2 is referred to as Sea Level Rise Modelling and Mapping, as per the terms of the original RFP. However, sea level rise is not necessarily the primary driver of coastal flood inundation. Flooding is usually driven by coastal storms, with accompanying extreme waves, tide and surge; with the risk of flooding for a given storm event increasing with sea level rise. Therefore, engineering professionals prefer to use the terminology 'coastal storm flooding', rather than 'sea level rise flooding', as sea level rise is only one component of what causes coastal inundation (see **Section 2.4**). However, for consistency, this project has retained the 'Sea Level Rise Modelling and Mapping' nomenclature.

2.1 Provincial Context

Sea level rise flooding and the risks it presents to the province is not a new phenomenon. The processes by which flooding occurs are generally well-understood, with some components being **deterministic** and others **probabilistic**. For example, astronomical tides are deterministic as the gravitational effects that produce them can be predicted.

The Province of British Columbia has a number of different publications that inform the analysis of coastal flooding, and subsequently, influence development and emergency planning policy in the province. These documents are as follows:

- Amendment to Section 3.5 and 3.6 of the Flood Hazard Land Use Management Guidelines (BC Ministry of Forests, Land and Natural Resource Operations and Rural Development, 2017).
- BC Ministry of Environment Guidelines for Management of Coastal Flood Hazard Land Use (Ausenco Sandwell, 2011).
- BC Ministry of Forest, Lands, Natural Resource Operations and Rural Development (FLNRORD) Coastal Floodplain Mapping – Guidelines and Specifications (Kerr Wood Leidal, 2011).
- BC Ministry of Environment (MoE) Sea Dike Guidelines (Ausenco Sandwell, 2011).
- Professional Practice Guideline: Legislated Flood Assessments in a Changing Climate in BC v2.1 (EGBC).
- Flood Mapping in BC, APEGBC Professional Practice Guidelines v1.0 (EGBC, 2017).

All of these documents are inter-related and typically guide this type of project. In this report, these documents are collectively referred to as the 'Provincial Guidelines'. Of these information sources, the primary resource for determining a community's flood risk (or flood construction level) and appropriate setbacks is the *Amendment to Section 3.5 and 3.6 of the Flood Hazard Land Use Management Guidelines* (hereafter referred to as 'BC MoE 2017').

The following terms are important to understand the information contained within the Provincial Guidelines: *Designated Storm*, *Designated Flood Level*, *Flood Construction Reference Plane* and *Flood Construction Level*.

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Designated Storm

The Designated Storm (DS) is defined as a storm, which may occur in any given year, of such a magnitude as to equal a storm having the designated annual exceedance probability (AEP). *BC MoE 2017* recommends adopting either the 0.5% AEP or 0.2% AEP storms, which then affects the corresponding Designated Flood Level and Flood Construction Reference Plane.

Designated Flood Level

The Designated Flood Level (DFL) is the design water level, accounting for tide, storm surge and sea level rise (but not wave effects). In the Provincial Guidelines' Probabilistic Method (see subsequent subsection), the DFL is derived using either a 200-year (0.5% AEP) or 500-year (0.2% AEP) estimate of tide and storm surge (the joint-probability aspect of tide and storm surge is inherent in a tide gauge's record), as well as an allowance for RSLR (either as an absolute value or tied to a particular time horizon). In this study, DFLs were determined for multiple specified values of RSLR. The term DFL is used interchangeably with still water level (SWL).

Flood Construction Reference Plane

The Flood Construction Reference Plane (FCRP) is the sum of the Designated Flood Level and the Estimated Wave Effect. The Estimated Wave Effect is the total increase in water level as a result of static and dynamic wave effects as waves travel ashore for that particular Designated Storm. This study used different specified values of RSLR (rather than an allowance for SLR in a selected year) in determining the DFL and the FCRP (see **Section 2.4.1**). The FCRP term can be used interchangeably with total water level (TWL), when it specifically refers to the 0.5% AEP event. The FCRP plus an allowance for freeboard yields the Flood Construction Level (FCL) for a particular reach.

Freeboard

Freeboard is a vertical distance, typically 600 mm, added to the FCRP (0.5% AEP total water level) to derive the Flood Construction Level. The purpose of the freeboard value is to account for statistical uncertainty in the underlying data and analysis.

Flood Construction Level

The Flood Construction Level (FCL), as defined by the Provincial Guidelines, is the FCRP plus an allowance for freeboard. The FCL can be estimated for either 200-year (0.5% AEP) or 500-year (0.2% AEP) events, depending on the intended application, consequences and uncertainty in the analysis. In this project, the selected level of service was 0.5% AEP, with a corresponding 600 mm freeboard.

2.2 Selection of Flood Construction Level Method

2.2.1 Provincial Methods

The Provincial Guidelines include two prescribed approaches that engineering professionals can use to estimate FCL values at locations of interest: the 'Combined Method' and the 'Probabilistic Method'. These methods are described below.

Combined Method

This method 'stacks' extreme estimates of each coastal flooding component on top of each other for a target probability or return period to derive the FCL of interest. FCLs are calculated as follows:

FCL = Higher High-Water Large Tide (HHWLT) + DS Surge + DS Wave Effects + Freeboard

This is a technically robust and acceptable approach to estimate FCLs. However, this method can result in conservative FCL values due to the compounding of extreme probabilities for each component. For example, the joint probability of HHWLT, plus a 0.5% AEP storm surge, plus 0.5% AEP wave effects all occurring at exactly the same time has a probability of occurrence more remote than the originally targeted 0.5% AEP. As such, scope, schedule and data availability-permitting, engineering professionals tend to select the 'Probabilistic Method' to reduce undue conservatism.

Probabilistic Method

The Probabilistic Method relies on the joint-probability of tides and surge occurring concurrently, with the target joint probability being set at the 0.5% AEP DFL. This is possible as tide gauges typically capture the astronomically-driven tides and the meteorologically-driven surges as one recorded value. Similarly, long term numerical simulation that encompasses all components that contribute to coastal flooding can be used to complete extreme value analysis. This approach results in a less-conservative FCL than what would be typically calculated for the Combined Method. See **Figure 2-1** for a graphical depiction of the Probabilistic Method.

2.2.2 FEMA 'Response-Based' Method

The Probabilistic Method, as presented in *BC MoE 2017*, keeps the probability of wave effects and the DFL separate (i.e. not in the same probability calculation). Therefore, it is still not a true representation of the actual 200-year (0.5% AEP) event for that location. By incorporating wave effects into the joint-probability calculation, engineering professionals are able to derive a more representative estimate of the 0.5% AEP FCL. This approach, termed "response-based", is an adapted form of the Provincial Probabilistic Method and is advocated by the US Federal Emergency Management Agency (FEMA)[3][4] for coastal flood hazard analysis on the Pacific Coast. Notably, this type of probabilistic methodology is consistent with other detailed studies carried out in the Province of B.C. For most locations in the study area, the "response-based" method yielded a reduction in conservatism that was consistent with data availability and project scope. Further details are given in the subsequent sub-section.

It is important to note that the means by which wave effects are estimated (i.e. the formulae selected and the target runup) have considerable bearing on the final FCL values, as described in greater detail in **Section 3.3**.

[3] Guidance for Flood Risk Analysis and Mapping – Coastal General Study Considerations (FEMA). November 2019. https://www.fema.gov/sites/default/files/2020-02/Coastal_General_Study_Considerations_Guidance_Nov_2019.pdf
[4] Phase 1 Summary Report – Coastal Flood Hazard Analysis and Mapping (FEMA). February 2005. https://www.fema.gov/sites/default/files/2020-03/frm_psum.pdf

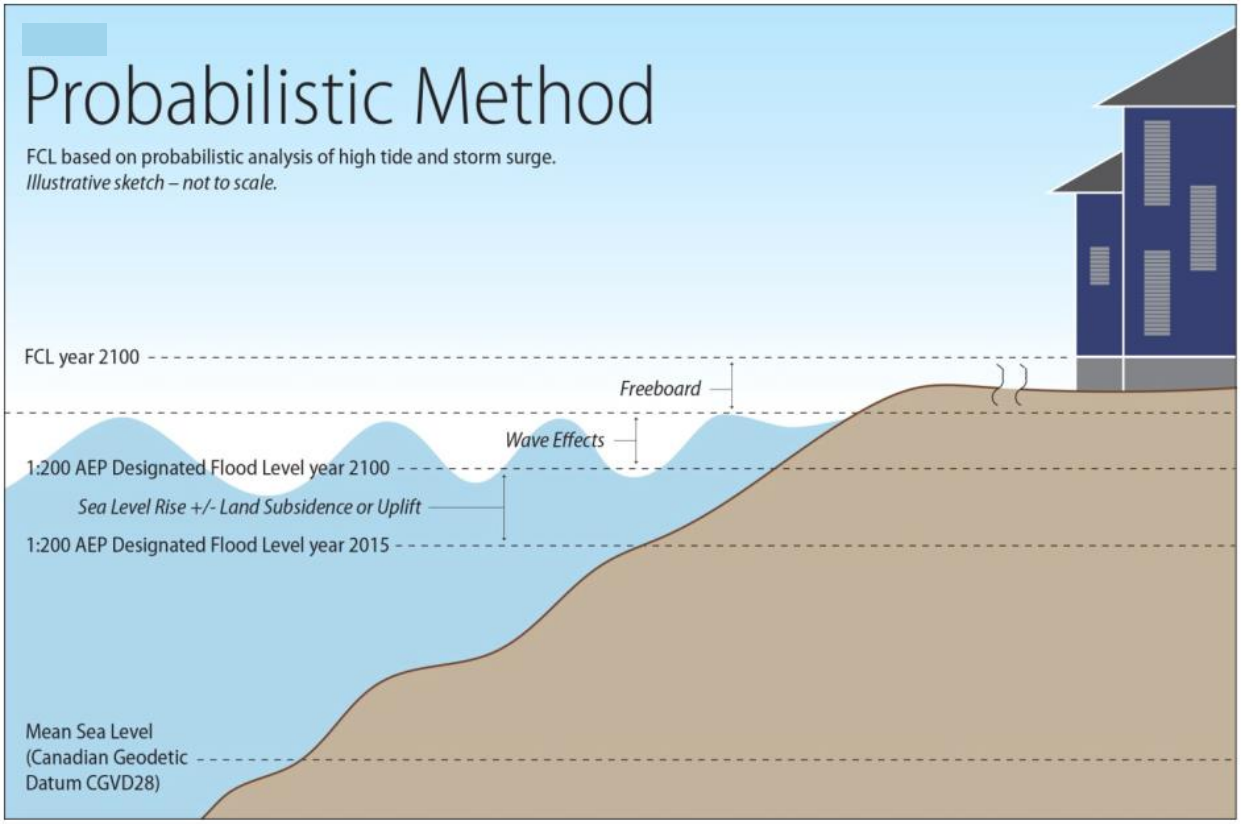

Figure 2-1
Provincial Probabilistic Method for the Derivation of Flood Construction Levels[5]

2.3 Project Methodology Overview

Figure 2-2 below provides details about the methodology that was adopted for estimating proposed FCLs in Task 2. Modelling of sea level rise flooding at selected transects was carried out using a continuous simulation approach which accounts for the joint probability of occurrence of all the different processes contributing to coastal flooding: relative sea level rise, tide, local and regional surge and wave effects (setup and runup).

Tides, wind setup (local surge), storm surge, wave conditions and wave effects were continuously hindcast on an hourly basis over a period of 40 years by a combination of measurements (whenever available) and model results (when needed). Relative sea level rise was applied directly. The resulting time series of total water levels were used as input to extreme value analyses (EVA) to determine the 10%, 5%, 2%, 1% and 0.5% Annual Exceedance Probabilities (AEPs) (i.e. 10, 20, 50, 100 and 200-year return periods, respectively).

[5] Figure referenced from the Climate Change Adaptation Guidelines for Sea Dikes and Coastal Flood Hazard Land Use (BC Ministry of Environment, 2011b) MFLNRORD 2018 Amendment

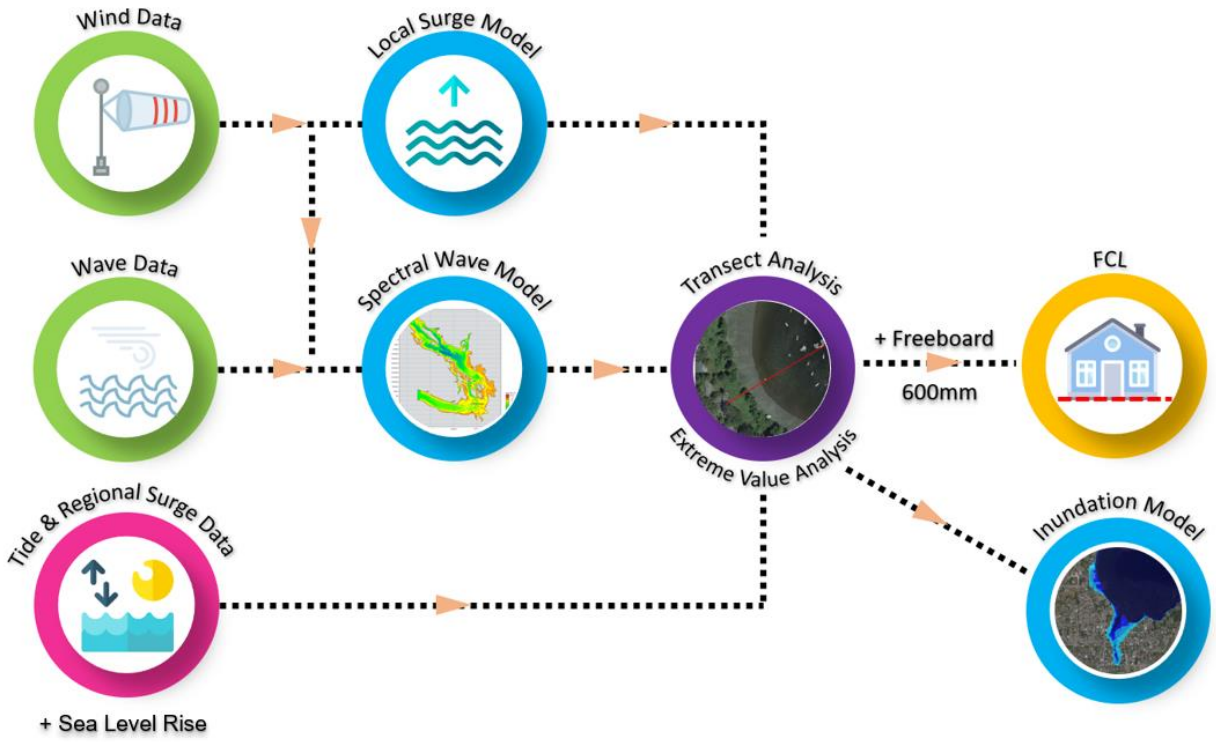

Figure 2-2
Task 2 Analysis Methodology[6]

These five AEPs were considered for each of the relative sea level rise scenarios (SLR = 0.0 m, 0.5 m, 1.0 m and 2.0 m). Therefore, a total of 20 scenarios were modelled and mapped along the coast of the capital region. A benefit of this approach is that defining a probability for each of the individual water level components is not required, since the joint probability of the components is inherently included in the hindcast. This approach is less conservative, than 'stacking' the 0.5% AEP wave height, 0.5% AEP surge value, and HHWLT tide level (i.e. the Province's 'Combined Method', as explained in **Section 2.2**).

The domain based, 40-year hindcast record ("response-based" method) can be leveraged to make direct comparison between observed storm events and model results at any point in the project domain, at any time during that period. This ability provides a significant advantage as it allows validation of the subsequent TWLs against recorded events and further reinforces the use of the "response-based" method by the project team (see **Section 3.4**).

Although not undertaken as part of this project, select AEP wave heights could be calculated using the results of this project's modelling to support, for example, targeted coastal structure design work.

This project's probabilistic ("response-based") methodology is consistent with other detailed studies carried out in the Province, where a reduction in uncertainty and conservativeness is a key objective.

[6] Icons made by Freepik, SmashIcons and FreeIcons from www.flaticon.com and freeicons.io

2.4 Analytical Inputs

The analytical results are dependent on the availability and quality of input data. Therefore, the selection and pre-processing of appropriate datasets is a critically important task. Due to the large geographical extents of the study area and long timeline of simulations, the amount of required data was extensive. The hindcast simulation covers the 40-year period between 1979 through 2018 and required complete hourly data records for all inputs. The types of data used for the coastal model are described below, with further details provided in **Table 2-1**.

2.4.1 Sea Level Rise

Sea level rise (SLR) is the direct effect of climate change on the global oceans. Melting sea and glacier ice and the thermal expansion of ocean waters have resulted in increasing mean sea levels. **Figure 2-3** shows satellite measurements of global SLR since the early 1990's; in particular the average global rate of sea level rise over the period 2005 - 2015 was approximately 3.5 mm/yr. However, a recently released report by the Intergovernmental Panel on Climate Change (IPCC), '*Special Report on the Ocean and Cryosphere in a Changing Climate*' (2019), identified that SLR at the end of this century is projected to be faster under all carbon emission scenarios – so that a rate notably higher that 3.5 mm/yr. is used to predict SLR over the longer term. In fact, the Provincial Guidelines propose a rate of 10 mm/yr., as shown in **Figure 2-4**.

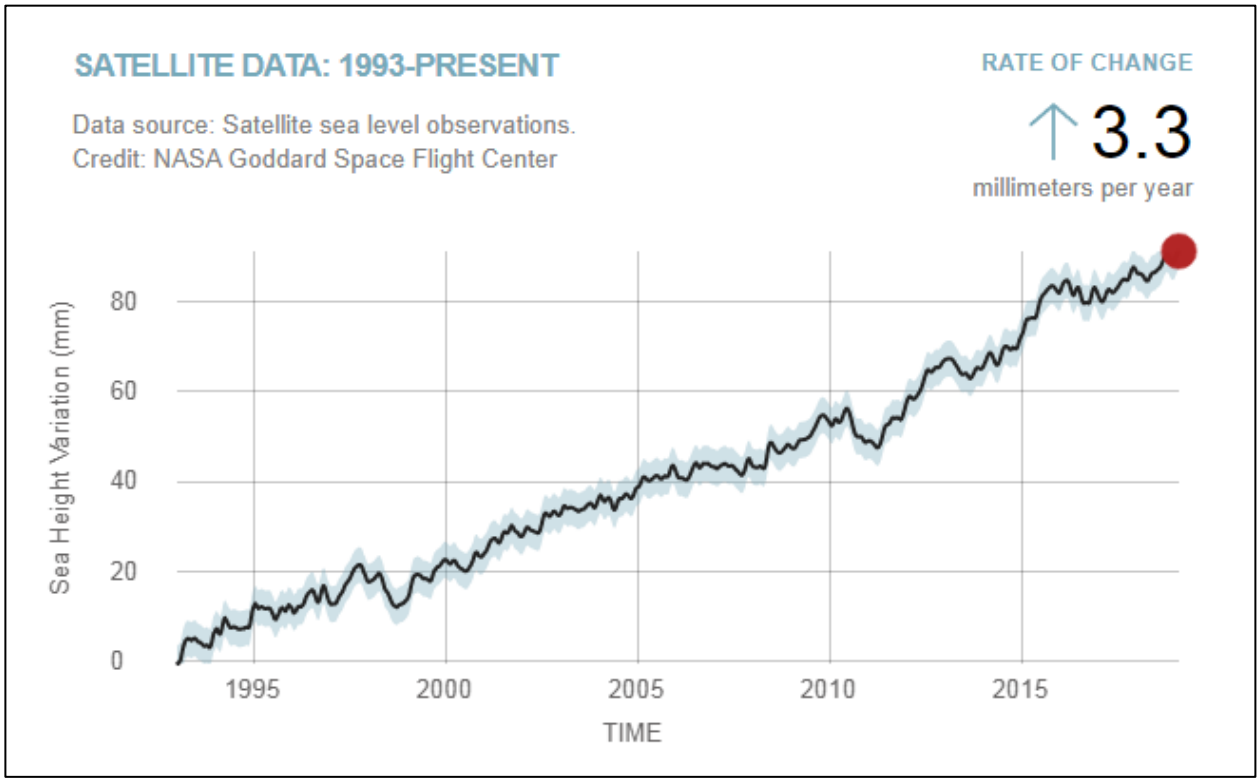

Figure 2-3
NASA Satellite Data for Observed Sea Level[7]

[7] https://climate.nasa.gov/vital-signs/sea-level/

Coastal communities must be prepared for sea level rise and be prepared to adapt as improved SLR predictions become available. Presented below is a brief over-view specific to the geographical area of the capital region, using the Provincial Guidelines and other relevant data, that aims to provide decision makers with potential time horizons for relative sea level rise values of 0.0 m, 0.5 m, 1.0 m and 2.0 m.

The meaning of Sea Level Rise (SLR) and Relative Sea Level Rise (RSLR) is described below

- **Sea Level Rise (SLR)** refers to the increase of geocentric sea levels (in effect, measured relative to the centre of the earth) for a specified time horizon relative to a specified base year. This includes global sea level rise, which is a globally-averaged value, and a regional adjustment (that is often omitted).
- **Relative Sea Level Rise (RSLR)** denotes a local rate of increase of sea levels but measured relative to the local land surface.

The difference between SLR and RSLR is notable because of local land subsidence and uplift, which varies by location. In this study, the increases quoted of 0.0 m, 0.5 m, 1.0 m and 2.0 m are assumed to include the effects of land subsidence/uplift; therefore, RSLR is the correct term for what has been used in this study.

There are also differences between "global sea level rise" and "regional sea level rise", even though both are geocentric. This regional adjustment is associated with the sea level being non-uniform across the globe on account of oceanographic (density, salinity, winds and currents), gravitational and deformational factors associated with global warming and future ice melting. This adjustment is distinct from local uplift/subsidence that contributes to relative sea level rise. However, such differences are not considered here because the terms of reference of this study has referred to prescribed values of RSLR.

We note that the relevant Provincial Guidelines rely on a base year of 2000 and propose a sea level rise rate of 10 mm/yr. This is based on the 'red-line' in **Figure 2-4** (*Figure 1*, in *BC MoE 2017*). However, it is already known that this provides an overestimate for the period between year 2000 and 2019 where the predicted increase of 190 mm using the trend observed in **Figure 2-3** exceeded the observed global increase of approximately 67 mm.

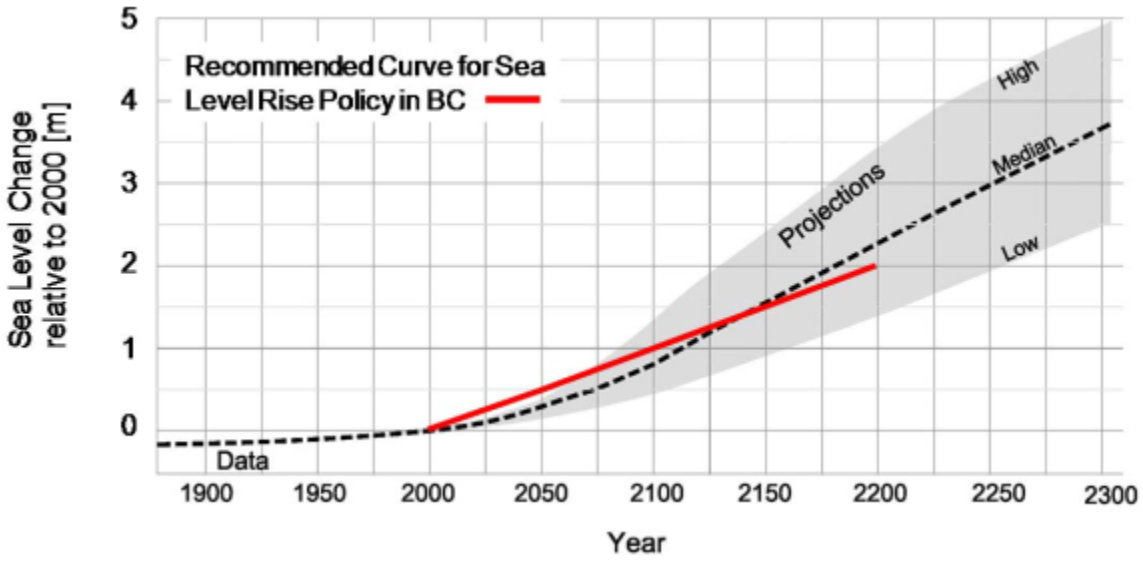

Figure 2-4
Recommended Global Sea Level Rise Curve for Planning and Design in BC (Figure 1, BC MoE 2017)

Based on the MFLNORD 2011 Coastal Floodplain Mapping- Guidelines and Specifications (Kerr Wood Leidal, 2011, Figure 2-2, Figure 2-3 and Table 2-4), the time horizons may be estimated as follows:

The RSLR targets for this project are the net values of 0.5 m, 1.0 m and 2.0 m. The following calculation shows the predicted RSLR for any year based on Provincial Guidance. This estimate is based on using the 'red-line' in Figure 2-4, as well as accounting for land uplift over the same period. The BC Ministry of Environment Sea Dike Guidelines (Ausenco Sandwell, 2011) give typical uplift values for locations within the capital region.
In consultation with the CRD, one uplift value indicative of Victoria was selected to be used across the study area.

Provincial Guidelines SLR 'index year':	2000
Provincial Guidelines SLR projected increase rate (using 'red-line' in Figure 2-4):	+10 mm/yr.
Land uplift rate at Victoria:	+1.2 mm/yr.
RSLR rate per year:	(10 mm/yr. - 1.2 mm/yr.) = 8.8 mm/yr.
Relative Sea Level Rise at Year 'X':	(X-2000)(8.8 mm/yr.) = C mm

By knowing the value of C (i.e. equals the RSLR targets of 0.5 m, 1.0 m and 2.0 m), one can estimate the appropriate time horizons (i.e. the appropriate 'X').

Based on this approach, the estimated time horizons to achieve RSLR = 0.0, 0.5, 1.0 and 2.0 are provided below:

- 0.0 m RSLR 2000
- 0.5 m RSLR: 2055
- 1.0 m RSLR: 2115
- 2.0 m RSLR: 2225

When considering the above time horizons, it is important to note the following:

- The 10 mm/yr. SLR increase, as given in the Provincial Guidelines and **Figure 2-4**, has been shown to be conservative in the period 2000 – 2019 (an overestimate of approximately 123 mm, relative to the **Figure 2-3** trend). However, it is anticipated that SLR will accelerate as we move through this century. The IPCC 'Special Report on the Ocean and Cryosphere in a Changing Climate' states that under emissions scenario RCP8.5, the rate of sea level rise will be 15 mm/yr. by the year 2100. Nevertheless, there is still great uncertainty in the expected rate of sea level rise in the coming years. Therefore, the time horizons stated above are approximate and are expected to change based on adherence to global emissions scenarios and improved predictive models. As such, they may not be valid for long-term planning.
- In our study, we have adhered to the 1 m RSLR scenario as the de-facto FCL planning standard in the capital region with a time horizon to the year 2115. These RSLR scenarios should be reviewed on a continuing basis by local governments and project stakeholders as more reliable climate change projections become available and are incorporated into Provincial Planning Guidance.
- FCLs based on RSLR values of 0 m and 0.5 m presented herein **should not be used for development planning purposes** or incorporated into municipalities' development practises. They are presented for information purposes only.
- A single value for uplift was used to represent the entire capital region. However, it is known that land subsidence/uplift is site-specific and varies across the capital region. For example, relatively close areas such as Port Renfrew (subsiding) and Sooke (uplift) could experience 0.5 m, 1.0 m and 2.0 m RSLR at different times.
- No accounting for land subsidence as a result of a potential Cascadia Subduction Zone seismic event has been included in this calculation. If such an event were to occur, coastline areas would be vulnerable to sudden decreases in elevation, due to a phenomenon called 'coseismic subsidence'. Decreases could be as large as 1 – 2 m relative to existing ground profiles. It was considered inappropriate however, to include this adjustment in the above RSLR calculation as the timing and magnitude of this type of event is unknown.

Subsequent to the publication of the 2011 Provincial Guidelines, extensive scientific work has been undertaken and additional information has become available, including and subsequent to the IPPC Fifth Assessment Report (2013) – referred to here as IPPC AR5. Collectively, these enable the development of somewhat more reliable estimates of SLR for the year 2100 (or another prescribed time horizon). In particular, more recent work that is relevant to SLR projections for British Columbia include Miller et al. (2019)[8], which provides SLR and RSLR projections for Washington State, and by extension SLR projections for southern BC; James et. al. (2021)[9], which is based on IPPC AR5 and updated uplift/subsidence data and modelling, and which has been incorporated into the online data portal climatedata.ca[10], and as well the Canadian Extreme Water Level Adaptation Tool (CAN-EWLAT)[11] developed by the Bedford Institute of Oceanography for the Department of Fisheries and Oceans (updated to 2021, including a reliance on James et al., 2021).

[8] http://www.wacoastalnetwork.com/wp-content/uploads/2020/02/SLR-Report-Miller-et-al-2018.pdf
[9] https://geoscan.nrcan.gc.ca/text/geoscan/fulltext/of_8764.pdf
[10] https://climatedata.ca/explore/variable/slr/?coords=58.60833366077633,-89.82421875000001,4&geo-select=&rcp=rcp85-p50&decade=2100&rightrcp=disabled
[11] https://www.bio.gc.ca/science/data-donnees/can-ewlat/index-en.php

Several factors require consideration in order to utilize these so as to improve SLR projections with respect to FCL calculations for BC.

First is the need to include a regional adjustment to SLR associated with the sea level being non-uniform across the globe on account of oceanographic (density, salinity, winds and currents) gravitational and deformational factors associated with global warming and future ice melting. This is distinct from local land uplift/subsidence, which is accounted for separately in determining RSLR. Miller et al. (2019) have quantified this adjustment for the Pacific Northwest and have found it to be significant.

Another factor is that, rather than relying on median SLR projections for 2100, it would be more consistent to utilize an SLR estimate that corresponds to the FCL in the year 2100 (i.e. AEP = 0.5%), consistent with exceedance levels used for the tide, storm surge and/or wave components of FCLs. Preliminary indications are that this consideration suggests the use of SLR values that are 10% higher than median projections.

Thirdly, there is a need to report on SLR relative to the present time rather than the base year 2000, by taking account of the measured SLR from 2000 to the present which is available from NASA.

Bearing in mind the above considerations, the three sources indicated above, Miller et al. project a median SLR of 0.61 m (2100 relative to 2000) for Washington State and by extension southern BC; the climatedata.ca online portal projects a median RSLR of 0.50 to 0.83 m (2100 relative to 1986 - 2005) for Victoria, BC; and the CAN-EWLAT online tool projects a RSLR of 0.55 m (2100 relative to 2010) for Victoria, BC. Relative to the year 2021, these three values are, respectively 0.54 m (SLR), 0.51 m (RSLR) and 0.42 to 0.75 m (RSLR).

Finally, for the RCP8.5 emission scenario ("business as usual") that has traditionally been assumed in developing FCL estimates, there remains a possibility of a significant additional SLR contribution due to a potential instability of the West Antarctic Ice Sheet, referred to by James et al. an "RCP8.5 Enhanced Scenario". If this were to occur prior to 2100, it is estimated to add a further 0.65 m to the median SLR for 2100. However, the incorporation of this factor into FCL projections (either through an increased SLR projection or an increased freeboard allowance), requires further work, including an assessment of the probabilities of the extent and timing of its occurrence. It is premature to speculate at this juncture on its inclusion in FCL estimates.

2.4.2 Local Storm Surge

Local storm surge is characterised by local winds raising the water surface on shallow nearshore bathymetry and topography and is a separate phenomenon to deep-water surge. Since measurements of local storm surge (or wind setup) were not available for this study, local surge was calculated in a deterministic manner using a 1D model with transect geometry and wind speed and direction as inputs. The calculation process for Local Storm Surge is described in further detail in **Section 3.2**. The image below shows a typical coastal storm flooding configuration and highlights the effect storm surge can have in increasing the total water level. (Note that 'Future Natural Boundary' and 'Setback' relates to specific flood construction level policy issues that are described in further detail in **Section 6.5**.)

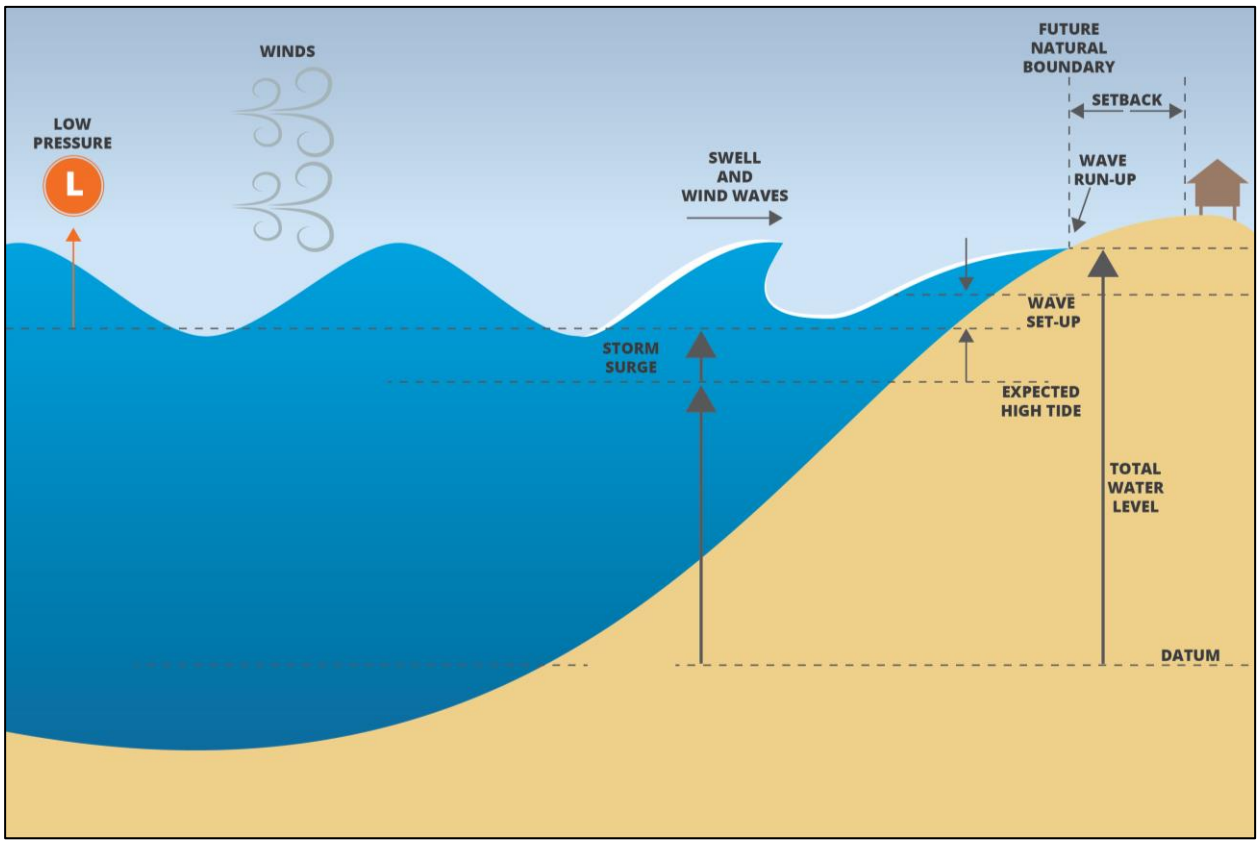

Figure 2-5
Coastal Storm Flooding Schematic

2.4.3 Tidal Record

Astronomical tides are defined as the periodic rising and falling of the surface of major water bodies on Earth. Tides are produced as a result of the gravitational attraction of the Moon, Sun and, to a much lesser extent, other celestial bodies. Tidal currents are produced in response to differences in the water surface elevation. Figure 2-6 shows the typical range of tides and how they relate to various datums.

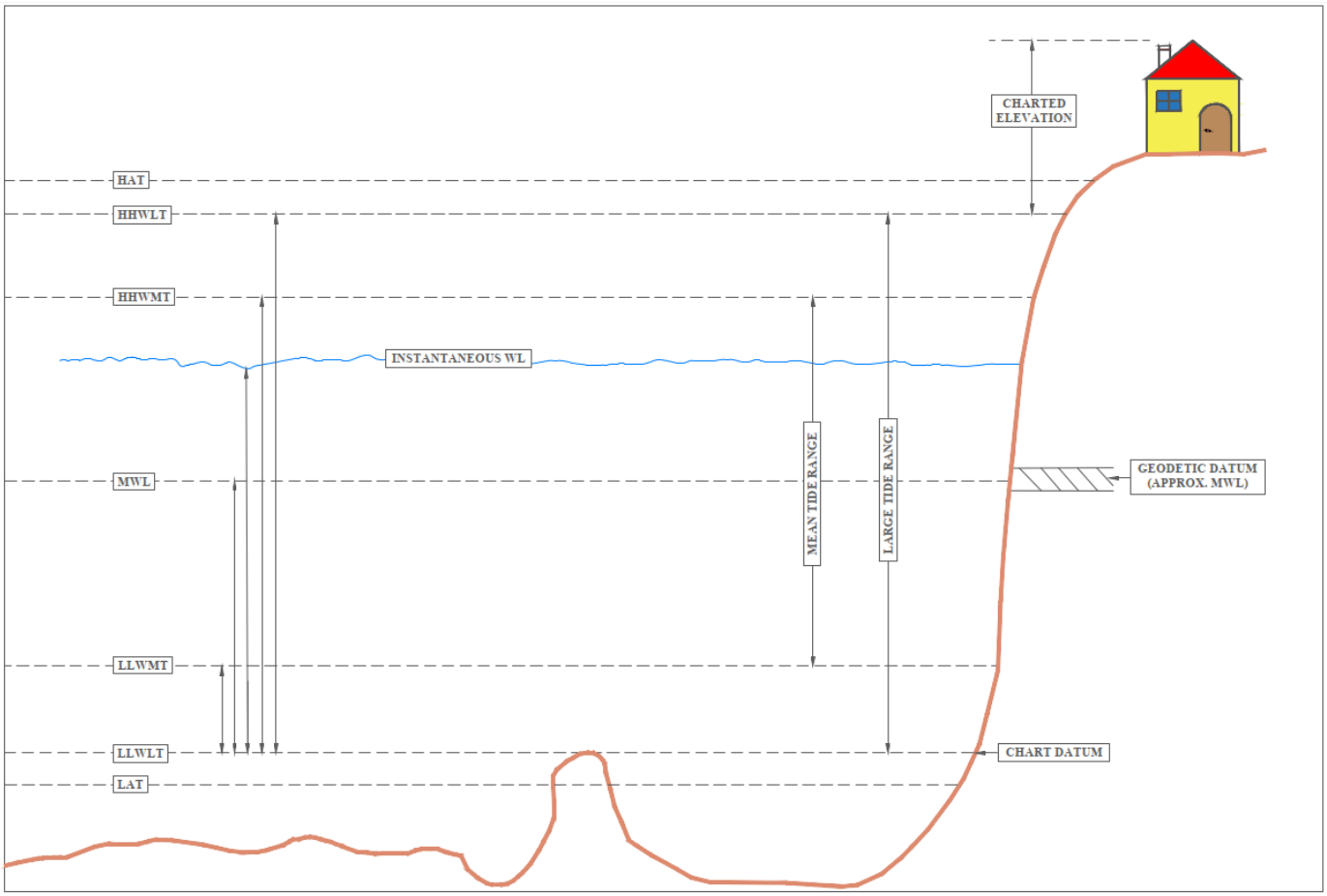

Figure 2-6
Reference Tide Levels at a Coastal Location

In terms of FCLs and sea level rise flooding, the tidal component provides the most significant water level variation, especially along natural shorelines backed by beaches. Typically, in the absence of more sophisticated modelling techniques, the HHWLT[12] (Higher High-Water Large Tide) is used as a base component in coastal flood risk analyses (specifically the Provincial Guidelines' Combined Method).

[12] HHWLT is the average of the annual maxima series for a 19-year nodal cycle.

The following tide gauges were selected as sources for recorded water levels and corresponding tidal information for this study:

- Gauge #7120 – Victoria (CHS)
- Gauge #8525 - Port Renfrew (CHS)
- Gauge #7277 – Patricia Bay (CHS)

These three data sources were selected to reflect the variation in water levels throughout the model domain. **Figure 2-7** shows an example of the water level time series data extracted from the three project gauge records for the same period.

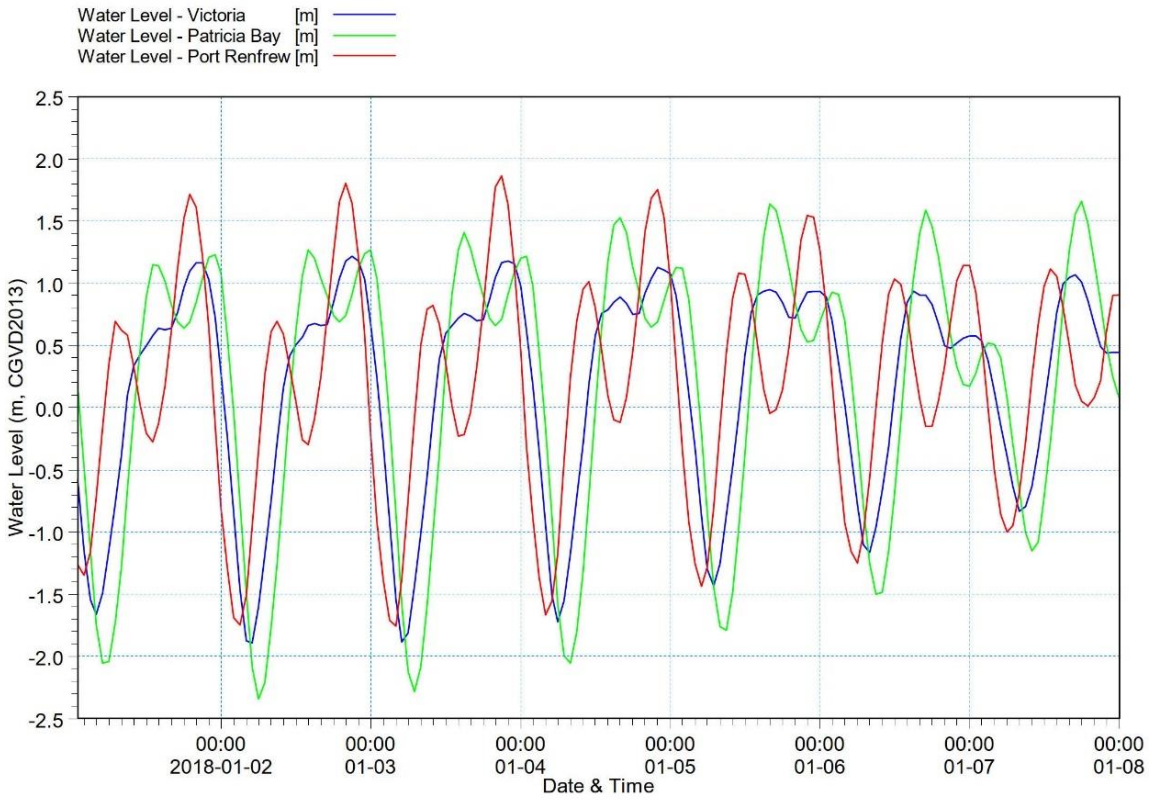

Figure 2-7
Example Water Level Time Series from Project Area

As previously described in **Section 2.2,** tide gauges capture deep-water (or regional) storm surge within their records. Deep-water storm surge describes the temporal increase of sea levels due to low atmospheric pressure as a result from winter storms, hurricanes etc. These increases tend to be sufficiently long-lasting so that they are captured within the gauge's reading interval (i.e. they are not short term increases like wave effects).

Another aspect of coastal water levels to consider is the effect of the El Niño-Southern Oscillation. This phenomenon occurs periodically when equatorial trade winds in the southern Pacific diminish, causing a seiching effect that travels

eastward as a wave of warm water. This raises water levels all along the Pacific coast. It tends to increase water levels by up to 600 mm, for approximately six (6) months every 5 - 10 years. However, the tide gauge record will contain this effect and no further account needs to be made for this phenomenon in the project analyses.

2.4.4 Wind Data

Like water level parameters, the wind parameters vary spatially and temporally over the extents of the domain. For instance, wind speed and direction on open waters in the Juan de Fuca Strait are different from wind conditions in more sheltered areas, such as the northwest side of Saanich Peninsula or between the Gulf Islands. Using data from multiple meteorological stations throughout the domain allows for a more accurate representation of wind conditions. However, there are limited sources of long-term data measurements, with varying levels of quality. The following stations were selected as sources for wind information for this study:

- Station 46088 - New Dungeness (NOAA)
- Station 1018611 - Victoria Gonzales (ECCC)
- Station 46146 - Halibut Bank (ECCC)

These three data sources were selected due to their length of record and quality of data, as well as to reflect the variation in wind across the model domain. **Figures 2-8**, **2-9** and **2-10** show wind rose plots for the three stations. These plots represent the two wind parameters: direction (as indicated by the orientation around the wind rose plot axis) and speed (presented as percentage of total duration for each speed band).

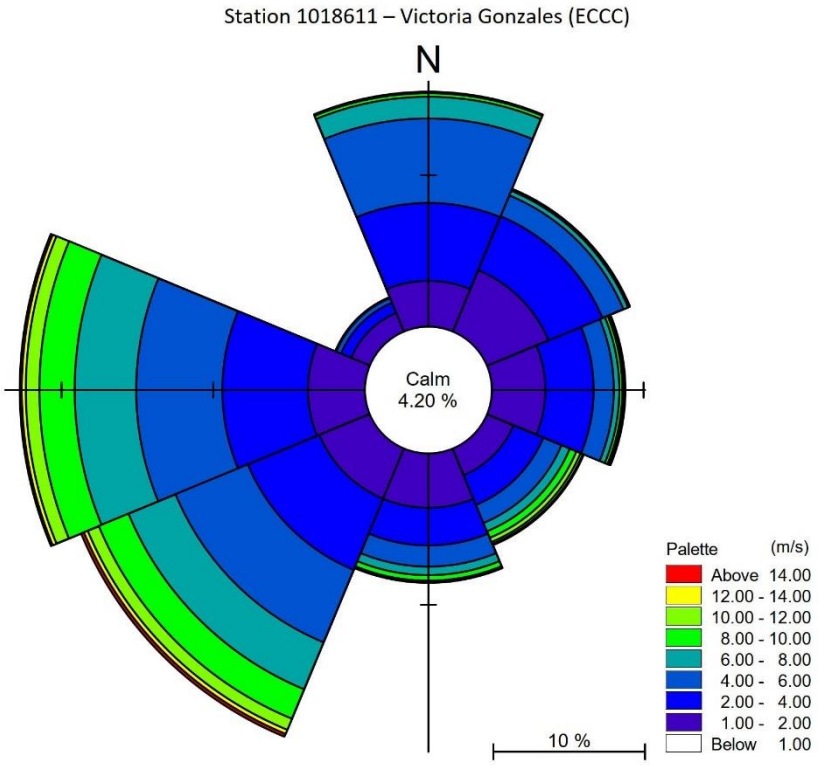

Figure 2-8
Wind Rose Plot for Victoria Gonzales

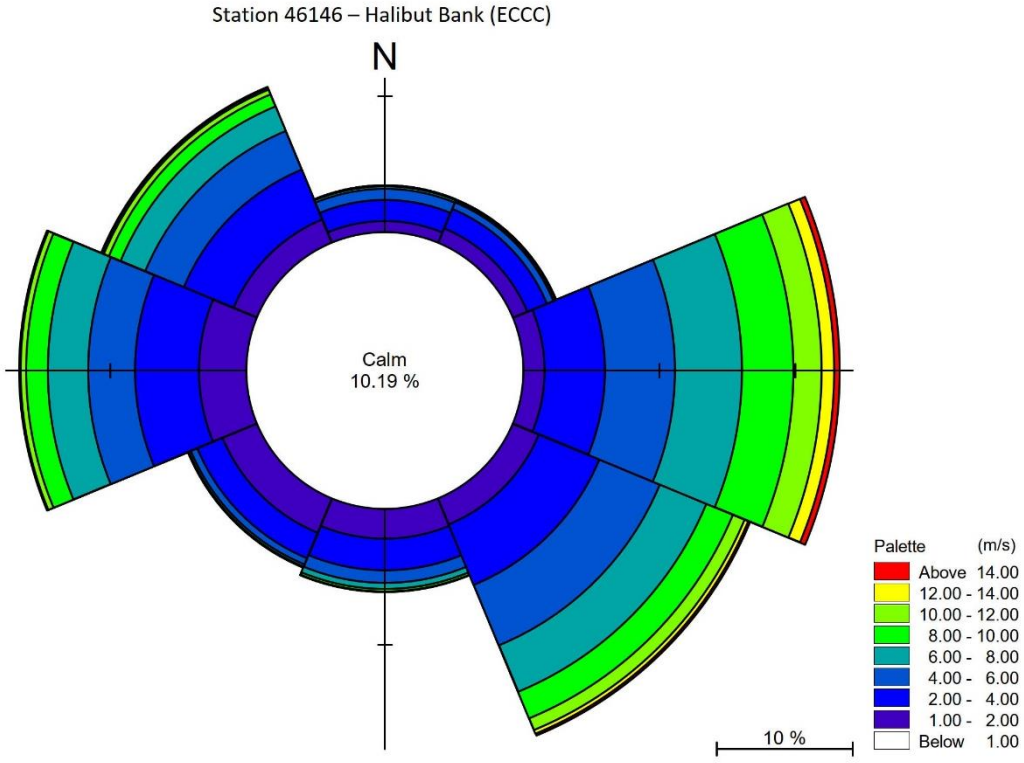

Figure 2-9
Wind Rose Plot for Halibut Bank

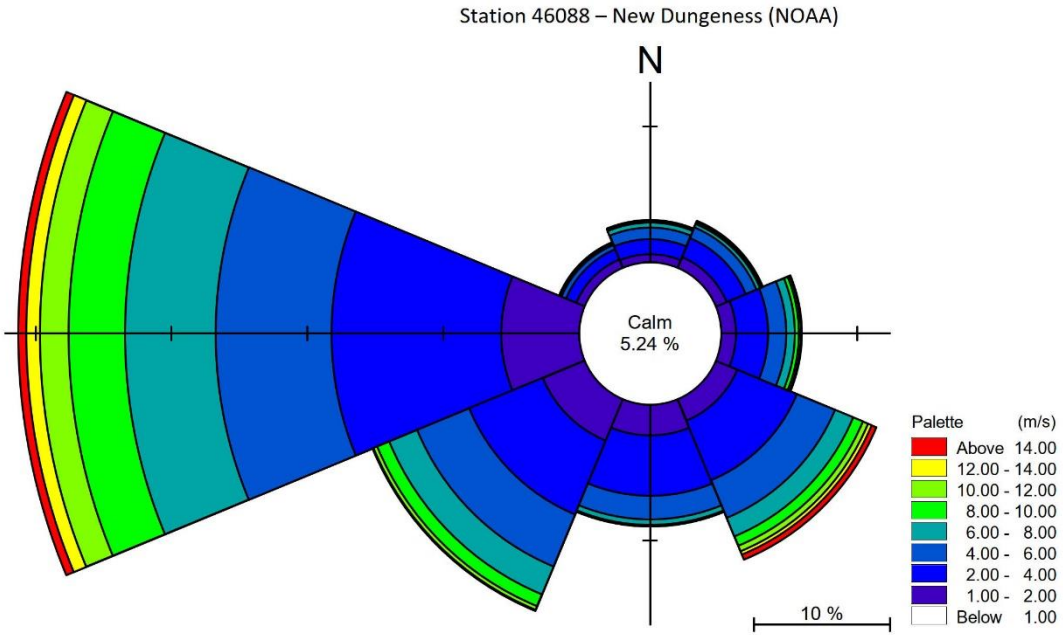

Figure 2-10
Wind Rose Plot for New Dungeness

In addition to the aforementioned wind sources, the project team considered and reviewed additional wind data records at key locations throughout the domain to better understand wind variability and potential impacts on local and regional wave-field and storm surge dynamics. Two (2) key additional locations considered include stations at:

- Station 1013998 - Kelp Reefs (ECCC)
- Station 1012475 – Discovery Island (ECCC)

Both sources demonstrate local wind-phenomena in the Haro Strait that results in strong winds that are not fully captured in the Victoria Gonzales or Halibut Bank wind datasets. However, further review and detailed analyses of these sources, indicates that the peak wind events at both Kelp Reefs and Discovery Island are short duration and gusty in nature, and are not conducive to sustained wind-wave growth required to influence the magnitude of the regional sea-state. Further, there is often little correlation between Kelp Reefs and the adjacent Discovery Island station particularly during the highest wind events at Kelp Reefs. This implies that the strongest winds in the Haro Strait are most certainly duration-limited in terms of wave generation potential and are also often spatially limited. As such, these sources were not used in the subsequent modelling, described in **Section 3.1**.

2.4.5 Summary of Information Reviewed

Prior to setting up the various hydrodynamic models, a comprehensive analysis of all available wind, wave, and tidal data was completed. Records with insufficient quality or record length were excluded. Table 2-1 presents the filtered and selected input and calibration data used for the technical analyses.

Table 2-1
Coastal Model Input and Calibration Data

Data Type	Data Source or Gauge	Years of Data	Purpose	Notes
Wind	Station 1018611 – Victoria Gonzales (ECCC Weather Station)	1979 - 2018	Model Input	Recorded hourly data covers a portion of the hindcast simulation period, with some gaps.
Wind	Station 46088 – New Dungeness (NOAA Buoy)	2004 - 2018	Model Input	Recorded hourly data covers a portion of the hindcast simulation period, with some gaps.
Wind	Station 46146 – Halibut Bank (ECCC Buoy)	1992 - 2018	Model Input	Recorded hourly data covers a portion of the hindcast simulation period, with some gaps.
Wind	Climate Forecast System Reanalysis[13] (NOAA)	1979 - 2018	Model Input	Wind data from a global, high resolution, coupled atmosphere-ocean-land-sea-ice model. This data was only used to fill gaps in the measured wind data records
Water Level	Gauge #7120 – Victoria (CHS)	1963 - 2019	Model Input	Recorded hourly data covers a majority of the hindcast simulation period, with some gaps.
Water Level	Gauge #7277 – Patricia Bay (CHS)	1977 - 2019	Model Input	Recorded hourly data covers a majority of the hindcast simulation period, with some gaps.
Water Level	Gauge #8525 - Port Renfrew (CHS)	1968 - 2019	Model Input	Recorded hourly data covers a portion of the hindcast simulation period, with some gaps.
Waves	Station 46088 – New Dungeness (NOAA Buoy)	2004 - 2018	Calibration and validation	Recorded hourly data used to select calibration periods and validate the simulation results.

[13] https://www.ncdc.noaa.gov/data-access/model-data/model-datasets/climate-forecast-system-version2-cfsv2

Data Type	Data Source or Gauge	Years of Data	Purpose	Notes
Waves	Station C46134 – Patricia Bay (ECCC Buoy)	2001 - 2016	Calibration and validation	Recorded hourly data used to select calibration periods and validate the simulation results.
Video / Photographs	Video footage and images of wave and storm surge interaction with the shoreline during extreme events.	2005 - 2021	Validation	Video footage and imagery were selected at key locations and model results qualitatively and quantitatively compared during extreme events to validate model performance.
Bathymetry	Canadian Hydrographic Service (CHS) and National Oceanic and Atmospheric Administration (NOAA) bathymetric data.	N/A	Spectral wave, coastal flooding, and tsunami model domains	Refer to Task 1 - DEM Development Report.
LiDAR	2019 LiDAR Survey (GeoBC).	N/A	Spectral wave, coastal flooding, and tsunami model domains	Refer to Task 1 - DEM Development Report.
Land Cover Mapping	2011 Land Cover Database (Habitat Acquisition Trust)	2011	Detailed inundation models	Land use information used to inform floodplain roughness.

3 SEA LEVEL RISE MODELLING - ANALYSIS

In support of deriving a comprehensive set of proposed Flood Construction Levels and Detailed Inundation Maps, there were three major analytical procedures/packages completed for this project:

Wave Modelling

To estimate the incident wave climate throughout the project area, a MIKE 21 Spectral Wave (SW) model was constructed and continuously simulated 40 years of recorded data. Details on this analysis are provided in **Section 3.1**.

Local Surge Analysis and Transect Analysis

Subsequent to the spectral wave modelling, 222 transects (cross-sections through the project foreshore) were defined within the capital region. Deep-water wave heights derived by the MIKE 21 SW model were transformed to the foreshore using the established transect geometry and wave setup and runup equations. Local storm surge was calculated on an hourly basis over the 40-year hindcast period for all transects. An extreme value analysis was then undertaken on the joint probability of local surge/wave effects/water levels to give estimates of the FCRPs (0.5% AEP TWLs) at each transect for each of the study's target probabilities. Wave run-up was considered for both mean wave (R_{mean}) and 2% wave exceedance ($R_{2\%}$) scenarios. A freeboard value of 600 mm was added to the 0.5% AEP FCRP to give the proposed FCL value(s) for each transect, at both the foreshore and the backshore. Further details are provided in **Sections 3.2** and **3.3**.

Detailed (2D) Inundation Models

To supplement the derivation of proposed FCLs throughout the capital region, detailed (2D) inundation modelling was undertaken at five different locations: Victoria Harbour, Oak Bay – McNeill Bay, Saanich -Cadboro Bay, Sidney-Ferry Terminal and Sidney - Roberts Bay. These areas were selected on the basis of their low-lying topography, potential susceptibility to coastal inundation and their relatively high population density. It was decided to only simulate the flood associated with the 0.5% AEP for all four RSLR scenarios in each area, thus yielding a total of 20 model simulations. The purpose of this modelling was to provide more refined flood extents and to provide support for planners and emergency managers to establish policies. Further details on this work-package are given in **Section 3.5**. It is important to note, however, that FCL values presented herein have not been estimated using/based upon the results of the 2D detailed inundation modelling, but rather using the 1D transect approach.

3.1 Wave Modelling

The coastal inundation analysis makes use of wave state parameters in the near-shore area (wave height, period, and direction) to estimate the on-shore water levels resulting from these waves reaching the shoreline and breaking. As such, wave parameter data was calculated at all points along the capital region coastline to complete the coastal flooding analysis. While there are several local wave buoys with recorded measurements, it is not appropriate to apply the conditions measured at these buoys broadly along the shoreline; there are too few buoys, they are generally located in open water away from the near-shore areas, and their respective record-length is not long enough to satisfy the analytical requirements. Therefore, it was necessary to create a hindcast model to simulate waves in the project domain for a 40-year historical period.

\\ae.ca\data\projects\van\2019267 6\00_CoastFloodTsunami\Engineering\03.02_Conceptual_Feasibility_Master_Plan_Report\2.0 SLR Report\Version 2.0\rpt_crd_task 2_slr modelling_20211020.docx

A spectral wave model was developed using MIKE 21 SW[14] software by DHI Water & Environment, Inc. to hindcast hourly wave conditions for the historic period of 1979 - 2018 (40 years) within the project area. Since the main driving force for wave generation is wind, the primary input to the model is the wind record. The goal of this spectral wave hindcast model is to use historic wind measurements to simulate local wave conditions throughout the capital region study area. Since there are several wave measurement buoys available, it was possible to calibrate and validate the model to ensure that the simulated waves produced by the model match the real waves measured by the buoys. Figure 3-1 illustrates this process.

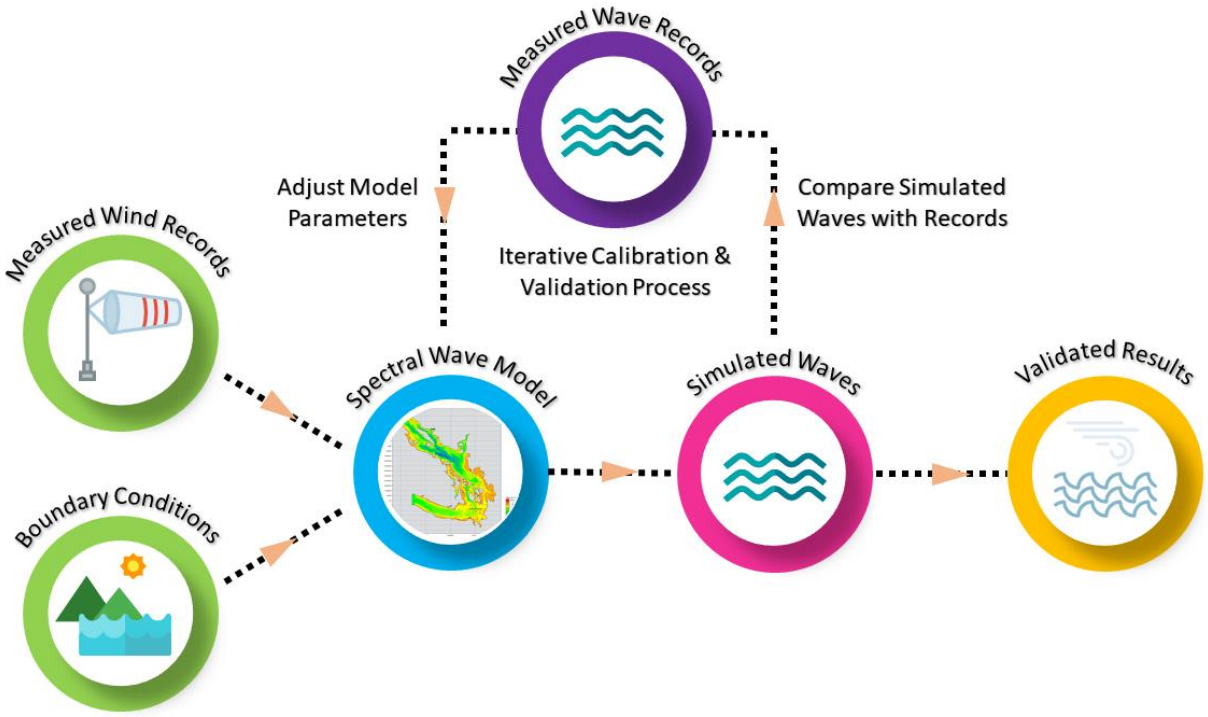

Figure 3-1
Spectral Wave Modelling Process

This section discusses the setup of the wave model and simulation procedure. First, the model domain, input data, and calibration/validation data were prepared. Next, the model was calibrated and validated. Finally, the 40-year historic hindcast period was simulated and hourly results were extracted for the analysis at coastal transects.

3.1.1 Wave Model Preparation

The data collection and review were previously summarized in **Section 2**. To reiterate, data is required for the model domain, model inputs, and to calibrate/validate the model.

3.1.1.1 Model Domain

The model domain includes the bathymetry of the Salish Sea, up to the western edge of the Juan de Fuca Strait (Figure 3-2).

[14] https://www.mikepoweredbydhi.com/products/mike-21/waves/spectral-waves

The primary data source is CHS bathymetry data, with NOAA bathymetry data used to fill any gaps in the CHS dataset if/as needed. Additional information regarding the model domain is included in the previously submitted Task 1 - DEM Development Report (AE, 2020).

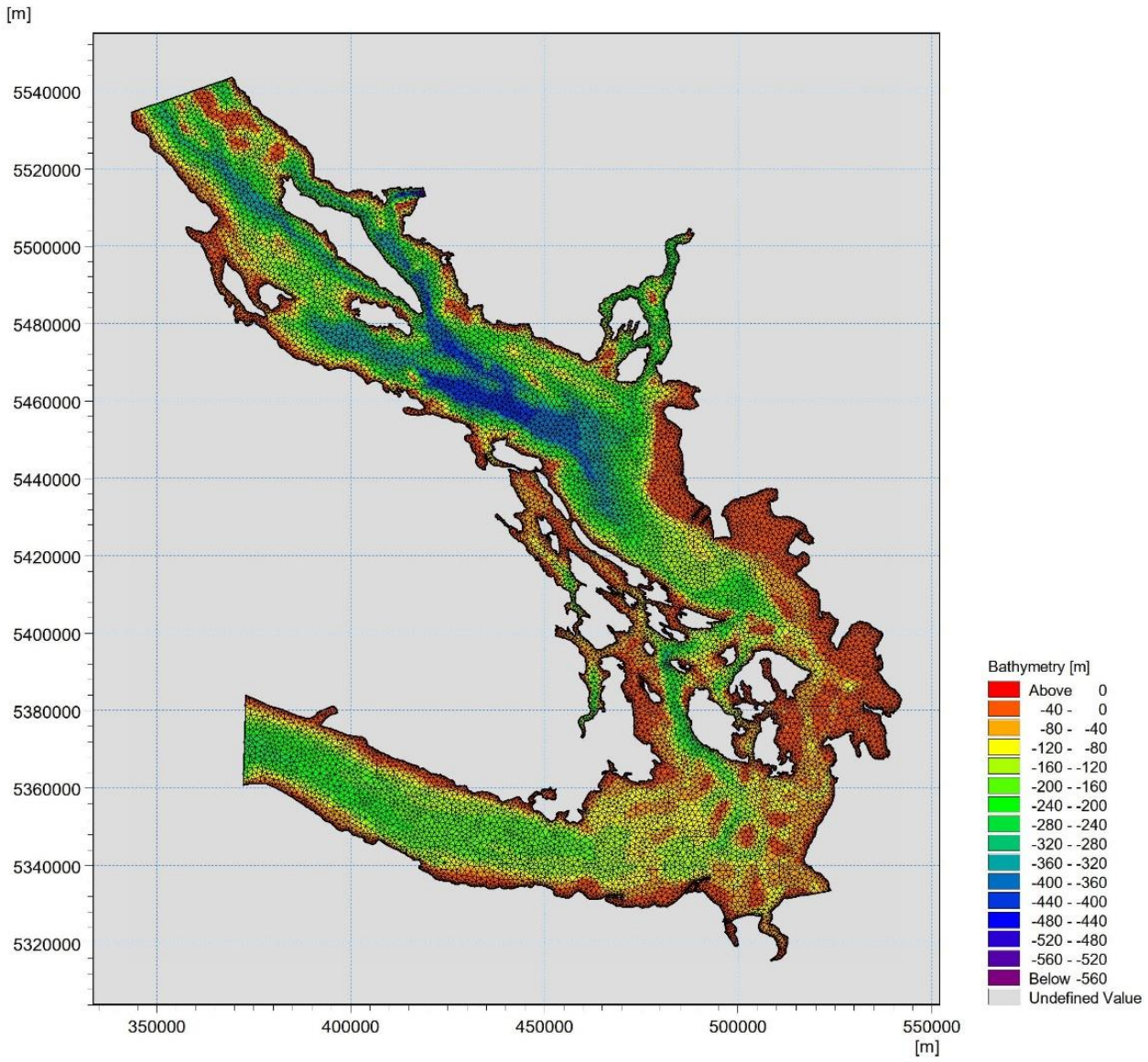

Figure 3-2
MIKE 21 Spectral Wave Model Domain

The spectral wave model bathymetry is resolved throughout the domain using a flexible mesh, which was created within the MIKE 21 software environment to work specifically with the Spectral Wave module. Bed elevations (relative to CGVD2013) for each of the 17,673 mesh elements are defined from the project DEM bathymetric data.

The land boundaries of the domain are defined by the coastline and islands of the Salish Sea. The domain was simplified at its north end by creating an artificial land boundary.

Due to the distance to the project area, and the sheltering effects of islands in the strait, this simplification does not introduce any significant effects on the wave model results, but greatly improves computational demands. There is a single ocean boundary at the western edge of the Juan de Fuca Strait, and wave conditions along this line are provided as input to the model simulations.

The unstructured model mesh was created to balance its resolution (i.e. more, smaller elements) with the computational runtimes (i.e. less, larger elements). The mesh was smoothed and optimized for computational efficiency as the computational time step, and therefore, the runtime is dictated by the smallest element. Therefore, model performance was increased by manually editing small, outlier-elements.

Finally, the element elevations were defined using an interpolation of the bathymetric input datasets. First priority was assigned to the CHS bathymetric data, and second priority to the NOAA bathymetric data to define the mesh elevations (**Figure 3-3**).

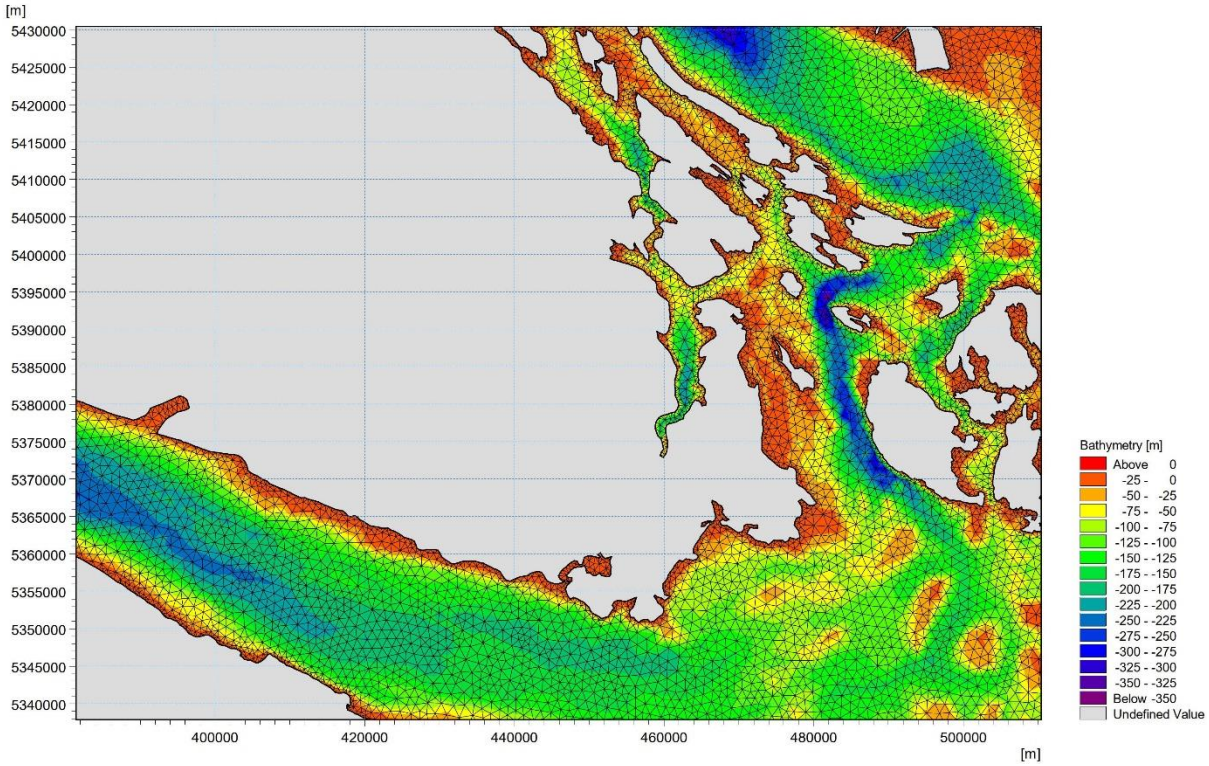

Figure 3-3
Mesh Definition Within the MIKE 21 SW Model Domain

The model domain and associated resolution is representative and appropriate for a long-term regional hindcast. Some detailed shoreline features, small islands, headlands, and inlets are not captured by the regional model in an effort to maintain computational efficiency for the long-term 40-year hindcast. The resolution was tuned to balance computational efficiency with required model resolution to achieve robust modelling results and conclusions.

3.1.1.2 Ocean Boundary Condition

There is a single ocean boundary in the model domain at the western end of the Juan de Fuca Strait – this is at the edge of the model domain where it meets the Pacific Ocean. Boundary conditions along this line are required to include the effects of water level and waves originating from the Pacific Ocean and entering into this project's MIKE 21 SW model domain. DHI possesses a database of global wave parameters time series, which is made available from the DHI Metocean Data Portal[15]. The Metocean data is the result of global and local scale hindcast simulations, which have been validated using local measurement and satellite records. Using the portal, Global Wave Parameter Data was retrieved at the domain boundary (Figure 3-4) for the simulation period (1979 - 2018).

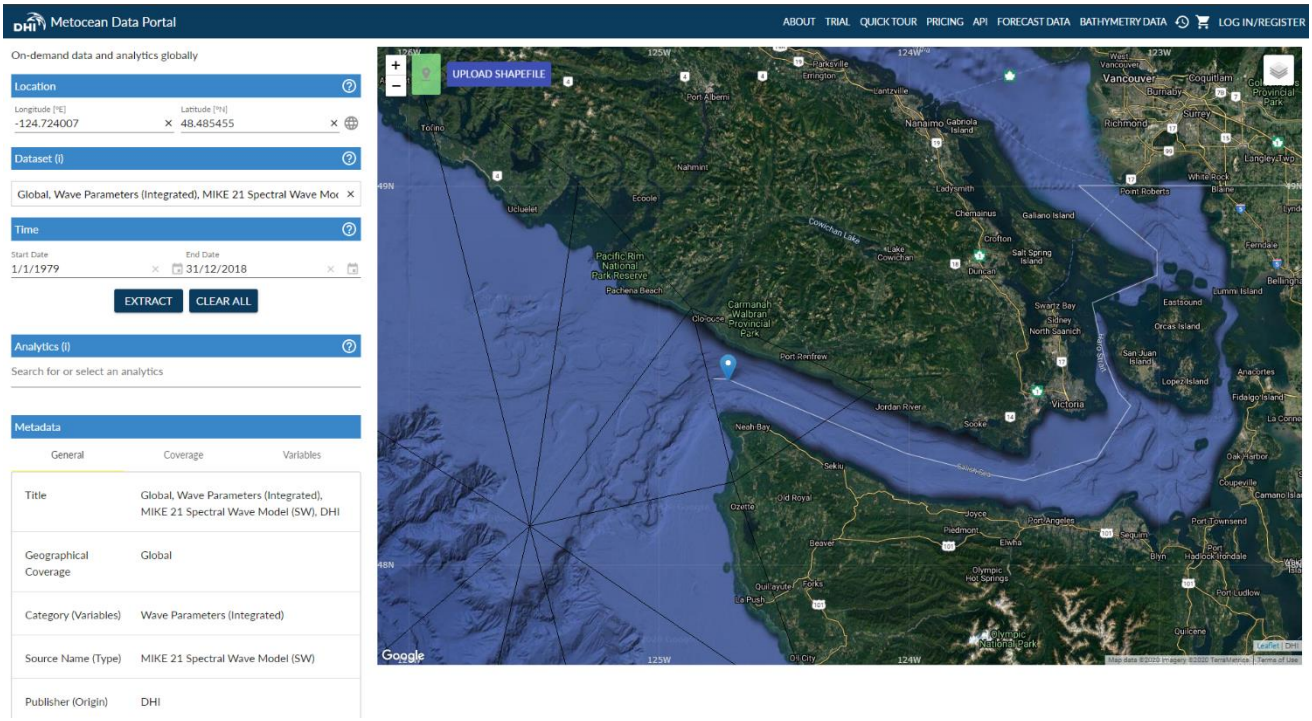

Figure 3-4
Extraction of Global Wave Parameter Data at the Domain Boundary

The Wave Parameter Data is an hourly time series of the items: significant wave height H_{m0}, peak wave direction PWD, peak wave period T_p, zero-crossing wave period T_{02}, mean wave direction MWD, and directional standard deviation DSD. As DHI MIKE 21 software was used for the wave modelling, the data supplied from DHI Metocean was ready for use as a direct boundary input into the model, with no further preparation required.

3.1.1.3 Model Input – Wind Data

Historical wind speed and direction measurements were taken from the sources identified in Table 2-1, with gaps in data filled using information from the Climate Forecast System Reanalysis (CFSR, NOAA) dataset. The wind recording stations used include New Dungeness (NOAA), Victoria Gonzales (ECCC), and Halibut Bank (ECCC) (Figure 3-5).

[15] https://www.metocean-on-demand.com/

CFSR wind data extracted at the position of the wind stations is influenced by the rather coarse land resolution used by this forecast model. Therefore, the East-West and North-South velocity components of the extracted CFSR data were corrected using linear correction factors developed from the observed correlation between measured and CFSR hindcast wind velocity components during periods of time for which both wind datasets exist. The adjusted CFSR wind data were then used to fill gaps in the records from the three stations.

The wind data input to the spectral wave model is a purpose-made 2D map with wind speed and direction that varies both spatially and temporally. The grid is separated into three areas, with each area using the wind record from a different monitoring station. As with all the model input data, the time step is hourly and covers the 40-year simulation period.

From all the wind record data available, data from three stations which cover the entire project area was selected. This selection was based on the length of record, location, and data quality. Furthermore, priority was given to stations recording overwater winds, since these winds are more relevant for the generation of local waves. Wind data selection and 2D wind map creation were also elements of the calibration procedure, since the application of wind input data is the primary forcing to produce the simulated wave results. The three wind stations selected are New Dungeness, Victoria Gonzales, and Halibut Bank.

All available wind data was processed such that each station was in a consistent format with hourly time steps for 1979 - 2018, times relative to UTC, and wind speeds at 10 m height above sea level. Any gaps in the dataset were filled using values from the NOAA Climate Forecast System Reanalysis (CFSR). Similar to the DHI Metocean data, this wind data is the result of validated global hindcast models. The data is supplied on a coarse (tens of kilometres) 2D grid, and is the best data available to fill gaps in the wind records. The wind time series at each of the three stations were extracted to fill the gaps in the measured data records, preserving the original data whenever it exists.

The 2D wind maps were used as input in the spectral wave model. The project domain was split into three areas using polygons with boundaries that are approximately equidistant between the selected weather stations (**Figure 3-5**) to ensure that wind data within these three areas originate from a representative station. For example, winds over the Salish Sea are taken from the Halibut Bank station, while winds throughout Juan de Fuca Strait originate from the New Dungeness Buoy.

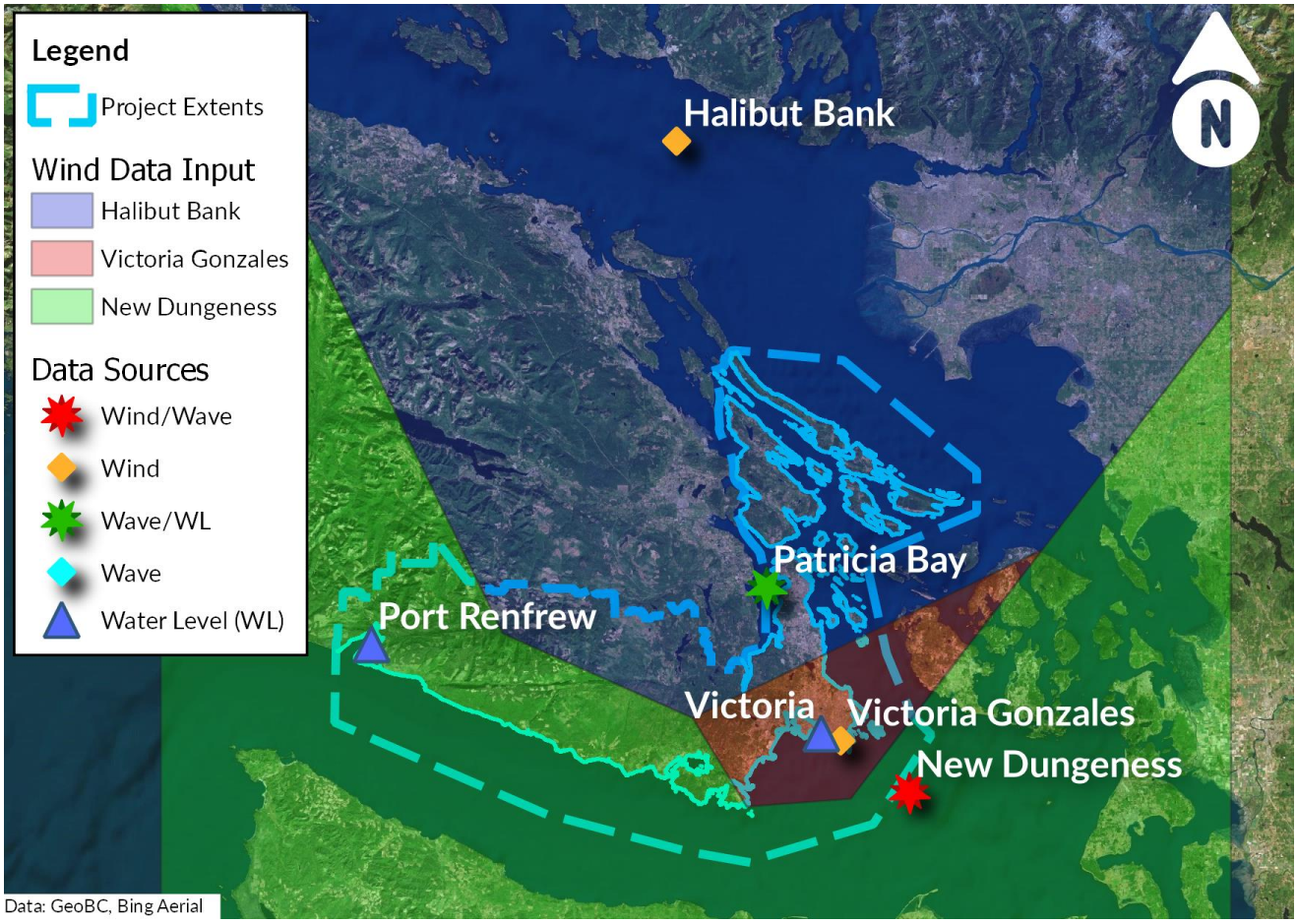

Figure 3-5
2D Wind Map Input Data Areas and Stations

3.1.1.4 Water Levels

Historical water level measurements were processed for stations within the project area including Port Renfrew, Victoria, and Patricia Bay (Figure 3-6).

The water level input varies spatially and temporally, so a 2D map of hourly water levels was created in a similar manner to the 2D wind maps. The grid is separated into three areas, with each area using the water level records from a different monitoring station. As with all the model input data, the time step is hourly and covers the 40-year simulation period.

From all the water level data available, data from three CHS stations were selected which cover the entire project area. This selection was based on the length of record, location, and data quality. The three stations that were selected are Victoria, Port Renfrew, and Patricia Bay.

All available water level data was formatted for each station into hourly time steps for 1979 - 2018, with times relative to UTC. The Victoria and Patricia Bay water level records were mostly complete, with few gaps, over the 40-year simulation period. The record at Port Renfrew, however, was less complete and was missing multiple years of data. To fill these gaps, a tidal analysis of the measured water levels was completed, and an estimated tidal series was created for the entire 40-year period at each station. While the tidal component of the water level can be estimated with great accuracy, the residual factor which results from meteorological and ocean conditions (i.e. storm surge) is not a predictable element. To minimize error, all measured tidal record data was retained and only used the predicted water levels to fill gaps in the record.

A 2D map was created as input to the wave model. The project domain was split into three areas using polygons with boundaries that are approximately equidistant between the selected water level stations (Figure 3-6).

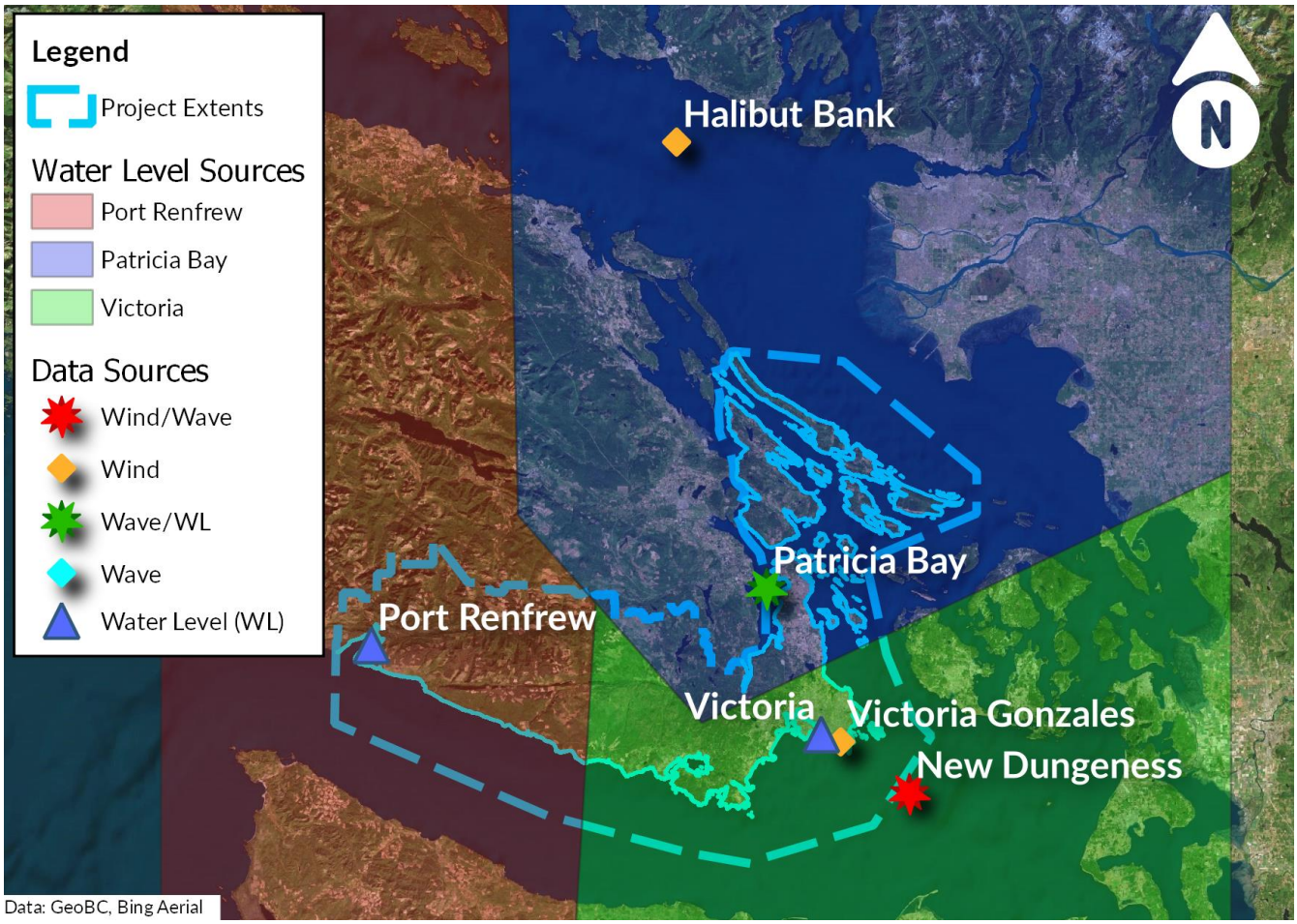

Figure 3-6
2D Water Level Grid Input Data Areas and Stations

3.1.2 Wave Model Calibration/Validation

With the input data prepared, the model parameters were then defined; each of which controls a physical process related to wave generation and transformation during propagation and, consequently, an element of the model behaviour. Some parameters adjust the balance between model accuracy and computational requirements. Others affect the energy interaction between wind, sea, and the sea floor. While there are default values suggested for the software, each model is unique and must be calibrated/validated to improve model reliability. The goal is to have the model defined such that the simulated results match real-world measurements as accurately as possible. Calibration is an iterative process in which a model is run repeatedly while varying relevant parameters one at a time between each run. Once agreement is achieved between the simulation results and the measured data for the calibration period and for a different period of time; the model is deemed to be validated.
The calibration procedure followed these steps:

1. Selected calibration data and time periods from the available wave measurement data. The available wave measurements in the project area are from the New Dungeness and Patricia Bay buoys. A total of six calibration periods were defined – three for each buoy. The periods are each one week in length and correspond to the three highest peaks in significant wave heights at each station over their respective historical record period. Table 3-1 below lists the calibration periods.

Table 3-1
Spectral Wave Calibration Periods

Period ID	Start Date	End Date	Description
p01	12/10/2006 17:00	12/17/2006 9:00	New Dungeness Peak #1
p02	5/1/2010 15:50	5/8/2010 7:50	New Dungeness Peak #2
p03	11/13/2006 23:00	11/20/2006 17:00	New Dungeness Peak #3
p04	4/1/2010 11:40	4/7/2010 13:40	Patricia Bay Peak #1
p05	11/5/2014 8:39	11/11/2014 5:39	Patricia Bay Peak #2
p06	3/7/2007 12:20	3/14/2007 4:20	Patricia Bay Peak #3

2. Defined the initial model parameters based on prior experience and software defaults. This base condition was used as a comparison scenario for each of the iterative parameter adjustments until the results began to converge towards the measured data.
3. Simulated the calibration periods. Outputs from the model included wave height, direction, and period at the two measurement points (New Dungeness and Patricia Bay Buoys).
4. Plotted the results of the calibration simulations against the measurement data. Significant wave height, mean wave direction, and average wave period were compared. These plots show how good the 'fit' of the MIKE 21 SW model is relative to recorded data at the wave buoys.
5. Selected and adjusted single model parameters individually based on the results of the previous run(s).
6. Repeated steps 2 through 5 until the project team were confident in the agreement between the simulated results and the measured data. In total, 73 calibration runs were completed. The calibrated model parameters are presented in Table 3-2.

Table 3-2
Validated Spectral Wave Model Parameters

Model Parameter	Value
Spectral Formulation	Fully spectral
Time Formulation	Instationary
Frequency discretization	Logarithmic, 25 bins, f_{min}=0.036 Hz, C = 1.115.
Directional discretization	360 degrees 16 bins.
Separation of Wind and Sea Swell	Constant threshold frequency = 0.25 Hz.
Solution Technique	Low order, fast algorithm, max # of Levels in transport calculation = 32.
Water Level Conditions	Varying in time and domain (See **Section 3.1.1.4**).
Wind Forcing	Varying in time and domain (See Section **3.1.1.3**) Uncoupled air-sea formulation, Charnock parameter = 0.01.
Wave Diffraction	Not included.
Energy Transfer	Includes quadruplet-wave interaction.
Wave Breaking	Constant γ = 0.8.
Bottom Friction	Constant Nikuradse roughness k_N=0.01 m
White Capping	Constant dissipation C_{dis}= 3, Δ_{dis}= 0.5, power for mean angular frequency = -1, power for mean wave number = -1.
Boundary Conditions	Varying in time, constant along line (western boundary of Juan de Fuca Strait, see **Section 3.1.1.2**).

Detailed calibration plots are provided in **Appendix A** for period p01 at New Dungeness Buoy and period p04 at Patricia Bay Buoy (as per **Table 3-1**), corresponding to the highest measured peak in significant wave height at each station. **Figure 3-7** reproduces one of these plots, showing an example comparison between the validated model simulation results and the measured data. There is good agreement between the modelled calibration results and the measured wave buoy data for the same time period. As such, the project team were satisfied to proceed to the 40-year continuous simulation design runs as described in the following sub-section.

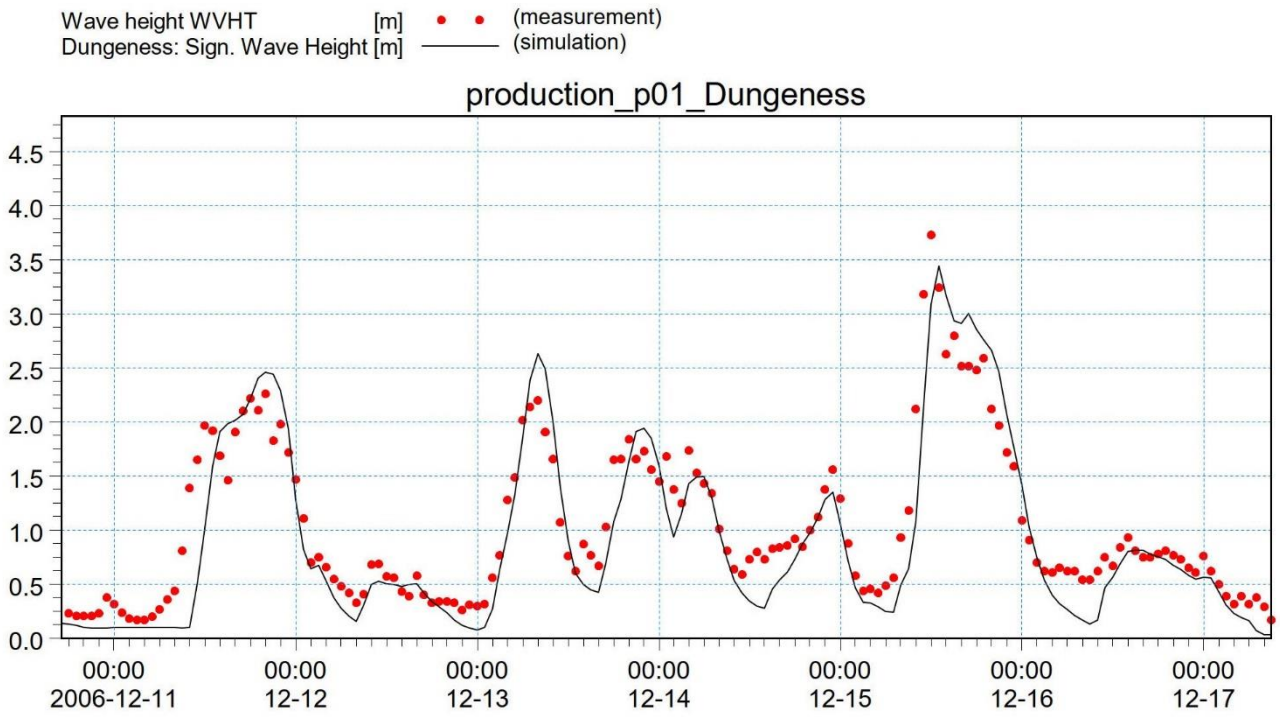

Figure 3-7
Dungeness Bay Buoy Calibration Plot for Period p01

3.1.3 Wave Model Simulations and Results

Once validated, the model production runs were configured. The 40-year simulation period was divided into one-year increments and included a one-week "warmup period" at the start of each simulation.

The outputs from the spectral wave model were selected based on the required inputs for the transect analysis and detailed inundation models. The primary output is the 2D result file with the following parameters saved for each element and time step:

- Significant Wave Height H_{m0}
- Peak Wave Period T_p
- Average Wave Period T_{02}
- Mean Wave Direction MWD

In addition, point outputs for the same parameters were defined at New Dungeness Buoy and Patricia Bay Buoy. This allowed the project team to perform additional validation on the model results against the wave record measurements for periods of time not included in **Table 3-1**.

The hindcast simulation is based on historical data and was not adapted for relative sea level rise. While the water level increase is an important factor for the inundation modelling, it was hypothesized that a minor increase in water

elevation (relative to the ocean depths in the model domain) associated with the different RSLR scenarios investigated would not significantly affect wave generation.

To test this hypothesis, an additional one-year simulation for 2006 (which includes calibration period p01) was undertaken, with water levels increased by 2.0 m to simulate 2.0 m relative sea level rise (RSLR). The results of the RSLR simulation were then compared with the results of the hindcast 2006 simulation (i.e., 0 m RSLR). It was found that the increase in maximum significant wave height over the entire year was small. A maximum increase of 200 mm was observed for the six transects investigated. The mean significant wave height over the entire year was negligibly higher (less than 25 mm maximum), out of the six transects. It was concluded that the difference in wave heights between the 0 m and 2.0 m RSLR scenarios was not significant enough to warrant running additional 40-year simulations for the RSLR scenarios.

Ultimately, the spectral wave model results were exported and prepared for use in the transect analysis and detailed (2D) inundation modelling. Relevant wave parameters were extracted at the toe (seaward end) of each of the transects used in the coastal flooding analysis. More information on this process is given in the following sections.

3.2 Local Surge Analysis

Building upon the foundational information presented in **Section 2.4.2**, local storm surge η was calculated (outside of the MIKE 21 SW modelling environment) on an hourly basis over the 40-year hindcast period for all transects by numerical integration of the following 1D equation along the beach profile:

$$\frac{\partial \eta}{\partial y} = -\frac{\rho C_D |V| v}{\rho_w g (h + \eta)}$$

Where:

- y is distance along the transect measured from its toe (deepest point); η = 0 at y = 0
- ρ is density of air
- ρ_w is density of water
- C_D is wind drag coefficient = 0.0035
- V is wind speed
- v is wind velocity component along the transect
- g is gravity
- h is water depth

Within the context of coastal flooding, local surge is relevant along shorelines with a shallow foreshore exposed to strong onshore winds, since the magnitude of local storm surge increases with increasing wind speed along the profile and decreasing water depth. Translated to the present study, local storm surge can be expected to be significant along transects on natural sandy beaches, especially during low tide.

3.3 Transect Analysis

3.3.1 Transect Analysis – An Overview

Transects are one-dimensional cross-sections through the project foreshore used to rapidly estimate discrete flood conditions at specific locations along a coastline reach. Using one-dimensional transects through the foreshore to estimate flood risk along a coastline reach is standard-practice in coastal engineering. All modelling and analysis up to this point focused on determining the wave, wind, and water level conditions for coastal transects in the nearshore

area. However, waves transform as they propagate up the slope of the seafloor, toward the shoreline, until they eventually break. Large waves breaking on the beach cause both a static increase in water level (or 'setup') and a dynamic, oscillating variation, the largest value of which is referred to as 'runup'. The effects of wave setup and runup contribute to a higher water level than the still water level alone (**Figure 3-8**).

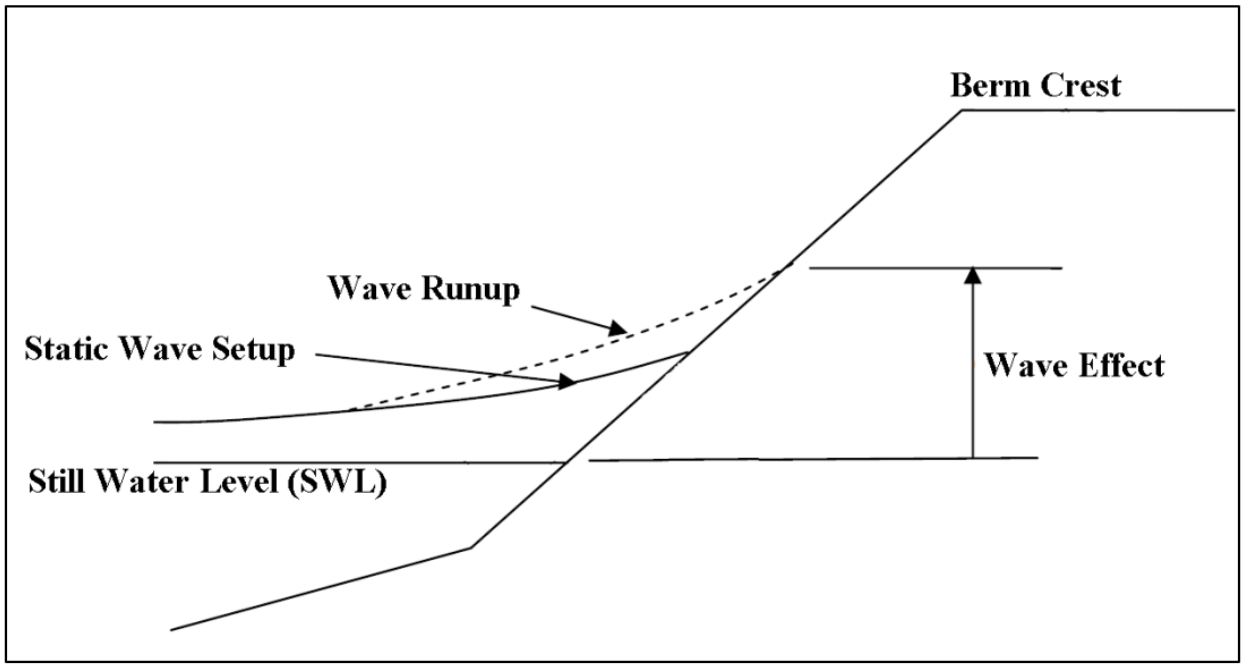

Figure 3-8
Typical Coastal Transect Configuration

A transect analysis approach was used to calculate wave effects and the resulting total water levels including the 0.5% AEP value that informs the proposed FCL (as per **Section 2.1**) at representative locations across the study domain. In total, 222 transects were created. **Appendix C** provides detailed transect location and proposed Flood Construction Level mapping for the study area, respectively.

The placement of each transect is intended to be representative of the immediate adjacent coastline. When selecting transect locations, the objective is to pick up as many coastal risk receptors (vulnerable people, businesses activities) as possible, including likely/potential future development locations, whilst also trying to balance this with representative geographical features. As such, the transect spacing density is greater in areas with higher population density and infrastructure, or where shoreline type, orientation and unique features influencing wave run-up vary more frequently.

Each transect is defined by an elevation profile which extends in a straight line from a point in open water to a point on land, perpendicular to the bathymetric contours, to the degree possible. Thus, as an example, **Figure 3-9** shows a single transect with its profile. The elevation profile is defined from the project DEM, which includes both bathymetric and LiDAR ground surfaces (Task 1 – Project DEM Development Report, Associated Engineering, 2020).

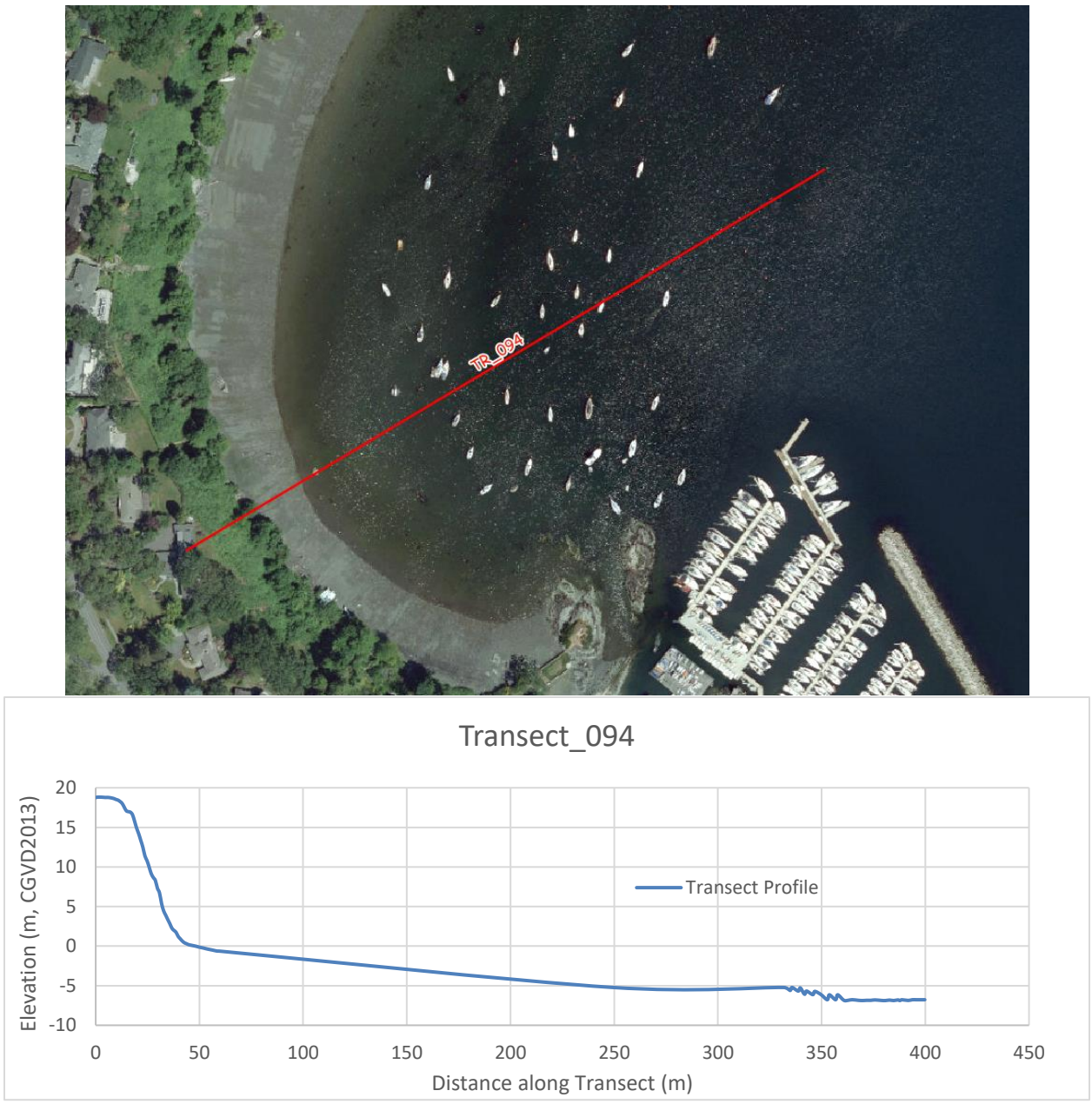

Figure 3-9
Example of Transect and Associated Profile

3.3.2 Transect Analysis – Wave Effects Estimation

The objective of the transect analysis is to give total water levels (i.e. per Provincial Guidelines, FCRPs for the 0.5% AEP event) at each transect location, for each assessed probability and for each RSLR scenario. The proposed Flood Construction Level is then derived by taking the 0.5% AEP (200-year) total water level and adding a freeboard value of 600 mm. Time-series of hourly wave parameters (i.e. significant wave height H_{m0}, peak wave period T_p and mean wave direction MWD) were extracted from the MIKE 21 SW model results at the offshore point of each transect for the entire 40-year hindcast period. Likewise, hourly time series of water levels (tide + regional surge) and wind speed

and direction were extracted from the 2D maps that were created as input for the SW model (see **Section 3.1** for details). Wind parameters were used to calculate local storm surge as previously described, while water levels and wave parameters were used to calculate wave effects as described below.

Wave setup and runup are often lumped together and assessed as a single quantity referred to simply as "wave effects". Wave effects were estimated at every transect, at every hourly time step throughout the 40-year hindcast. The wave effects calculated at each transect were assumed to be representative of the effects along the reach represented by the transect.

Two approaches were used for calculating wave effects (see **References Section** for links):

- **Natural beaches under irregular waves** - Mean runup $\bar{R}$ (or R_{mean}) and $R_{2\%}$ (2% wave runup height) on natural shorelines were calculated using the predictive equations developed by Mase (1989), which also includes wave setup.
- **Transects backed by manmade structures and/or rocky bluff/cliffs** - Wave setup and runup were calculated using the method developed by the Technical Advisory Committee on Flood Defence in The Netherlands[16]. Transects whose FCLs are based on this formula are highlighted as such in **Appendix C**.

Both of these calculations were completed outside of the MIKE 21 SW modelling environment, using spreadsheet-based assessments. According to Mase (1989), mean wave effect (setup and runup) on beaches can be calculated as:

$$\bar{R} = 0.88\xi_0^{0.69}H_0$$

$$R_{2\%} = 1.86\xi_0^{0.71}H_0$$

Where ξ_0 is the deep-water Iribarren's number.

$$\xi_0 = \frac{m}{\sqrt{H_0/L_0}}$$

Where *m* is the average slope of the beach shore face between high and low tide; and H_0 and L_0 are deep-water wave height and length, respectively.

Wave effects calculated at every time step through the hindcast at every transect were added to the RSLR, the tide and the regional and local surge to calculate the total water level (TWL) at hourly intervals. For example, the wave effect at 2:00 pm on June 10, 1991 was added to the tide and surge (regional and local) values occurring at the same time. This was done at every transect, at every hourly time step. This constructed a database of total water levels, from which extreme values, such as the 200-year event, could be estimated.

[16] http://www.overtopping-manual.com/assets/downloads/TRRunupOvertopping.pdf

3.3.3 Transect Analysis – Limitations of Use

This assessment involved the analysis of approximately 1,300 km of coastline at 222 distinct transect locations, resulting in approximately one transect every 5.86 km. The number of transects are limited by project scope and schedule.

Transect analysis describes a 1D analytical procedure that is the common approach for defining flood hazards and associated FCLs in the Province of British Columbia. A limitation of this approach is that site-specific wave runup and overtopping details can be over-simplified and some distinct shoreline reach features may not be captured in the analysis. This is an unfortunate, but inevitable limitation associated with the use of transects within a regional study. It is important to state that study resolution using transect analysis can always be enhanced/improved by placing additional transects. However, this increases analytical requirements, subsequently affecting scope and schedule.

In this study, transects were placed at representative locations within a coastal reach; the resultant wave effects would be representative of the majority of the reach. An alternative approach could be employed, by placing transects at the 'worst-case' locations within each reach. However, this would inevitably lead to over-conservative results at many locations.

In highly developed, urban coastal settings, the shape and form of the foreshore can vary substantially over short distances (i.e. tens of metres). For example, there are locations where the foreshore transitions from gently sloping natural beach, to sea wall, to rocky outcrop and back to a gently sloping natural beach within a span of 50 metres. To select the appropriate transect locations, areas of historic, observed wave overtopping in urban environments were prioritized, followed by locations with sufficient data and representative shoreline conditions/features. A 'reach by reach' review of the transect locations, using satellite imagery, LiDAR data and oblique photography was completed to refine reach boundaries and 'ground-truth' resultant FCLs. In select locations, validation analyses were also undertaken, as described in **Section 3.4**.



Figure 3-10
Example of Shore Zone Oblique imagery used in reach review

Figure 3-10[17] depicts a 'typical' coastal reach in Cordova Bay, and highlights the challenge of establishing FCLs in a regional context using discrete transect analysis. The foreshore alternates between natural sandy beach, to concrete retaining wall, to rocky outcrop and back to natural sandy beach backed by a vegetated slope. This all occurs within an approximate 150 m stretch of coastline. Due to limitations in study resolution, this coastline would be classified as one reach. This erratic mixture of beaches, storm debris, structures and rocky bluffs/skerries is ubiquitous throughout the study area. Therefore, FCL selection should consider that the quoted values are representative of the parent reach and that total water level fluctuations along the reach, both plus or minus, are possible.

Furthermore, any changes to the transect profile as a result of foreshore development, coastal erosion etc. will change the proposed, resultant FCL at the location (e.g. a proposal to build a retaining wall, where there is currently a grassed slope). Therefore, it is recommended that for any proposed development at the foreshore, an additional site-specific analysis be undertaken to determine the appropriate, post-development, FCL.

3.3.4 Transect Analysis – Wave Runup & FCL Mapping Approach

EGBC's 2017 *Flood Mapping in BC, APEGBC Professional Practice Guidelines v1.0* document states that "*in an exposed coastal context, the FCL is equivalent to the dike crest elevation.*" The consistent interpretation of this, with respect to FCLs, is that 'exposed coastal context' refers only to the foreshore exposed to significant wave run up[18]. The dike crest elevation is defined in the 2011 BC MoE *Sea Dike Guidelines* as $R_{2\%}$ (i.e. the vertical distance exceeded by no more than 2% of the waves).

Strict application of an FCL based on the 0.5% AEP, $R_{2\%}$ TWL along the coastline can have a significant effect on development policy. Using this FCL could result in defining unrealistic coastal inundation risk along the backshore where wave effects are diminished.

[17] Image credit: ShoreZone (http://www.coastalandoceans.com/Shore-Zone-Photo-Gallery/thumbnails.asp)
[18] For information, 'exposed coastal context' simply refers to stretches of coastline that are able to experience wave effects such as runup and overtopping. This is the case for the vast majority of locations within the capital region. Exceptions to this classification would be sheltered areas such as the Gorge in Victoria, the southern-most extents of Saanich Inlet and a portion of Sooke behind Whiffin Spit.

This effect would be most pronounced in areas where a flat backshore is located behind a structure (e.g. Dallas Road in Victoria). Aside from dykes with soft backside slopes that are more vulnerable to runup and resultant overtopping, most hard coastal defence structures and natural shorelines would typically only be affected by wave runup and resultant overtopping in the first 10 - 40 m of land from the shore (i.e., the "splash-zone" or "Primary Wave Effect Zone"). Beyond this zone, it is reasonable and technically acceptable to apply a relaxed FCL standard based on either the R_{mean} FCL or the 1m RSLR 0.5% AEP SWL. For the purposes of this project, we are recommending the following:

- A 30 m buffer inland, measured from the 0.5% AEP SWL contour (plus 1m RSLR), defines the "Primary Wave Effect Zone".
- $R_{2\%}$ FCL is applied in the "Primary Wave Effect Zone".
- R_{mean} FCL is applied landward of the "Primary Wave Effect Zone", extending until existing ground is higher than the R_{mean} FCL contour.

Appendix C includes $R_{2\%}$ FCL (i.e. 'foreshore' FCL) and R_{mean} FCL (i.e. 'backshore' FCL) values for each reach; in-keeping with the recommendations above. A graphical explanation of the above bullet points is provided below:

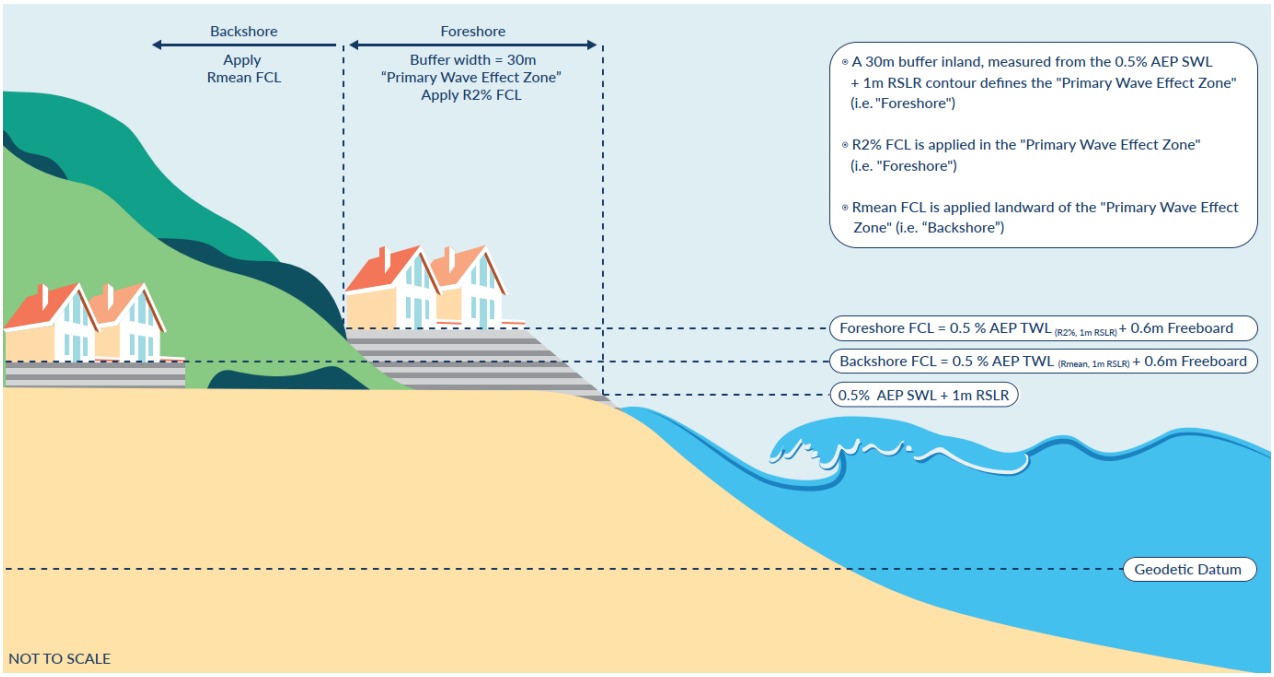

Figure 3-11
Recommended application of FCLs at Capital Region Coastline

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The "Backshore" area is located landward of the “Primary Wave Effect Zone” beyond which wave effects are expected to have dissipated or be negligible. As such, the FCL does not include significant wave effects; it is based on 0.5% AEP TWL (Rmean, 1 m RSLR) + 0.6m Freeboard (see Section 3.3.4 in the Task 2 Report). The potential for wave propagation beyond the Foreshore should be verified through site-specific analysis by an appropriately Qualified Professional.

IMPORTANT: Users are advised to check CSZ-NS tsunami maximum water surface elevations for the site of interest to evaluate whether coastal storm or tsunami risk governs. The FCL should be informed by whichever elevation is higher.

The “Foreshore” or "Primary Wave Effect Zone" includes significant wave effects. It is based on 0.5% AEP TWL (R2%, 1 m RSLR) + 0.6m Freeboard (see Section 3.3.4 in the Task 2 Report). This buffer, assumed to be 30 m wide, is measured from the 0.5% AEP SWL plus 1 m of RSLR contour. Since development can impact resultant wave effects, site-specific analysis by an appropriate Qualified Professional is recommended to verify the impacts associated with development.

This area lies below the 0.5% AEP 1m RSLR SWL contour (as denoted by the bright green line; at this location, elevation value is 3.03 mCGVD2013) and could be inundated by extreme tidal and storm surge conditions alone. Development in this area requires the approving official to consult the Flood Hazard Area Land Use Management Guidelines (2018) for specific guidance.

TR_095

This reach is evaluated using Transect 094 results

This reach is evaluated using Transect 096 results

0 100 200 300 400 m

© OpenStreetMap contributors. Icon made by Freepik & PixelPerfect from www.flaticon.com Sources: Esri, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community.

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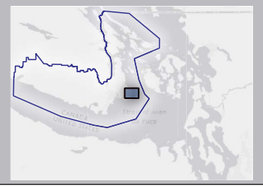
Coastal Flood Inundation Mapping Project

Capital Regional District

October 2021

Figure 3-12
Example Application of R2% and Rmean FCLs

CRD



Map Area



Legend

- 0.5% AEP 1m RSLR SWL
- FCL Reach Boundary
- Primary Wave Effect Zone
- Transect

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines (2018).
2. Users are advised to review the dates of base mapping, aerial photography, land or bathymetric surveys and issue of mapping relative to the dates of development in the map area. Subsequent changes along the coastline and/or in the floodplain can affect analytical results and render site-specific map information obsolete.
3. The Digital Elevation Model used in this study includes the topographic surface data from GeoBC (2019), and bathymetric surface data from CHS and NOAA (dates vary).
4. Elevations are reported with reference to CGVD2013 vertical datum. Map Projection is NAD83 UTM Zone 10N (CSRS).
5. Data sources: Orthoimagery (CRD, 2017);
6. Still Water Level (SWL) is the 0.5% AEP joint-probability estimate of tide and storm surge (i.e. without any wave effects).
7. Flood Construction Level is the 0.5% AEP joint-probability estimate of total water level (including tide, storm surge and wave effects) plus freeboard (600 mm).
8. The 'Foreshore FCL' values account for a total water level at the foreshore corresponding to the top 2% of wave run-up height. For the purposes of this study, the 'Foreshore FCL' is intended to be applied within a strip of coastline termed the 'Primary Wave Effect Zone'. The 'Primary Wave Effect Zone' is a 30m wide corridor, measured landward of the 0.5% AEP SWL plus 1m RSLR contour. The 0.5% AEP SWL plus 1m RSLR contour and 30m buffer have been provided as project GIS deliverables. The 'Backshore FCL' is based on mean wave run-up height and may be applied landward of the 'Primary Wave Effect Zone'. Refer to the Task 2 reporting for further detail.
9. Relative Sea Level Rise (RSLR) is an absolute increase in mean sea level, incorporating the effects of land subsidence or uplift.
10. For further information, please refer to Task 2 – Sea Level Rise Modelling and Mapping Report.
11. Users are advised to check CSZ-NS tsunami maximum water surface elevations for the site of interest to evaluate whether coastal storm or tsunami risk governs.

Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by D. Forde, P.Eng.

Making a difference...together

plot date: 2021.10.20
file: \\ae.ca\data\working\van\2020-2990-00\gis\QGIS

The project team have chosen a consistent 30 m buffer, to define the "Primary Wave Effect Zone", assimilating information from a variety of best-practice resources and local studies, summarised below:

- FEMA defines the "splash-zone"/"Primary Wave Effect Zone" as an area extending a minimum 30 feet landward of the seaward face of a seawall or other coastal engineering structure that is overtopped by waves, if runup ≥ 3 feet above the crest of the foreshore[19][20].
- EurOtop (Manual on Wave Overtopping of Sea Defences and Related Structures)[21] provides discussion on the spatial extent of overtopped discharge, in the context of vertical and steep walls. Various laboratory testing has shown that 95% of violently-overtopped discharge will land within a distance of 0.25 x $L_{m-1.0}$. $L_{m-1.0}$ is defined as the spectral wavelength in deep water; which varies over a wide range anywhere between 0.0 m to +80.0 m throughout the study area due to the variability in types of wave exposure and shoreline over the large study region.
- In some local studies, where the reconciliation of wave effects and expansive backshores has been a primary mapping issue, a 30m offset has been applied to define the edge of the splash-zone/Primary Wave Effect Zone[22].

After careful consideration by the project team and assimilating the above information, a "Primary Wave Effect Zone" width of 30 m was chosen. Further detailed, site-specific runup/overtopping analyses would be required at each reach to refine the "Primary Wave Effect Zone" width. This could be done through the use of detailed 3D modelling (see **Section 6.6**) or additional numerical analyses at each transect using a software program such as SWASH[23] or similar.

Discussion on 'Building Setback'

Building Setback is another aspect of the management of coastal flood hazard that must be addressed. Building setback, as defined in the Provincial Guidelines "means the withdrawal or siting of a building or landfill away from the natural boundary or other reference line to maintain a floodway and to allow for potential land erosion." Building setback requirements can differ depending on governing hazard source (i.e. coastal storm or tsunami), and proposed development (existing lots, subdivisions), as per *BC MoE 2017*.

A graphical explanation of building setback was provided in the earlier BC Ministry of Environment Guidelines for Management of Coastal Flood Hazard Land Use document and is reproduced in the ensuing **Figure 3-13**. Generally speaking, the building setback is the greater of (a) landward of the Yr. 2100 FCL contour or (b) 15m landward of the Yr. 2100 Estimated Natural Boundary (i.e. 15 m landward of the FCRP contour).

In steeper stretches of coastline, which is applicable for the majority of the capital region, this setback regulation would be relatively straight-forward to apply. However, in flatter portions of coastline, with expansive backshores, the setback regulation is more challenging to apply. Below are two example areas where application of these Building Setbacks requires careful consideration:

[19] https://www.fema.gov/sites/default/files/2020-02/Wave_Runup_and_Overtopping_Guidance_Feb_2018.pdf
[20] FEMA. Atlantic Ocean and Gulf of Mexico Coastal Guidelines Update. Feb 2007.
[21] http://www.overtopping-manual.com/assets/downloads/EurOtop_II_2018_Final_version.pdf
[22] https://www.obwb.ca/docs/2020-okanagan-floodplain-mapping-nhc-finalreport-highres.pdf
[23] https://www.tudelft.nl/en/ceg/about-faculty/departments/hydraulic-engineering/sections/environmental-fluid-mechanics/research/swash

- Dallas Road (Victoria) – Dallas Road has a steep vertical sea wall at its foreshore. This sea wall tends to propel waves vertically into the air, resulting in overtopping and spray. Even with 1 m RSLR, future extreme still water levels do not exceed the crest of the sea wall/road. Using its $R_{2\%}$ FCL to inform a building setback distance would site development hundreds of metres inland, which is unrealistically conservative.
- Cadboro Bay (Saanich/Oak Bay) – Cadboro-Gyro Park is relatively low-lying with approximate elevations of 1.5 m – 2.5 m CGVD2013. As such, it would be underwater relative to a 0.5% AEP 1 m RSLR still water level which at this site is estimated to be 3.03 m CGVD2013. However, the inundation depth would be such that full wave propagation into the backshore would be limited and could result in waves breaking at the present-day coastal boundary. Therefore, using its $R_{2\%}$ FCL to inform a building setback could be overly-conservative.

In both of the examples above, the preferred means of resolving the building setback issue would be to model these areas using detailed 3D inundation models, as explained in Section 6.6. The models would show maximum inundation extents, beyond which development could be sited. In the absence of this type of modelling, it is recommended that proposed development be assessed on a site-by-site basis, with recommendations on building setback being given by a qualified coastal engineering professional. It is also recommended that municipal planning staff familiarise themselves with both *BC MoE 2017* and the *BC Ministry of Environment Guidelines for Management of Coastal Flood Hazard Land Use* document, as there are various caveats and exceptions to that outlined above with the resultant permutations dictating site specific considerations.

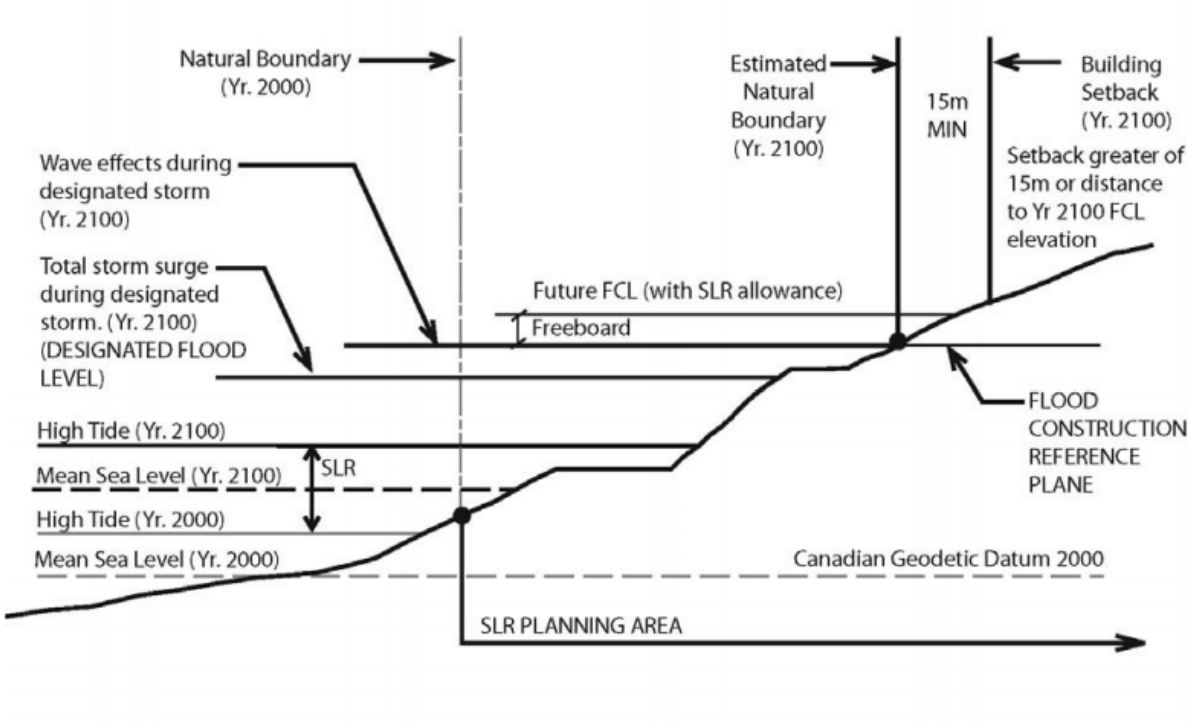
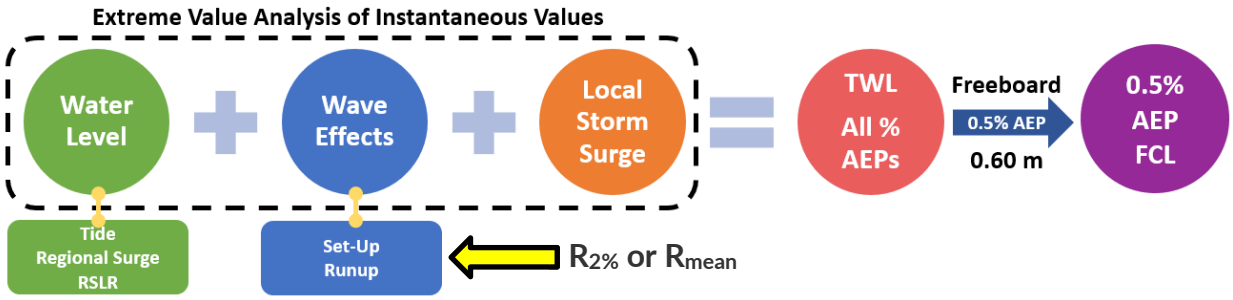


Figure 3-13
2011 Guidelines for Management of Coastal Flood Hazard Land Use – Definition of Estimated Natural Boundary (Figure 2-2)

It is also important to note that building setback for any development in the backshore (i.e. landward of the Primary Wave Effect Zone) is most likely not required.

3.3.5 Transect Analysis – Extreme Value Analysis (EVA)

Using the database of records developed in **Section 3.1**, the total water levels from the hindcast runs, for the four (4) different RSLR scenarios, at each transect were used to estimate frequency-response curves for each transect. The frequency-response curves were then used to estimate the total water level associated with the 10%, 5%, 2%, 1% and 0.5% AEP events. Adding freeboard to the 0.5% AEP total water level (TWL/FCRP) value specifically gives the proposed FCL at that particular transect. The image below is a graphical depiction of this process.



An example frequency-response curve for one of the study's transects is given below. The intersection of the line of best fit and the return period line gives the appropriate total water level value.

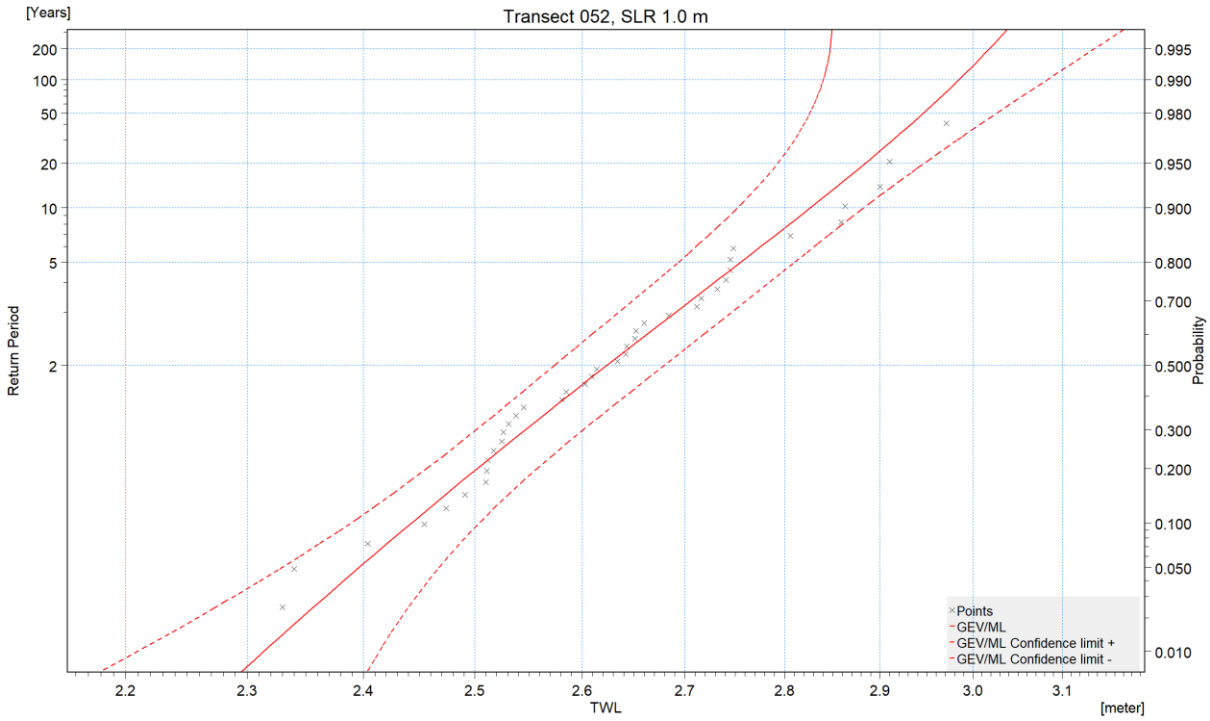


Figure 3-14
Frequency-Response Curve for Transect 052, RSLR 1.0 m

It should be noted that the hindcast period is relatively short (i.e. 40 years) and, consequently, the 0.5% AEP estimates, in particular, have uncertainty associated with them. If the tide/wind/wave gauge records were longer, the 0.5% AEP could be estimated with more statistical certainty. However, this is a limitation that engineering professionals frequently encounter, and techniques used herein are widely used and technically robust. Notably, the 600 mm freeboard value in the FCL calculation is intended to account for uncertainty in the calculations that inform it.

3.4 Validation of the Hindcast Record

The 40-year hindcast produced by the MIKE 21 SW modelling (**Section 3.1**) and Transect Analysis (**Section 3.3**) gives water level and wave conditions at each transect location, every hour for the 40-year period. As such, the project team can examine model performance on any date/time within the model domain. To help validate the performance of the model, the project team identified several locations and corresponding events to compare modelled vs. observed water levels. The following sub-sections describe each location and event accordingly.

3.4.1 Coburg Peninsula & Ocean Boulevard

Coburg Peninsula and Ocean Boulevard are located along the City of Colwood's waterfront. Coburg Peninsula is an approximately 1900 m long natural breakwater that protects Esquimalt Lagoon and the shoreline properties behind it. The crown of the access road (Ocean Boulevard) ranges in elevation between 2.30 m CGVD2013 at its lowest point, to approximately 3.20 m CGDV2013 at its highest point (see figure below). Ocean Boulevard can be inundated by extreme waves during large winter storm events, but the peninsula crest is higher than the most extreme still water levels (i.e. astronomical tide plus storm surge) recorded at the Victoria tide gauge. The brackish water of Esquimalt Lagoon inflows and outflows with the tidal cycle through a narrow opening to the wider Salish Sea at the northern extent of the peninsula.

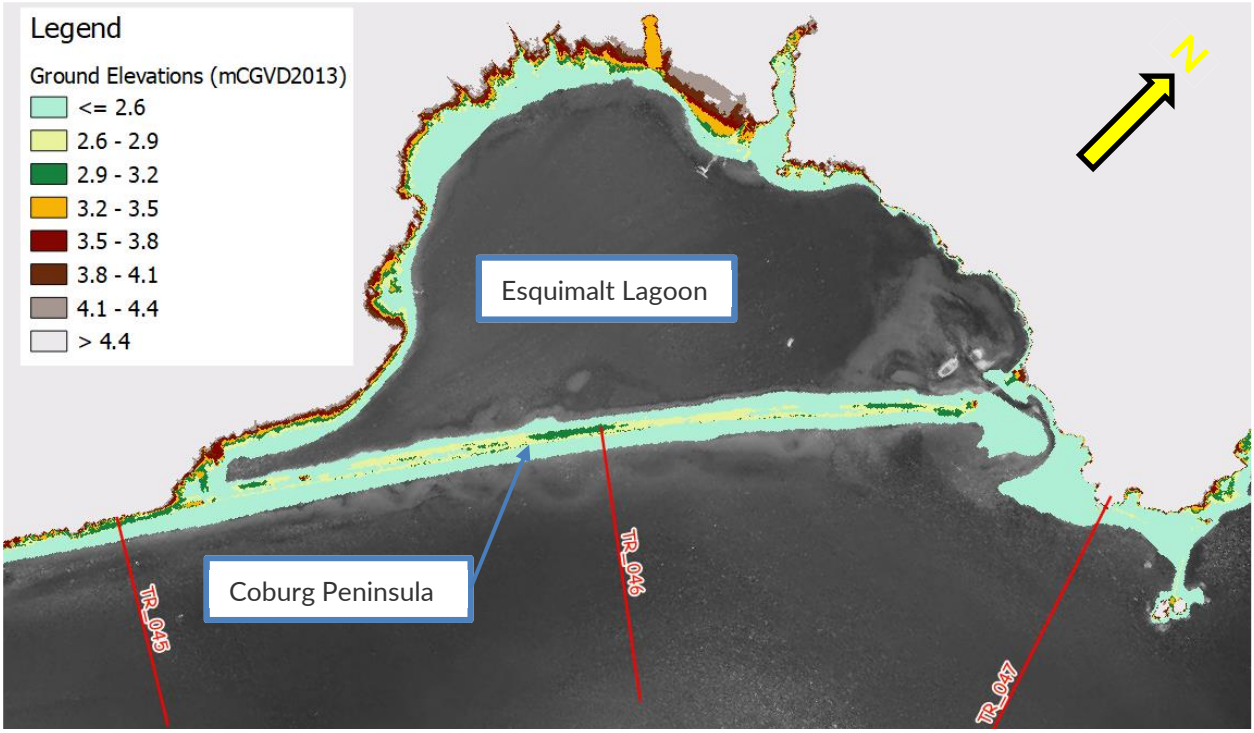


Figure 3-15
Existing topography at Colwood Waterfront and Coburg Peninsula

There was a noteworthy, observed event that occurred in mid-December 2015. The event had two distinct peaks that occurred over a two-day period, between December 10 and December 12, 2015. The December 12, 2015 event was the more significant, in terms of resultant total water levels. Figure 3-16 shows the aftermath of the December 12, 2015 event, close to the north end of Coburg Peninsula. The event(s) resulted in logs being pushed to a ground elevation of approximately 2.4 - 2.6 m CGVD2013 at the south end of Coburg Peninsula (i.e. close to Transect 45). Similarly, logs were washed up onto the peninsula further to the south-west, on Ocean Boulevard at a ground elevation of approximately 3.0 m CGVD2013.

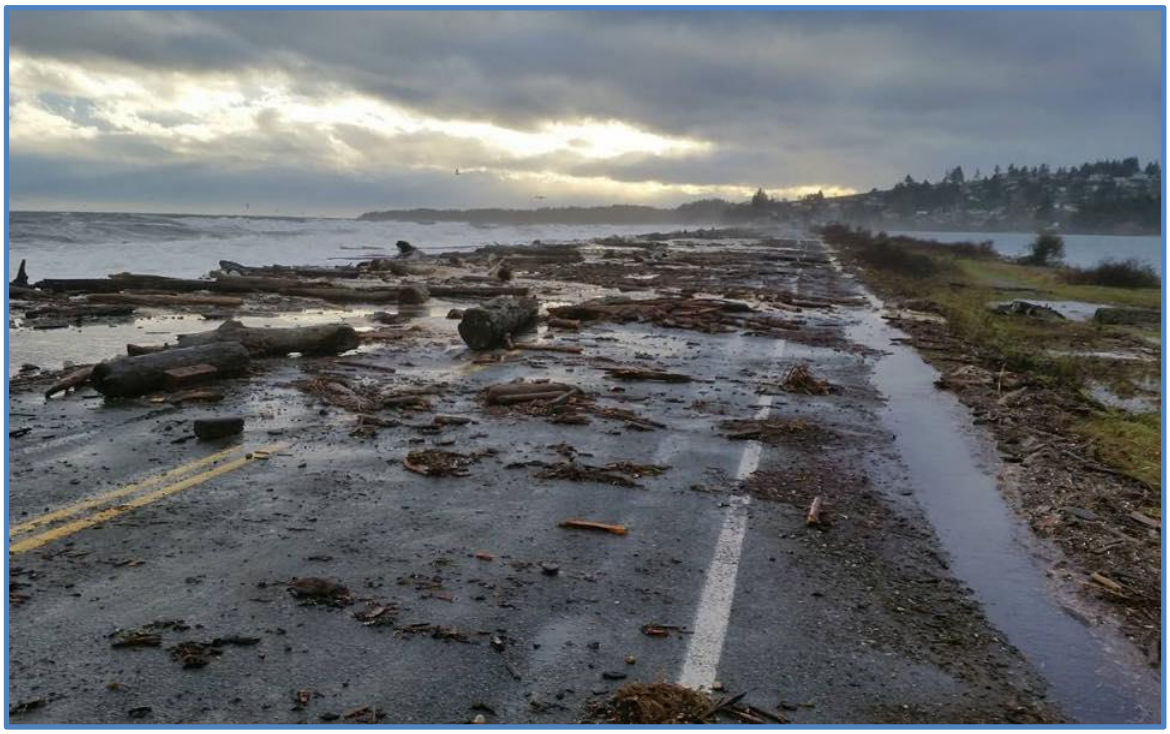


Figure 3-16
Post Dec. 12, 2015 event photograph of Coburg Peninsula (Photo credit: Linda Gower)[24]

Transect 46 is approximately coincident with the location of the observer in Figure 3-16 (looking south-west). Existing ground elevations in the image are approximately 2.2 – 2.7 m CGVD2013. Extracting results from the 40-year hindcast for the event in question, a total water level of 2.70 m CGVD2013 is derived, as shown in Figure 3-17. This exceeds the existing ground location shown in the image. Additionally, maximum wave runup (R_{max}) (i.e. the maximum onshore elevation that can be reached by waves), would add an approximate 0.15 m to the 2.70 m CGVD2013 value.

Similarly, at Transect 45, the hindcast record produces a total water level of 3.14 m CGVD2013, which matches or exceeds the existing ground elevations along much of Ocean Boulevard. Therefore, the underlying 40-year hindcast record appears to effectively replicate observed, measured wave runup at Coburg Peninsula.

[24] (Instagram @lindagower) https://www.colwood.ca/news-events/news/2015-12-14-000000/ocean-boulevard-reopens-after-colwood-waterfront-rocked-storm

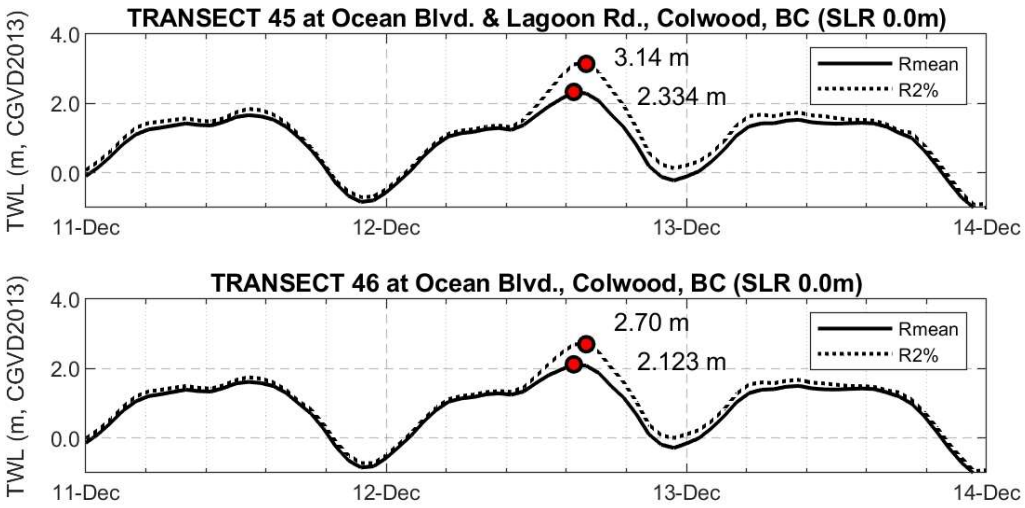


Figure 3-17
Hindcast Results for Dec. 12, 2015 Event at Ocean Blvd. and Coburg Peninsula, Colwood

3.4.2 Dallas Road

Recorded events demonstrate that waves runup and are able to overtop the sea wall along Dallas R in Victoria, between Dock Street and Oswego Street which has an elevation of approximately 5.30 - 5.60 m CGVD2013; this is despite still water levels being 3.5 - 4.5 m below this elevation. The project team were able to identify two distinct, recent events that occurred at Dallas Road: October 2016 and November 2015. There are a number of newspaper images and YouTube videos, against which the MIKE 21 SW hindcast could be compared. The image[25] below shows an example of the wave runup and spray overtopping at Dallas Road for the October 2016 event. Photography of the November 2015 storm event exists at the footnoted website link[26,27]

[25] Image Credit: Times Colonist
[26] https://kevinlightphoto.com/2015/11/17/ghost-riders-in-the-sky/
[27] https://kevinlight.photoshelter.com/image/I0000O3dh2ROih48

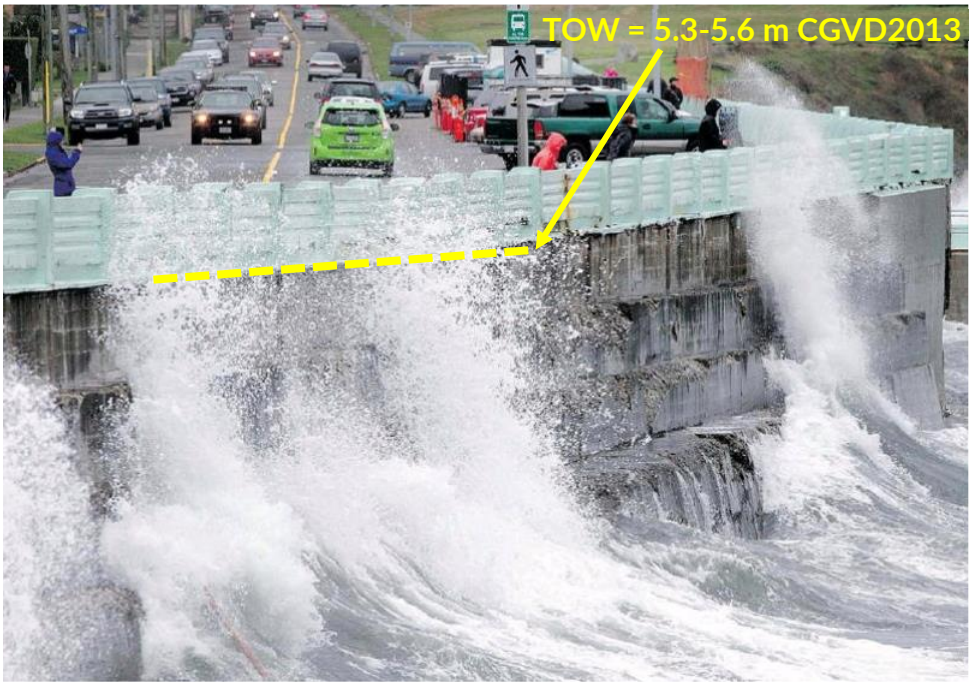


Figure 3-18
Oct. 14, 2016 event at Dallas Road

Based on extracting model results from the 40-year hindcast for the stated storm events, the following conclusions can be drawn:

November 17, 2015 Storm Event

Review of the wave interaction with the seawall, using the photographic evidence presented in the aforementioned website link, suggests that moderate overtopping and heavy wind-driven spray occurred during this event. The modelled total water level of 6.35 m CGVD2013, as presented in Figure 3-19, supports the overtopping observations presented in the photos, thereby confirming the model's ability to replicate this event.

October 14, 2016 Storm Event

Figure 3-18 suggests that a limited amount of wave overtopping occurred and that some spray overtopped the seawall at Dallas Road during this event. The modelled total water level of 5.20 m CGVD2013 supports the observations from the photographic record that the waves themselves did not overtop the structure, and that overtopping was limited to spray only.

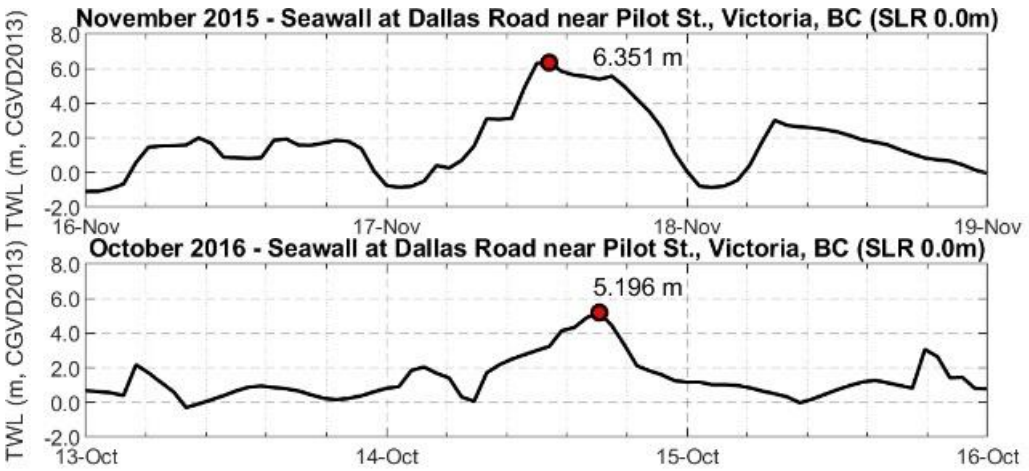


Figure 3-19
Hindcast results for Nov. 17, 2015 and Oct.14, 2016 events along the seawall at Dallas Road near Pilot Street

3.4.3 McNeill Bay

Another location within the capital region that has observed coastal flooding is McNeill Bay, within the District of Oak Bay. More specifically, Beach Drive was subject to limited wave overtopping and flooding on December 12, 2015, as evidenced by the footnoted video[28]. Much of the observed inundation seems to have been caused by significant volumes of wind-driven spray, rather than large wave runup and overtopping. There is an existing, near-vertical sea wall between Beach Drive and the adjacent beach. Existing road crest elevations along Beach Drive are approximately 3.5 m – 3.6 m CGVD2013 between the Oliver Street and St. Patrick Street intersections. To evaluate our spectral wave model's ability to replicate the observed conditions, we extracted the relevant data from the hindcast record for the period of interest, at TR_083. This yielded results for $R_{2\%}$ TWL, as shown below:

[28] https://www.youtube.com/watch?v=sD-ONlNR12w

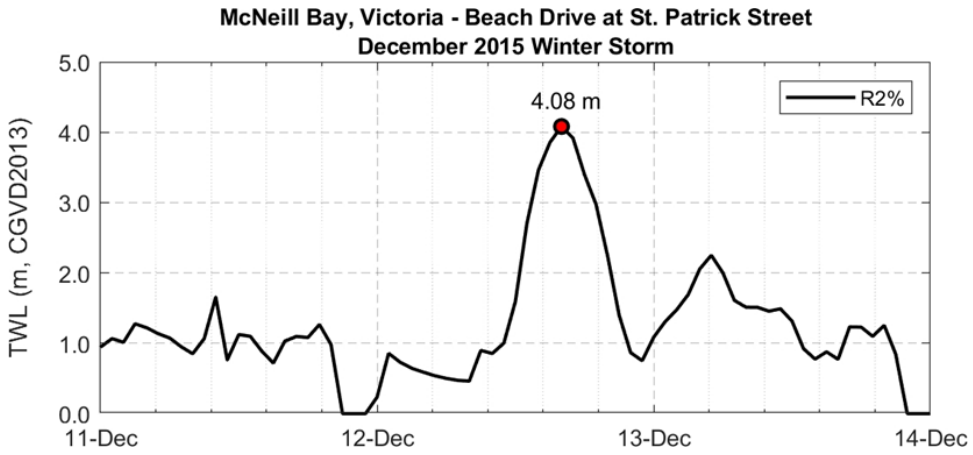


Figure 3-20
Hindcast results for Dec. 12, 2015 event at McNeill Bay

Upon comparison of the model results for the December 12, 2015 event with existing site topography, the project team was satisfied that the hindcast results had appropriately captured the event, as depicted in the video. It is important to note that from the video, there does not appear to be a large wall of 'green-water' that exceeds the crest of the sea wall, but rather moderate runup (approximately equivalent to the TWL presented in Figure 3-20) and significant wind-driven spray.

3.4.4 Cordova Bay Park

To test our 40-year hindcast model's ability to replicate observed, recorded flooding within Cordova Bay, we placed an additional transect at Cordova Bay Park. A video of an observed storm event on November 24, 2011 can be found at the footnoted link[29]. Cordova Bay Park's location within Cordova Bay, is shown in the image below:



Figure 3-21
Location of Cordova Bay Park Validation Transect

The video shows clear, significant wave overtopping, with waves running up and over the existing lock-block wall. Our original LiDAR data was processed at a resolution that was too coarse to capture the width of the lock-block wall. As such, we opened up the original .LAS file and extracted the raw point data for the lock-block wall. It was found that top-of-wall level (TOW) was approximately 3.6 m CGVD2013, whereas the existing ground elevation is

[29] https://www.youtube.com/watch?v=C38GufQoGCk

approximately 2.7 m CGVD2013. This information was added to the transect profile. Extracting the total water level results from our hindcast model, yielded a value of 5.33 m CGVD2013 (based on $R_{2\%}$). According to our analysis, there is approximately 1.7 m of runup above the TOW, which accounts for the overtopping seen in the video. This provides further evidence of the 40-year hindcast's ability to replicate observed flooding in the Haro Strait.

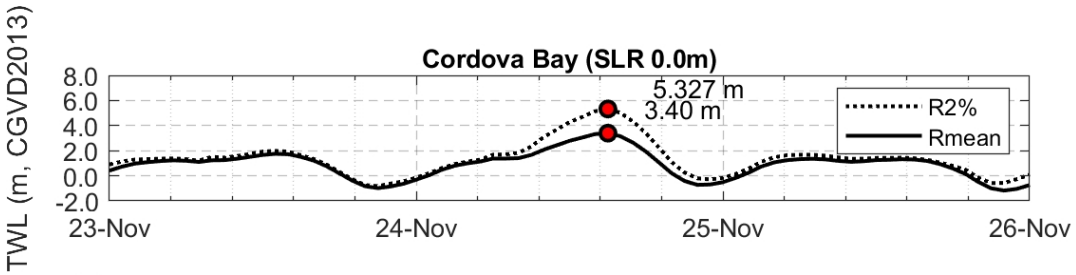


Figure 3-22
AE's hindcast results for Nov. 24, 2011 at Cordova Bay Park

3.4.5 Sidney Fishing Pier

A further, potential validation video[30] was found for the December 12, 2015 event at Sidney Fishing Pier. The yellow dot in the image below shows the location of where much of the video's observations were focused. The average wave runup in the video is approximately 2.5 m CGVD 2013, based on comparing inundation extents to LiDAR data.

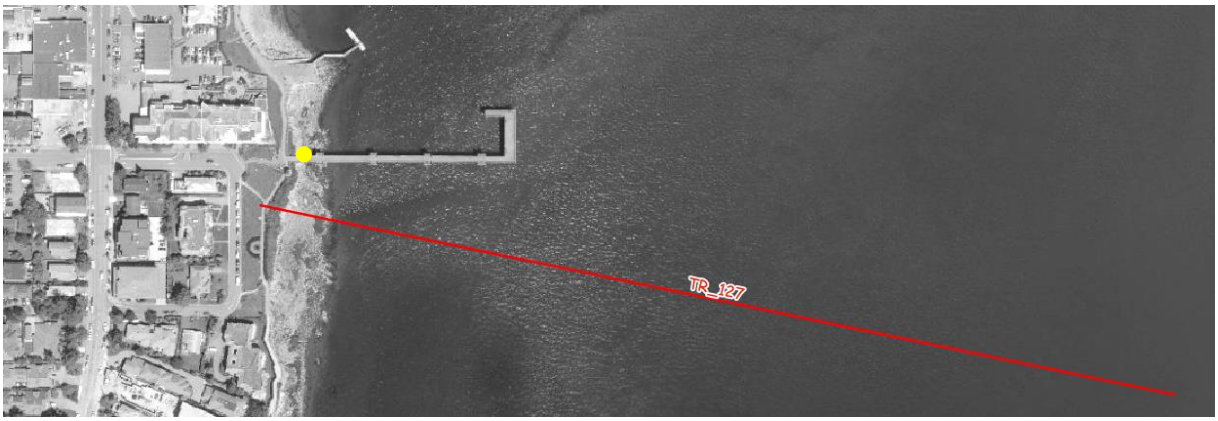


Figure 3-23
Location of additional validation event (Dec. 12, 2015) at Sidney Fishing Pier

Using our 40-year hindcast record, we extracted a snapshot of the results for Transect 127 (the closest transect) for the December 12, 2015 event. Evaluating for total water level, we derived the following results:

[30] https://www.youtube.com/watch?v=olVJuOkomf4

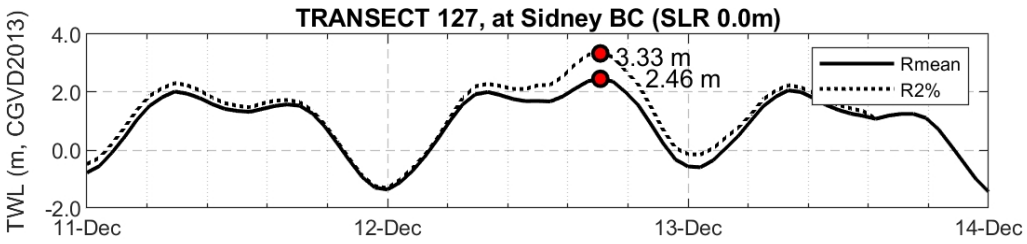


Figure 3-24
AE's hindcast results for Dec. 12, 2015 event at Sidney Fishing Pier

TWL derived using R_{mean} is approximately 2.46 m CGVD2013; $R_{2\%}$ yields 3.33 m CGVD2013. This result aligns with the observed wave runup in the aforementioned YouTube video. This provides another validation of our 40-year hindcast record and its ability to replicate observed events in the Haro Strait.

3.4.6 Otter Bay Ferry Terminal (North Pender Island)

To help assess the ability of our modelling to replicate observed wave runup and overtopping in the northern part of the project area, the project team undertook validation analysis at the Otter Bay Ferry Terminal, on North Pender Island. As per previous validation events, the team found video[31] of an event on December 20, 2018. The location of the observer is at the seating area/picnic area at the ferry terminal (yellow dot), as shown in the image below. Existing ground elevation at that location is approximately 3.6 m CGVD2013. Transect 204 is approximately coincident with this observation location.



Figure 3-25
Location of Otter Bay Dec. 20, 2018 validation event

[31] https://www.youtube.com/watch?v=NKH0NwiMNo4

Extracting the results from the 40-year hindcast for Transect 204 for the relevant period yielded a TWL of 3.81 m CGVD2013 for the event peak which occurred at approximately 2:00 pm in the afternoon. This agrees quite well with what is observed in the video for the transect location. We also placed a transect directly at the observer's location, as the foreshore slope is slightly steeper. This resulted in a TWL ($R_{2\%}$) of 4.45 m CGVD2013, which is in agreement with what can be observed in the video. It is also evident that not every wave in the video runups and overtops the observer's location. This is consistent with the estimated TWL (R_{mean}) of 3.09 m CGVD2013 at the same location.

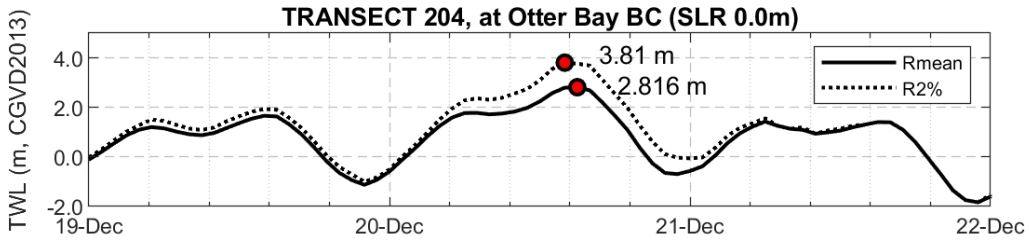


Figure 3-26
AE's hindcast results for Dec. 20, 2018 event at Otter Bay, North Pender Island

3.4.7 Validation Conclusions

It is evident from the preceding sub-sections that the spectral wave model, whose development was outlined in **Section 3.1**, is able to adequately replicate observed, historic events at disparate locations throughout the study area. It is important to reiterate that the model resolution is influenced by the expansive, regional-level study area. The underlying spectral wave model could be refined to include finer resolution, if desired, for targeted site-specific analysis. However, as has been demonstrated, the overarching performance of the resultant hindcast record provides reliable estimates of TWL that is suitable for flood planning purposes

3.5 Detailed Inundation Modelling

Following consultation with the CRD and local government partners, five areas were identified for detailed inundation modelling. These areas are shown in the figure below. The areas were selected on the basis of their low-lying topography, potential susceptibility to coastal inundation and their relatively high population density[32].

[32] The selection of these areas is summarised in greater detail in Finalized Project Methodology Technical Memo (Associated Engineering, 2019).

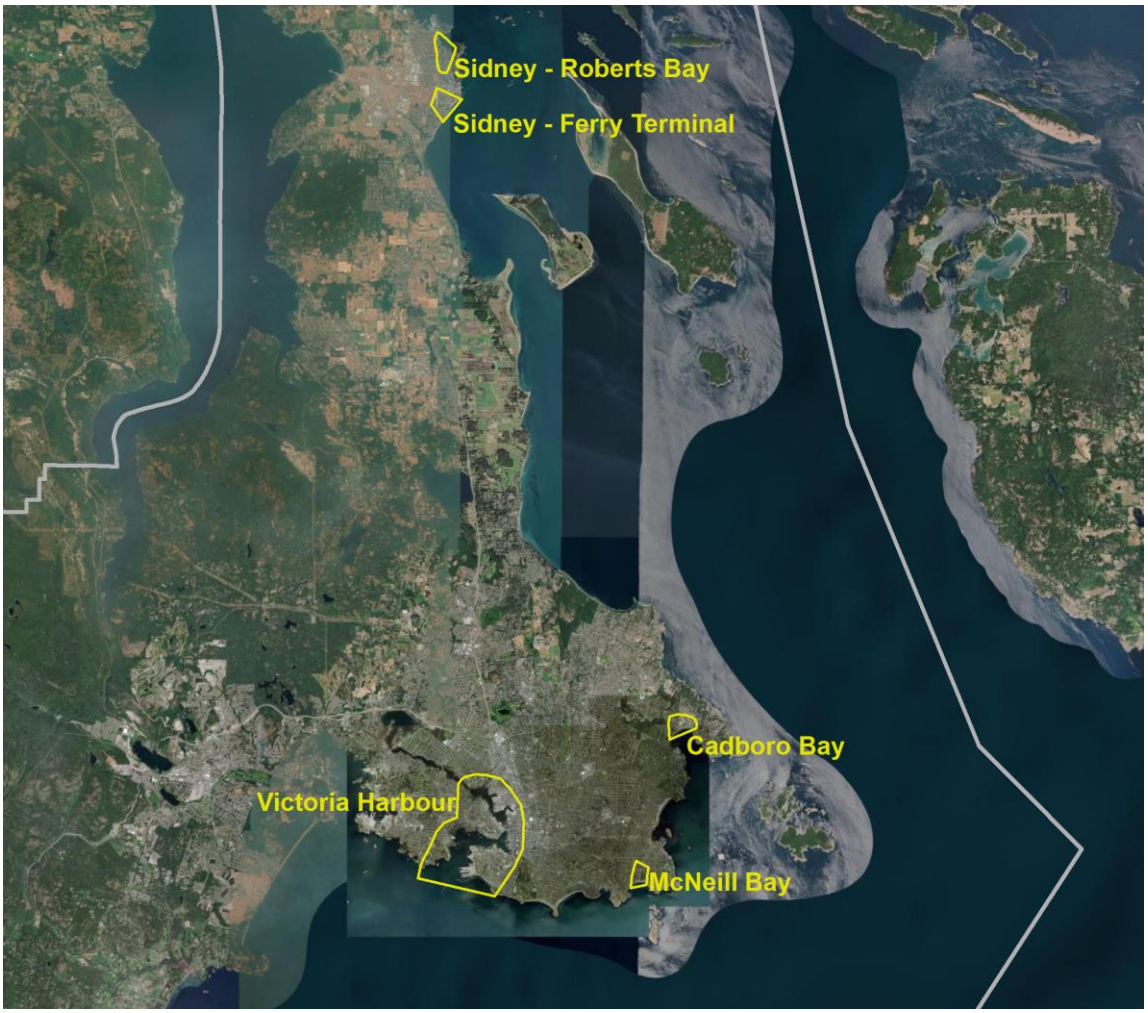


Figure 3-27
Local Areas Selected for Detailed Inundation Modelling

The purpose of the detailed (2D) inundation modelling was to estimate potential extent and depth of various flood events at distinct locations. It is common practice to horizontally project the calculated FCLs until intersecting the underlying natural terrain when preparing hazard maps. This approach, while easy to implement due to its simplicity, is rather conservative since it ignores the dynamic nature of the flood and the time required for its overland propagation. In coastal flood assessments it is also technically incorrect to do so, if there are significant wave effects present at the area of interest. For these reasons, detailed inundation modelling for a few selected, densely populated areas within the capital region was completed. This gives project stakeholders an idea of expected potential flood extents and identifies areas of significant exposure for a defined event (i.e. a more representative picture of potential flood extents and depths). The 2D maps, however, are not to be used for the establishment of FCLs.

The computational methods used to derive 2D flood extents are distinct and differ from the methods used to derive FCL values along a 1D transect. Each method has its own set of advantages and limitations that should be well understood within the project context before the models are selected. The 1D transect approach allows for the statistical interpretation of many events (in this case taking place over 40-years), to derive the FCL along each

shoreline transect. This method provides discrete statistical outcomes but does not provide a comprehensive 2D interpretation of flood extents over a larger area. To visualize and understand spatially varying regional flooding, the more computationally intensive 2D approach that simulates overland flooding using a hydrodynamic (HD) model was adopted. High computational resource demands are a distinct limitation of this approach, where a short duration event spanning no more than a few hours to a few days can be realistically simulated. Therefore, a statistical interpretation for a multi-year period is not practical with 2D HD modelling, and FCL values cannot be reasonably derived from the HD model output directly. Recognizing these limitations, the results from the 1D transect model can be extracted for a specific event where the exceedance frequency is known. The offshore output can then be prepared as a boundary condition for the 2D model. Leveraging the long-term 1D model hindcast to select and simulate short duration events in the 2D model is a hybrid approach that allows for 2D interpretation of flood impacts where the origin and nature of the flood event is well understood. In this study, the depth-integrated hydrodynamic model MIKE 21 HD FM developed by DHI is used to perform all 2D HD inundation modelling runs.

Another limitation of 2D hydraulic inundation modelling is that HD models do not traditionally include dynamic wave effects. Recent advancements in overland flood modelling include both wave and hydrodynamic processes (e.g. MIKE 3 Wave FM, OpenFOAM, CFD modelling), however such models are still relatively complex to implement and require resources that go beyond the scope of this study. To overcome this limitation, the wave effects from the 1D transect approach are included along the hydraulic boundary of the 2D overland flow model. The water elevation associated with wave effect does not transform as a true wave in the HD model. Although this is slightly conservative, the added water level (R_{mean} value) is a small contribution to total water level when compared to storm surge and tidal effects experienced during the most extreme scenarios, as well as longer-term sea-level rise contributions. Physical features across the floodplain also dissipate energy from wave effect water level contribution. For example, overland flow in the model interacts with surfaces and buildings that are interpreted as roughness features that influence the extent and magnitude of total overland flow. Within each 2D HD domain, all of the available 1D transects are assessed individually, and a representative transect timeseries selected, where total water levels, including R_{mean} wave effects, are extracted and prepared as 2D model boundary conditions for an event with a 0.5% AEP for all four RSLR scenarios. Further information on the selection and preparation of the 2D model boundary conditions is presented in **Section 3.5.3** of this report.

Each event is simulated for a duration of a few hours to a number of days, where the maximum flood water extent is plotted on a 2D satellite image surface. It is important to note that the maximum depth and extents do not occur simultaneously but are instead an interpretation of all inundation depths and extents experienced over the duration of the simulation. For this study, the flood associated with the 0.5% AEP for all four RSLR scenarios in each of the five areas is simulated, thus yielding a total of 20 model simulations. Results will help municipalities get a better sense of actual inundation extents for the 200-yr. (0.5% AEP) provincial flood standard. This could aid in understanding a range of potential challenges; for example, emergency response activities during a flood event.

3.5.1 Model Mesh and Bathymetry

Model bathymetries were created by interpolating bed elevations from the project DEM[33] onto unstructured meshes which resolve the areas of interest using quadrangular elements measuring approximately 5 x 5 meters. For each model area, the bathymetry and topographic (LiDAR) datasets were interpolated separately onto the same grid. Bathymetry data was only used for elevations below -0.6 m CGVD2013, since anomalies were observed at higher elevations.

[33] Task 1 - DEM Development Report (Associated Engineering, 2020)

Both datasets were combined; gaps between them were observed in all cases, and these were filled in using spatial interpolation tools available in the MIKE Zero software. The figures below show the model bathymetry for the five areas selected for detailed modelling.

While the potential for coastal flooding in the areas bounded by the black polygons in these figures was the primary focus of this exercise, practical considerations about the setup and stability of the hydrodynamic model, as well as the expected overland propagation of the flood, dictated in many cases that the model bathymetries cover areas larger than the original focus areas. This is particularly true for the Victoria Harbour and McNeill Bay areas. In the first case, inclusion of inland channels is required to ensure proper performance of the MIKE 21 HD model. In the case of McNeill Bay, a larger model area is required to account for the possibility of floods propagating towards the area of interest from the north end of the domain shown in the figure below.

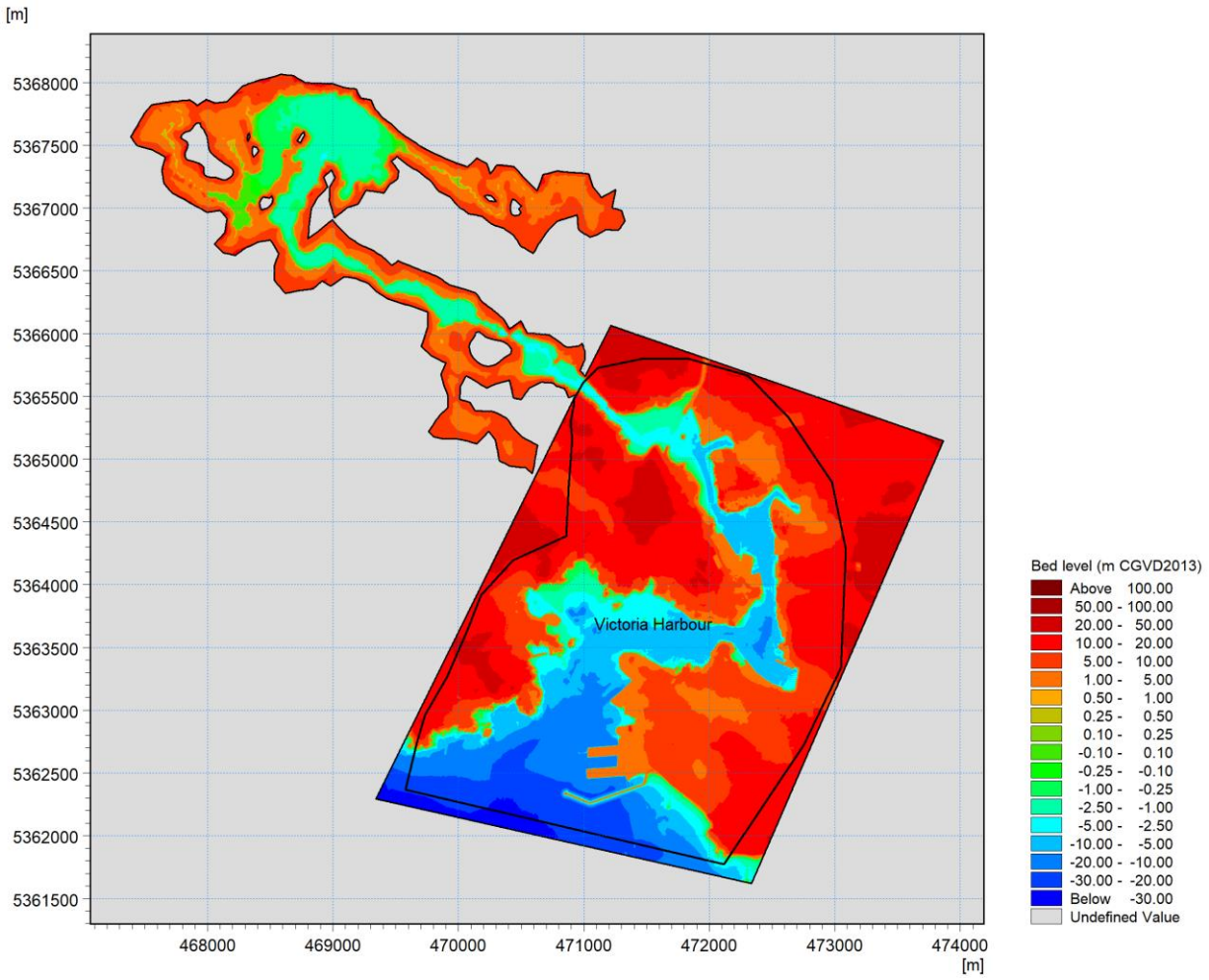


Figure 3-28
Model Bathymetry for Local Area Victoria Harbour

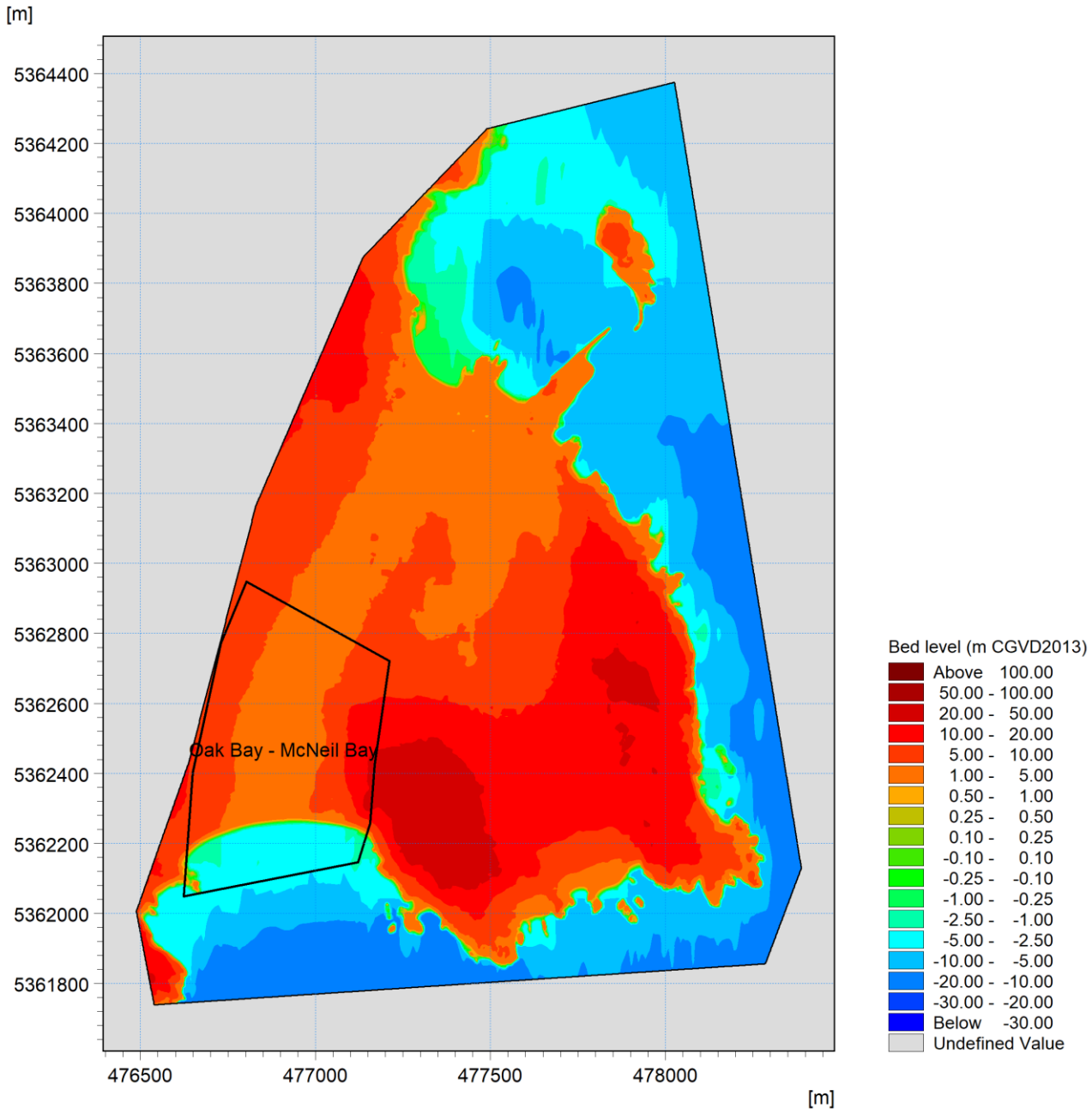


Figure 3-29
Model Bathymetry for Local Area McNeill Bay

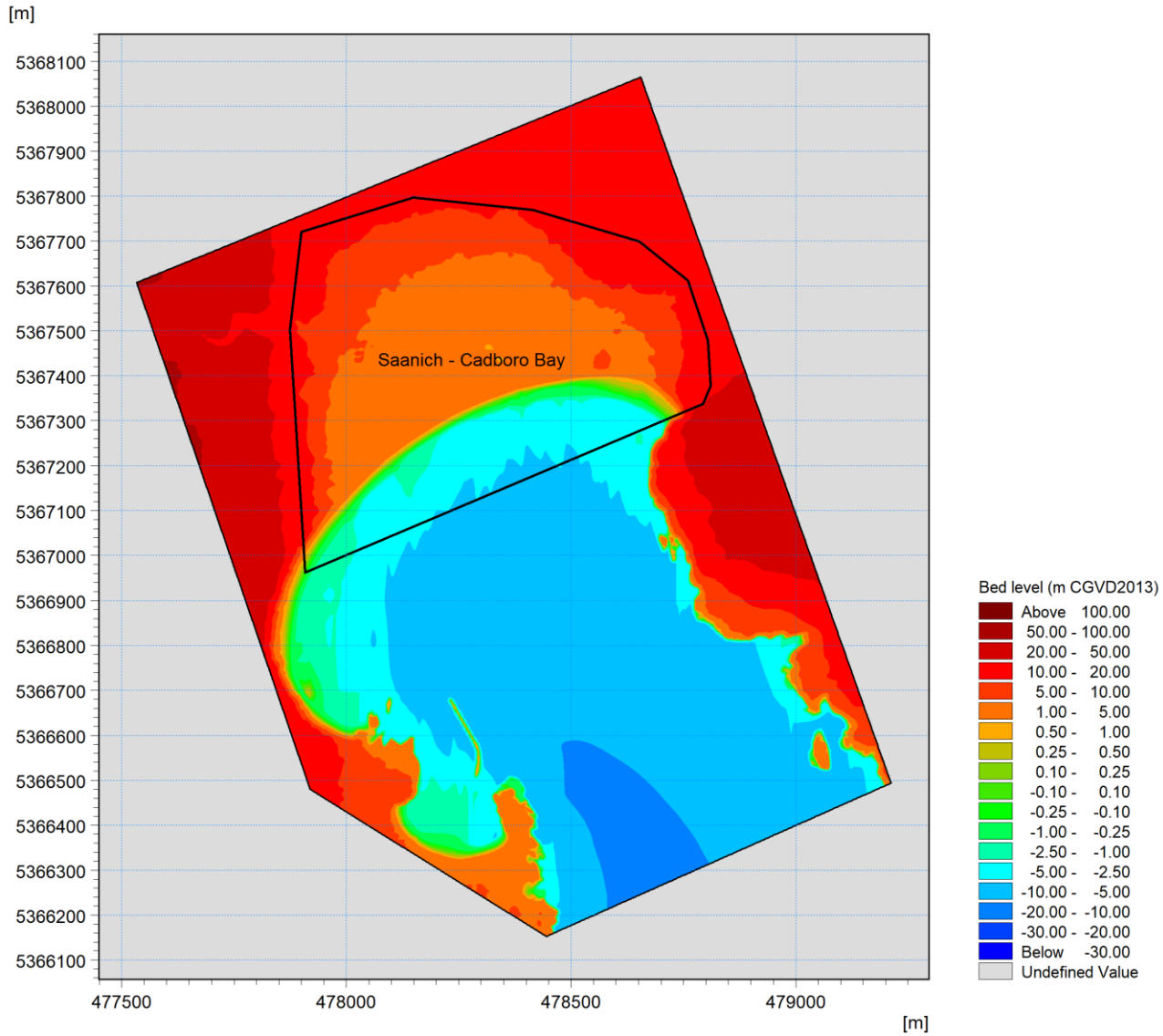


Figure 3-30
Model Bathymetry for Local Area Cadboro Bay

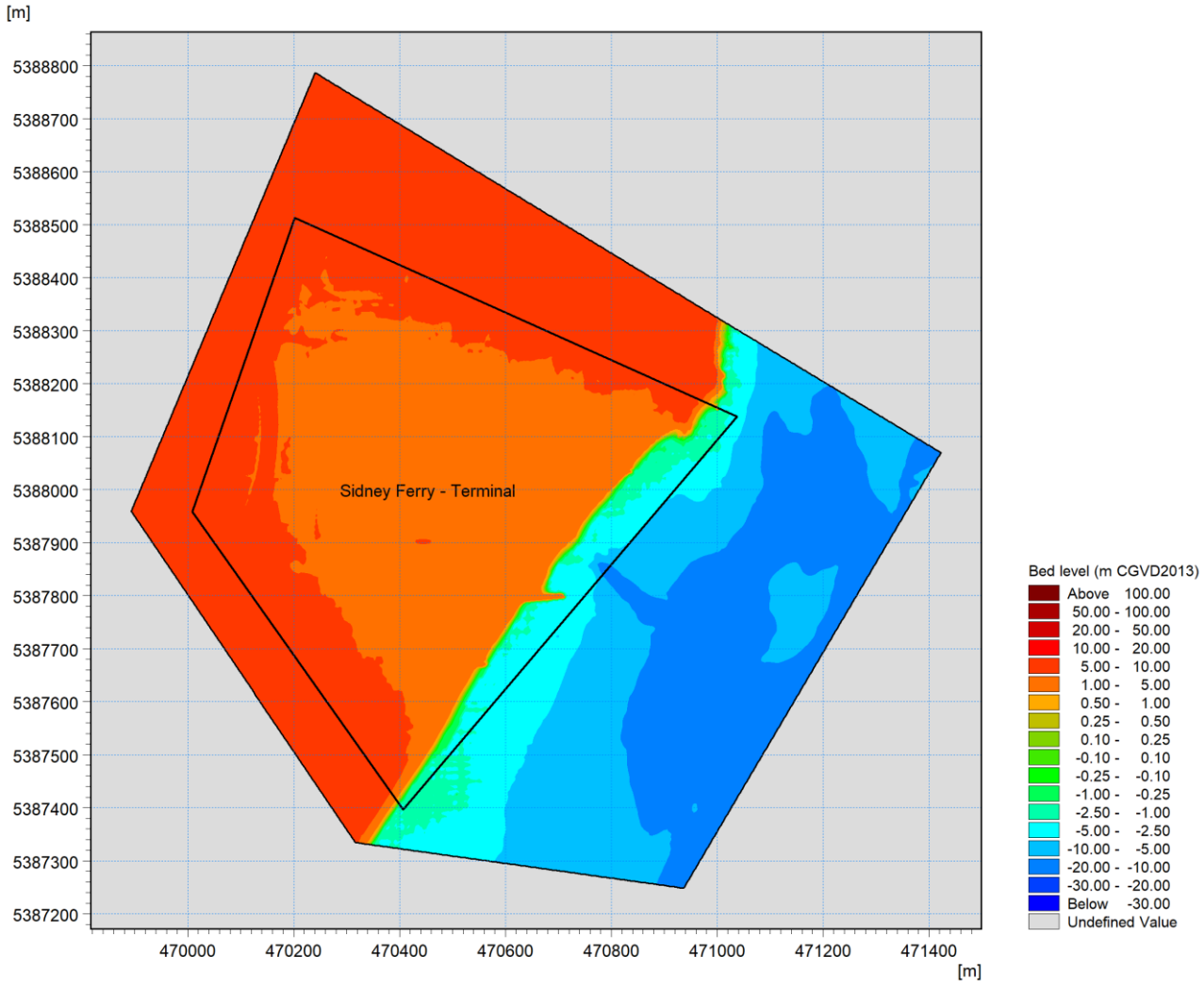


Figure 3-31
Model Bathymetry for Local Area Sidney Ferry Terminal

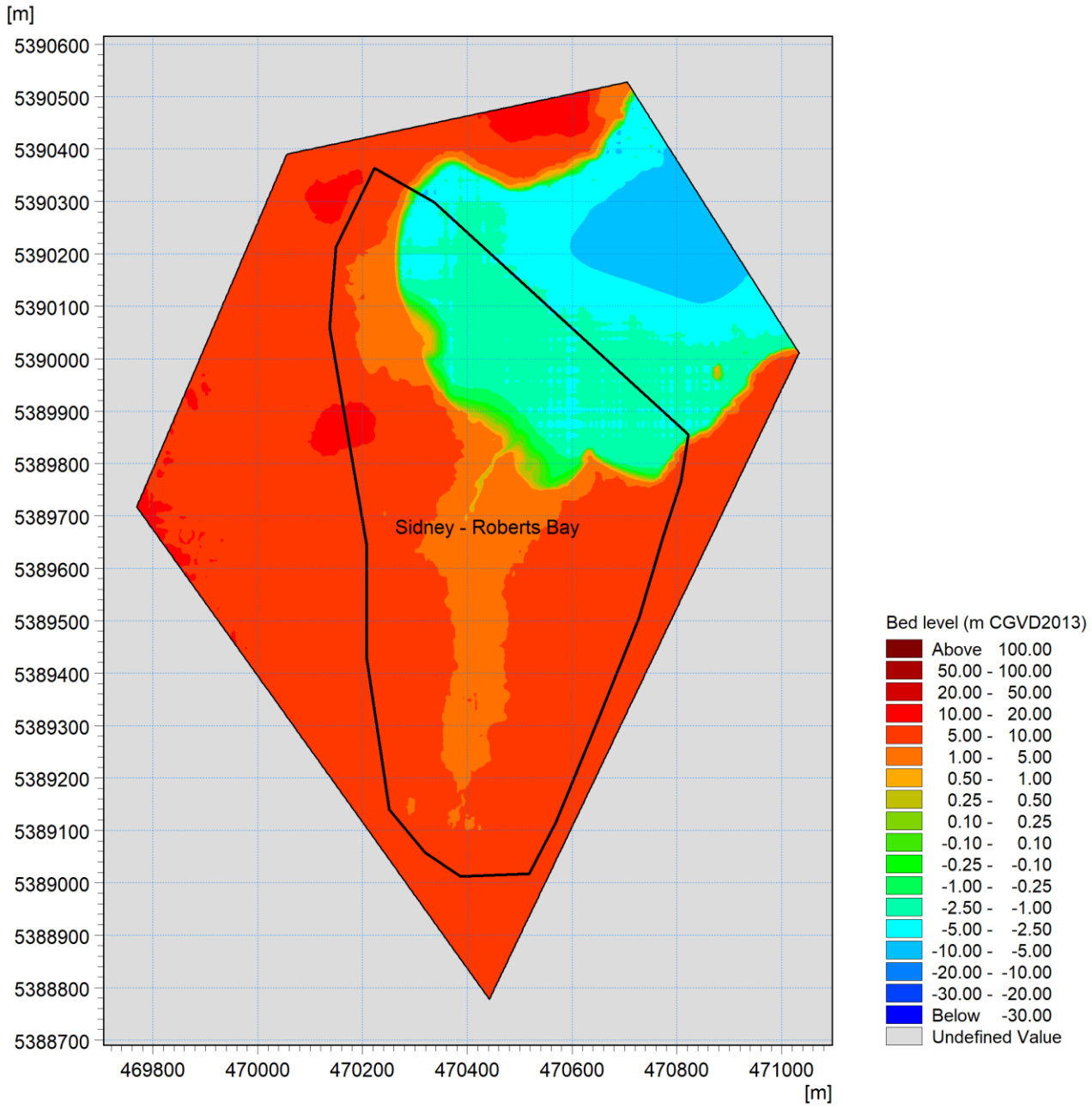


Figure 3-32
Model Bathymetry for Local Area Sidney Roberts Bay

3.5.2 Floodplain Roughness Representation

An important parameter in the MIKE 21 HD FM hydrodynamic model is the bed resistance and its spatial variability throughout the model domain, especially across the floodplain. The bed resistance impacts the speed at which the flood propagates and, indirectly, its maximum extent.

In MIKE 21 HD FM, bed resistance is characterized using Manning's number *M*, defined as the inverse of Manning's coefficient *n*. In the present study, spatially varying maps of Manning's number *M* were created using available spatial information on land use codes downloaded from the Habitat Acquisition Trust (HAT)[34] and their related Manning coefficients, as summarized in **Table 3-3** below. The HAT data was supplemented with building outline information provided by the CRD.

Table 3-3
Land Use Codes, Typical Manning's n and Adopted Values of Manning's M

Land Use Index	Classification Name	Typical Manning's n	Upper Bound	Lower Bound	Adopted Manning's M
0	Null				30
1	Shadow				30
2	Ocean	0.025	0.05	0.02	50
3	Lake	0.025	0.05	0.02	50
4	Pond	0.025	0.05	0.02	50
5	River	0.025	0.05	0.02	50
6	Sand/Gravel Shoreline	0.025	0.03	0.023	43.5
7	Bedrock Shoreline	0.025	0.03	0.023	43.5
8	Exposed Soil	0.03	0.04	0.025	40
9	Grass	0.035	0.05	0.025	40
10	Herb	0.035	0.05	0.025	40
11	Riparian Herb	0.035	0.05	0.025	40
12	Tree	0.12	0.16	0.1	10
13	Dock				30
14	Pavement	0.013			76.9
15	Agricultural Fields	0.045	0.05	0.03	33.3
16	Exposed Bedrock	0.04	0.05	0.035	28.6
17	Riparian Tree	0.12	0.16	0.1	10
114	Buildings	0.30			3
-	Coastal				32

An example of a 2D map of Manning numbers *M* for the Cadboro Bay detailed modelling area is shown in the figure below.

[34] http://hat.bc.ca/data

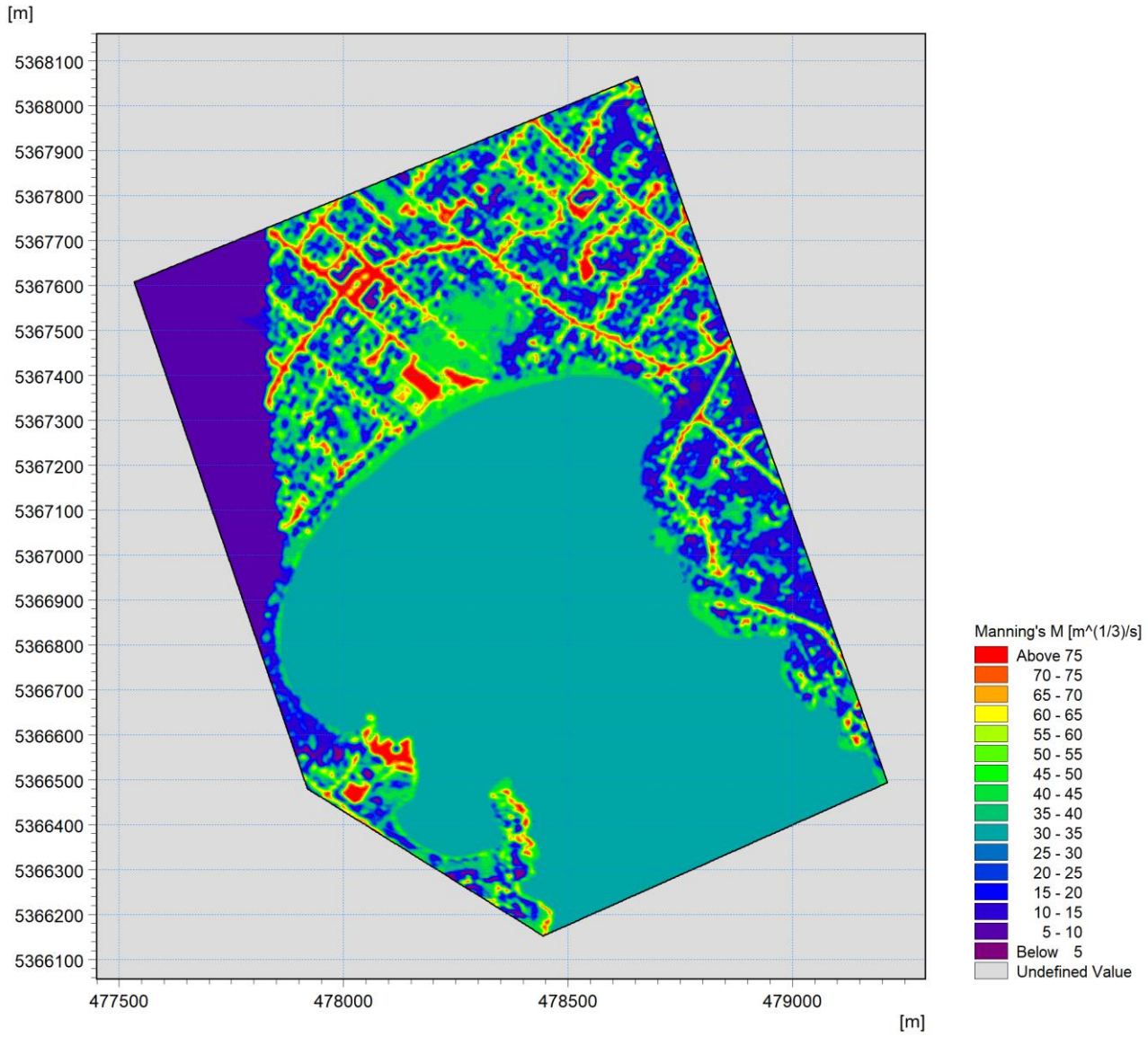


Figure 3-33
Map of Manning's M Values for Cadboro Bay Area

3.5.3 Boundary Conditions

Four different scenarios were simulated using the MIKE 21 HD FM hydrodynamic model at each of the five detailed model areas for a total of 20 model simulations. The four scenarios adopted consisted in all cases of the 0.5% AEP event associated with the four different RSLR scenarios (i.e. 0.0, 0.5, 1.0 and 2.0 m). The hydrodynamic models used the previously calculated transect total water levels for 0.5% AEP (see **Appendix D**) to drive the simulation.

The hydrodynamic model was used to calculate the maximum spatial extent and depth of coastal flooding over selected areas (i.e. to 'distribute' the flood levels calculated along transects over the adjacent terrain). However, calculated total water level values vary from transect to transect (even for the same combination of RSLR and AEP).

Therefore, boundary conditions were defined on the basis of the transect(s) deemed to be more representative for a given area.

For example, Transects 069 and 070 appear as potential candidates for defining boundary conditions for the Victoria Harbour model area. However, water levels for Transect 070 include significant contributions from wave effects. Since wave penetration into Victoria Harbour is limited, water levels for Transect 069 appear as a more reasonable option when defining boundary conditions for the 2D hydrodynamic model.

A summary of the methodology adopted to define boundary conditions for the detailed hydrodynamic models is below:

1. A representative transect is selected for each of the five areas: Transect 069 for Victoria Harbour, Transects 083 and 091 for the southern and northern boundaries of McNeill Bay, Transect 095 for Cadboro Bay, Transect 125 for Sidney Ferry Terminal and Transect 131 for Sidney Roberts Bay.
2. The time-series of water levels (tide + regional surge) used as input for the calculation of FCLs for these transects is inspected to identify the maximum water level on record and the date and time when it occurred (i.e. to find an appropriate tidal shape and cycle).
3. The time-series of measured water levels is shifted upwards by adding constant values such that the peak water level in the time series matches the total water level associated with the selected RSLR scenario for the 0.5% AEP.
4. The time series of water levels adjusted as described above are used as boundary condition(s) for the five detailed MIKE 21 HD FM models.

3.5.4 Length of Simulation Period

A seven-day simulation period was adopted for all 20 runs with MIKE 21 HD FM. A single day was used as a model "spin-up period"; the six remaining days were used to simulate the propagation of the flood, with the highest water level in the time series (corresponding to the 0.5% AEP) occurring approximately halfway through the last six (6) days in the simulation. This simulation period includes 14 high tides and 14 low tides at the areas of interest.

The figure below shows the time series of water levels applied at the open boundary of the hydrodynamic model of Sidney Roberts Bay for the four RSLR scenarios considered.

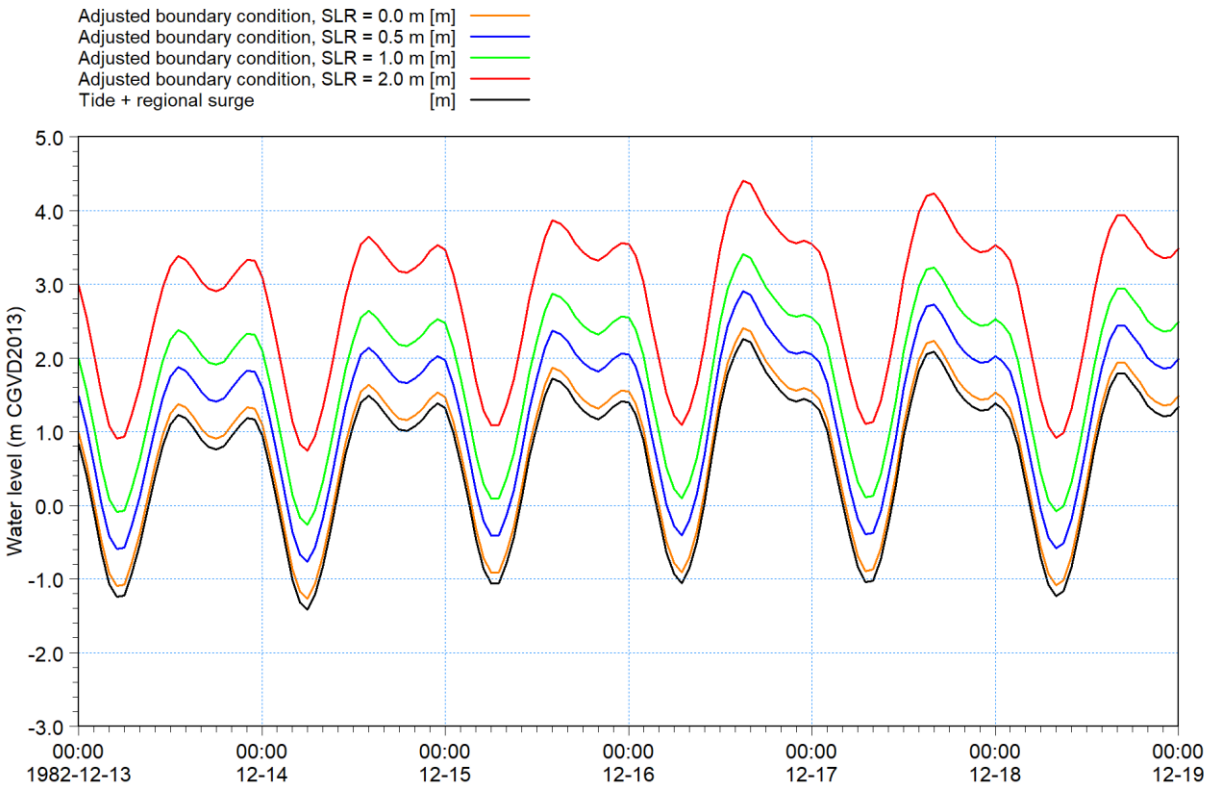


Figure 3-34
Time Series of Water Levels Applied at the Open Boundary of the Detailed Hydrodynamic Model of Sidney Roberts Bay for Different RSLR Scenarios. the Original Record is Shown in Black for Reference

4 TASK RESULTS & MAPPING

This section presents and summarises the findings of the RSLR inundation modelling and transect analysis and overviews the project deliverables. The results are divided into those contained within the report and those that form the separate GIS deliverable of this project.

4.1 Reported Results

The following summarises the produced results and the location of each in this report. More detailed commentary on the results is provided in **Sections 4.3** and **6**.

Spectral Wave Model Validation Results

Detailed calibration plots are provided in **Appendix A** for period p01 at the Dungeness Bay Buoy and period p04 at the Patricia Bay Buoy. These periods cover the highest significant wave height in the measurement record at each respective buoy. The purpose of these plots is to demonstrate the performance of the spectral wave model in replicating real-world, observed data.

Flood Construction Level (FCL) Results

Tabulated, proposed Flood Construction Level results are presented in **Appendix B**, for every transect, grouped together by local government and electoral area. Results are provided for all four RSLR scenarios (i.e. 0.0 m, 0.5 m, 1.0 m, 2.0 m) and include both a 'foreshore' ($R_{2\%}$) and 'backshore' (R_{mean}) FCL. It is important to note that the 200-year (0.5% AEP) total water level plus 600 mm freeboard yields the proposed FCL for that particular RSLR scenario. It is recommended that stakeholders only use the 1.0 m or 2.0 m RSLR FCL values for planning purposes.

Flood Construction Level Mapping

Proposed Flood Construction Level Mapping as presented in **Appendix C**, applies FCL values for representative reaches along the capital region coastline. This mapping is also the best resource for locating exact transect positions and orientation. Results are provided for two, specific RSLR scenarios (i.e. 1.0 m, 2.0 m); showing values for both 'foreshore' ($R_{2\%}$) and 'backshore' (R_{mean}) FCLs.

Total Water Level (TWL) Results

A full suite of total water level results (i.e. tide + surge + wave effects) is presented in **Appendix D**. These results are offered for the five AEP (i.e. 10%, 5%, 2%, 1%, 0.5%) scenarios, both wave runup estimates ($R_{2\%}$ and R_{mean}) and all four RSLR scenarios (i.e. 0.0 m, 0.5 m, 1.0 m, 2.0 m).

Detailed Sea Level Rise Inundation Depth Mapping

Detailed (2D) inundation mapping for all 5 detailed model domains (Victoria Harbour, Oak Bay - McNeill Bay, Saanich - Cadboro Bay, Sidney - Ferry Terminal and Sidney - Roberts Bay) is included in **Appendix E**. Results are provided for all four RSLR scenarios (i.e. 0.0 m, 0.5 m, 1.0 m, 2.0 m).

The detailed inundation results are presented in two different formats. **Appendix E1** includes inundation mapping classified to the following specific depth bands: 0 to 0.1 m, 0.1 m to 0.25 m, 0.25 m to 0.5 m, 0.5 m to 1 m, 1 m to 2 m, and >2 m. **Appendix E2** includes simplified inundation plots derived directly from the MIKE Zero modelling environment; this could be used for quick referencing.

\\ae.ca\data\projects\van\2019267 6\00_CoastFloodTsunami\Engineering\03.02_Conceptual_Feasibility_Master_Plan_Report\2.0 SLR Report\version 2.0\rpt_crd_task 2_slr modelling_20211020.docx

Relative Sea Level Rise Inundation Mapping

Inundation mapping is provided in **Appendix F**, based on the still water levels calculated at each transect for the 0.5% AEP 1.0m and 2.0m RSLR scenarios, across the entire capital region. These mapping datasets are intended to complement the detailed (2D) inundation model domains.

Still Water Level (SWL) Results

A full suite of still water level results (i.e. tide + surge) is presented in **Appendix G**. These results include the five AEP (i.e. 10%, 5%, 2%, 1%, 0.5%) scenarios and all four RSLR scenarios (i.e. 0.0 m, 0.5 m, 1.0 m, 2.0 m).

Sensitive Ecosystem Inventory Area Mapping

Sensitive Ecosystem Inventory (SEI) mapping, overlain with present and future tide levels, is included as **Appendix H**. The purpose of this mapping is to demonstrate the vulnerability of various environmental risk receptors to intertidal zone changes. This work is explained in greater detail in Section 5.

Potential for the Presence of Archaeological and Historic Sites Vulnerable to Intertidal Change Mapping

Appendix I is comprised of mapping that shows the potential for archaeological/historic sites in, or close to the intertidal zone that will help project stakeholders consider appropriate mitigative actions. This is explained in greater detail in **Section 5**.

4.2 GIS Deliverables

A number of GIS deliverables were produced for this Task and are contained within the separately delivered ESRI File Geodatabase.

Flood Construction Level Contours

The proposed FCL contours, both 'foreshore' ($R_{2\%}$) and 'backshore' (R_{mean}), were extracted from the appropriate transect at each reach. It is important to note that these contours are not inundation extents, due to the inclusion of freeboard. However, they should be useful in helping planners and local government staff in delineating areas of potential RSLR flood risk. It must also be noted that the contours at each reach have not been 'feathered' at their boundaries (i.e. the transitions between each have not been smoothed, but rather left staggered). This is to emphasize the differences in FCL that can occur when applying a 1D transect to represent a coastal reach.

Detailed Coastal Storm Flooding Inundation Results

For each of the five detailed model areas, 5.0 m resolution ASCII grids with maximum inundation depth values were produced. This includes values for the four RSLR scenarios considered. This information informed the derivation of **Appendix E**.

RSLR Still Water Levels Contours

Still water level values at each reach for each combination of RSLR and AEP were generated as vector layers. These values informed the development of **Appendix F**.

Intertidal Risk Analysis – HHWLT & LLWLT Contours

HHWLT and LLWLT contours, which informed **Appendix H**. Section 5 gives more information on their respective use in this project.

4.3 Results Summary

This section summarises the results of the Flood Construction Level analysis (i.e. the transect analysis), as well as the detailed inundation mapping. For a more thorough suite of results, refer to the aforementioned appendices.

4.3.1 Flood Construction Levels

Tabulated, proposed Flood Construction Level results are presented in **Appendix B**, for every transect. To provide a high-level look at 'typical' flood construction level values in each jurisdiction, a further calculation was completed with the derived $R_{2\%}$ 'foreshore' FCLs. Average and 95%'ile statistics were calculated from the $R_{2\%}$ FCL results for different RSLR scenarios and are presented in the table below. The $R_{2\%}$ FCL is intended to be applied only within the foreshore of a reach (i.e. primary wave effect zone). The table below is intended to show how FCLs along the foreshore can vary significantly within a particular municipality and adoption of a singular value per municipality would not necessarily be appropriate.

Table 4-1
Summary of 95%'ile Flood Construction Levels Broken Down by Local Government/Electoral Area ($R_{2\%}$ FCL)

Local Government/ Electoral Area	0.0 m RSLR FCL (m CGVD2013)		0.5 m RSLR FCL (m CGVD2013)		1.0 m RSLR FCL (m CGVD2013)		2.0 m RSLR FCL (m CGVD2013)	
	Ave.	95%ile	Ave.	95%ile	Ave.	95%ile	Ave.	95%ile
Central Saanich	4.13	6.49	4.64	7.00	5.14	7.50	6.14	8.51
Colwood	3.75	4.47	4.25	4.97	4.75	5.48	5.75	6.49
Esquimalt	5.17	7.81	5.69	8.32	6.19	8.83	7.21	9.85
Highlands	5.09	6.28	5.59	6.78	6.09	7.28	7.11	8.29
Juan de Fuca Electoral Area	5.03	8.03	5.53	8.53	6.03	9.03	7.04	10.04
Langford	2.76	2.76	3.27	3.27	3.77	3.77	4.83	4.83
Metchosin	5.30	9.70	5.81	10.22	6.32	10.74	7.33	11.76
North Saanich	4.56	7.09	5.08	7.62	5.59	8.13	6.59	9.14
Oak Bay	5.70	8.19	6.33	8.70	6.98	9.22	8.41	11.25
Saanich	4.61	6.90	5.15	7.41	5.68	8.33	6.69	9.38
Salt Spring Electoral Area	4.53	6.94	5.03	7.45	5.53	7.95	6.53	8.95
Sidney	4.74	6.62	5.38	7.65	6.05	8.85	7.37	11.34
Sooke	4.20	8.12	4.81	9.20	5.51	10.78	6.89	13.86
Southern Gulf Islands Electoral Area	5.30	9.10	5.80	9.59	6.32	10.08	7.32	11.06
Victoria	5.28	8.41	5.84	9.23	6.34	9.77	7.34	10.79

Local Government/ Electoral Area	0.0 m RSLR FCL (m CGVD2013)		0.5 m RSLR FCL (m CGVD2013)		1.0 m RSLR FCL (m CGVD2013)		2.0 m RSLR FCL (m CGVD2013)	
View Royal	3.12	3.66	3.64	4.22	4.15	4.78	5.19	5.91

4.3.2 Detailed Inundation Modelling Results

Figures 4-1 through 4-5 below show the maximum extent and depth of flooding from the detailed 2D inundation modelling of the five selected areas for the 0.0 m RSLR scenario and AEP = 0.5% (200-year water level). Individual figures showing maximum depth of flooding and water surface elevation for each area and all four RSLR scenarios are included in **Appendix E.2**.

The maximum depth of flooding will typically not occur simultaneously throughout a flooded area; this should be kept in mind when assessing the results presented in this section. The colour scale was purposefully adopted because experience shows that inundation depths larger than 0.5 m are hazardous for children, whereas depths beyond 1.2 m are challenging for most adults. All the figures show a clear correlation between the value of RSLR and the extent and depth of flooded areas; both increase with the magnitude of RSLR.

Of particular interest is the area of McNeill Bay. As shown by Figure 4-2, flooding is not present for RSLR = 0.0 m. However, in the 2.0 m RSLR scenario, much of the model domain is inundated, with overland flooding coming from both the northern and southern sides of the domain (see **Appendix E** for this particular plot).

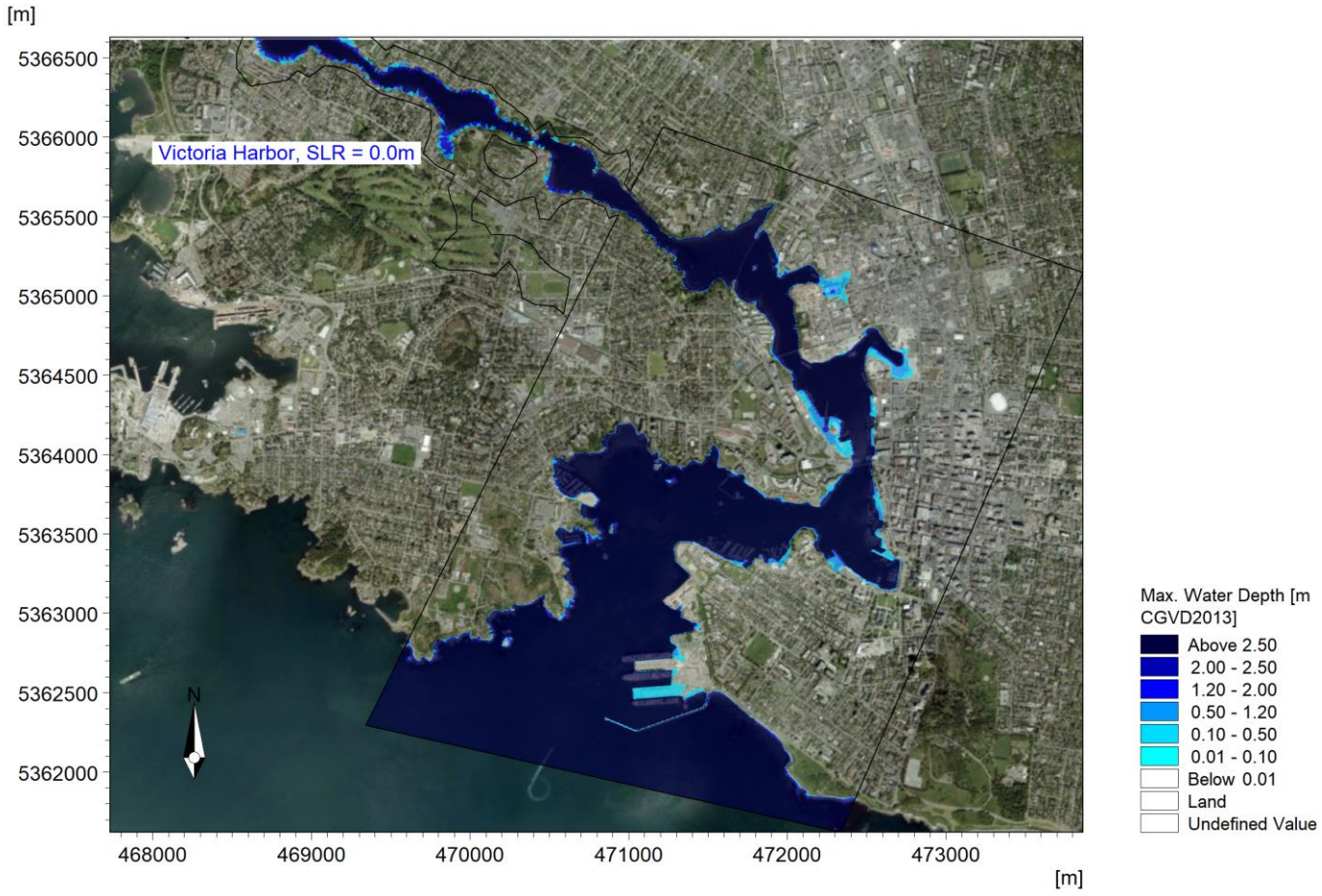


Figure 4-1
Maximum Extent and Depth of Flooding in Local Area Victoria Harbour for 0.0 m RSLR Scenario. AEP = 0.5%

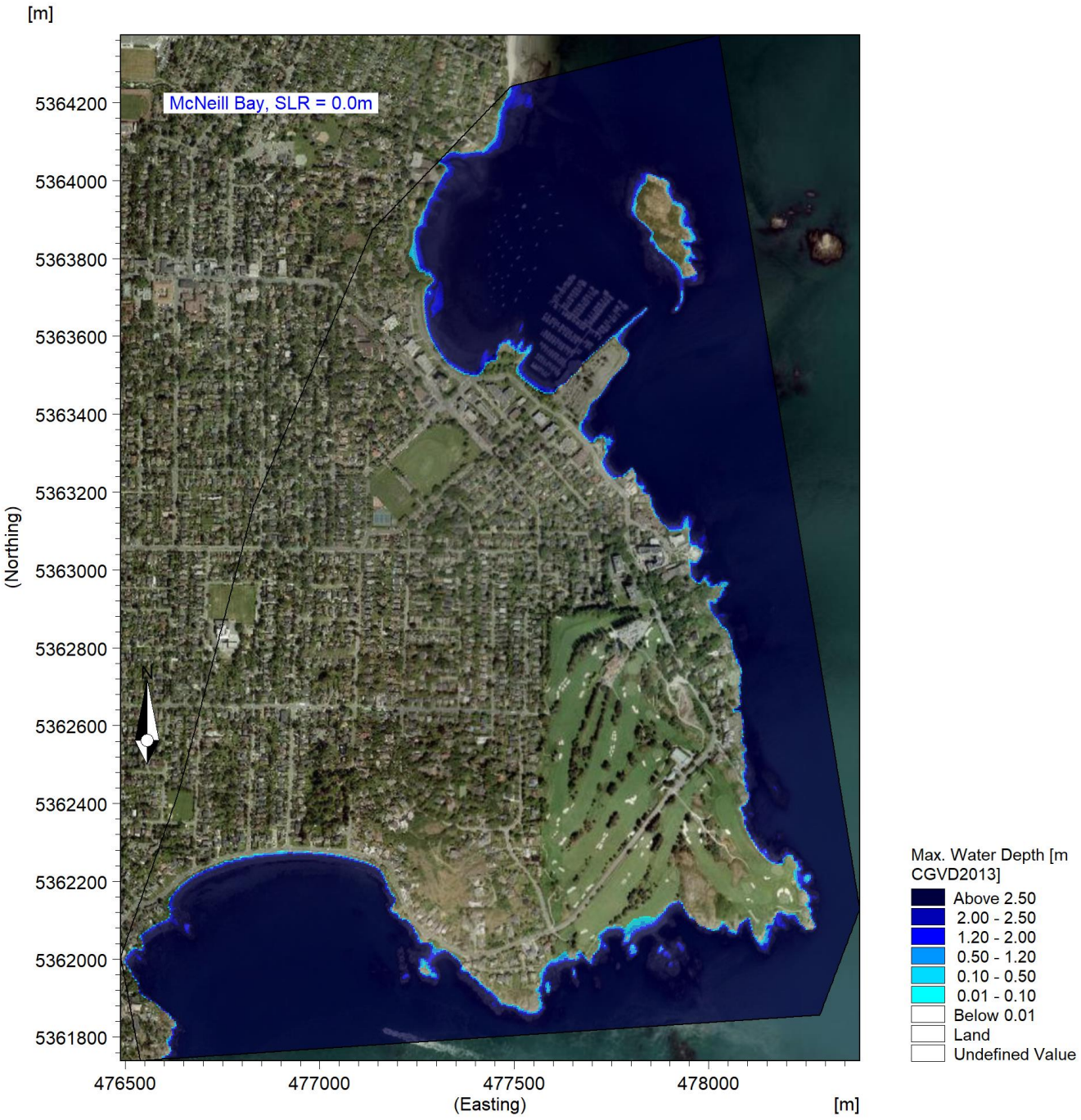


Figure 4-2
Maximum Extent and Depth of Flooding in Local Area McNeill Bay for 0.0 m RSLR Scenarios. AEP = 0.5%

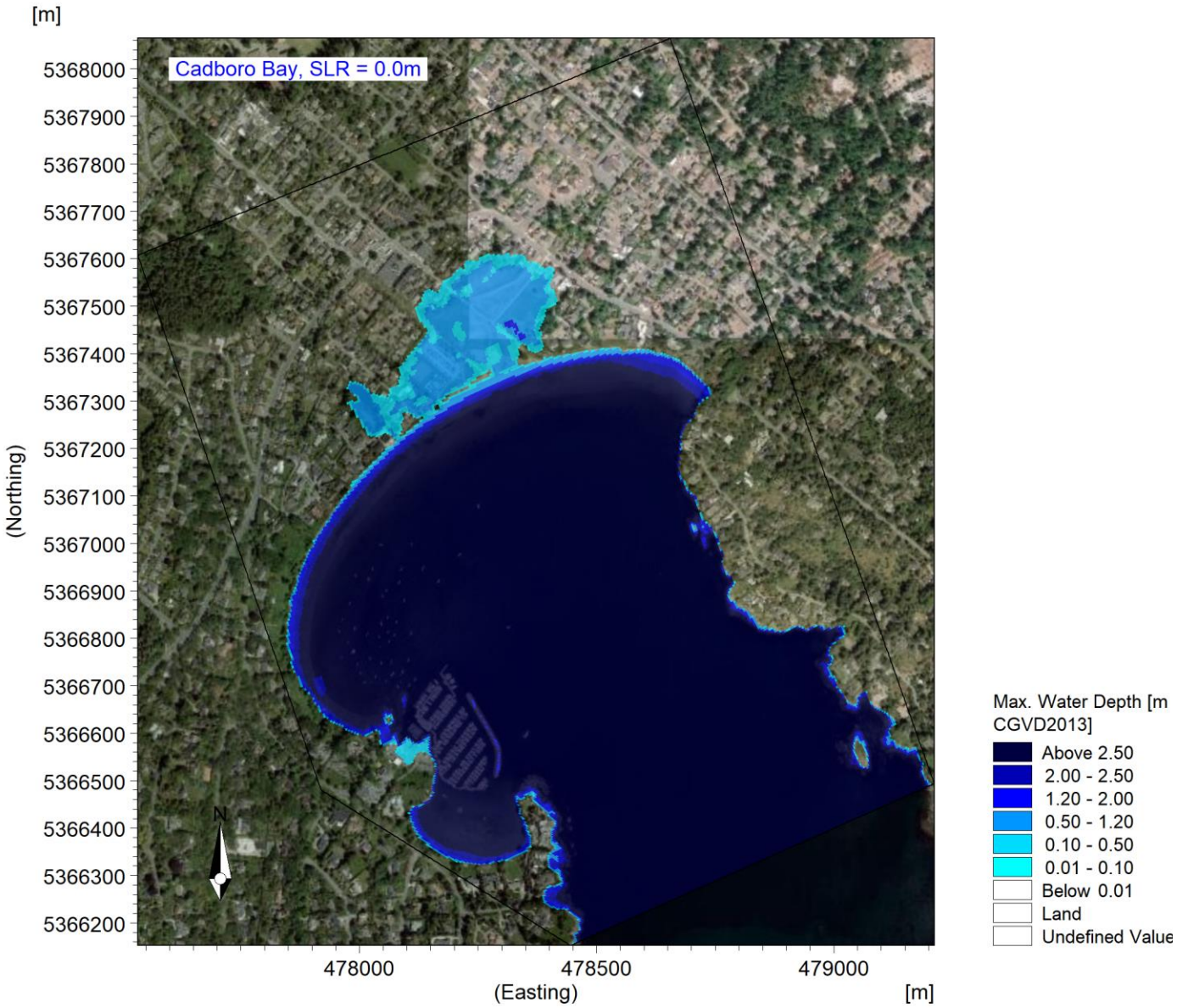


Figure 4-3
Maximum Extent and Depth of Flooding in Local Area Cadboro Bay for 0.0 m RSLR Scenarios. AEP = 0.5%

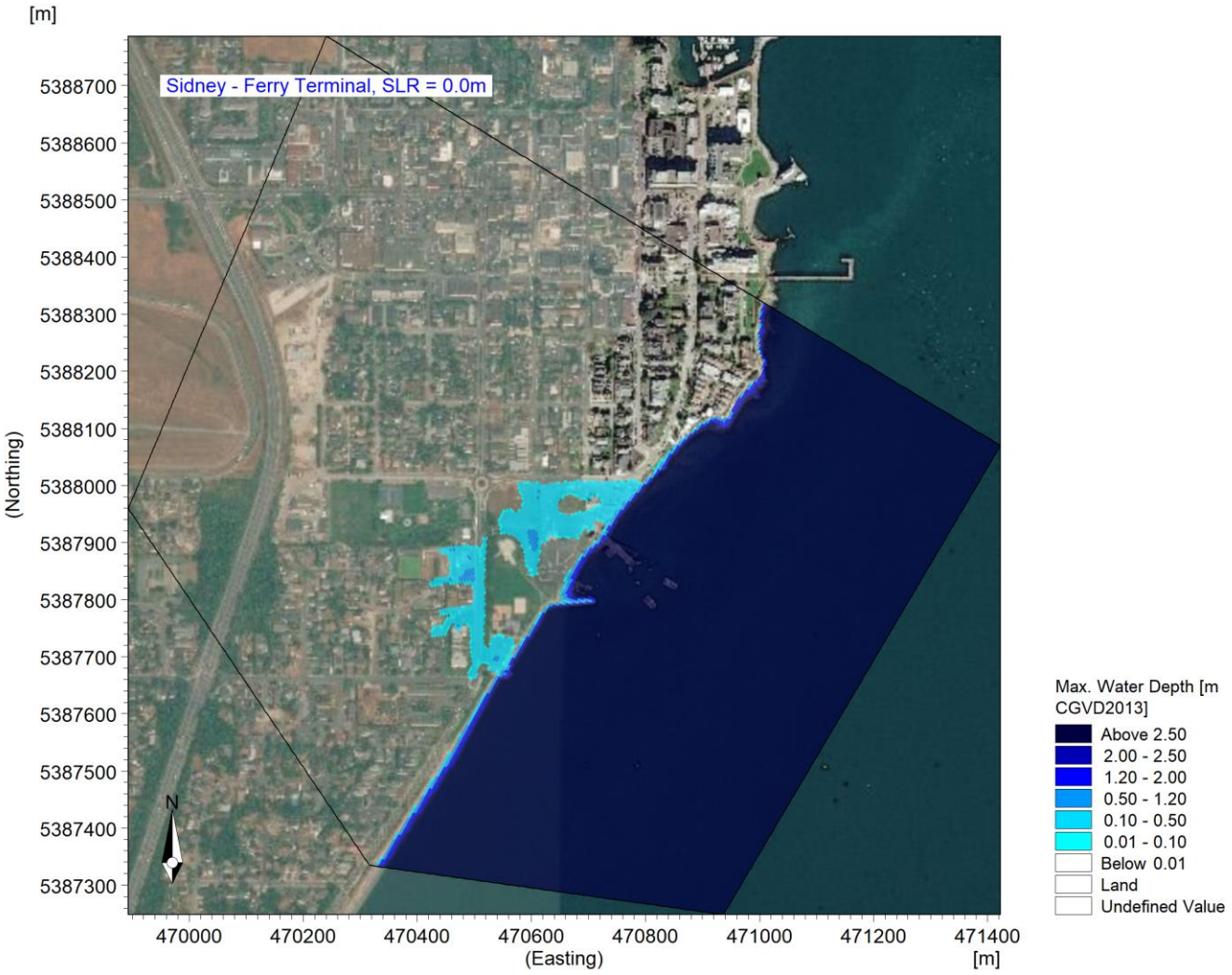


Figure 4-4
Maximum Extent and Depth of Flooding in Local Area Sidney Ferry Terminal for 0.0 m RSLR Scenarios. AEP = 0.5%

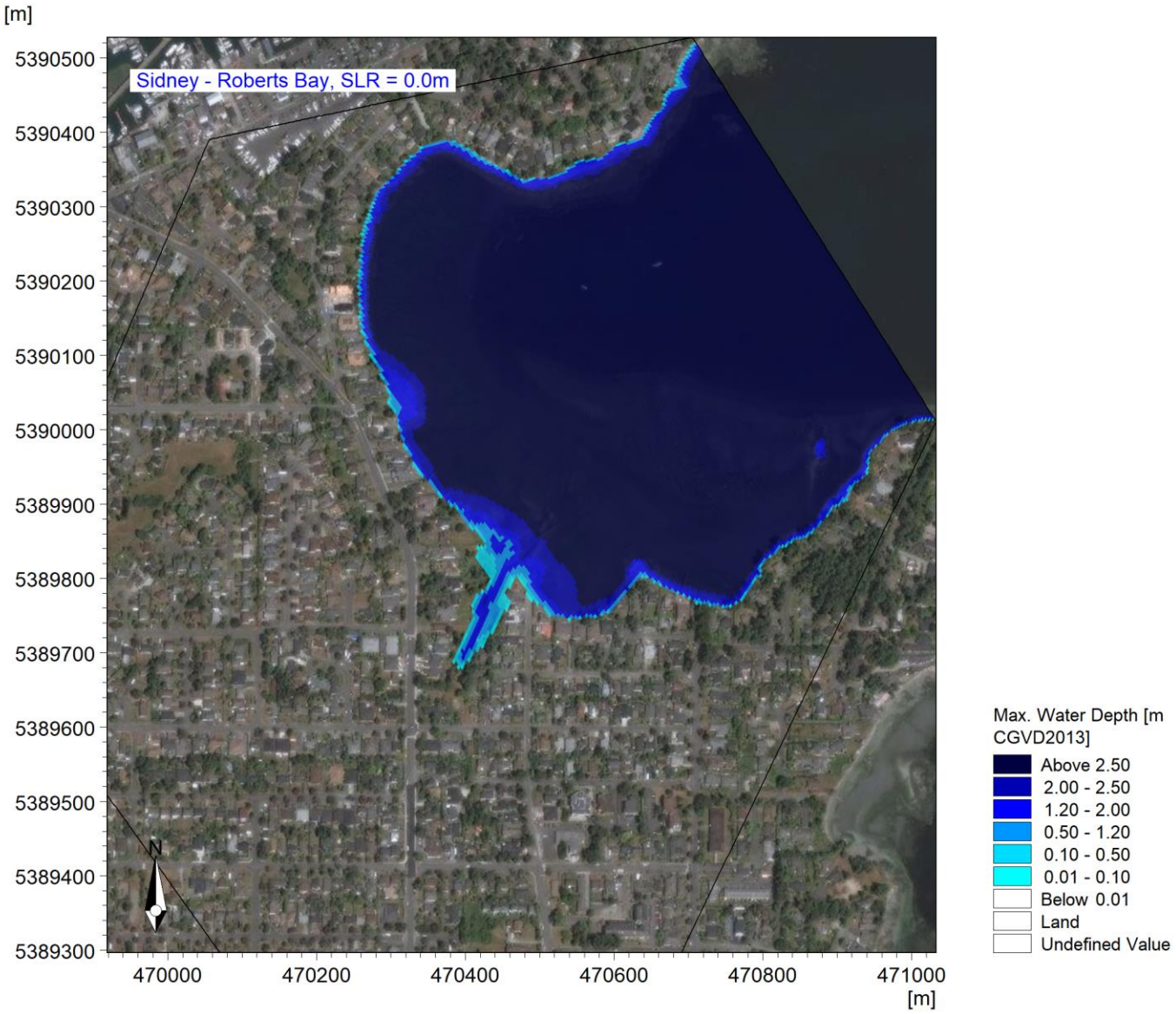


Figure 4-5
Maximum Extent and Depth of Flooding in Local Area Sidney Roberts Bay for 0.0 m RSLR Scenarios. AEP = 0.5%

4.3.3 Comparison Between Flood Construction Levels and Detailed Inundation Model Results

Flood Construction Levels were determined by adding freeboard of 600 mm to the computed 0.5% AEP Total Water Levels (TWL) at each transect. Breaklines denote the reach borders defining which transects should be applied to the reach (refer to the FCL Mapping in **Appendix C**). The detailed inundation modelling was not used to adjust the proposed FCLs at any location in the capital region. The primary purpose of the detailed inundation modelling was to demonstrate potential flood extents, as well as to provide further information on potential flood depths and velocities.

The project team compared the detailed inundation results that use 0.5% AEP TWLs as their boundary conditions with the determined R_{mean} FCL contours from each coastline reach (note that these contours are included in the final GIS

deliverable). In almost every detailed model domain, the 0.5% AEP TWL modelled inundation extents and the R_{mean} FCL contours are quite similar. However, in a few specific cases, where the backshore topography is quite flat and low-lying (e.g. McNeill Bay), there are differences between the R_{mean} FCL contour and detailed inundation model results. This is attributed to the presence of wave effects in the transect derived FCL, that would in reality, likely dissipate a short distance inland. Refer to **Section 3.3** for more details on wave effects.

4.3.4 FCL Contour Lines

Users of the provided GIS deliverables will generally see very little separation or difference in the plotted FCL contours throughout the project area, when opened in their respective GIS platforms. This is primarily due to the fact that the majority of the coastline in the capital region is relatively steep, with ground rising as you travel inland from the foreshore. As such, the FCL contour lines generally plot quite 'compact'.

However, in some specific areas in the capital region (i.e. those already identified as being low-lying and/or having flat/expansive backshores) the FCL contour lines don't plot as neatly. This relates back to commentary provided in **Section 3.5**, stating that projection of a 1D transect result inland, to describe complex overland flooding, is technically incorrect. By its definition, the FCL contour includes a potentially significant wave effect component/contribution. However, it has already been established that wave effects are typically constrained to a narrow strip along the foreshore. As such, users should be wary of using the provided GIS FCL contours, where there is significant 'projection' inland. This can lead to 'floating contours', ending abruptly at the interface between adjacent transects. Examples of where this occurs includes:

- Port Renfrew
- Metchosin
- Esquimalt
- Victoria
- Oak Bay
- Sidney

An example of such is provided in the following image, for results at Oak Bay. The image shows FCL contours plotted for a number of transects. The green outlined polygons (Transect Definition Areas) are the project team's input files, based on a geometric expression, used in GIS to extract the appropriate contour at each transect reach.
These definition areas are an approximation only and are used to roughly delineate what area is influenced by what transect. This could only be refined by adding more transects or using a detailed inundation model (as highlighted in **Section 6.6**).

The FCL contours at Oak Bay highlight the issue of projecting FCLs inland. Essentially, there is not enough high ground for Transects 083 and 089, in particular, and their respective contours extend to the edges of the Transect Definition Areas. Compare this to the results contained within **Appendix E**, with respect to Oak Bay's detailed inundation model. It highlights that the FCL contours are not a 'real' inundation extent and, as such, users should exercise caution when using them.

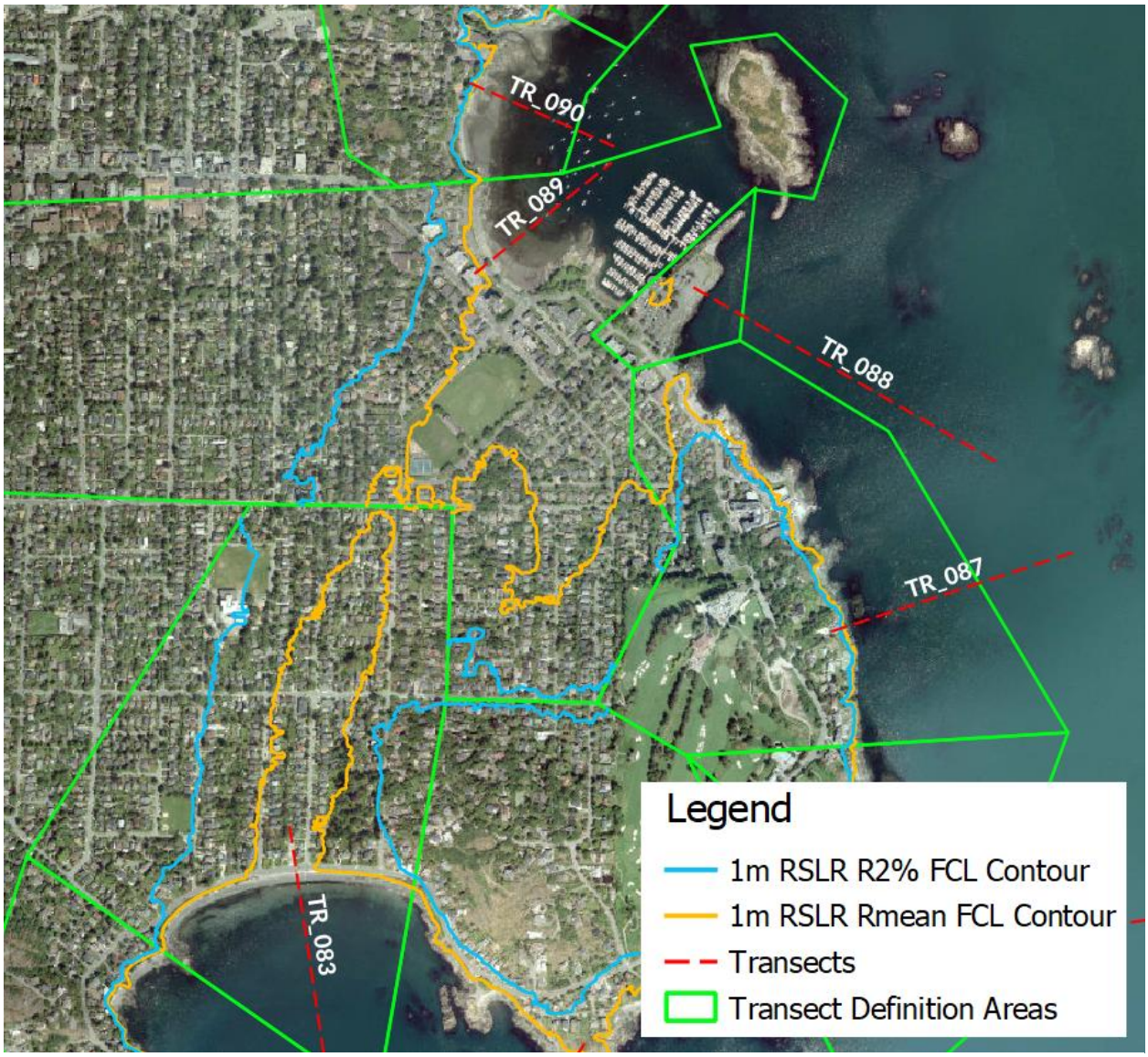


Figure 4-6
Example of FCL Contour Lines

5 INTERTIDAL RISK ASSESSMENT

5.1 Methodology Overview

The purpose of this sub-task is to "*conduct a risk analysis of intertidal zone changes, impacted by SLR and undertaken on the basis of an impact assessment on ecosystems and areas of cultural significance (e.g. sensitive ecosystems and indigenous food harvesting locations).*"

In general terms, a risk analysis includes an identification of the relevant hazards, an estimation of their probabilities of occurrence, and an estimation of the magnitudes of their impacts or consequences. The probabilities of occurrence and the magnitudes of the impacts are often expressed in a qualitative way. In some applications, the resulting risks of the various hazards (with risk being defined as the probability of a hazard occurring multiplied by the magnitude of its impact) are ranked or incorporated into a "risk matrix", so as to identify those hazards that represent the greatest risks. Subsequently, a proposed mitigation strategy that addresses the most severe risks may be developed. This proposed mitigation strategy has not been developed in this project. It is anticipated that this would be addressed as part of future work (see **Section 6.4**).

For an intertidal risk assessment as considered here, a hazard refers to the potential damage or destruction of a particular ecosystem or cultural site due to submergence or flooding. The identification of hazards itself includes a development of the intertidal zone, as may be influenced by relative sea level rise, an inventory of sites (**Section 5.2.2**), and then a combination of these through suitable mapping (**Section 5.2**). The probabilities of occurrence are expressed in terms of different scenarios as the intertidal zones rise on account of RSLR (see **Section 2.4.1**).

The project team undertook a very high-level assessment in this study. Only overlay mapping, that cross-references intertidal limit changes with mapped sensitive terrestrial[35] ecosystems and potential archaeological sites have been produced. No further commentary on the impacts has been developed as this would warrant a much more targeted, site-specific study for each particular coastal location. As such, the purpose of this assessment is to help decision-makers in each municipality identify areas for further analysis and study, that would be completed by dedicated environmental science or archaeological professionals.

5.2 Identification of Hazards

5.2.1 Intertidal Zones

The study area covers approximately 1,300 km of coastline, extending from Port Renfrew to the west, to the Southern Gulf Islands to the east. The intertidal zone refers to the area of the shoreline that is exposed at low tide and submerged at high tide. Specifically, this is taken to be the zone bounded by shoreline at HHWLT (Higher High-Water Large Tide) and the shoreline at LLWLT (Lower Low-Water Large Tide).

Since four different RSLR scenarios are considered in this study, the intertidal zones for each of these will differ accordingly. That is, for each of the scenarios of 0.0 m, 0.5 m, 1.0 m and 2.0 m RSLR, the HHWLT and LLWLT levels will increase by the corresponding amounts, and the intertidal zones will change accordingly.

However, in depicting the intertidal zones for the entire study area, it would be unduly challenging to interpret the relevant information from four separate sets of maps, one for each RSLR scenario, or to superimpose the four zones

[35] Some delineated areas of coastal bluff and wetlands may occur within or partially within the present intertidal zone.

for the four RSLR scenarios onto a single set of maps. Instead, in order for the reader to appreciate more readily the changes in intertidal zones, a decision was made to develop a single set of HHWLT/LLWLT tidal range maps (see **Appendix H**), with a depiction on each of them of the intertidal zones at present (i.e. 0.0 m RSLR) and for the 2.0 m RSLR scenario. Potential inundation of mapped sensitive ecosystems under 0.5 and 1.0 m RSLR scenarios can be determined when further investigations regarding timelines and associated mitigation plans are required. Contours for the 0.5 m and 1.0 m RSLR HHWLT have been produced digitally and are included in the GIS deliverables of this project.

The elevations used for the HHWLT and LLWLT are referenced from the Canadian Tide and Current Tables (Fisheries and Oceans Canada, 2020), and adjusted for the relative sea level rise scenarios as noted. **Table 5-1** lists these elevations, for three selected ports, relative to CGVD2013.

Table 5-1
Tidal Elevations (referenced to m CGVD2013)

Port	0.0 m RSLR		0.5 m RSLR		1.0 m RSLR		2.0 m RSLR	
	LLWLT (m)	HHWLT (m)	LLWLT (m)	HHWLT (m)	LLWLT (m)	HHWLT (m)	LLWLT (m)	HHWLT (m)
Port Renfrew	-1.78	1.92	-1.28	2.42	-0.78	2.92	0.22	3.92
Victoria	-1.83	1.37	-1.33	1.87	-0.83	2.37	0.17	3.37
Fulford Harbour	-2.19	1.62	-1.69	2.12	-1.19	2.62	-0.19	3.62

For mapping purposes, these intertidal contour lines as described above were extracted from the Project DEM. Due to limitations of the LiDAR survey and bathymetry data available, it is not possible to extract all LLWLT values. For instance, with reference to Victoria, LLWLT for the 0.5 m RSLR scenario is -1.33 m CGVD2013. The water elevation at the time of the LiDAR survey was approximately -0.6 m. Therefore, it was not possible to extract the LLWLT due to insufficient data coverage in the lowest portion of the intertidal zone. Only the LLWLT for 2.0 m RSLR was able to be extracted.

The 0 m RSLR (i.e. present day) LLWLT line shown is the Low Water Mark Line available from the Canadian Hydrographic Service[36]. This line represents the approximate location of low water at low tide and is shown for reference purposes only. In some areas, especially where the coastline is very steep, the position of the CHS low water line is sometimes higher (i.e. farther inland) than the contours extracted from the project DEM. We have not made any adjustments to the CHS low water line to amend this, as there is insufficient LiDAR data to do so. Similarly, for the numerous small islands throughout the capital region, there are small gaps in the intertidal contours. This is a function of the CanCoast polyline used to define the separation between land and sea for these islands during creation of the project DEM (refer to Task 1 – DEM Development Report, AE, 2020 for more information).

Apart from the intermittent submergence of a site at high tide (for a given RSLR), there may also be infrequent short-term flooding of adjacent sites because of severe storms, associated with wave setup and wave runup during a storm. It would be possible to account for such flooding due to extreme storms and the associated damage to ecosystems (for example, the increased erosion of bluffs is often associated with the effects of more extreme storms). This could be undertaken through consideration of the inundation limits developed for this study (see **Appendix F**) for storms

[36] https://catalogue.data.gov.bc.ca/dataset/chs-low-water-mark-lines

with different specified AEP's. This would entail a sophisticated probabilistic analysis but would not be especially useful since such infrequent short-term flooding would impact different ecosystems in different ways, and the high-level implications of this for the different categories of ecosystems and sites along the entire coastline would not be readily apparent. That is, such an analysis is not warranted, so that changes in intertidal zones due to RSLR alone are considered, and no consideration is given to the effects of extreme storms on specific sites.

5.2.2 Ecosystem and Cultural Site Inventory

A second step in identifying the hazards relies on an inventory of the relevant sites. Based on the stated objectives of this section, these sites refer to different ecosystems and to different areas of cultural significance. These are described in turn.

Ecosystems

The Canadian Wildlife Service (Environment Canada) and Ministry of Environment completed the Sensitive Ecosystem Inventory (SEI) Project (Environment Canada, 2004) which identified, categorized, and mapped areas encompassed within nine ecosystem types that are important for biodiversity in East Vancouver Island and the Gulf Islands. A geospatial database of sensitive ecosystem areas was produced from the inventory project. We acknowledge that this information source, which details terrestrial ecosystems is the only dataset that was considered for this study. This dataset was last updated in 2004 and there may have been disturbance to these ecosystems in the period since then.

This inventory identifies sensitive ecosystems according to the following classes (the acronyms used in the inventory are shown in parentheses):

- Coastal Bluff Ecosystems (CB)
- Sparsely Vegetated Ecosystems (SV)
- Terrestrial Herbaceous Ecosystems (HT)
- Older Forest Ecosystems (OF)
- Woodland Ecosystems (WD)
- Wetland Ecosystems (WN)
- Riparian Ecosystems (RI)
- Seasonally Flooded Agricultural Field Ecosystems (FS)
- Older Second Growth Forest Ecosystems (SG)
- Disturbed SEI Areas (Areas which were classified as sensitive ecosystems, and subsequently disturbed by logging, urban or rural use, roads, trails, etc.)

These classes of ecosystem have been identified on the accompanying maps.

Areas of Cultural Significance

The Archaeological Branch of the BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development (MFLNRORD) maintains an inventory of culturally significant areas in the province, which includes documented archaeological and historic sites, known as the Remote Access to Archaeological Data (RAAD). Under a data-use agreement, they provided a geospatial database for areas within the capital region.

The three area categories include:

- Archaeological sites: specific archaeological site records.
- Historical areas: specific historic site records.
- Archaeological potential sites: areas of high archaeological potential, as indicated by the Archaeological Overview Assessment Model (Millenia Research, 2008).

5.3 Results

5.3.1 Terrestrial Ecosystem Intertidal Zone Maps

The inventory of ecosystems that are described above have been superimposed on mapping of the current and projected intertidal zones under a 2.0 m RSLR scenario for the entire capital region shoreline, and these are provided as 116 maps in **Appendix H**.

Results in **Appendix H** find that future inundation due to sea level rise will impact a number of mapped sensitive ecosystems across the region. While the mapping provides specific locations of the ecosystems impacted, the table below summarises the respective area of each class affected:

Table 5-2
Potential Area of Sensitive Ecosystems at Risk in the Intertidal Zone

Sensitive Ecosystem Classification	Area of Ecosystem Below the 2.0 m RSLR HHWLT
Coastal Bluff Ecosystems (CB)	510 ha
Sparsely Vegetated Ecosystems (SV)	250 ha
Terrestrial Herbaceous Ecosystems (HT)	36 ha
Older Forest Ecosystems (OF)	75 ha
Woodland Ecosystems (WD)	242 ha
Wetland Ecosystems (WN)	190 ha
Riparian Ecosystems (RI)	55 ha
Seasonally Flooded Agricultural Field Ecosystems (FS)	124 ha
Older Second Growth Forest Ecosystems (SG	422 ha
Disturbed SEI Areas	10 ha

An analysis of potential impacts to current intertidal ecosystems and habitats (with the exception of some areas of coastal wetlands and coastal bluffs) were not included in this analysis. Further study in this respect is required.

5.3.2 Documented Archaeological and Historical Area Heat Maps

Results shown in **Appendix I** find that future inundation due to sea level rise will impact a number of known and potential archaeological and historic sites across the region.

It is not possible to identify specific sites of cultural significance on the intertidal zone maps, as given in **Appendix H**. This is due to the sensitivity of this information and the intention to protect said sites. Instead, in order to provide a more general indication of the extent of such sites, a set of heat maps showing the intensity of the occurrence of such sites at a broader scale has been developed. Separate heat maps have been developed for the entire coastline of the capital region, and these are provided in **Appendix I**.

Again, it is important to reiterate that only one source of cultural information was used to inform this mapping; identifying areas for archaeological potential (i.e. the Provincial RAAD database). The maps do not identify all impacts on specific First Nations Communities, for example associated fishing, harvesting or cultural activities. For a more thorough investigation, it is recommended to undertake site-specific, targeted inquiries, with the help of archaeological professionals and local First Nations representatives.

6 CONCLUSIONS

6.1 Summary of Methodology to Derive FCLs

The workflow to estimate the proposed Flood Construction Levels presented in Appendices B and C is summarized below:

- The project team reviewed the collective body of documents that form the 'Provincial Guidelines', that are referenced in the Provincial publication *Flood Hazard Area Land Use Management Guidelines*.
- The project team reviewed recent similar studies in the local area and recommended the use of an adapted form of the Provincial Probabilistic Method. This adapted method (i.e. the 'response-based' method) is recommended by FEMA as an appropriate means by which flood risk can be estimated along Pacific coastlines and has the added benefit of allowing direct comparisons against real-world, observed events.
- The project team developed a spectral wave model of the entire study area using relevant bathymetric and meteorological data. The spectral wave model was used to continuously simulate the deep-water tide and wave conditions in the study area for the period 1979-2018 (i.e. 40-year hindcast).
- The project team reviewed the capital region's 1,300 km coastline and divided it into 222 distinct reaches, with an associated transect (i.e. cross-section through the foreshore). Transects were placed at representative locations for each specific reach, with geometry being extracted from the study's 1m LiDAR dataset.
- Hindcast results for still water level, significant wave height and wave period were extracted from the spectral wave model at the off-shore toe of each transect, at every hour in the 40-year record. Local storm surge was calculated at the off-shore toe of each transect, at each hour increment using desktop methods that account for locally observed atmospheric wind and pressure inputs.
- Wave effects (setup and runup) were calculated at each transect, at every hour in the 40-year record. Adding wave effects to the still water level and local storm surge yielded instantaneous total water levels for the hindcast period.
- Extreme value analysis of the instantaneous total water levels, for each RSLR scenario (0.0 m, 0.5 m, 1 m, and 2.0 m RSLR) gave the 0.5% AEP TWL. Adding 600 mm freeboard to these values results in the project's proposed FCLs at each transect.
- Proposed FCLs were mapped for the 1.0 m and 2.0 m RSLR scenarios. The use of **$R_{2\%}$ FCL values** (i.e. 2% of waves exceed this elevation) are recommended in the "Primary Wave Effect Zone"; extending approximately 30 m inland from the 0.5% AEP 1m RSLR still water level contour. This defines the proposed **'foreshore' FCL**. It was recommended that FCL values can be relaxed to **R_{mean}** (i.e. wave elevation exceeded by 50% of waves) landward of the Primary Wave Effect Zone. This defines the proposed **'backshore' FCL**. FCL values for 0.0 m and 0.5 m RSLR are included in this report for information purposes only and are not recommended for use, in keeping with Provincial flood planning guidelines.
- As the FCLs are derived using 1D transect analysis, site-specific wave runup and overtopping details can be over-simplified or not captured, depending on the placement of the transect along the coastline. The project team placed the transects at representative locations within the reach, so that the 222 transects used in the study appropriately represent as much of the 1,300 km coastline as possible.
- Any changes to the transect profile as a result of foreshore development, coastal erosion etc. will impact wave effects and consequently change the resultant FCL at that location (e.g. building a retaining wall where there is currently a beach slope will increase wave effects and resultant FCLs).

Therefore, it is imperative for any proposed development at the foreshore to assess the potential impacts on the resultant post-development FCL.

- The selection of appropriate building setbacks for development should be done on a site specific basis by a suitably qualified coastal engineering professional, incorporating the numerical analyses contained within this report. Municipal planners are advised to familiarise themselves with the intricacies of *BC MoE 2017*, particularly with respect to building setbacks.

6.2 Commentary on Provincial Guidelines

The B.C. 'Provincial Guidelines' are a collective body of documents that are used to define coastal flood hazard in BC. The first reports that inform the Guidelines date back to 2011, with further additions in 2017 and 2018.
These Guidelines needed to be robust and flexible enough to be applied in areas of sparse coastal data, as well as in more populated locations that have significant supporting data available. For many studies, the Provincial Guidelines offer an excellent analytical process for defining Flood Construction Levels and completing planning assessments. However, in completing this project, the following challenges were encountered with respect to broadly applying the Guidelines:

- The Recommended Global Sea Level Rise Curve for Planning and Design in BC, as shown as Figure 1 in the *Amendment to Section 3.5 and 3.6 of the Flood Hazard Land Use Management Guidelines*, was published in 2011. Since that time, extensive scientific work has been undertaken and additional information and techniques have become available with respect to global SLR including regional adjustments to SLR, and local land uplift/subsidence contributing to relative SLR. Recent work suggests that an SLR value of 1.0 m for the year 2100 is conservative. However, at this juncture we simply recommend that consideration be given to updating, through a suitable forum, BC guidance provided with respect to SLR and RSLR.
- There is a contradiction between the BC Ministry of Environment Guidelines for Management of Coastal Flood Hazard Land Use (2011) and the Flood Mapping in BC, APEGBC Professional Practice Guidelines v1.0 (2017), with respect to the wave runup values used to inform FCLs. The 2011 publication states that "*for coastal flooding hazard management the Wave Run-up is taken as 50 per cent of the calculated run-up elevation on the natural shoreline*" (R_{mean}). Whereas, the 2017 publication says that "*in an exposed coastal context, the FCL is equivalent to the dike crest elevation*", which by extension requires the use of the 2% wave runup ($R_{2\%}$).
- Current provincial practice (Flood Mapping in BC, APEGBC Professional Practice Guidelines v1.0) recommends that FCLs be derived based on exposed shorelines being treated as dikes which implies that 2% wave runup values be applied. Inclusion of the full wave effects in backshore areas may lead to excessively high FCLs, recognizing that significant wave propagation will not extend into the backshore areas. There is no recommendation or procedure in the Guidelines on how to reconcile this issue nor is there any provision to relax FCL values beyond the Primary Wave Effect Zone where wave effects will dissipate.
- Appropriate building setbacks can be difficult to establish, particularly if the backshore is flat/expansive. Projecting an FCL value inland, with a significant wave effect component, can lead to very conservative building setbacks.
- Applying the Guidelines requires a significant amount of professional judgment, which can lead to varying, yet valid, interpretations of the Guidelines. Furthermore, these interpretations and applications can lead to varying, yet valid, FCL values for the same and/or adjacent areas based on the approaches selected..
These discrepancies can be difficult to reconcile and communicate to the public and local government staff as the differences are driven by specific, technical assumptions and data sources. In particular, significant differences in results can occur as a result of applying the combined versus the probabilistic method as

outlined in the Guidelines. Part of this difference can be attributed to the extremely small AEP resulting from combining individual elements, each with its own probability of exceedance, in the combined method.

- The Guidelines are orientated towards estimating FCLs by applying 1D (transect) analysis. By definition, transect analysis requires that results from a single transect represent a coastal reach. This simplification may lead to unrefined results, particularly in complicated/varied coastline reaches (e.g. coastal cities). A more refined approach would be to encourage the use of 3D combined wave, tide and surge modelling to derive maximum water surface elevations. Freeboard could then be added to the results to yield appropriate FCL values. A similar approach has been leveraged in many jurisdictions in Europe, for example, as part of the EU Floods Directive.

6.3 Coastal Storm Flooding Risk in the Capital Region

The capital region's coastline is generally steep and low-lying areas are not as predominant as many other regions along the Pacific Coast. This means that the extents of inundation areas are limited, with much of it restricted to the areas covered by the detailed (2D) inundation models. From the plotted results (**Appendix E**), one can see that flooding is restricted to discrete cells in each domain, as the ground rises sharply from the coast. Of the detailed inundation model areas, the most vulnerable regions to sea level rise appear to be McNeill Bay/Oak Bay, due to their gently sloping beaches and low-lying topography. The detailed inundation model results are supplemented by RSLR inundation mapping for the entire capital region in **Appendix F**.

Conversely, in steep, rocky bluff areas or areas with abrupt increases in foreshore elevation (e.g. along Juan de Fuca Strait, Ogden Point Ferry Terminal, Dallas Road or the southern tip of Galiano Island) the FCL values are quite large. This is the result of the shoreline relief on wave effects and the corresponding wave setup and runup equations (in **Section 3.3**). Significantly sloped or vertical surfaces deflect the waves' kinetic energy, causing waves to 'shoot' upwards. The adjustments outlined in **Section 3.3.4** were made to ensure that FCLs were not unrealistically high at some of these locations by considering what would actually happen (e.g. wave effects including runup and subsequent overtopping are primarily constrained to the "Primary Wave Effect Zone").

The greatest potential impacts to ecosystems at risk of intertidal zone changes are expected to occur to the ecosystems at the Sooke River estuary, sites adjacent to Esquimalt Lagoon, portions of Island View Beach Regional Park and sites at the north end of Sidney Island (as per **Section 5**). The greatest potential impacts to areas of cultural significance are expected to occur to concentrations of sites near Sooke, Metchosin, Colwood and Oak Bay. More specific, targeted analyses should be undertaken as these sites to assess in detail what effects prolonged submergence may have on their form and function. It is almost certain that without mitigative action, these sites could be irreparably damaged or lost to future generations.

6.4 Comparison with Previous SLR and FCL Studies

To contextualise RSLR FCLs derived in this study, a comparison was undertaken against other coastal flooding studies in the capital region; specifically, the 2017 District of North Saanich Flood Construction Levels for 0.5 m and 1.0 m Sea Level Rise Report (SNC-Lavalin, 2017) and the 2015 Capital Regional District Coastal Sea Level Rise Risk Assessment (AECOM, 2015).

6.4.1 2017 District of North Saanich Flood Construction Levels for 0.5 m and 1.0 m Sea Level Rise Report

In 2016/2017, the District of North Saanich (DNS) commissioned a review and refinement of the Flood Construction Levels for their municipality. Two scenarios of 'relative' sea level rise (RSLR) were examined: 0.5 m RSLR and 1.0 m RSLR. These values include the effect of land subsidence and/or uplift on sea level increases. As such, these RSLR values are not tied to particular time horizons. The 2017 DNS study chose to adopt the 500-year (0.2% AEP) event as its target level of service.

Most importantly, the 2017 DNS report used the 'Combined Method', as explained in Section 2.2, and 'stacked' the various coastal components on top of each other. This is an acceptable, robust approach. However, the joint probability of the derived FCL becomes more remote than the intended level of service (i.e. more extreme than a 500-year total water level).

Other differences between this project and the 2017 DNS Study include, presumably, the number of and placement of transects within North Saanich, as well as the method of estimating wave effects. The differences in methodologies result in differences in resultant FCL values for the same RSLR scenario (i.e. 1.0 m). Generally speaking, the 2017 DNS Study is more conservative (i.e. higher FCL values relative to this project) in the southern part of the DNS in the Haro Strait and to the west, in the Saanich Inlet. This project is generally more conservative in the north-eastern portion of the DNS, adjacent to Swartz Bay Ferry Terminal. This example illustrates the different outcomes that can occur in the same study region due to the varying interpretations of the Provincial Guidelines and the range of engineering methodologies, numerical modelling techniques, data sets, and calculation procedures that are applied that influence study outcomes.

6.4.2 2015 Capital Regional District Coastal Sea Level Rise Risk Assessment

The objective of the 2015 Capital Regional District Coastal Sea Level Rise Risk Assessment was not to establish FCLs within the capital region, but rather to map areas vulnerable to sea level rise, as part of "the first phase in CRD's multi-year project to gather information to support future analysis and policy response for sea level rise".

Inundation mapping was produced for the 2015 CRD project and was based on a partial form of the 'Combined Method' in *BC MoE 2017*. The inundation extents were formed using the following equation:

Higher High-Water Large Tide (HHWLT) + SLR + Adjustment for Land Uplift/Subsidence + Regional Storm Surge

Regional storm surge had been assumed to be 1.30 m for a 500-year storm event. No account was made for wave effects, local storm surge or freeboard. Therefore, a direct comparison against this project's FCLs is not an appropriate comparison. However, a comparison against this project's Designated Flood Levels, DFLs (i.e. the still water levels), as given in **Appendix G** serves to highlight the differences that can arise between the 'Combined' and 'Probabilistic' Methods.

The 2015 CRD project gives an 'Estimated Future Extreme High Tide' of 2.80 m CGVD28 (as per Table 4 in that report) at Victoria for the present day. Converting this to CGVD2013, the elevation becomes approximately 2.93 m geodetic. However, the corresponding present-day DFL for Victoria, for this project (assuming Transect 70, 0.0 m RSLR), is 2.03 m CGVD2013. This means the 'Combined Method' assumption of HHWLT and 500-year regional storm surge occurring at exactly the same time yields a DFL or still water level nearly 1 m higher than this study's corresponding number (bearing in mind that this project's target return period is 200-year).

Again, it is important to state that the objective of the 2015 CRD project was to undertake an initial, high-level assessment of flood risk and not to set/propose flood construction levels.

6.5 Flood Construction Level Policy

While every effort has been made to summarise important flood construction principles within this section, it is recommended that readers familiarise themselves with the various publications outlined in **Section 2.1**, whilst evaluating the recommendations set out herein.

Exposure to tsunami hazard along the CRD's 1,300 km of coastline varies significantly due to a variety of factors. In particular, portions of the study area are "Outside the Strait of Georgia Area – Areas Subject to Significant Tsunami Hazard", as per the Provincial Guidelines (*BC MoE 2017*). Examples of areas subject to significant tsunami hazard include Port Renfrew, the Juan de Fuca Strait and the Greater Victoria area. In areas where tsunami exposure exceeds the $R_{2\%}$ value, it seems prudent that the former would take precedence in establishing FCLs, despite the infrequent nature of events. This is consistent with a principal tenant of the EGBC Code of Ethics "hold paramount the safety, health, and welfare of the public, including the protection of the environment…". BC MoE 2017 stipulates that in areas vulnerable to tsunami hazard, the greater of the coastal storm FCL or tsunami elevation should govern as the 'development condition' (as shown in the following figure). Furthermore, the guidelines state that, in areas where tsunami risk governs, "at a minimum, building conditions should protect improvements from damage from a tsunami of equal magnitude to the March 28, 1964 tsunami that resulted from the Prince William Sound, Alaska earthquake and a possible Cascadia Subduction Zone earthquake".

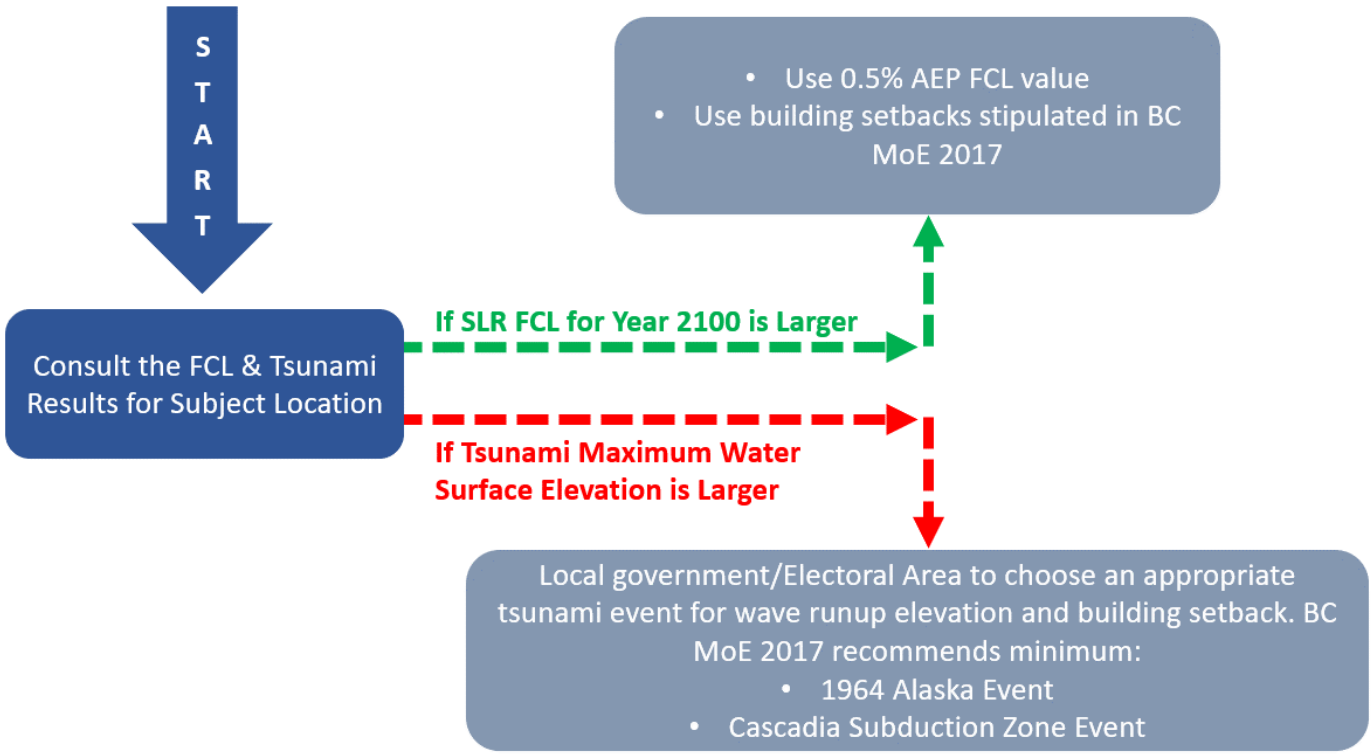


Figure 6-1
Recommendations for Flood Construction Level Practises in the Capital Region, as per BC MoE 2017

Based on historical development considerations, tsunami hazard requirements and regulations for existing lots may be determined by local governments on a site specific or regional basis. However, any new lots created, or improvements to existing buildings and infrastructure, should consider tsunami setbacks and elevations.

As described in the Task 3 – Tsunami Modelling and Mapping Report, there are a number of tsunami sources that could potentially affect the capital region, each having their own magnitude and recurrence interval. Local government decision makers, who are ultimately responsible for establishing FCLs, are thus faced with the challenging problem of selecting FCLs that protect public safety and minimize consequences, while finding a balance that would be acceptable to the public at large. An important area of debate centres around establishing FCLs that protect fixed assets and those that can be managed via emergency response such as early warning systems and evacuation plans. The project team have considered this unique and challenging situation and offer the recommendations below.

When selecting an FCL, careful consideration must be paid to protecting future development from an unacceptable level of risk. As discussed in the Task 3 reporting, the 1964 Alaska event was a large far-field tsunami event that caused significant damage along inlets to the north of the capital region. However, this project's modelling demonstrated that anticipated wave heights in Port Renfrew as a result of a similar event would be less than 1 m. The effects of this tsunami dissipate the further east one travels through the Juan de Fuca Strait and towards the Saanich Peninsula. As such, consideration of this particular tsunami event, as per **Figure 6-1**, is unlikely to be the governing event.

In contrast, this project also modelled a Cascadia Subduction Zone L1 event, which involves a seismic event that affects the entire length of the Cascadia Subduction Zone from southern Oregon to northern Vancouver Island. This event would result in significant tsunami wave heights and subsequent run-up within the jurisdiction of nearly every local government and electoral area in the capital region. However, the return period for this event, approximately 2,500-year, is far in excess of the 200-year or 500-year sea level rise flooding design event typically applied to regular development such as private dwellings, local businesses, municipal facilities etc. (as per the *BC MoE 2017* guidelines).

Based on considerations of balancing risk, the project team proposes that the capital region's local governments and electoral areas consider the Cascadia Subduction Zone Northern Rupture Segment (CSZ-NS) event as the assessment standard for establishing FCLs. Extensive information on this event and its impacts are provided in the Task 3 Report. Resulting wave heights in the capital region vary between 6 m in the west to 2 m in the east for this event. Notably, the return period associated with this event is approximately 500-600 years. This makes it a more realistic and appropriate candidate for use in FCL establishment.

Nevertheless, extreme events can occur at any time and the establishment of FCLs should consider the exposure and risk associated with all hazards. The focus of this report was to identify hazards including coastal storm surge and sea level rise and tsunami generating events. However, selection and adoption of FCLs should be based on considering risk in a holistic manner. While holding public safety paramount, the risk receptors should be assigned appropriate value according to their specific context. For example, a few key questions are provided below that will influence the importance assigned to each risk item:

- Is there an appropriate tsunami early warning system in place?
- Will the pubic have time to react to tsunami generating event "x"?

- What are the depth and velocity profiles through the community and evacuation routes?
- What is the expected building and content damage?
- What critical infrastructure will be affected?
- How many people will be displaced?
- What is the impact to business?

The tsunami hazard must be compared against the coastal storm surge and sea level rise values to determine which values govern. This comparison must recognize the time varying changes that occur as a result of RSLR and the varying probabilities associated with each hazard type. Since risk is the product of likelihood and consequences, the risk assessment should establish an envelope of acceptable risk that is applicable over the planning time horizon.

In the absence of a complete risk assessment, the project team recommends that municipal/electoral area staff consult the following decision tree to establish FCLs in the capital region.

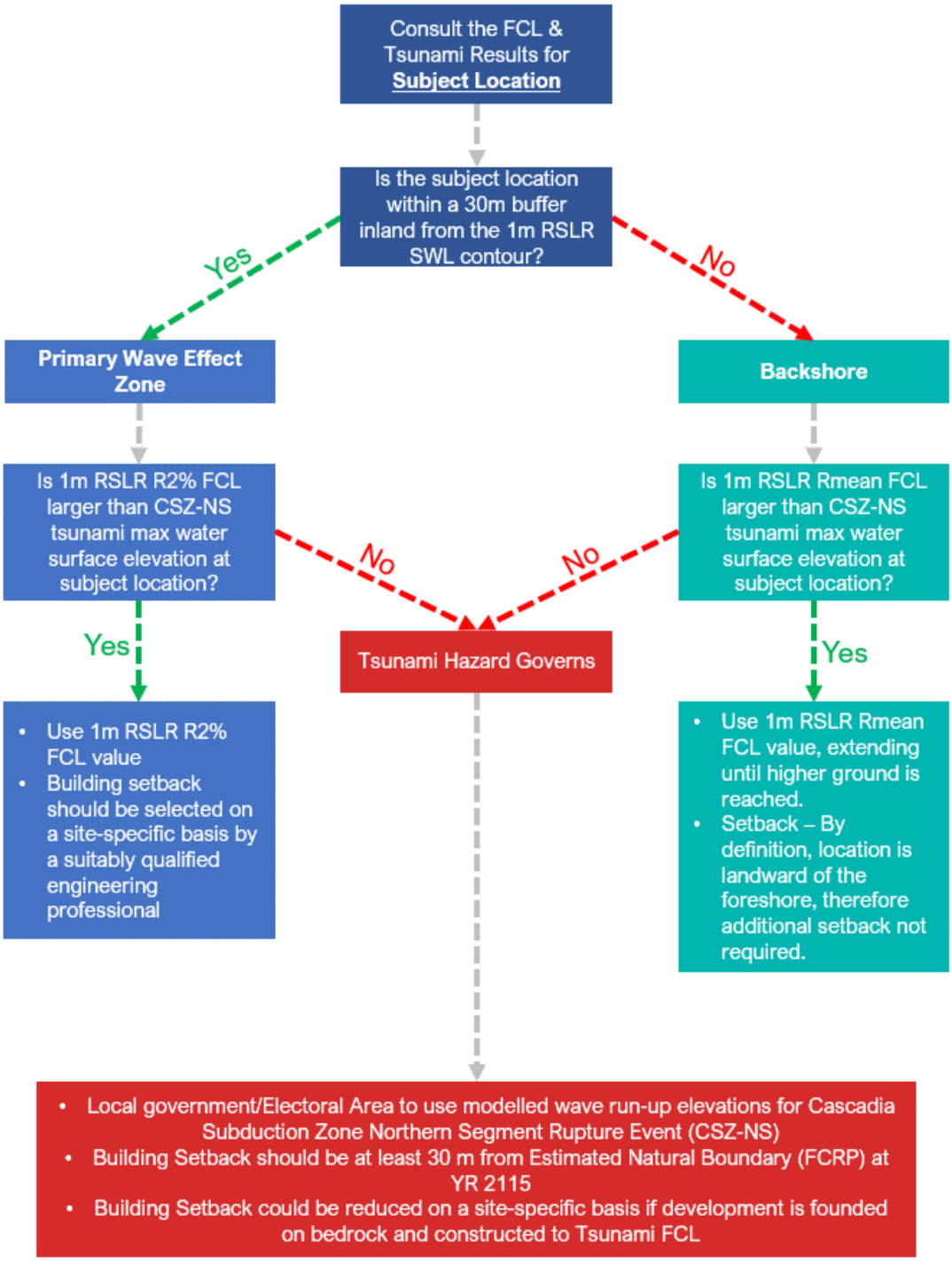


Figure 6-2
Decision Tree for Establishment of FCLs in the Capital Region

In the absence of a complete risk assessment, the CSZ-NS should be used as the planning assessment standard, to compare against the corresponding 1 m Relative Sea Level Rise (RSLR) $R_{2\%}$ or R_{mean} FCL at the subject location (depending on if the subject location is in the Primary Wave Effect Zone or outside of it).

Building setbacks refer to the horizontal offset, landward from the coast, that planning applications should adhere to so that development is not vulnerable to future coastline changes. *BC MoE 2017* states that setbacks should be the greater of 15 m landward from the Estimated Natural Coastline Boundary (i.e. the Flood Construction Reference Plane (FCRP), see **Section 2.1**.) or immediately landward of the 1 m RSLR FCL contour. Values for the FCRP (i.e. 0.5% AEP Total Water Level) at each transect location are presented in **Appendix D** and extracted contours were provided as GIS deliverables accompanying this report.

Note that the building setback is different from the proposed 30 m wide strip of land (i.e. the "Primary Wave Effect Zone"), where it is intended that the $R_{2\%}$ FCL applies, before relaxing to a R_{mean} FCL value. The building setback's function is primarily to anticipate potential coastal erosion whereas the "Primary Wave Effect Zone's" purpose is to approximate the tract of land most vulnerable to wave effects at the foreshore.

In instances where tsunami risk governs, decision makers with local governments and electoral areas have some flexibility in their choice of the tsunami event to be considered and subsequently, the corresponding setbacks. The tsunami events presented in the Task 3 – Tsunami Modelling and Mapping Report have not been modelled with anticipated sea level rise. Users of this study are cautioned to consider this fact when comparing against proposed coastal storm FCLs.

The policies associated with reconciling flood construction levels based on coastal storm surge/RSLR and tsunami hazards is not fully resolved within Provincial Guidance. It is anticipated that further discussion with local government, particularly with respect to advancements and clarification of provincial guidance will be required to establish FCLs where significant Tsunami hazards exist. No specific guidance is provided in the Provincial Guidelines with respect to estimation of a 'Tsunami FCL', as referenced in **Figure 6-2**. However, it is recommended that, at a minimum, the FCL would be the modelled maximum runup elevation for the selected tsunami event at that subject site.

The table below compares the 1 m RSLR ($R_{2\%}$) "Foreshore"/"Primary Wave Effect Zone" FCL for each local government/electoral area (average and max $R_{2\%}$ value statistics for transects within their municipal boundaries) and the CSZ-NS tsunami maximum water surface elevation at those same locations. This serves as an initial indicator of the dominant hazard in the local environs but should always be checked against the results for the specific transect of interest (as summarised in **Appendix B** of this report and **Appendix D** of the Task 3 Report). The cells highlighted red indicate that tsunami risk is dominant.

Table 6-1
Comparison of 1m RSLR ($R_{2\%}$) "Foreshore" FCLs and CSZ-NS Maximum Water Surface Elevations

Municipality	1 m RSLR FCL		CSZ-NS	
	Average	Max	Average	Max
Central Saanich	5.14	8.71	3.26	4.34
Colwood	4.75	5.59	4.64	6.01
Esquimalt	6.19	9.66	4.48	5.15
Highlands	6.09	7.29	2.94	2.94
JDF	6.03	11.93	5.09	7.95
Langford	3.77	3.77	3.06	3.06

Municipality	1 m RSLR FCL		CSZ-NS	
Metchosin	6.32	13.69	3.51	3.78
North Saanich	5.59	12.65	2.77	3.48
Oak Bay	6.98	9.43	2.67	3.30
Saanich	5.68	9.22	2.55	3.22
Salt Spring	5.53	14.73	2.60	4.16
Sidney	6.05	9.39	3.01	3.30
Sooke	5.51	14.97	4.05	5.28
South Gulf	6.32	10.95	2.37	3.89
Victoria	6.34	10.17	3.99	5.11
View Royal	4.15	4.89	6.27	6.56

All water surface elevations and flood construction levels referenced to m CGVD2013.
Red shading denotes where tsunami value exceeds 1 m RSLR FCL value.
Note: sea level rise has not been included in the tsunami modelling results.

It is **not** recommended that coastal storm FCLs are added to tsunami wave run-up values to give a municipality's FCL. This would result in a total flood level with an extremely remote probability of occurring, as one is assuming that a tsunami occurs at exactly the same time as an extreme coastal storm event. The joint probability of this event is extremely remote.

6.6 Recommendations for Further Analysis

While the analysis undertaken for this project was comprehensive and robust, several recommendations are provided below to further refine and expand understanding of coastal flood risk in the capital region.

Site-Specific FCL (1D Transect) Analysis

Significant care was taken to examine each coastal reach individually and to select an appropriate, representative transect as described in **Section 3.3.1**. However, variations in foreshore geometry along each reach are inevitable, even over short distances. For example, a privately-owned local retaining wall may be excluded from the "representative" transect. This highlights that the proposed FCL values presented herein can be further refined on a site-specific basis. However, this level of detail cannot be addressed in all cases within the scope of this regional-level study.

Further Refinement of FCLs with post-development foreshore changes

Foreshore changes, such as the raising/lowering of existing ground, erection of walls etc., can alter the wave setup and runup conditions, thereby creating 'pre- and post-development' conditions. It is recommended that any changes to the coastline geometry, as part of a planning application, be assessed to determine its potential to change flood inundation extents and site-specific flood construction levels.

Further Detailed (2D) Inundation Modelling

The proposed FCLs contained within this report will assist municipalities in developing policies and regulations to manage the coastal flood hazard.

However, detailed 2D inundation models are able to give a relatively accurate picture of anticipated flood extents and depths; supplementing the total water level information provided at each transect. Additional detailed 2D inundation model domains including areas such as Port Renfrew, Sooke and other relatively low-lying locations would benefit from this type of analysis, particularly when planning and justifying flood defence options. For example, these detailed flood inundation results can feed directly into flood risk assessments which includes economic comparison of alternatives and 'return on investment' (ROI) calculations for potential mitigation options. These detailed flood inundation results can also help inform emergency response planning and prioritisation of infrastructure improvement works.

This recommendation would be an improvement on the information contained within **Appendix F**. The difference between **Appendices E and F** is the use of hydrodynamic equations to calculate flood extents, rather than simply projecting an elevation across a DTM.

Detailed (3D) Inundation Modelling that incorporates wave runup and overtopping

The complexity of the coastal interface poses a challenge for City engineers and planners to assess flood risk and inundation potential at a lot-level scale. The variability and frequent transition between built and natural shoreline features, combined with the joint probability of storm surge, tides, wave effects, and sea level rise that all vary on temporal and spatial scales, results in significant uncertainty at a local scale.

Although the resolution of FCL transects can be increased to capture shoreline variability, this process is resource-intensive and does not offer sufficient detail to determine lot-level, spatially varying flood processes associated with neighboring transects, and excess wave run-up, wave breaking, overtopping, and storm surge. To overcome this challenge, it is possible to use 3D inundation models that are based on non-hydrostatic, 3D Navier-Stokes equations that incorporate fully nonlinear, dispersive surface gravity waves and flow. These high-resolution models use LiDAR data to resolve shoreline variability in detail and can interpret complex overland coastal flooding and inundation. The output from such models produce more accurate and effective coastal flood maps compared to traditional 1D transect based shoreline mapping methods. Flood extents and depths, overtopping volume, as well as surface flow (current speeds, directions, and volume) can be captured for specific events. One limitation of this approach is that the numerical solvers are resource intensive, and assessments can only be completed over relatively small domains (1 – 5 km shoreline length), for event specific durations.

Population and Infrastructure Heat Map

To identify areas most at risk, a series of heat maps could be generated that consider population and infrastructure at risk using a combination of detailed inundation model results, land use and population statistics, as well as detailed infrastructure data.

The analysis would cross-reference exposure to and vulnerability from hazard events. In particular, critical infrastructure, populations at risk, private and public buildings, transportation corridors and other social and environmental factors would be considered. These heat maps can be used to identify and prioritize particularly vulnerable areas for further investigation and/or action. An example heat map is shown in **Figure 6-3**. The warmer colours correspond to a greater concentration of potable water system assets affected by fluvial flooding.

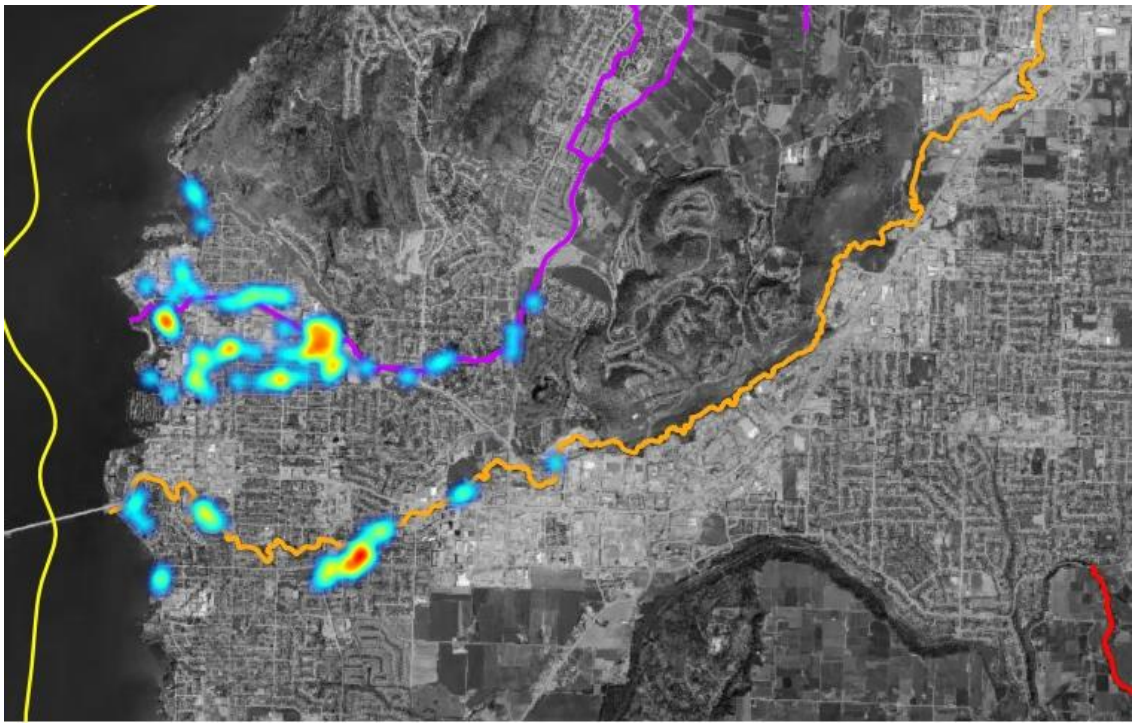


Figure 6-3
Example of an Infrastructure Risk Analysis Heat Map

Risk Assessment

This report focusses on Flood Hazard and provides guidance on establishing FCLs based on hazard exposure alone. A risk-based approach considers the likelihood of any event occurring and the consequences caused by the event. It is preferable, and valuable, to evaluate flood protection based on a risk-based approach. This approach would identify all hazards and assign a probability to each. The consequences of each event would be quantified based on a set of receptors, each with its own importance factor. Whereas public safety would be held paramount, other factors such as temporary loss of a municipal service may be given a lower rating. All losses, evaluated on a common basis, would be included in a risk matrix in which an acceptable risk envelope would be defined. In this manner, the consequences of a large but extremely infrequent event such as a Cascadia Subduction Zone earthquake could be incorporated into the overall risk assessment so that appropriate value-based decisions can be made. For example, the value of various mitigative options including structural (e.g. dykes) and non-structural (e.g. FCL bylaw) approaches can be compared on a common basis.

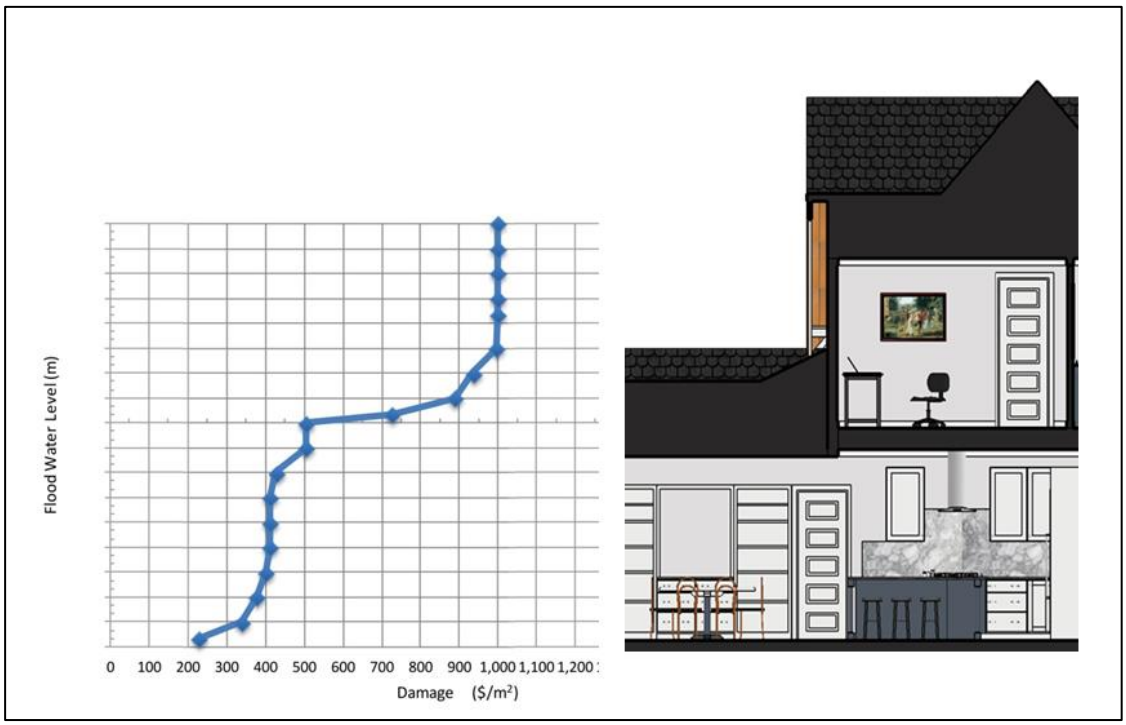


Figure 6-4
Example of Depth-Damage Curve

The graphic below shows how economic, social and environmental values can be combined on a Probability versus Cost curve (i.e. green line represents averted damages). Similarly, the cost of the mitigation strategy can be included (red line). Dividing the averted damages curve by the cost curve provides the benefit-cost ratio at any level of flood protection (purple line). As well, as long as the averted damages curve is increasing more rapidly than the cost curve, the marginal cost remains positive, meaning that investing one more dollar for a higher level of service will result in more than one dollar in return. In this example, the maximum benefit-cost ratio occurs at approximately the 200-year return period. However, a positive return on investment would be realized by providing a level of service up to the 500-year return period.

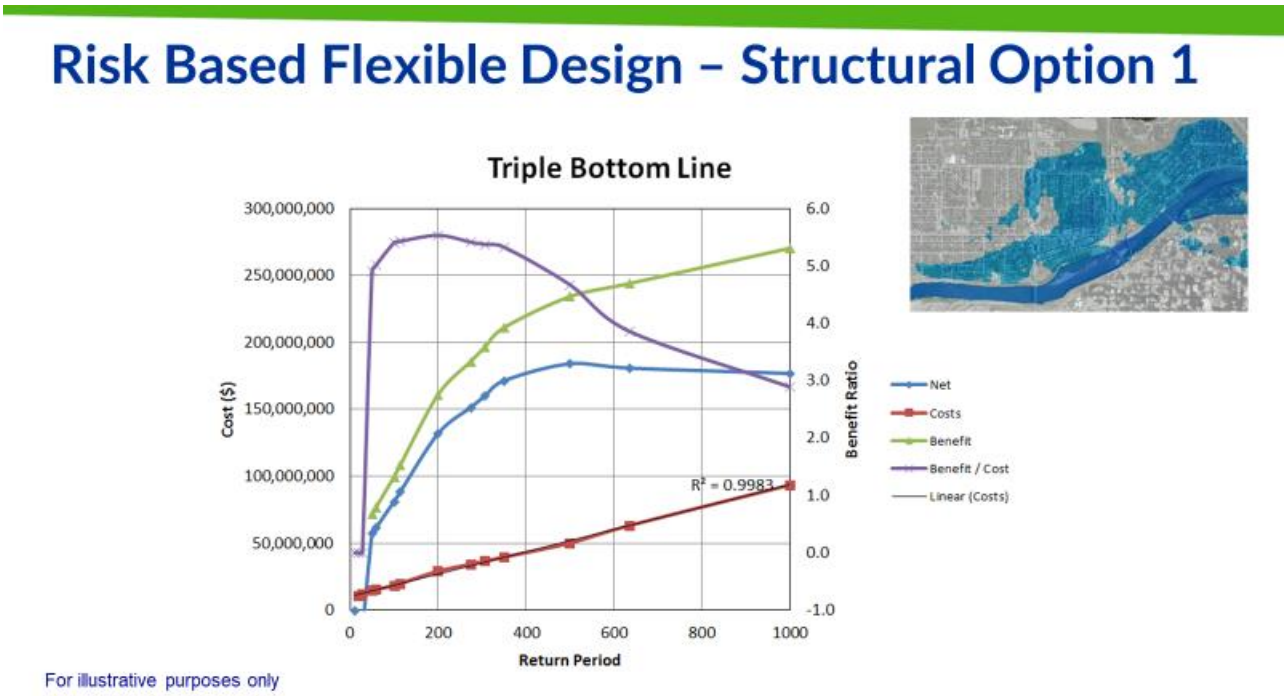


Figure 6-5
Example of using a risk assessment to inform investment decisions

REFERENCES

AECOM. January 2015. Capital Regional District, Coastal Sea Level Rise Risk Assessment.

Associated Engineering. December 2019. Finalized Project Methodology Technical Memorandum.

Associated Engineering. March 2020. Capital Region Coastal Flood Inundation Mapping Project, Task 1 – DEM Development Report v2.0.

Associated Engineering. March 2020. Capital Region Coastal Flood Inundation Mapping Project, Task 3 – Tsunami Modelling and Mapping Report.

Ausenco Sandwell. January 2011. Climate Change Adaption Guidelines for Sea Dikes and Coastal Flood Hazard Land Use, Sea Dike Guidelines. Prepared for the BC Ministry of Environment.

Ausenco Sandwell. January 2011. Climate Change Adaption Guidelines for Sea Dikes and Coastal Flood Hazard Land Use, Guidelines for Management of Coastal Flood Hazard Land Use. Prepared for the BC Ministry of Environment.

BC Ministry of Forest, Lands, Natural Resource Operations and Rural Development. 2017. Amendment to Sections 3.5 and 3.6 of Flood Hazard Area Land Use Management Guidelines.

DEFRA, March 2006. Flood and Coastal Defence R&D Programme, R&D Outputs: Flood Risks to People, Phase 2, FD2321/TR2 Guidance Document

Engineers & Geoscientists British Columbia. August 2018. Legislated Flood Assessments in a Changing Climate in BC v2.1.

Engineers & Geoscientists British Columbia. January 2017. Flood Mapping in BC, APEGBC Professional Practice Guidelines v1.0

Environment Canada. 2004. Sensitive Ecosystem Inventory (SEI) of East Vancouver Island and the Gulf Islands.

Fisheries and Oceans Canada. 2020. Canadian Tide and Current Tables, 2020, Volume 5 – Juan de Fuca Strait.

Intergovernmental Panel on Climate Change. 2019. Special Report on the Ocean and Cryosphere in a Changing Climate.

Kerr Wood Leidal. June 2011. Coastal Floodplain Mapping – Guidelines and Specifications. Prepared for the BC Ministry of Forest, Lands and Natural Resource Operations.

Mase, H. 1989. Random Wave Runup Height on Gentle Slope. Journal of Waterway, Port, Coastal, and Ocean Engineering, Vol 115, No. 5, pp 649-661.

Millenia Research. September 2008. Archaeological Potential Modelling for the Capital Regional District.

SNC-Lavalin. January 2017. District of North Saanich - Flood Construction Levels for 0.5m and 1.0m Sea Level Rise.

Technical Advisory Committee on Flood Defence, The Netherlands. May 2002. Technical Report Wave Run-Up and Wave Overtopping at Dikes.

CERTIFICATION PAGE

This report presents our work for Task 2 – Sea Level Rise Modelling and Mapping Report (Version 2.0) regarding the Capital Region Coastal Flood Inundation Mapping Project. The services provided by Associated Engineering (B.C). Ltd., and its sub-consultants, in the preparation of this report were conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions. No other warranty expressed or implied is made.

Respectfully submitted,

Associated Engineering (B.C.) Ltd.
Engineers & Geoscientists BC Permit Number 1000163

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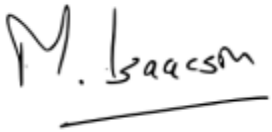

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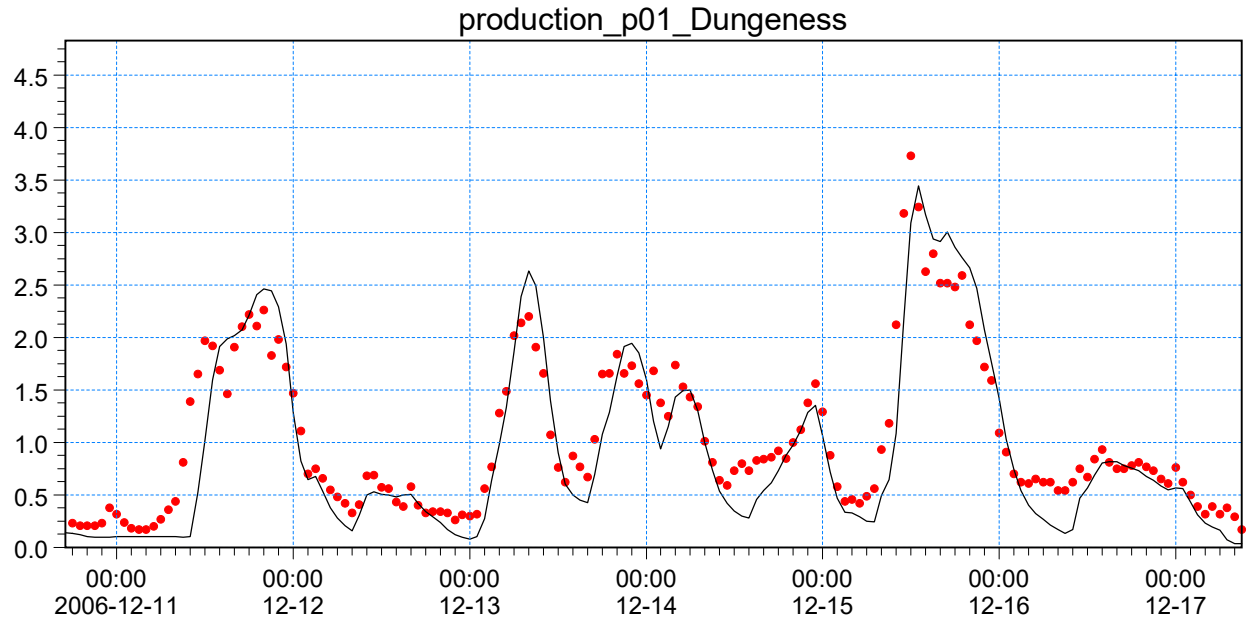
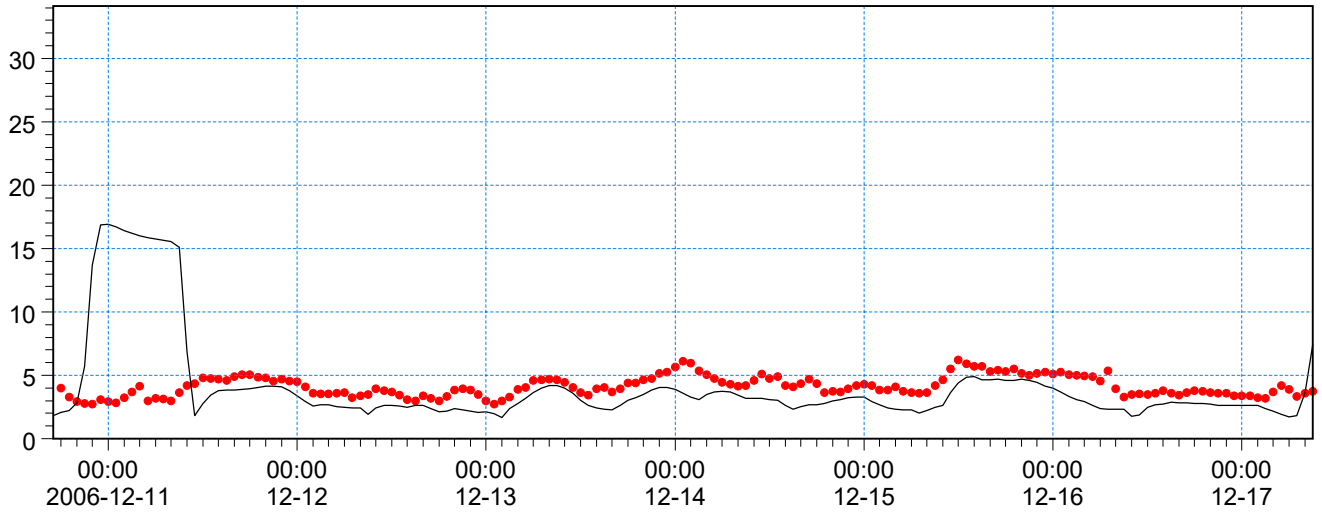
APPENDIX A –SPECTRAL WAVE MODEL VALIDATION RESULTS

Appendix A provides detailed calibration plots for period p01 at the Dungeness Bay Buoy and period p04 at the Patricia Bay Buoy. These periods cover the highest significant wave height in the measurement record at each respective buoy. Note that wave direction is not part of the Patricia Bay measurement record. Additionally, the simulated wave period and direction parameters are discontinuous when the significant wave heights are near zero – this is a function of the numerical calculations in the spectral wave model. The purpose of these plots is to demonstrate the performance of the spectral wave model in replicating real-world, observed data.

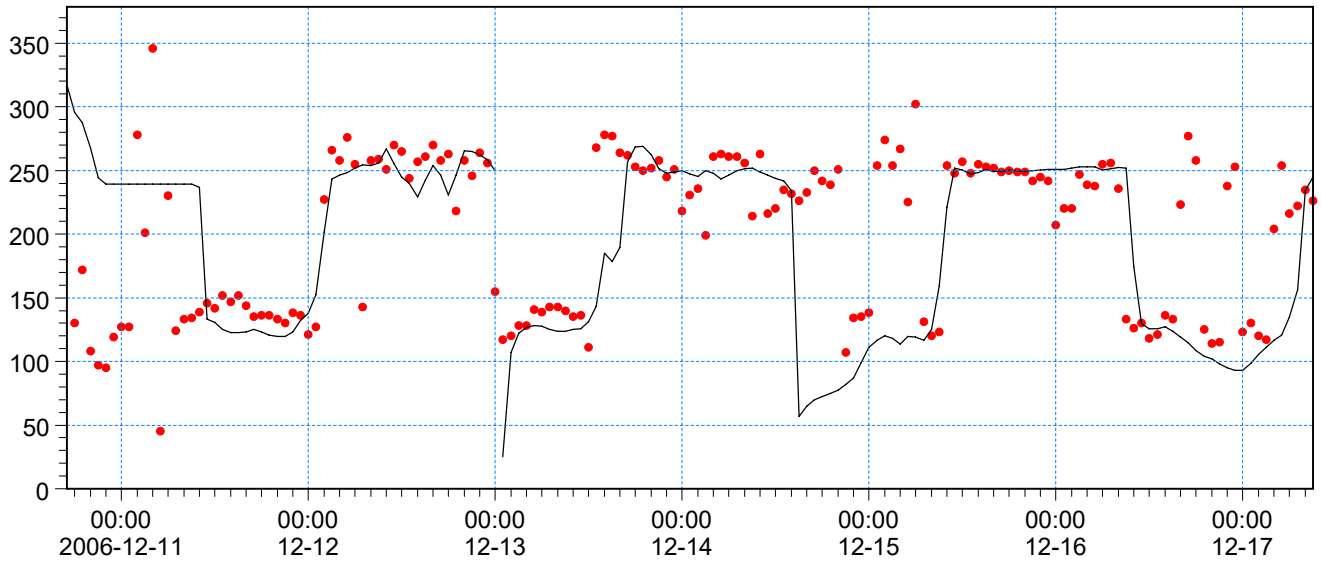
Wave height WVHT [m] (measurement)
Dungeness: Sign. Wave Height [m] (simulation)



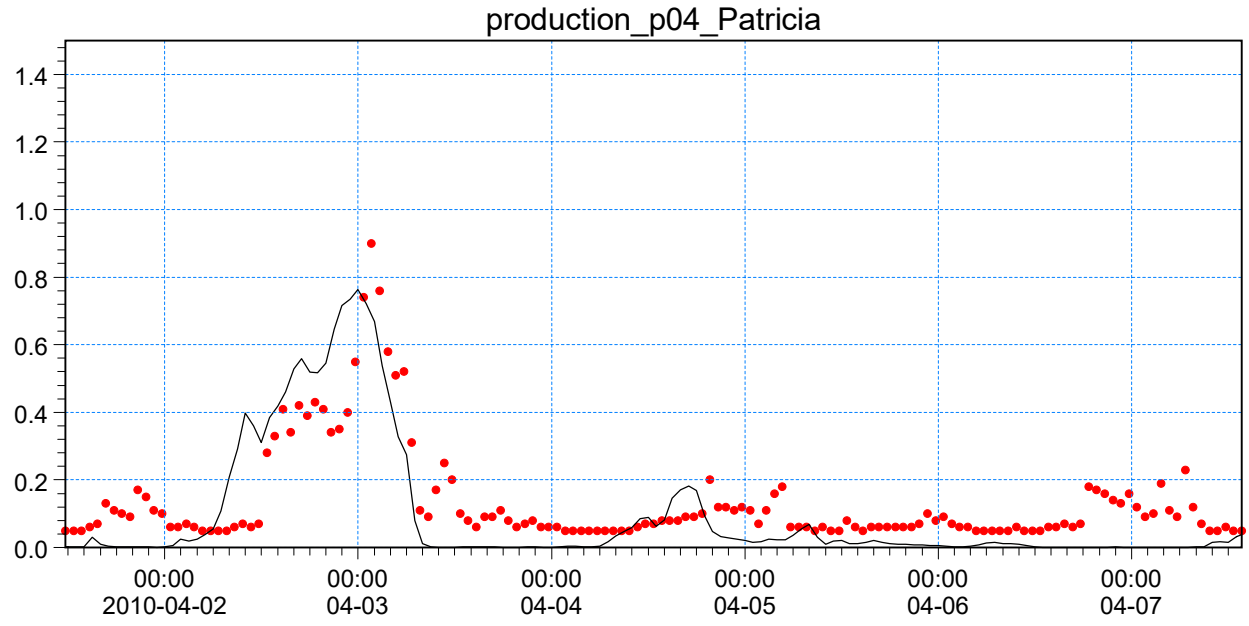
Average wave period APD [sec] (measurement)
Dungeness: Wave Period, T02 [sec] (simulation)



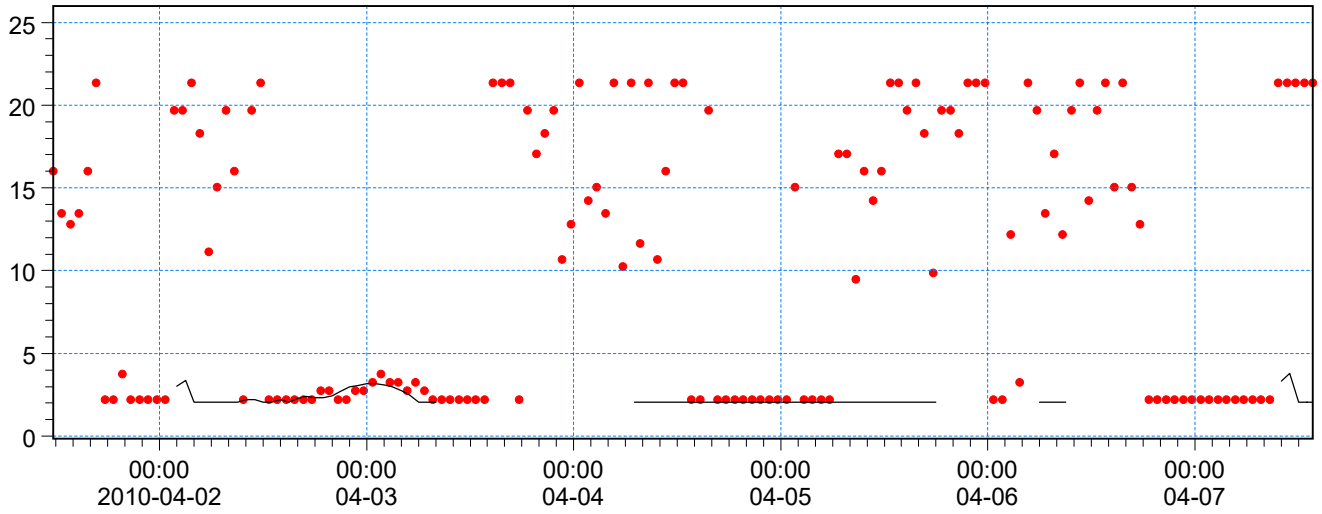
Mean wave direction MWD [deg] (measurement)
Dungeness: Mean Wave Direction [deg] (simulation)



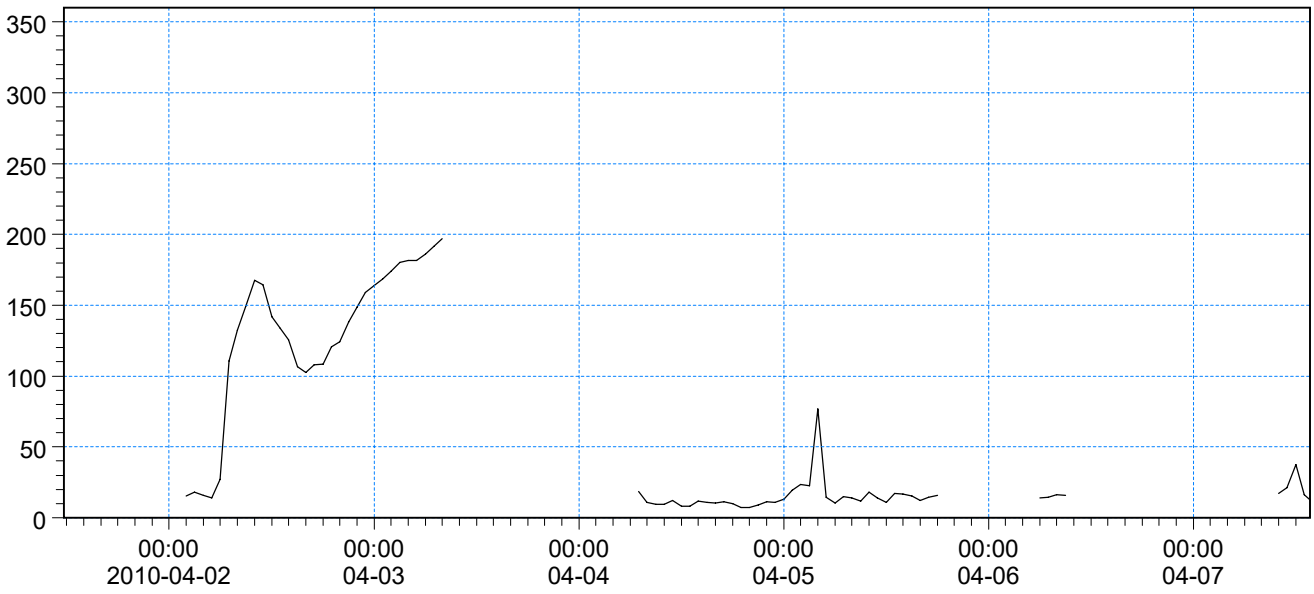
VCAR - Characteristic significant wave height [m] (measurement)
Patricia: Sign. Wave Height [m] (simulation)



VTPK - Wave spectrum peak period [sec] (measurement)
Patricia: Peak Wave Period [sec] (simulation)



Patricia: Mean Wave Direction [deg] (simulation)
(no measurement data)



APPENDIX B – FLOOD CONSTRUCTION LEVEL RESULTS

Appendix B presents tabulated Flood Construction Level results for every transect, grouped together by local government and electoral area. Results are provided for all four RSLR scenarios (i.e. 0.0 m, 0.5 m, 1.0 m, 2.0 m), for both $R_{2\%}$ and R_{mean}. Note that the 200-year (0.5% AEP) total water level plus 600 mm freeboard yields the FCL for that particular RSLR scenario. Refer to the completed Flood Construction Level Mapping (**Appendix C**) for exact transect locations. In the column below, labelled 'Map Sheet No.', readers are given the relevant map sheet for that particular transect location in **Appendix C**. All values reported are based on the CGVD2013 datum.

Transects whose FCLs are based on the Technical Advisory Committee formula (i.e. transects backed by man made structures and/or rocky bluff/cliffs; see **Section 3.3.2**) are highlighted as **bold** in the following table.

As per **Section 3.3.4**, the proposed Flood Construction Levels should be applied as follows:

- A 30m buffer inland, measured from the SWL plus 1m RSLR contour, defines the "Primary Wave Effect Zone".
- $R_{2\%}$ FCL is applied in the "Primary Wave Effect Zone".
- R_{mean} FCL is applied landward of the "Primary Wave Effect Zone", referred to as "backshore".

Local Government/Electoral Area Key:

JDF – Juan de Fuca EA	*SOO* – District of Sooke	*MET* – District of Metchosin	*COL* – City of Colwood
VWR – Town of View Royal	*ESQ* – Township of Esquimalt	*COV* – City of Victoria	*DOS* – District of Saanich
OAK – District of Oak Bay	*DCS* – District of Central Saanich	*DNS* – District of North Saanich	*SID* – Town of Sidney
DOH – District of Highlands	*LAN* – City of Langford	*SSI* – Salt Spring Island EA	*SGI* – Southern Gulf Islands EA

Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
JDF	001	1	4.96	4.14	5.47	4.65	5.98	5.17	6.97	5.91
JDF	002	1	4.98	3.99	5.50	4.50	5.94	4.99	6.91	5.99
JDF	003	1	6.37	4.94	6.89	5.44	7.40	5.94	8.42	6.94
JDF	004	1	10.85	6.66	11.40	7.18	11.93	7.70	13.01	8.73
JDF	005	2	8.58	5.73	9.07	6.23	9.58	6.72	10.58	7.74
JDF	006	3	6.08	4.36	6.58	4.86	7.09	5.37	8.10	6.38
JDF	007	3	5.09	4.03	5.60	4.53	6.11	5.04	7.12	6.04
JDF	008	4	4.69	3.88	5.20	4.39	5.70	4.89	6.71	5.78
JDF	009	5	4.06	3.61	4.57	4.12	5.08	4.65	6.06	5.62

\\ae.ca\data\projects\van\2019267 6\00_CoastFloodTsunami\Engineering\03.02_Conceptual_Feasibility_Master_Plan_Report\2.0 SLR Report\version 2.0\rpt_crd_task 2_slr modelling_20211020.docx

Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
JDF	010	5	4.18	3.67	4.68	4.17	5.18	4.67	6.19	5.68
JDF	011	6	4.00	3.61	4.51	4.11	5.00	4.61	6.02	5.63
JDF	012	6	4.72	3.70	5.22	4.20	5.73	4.70	6.74	5.70
JDF	013	6	3.27	2.94	3.77	3.44	4.27	3.94	5.28	4.94
JDF	014	6	4.98	3.44	5.48	3.94	5.99	4.44	7.00	5.44
JDF	015	7	4.92	3.33	5.43	3.84	5.93	4.33	6.93	5.33
JDF & SOO	016	7	4.00	3.03	4.51	3.53	5.01	4.03	6.02	5.03
SOO	017	7	3.78	3.03	4.28	3.53	4.78	4.03	5.79	5.03
SOO	018	7	3.44	2.95	3.95	3.45	4.45	3.95	5.45	4.95
SOO	019	7	3.59	2.92	4.09	3.51	4.60	4.02	5.60	5.02
SOO	020	8	2.62	2.62	3.12	3.12	3.62	3.62	4.62	4.62
SOO	021	8	2.62	2.61	3.12	3.11	3.62	3.61	4.62	4.61
SOO	022	8	2.63	2.61	3.14	3.12	3.63	3.61	4.63	4.61
SOO	023	9	4.64	3.31	5.16	3.81	5.66	4.31	6.67	5.31
SOO	024	9	10.96	3.21	12.51	3.66	14.97	4.51	19.75	5.86
SOO	025	9	3.76	2.97	4.26	3.47	4.75	3.97	5.75	4.97
SOO	026	9	3.13	2.75	3.63	3.25	4.13	3.75	5.13	4.75
SOO	027	9	4.28	3.19	4.78	3.69	5.29	4.19	6.28	5.19
SOO	028	9	2.72	2.65	3.22	3.15	3.72	3.65	4.72	4.65
SOO & MET	029	9	2.82	2.68	3.32	3.18	3.82	3.68	4.82	4.68
MET	030	9	2.98	2.76	3.48	3.26	3.98	3.76	4.98	4.76
MET	031	9	6.11	3.60	6.62	4.11	7.11	4.61	8.17	5.62
MET	032	10	3.46	2.86	3.96	3.36	4.47	3.87	5.47	4.86
MET	033	10	5.13	3.60	5.64	3.89	6.14	3.80	7.15	5.01
MET	034	10	6.06	3.63	6.56	4.12	7.07	4.62	8.09	5.62
MET	035	10	4.74	3.25	5.24	3.76	5.77	4.03	6.75	5.26
MET	036	10	8.44	5.13	8.95	5.63	9.48	6.15	10.49	7.15
MET	037	10	3.24	2.81	3.74	3.32	4.26	3.82	5.25	4.82
MET	038	10	4.49	3.22	4.99	3.72	5.50	4.22	6.51	5.23
MET	039	10	3.59	2.92	4.09	3.42	4.59	3.92	5.60	4.92
MET	040	11	5.13	3.47	5.64	3.97	6.15	4.47	7.16	5.48
MET	041	11	6.37	4.06	6.88	4.57	7.39	5.08	8.41	5.69

Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
MET	042	11	12.65	6.99	13.17	7.50	13.69	8.01	14.73	9.03
MET & COL	**043**	**11**	**4.30**	**3.14**	**4.80**	**3.64**	**5.31**	**4.14**	**6.32**	**5.14**
COL	**044**	**11**	**4.58**	**3.24**	**5.09**	**3.74**	**5.59**	**4.24**	**6.60**	**5.25**
COL	**045**	**11**	**4.04**	**3.06**	**4.55**	**3.56**	**5.05**	**3.81**	**6.05**	**5.06**
COL	**046**	**11**	**3.48**	**2.90**	**3.98**	**3.40**	**4.48**	**3.66**	**5.48**	**4.62**
COL	**047**	**11**	**3.53**	**2.94**	**4.03**	**3.43**	**4.53**	**3.94**	**5.54**	**4.94**
COL	048	11	3.30	2.84	3.81	3.36	4.31	3.84	5.31	4.85
COL	**049**	**11**	**3.44**	**3.24**	**3.91**	**3.24**	**4.39**	**4.39**	**5.37**	**4.87**
COL	**050**	**12**	**3.76**	**3.03**	**4.26**	**3.54**	**4.77**	**4.04**	**5.78**	**5.04**
COL & VWR	**051**	**12**	**3.33**	**2.89**	**3.83**	**3.39**	**4.33**	**3.89**	**5.34**	**4.89**
VWR	052	12	3.74	3.23	4.32	3.81	4.89	4.39	6.05	5.54
VWR	053	12	2.61	2.61	3.11	3.11	3.61	3.61	4.61	4.61
VWR & ESQ	054	12	3.30	2.87	3.80	3.37	4.30	3.86	5.30	4.86
ESQ	**055**	**12**	**5.50**	**3.19**	**5.99**	**3.19**	**6.48**	**4.20**	**7.60**	**6.55**
ESQ	**056**	**12**	**3.74**	**3.18**	**4.31**	**3.46**	**4.84**	**3.73**	**5.81**	**4.22**
ESQ	**057**	**12**	**3.43**	**3.03**	**4.02**	**3.32**	**4.49**	**3.56**	**5.46**	**4.04**
ESQ	**058**	**12**	**2.62**	**2.62**	**3.12**	**3.12**	**3.62**	**3.62**	**4.62**	**4.62**
ESQ	059	12	6.73	2.59	7.28	3.08	7.81	3.59	8.87	4.59
ESQ	060	12	6.55	4.12	7.06	4.62	7.57	5.12	8.59	6.13
ESQ	061	12	7.26	4.56	7.77	5.04	8.28	5.55	9.30	6.55
ESQ	062	12	5.73	3.74	6.24	4.24	6.75	4.74	7.77	5.75
ESQ	063	12	5.50	3.55	6.02	4.03	6.52	4.54	7.53	5.53
ESQ	064	12	5.61	3.82	6.12	3.93	6.62	4.30	7.65	5.85
ESQ	065	12	8.63	5.24	9.14	5.75	9.66	6.25	10.68	7.25
ESQ & COV	066	12	3.23	2.83	3.73	3.33	4.24	3.83	5.24	4.83
COV	067	12	3.52	2.96	4.03	3.46	4.53	3.96	5.56	4.70
VWR, ESQ, COV & DOS	068	12	2.63	2.63	3.13	3.13	3.63	3.63	4.63	4.63
COV	**069**	**12**	**3.85**	**3.46**	**4.35**	**3.46**	**4.89**	**3.46**	**5.79**	**5.79**
COV	**070**	**12**	**7.40**	**4.50**	**7.89**	**4.50**	**8.38**	**4.50**	**9.36**	**6.01**

Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
COV	**071**	**13**	**8.09**	**5.22**	**9.05**	**5.73**	**9.60**	**6.24**	**10.62**	**7.25**
COV	**072**	**13**	**7.34**	**3.06**	**8.20**	**4.81**	**8.70**	**6.12**	**9.62**	**7.24**
COV	073	13	4.68	3.16	5.19	3.66	5.68	4.16	6.69	5.16
COV	074	13	4.27	3.05	4.77	3.55	5.28	4.05	6.29	5.05
COV	075	13	9.15	5.64	9.66	6.15	10.17	6.65	11.19	7.66
COV	076	13	4.87	3.28	5.37	3.78	5.86	4.28	6.87	5.29
COV	077	13	5.56	3.92	6.07	4.43	6.57	4.92	7.58	5.93
COV	078	13	4.98	3.33	5.49	3.83	6.00	3.99	7.01	4.95
COV	079	13	5.77	4.06	6.27	4.58	6.78	5.07	7.79	5.68
COV & OAK	080	13	3.89	2.91	4.38	3.41	4.89	3.91	5.89	4.91
OAK	081	13	5.29	3.67	5.79	4.17	6.30	4.67	7.30	5.68
OAK	082	13	7.09	4.99	7.60	5.49	8.11	5.99	9.13	6.64
OAK	**083**	**13**	**6.83**	**3.90**	**7.79**	**3.90**	**8.95**	**3.90**	**11.14**	**4.83**
OAK	084	13	8.09	4.42	8.59	4.42	9.11	4.42	10.13	5.49
OAK	085	14	8.38	4.82	8.91	5.34	9.43	5.85	10.47	6.86
OAK	086	14	6.25	3.87	6.76	4.38	7.27	4.89	8.29	5.90
OAK	087	14	5.45	3.56	5.97	4.07	6.48	4.57	7.50	5.58
OAK	**088**	**14**	**6.02**	**4.99**	**7.01**	**4.99**	**8.16**	**4.99**	**11.47**	**4.99**
OAK	**089**	**14**	**4.92**	**4.27**	**6.12**	**4.27**	**7.38**	**4.27**	**10.69**	**5.21**
OAK	090	14	3.38	2.84	3.89	3.34	4.39	3.84	5.40	4.85
OAK	091	14	4.41	3.18	4.91	3.68	5.42	3.69	6.43	5.19
OAK	092	14	5.84	3.68	6.37	4.20	6.84	4.69	7.89	5.71
OAK	093	14	4.40	3.16	4.90	3.66	5.40	4.15	6.42	5.17
OAK & DOS	094	14	3.45	2.90	3.95	3.40	4.46	3.90	5.47	4.91
DOS	095	14	3.65	2.97	4.16	3.47	4.65	4.00	5.66	4.96
DOS	096	14	4.39	3.35	4.90	3.86	5.40	4.36	6.42	5.15
DOS	097	14	5.84	3.68	6.34	4.20	6.84	4.70	7.88	5.70
DOS	098	14	5.74	3.62	6.24	4.12	6.76	4.64	7.77	5.64
DOS	099	14	6.86	3.94	7.36	4.44	7.88	4.95	8.92	5.96
DOS	100	14	8.17	4.52	8.69	5.04	9.22	5.54	10.24	6.55
DOS	101	14	5.85	3.71	6.34	4.20	6.86	4.71	7.88	5.72
DOS	102	14	6.90	4.13	7.41	4.64	7.92	5.15	8.94	6.16

Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
DOS	103	14	3.27	2.83	3.77	3.33	4.28	3.83	5.28	4.83
DOS	104	14	6.25	3.87	6.76	4.38	7.27	4.88	8.29	5.89
DOS	105	15	5.65	3.62	6.16	4.12	6.67	4.62	7.68	5.63
DOS	106	15	2.72	2.61	3.22	3.11	3.72	3.61	4.72	4.61
DOS	107	15	2.79	2.61	3.29	3.11	3.79	3.61	4.79	4.61
DOS	108	15	3.07	2.74	3.57	3.24	4.07	3.74	5.08	4.74
DOS	109	15	3.22	2.75	3.72	3.26	4.23	3.76	5.23	4.76
DOS	110	15	3.42	2.81	3.93	3.31	4.43	3.81	5.44	4.81
DOS	111	15	6.21	2.83	7.34	3.33	8.33	3.83	9.38	4.84
DOS	112	15	3.34	2.86	3.84	3.36	4.34	3.86	5.35	4.86
DOS & DCS	113	15	3.43	2.93	3.97	3.44	4.44	3.93	5.44	4.93
DCS	114	15	3.92	3.08	4.42	3.57	4.92	4.07	5.93	5.08
DCS	115	16	3.67	3.05	4.17	3.54	4.66	4.04	5.66	5.04
DCS	116	16	3.53	3.03	4.05	3.43	4.55	4.02	5.54	5.03
DCS	117	16	4.73	3.46	5.30	3.98	5.79	4.45	6.75	5.44
DCS	118	16	3.36	2.99	3.86	3.49	4.37	3.99	5.37	4.99
DCS	119	16	7.68	4.75	8.20	5.24	8.71	5.75	9.74	6.15
DCS	120	16	3.98	3.19	4.48	3.69	4.98	4.19	5.99	5.19
DCS & DNS	121	16	3.88	3.18	4.38	3.68	4.88	4.18	5.89	5.18
DNS	122	16	3.82	3.19	4.33	3.69	4.83	4.19	5.84	5.19
DNS	123	16	3.23	3.02	3.73	3.52	4.23	4.02	5.24	5.02
DNS & SID	**124**	**17**	**7.17**	**3.21**	**7.68**	**3.71**	**8.19**	**4.21**	**9.21**	**5.21**
SID	125	17	5.00	3.59	5.51	4.09	6.01	4.61	7.05	5.61
SID	126	17	5.95	4.85	7.62	5.35	9.39	5.85	13.08	6.89
SID	127	17	4.27	3.33	4.77	3.83	5.27	4.33	6.28	5.33
SID	128	17	5.81	4.50	6.55	5.01	7.42	5.51	8.82	6.53
SID	129	17	3.83	3.19	4.33	3.69	4.83	4.19	5.84	5.19
SID	130	17	4.01	3.25	4.51	3.75	5.01	4.11	6.03	5.25
SID	131	17	3.19	3.01	3.70	3.51	4.20	4.01	5.20	4.93
SID	132	17	4.75	3.45	5.26	3.95	5.76	4.45	6.78	5.45
SID & DNS	133	17	3.43	3.09	3.93	3.59	4.43	4.09	5.44	5.09

Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
DNS	134	17	3.66	3.17	4.16	3.70	4.70	4.19	5.71	5.19
DNS	**135**	**17**	**11.54**	**5.08**	**12.19**	**5.59**	**12.65**	**6.09**	**13.56**	**6.29**
DNS	136	17	5.51	3.67	6.02	4.17	6.54	4.69	7.56	5.70
DNS	137	17	4.78	3.42	5.29	3.92	5.80	4.43	6.82	5.43
DNS	138	17	4.06	3.17	4.56	3.67	5.06	4.17	6.07	5.17
DNS	**139**	**17**	**5.55**	**3.58**	**6.44**	**4.08**	**6.94**	**4.32**	**7.84**	**5.58**
DNS	140	17	5.55	3.99	6.05	4.49	6.56	4.48	7.57	6.00
DNS	141	17	4.49	3.27	4.99	3.77	5.50	4.27	6.51	5.28
DNS	142	18	5.54	3.65	6.04	4.16	6.54	4.66	7.55	5.66
DNS	143	18	3.87	3.12	4.37	3.62	4.87	4.12	5.87	5.12
DNS	144	18	3.28	2.90	3.78	3.40	4.28	3.90	5.28	4.90
DNS	145	18	4.19	3.17	4.69	3.67	5.19	4.17	6.20	5.17
DNS	146	18	2.93	2.88	3.43	3.38	3.93	3.88	4.93	4.88
DNS	147	18	2.88	2.87	3.38	3.37	3.88	3.87	4.88	4.87
DNS	148	18	3.35	2.89	3.85	3.39	4.35	3.89	5.35	4.89
DNS	149	18	2.88	2.87	3.38	3.37	3.88	3.87	4.88	4.87
DNS & DCS	150	19	4.68	3.27	5.19	3.77	5.69	3.95	6.70	5.27
DCS	151	19	3.35	2.87	3.86	3.37	4.36	3.87	5.36	4.87
DCS	152	19	2.95	2.85	3.45	3.35	3.94	3.85	4.94	4.85
DCS	153	19	2.85	2.85	3.35	3.35	3.85	3.85	4.85	4.85
DCS & JDF	154	19	5.85	3.78	6.35	4.28	6.85	4.78	7.85	5.78
JDF	155	19	6.10	3.81	6.60	4.31	7.10	4.81	8.10	5.81
JDF & DOH	156	19	6.29	3.86	6.79	4.36	7.29	4.86	8.30	5.86
DOH	157	19	6.21	3.84	6.71	4.34	7.21	4.84	8.21	5.84
DOH, LAN, JDF	**158**	**20**	**2.76**	**2.75**	**3.27**	**3.27**	**3.77**	**3.77**	**4.83**	**4.83**
SSI	159	21	3.52	2.94	4.02	3.44	4.52	3.94	5.52	4.94
SSI	160	21	3.18	2.90	3.68	3.48	4.18	3.98	5.18	4.98
SSI	161	21	3.45	3.09	3.95	3.59	4.45	4.09	5.45	5.09
SSI	162	22	4.40	3.34	4.90	3.84	5.41	4.34	6.41	5.34
SSI	**163**	**22**	**3.30**	**2.86**	**3.79**	**3.36**	**4.28**	**3.86**	**5.27**	**4.86**

Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
SSI	164	22	4.70	3.56	5.22	4.06	5.71	4.56	6.73	5.57
SSI	165	22	3.40	3.08	3.90	3.58	4.41	4.09	5.41	5.08
SSI	166	22	3.48	3.117	3.99	3.622	4.49	4.122	5.50	5.123
SSI	167	22	3.78	3.23	4.29	3.74	4.79	4.24	5.79	5.23
SSI	168	23	5.07	3.61	5.59	4.11	6.08	4.61	7.09	5.62
SSI	169	24	3.22	3.02	3.73	3.52	4.25	3.99	5.23	5.02
SSI	170	24	5.18	3.64	5.68	4.14	6.18	4.64	7.18	5.64
SSI	**171**	**24**	**13.83**	**9.46**	**14.28**	**9.98**	**14.73**	**10.49**	**15.62**	**11.52**
SSI	172	25	4.74	3.50	5.24	4.00	5.74	4.50	6.74	5.50
SSI	173	26	2.95	2.87	3.44	3.37	3.94	3.87	4.94	4.87
SSI	174	26	3.57	2.95	4.07	3.45	4.57	3.95	5.57	4.95
SSI	175	27	4.07	3.17	4.57	3.67	5.08	4.17	6.08	5.18
SSI	176	27	5.73	3.74	6.24	4.24	6.75	4.75	7.77	5.75
SGI	177	28	5.30	3.67	5.81	4.17	6.32	4.67	7.33	5.68
SGI	178	29	6.42	4.26	6.92	4.76	7.43	5.27	8.45	6.27
SGI	179	30	8.49	5.10	9.00	5.60	9.51	6.10	10.52	7.11
SGI	**180**	**31**	**8.32**	**4.18**	**8.61**	**4.18**	**9.01**	**4.18**	**9.67**	**6.99**
SGI	**181**	**28**	**6.67**	**3.77**	**7.15**	**3.77**	**7.61**	**3.90**	**8.60**	**5.89**
SGI	182	32	5.25	3.63	5.76	4.14	6.26	4.64	7.27	5.64
SGI	183	32	4.72	3.49	5.22	3.99	5.73	4.49	6.74	5.50
SGI	184	32	3.96	3.25	4.46	3.75	4.96	4.25	5.97	5.25
SGI	185	33	7.05	4.42	7.56	4.92	8.07	5.42	9.08	6.43
SGI	186	33	6.26	4.16	6.77	4.67	7.28	5.17	8.29	6.17
SGI	187	33	3.91	3.24	4.41	3.74	4.91	4.24	5.92	5.25
SGI	188	33	4.22	3.30	4.72	3.80	5.23	4.30	6.23	5.30
SGI	189	34	3.29	3.05	3.78	3.54	4.28	4.03	5.28	5.03
SGI	190	34	3.01	2.88	3.51	3.38	4.01	3.88	5.01	4.88
SGI	191	34	3.39	2.90	3.89	3.40	4.39	3.90	5.39	4.90
SGI	**192**	**36**	**9.30**	**4.84**	**9.78**	**5.19**	**10.27**	**5.19**	**11.24**	**5.19**
SGI	193	35	9.93	5.52	10.45	6.03	10.95	6.53	11.97	7.54
SGI	194	35	9.36	5.50	9.88	4.25	10.38	4.50	11.39	5.07
SGI	195	35	3.68	3.14	4.19	3.64	4.69	4.13	5.69	5.13
SGI	196	36	6.79	4.30	7.30	4.81	7.80	5.31	8.81	6.31
SGI	197	36	3.16	2.88	3.66	3.38	4.16	3.88	5.16	4.88

Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
SGI	**198**	**36**	**5.36**	**3.492**	**5.95**	**3.65**	**6.47**	**4.54**	**7.55**	**5.56**
SGI	198a	36	2.86	2.864	3.36	3.36	3.86	3.86	4.86	4.86
SGI	199	36	3.39	2.92	3.90	3.42	4.40	3.92	5.40	4.92
SGI	200	38	5.34	3.58	5.83	4.08	6.34	4.58	7.35	5.59
SGI	201	37	3.54	3.14	4.04	3.54	4.54	4.14	5.54	5.14
SGI	201a	37	3.54	3.14	4.04	3.54	4.54	4.14	5.54	5.14
SGI	**202**	**37**	**8.16**	**3.77**	**8.78**	**4.15**	**9.38**	**4.56**	**10.06**	**5.63**
SGI	203	38	7.92	4.81	8.42	5.31	8.92	5.81	9.92	6.81
SGI	204	38	5.76	3.85	6.27	4.35	6.77	4.85	7.78	5.86
SGI	205	37	5.18	3.62	5.68	4.12	6.19	4.62	7.20	5.63
SGI	206	37	4.83	3.47	5.33	3.96	5.83	4.46	6.84	5.47
SGI	207	37	8.00	4.80	8.50	5.30	9.00	5.80	10.00	6.80
SGI	208	39	3.01	2.87	3.51	3.37	4.00	3.87	5.00	4.87
SGI	209	39	8.49	5.16	9.00	5.67	9.50	6.16	10.52	7.18
SGI	210	17	3.56	3.15	4.06	3.65	4.56	4.15	5.56	5.15
SGI	211	17	3.90	3.26	4.40	3.76	4.90	4.26	5.90	5.26
SGI	212	17	3.33	2.89	3.82	3.39	4.32	3.89	5.32	4.89
SGI	213	39	4.21	3.14	4.71	3.64	5.21	4.14	6.22	5.14
SGI	214	39	4.30	3.32	4.80	3.82	5.30	4.32	6.30	5.32
SGI	215	39	6.03	3.95	6.52	4.45	7.03	4.95	8.03	5.95
SGI	216	40	3.24	3.01	3.74	3.51	4.24	4.01	5.24	5.02
SGI	217	40	5.59	3.68	6.11	4.00	6.65	3.99	7.63	5.03
SGI	218	40	3.65	3.16	4.15	3.66	4.65	4.16	5.65	5.16
SGI	219	41	3.65	3.07	4.15	3.57	4.65	4.07	5.66	5.07
SGI	220	41	4.67	2.79	5.53	3.28	7.05	3.78	9.76	4.77

APPENDIX C – FLOOD CONSTRUCTION LEVEL MAPPING

Appendix C presents Flood Construction Level Mapping that shows FCL values for representative reaches along the capital region coastline. This mapping is also the best resource for locating exact transect positions and orientation. Results are provided for two RSLR scenarios (i.e. 1.0 m and 2.0 m), for both $R_{2\%}$ and R_{mean} FCL values, labelled as "Foreshore FCL" and "Backshore FCL". This appendix includes a map showing transect locations and 40 corresponding map sheets and is provided in a stand-alone pdf file.

\\ae.ca\data\projects\van\2019267 6\00_CoastFloodTsunami\Engineering\03.02_Conceptual_Feasibility_Master_Plan_Report\2.0 SLR Report\version 2.0\rpt_crd_task 2_slr modelling_20211020.docx

350000E
400000E
450000E
500000E
5400000N
5350000N

N

Salt Spring Island Electoral Area

Southern Gulf Islands Electoral Area

North Saanich

Central Saanich

Sidney

Highlands

Juan de Fuca Electoral Area

Saanich

View Royal

Langford

Sooke

Oak Bay

Victoria

Colwood

Esquimalt

Metchosin

0 10 20 30 40 50 km

Coastal Flood Inundation Mapping Project

Transect Locations

Location



Project No. 20192676

Legend

- Project Study Area
- Transect Location

Making a difference...together

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plot date: 2021.07.08
file: \\S-van-fs-01\projects\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

350000E 400000E 450000E 500000E

5400000N

N

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41

0 10 20 30 40 50 km

5350000N

Coastal Flood Inundation Mapping Project

Flood Construction Level Map Index Sheet

Making a difference...together

Location



Legend

CRD Boundary

1. For further information, please refer to Task 2 – Sea Level Rise Modelling and Mapping Report. These maps constitute Appendix C of said report.

Project No. 20192676

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plot date: 2021.07.04
file: \\S-van-fs-01\projects\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

350000E 400000E 450000E 500000E

390000E 392000E 394000E 396000E

5378000N 5376000N 5382000N 5380000N

R_001 R_002 R_003 R_004

TR_001 TR_002 TR_003 TR_004

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_001	5.98	5.17	3.98
TR_002	5.94	4.99	3.98
TR_003	7.4	5.94	3.98
TR_004	11.93	7.7	3.98

0 1,000 2,000 3,000 4,000 m

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392000E 394000E 396000E 398000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD

Map Area

Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
2. Users must note the dates of base mapping, aerial photography, ground or bathymetric surveys and issue of mapping relevant to dates of development in the map area. Subsequent changes along the coastline and/or in the floodplain can affect analytical results and render site-specific map information obsolete.
3. Digital Elevation Model includes topographic surface data from GeoBC (2019), and bathymetric surface data from CHS and NOAA (dates vary).
4. Elevations are reported with reference to CGVD2013 vertical datum. Map Projection is NAD83 UTM Zone 10N (CSRS).
5. Data sources: Orthoimagery (CRD, 2017);
6. Still Water Level (SWL) is the 0.5% AEP joint-probability estimate of tide and storm surge (i.e. without any wave effects).
7. Flood Construction Level is the 0.5% AEP joint-probability estimate of total water level (including tide, storm surge and wave effects) plus freeboard (600 mm).
8. The 'Foreshore FCL' values in the table account for a total water level at the foreshore corresponding to the top 2% of wave run-up height. For the purposes of this study, the 'Foreshore FCL' is intended to be applied within a strip of coastline termed the 'Primary Wave Effect Zone'. The 'Primary Wave Effect Zone' is a 30m wide corridor, measured landward of the 0.5% AEP SWL contour. The 0.5% AEP SWL value has been provided in the above table. The 0.5% AEP SWL contour has not been mapped as it would be difficult to discern, relative to the respective coastline reach, at this mapping scale. The 0.5% AEP SWL contour and 30m buffer have been provided as project GIS deliverables. The 'Backshore FCL' is based on mean wave run-up height and may be applied landward of the 'Primary Wave Effect Zone'. Refer to the Task 2 reporting for further detail.
9. Relative Sea Level Rise (RSLR) is an absolute increase in mean sea level, incorporating the effects of land subsidence or uplift.
10. For further information, please refer to Task 2 – Sea Level Rise Modelling and Mapping Report. These maps constitute Appendix C of said report.

Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

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Map Sheet 1 of 41

plot date: 2021.08.18
file: P:\20192676\00_Coast\Flood\tunami\Working_Dwgs\010_GIS

394000E 396000E 398000E 400000E 402000E

5376000N 5374000N 5372000N

R_005 R_006 TR_005

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_005	9.58	6.72	3.98

0 1,000 2,000 3,000 4,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

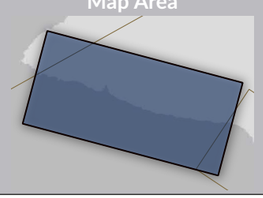
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

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plot date: 2021.08.18
file: P:\20192676\00_CoastFloodPlan\mn\Working_Dwgs\1010_GIS

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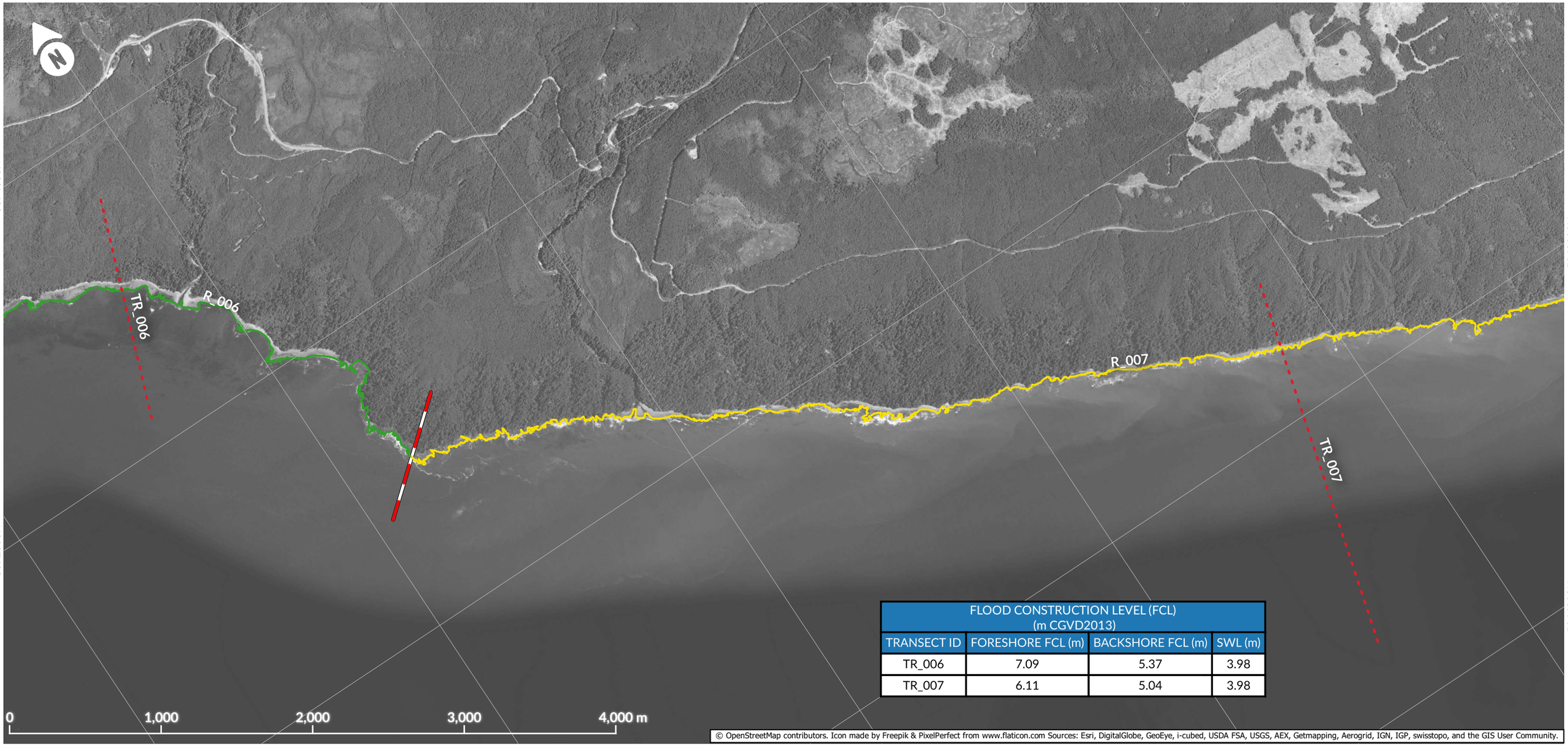
5372000N

5368000N

5366000N



402000E 404000E 406000E 408000E

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_006	7.09	5.37	3.98
TR_007	6.11	5.04	3.98

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Legend

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- Transect
- Even Numbered Reach
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Map Sheet 3 of 41

plot date: 2021.08.18
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

412000E 414000E 416000E 418000E 420000E

5366000N 5364000N 5362000N

5368000N 5366000N

R_007 R_008 R_009 TR_008

0 1,000 2,000 3,000 4,000 m

410000E 412000E 414000E 416000E 418000E

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_008	5.7	4.89	3.98

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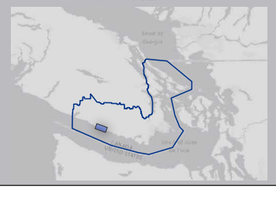
Coastal Flood Inundation Mapping Project

Capital Regional District

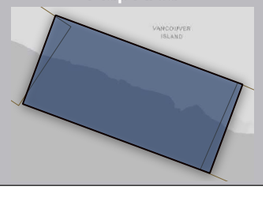
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Map Sheet 4 of 41

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R_009 R_010 R_011 TR_009 TR_010 TR_011

0 1,000 2,000 3,000 4,000 m

420000E 422000E 424000E 426000E 428000E

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_009	5.08	4.65	3.98
TR_010	5.18	4.67	3.98
TR_011	5	4.61	3.98

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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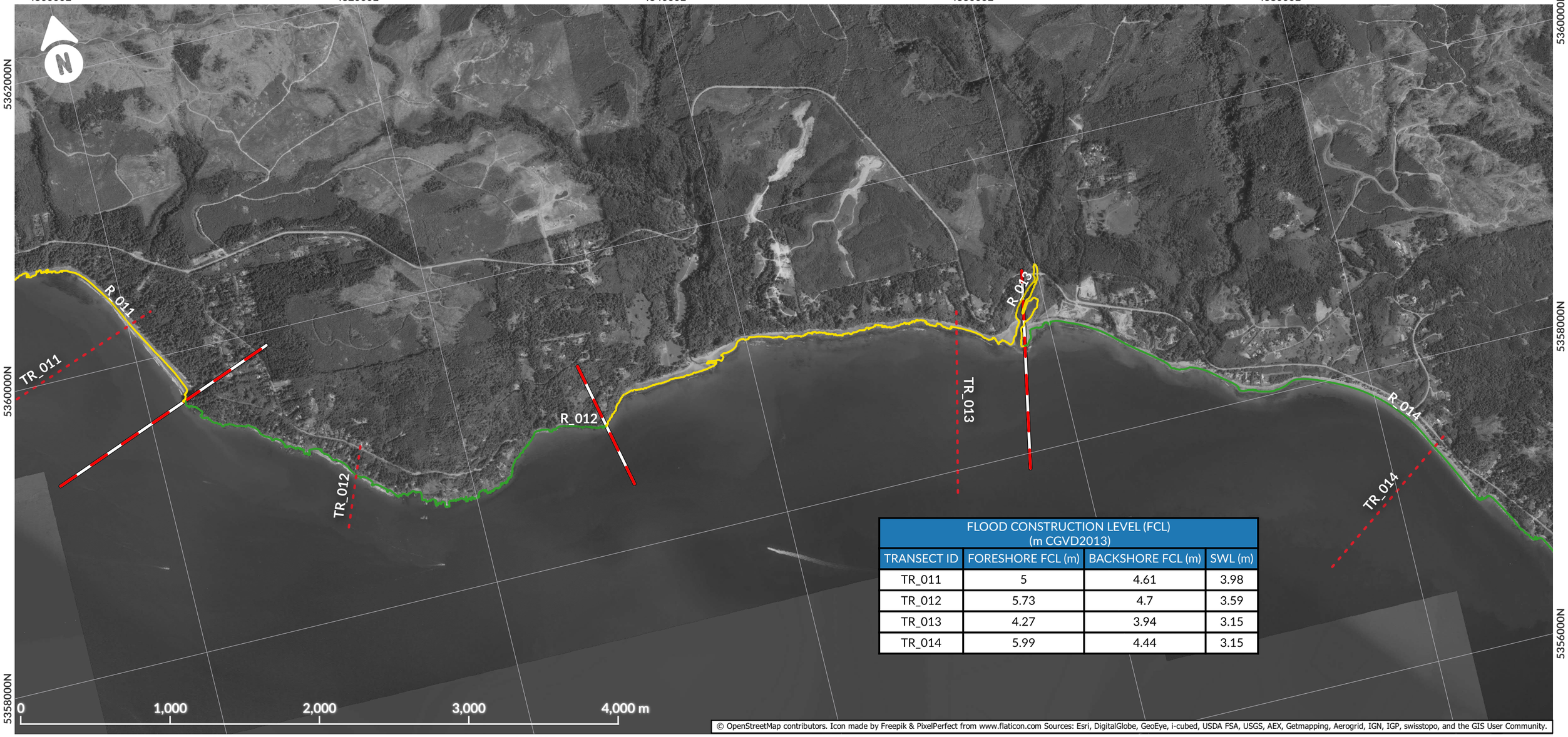
file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS



FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_011	5	4.61	3.98
TR_012	5.73	4.7	3.59
TR_013	4.27	3.94	3.15
TR_014	5.99	4.44	3.15

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

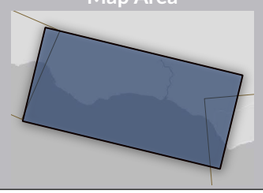
Flood Construction Level Map
1.0 m Relative Sea Level Rise

Making a difference...together

CRD



Map Area



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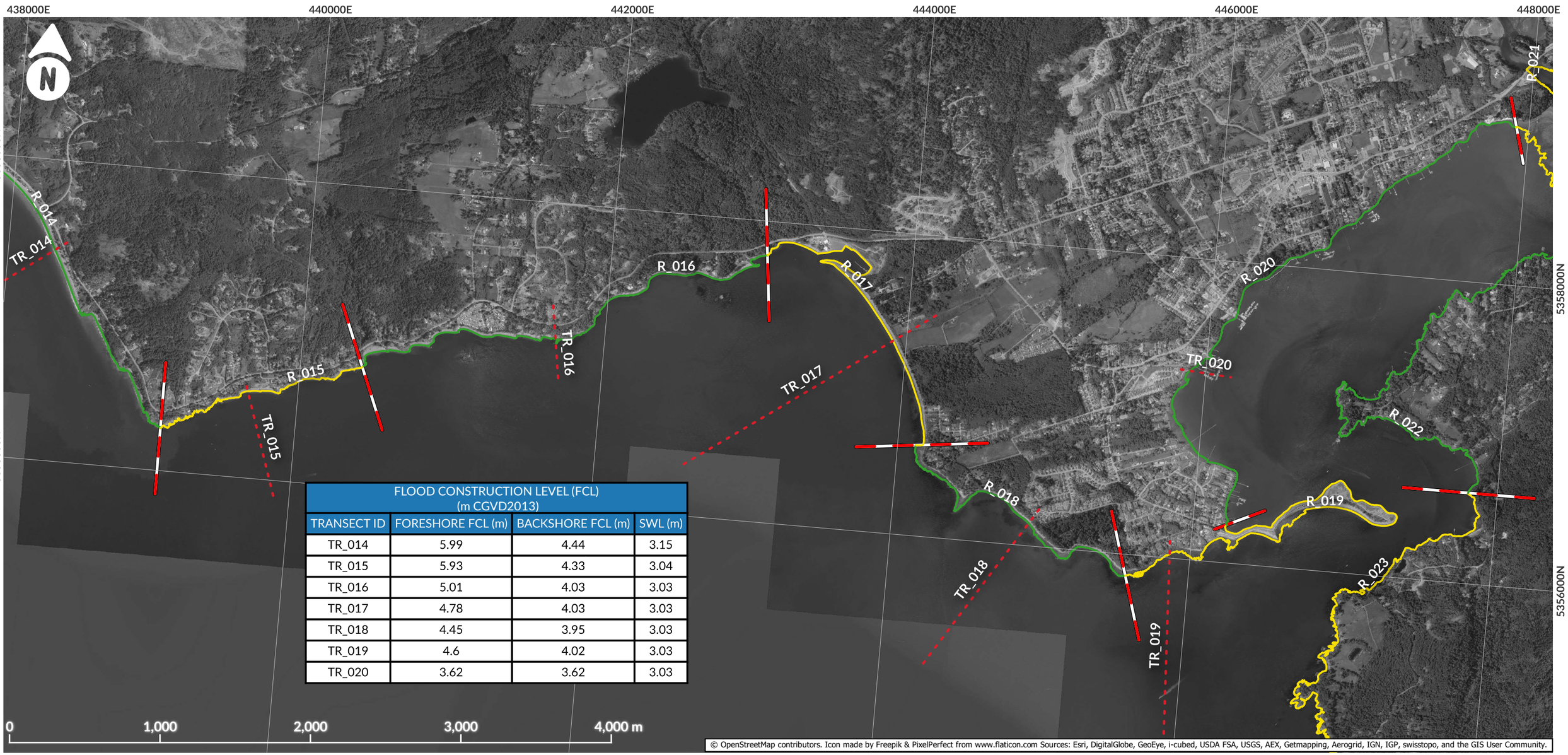
Map Sheet 6 of 41

plot date: 2021.08.18
file: P:\20192676\100_Coast\Flood\Tsunami\Working_Dwgs\010_GIS



FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_014	5.99	4.44	3.15
TR_015	5.93	4.33	3.04
TR_016	5.01	4.03	3.03
TR_017	4.78	4.03	3.03
TR_018	4.45	3.95	3.03
TR_019	4.6	4.02	3.03
TR_020	3.62	3.62	3.03

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD

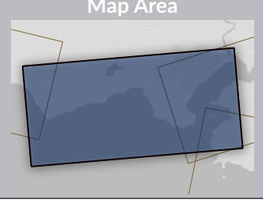
Making a difference...together

DHI

CRD



Map Area



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5358000N

5356000N

5360000N

5358000N

R_020 TR_020 R_021 TR_021 TR_022 R_022 R_019 R_023 TR_019

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_019	4.6	4.02	3.03
TR_020	3.62	3.62	3.03
TR_021	3.62	3.61	3.02
TR_022	3.63	3.61	3.03

0 1,000 2,000 3,000 4,000 m

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446000E 448000E 450000E 452000E 454000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD

Map Area

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Map Sheet 8 of 41

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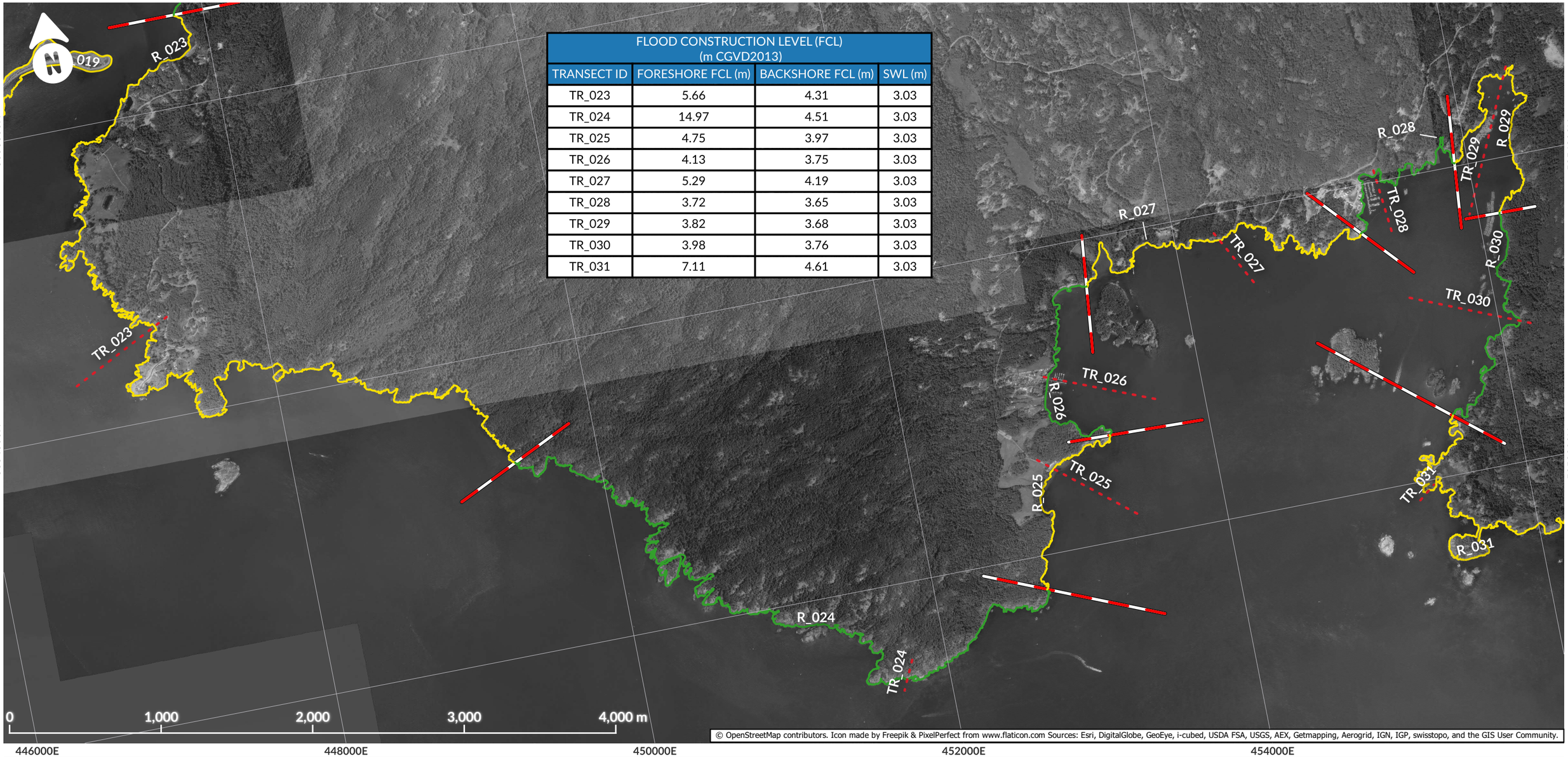
FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_023	5.66	4.31	3.03
TR_024	14.97	4.51	3.03
TR_025	4.75	3.97	3.03
TR_026	4.13	3.75	3.03
TR_027	5.29	4.19	3.03
TR_028	3.72	3.65	3.03
TR_029	3.82	3.68	3.03
TR_030	3.98	3.76	3.03
TR_031	7.11	4.61	3.03



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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Making a difference...together

DHI

Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

plot date: 2021.08.18
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

456000E

458000E

5350000N

5360000N

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_032	4.47	3.87	3.03
TR_033	6.14	3.8	3.03
TR_034	7.07	4.62	3.03
TR_035	5.77	4.03	3.03
TR_036	9.48	6.15	3.03
TR_037	4.26	3.82	3.03
TR_038	5.5	4.22	3.03
TR_039	4.59	3.92	3.03
TR_040	6.15	4.47	3.03

R_031 TR_032 R_032 TR_033 R_033 TR_034 R_034 TR_035 R_035 R_036 TR_036 R_037 TR_037 R_038 TR_038 R_039 TR_039 TR_040

0 1,000 2,000 3,000 4,000 m

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462000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

Making a difference...together

CRD



Map Area



Legend

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462000E

464000E

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_040	6.15	4.47	3.03
TR_041	7.39	5.08	3.03
TR_042	13.69	8.01	3.03
TR_043	5.31	4.14	3.03
TR_044	5.59	4.24	3.02
TR_045	5.05	3.81	3.02
TR_046	4.48	3.66	3.02
TR_047	4.53	3.94	3.02
TR_048	4.31	3.84	3.02
TR_049	4.39	4.39	3.01
TR_050	4.77	4.04	3.01

TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_051	4.33	3.89	3.01
TR_052	4.89	4.39	3.01
TR_053	3.61	3.61	3.01
TR_054	4.3	3.86	3.02
TR_055	6.48	4.2	3.02
TR_056	4.84	3.73	3.02
TR_057	4.49	3.56	3.02
TR_058	3.62	3.62	3.02
TR_059	7.81	3.59	3.02
TR_060	7.57	5.12	3.02

5368000N

5358000N

0 1,000 2,000 3,000 4,000 m

466000E

468000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD

Map Area

Legend

- FCL Reach Boundary
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- Even Numbered Reach
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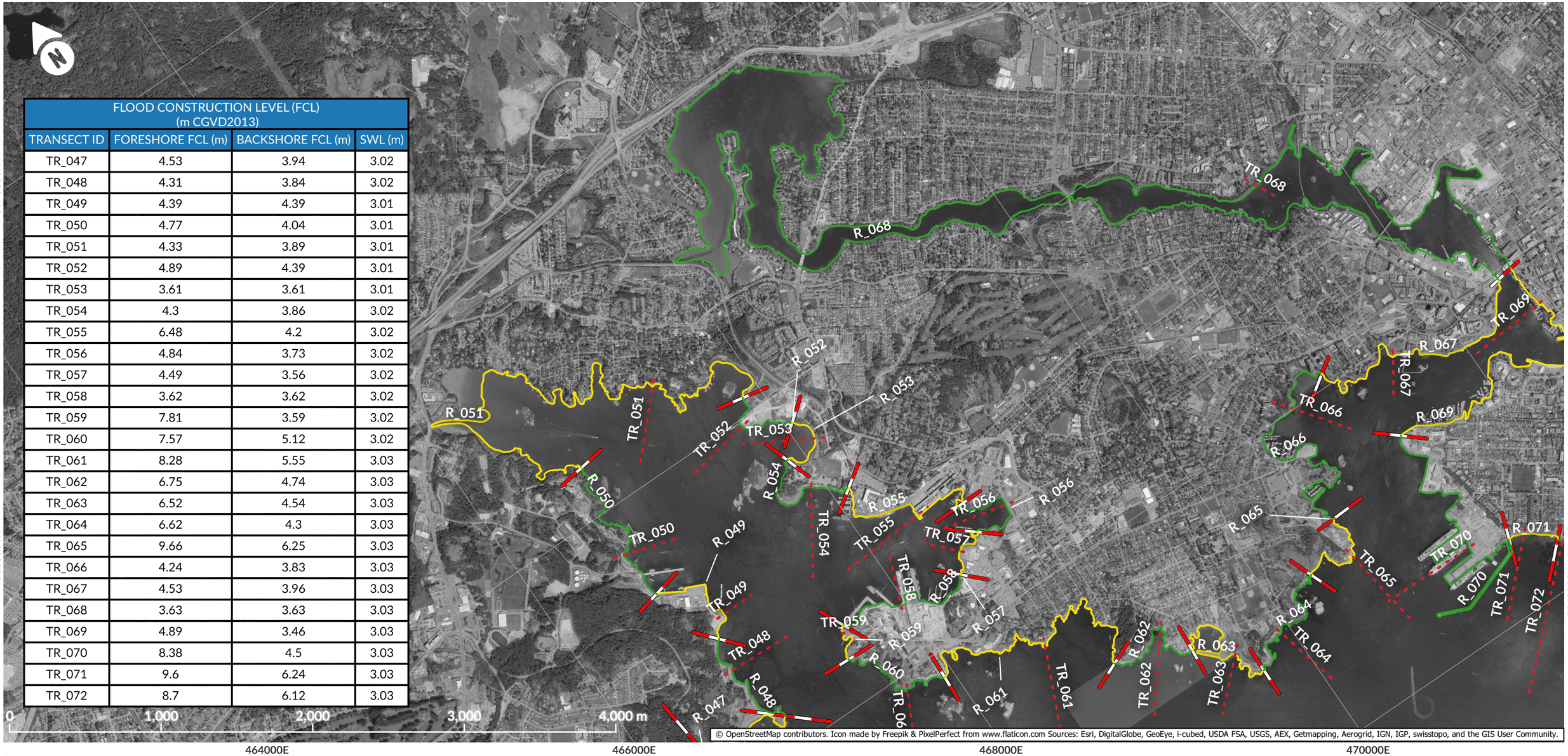
FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_047	4.53	3.94	3.02
TR_048	4.31	3.84	3.02
TR_049	4.39	4.39	3.01
TR_050	4.77	4.04	3.01
TR_051	4.33	3.89	3.01
TR_052	4.89	4.39	3.01
TR_053	3.61	3.61	3.01
TR_054	4.3	3.86	3.02
TR_055	6.48	4.2	3.02
TR_056	4.84	3.73	3.02
TR_057	4.49	3.56	3.02
TR_058	3.62	3.62	3.02
TR_059	7.81	3.59	3.02
TR_060	7.57	5.12	3.02
TR_061	8.28	5.55	3.03
TR_062	6.75	4.74	3.03
TR_063	6.52	4.54	3.03
TR_064	6.62	4.3	3.03
TR_065	9.66	6.25	3.03
TR_066	4.24	3.83	3.03
TR_067	4.53	3.96	3.03
TR_068	3.63	3.63	3.03
TR_069	4.89	3.46	3.03
TR_070	8.38	4.5	3.03
TR_071	9.6	6.24	3.03
TR_072	8.7	6.12	3.03



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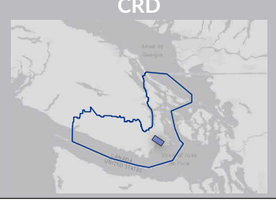
Coastal Flood Inundation Mapping Project

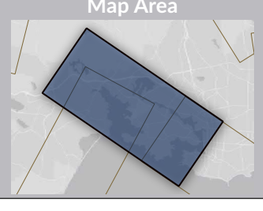
Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD
Map Area





Legend

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Map Sheet 12 of 41

plot date: 2021.08.18
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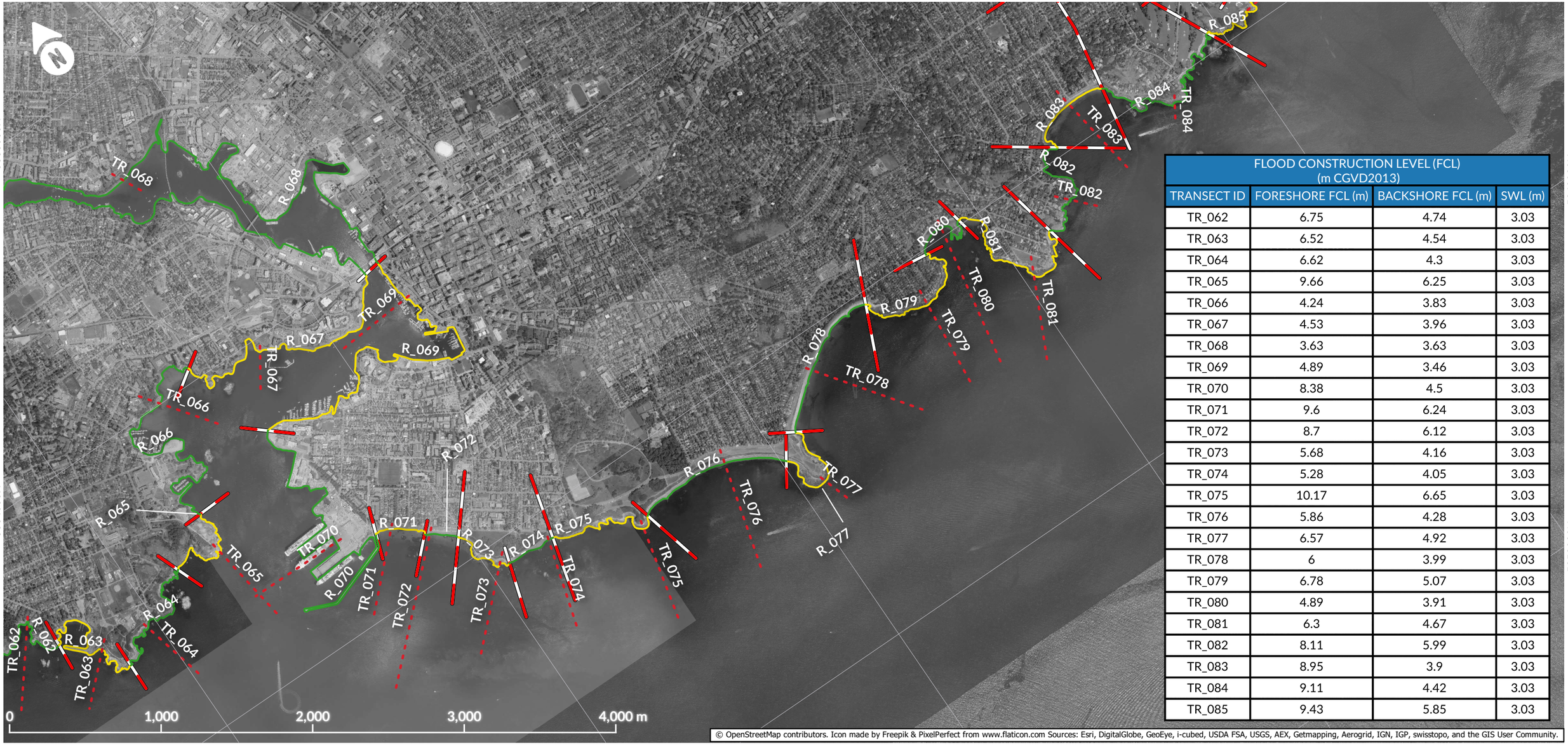

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_062	6.75	4.74	3.03
TR_063	6.52	4.54	3.03
TR_064	6.62	4.3	3.03
TR_065	9.66	6.25	3.03
TR_066	4.24	3.83	3.03
TR_067	4.53	3.96	3.03
TR_068	3.63	3.63	3.03
TR_069	4.89	3.46	3.03
TR_070	8.38	4.5	3.03
TR_071	9.6	6.24	3.03
TR_072	8.7	6.12	3.03
TR_073	5.68	4.16	3.03
TR_074	5.28	4.05	3.03
TR_075	10.17	6.65	3.03
TR_076	5.86	4.28	3.03
TR_077	6.57	4.92	3.03
TR_078	6	3.99	3.03
TR_079	6.78	5.07	3.03
TR_080	4.89	3.91	3.03
TR_081	6.3	4.67	3.03
TR_082	8.11	5.99	3.03
TR_083	8.95	3.9	3.03
TR_084	9.11	4.42	3.03
TR_085	9.43	5.85	3.03

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

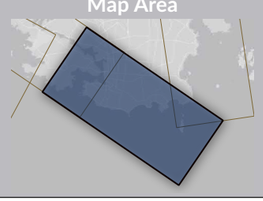
CRD
Making a difference...together

DHI

CRD



Map Area



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Map Sheet 13 of 41

plot date: 2021.08.18
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476000E

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_083	8.95	3.9	3.03
TR_084	9.11	4.42	3.03
TR_085	9.43	5.85	3.03
TR_086	7.27	4.89	3.03
TR_087	6.48	4.57	3.03
TR_088	8.16	4.99	3.03
TR_089	7.38	4.27	3.03
TR_090	4.39	3.84	3.03
TR_091	5.42	3.69	3.03
TR_092	6.84	4.69	3.03
TR_093	5.4	4.17	3.03
TR_094	4.46	3.9	3.03
TR_095	4.65	3.96	3.03
TR_096	5.4	4.36	3.03
TR_097	6.84	4.7	3.03
TR_098	6.76	4.64	3.03

TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_099	7.88	4.95	3.03
TR_100	9.22	5.54	3.03
TR_101	6.86	4.71	3.03
TR_102	7.92	5.15	3.02
TR_103	4.28	3.83	3.02
TR_104	7.27	4.88	3.01

0 1,000 2,000 3,000 4,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD

Map Area

Legend

- FCL Reach Boundary
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474000E 472000E 470000E

5378000N

5370000N

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_105	6.67	4.62	3
TR_106	3.72	3.61	2.99
TR_107	3.79	3.61	2.98
TR_108	4.07	3.74	2.97
TR_109	4.23	3.76	2.95
TR_110	4.43	3.81	2.94
TR_111	8.33	3.83	3.06
TR_112	4.34	3.86	3.06
TR_113	4.44	3.93	3.12
TR_114	4.92	4.07	3.15

R_105 R_106 R_107 R_108 R_109 R_110 R_111 R_112 R_113 R_114 R_115

TR_105 TR_106 TR_107 TR_108 TR_109 TR_110 TR_111 TR_112 TR_113 TR_114

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478000E 476000E 474000E

Coastal Flood Inundation Mapping Project

Capital Regional District

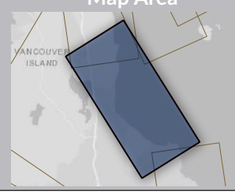
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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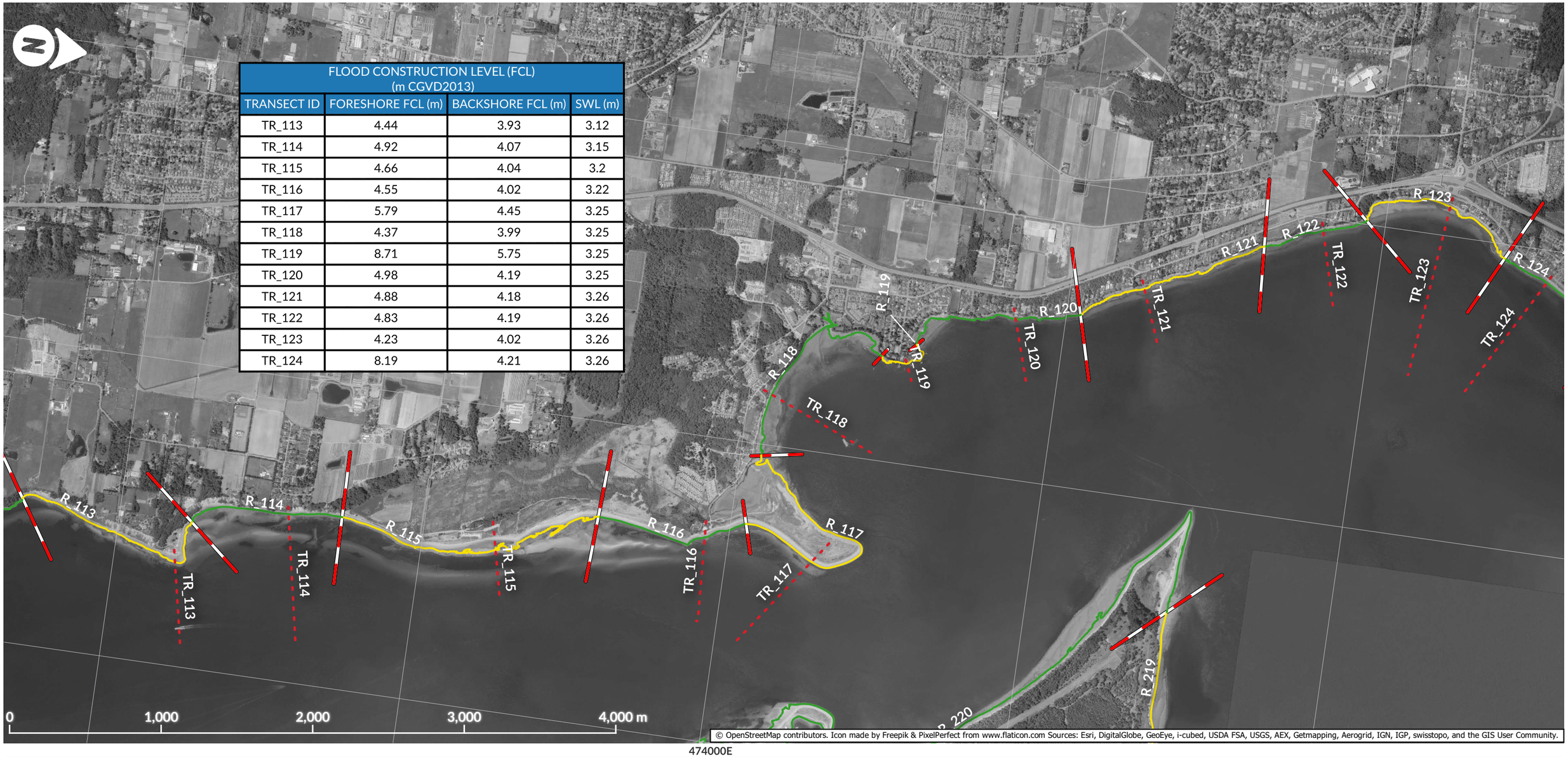
Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 15 of 41

pkl date: 2021.08.18
file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_113	4.44	3.93	3.12
TR_114	4.92	4.07	3.15
TR_115	4.66	4.04	3.2
TR_116	4.55	4.02	3.22
TR_117	5.79	4.45	3.25
TR_118	4.37	3.99	3.25
TR_119	8.71	5.75	3.25
TR_120	4.98	4.19	3.25
TR_121	4.88	4.18	3.26
TR_122	4.83	4.19	3.26
TR_123	4.23	4.02	3.26
TR_124	8.19	4.21	3.26



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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

Making a difference...together

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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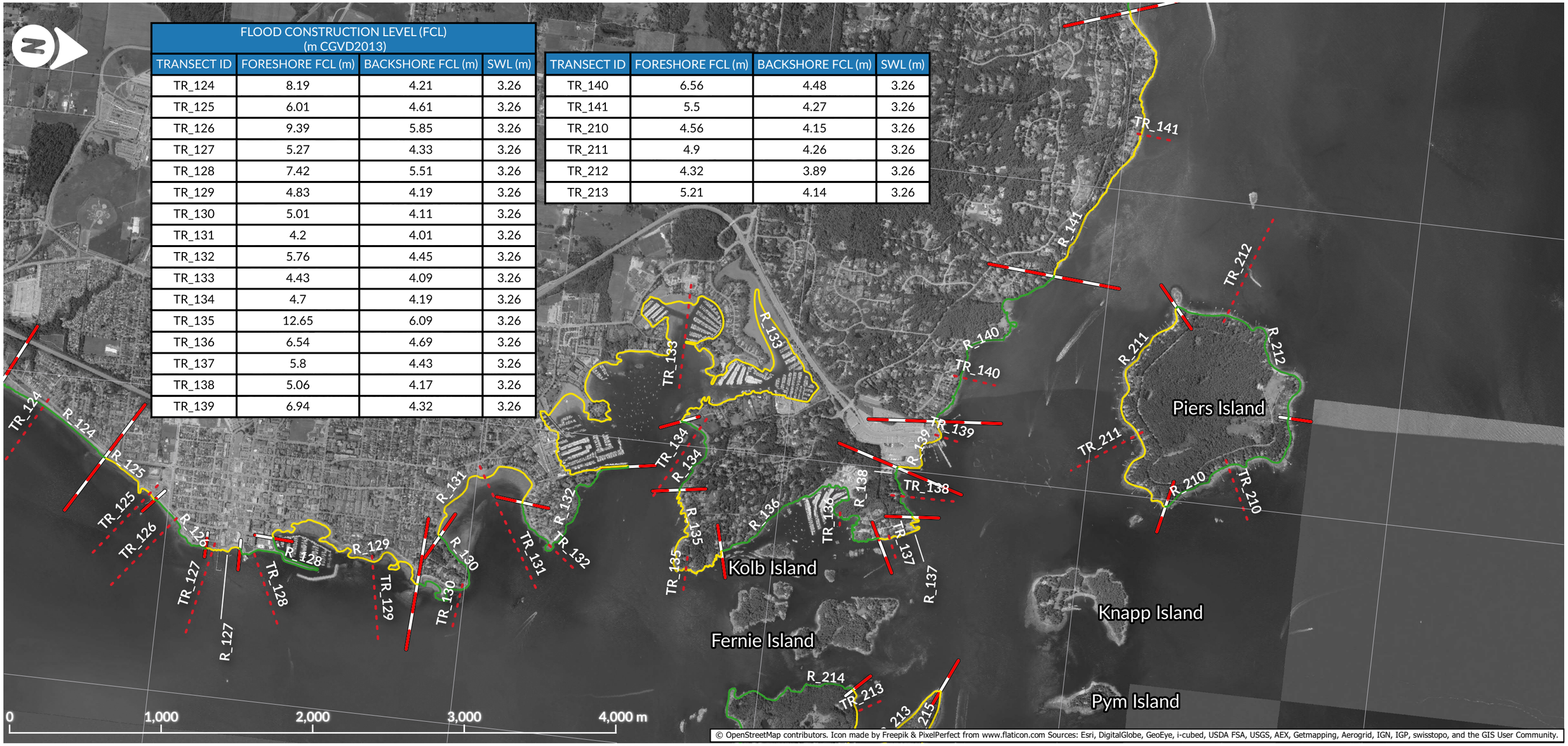
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_124	8.19	4.21	3.26
TR_125	6.01	4.61	3.26
TR_126	9.39	5.85	3.26
TR_127	5.27	4.33	3.26
TR_128	7.42	5.51	3.26
TR_129	4.83	4.19	3.26
TR_130	5.01	4.11	3.26
TR_131	4.2	4.01	3.26
TR_132	5.76	4.45	3.26
TR_133	4.43	4.09	3.26
TR_134	4.7	4.19	3.26
TR_135	12.65	6.09	3.26
TR_136	6.54	4.69	3.26
TR_137	5.8	4.43	3.26
TR_138	5.06	4.17	3.26
TR_139	6.94	4.32	3.26

TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_140	6.56	4.48	3.26
TR_141	5.5	4.27	3.26
TR_210	4.56	4.15	3.26
TR_211	4.9	4.26	3.26
TR_212	4.32	3.89	3.26
TR_213	5.21	4.14	3.26



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Coastal Flood Inundation Mapping Project

Capital Regional District

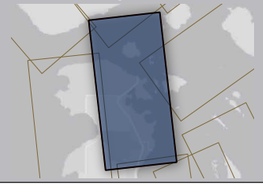
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

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plot date: 2021.08.18
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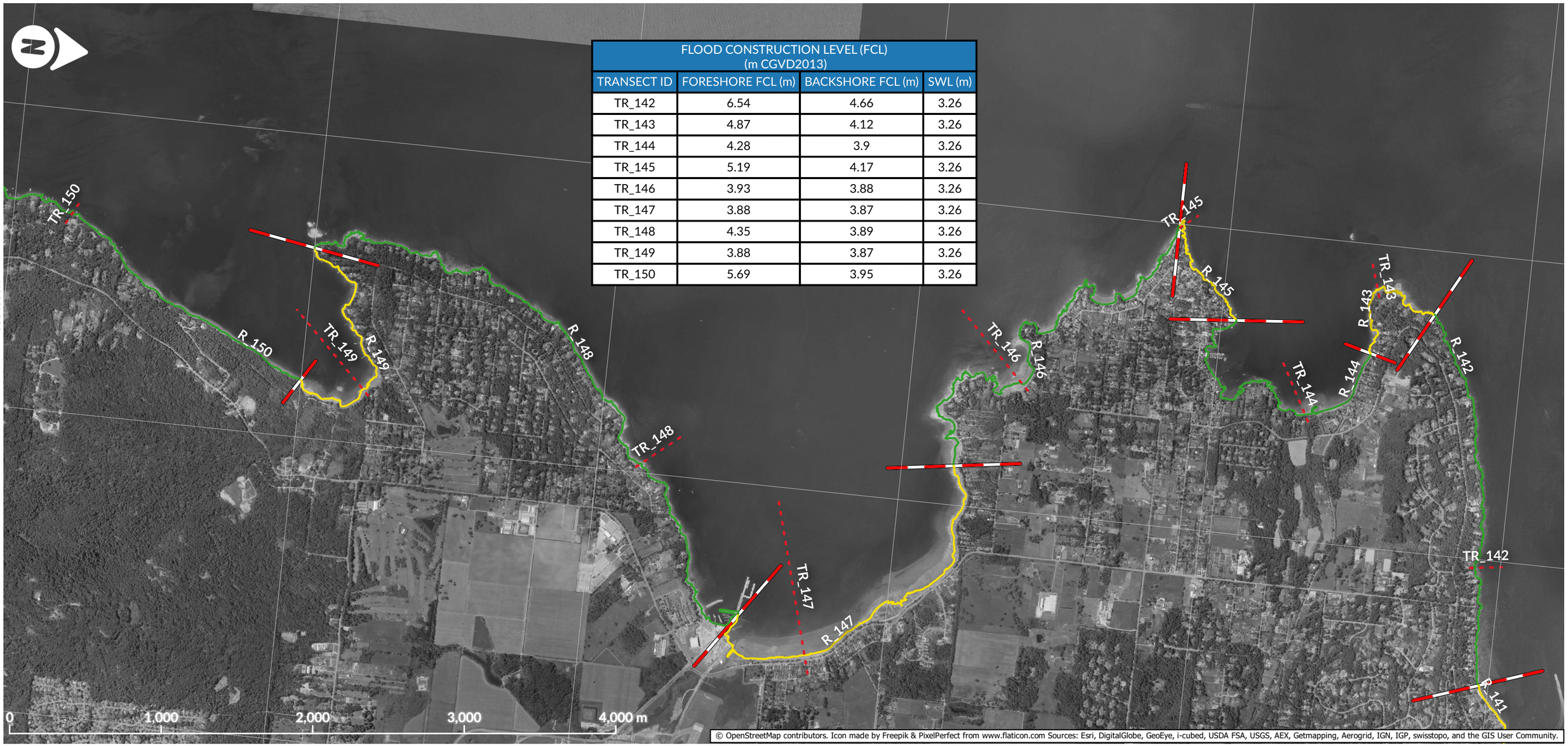
FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_142	6.54	4.66	3.26
TR_143	4.87	4.12	3.26
TR_144	4.28	3.9	3.26
TR_145	5.19	4.17	3.26
TR_146	3.93	3.88	3.26
TR_147	3.88	3.87	3.26
TR_148	4.35	3.89	3.26
TR_149	3.88	3.87	3.26
TR_150	5.69	3.95	3.26



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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Making a difference...together

DHI

Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Map Sheet 18 of 41

plot date: 2021.08.18
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

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5376000N 5384000N

R_158 TR_157 R_157 R_156 TR_156 TR_155 R_155 R_154 TR_154 TR_153 R_153 TR_152 R_152 R_151 TR_151 TR_150 R_150

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_150	5.69	3.95	3.26
TR_151	4.36	3.87	3.26
TR_152	3.94	3.85	3.25
TR_153	3.85	3.85	3.25
TR_154	6.85	4.78	3.26
TR_155	7.1	4.81	3.26
TR_156	7.29	4.86	3.25
TR_157	7.21	4.84	3.24

0 1,000 2,000 3,000 4,000 m

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464000E 466000E 468000E

Coastal Flood Inundation Mapping Project

Capital Regional District

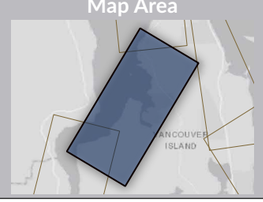
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



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Map Sheet 19 of 41

plot date: 2021.08.18
file: P:\20192676\00_Coast\Flood\Isnam\Working_Dwgs\010_GIS

458000E

TR_158

R_158

TR_157

R_157

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_157	7.21	4.84	3.24
TR_158	3.77	3.77	3.16

0 1,000 2,000 3,000 4,000 m

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462000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD

Map Area

Legend

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- Transect
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- Odd Numbered Reach

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Map Sheet 20 of 41

plot date: 2021.08.18
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

458000E 460000E 462000E 464000E

5422000N

5414000N

Wallace Island

Salt Spring Island

R_159 TR_159 R_160 TR_160 TR_161 R_161 R_162 R_176

0 1,000 2,000 3,000 4,000 m

456000E 458000E 460000E

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_159	4.52	3.94	3.26
TR_160	4.18	3.98	3.26
TR_161	4.45	4.09	3.26

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Coastal Flood Inundation Mapping Project

Capital Regional District

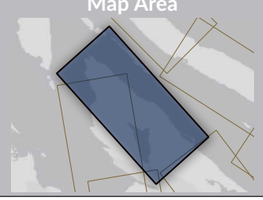
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Making a difference...together

Legend

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 21 of 41

plot date: 2021.08.18
file: P:\20192676\00_Coast\Flood\Nanaimo\Working_Dwgs\010_GIS

466000E 468000E 470000E

5416000N 5408000N 5414000N 5406000N

Salt Spring Island

Third Sister Island

Second Sister Island

Deadman Islands

Goat Island

Salt Spring Island

R_162 TR_162 R_163 TR_163 R_164 TR_164 R_165 TR_165 R_166 TR_166 R_167 TR_167 R_184

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_162	5.41	4.34	3.26
TR_163	4.28	3.86	3.26
TR_164	5.71	4.56	3.26
TR_165	4.41	4.09	3.26
TR_166	4.49	4.12	3.26
TR_167	4.79	4.24	3.26
TR_184	4.96	4.25	3.26

0 1,000 2,000 3,000 4,000 m

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462000E 464000E 466000E

Coastal Flood Inundation Mapping Project

Capital Regional District

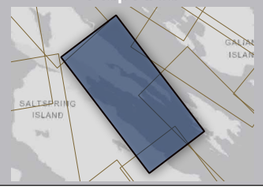
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Making a difference...together

Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Map Sheet 22 of 41

plot date: 2021.08.18
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

470000E
472000E
474000E
5408000N
5400000N
5406000N
5398000N
N
Salt Spring Island
Russell Island
TR_167
R_167
TR_168
R_168

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_167	4.79	4.24	3.26
TR_168	6.08	4.61	3.26

0 1,000 2,000 3,000 4,000 m

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466000E
468000E
470000E

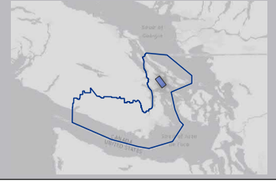
Coastal Flood Inundation Mapping Project

Capital Regional District

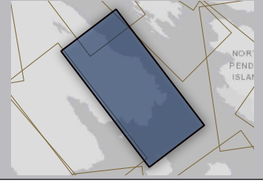
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Legend

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- Transect
- Even Numbered Reach
- Odd Numbered Reach

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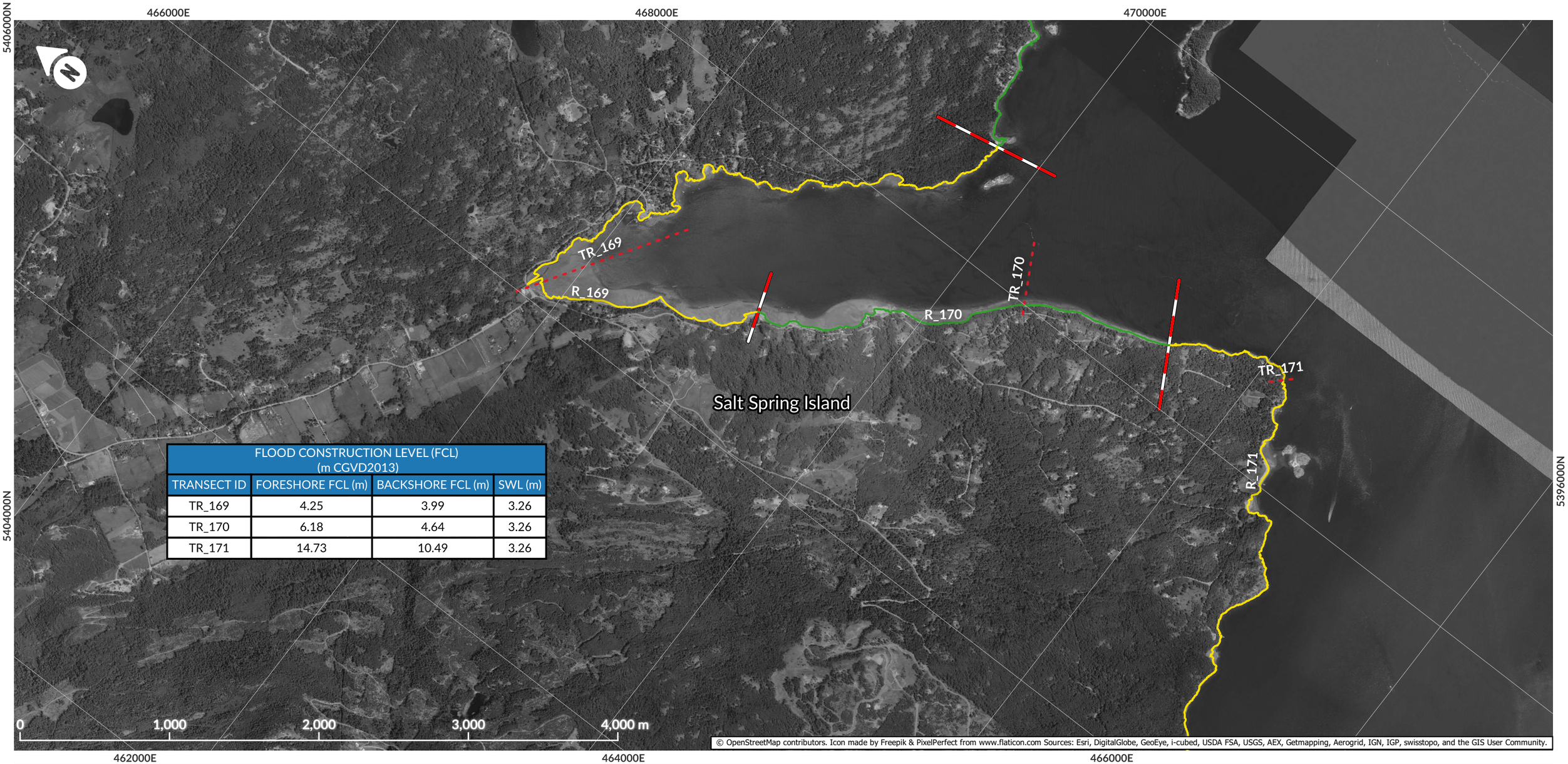
file: P:\20192676\00_CoastFloodPlan\arm\Working_Dwgs\010_GIS



FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_169	4.25	3.99	3.26
TR_170	6.18	4.64	3.26
TR_171	14.73	10.49	3.26

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Coastal Flood Inundation Mapping Project

Capital Regional District

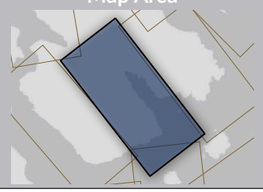
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



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Map Sheet 24 of 41

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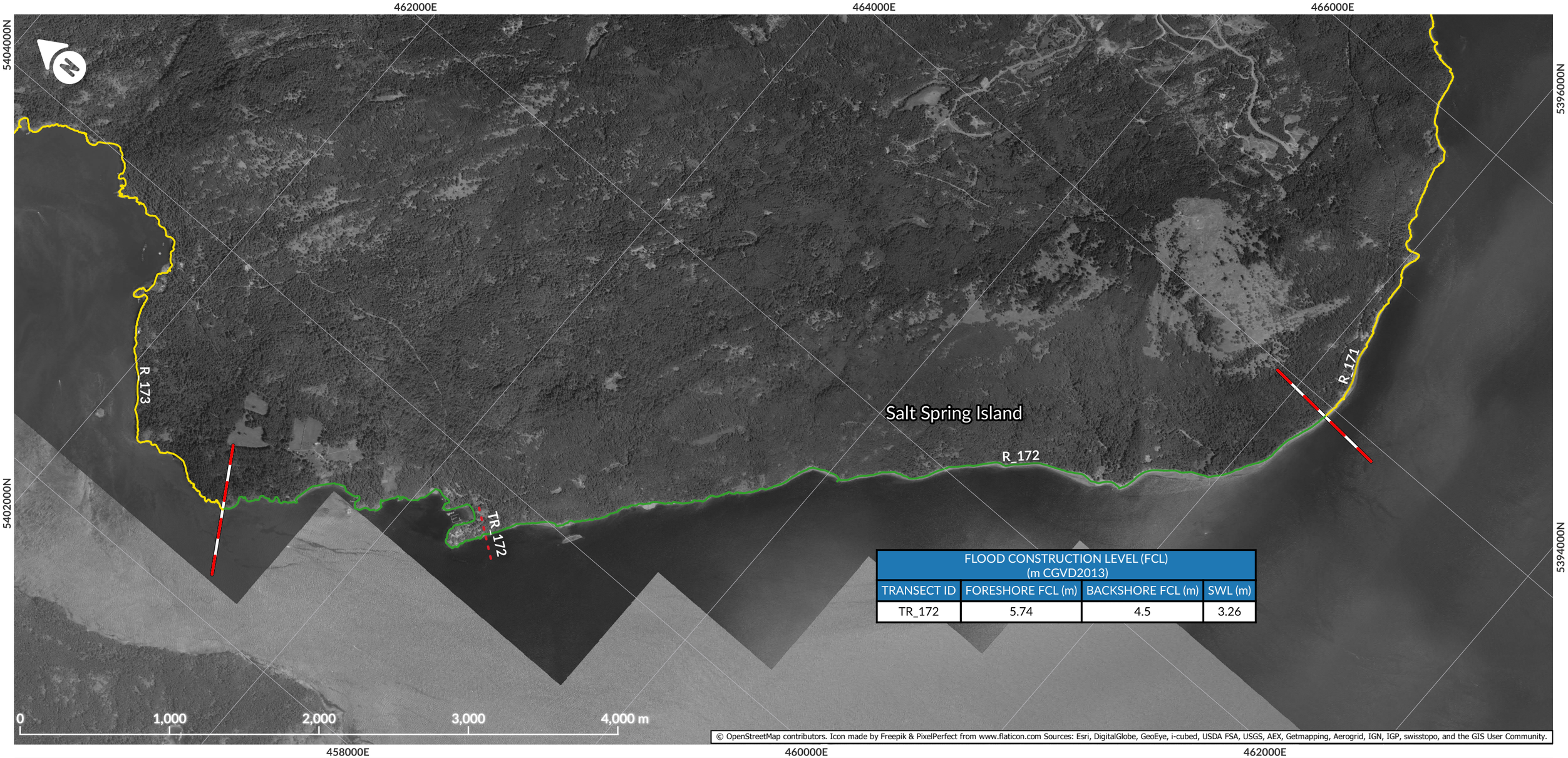
plot date: 2021.08.18
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS



FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_172	5.74	4.5	3.26

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Making a difference...together

Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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plot date: 2021.08.18
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

462000E

R_175

TR_174

R_174

Salt Spring Island

R_173

TR_173

0 1,000 2,000 3,000 4,000 m

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_173	3.94	3.87	3.26
TR_174	4.57	3.95	3.26

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458000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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plot date: 2021.08.18
file: P:\20192676\00_Coast\Flood\Ianami\Working_Dwgs\010_GIS

460000E

5410000N

5420000N

Salt Spring Island

R_159

R_176

TR_176

R_175

TR_175

TR_174

R_174

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_160	4.18	3.98	3.26
TR_174	4.57	3.95	3.26
TR_175	5.08	4.17	3.26
TR_176	6.75	4.75	3.26

0 1,000 2,000 3,000 4,000 m

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456000E

Coastal Flood Inundation Mapping Project

Capital Regional District

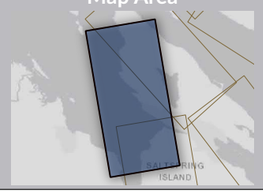
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



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- Transect
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- Odd Numbered Reach

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460000E 462000E 464000E

5430000N

5422000N

5428000N

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_177	6.32	4.67	3.26
TR_181	7.61	3.9	3.26

TR_177

R_177

R_178

Galiano Island

TR_181

R_181

0 1,000 2,000 3,000 4,000 m

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456000E 458000E 460000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

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1.0 m Relative Sea Level Rise

CRD



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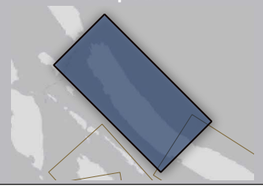

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 28 of 41

plot date: 2021.08.18
file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS

466000E 468000E 470000E 472000E

5424000N 5422000N 5420000N

5418000N 5416000N

R_178

TR_178

Galiano Island

R_181

R_180

Charles Island

Sphinx Island

Wise Island

Parker Island

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_178	7.43	5.27	3.26

0 1,000 2,000 3,000 4,000 m

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462000E 464000E 466000E 468000E 470000E

Coastal Flood Inundation Mapping Project

Capital Regional District

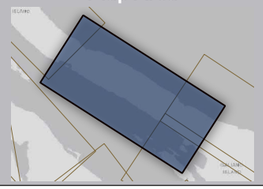
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Project No. 20192676
Approved by D. Forde, P.Eng.
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Map Sheet 29 of 41

plot date: 2021.08.18
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_179	9.51	6.1	3.26
TR_185	8.07	5.42	3.26

472000E 474000E 476000E 478000E 480000E

5420000N 5418000N 5416000N 5414000N 5412000N

Gossip Island

Galiano island

R_178 R_179 TR_179 R_185

0 1,000 2,000 3,000 4,000 m

470000E 472000E 474000E 476000E

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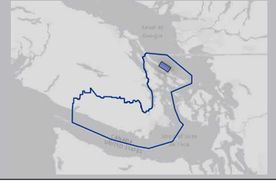
Coastal Flood Inundation Mapping Project

Capital Regional District

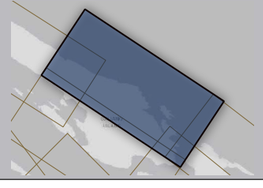
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Legend

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- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Map Sheet 30 of 41

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plot date: 2021.08.18
file: P:\20192676\00_Coast\Flood\arcmi\Working_Dvgs\V010_GIS

470000E 472000E 474000E 476000E

5418000N 5416000N 5414000N 5412000N 5410000N

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_180	9.01	4.18	3.26
TR_190	4.01	3.88	3.26

R_179
R_180
R_181
R_190
R_191
TR_180
TR_190

Galiano Island
Sphinx Island
Parker Island

0 1,000 2,000 3,000 4,000 m

468000E 470000E 472000E 474000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

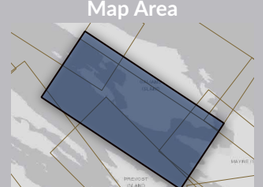
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Legend

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- Odd Numbered Reach

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plot date: 2021.08.18
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FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
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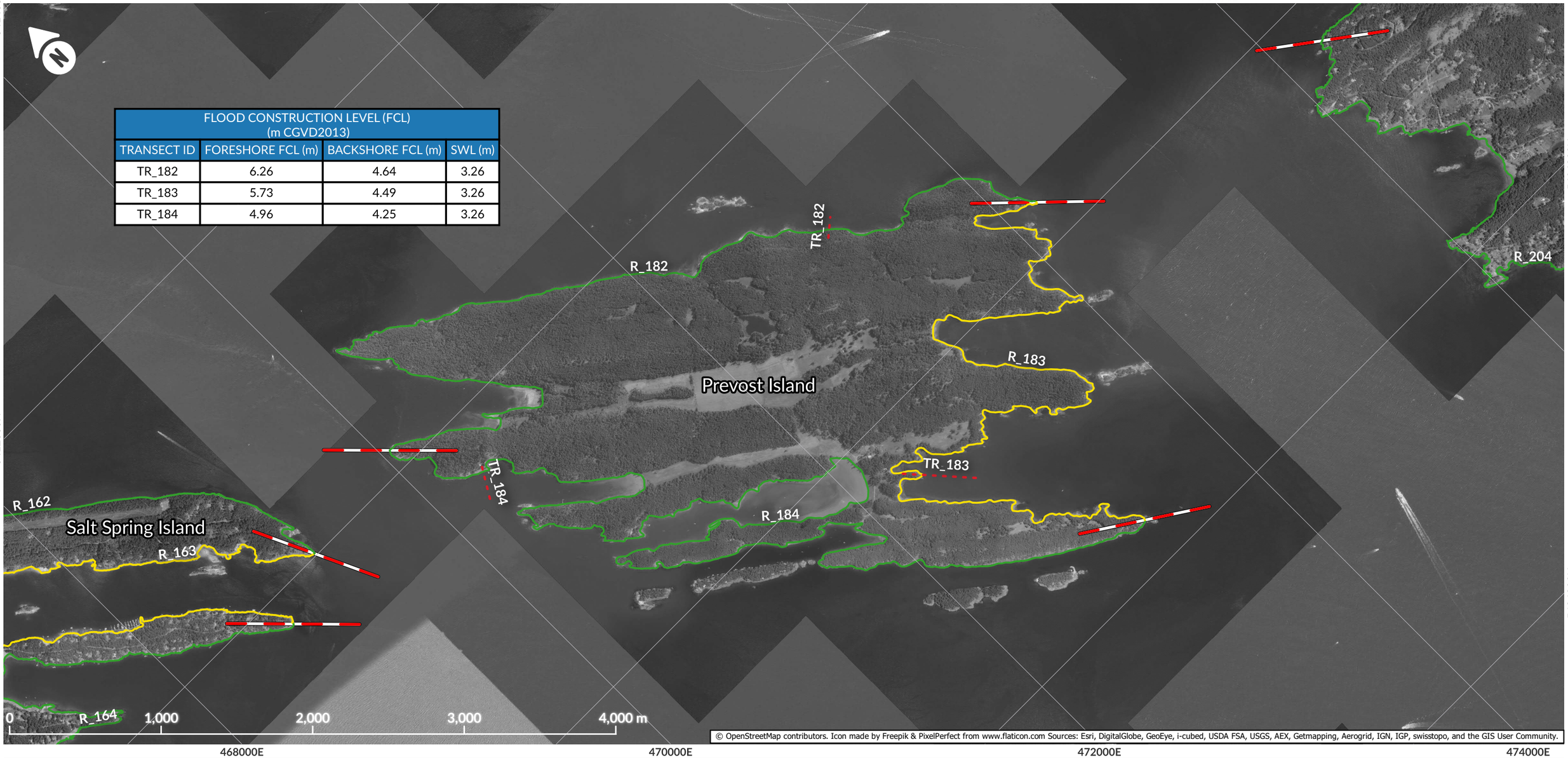
TR_183	5.73	4.49	3.26
TR_184	4.96	4.25	3.26



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Coastal Flood Inundation Mapping Project

Capital Regional District

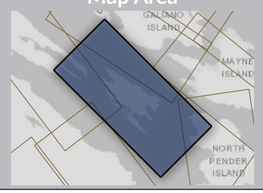
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Making a difference...together

Legend

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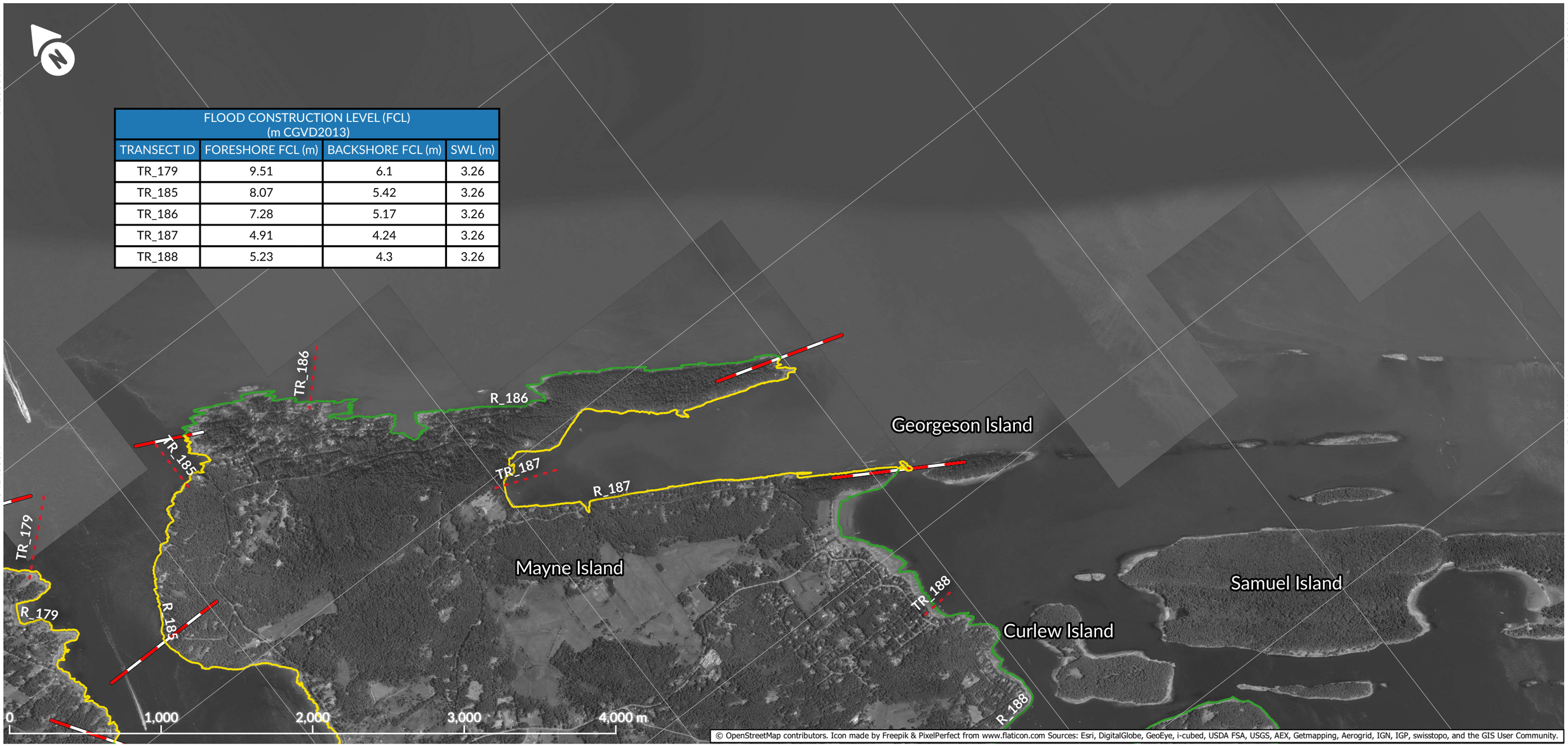
Map Sheet 32 of 41

plot date: 2021.08.18
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS



FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_179	9.51	6.1	3.26
TR_185	8.07	5.42	3.26
TR_186	7.28	5.17	3.26
TR_187	4.91	4.24	3.26
TR_188	5.23	4.3	3.26

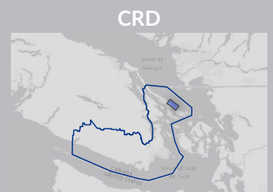
Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



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Map Sheet 33 of 41

Making a difference...together

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file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

478000E 480000E 482000E 484000E

5414000N

5412000N

5406000N

Mayne Island

Samuel Island

Curlew Island

R_178 TR_179 R_179 R_185 TR_188 R_188 TR_191 R_180 R_191 R_189 TR_189 R_190 TR_190 TR_200

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_179	9.51	6.1	3.26
TR_188	5.23	4.3	3.26
TR_189	4.28	4.03	3.26
TR_190	4.01	3.88	3.26
TR_191	4.39	3.9	3.26
TR_200	6.34	4.58	3.26

0 1,000 2,000 3,000 4,000 m

474000E 476000E 478000E 480000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

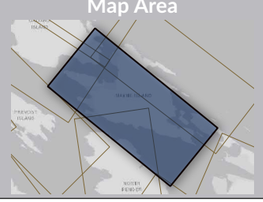
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



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Map Sheet 34 of 41

Making a difference...together

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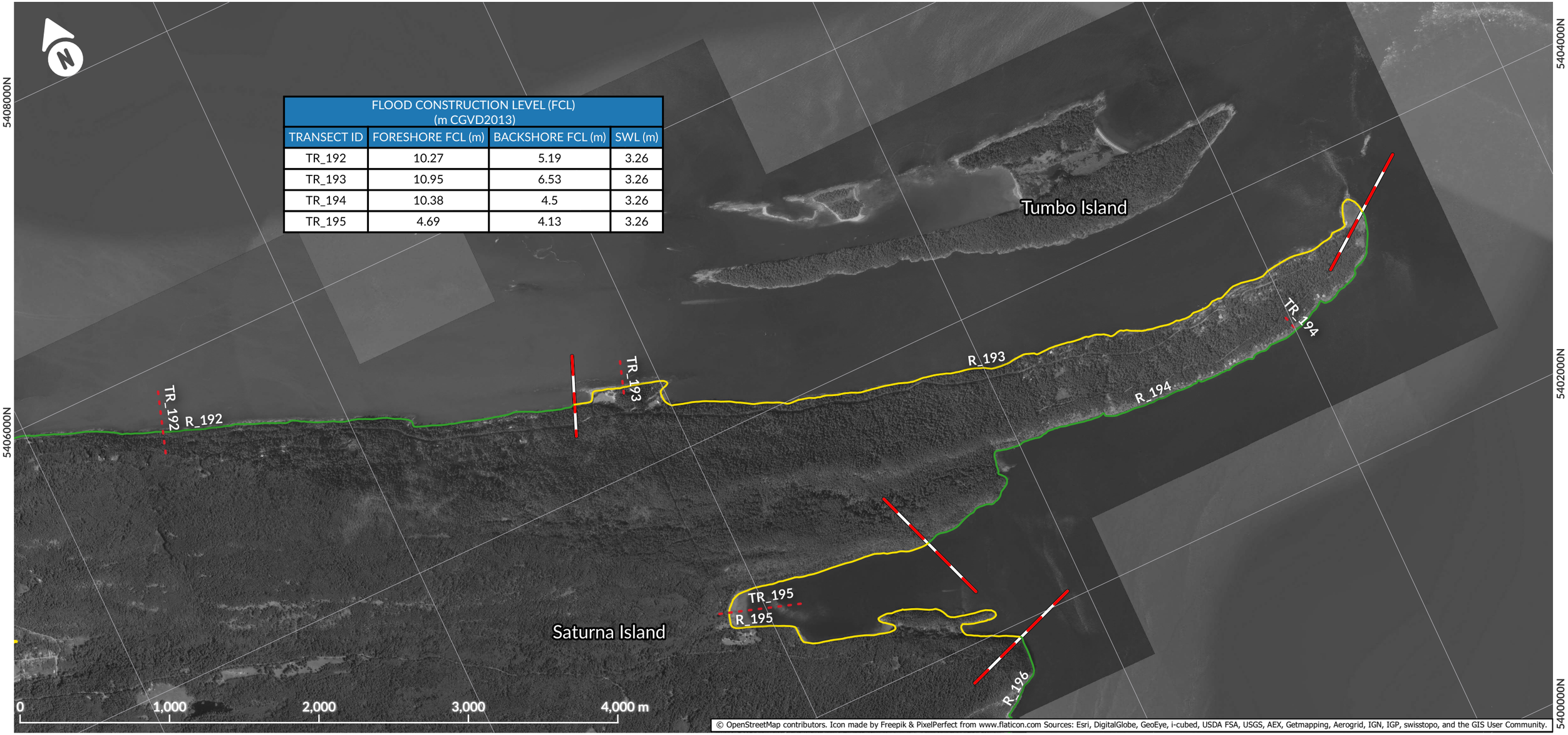
file: P:\20192676\00_Coast\Floodflsnam\Working_Dwgs\010_GIS

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_192	10.27	5.19	3.26
TR_193	10.95	6.53	3.26
TR_194	10.38	4.5	3.26
TR_195	4.69	4.13	3.26



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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD
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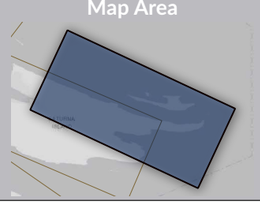
DHI

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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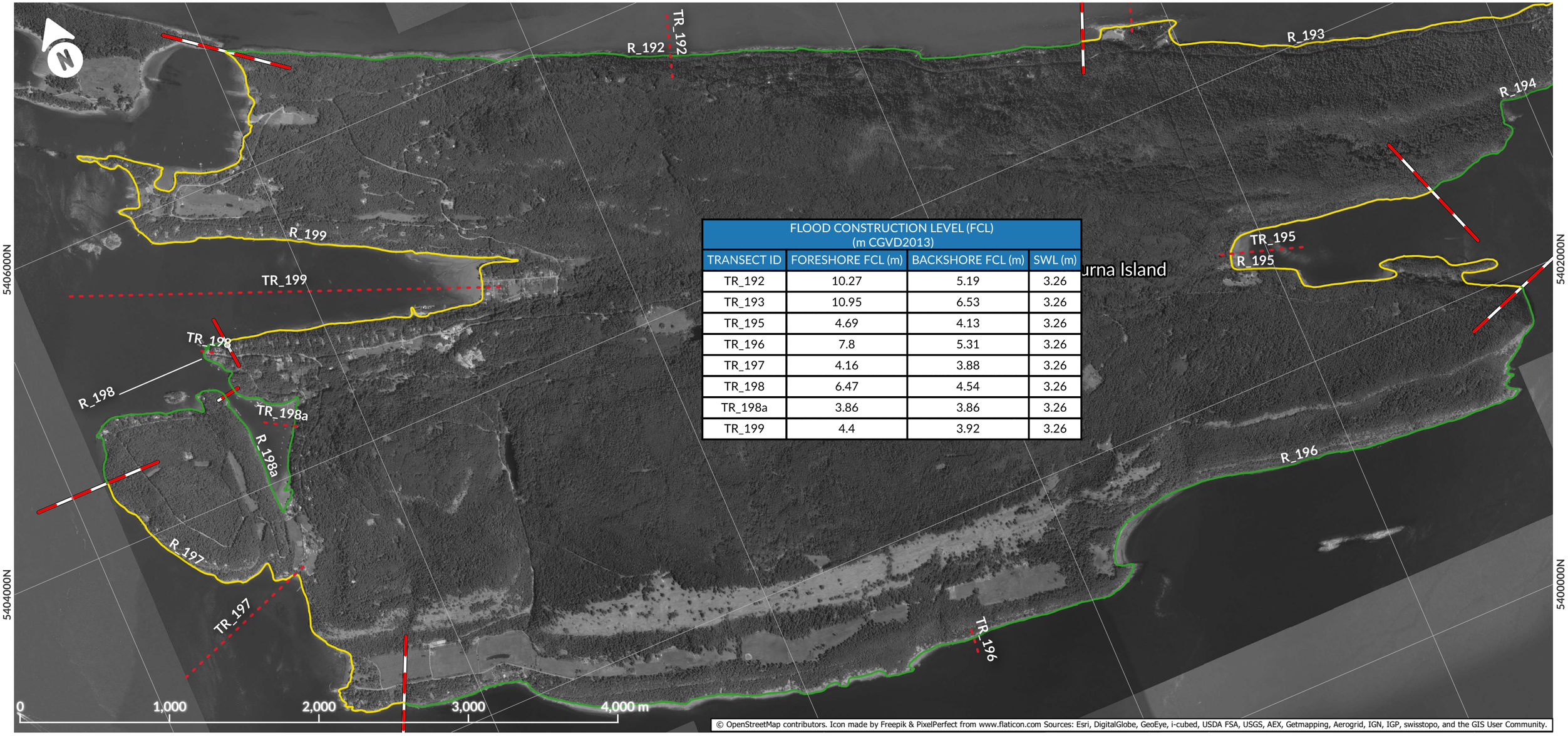
Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 35 of 41

plot date: 2021.08.18
file: P:\20192676\00_Coast\Flood\tsunami\Working_Dwgs\010_GIS



FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_192	10.27	5.19	3.26
TR_193	10.95	6.53	3.26
TR_195	4.69	4.13	3.26
TR_196	7.8	5.31	3.26
TR_197	4.16	3.88	3.26
TR_198	6.47	4.54	3.26
TR_198a	3.86	3.86	3.26
TR_199	4.4	3.92	3.26

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Legend

- FCL Reach Boundary
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- Even Numbered Reach
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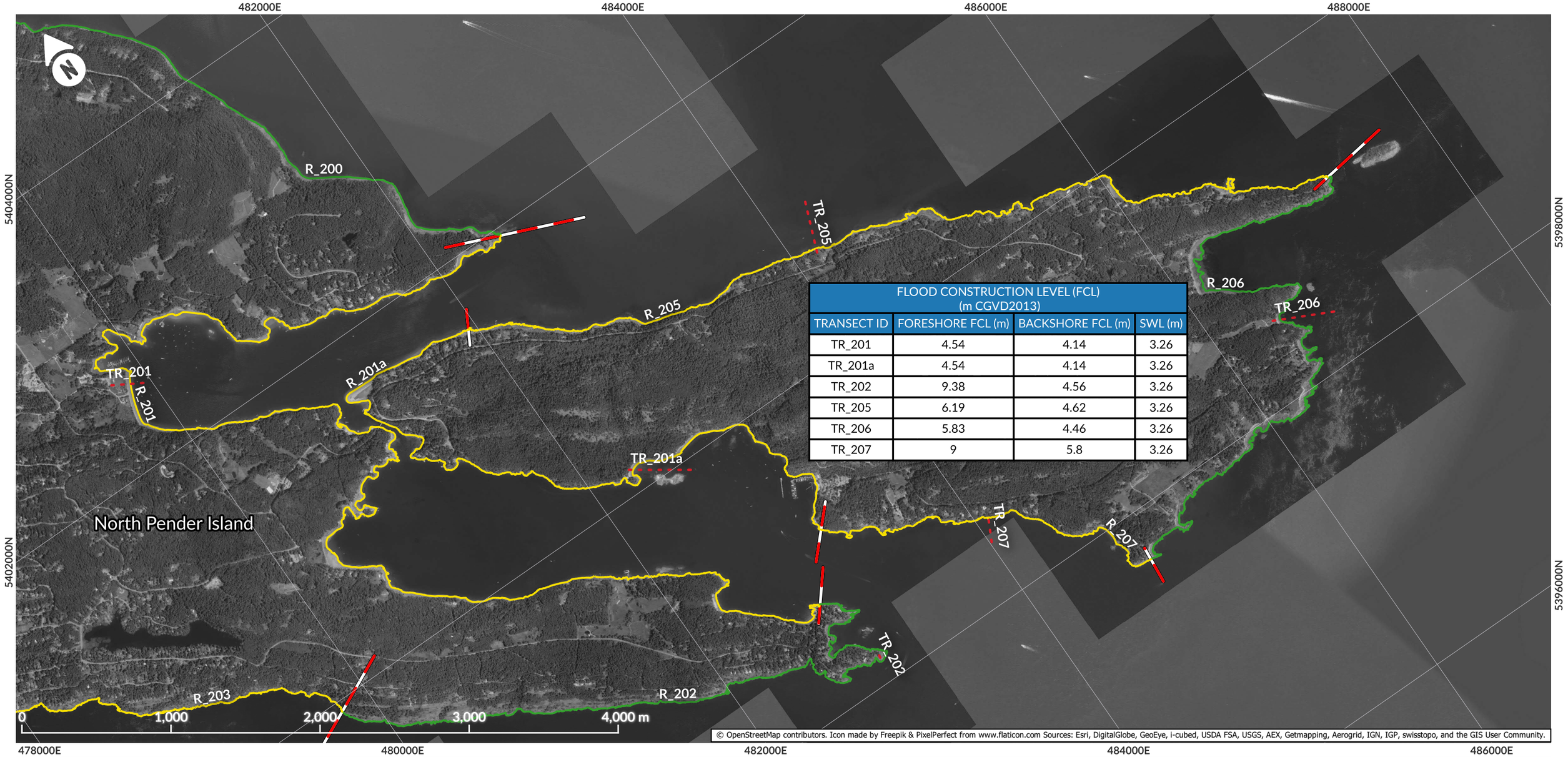
Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 36 of 41

plot date: 2021.08.18
file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS



FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_201	4.54	4.14	3.26
TR_201a	4.54	4.14	3.26
TR_202	9.38	4.56	3.26
TR_205	6.19	4.62	3.26
TR_206	5.83	4.46	3.26
TR_207	9	5.8	3.26

Coastal Flood Inundation Mapping Project

Capital Regional District

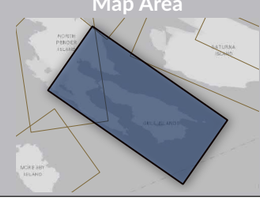
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



Legend

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- Transect
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- Odd Numbered Reach

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Map Sheet 37 of 41

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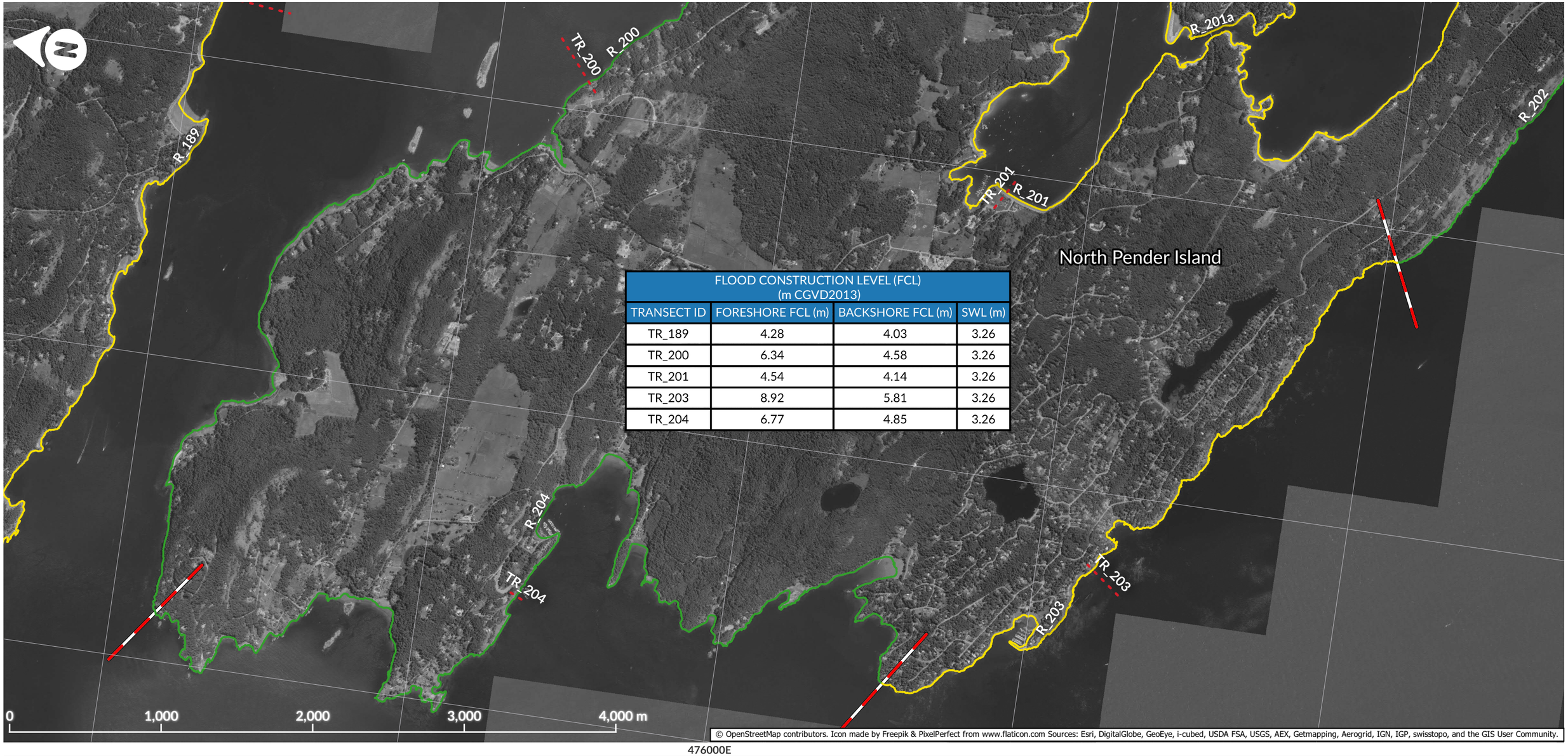

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_189	4.28	4.03	3.26
TR_200	6.34	4.58	3.26
TR_201	4.54	4.14	3.26
TR_203	8.92	5.81	3.26
TR_204	6.77	4.85	3.26

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Coastal Flood Inundation Mapping Project

Capital Regional District

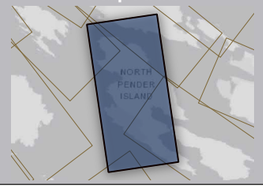
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



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470000E 472000E 474000E 476000E 478000E

5392000N 5398000N 5390000N 5396000N

Pym Island

R_137

R_213

TR_213

TR_215

R_215

Coal Island

R_214

TR_214

Ker Island

Dock Island

Reay Island

R_208

TR_208

Moresby Island

R_209

TR_209

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_208	4	3.87	3.26
TR_209	9.5	6.16	3.26
TR_213	5.21	4.14	3.26
TR_214	5.3	4.32	3.26
TR_215	7.03	4.95	3.26

0 1,000 2,000 3,000 4,000 m

474000E 476000E 478000E 480000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

Making a difference...together

CRD

Map Area

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- Transect
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476000E

474000E

5380000N

5390000N

TR_218

R_218

R_216

TR_217

R_217

Sidney Island

TR_216

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_216	4.24	4.01	3.24
TR_217	6.65	3.99	3.13
TR_218	4.65	4.16	3.23

Rubly Island

Bare Island 9

0 1,000 2,000 3,000 4,000 m

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480000E

478000E

Coastal Flood Inundation Mapping Project

Capital Regional District

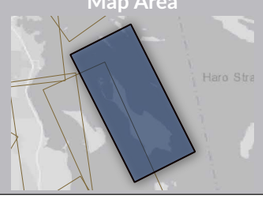
August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD



Map Area



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- Transect
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- Odd Numbered Reach

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474000E

472000E

5378000N

5388000N

478000E

476000E

TR_117

TR_220

R_220

James Island

R_219

TR_219

TR_218

R_218

R_216

0 1,000 2,000 3,000 4,000 m

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_116	4.55	4.02	3.22
TR_117	5.79	4.45	3.25
TR_218	4.65	4.16	3.23
TR_219	4.65	4.07	3.25
TR_220	7.05	3.78	3.03

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
1.0 m Relative Sea Level Rise

CRD

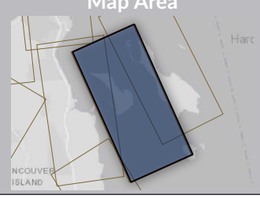
Making a difference...together

DHI

CRD



Map Area



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Map Sheet 41 of 41

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file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS

390000E 392000E 394000E 396000E

5378000N 5376000N 5382000N 5380000N

R_001 R_002 R_003 R_004

TR_001 TR_002 TR_003 TR_004

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_001	6.97	5.91	4.98
TR_002	6.91	5.99	4.98
TR_003	8.42	6.94	4.98
TR_004	13.01	8.73	4.98

0 1,000 2,000 3,000 4,000 m

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392000E 394000E 396000E 398000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD

Making a difference...together

DHI

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

plot date: 2021.08.18
file: P:\20192676\00_Coast\Flood\tunami\Working_Dwgs\010_GIS

394000E 396000E 398000E 400000E 402000E

5376000N 5374000N 5372000N

R_005 R_006 TR_005

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_005	10.58	7.74	4.98

0 1,000 2,000 3,000 4,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD

Map Area

Making a difference...together

Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
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plot date: 2021.08.18
file: P:\20192676\00_CoastFloodPlanam\Working_Dwgs\010_GIS

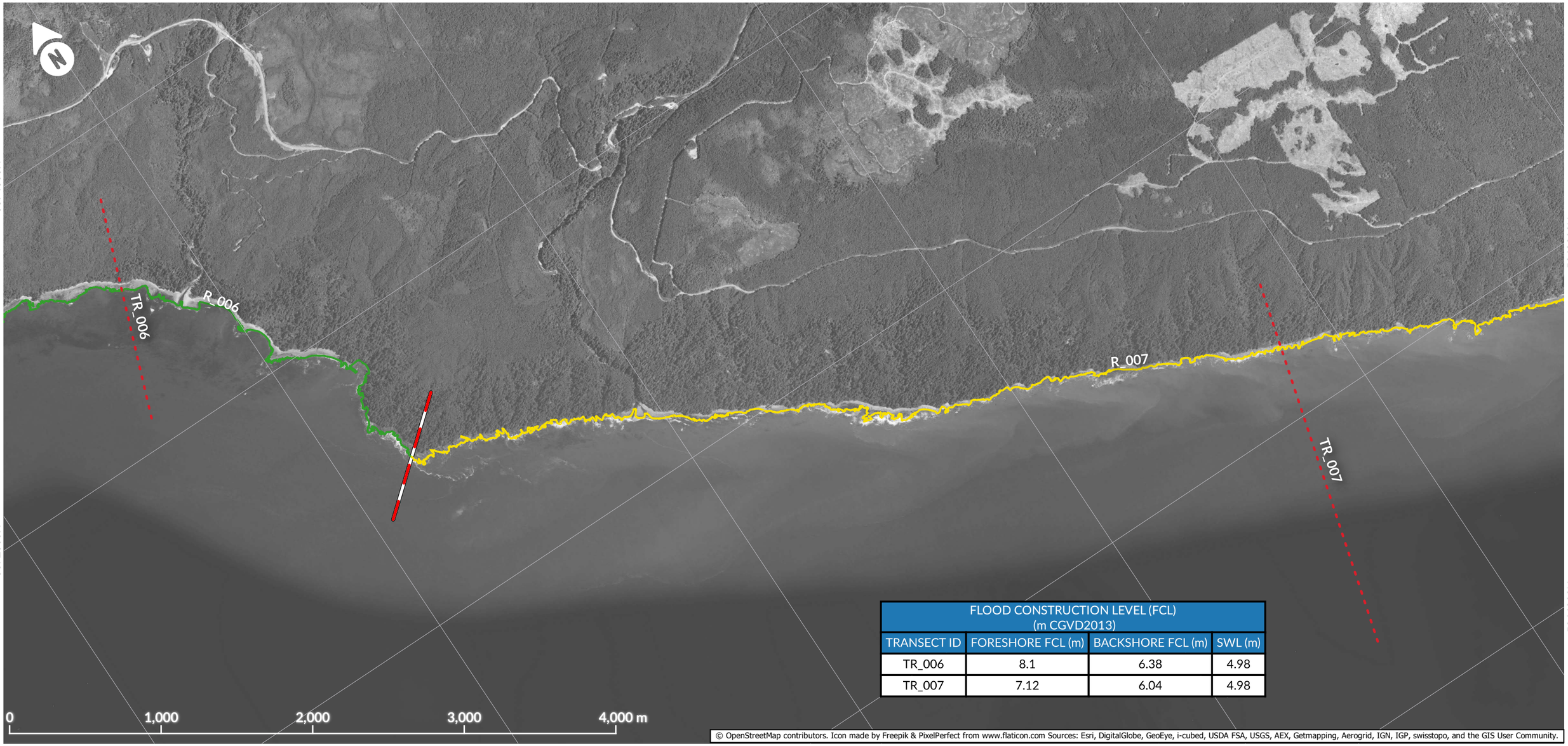
404000E 406000E 408000E 410000E 412000E

5374000N

5372000N

5368000N

5366000N



402000E 404000E 406000E 408000E

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_006	8.1	6.38	4.98
TR_007	7.12	6.04	4.98

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



Legend

- FCL Reach Boundary
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- Even Numbered Reach
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Approved by D. Forde, P.Eng.
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Map Sheet 3 of 41

plot date: 2021.08.18
file: P:\20192676\00_Coast\Flood\tsunami\Working_Dwgs\010_GIS

412000E 414000E 416000E 418000E 420000E

5366000N 5364000N 5362000N

5368000N 5366000N

R_007 R_008 R_009 TR_008

0 1,000 2,000 3,000 4,000 m

410000E 412000E 414000E 416000E 418000E

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_008	6.71	5.78	4.98

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Coastal Flood Inundation Mapping Project

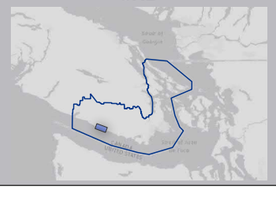
Capital Regional District

August 2021

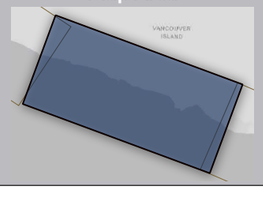
Flood Construction Level Map
2.0 m Relative Sea Level Rise

Making a difference...together

CRD



Map Area



Legend

- FCL Reach Boundary
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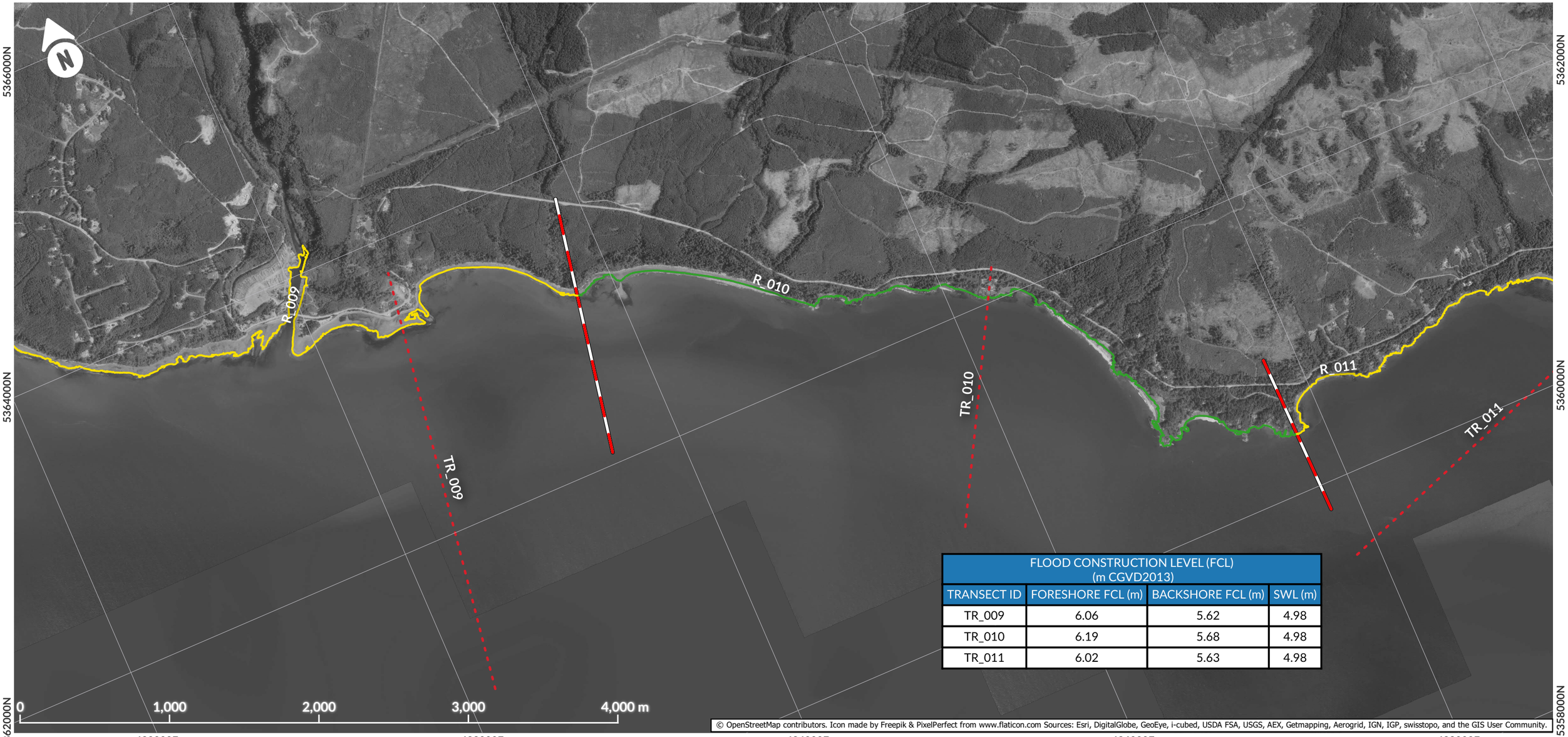

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_009	6.06	5.62	4.98
TR_010	6.19	5.68	4.98
TR_011	6.02	5.63	4.98

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



Legend

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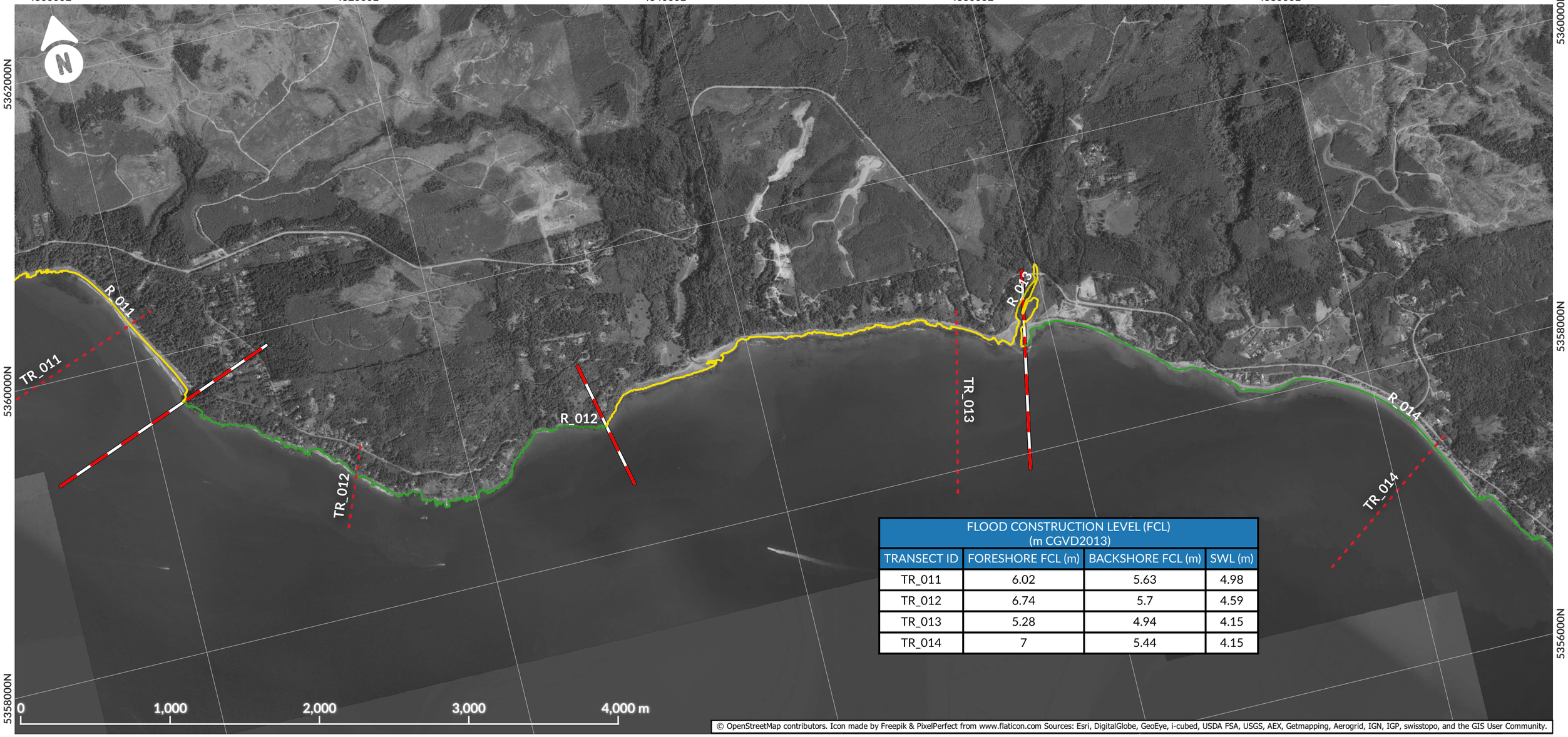

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_011	6.02	5.63	4.98
TR_012	6.74	5.7	4.59
TR_013	5.28	4.94	4.15
TR_014	7	5.44	4.15

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Coastal Flood Inundation Mapping Project

Capital Regional District

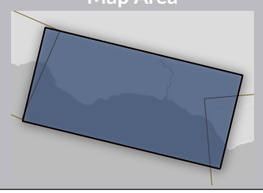
August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



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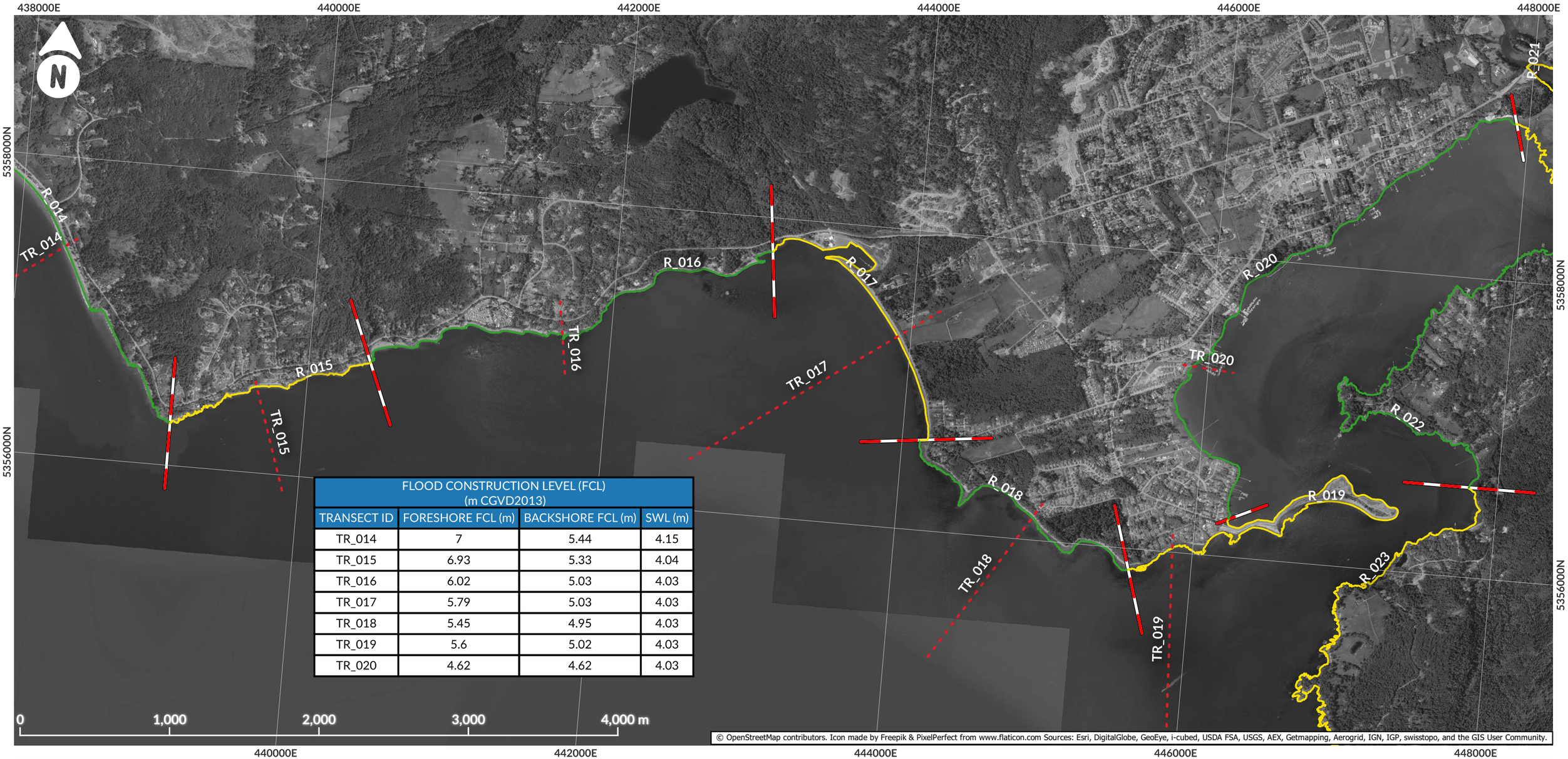

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_014	7	5.44	4.15
TR_015	6.93	5.33	4.04
TR_016	6.02	5.03	4.03
TR_017	5.79	5.03	4.03
TR_018	5.45	4.95	4.03
TR_019	5.6	5.02	4.03
TR_020	4.62	4.62	4.03

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

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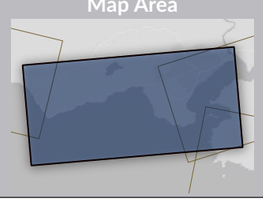

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Map Sheet 7 of 41

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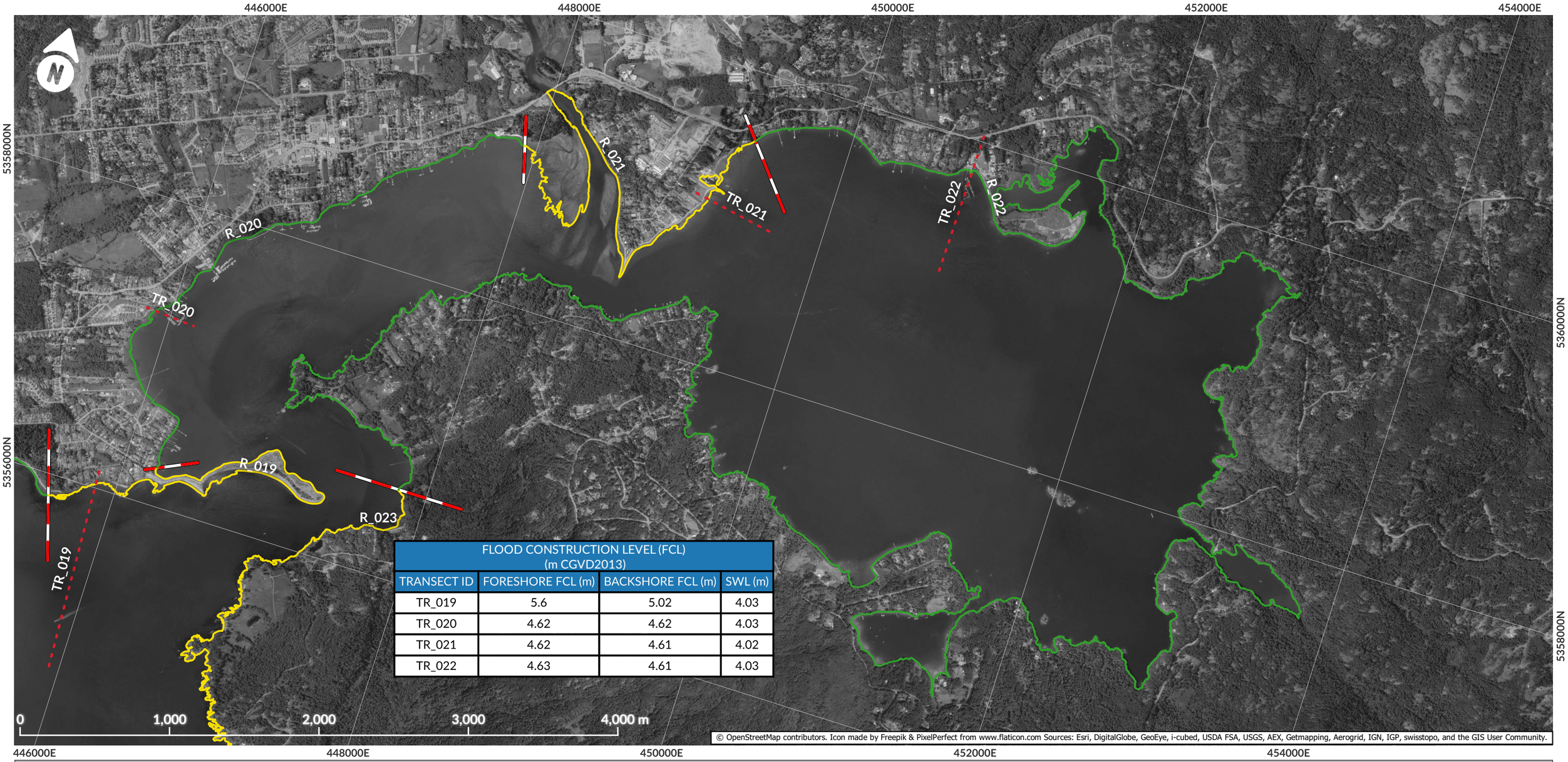

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_019	5.6	5.02	4.03
TR_020	4.62	4.62	4.03
TR_021	4.62	4.61	4.02
TR_022	4.63	4.61	4.03

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



Legend

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 8 of 41

Making a difference...together

plot date: 2021.08.18
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FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_023	6.67	5.31	4.03
TR_024	19.75	5.86	4.03
TR_025	5.75	4.97	4.03
TR_026	5.13	4.75	4.03
TR_027	6.28	5.19	4.03
TR_028	4.72	4.65	4.03
TR_029	4.82	4.68	4.03
TR_030	4.98	4.76	4.03
TR_031	8.17	5.62	4.03

448000E 450000E 452000E 454000E 456000E

5356000N 5354000N 5352000N

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R_023 TR_023 R_024 TR_024 R_025 TR_025 R_026 TR_026 R_027 TR_027 R_028 TR_028 R_029 TR_029 R_030 TR_030 R_031 TR_031

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446000E 448000E 450000E 452000E 454000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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plot date: 2021.08.18
file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS

456000E

458000E

5350000N

5360000N

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_032	5.47	4.86	4.03
TR_033	7.15	5.01	4.03
TR_034	8.09	5.62	4.03
TR_035	6.75	5.26	4.03
TR_036	10.49	7.15	4.03
TR_037	5.25	4.82	4.03
TR_038	6.51	5.23	4.03
TR_039	5.6	4.92	4.03
TR_040	7.16	5.48	4.03

R_031 R_032 R_033 R_034 R_035 R_036 R_037 R_038 R_039

TR_032 TR_033 TR_034 TR_035 TR_036 TR_037 TR_038 TR_039 TR_040

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462000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD

Map Area

Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Making a difference...together

plot date: 2021.08.18
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

462000E

464000E

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_040	7.16	5.48	4.03
TR_041	8.41	5.69	4.03
TR_042	14.73	9.03	4.03
TR_043	6.32	5.14	4.03
TR_044	6.6	5.25	4.02
TR_045	6.05	5.06	4.02
TR_046	5.48	4.62	4.02
TR_047	5.54	4.94	4.02
TR_048	5.31	4.85	4.02
TR_049	5.37	4.87	4.01
TR_050	5.78	5.04	4.01

TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_051	5.34	4.89	4.01
TR_052	6.05	5.54	4.01
TR_053	4.61	4.61	4.01
TR_054	5.3	4.86	4.02
TR_055	7.6	6.55	4.02
TR_056	5.81	4.22	4.02
TR_057	5.46	4.04	4.02
TR_058	4.62	4.62	4.02
TR_059	8.87	4.59	4.02
TR_060	8.59	6.13	4.02

5368000N

5358000N

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466000E

468000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD

Map Area

Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Map Sheet 11 of 41

Making a difference...together

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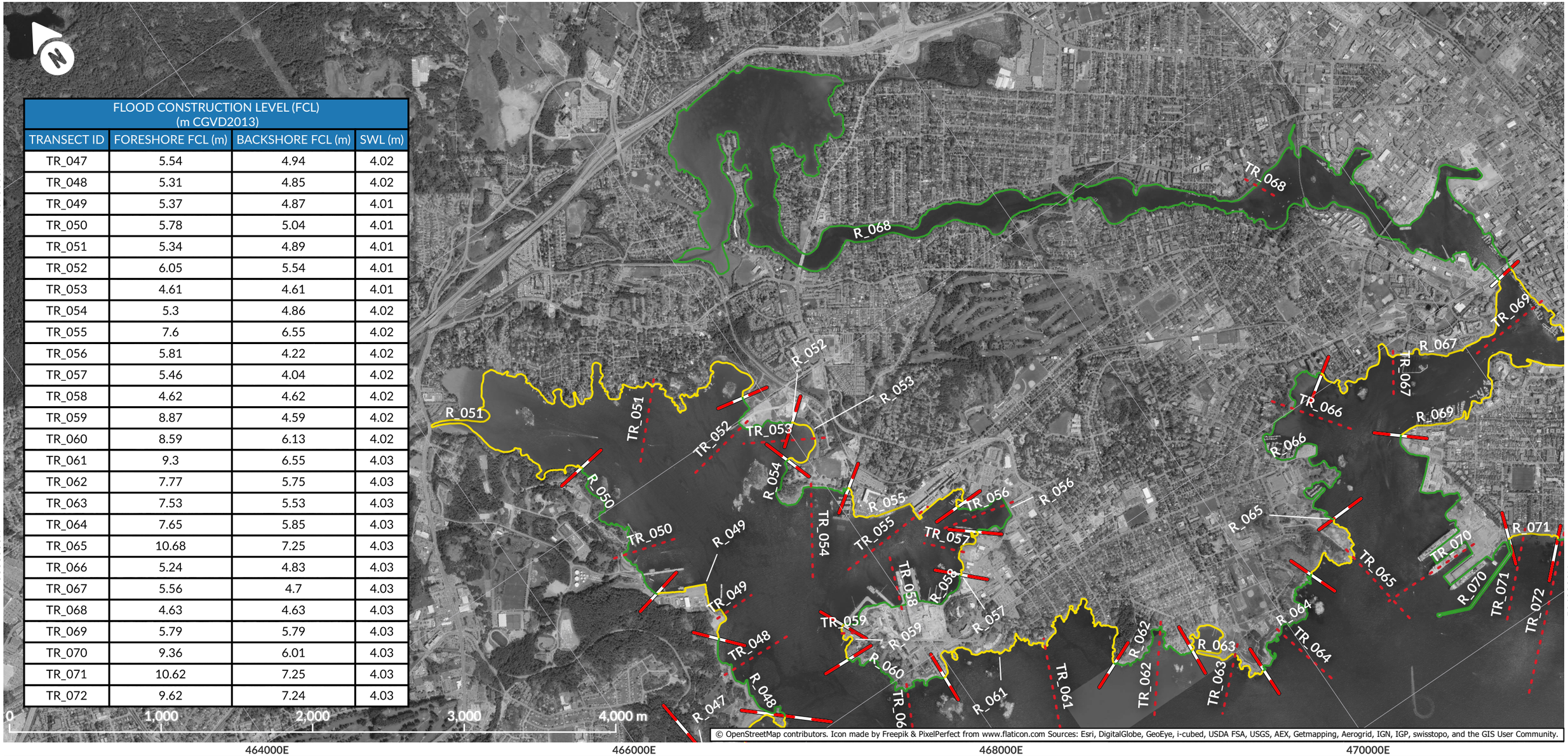
FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_047	5.54	4.94	4.02
TR_048	5.31	4.85	4.02
TR_049	5.37	4.87	4.01
TR_050	5.78	5.04	4.01
TR_051	5.34	4.89	4.01
TR_052	6.05	5.54	4.01
TR_053	4.61	4.61	4.01
TR_054	5.3	4.86	4.02
TR_055	7.6	6.55	4.02
TR_056	5.81	4.22	4.02
TR_057	5.46	4.04	4.02
TR_058	4.62	4.62	4.02
TR_059	8.87	4.59	4.02
TR_060	8.59	6.13	4.02
TR_061	9.3	6.55	4.03
TR_062	7.77	5.75	4.03
TR_063	7.53	5.53	4.03
TR_064	7.65	5.85	4.03
TR_065	10.68	7.25	4.03
TR_066	5.24	4.83	4.03
TR_067	5.56	4.7	4.03
TR_068	4.63	4.63	4.03
TR_069	5.79	5.79	4.03
TR_070	9.36	6.01	4.03
TR_071	10.62	7.25	4.03
TR_072	9.62	7.24	4.03



Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 12 of 41

plot date: 2021.08.18
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

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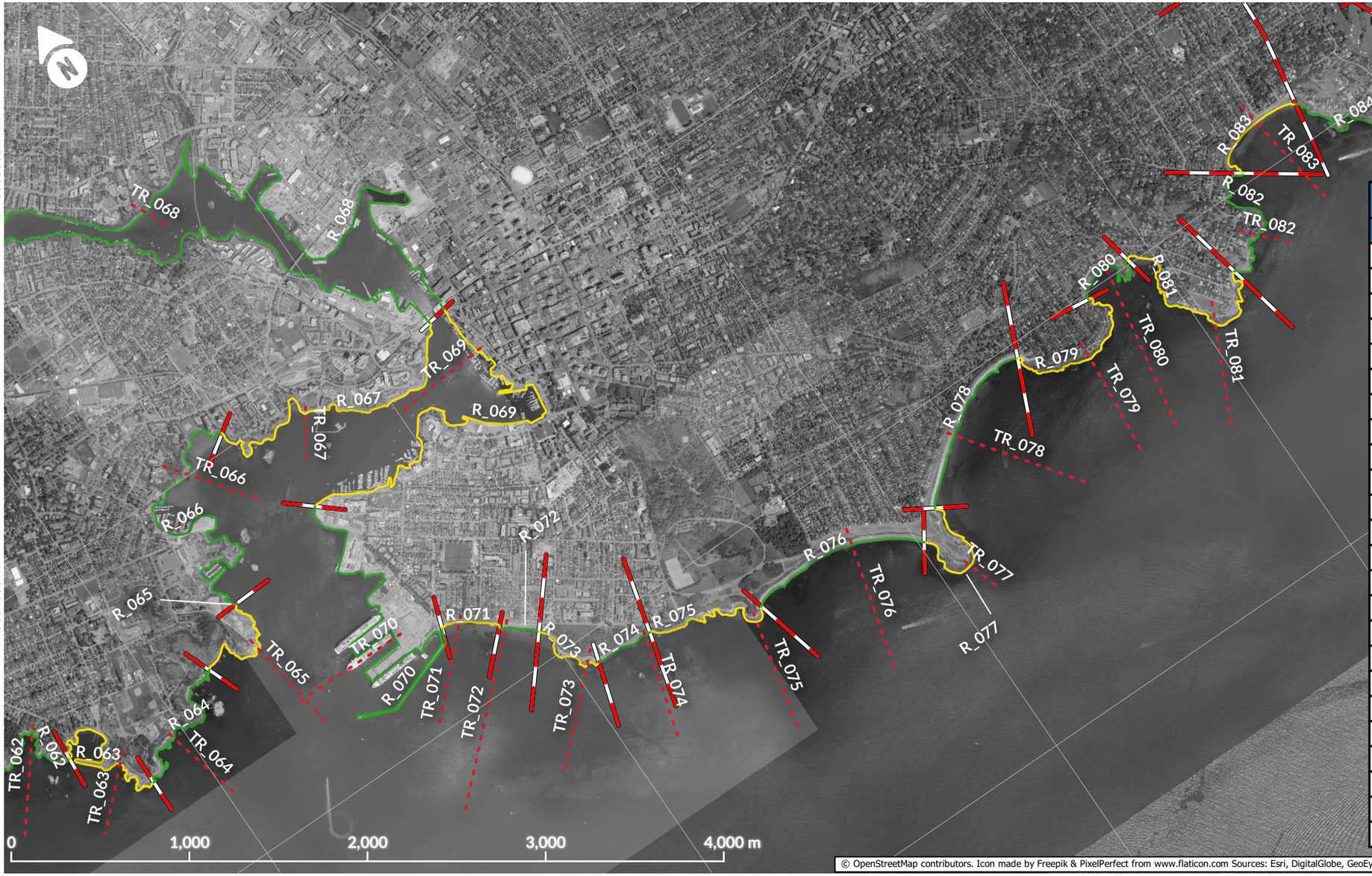

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FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_062	7.77	5.75	4.03
TR_063	7.53	5.53	4.03
TR_064	7.65	5.85	4.03
TR_065	10.68	7.25	4.03
TR_066	5.24	4.83	4.03
TR_067	5.56	4.7	4.03
TR_068	4.63	4.63	4.03
TR_069	5.79	5.79	4.03
TR_070	9.36	6.01	4.03
TR_071	10.62	7.25	4.03
TR_072	9.62	7.24	4.03
TR_073	6.69	5.16	4.03
TR_074	6.29	5.05	4.03
TR_075	11.19	7.66	4.03
TR_076	6.87	5.29	4.03
TR_077	7.58	5.93	4.03
TR_078	7.01	4.95	4.03
TR_079	7.79	5.68	4.03
TR_080	5.89	4.91	4.03
TR_081	7.3	5.68	4.03
TR_082	9.13	6.64	4.03
TR_083	11.14	4.83	4.03
TR_084	10.13	5.49	4.03
TR_085	10.47	6.86	4.03

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

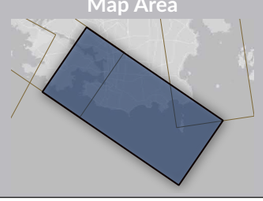
Flood Construction Level Map
2.0 m Relative Sea Level Rise

Making a difference...together

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
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Map Sheet 13 of 41

plot date: 2021.08.18
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FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_083	11.14	4.83	4.03
TR_084	10.13	5.49	4.03
TR_085	10.47	6.86	4.03
TR_086	8.29	5.9	4.03
TR_087	7.5	5.58	4.03
TR_088	11.47	4.99	4.03
TR_089	10.69	5.21	4.03
TR_090	5.4	4.85	4.03
TR_091	6.43	5.19	4.03
TR_092	7.89	5.71	4.03
TR_093	6.42	5.17	4.03
TR_094	5.47	4.91	4.03
TR_095	5.66	4.96	4.03
TR_096	6.42	5.15	4.03
TR_097	7.88	5.7	4.03
TR_098	7.77	5.64	4.03

TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_099	8.92	5.96	4.03
TR_100	10.24	6.55	4.03
TR_101	7.88	5.72	4.03
TR_102	8.94	6.16	4.02
TR_103	5.28	4.83	4.02
TR_104	8.29	5.89	4.01

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD

Map Area

Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 14 of 41

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plot date: 2021.08.18
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

474000E 472000E 470000E

5378000N

5370000N

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_105	7.68	5.63	4
TR_106	4.72	4.61	3.99
TR_107	4.79	4.61	3.98
TR_108	5.08	4.74	3.97
TR_109	5.23	4.76	3.95
TR_110	5.44	4.81	3.94
TR_111	9.38	4.84	4.06
TR_112	5.35	4.86	4.06
TR_113	5.44	4.93	4.12
TR_114	5.93	5.08	4.15

R_105 R_106 R_107 R_108 R_109 R_110 R_111 R_112 R_113 R_114 R_115

TR_105 TR_106 TR_107 TR_108 TR_109 TR_110 TR_111 TR_112 TR_113 TR_114

0 1,000 2,000 3,000 4,000 m

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5380000N

478000E 476000E 474000E

Coastal Flood Inundation Mapping Project

Capital Regional District

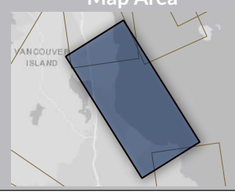
August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Map Sheet 15 of 41

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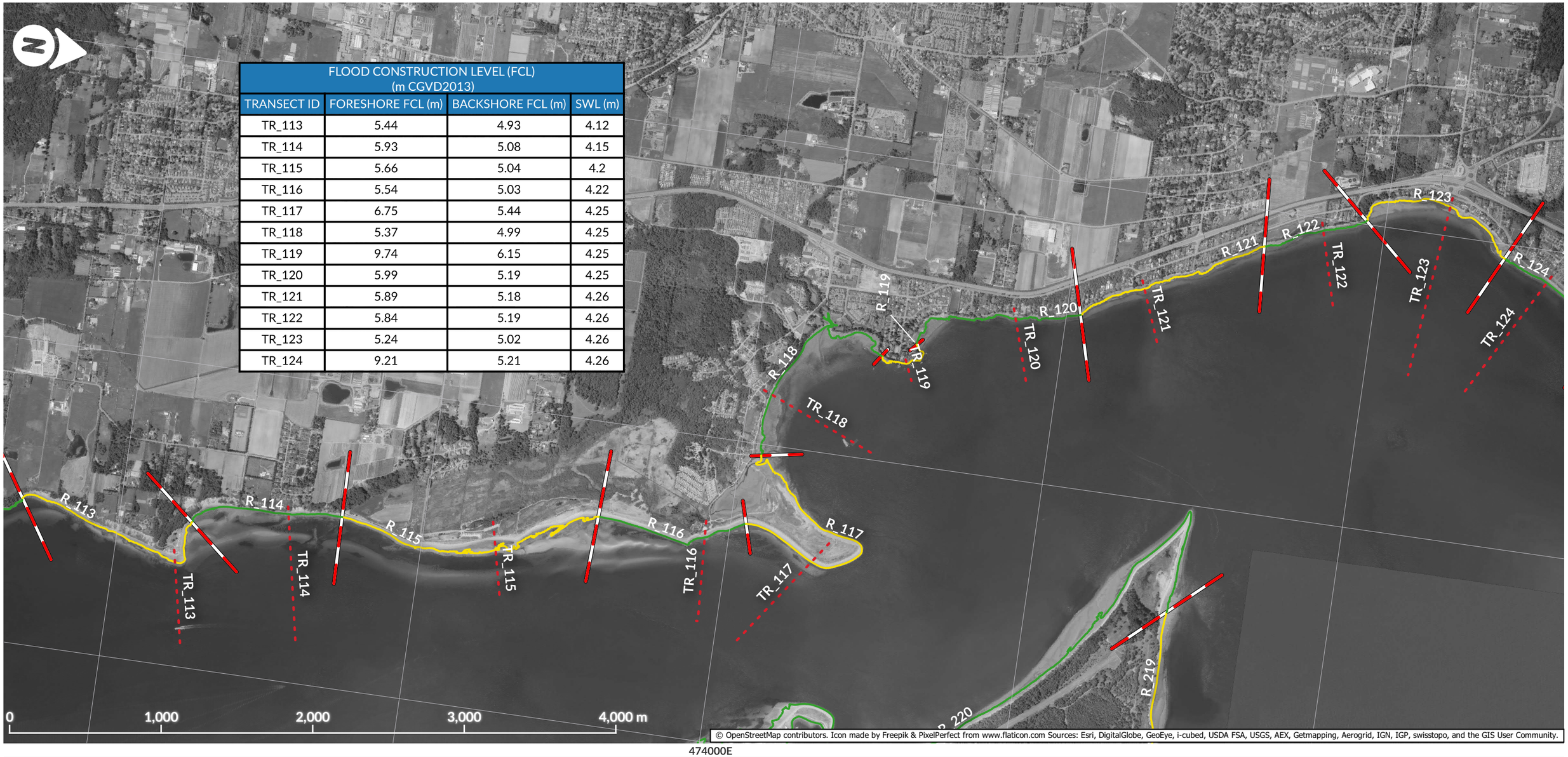
FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_113	5.44	4.93	4.12
TR_114	5.93	5.08	4.15
TR_115	5.66	5.04	4.2
TR_116	5.54	5.03	4.22
TR_117	6.75	5.44	4.25
TR_118	5.37	4.99	4.25
TR_119	9.74	6.15	4.25
TR_120	5.99	5.19	4.25
TR_121	5.89	5.18	4.26
TR_122	5.84	5.19	4.26
TR_123	5.24	5.02	4.26
TR_124	9.21	5.21	4.26



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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

Making a difference...together

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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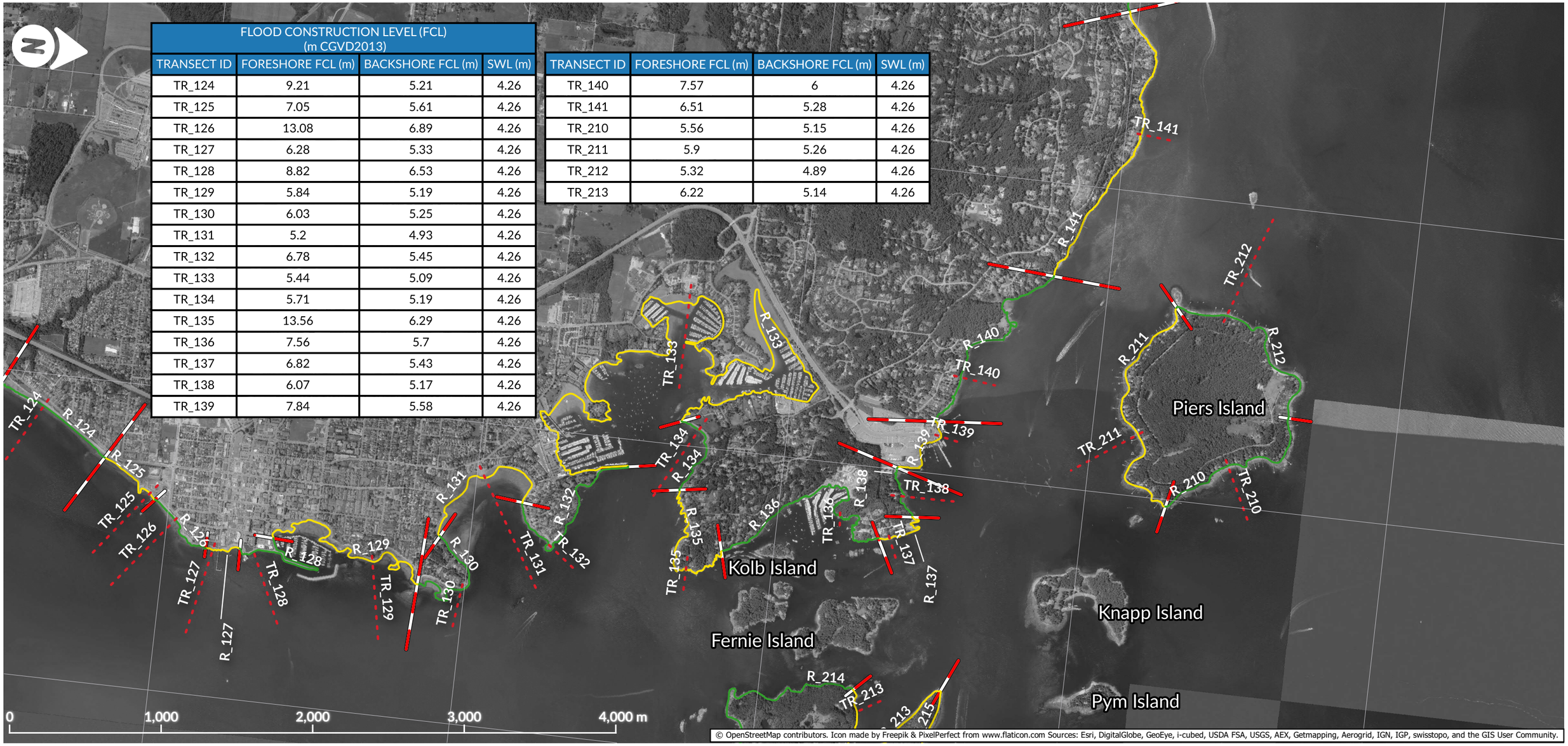
FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_124	9.21	5.21	4.26
TR_125	7.05	5.61	4.26
TR_126	13.08	6.89	4.26
TR_127	6.28	5.33	4.26
TR_128	8.82	6.53	4.26
TR_129	5.84	5.19	4.26
TR_130	6.03	5.25	4.26
TR_131	5.2	4.93	4.26
TR_132	6.78	5.45	4.26
TR_133	5.44	5.09	4.26
TR_134	5.71	5.19	4.26
TR_135	13.56	6.29	4.26
TR_136	7.56	5.7	4.26
TR_137	6.82	5.43	4.26
TR_138	6.07	5.17	4.26
TR_139	7.84	5.58	4.26

TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_140	7.57	6	4.26
TR_141	6.51	5.28	4.26
TR_210	5.56	5.15	4.26
TR_211	5.9	5.26	4.26
TR_212	5.32	4.89	4.26
TR_213	6.22	5.14	4.26



Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

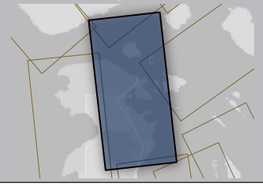
CRD
Making a difference...together

DHI

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Map Sheet 17 of 41

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FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_142	7.55	5.66	4.26
TR_143	5.87	5.12	4.26
TR_144	5.28	4.9	4.26
TR_145	6.2	5.17	4.26
TR_146	4.93	4.88	4.26
TR_147	4.88	4.87	4.26
TR_148	5.35	4.89	4.26
TR_149	4.88	4.87	4.26
TR_150	6.7	5.27	4.26

5384000N

TR_150 R_150 TR_149 R_149 R_148 TR_148 TR_147 R_147 TR_146 R_146 TR_145 R_145 TR_144 R_144 R_143 TR_143 R_142 TR_142 R_141

0 1,000 2,000 3,000 4,000 m

468000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



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DHI

Legend

- FCL Reach Boundary
- Transect
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460000E

462000E

464000E

5376000N

5384000N

R_158

TR_157

R_157

R_156

TR_156

TR_155

R_155

R_154

TR_154

TR_153

TR_152

R_153

R_152

R_151

TR_151

TR_150

R_150

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_150	6.7	5.27	4.26
TR_151	5.36	4.87	4.26
TR_152	4.94	4.85	4.25
TR_153	4.85	4.85	4.25
TR_154	7.85	5.78	4.26
TR_155	8.1	5.81	4.26
TR_156	8.3	5.86	4.25
TR_157	8.21	5.84	4.24

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464000E

466000E

468000E

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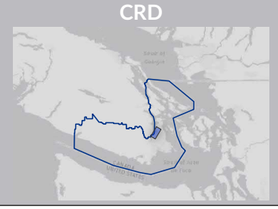

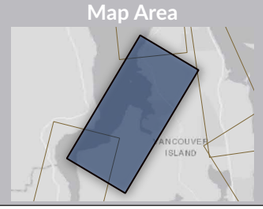

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DHI

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- Transect
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458000E

TR_158

R_158

TR_157

R_157

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_157	8.21	5.84	4.24
TR_158	4.83	4.83	4.16

0 1,000 2,000 3,000 4,000 m

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462000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



Legend

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458000E 460000E 462000E 464000E

5422000N

5414000N

Wallace Island

Salt Spring Island

R_159 TR_159 R_160 TR_160 TR_161 R_161 R_162 R_176

0 1,000 2,000 3,000 4,000 m

456000E 458000E 460000E

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_159	5.52	4.94	4.26
TR_160	5.18	4.98	4.26
TR_161	5.45	5.09	4.26

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

Making a difference...together

CRD

Map Area

Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

plot date: 2021.08.18
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

466000E 468000E 470000E

5416000N 5408000N 5414000N 5406000N

Salt Spring Island

Third Sister Island

First Sister Island

Deadman Islands

Goat Island

Salt Spring Island

R_162 R_163 R_164 R_165 R_166 R_167 R_184

TR_162 TR_163 TR_164 TR_165 TR_166 TR_167

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_162	6.41	5.34	4.26
TR_163	5.27	4.86	4.26
TR_164	6.73	5.57	4.26
TR_165	5.41	5.08	4.26
TR_166	5.5	5.12	4.26
TR_167	5.79	5.23	4.26
TR_184	5.97	5.25	4.26

0 1,000 2,000 3,000 4,000 m

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462000E 464000E 466000E

Coastal Flood Inundation Mapping Project

Capital Regional District

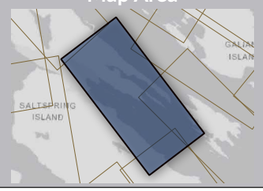
August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



Making a difference...together

Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Map Sheet 22 of 41

plot date: 2021.08.18
file: P:\20192676\00_Coast\Flood\tunami\Working_Dwgs\010_GIS

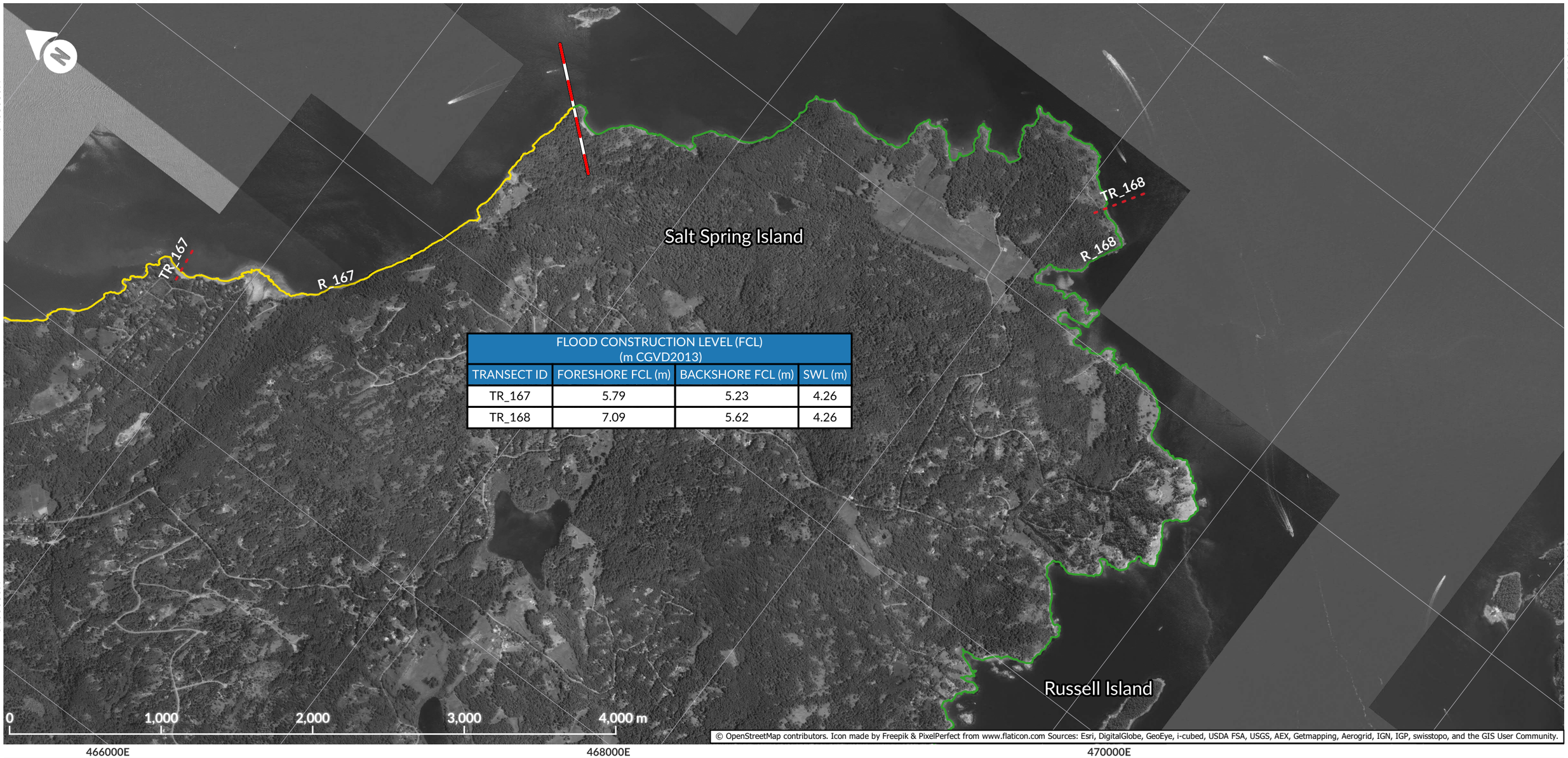
470000E

472000E

474000E

5408000N

5400000N



5406000N

5398000N

466000E

468000E

470000E

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_167	5.79	5.23	4.26
TR_168	7.09	5.62	4.26

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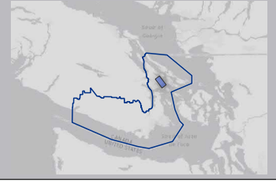
Coastal Flood Inundation Mapping Project

Capital Regional District

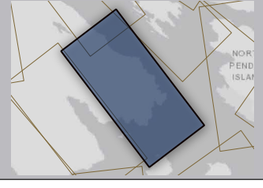
August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Approved by D. Forde, P.Eng.
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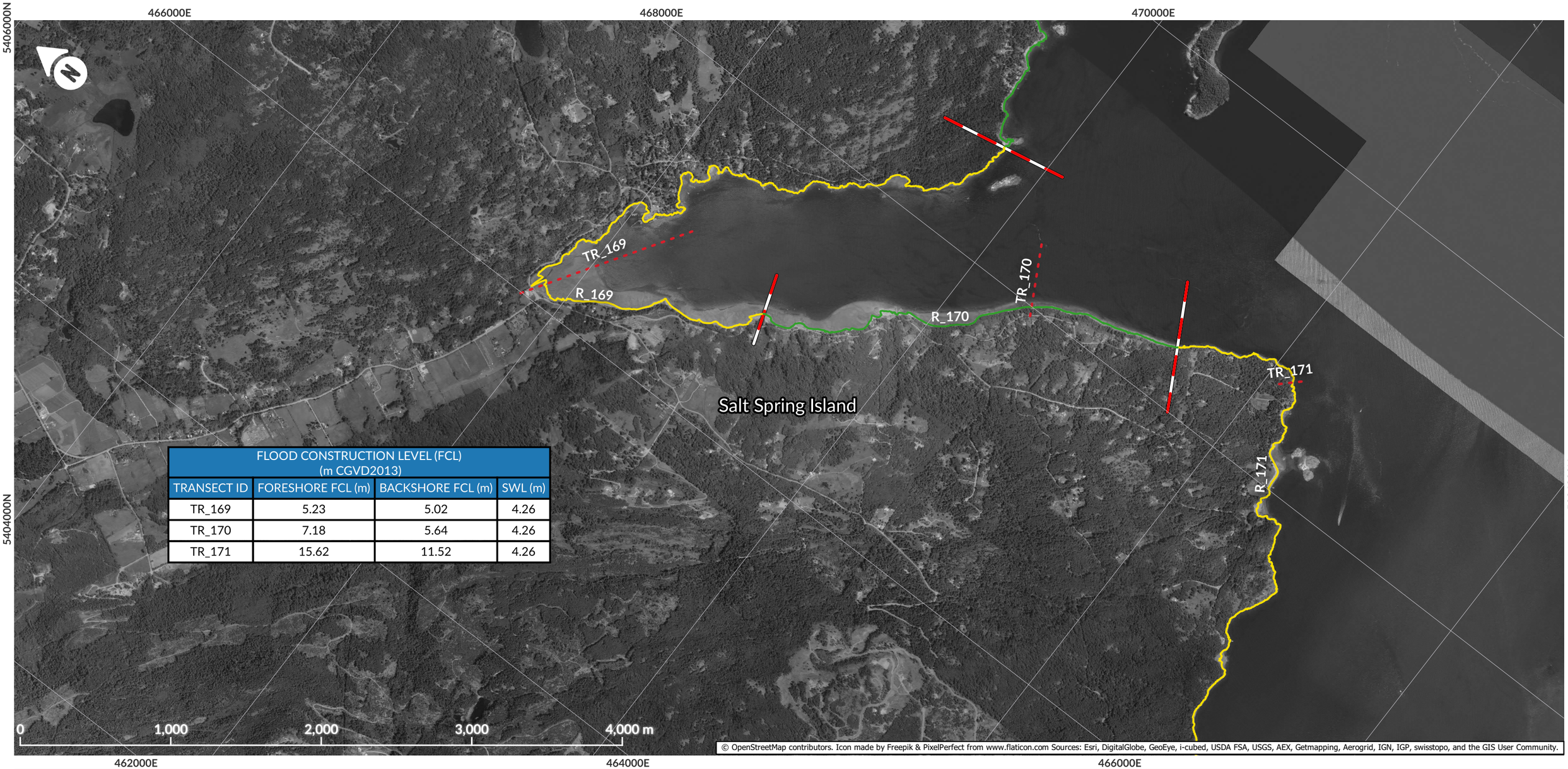

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_169	5.23	5.02	4.26
TR_170	7.18	5.64	4.26
TR_171	15.62	11.52	4.26

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Coastal Flood Inundation Mapping Project

Capital Regional District

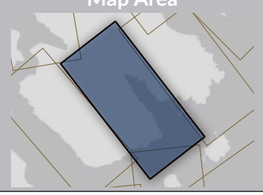
August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



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Map Sheet 24 of 41

Making a difference...together

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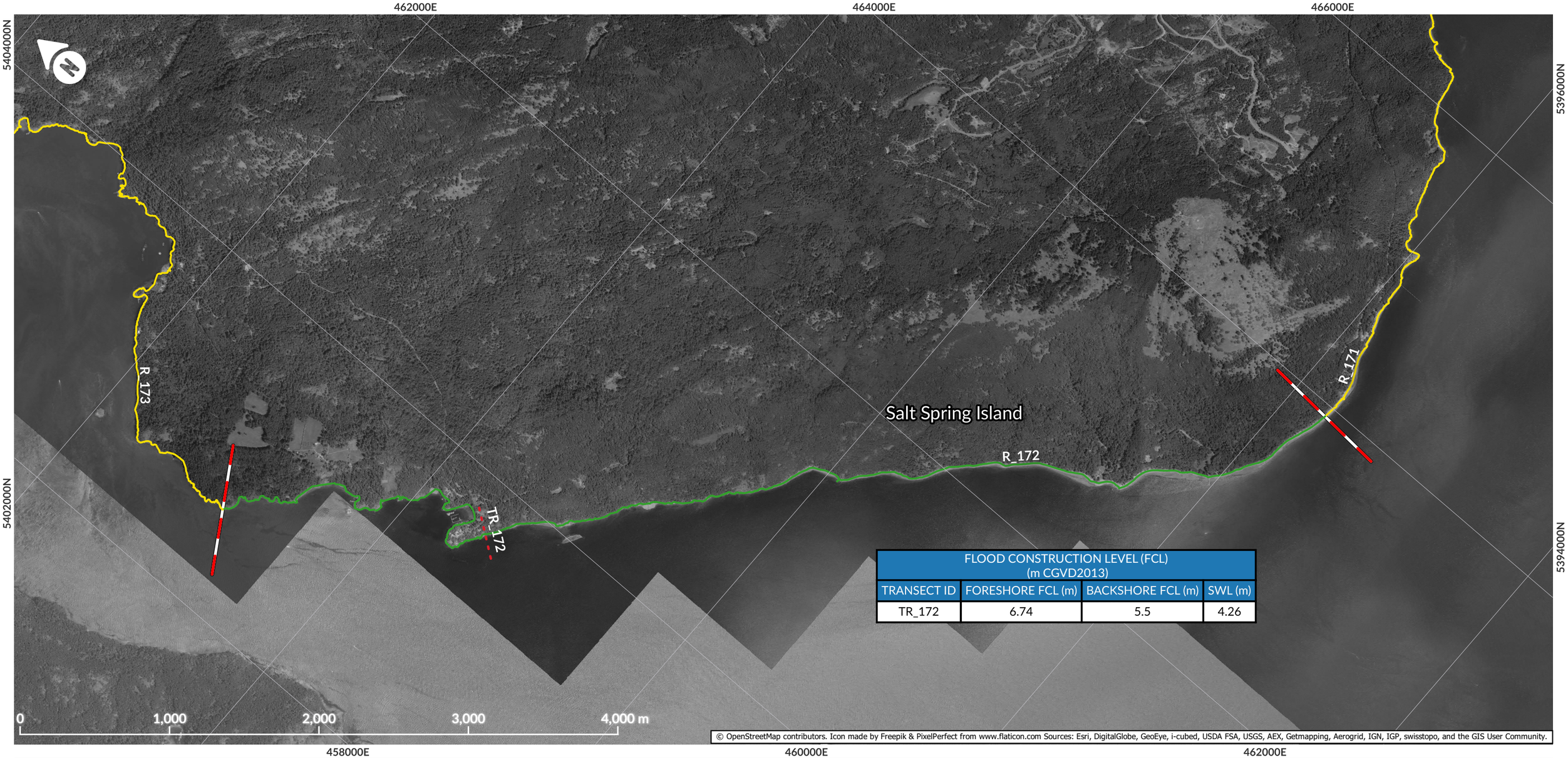

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_172	6.74	5.5	4.26

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



Making a difference...together

Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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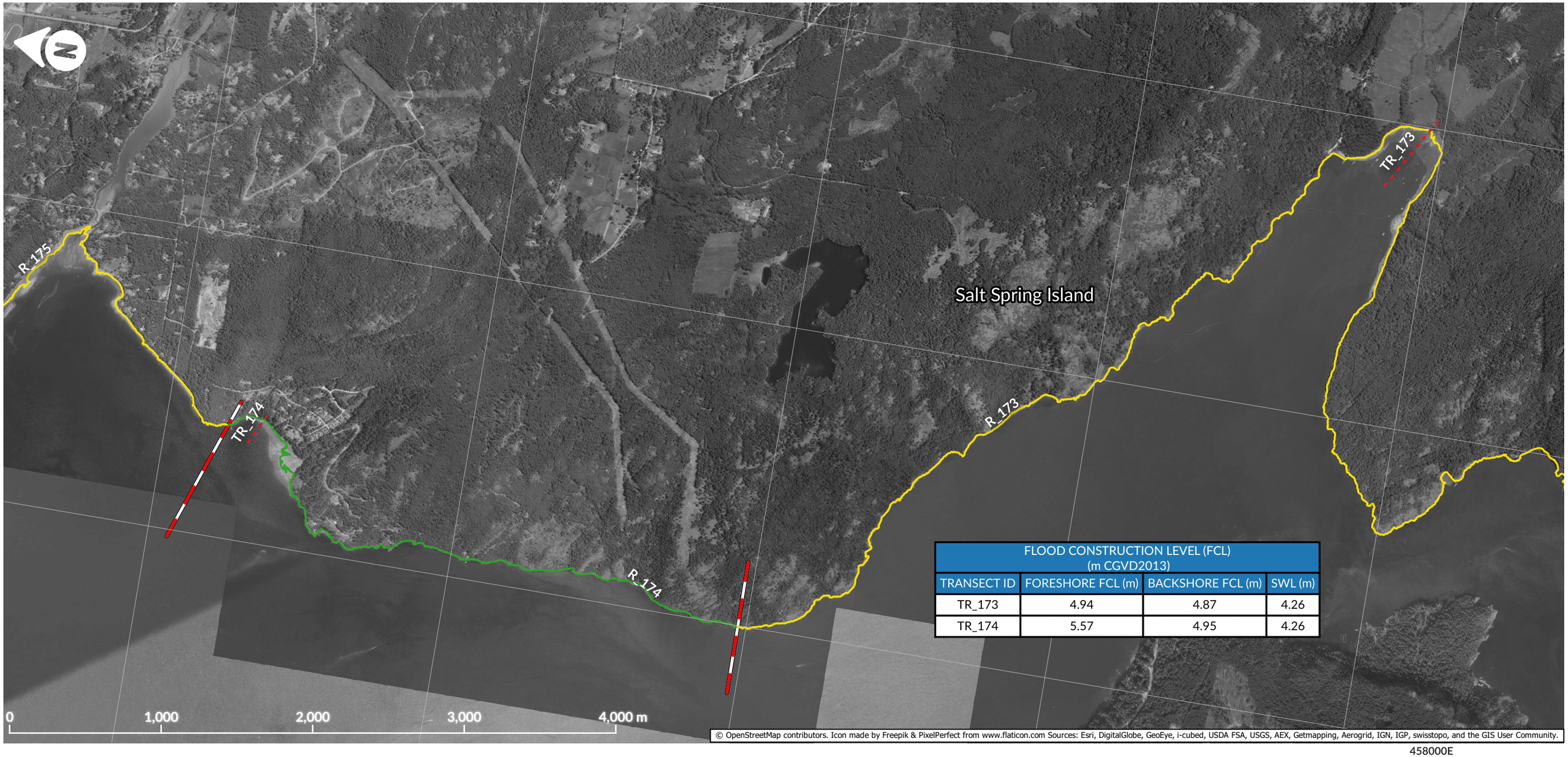

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_173	4.94	4.87	4.26
TR_174	5.57	4.95	4.26

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Map Sheet 26 of 41

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plot date: 2021.08.18
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

460000E

5420000N

5410000N

Salt Spring Island

R_159

R_176

TR_176

R_175

TR_175

TR_174

R_174

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_160	5.18	4.98	4.26
TR_174	5.57	4.95	4.26
TR_175	6.08	5.18	4.26
TR_176	7.77	5.75	4.26

0 1,000 2,000 3,000 4,000 m

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456000E

Coastal Flood Inundation Mapping Project

Capital Regional District

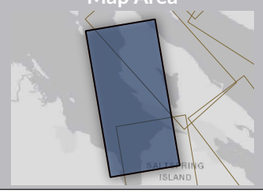
August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



Making a difference...together

Legend

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- Transect
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- Odd Numbered Reach

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Map Sheet 27 of 41

plot date: 2021.08.18
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

460000E 462000E 464000E

5430000N

5422000N

5428000N

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_177	7.33	5.68	4.26
TR_181	8.6	5.89	4.26

TR_177

R_177

R_178

Galiano Island

TR_181

R_181

0 1,000 2,000 3,000 4,000 m

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456000E 458000E 460000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 28 of 41

Making a difference...together

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466000E 468000E 470000E 472000E

5424000N 5418000N 5422000N 5416000N 5420000N

R_178

TR_178

Galiano Island

R_181

R_180

Charles Island

Sphinx Island

Wise Island

Parker Island

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_178	8.45	6.27	4.26

0 1,000 2,000 3,000 4,000 m

462000E 464000E 466000E 468000E 470000E

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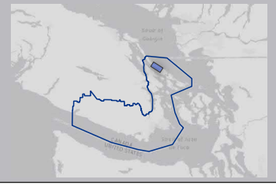
Coastal Flood Inundation Mapping Project

Capital Regional District

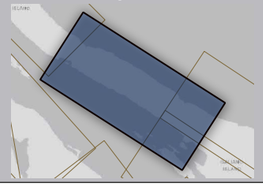
August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



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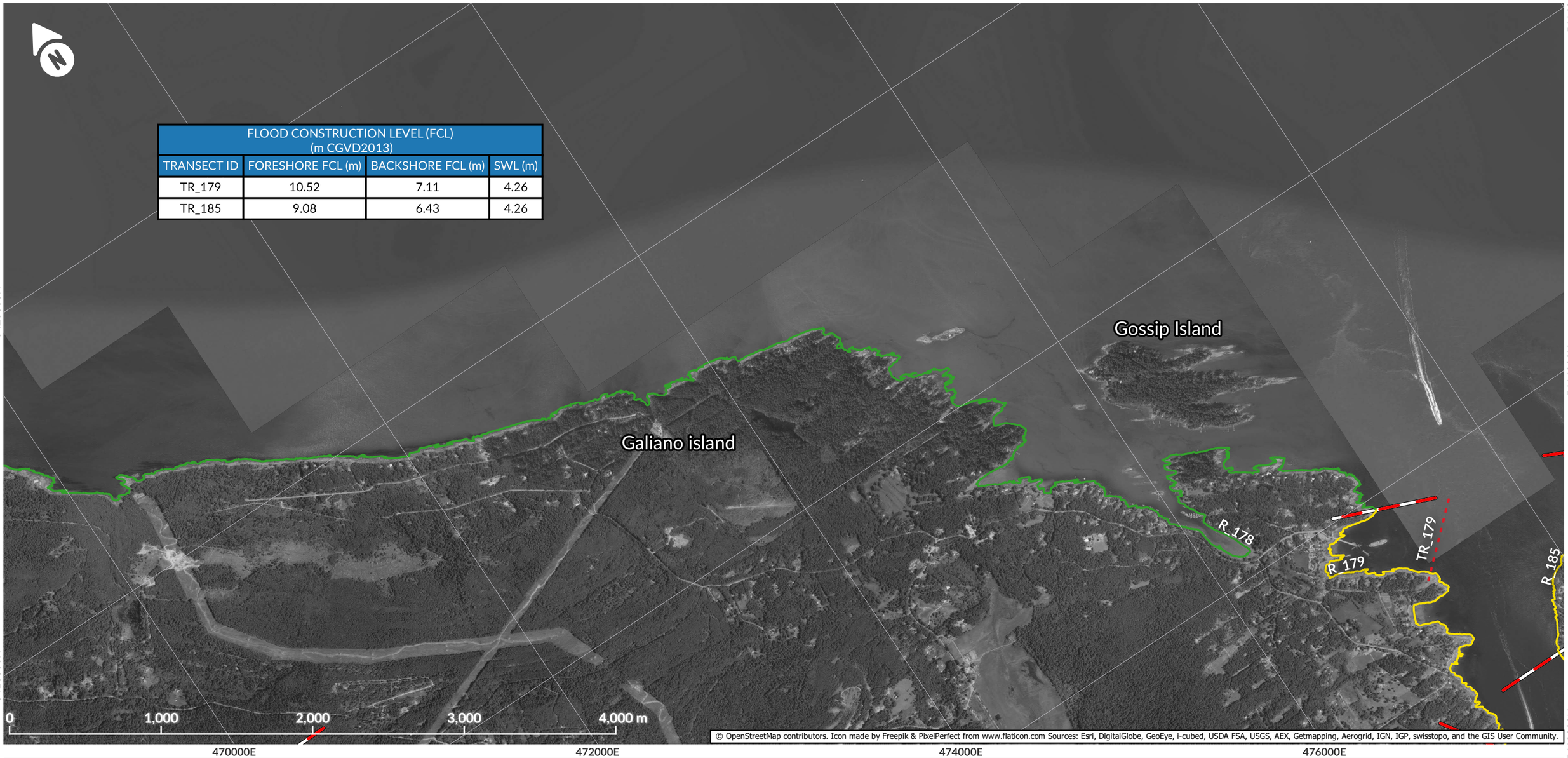
FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_179	10.52	7.11	4.26
TR_185	9.08	6.43	4.26



Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

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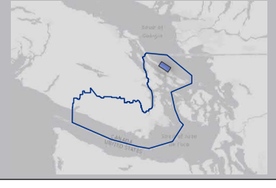
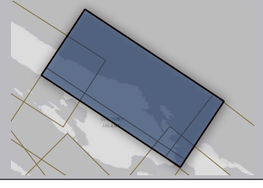
2.0 m Relative Sea Level Rise

CRD



Map Area



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470000E 472000E 474000E 476000E

5418000N 5416000N 5414000N 5412000N 5410000N

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_180	9.67	6.99	4.26
TR_190	5.01	4.88	4.26

R_179
R_180
R_181
R_190
R_191
TR_180
TR_190
Galiano Island
Sphinx Island
Parker Island

0 1,000 2,000 3,000 4,000 m

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468000E 470000E 472000E 474000E

Coastal Flood Inundation Mapping Project

Capital Regional District

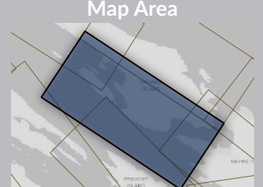
August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



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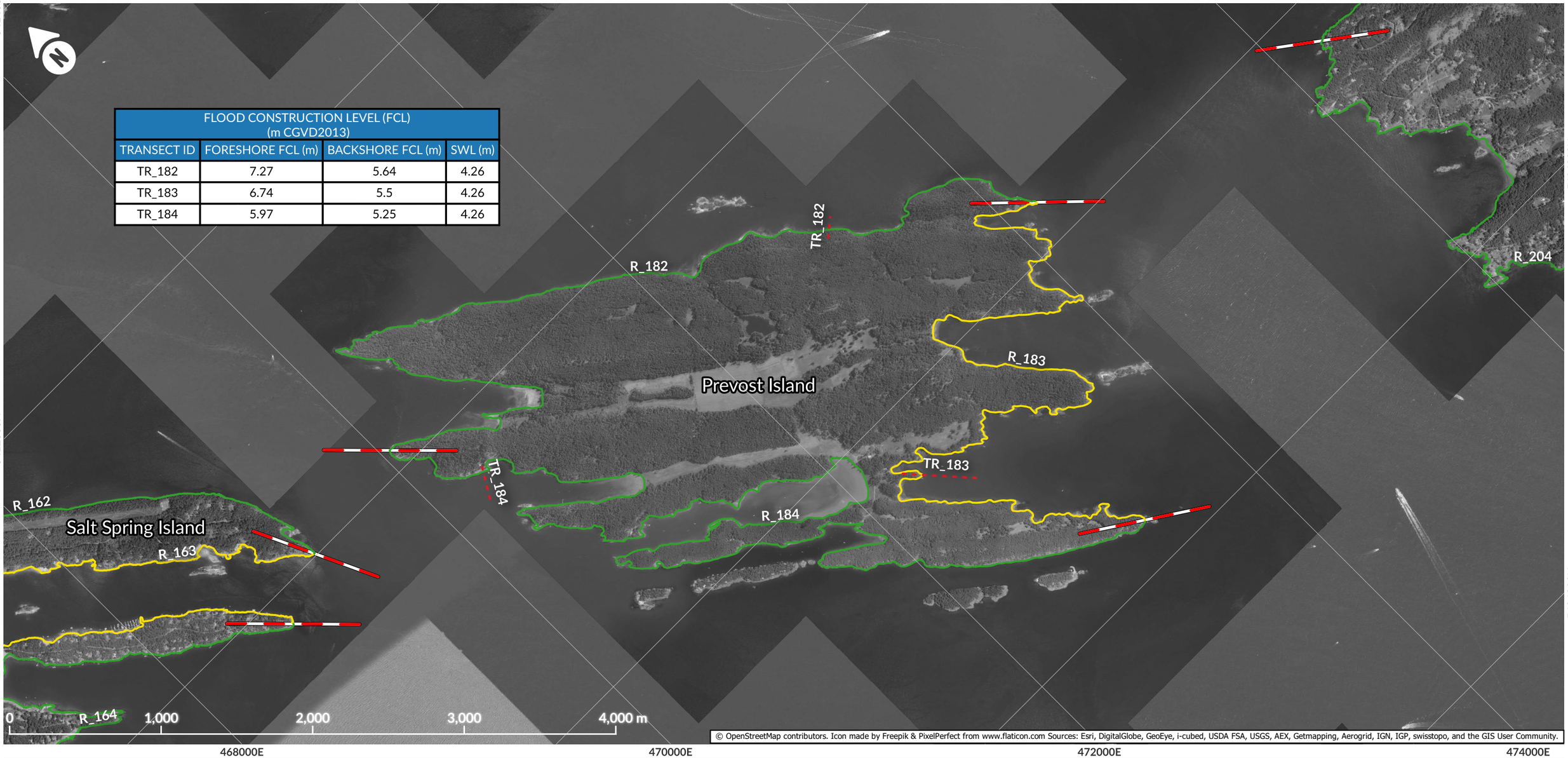
FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_182	7.27	5.64	4.26
TR_183	6.74	5.5	4.26
TR_184	5.97	5.25	4.26



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Coastal Flood Inundation Mapping Project

Capital Regional District

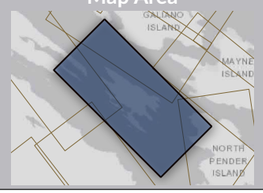
August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



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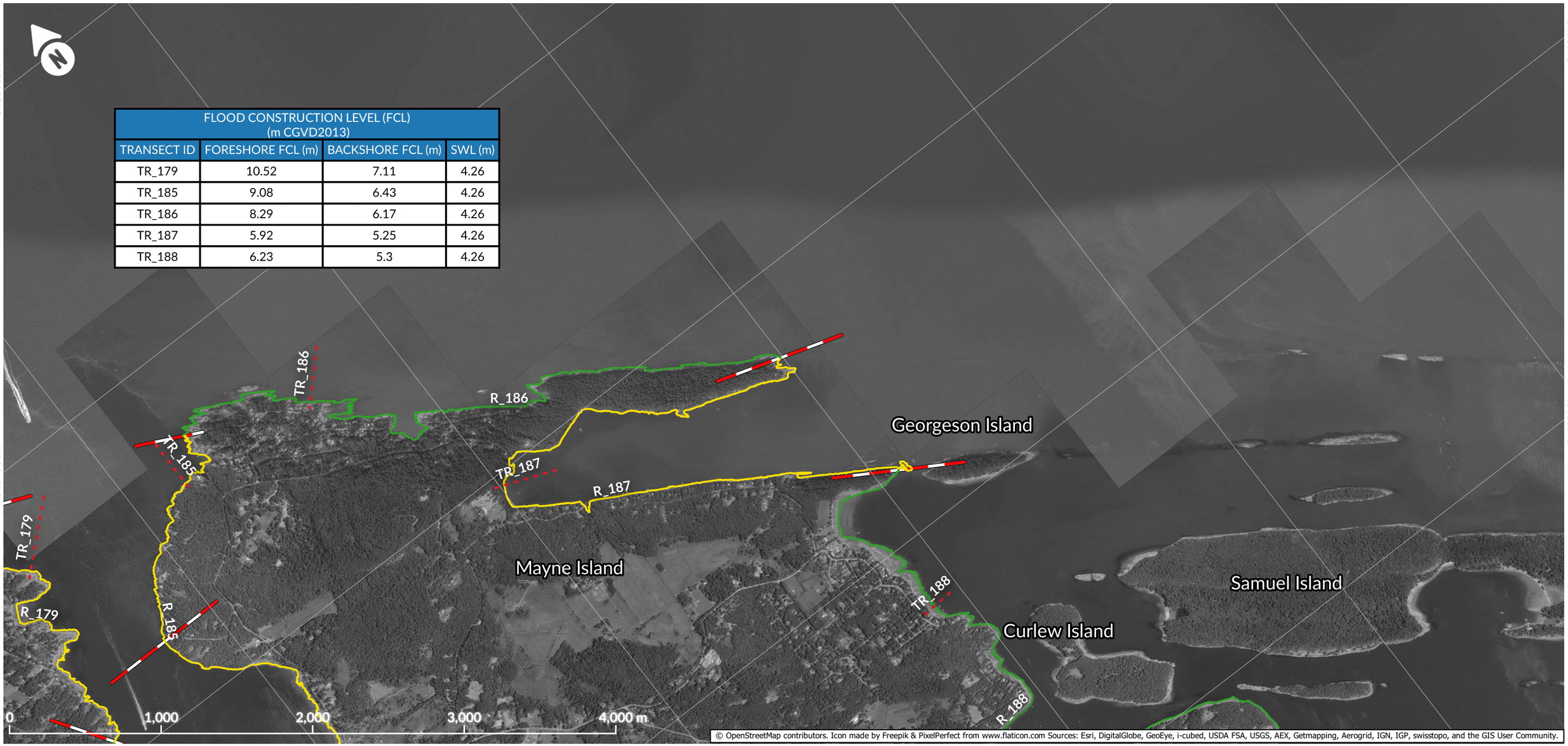

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_179	10.52	7.11	4.26
TR_185	9.08	6.43	4.26
TR_186	8.29	6.17	4.26
TR_187	5.92	5.25	4.26
TR_188	6.23	5.3	4.26

Coastal Flood Inundation Mapping Project

Capital Regional District

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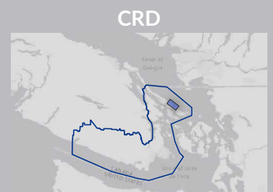

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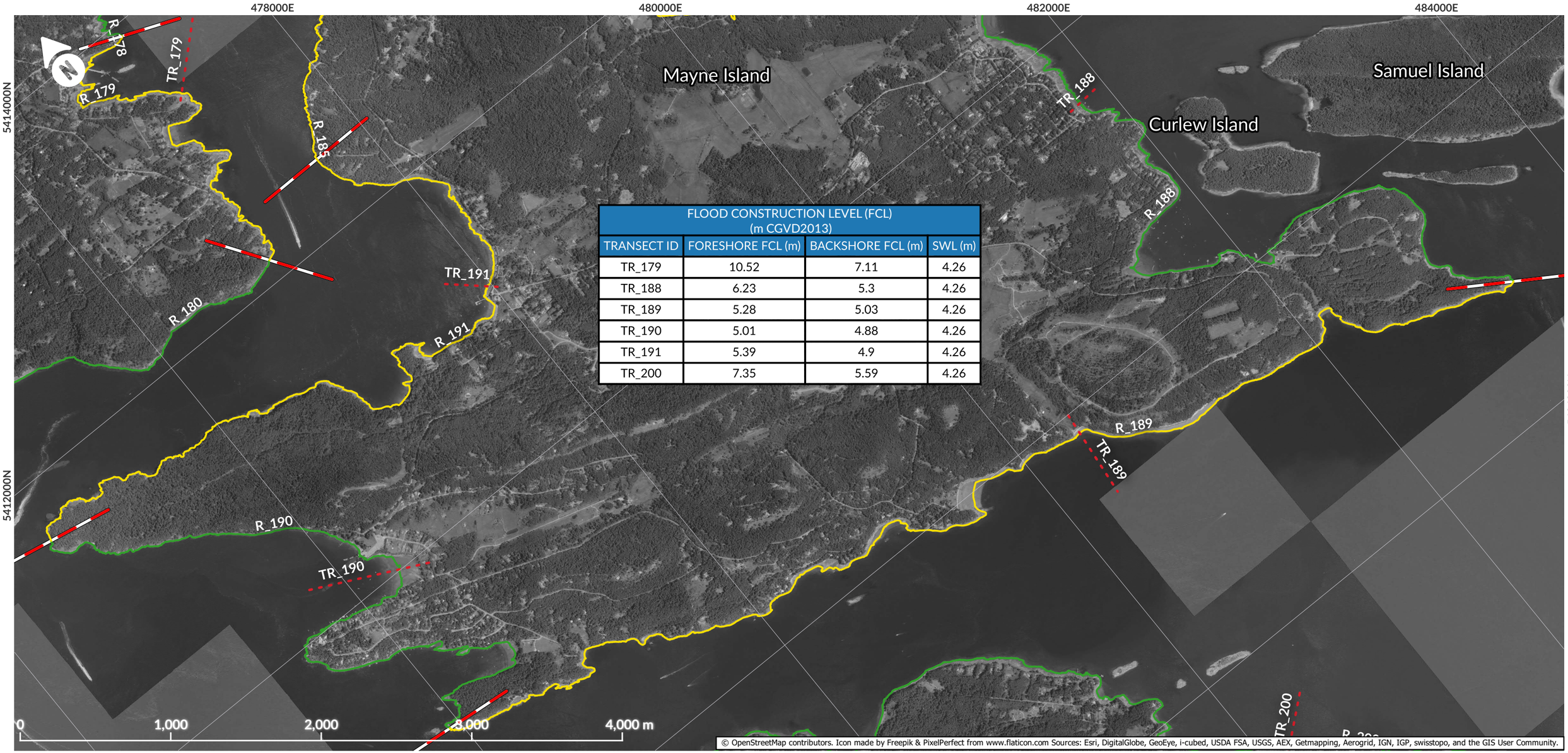

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TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
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TR_188	6.23	5.3	4.26
TR_189	5.28	5.03	4.26
TR_190	5.01	4.88	4.26
TR_191	5.39	4.9	4.26
TR_200	7.35	5.59	4.26

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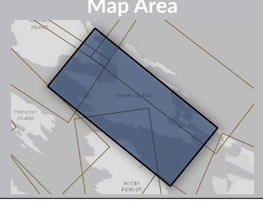

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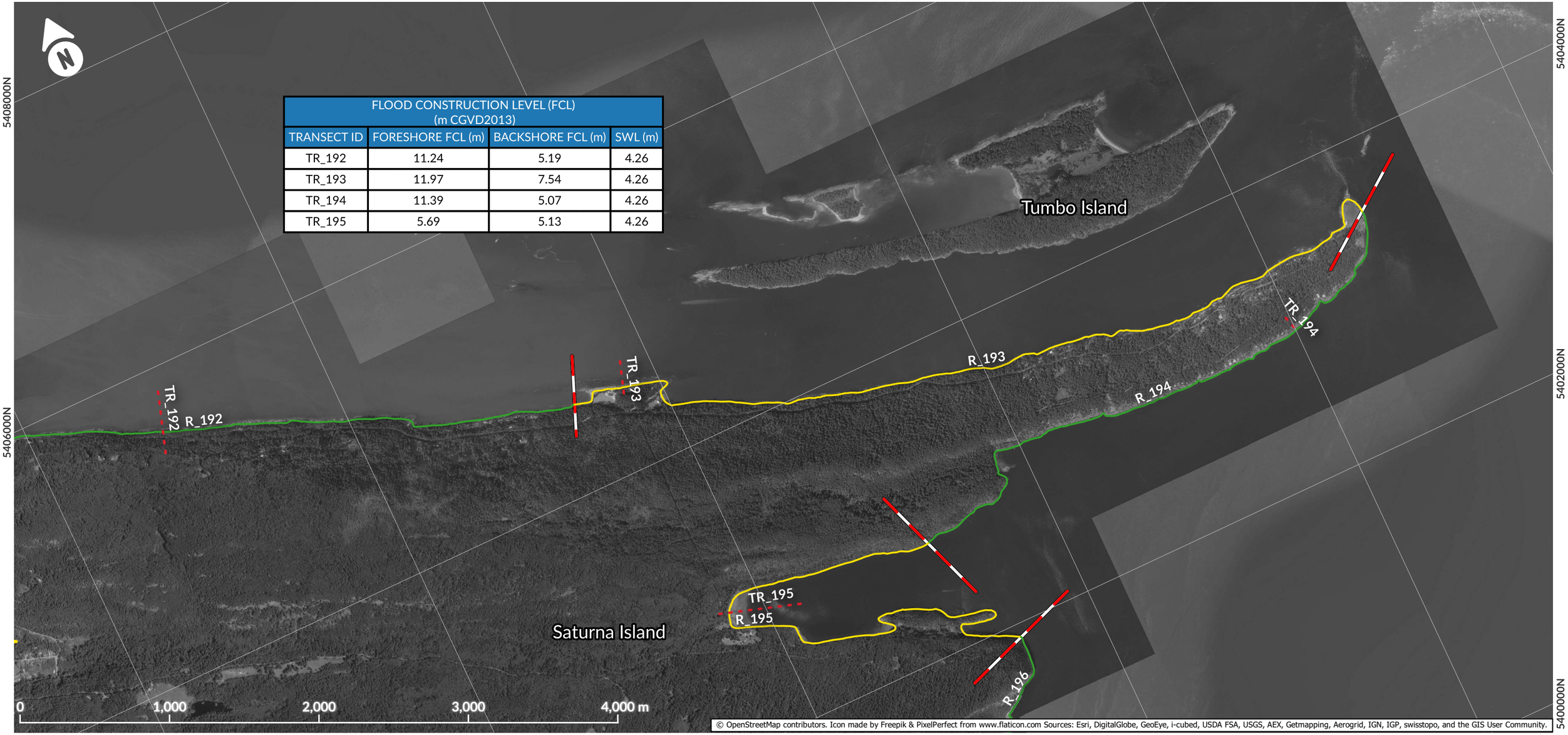
FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_192	11.24	5.19	4.26
TR_193	11.97	7.54	4.26
TR_194	11.39	5.07	4.26
TR_195	5.69	5.13	4.26



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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



Making a difference...together

DHI

Legend

- FCL Reach Boundary
- Transect
- Even Numbered Reach
- Odd Numbered Reach

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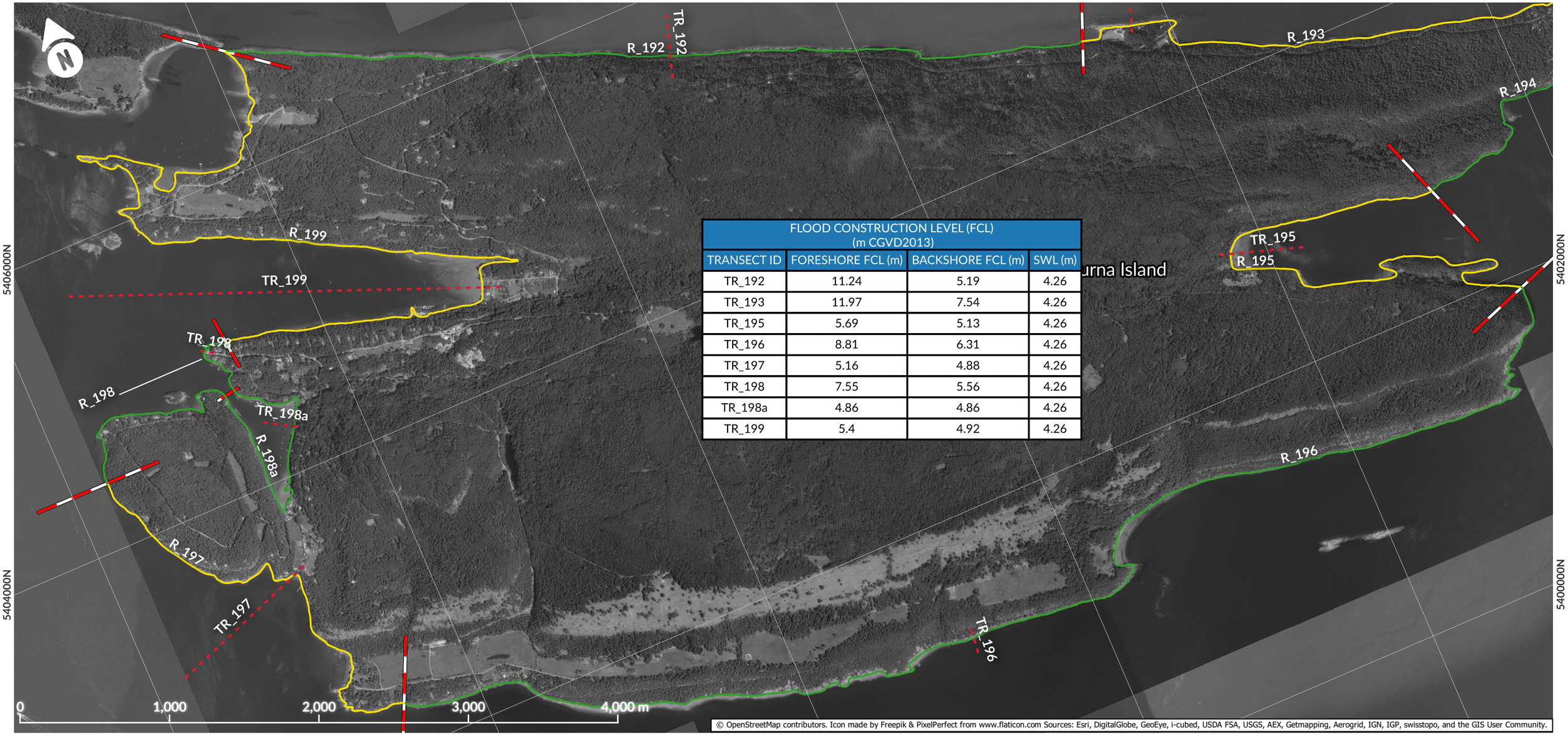
Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 35 of 41

plot date: 2021.08.18
file: P:\20192676\00_Coast\Flood\tsunami\Working_Dwgs\010_GIS



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TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_192	11.24	5.19	4.26
TR_193	11.97	7.54	4.26
TR_195	5.69	5.13	4.26
TR_196	8.81	6.31	4.26
TR_197	5.16	4.88	4.26
TR_198	7.55	5.56	4.26
TR_198a	4.86	4.86	4.26
TR_199	5.4	4.92	4.26

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



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Map Sheet 36 of 41

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plot date: 2021.08.18
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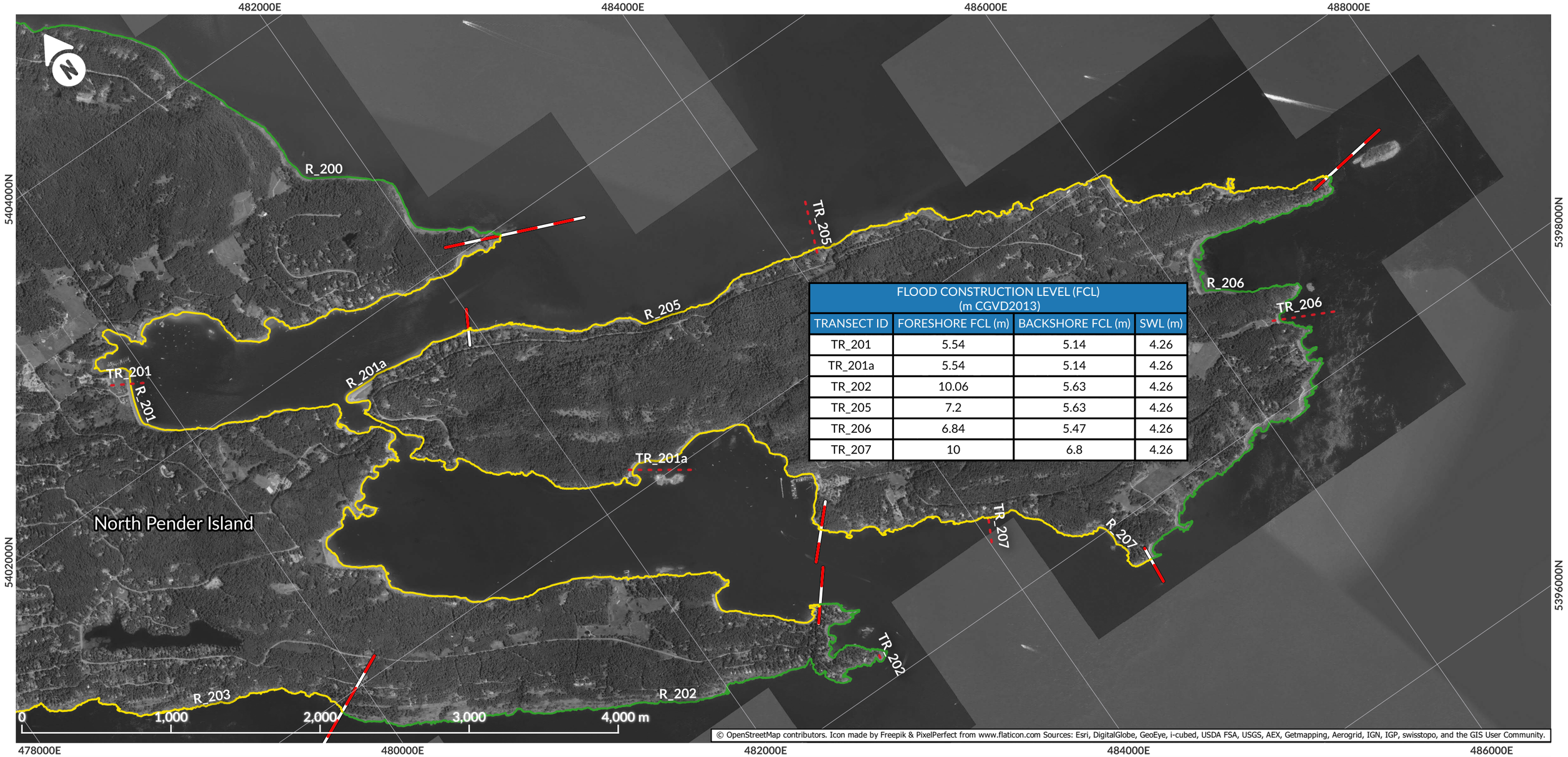

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_201	5.54	5.14	4.26
TR_201a	5.54	5.14	4.26
TR_202	10.06	5.63	4.26
TR_205	7.2	5.63	4.26
TR_206	6.84	5.47	4.26
TR_207	10	6.8	4.26

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Coastal Flood Inundation Mapping Project

Capital Regional District

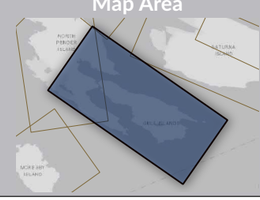
August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



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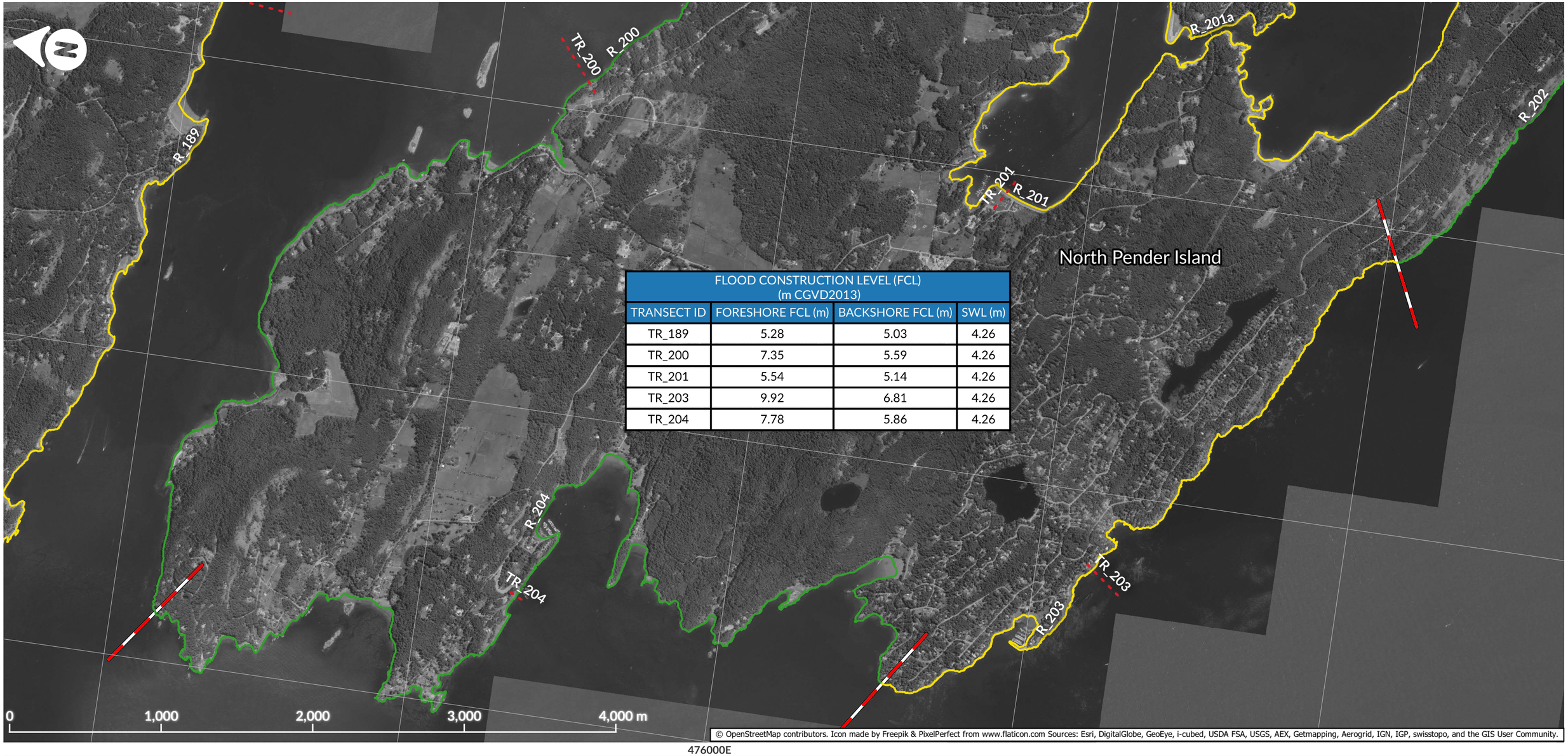

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_189	5.28	5.03	4.26
TR_200	7.35	5.59	4.26
TR_201	5.54	5.14	4.26
TR_203	9.92	6.81	4.26
TR_204	7.78	5.86	4.26

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Coastal Flood Inundation Mapping Project

Capital Regional District

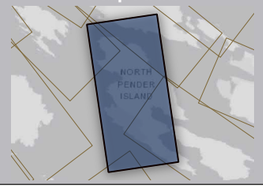
August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



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plot date: 2021.08.18
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470000E 472000E 474000E 476000E 478000E

5392000N 5398000N 5390000N 5396000N

Pym Island

R_137

R_213

TR_213

TR_215

R_215

Coal Island

R_214

TR_214

Ker Island

Dock Island

Reay Island

R_208

TR_208

Moresby Island

R_209

TR_209

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_208	5	4.87	4.26
TR_209	10.52	7.18	4.26
TR_213	6.22	5.14	4.26
TR_214	6.3	5.32	4.26
TR_215	8.03	5.95	4.26

0 1,000 2,000 3,000 4,000 m

474000E 476000E 478000E 480000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

Making a difference...together

CRD

Map Area

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- FCL Reach Boundary
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476000E

474000E

5380000N

5390000N

TR_218

R_218

R_216

TR_217

R_217

Sidney Island

TR_216

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_216	5.24	5.02	4.24
TR_217	7.63	5.03	4.13
TR_218	5.65	5.16	4.23

Rubly Island

Bare Island 9

0 1,000 2,000 3,000 4,000 m

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480000E

478000E

Coastal Flood Inundation Mapping Project

Capital Regional District

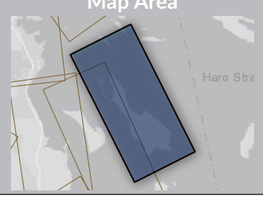
August 2021

Flood Construction Level Map
2.0 m Relative Sea Level Rise

CRD



Map Area



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474000E

472000E

5378000N

5388000N

478000E

476000E

TR_117

TR_220

R_220

James Island

R_219

TR_219

TR_218

R_218

R_216

0 1,000 2,000 3,000 4,000 m

FLOOD CONSTRUCTION LEVEL (FCL) (m CGVD2013)			
TRANSECT ID	FORESHORE FCL (m)	BACKSHORE FCL (m)	SWL (m)
TR_116	5.54	5.03	4.22
TR_117	6.75	5.44	4.25
TR_218	5.65	5.16	4.23
TR_219	5.66	5.07	4.25
TR_220	9.76	4.77	4.03

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Coastal Flood Inundation Mapping Project

Capital Regional District

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2.0 m Relative Sea Level Rise

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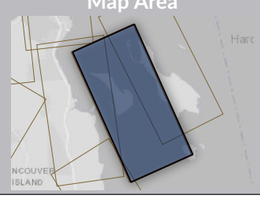

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plot date: 2021.08.18
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APPENDIX D - TOTAL WATER LEVEL (TWL) RESULTS

Appendix D presents a full suite of total water level results (i.e. tide + surge + wave effects). These results are offered for the five AEP (10%, 5%, 2%, 1%, 0.5%) scenarios and all four RSLR scenarios (i.e. 0.0 m, 0.5 m, 1.0 m, 2.0 m). The values presented here correspond to the outputs of the Extreme Value Analysis. The 0.5% AEP results shown here plus 600 mm freeboard yield the study's FCL values presented in **Appendices B** and **C**. In the column below, labelled 'Map Sheet No.', readers are given the relevant map sheet for that particular transect location in **Appendix C**.

10% AEP TWL (m CGVD2013)

10% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
JDF	001	1	3.51	2.77	4.01	3.27	4.52	3.78	5.53	4.79
JDF	002	1	3.30	2.66	3.80	3.17	4.31	3.67	5.33	4.68
JDF	003	1	4.87	3.36	5.38	3.86	5.89	4.37	6.91	5.38
JDF	004	1	9.21	5.18	9.75	5.69	10.28	6.21	11.36	7.24
JDF	005	2	7.39	4.44	7.89	4.94	8.39	5.44	9.40	6.44
JDF	006	3	4.29	3.11	4.80	3.61	5.30	4.12	6.31	5.12
JDF	007	3	4.04	3.00	4.55	3.50	5.05	4.00	6.06	5.00
JDF	008	4	3.79	2.88	4.29	3.39	4.80	3.89	5.80	4.89
JDF	009	5	3.09	2.59	3.59	3.09	4.09	3.60	5.10	4.60
JDF	010	5	3.23	2.63	3.73	3.13	4.23	3.63	5.24	4.64
JDF	011	6	2.93	2.47	3.43	2.97	3.93	3.47	4.95	4.48
JDF	012	6	3.85	2.74	4.35	3.24	4.86	3.74	5.87	4.75
JDF	013	6	2.43	2.11	2.93	2.61	3.43	3.11	4.44	4.11
JDF	014	6	4.06	2.62	4.56	3.12	5.06	3.62	6.07	4.62
JDF	015	7	3.85	2.58	4.35	3.08	4.85	3.58	5.85	4.58
JDF & SOO	016	7	3.05	2.28	3.55	2.78	4.05	3.28	5.06	4.29
SOO	017	7	2.91	2.20	3.42	2.70	3.92	3.20	4.92	4.20
SOO	018	7	2.70	2.17	3.20	2.67	3.70	3.17	4.71	4.17
SOO	019	7	2.86	2.23	3.37	2.73	3.87	3.23	4.87	4.23
SOO	020	8	1.84	1.84	2.34	2.34	2.84	2.84	3.84	3.84
SOO	021	8	1.87	1.85	2.36	2.34	2.86	2.84	3.86	4.01
SOO	022	8	1.87	1.84	2.37	2.35	2.87	2.85	3.87	3.85
SOO	023	9	3.79	2.51	4.30	3.01	4.80	3.51	5.81	4.52

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10% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
SOO	024	9	9.70	2.61	11.14	3.06	12.49	3.91	14.31	5.26
SOO	025	9	2.78	2.19	3.28	2.69	3.78	3.19	4.78	4.19
SOO	026	9	2.32	2.02	2.82	2.52	3.32	3.02	4.32	4.02
SOO	027	9	3.21	2.34	3.71	2.84	4.21	3.34	5.22	4.34
SOO	028	9	2.01	1.91	2.50	2.41	3.00	2.91	4.00	3.91
SOO & MET	029	9	2.06	1.93	2.56	2.43	3.06	2.93	4.07	3.93
MET	030	9	2.24	1.94	2.74	2.44	3.24	2.94	4.24	3.94
MET	031	9	4.65	2.80	5.16	3.30	5.67	3.81	6.69	4.82
MET	032	10	2.59	2.13	3.09	2.63	3.59	3.13	4.59	4.13
MET	033	10	4.14	2.70	4.64	3.20	5.14	3.20	6.15	4.41
MET	034	10	3.68	2.53	4.19	3.03	4.69	3.53	5.70	4.54
MET	035	10	3.26	2.36	3.76	2.86	4.27	3.36	5.28	4.37
MET	036	10	6.07	3.58	6.58	4.09	7.09	4.59	8.10	5.60
MET	037	10	2.40	2.05	2.90	2.67	3.41	3.05	4.41	4.05
MET	038	10	3.20	2.34	3.70	2.84	4.20	3.34	5.21	4.34
MET	039	10	2.59	2.12	3.09	2.62	3.59	3.12	4.59	4.12
MET	040	11	3.63	2.51	4.14	3.01	4.64	3.52	5.66	4.52
MET	041	11	4.59	2.92	5.10	3.42	5.61	3.92	6.62	4.93
MET	042	11	9.62	5.14	10.13	5.64	10.65	6.15	11.68	7.16
MET & COL	043	11	3.10	2.30	3.61	2.80	4.11	3.30	5.11	4.30
COL	044	11	3.28	2.37	3.78	2.87	4.28	3.37	5.29	4.37
COL	045	11	2.91	2.24	3.41	2.74	3.92	3.21	4.93	4.24
COL	046	11	2.55	2.11	3.05	2.61	3.55	3.06	4.55	4.02
COL	047	11	2.59	2.13	3.09	2.63	3.60	3.13	4.60	4.13
COL	048	11	2.43	2.05	2.94	2.55	3.45	3.05	4.44	4.05
COL	049	11	2.54	2.54	3.02	2.64	3.51	3.51	4.48	4.27
COL	050	12	2.57	2.12	3.07	2.63	3.57	3.13	4.57	4.13
COL & VWR	051	12	2.28	2.02	2.78	2.52	3.28	3.02	4.29	4.02
VWR	052	12	2.62	2.32	3.20	2.89	3.78	3.47	4.93	4.62
VWR	053	12	1.82	1.82	2.32	2.32	2.82	2.82	3.82	3.82

10% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
VWR & ESQ	054	12	2.24	2.01	2.74	2.51	3.24	3.01	4.24	4.01
ESQ	055	12	3.34	2.59	3.83	2.59	4.33	3.60	5.35	5.94
ESQ	056	12	2.40	2.12	2.92	2.37	3.41	2.62	4.38	3.10
ESQ	057	12	2.20	2.01	2.71	2.27	3.19	2.51	4.18	3.00
ESQ	058	12	1.83	1.83	2.33	2.33	2.83	2.83	3.83	3.83
ESQ	059	12	2.76	1.89	3.26	2.39	3.77	2.89	4.77	3.89
ESQ	060	12	4.70	2.98	5.21	3.48	5.71	3.99	6.72	4.99
ESQ	061	12	5.20	3.20	5.70	3.70	6.21	4.21	7.22	5.21
ESQ	062	12	3.96	2.67	4.46	3.17	4.97	3.67	5.97	4.68
ESQ	063	12	3.57	2.50	4.07	3.01	4.58	3.51	5.58	4.51
ESQ	064	12	3.95	2.67	4.45	3.17	4.96	3.67	5.97	4.68
ESQ	065	12	6.71	3.84	7.22	4.35	7.73	4.86	8.74	5.86
ESQ & COV	066	12	2.25	2.01	2.76	2.51	3.26	3.01	4.26	4.01
COV	067	12	2.40	2.07	2.91	2.57	3.41	3.07	4.42	4.08
VWR, ESQ, COV & DOS	068	12	1.83	1.83	2.33	2.33	2.83	2.83	3.83	3.83
COV	069	12	2.43	2.43	2.93	2.43	3.41	2.86	4.38	4.38
COV	070	12	5.40	3.90	5.89	3.90	6.38	3.90	7.37	5.41
COV	071	13	6.39	3.78	7.31	4.29	7.94	4.79	9.02	5.80
COV	072	13	5.75	2.01	6.58	3.25	7.15	4.67	8.12	6.64
COV	073	13	2.91	2.24	3.41	2.74	3.91	3.23	4.92	4.24
COV	074	13	2.84	2.23	3.34	2.73	3.84	3.23	4.84	4.23
COV	075	13	6.90	3.93	7.41	4.43	7.92	4.94	8.94	5.95
COV	076	13	3.20	2.36	3.70	2.86	4.20	3.37	5.21	4.37
COV	077	13	3.83	2.63	4.33	3.12	4.83	3.63	5.84	4.63
COV	078	13	3.26	2.39	3.77	2.89	4.27	3.39	5.28	4.35
COV	079	13	3.96	2.68	4.47	3.19	4.97	3.69	5.98	4.69
COV & OAK	080	13	2.62	2.15	3.12	2.64	3.62	3.14	4.62	4.14
OAK	081	13	3.57	2.51	4.07	3.02	4.57	3.51	5.58	4.52
OAK	082	13	4.88	3.07	5.39	3.57	5.90	4.08	6.92	5.09

10% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
OAK	083	13	5.53	3.29	6.36	3.30	7.12	3.30	8.47	4.23
OAK	084	13	5.79	3.46	6.30	3.82	6.81	3.82	7.83	4.89
OAK	085	14	5.19	3.18	5.70	3.68	6.21	4.19	7.23	5.20
OAK	086	14	4.01	2.67	4.52	3.17	5.02	3.67	6.03	4.68
OAK	087	14	3.60	2.50	4.10	3.01	4.61	3.51	5.62	4.51
OAK	088	14	4.74	4.39	5.78	4.39	6.71	4.39	8.48	4.39
OAK	089	14	3.75	3.67	4.94	3.67	6.07	3.67	8.07	4.61
OAK	090	14	2.41	2.06	2.91	2.56	3.42	3.06	4.42	4.06
OAK	091	14	3.01	2.29	3.52	2.79	4.02	3.09	5.03	4.29
OAK	092	14	3.77	2.59	4.28	3.10	4.79	3.60	5.80	4.61
OAK	093	14	3.07	2.30	3.58	2.80	4.08	3.31	5.10	4.31
OAK & DOS	094	14	2.53	2.10	3.03	2.60	3.54	3.10	4.55	4.10
DOS	095	14	2.62	2.15	3.13	2.65	3.63	3.15	4.63	4.15
DOS	096	14	2.82	2.18	3.32	2.68	3.83	3.18	4.84	4.18
DOS	097	14	3.77	2.59	4.28	3.10	4.78	3.60	5.79	4.60
DOS	098	14	3.67	2.55	4.18	3.06	4.68	3.56	5.69	4.56
DOS	099	14	4.06	2.70	4.57	3.20	5.07	3.70	6.08	4.70
DOS	100	14	4.83	3.01	5.34	3.51	5.85	4.02	6.86	5.02
DOS	101	14	3.84	2.60	4.34	3.10	4.84	3.60	5.85	4.61
DOS	102	14	4.56	2.90	5.07	3.40	5.58	3.91	6.59	4.91
DOS	103	14	2.39	2.04	2.89	2.55	3.39	3.05	4.39	4.05
DOS	104	14	4.21	2.75	4.72	3.25	5.23	3.75	6.24	4.76
DOS	105	15	3.94	2.63	4.44	3.13	4.95	3.63	5.95	4.64
DOS	106	15	1.96	1.85	2.46	2.35	2.96	2.85	3.96	3.85
DOS	107	15	1.98	1.85	2.48	2.35	2.98	2.85	3.98	3.85
DOS	108	15	2.26	1.97	2.76	2.47	3.26	2.97	4.27	3.98
DOS	109	15	2.40	2.02	2.90	2.52	3.41	3.02	4.41	4.02
DOS	110	15	2.55	2.08	3.05	2.58	3.55	3.08	4.56	4.08
DOS	111	15	4.63	2.11	5.41	2.61	6.05	3.11	7.03	4.11
DOS	112	15	2.53	2.14	3.03	2.64	3.53	3.14	4.54	4.14
DOS & DCS	113	15	2.64	2.23	3.16	2.74	3.65	3.23	4.65	4.23

10% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
DCS	114	15	2.97	2.38	3.48	2.88	3.98	3.38	4.98	4.38
DCS	115	16	2.87	2.39	3.37	2.88	3.86	3.37	4.85	4.37
DCS	116	16	2.76	2.36	3.27	2.83	3.79	3.37	4.77	4.36
DCS	117	16	3.59	2.71	4.12	3.22	4.60	3.70	5.58	4.69
DCS	118	16	2.63	2.31	3.13	2.81	3.63	3.31	4.64	4.31
DCS	119	16	5.63	3.50	6.14	4.01	6.65	4.51	7.66	5.52
DCS	120	16	3.12	2.51	3.62	3.01	4.12	3.51	5.12	4.51
DCS & DNS	121	16	3.07	2.50	3.57	3.00	4.07	3.50	5.08	4.50
DNS	122	16	3.04	2.50	3.55	3.00	4.05	3.50	5.05	4.51
DNS	123	16	2.55	2.31	3.05	2.81	3.55	3.31	4.55	4.31
DNS & SID	124	17	5.57	2.52	6.08	3.02	6.58	3.52	7.60	4.52
SID	125	17	3.94	2.86	4.44	3.36	4.95	3.87	5.97	4.88
SID	126	17	5.09	3.82	6.58	4.33	7.95	4.83	10.08	5.85
SID	127	17	3.39	2.64	3.90	3.14	4.40	3.64	5.40	4.64
SID	128	17	4.78	3.58	5.47	4.09	6.09	4.59	7.18	5.60
SID	129	17	3.06	2.51	3.56	3.01	4.06	3.51	5.06	4.51
SID	130	17	3.20	2.56	3.70	3.06	4.20	3.51	5.21	4.56
SID	131	17	2.50	2.29	3.00	2.79	3.50	3.30	4.50	4.29
SID	132	17	3.71	2.73	4.21	3.23	4.72	3.74	5.73	4.74
SID & DNS	133	17	2.71	2.38	3.21	2.88	3.72	3.38	4.72	4.38
DNS	134	17	2.91	2.460	3.42	2.969	3.94	3.480	4.95	4.484
DNS	135	17	8.29	3.91	8.79	4.42	9.25	4.92	10.19	5.69
DNS	136	17	4.14	2.90	4.65	3.41	5.16	3.91	6.18	4.92
DNS	137	17	3.35	2.56	3.85	3.06	4.36	3.57	5.37	4.57
DNS	138	17	2.56	2.22	3.06	2.72	3.56	3.22	4.56	4.22
DNS	139	17	3.42	2.38	3.94	2.88	4.42	3.38	5.37	4.38
DNS	140	17	3.55	2.53	4.05	3.04	4.55	3.54	5.56	4.54
DNS	141	17	3.23	2.41	3.73	2.91	4.24	3.41	5.24	4.42
DNS	142	18	4.09	2.85	4.60	3.35	5.10	3.85	6.10	4.85
DNS	143	18	2.74	2.30	3.24	2.80	3.74	3.30	4.74	4.30
DNS	144	18	2.33	2.17	2.83	2.67	3.33	3.17	4.33	4.17

10% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
DNS	145	18	2.76	2.24	3.26	2.74	3.76	3.24	4.77	4.24
DNS	146	18	2.19	2.15	2.69	2.65	3.19	3.15	4.19	4.15
DNS	147	18	2.15	2.13	2.65	2.63	3.15	3.13	4.15	4.13
DNS	148	18	2.31	2.14	2.81	2.64	3.31	3.14	4.31	4.14
DNS	149	18	2.15	2.13	2.65	2.63	3.15	3.13	4.15	4.13
DNS & DCS	150	19	3.05	2.30	3.55	2.80	4.05	3.30	5.05	4.30
DCS	151	19	2.33	2.14	2.83	2.64	3.33	3.14	4.33	4.14
DCS	152	19	2.15	2.12	2.65	2.62	3.15	3.12	4.15	4.12
DCS	153	19	2.11	2.11	2.60	2.60	3.10	3.10	4.10	4.10
DCS & JDF	154	19	3.88	2.58	4.38	3.08	4.88	3.58	5.88	4.58
JDF	155	19	3.93	2.60	4.43	3.10	4.93	3.60	5.93	4.60
JDF & DOH	156	19	4.04	2.64	4.54	3.14	5.04	3.64	6.04	4.64
DOH	157	19	3.89	2.56	4.39	3.06	4.89	3.56	5.89	4.56
DOH, LAN, JDF	158	20	2.02	2.15	2.53	2.53	3.05	3.05	4.07	4.07
SSI	159	21	2.47	2.16	2.96	2.66	3.46	3.16	4.46	4.16
SSI	160	21	2.44	2.26	2.94	2.76	3.43	3.26	4.43	4.26
SSI	161	21	2.67	2.35	3.17	2.85	3.67	3.35	4.67	4.35
SSI	162	22	3.31	2.58	3.81	3.08	4.31	3.58	5.31	4.58
SSI	163	22	2.51	2.12	3.01	2.62	3.50	3.12	4.49	4.12
SSI	164	22	3.69	2.77	4.19	3.27	4.70	3.77	5.70	4.77
SSI	165	22	2.62	2.34	3.13	2.84	3.63	3.35	4.63	4.35
SSI	166	22	2.70	2.38	3.20	2.88	3.71	3.38	4.71	4.38
SSI	167	22	2.95	2.47	3.45	2.97	3.96	3.48	4.96	4.47
SSI	168	23	3.83	2.83	4.34	3.33	4.83	3.83	5.84	4.83
SSI	169	24	2.48	2.29	2.98	2.79	3.50	3.30	4.49	4.29
SSI	170	24	3.99	2.88	4.49	3.38	4.99	3.88	5.99	4.88
SSI	171	24	9.75	7.00	10.21	7.51	10.66	8.02	11.59	9.03
SSI	172	25	3.63	2.72	4.13	3.22	4.63	3.72	5.63	4.72
SSI	173	26	2.16	2.13	2.66	2.63	3.16	3.13	4.16	4.13

10% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
SSI	174	26	2.47	2.18	2.97	2.68	3.47	3.18	4.47	4.18
SSI	175	27	2.81	2.32	3.31	2.82	3.81	3.32	4.81	4.32
SSI	176	27	3.76	2.66	4.27	3.16	4.77	3.66	5.78	4.66
SGI	177	28	4.03	2.90	4.53	3.40	5.04	3.90	6.04	4.90
SGI	178	29	4.82	3.23	5.33	3.74	5.83	4.24	6.85	5.24
SGI	179	30	6.12	3.72	6.62	4.23	7.13	4.73	8.13	5.73
SGI	180	31	6.02	3.58	6.50	3.58	6.91	3.58	7.73	6.39
SGI	181	28	4.12	3.17	4.60	3.17	5.08	3.30	6.06	5.29
SGI	182	32	3.96	2.83	4.46	3.33	4.96	3.84	5.97	4.84
SGI	183	32	3.59	2.72	4.09	3.22	4.59	3.72	5.59	4.72
SGI	184	32	3.06	2.50	3.56	3.00	4.07	3.50	5.07	4.50
SGI	185	33	4.92	3.21	5.43	3.71	5.93	4.21	6.94	5.22
SGI	186	33	4.51	3.08	5.01	3.58	5.51	4.08	6.52	5.08
SGI	187	33	3.11	2.54	3.61	3.03	4.11	3.54	5.11	4.54
SGI	188	33	3.28	2.58	3.78	3.08	4.29	3.58	5.29	4.59
SGI	189	34	2.53	2.30	3.02	2.80	3.51	3.29	4.51	4.29
SGI	190	34	2.20	2.14	2.70	2.64	3.20	3.14	4.20	4.14
SGI	191	34	2.41	2.19	2.91	2.69	3.41	3.19	4.41	4.19
SGI	192	36	5.45	3.44	5.94	3.95	6.43	4.45	7.42	4.59
SGI	193	35	6.40	3.74	6.90	4.24	7.41	4.74	8.42	5.74
SGI	194	35	6.66	4.01	7.17	3.65	7.67	3.90	8.67	4.47
SGI	195	35	2.89	2.44	3.39	2.93	3.89	3.43	4.90	4.43
SGI	196	36	5.02	3.30	5.52	3.80	6.02	4.30	7.03	5.30
SGI	197	36	2.25	2.13	2.75	2.63	3.25	3.13	4.25	4.13
SGI	198	36	3.392	2.449	3.93	2.96	4.45	3.47	5.49	4.48
SGI	198a	36	2.123	2.123	2.62	2.62	3.12	3.12	4.12	4.12
SGI	199	36	2.38	2.16	2.88	2.66	3.38	3.16	4.38	4.16
SGI	200	38	4.02	2.83	4.52	3.33	5.02	3.83	6.03	4.83
SGI	201	37	2.77	2.41	3.28	2.91	3.78	3.41	4.78	4.41
SGI	201a	37	2.77	2.41	3.28	2.91	3.78	3.41	4.78	4.41
SGI	202	37	6.08	3.17	6.63	3.55	7.11	3.96	7.96	5.03
SGI	203	38	5.42	3.49	5.92	3.99	6.42	4.49	7.42	5.49
SGI	204	38	4.24	2.95	4.74	3.45	5.24	3.95	6.25	4.95

10% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
SGI	205	37	3.98	2.85	4.48	3.35	4.98	3.85	5.99	4.85
SGI	206	37	3.66	2.72	4.16	3.22	4.66	3.72	5.66	4.72
SGI	207	37	5.99	3.69	6.49	4.19	6.99	4.69	7.99	5.69
SGI	208	39	2.21	2.14	2.71	2.64	3.21	3.14	4.21	4.14
SGI	209	39	6.16	3.81	6.66	4.31	7.16	4.81	8.16	5.82
SGI	210	17	2.81	2.42	3.31	2.92	3.81	3.42	4.81	4.42
SGI	211	17	3.10	2.53	3.60	3.03	4.10	3.53	5.10	4.53
SGI	212	17	2.30	2.14	2.80	2.64	3.30	3.14	4.30	4.14
SGI	213	39	2.83	2.24	3.33	2.74	3.83	3.24	4.83	4.24
SGI	214	39	3.34	2.61	3.84	3.11	4.34	3.61	5.34	4.61
SGI	215	39	4.41	2.94	4.91	3.44	5.41	3.94	6.41	4.95
SGI	216	40	2.55	2.30	3.05	2.80	3.55	3.30	4.55	4.30
SGI	217	40	3.90	2.77	4.42	3.28	4.93	3.39	5.92	4.43
SGI	218	40	2.85	2.38	3.35	2.88	3.86	3.38	4.86	4.38
SGI	219	41	2.84	2.39	3.34	2.89	3.84	3.39	4.84	4.39
SGI	220	41	2.73	2.00	4.34	2.50	5.91	2.99	8.76	3.99

5% AEP TWL (m CGVD2013)

5% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
JDF	001	1	3.70	2.92	4.21	3.43	4.71	3.94	5.72	4.94
JDF	002	1	3.51	2.81	4.02	3.31	4.52	3.81	5.53	4.82
JDF	003	1	5.09	3.56	5.60	4.06	6.11	4.57	7.13	5.58
JDF	004	1	9.50	5.40	10.05	5.91	10.59	6.43	11.66	7.46
JDF	005	2	7.57	4.61	8.07	5.11	8.57	5.61	9.58	6.61
JDF	006	3	4.53	3.26	5.03	3.76	5.54	4.26	6.55	5.27
JDF	007	3	4.16	3.10	4.67	3.61	5.17	4.11	6.18	5.11
JDF	008	4	3.88	2.99	4.39	3.49	4.89	3.99	5.90	4.99
JDF	009	5	3.19	2.70	3.69	3.20	4.20	3.71	5.20	4.71
JDF	010	5	3.33	2.74	3.83	3.24	4.33	3.74	5.34	4.74
JDF	011	6	3.05	2.59	3.55	3.09	4.05	3.59	5.07	4.60
JDF	012	6	3.94	2.84	4.44	3.34	4.95	3.84	5.96	4.84
JDF	013	6	2.50	2.18	3.01	2.68	3.51	3.18	4.51	4.18
JDF	014	6	4.17	2.69	4.67	3.19	5.17	3.69	6.18	4.69
JDF	015	7	4.00	2.64	4.51	3.14	5.01	3.64	6.01	4.64
JDF & SOO	016	7	3.16	2.33	3.66	2.84	4.16	3.34	5.17	4.34
SOO	017	7	3.00	2.27	3.50	2.77	4.00	3.27	5.01	4.27
SOO	018	7	2.75	2.23	3.25	2.73	3.76	3.23	4.76	4.23
SOO	019	7	2.91	2.29	3.42	2.79	3.92	3.29	4.92	4.29
SOO	020	8	1.90	1.89	2.40	2.39	2.90	2.89	3.90	3.89
SOO	021	8	1.92	1.90	2.41	2.40	2.91	2.89	3.91	4.01
SOO	022	8	1.92	1.90	2.43	2.40	2.93	2.90	3.93	3.90
SOO	023	9	3.88	2.58	4.39	3.08	4.90	3.58	5.90	4.58
SOO	024	9	9.93	2.61	11.41	3.06	13.04	3.91	15.41	5.26
SOO	025	9	2.90	2.26	3.40	2.75	3.90	3.25	4.90	4.25
SOO	026	9	2.39	2.07	2.89	2.57	3.39	3.07	4.39	4.07
SOO	027	9	3.35	2.42	3.85	2.92	4.35	3.42	5.35	4.42
SOO	028	9	2.05	1.96	2.55	2.46	3.05	2.96	4.05	3.96
SOO & MET	029	9	2.11	1.98	2.62	2.48	3.12	2.98	4.12	3.98
MET	030	9	2.29	2.01	2.79	2.51	3.29	3.01	4.29	4.01

5% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
MET	031	9	4.88	2.87	5.39	3.37	5.90	3.88	6.93	4.89
MET	032	10	2.68	2.18	3.18	2.68	3.69	3.18	4.69	4.18
MET	033	10	4.27	2.79	4.78	3.29	5.28	3.20	6.28	4.41
MET	034	10	4.07	2.67	4.57	3.17	5.08	3.67	6.09	4.68
MET	035	10	3.49	2.45	4.00	2.95	4.51	3.43	5.51	4.46
MET	036	10	6.56	3.84	7.07	4.35	7.58	4.85	8.60	5.86
MET	037	10	2.49	2.10	2.98	2.67	3.50	3.11	4.49	4.10
MET	038	10	3.39	2.43	3.90	2.93	4.40	3.43	5.41	4.43
MET	039	10	2.71	2.18	3.21	2.68	3.71	3.18	4.72	4.18
MET	040	11	3.88	2.62	4.39	3.12	4.89	3.63	5.91	4.63
MET	041	11	4.92	3.07	5.43	3.58	5.94	4.08	6.95	5.09
MET	042	11	10.33	5.50	10.85	6.01	11.36	6.52	12.40	7.53
MET & COL	043	11	3.28	2.38	3.78	2.88	4.29	3.38	5.29	4.38
COL	044	11	3.48	2.46	3.98	2.96	4.48	3.46	5.49	4.46
COL	045	11	3.07	2.31	3.57	2.81	4.07	3.21	5.08	4.32
COL	046	11	2.65	2.17	3.15	2.67	3.66	3.06	4.66	4.02
COL	047	11	2.70	2.20	3.20	2.70	3.70	3.20	4.71	4.20
COL	048	11	2.52	2.11	3.03	2.62	3.53	3.11	4.53	4.11
COL	049	11	2.64	2.64	3.12	2.64	3.61	3.61	4.58	4.27
COL	050	12	2.72	2.21	3.22	2.71	3.72	3.22	4.73	4.22
COL & VWR	051	12	2.40	2.09	2.90	2.59	3.40	3.10	4.41	4.10
VWR	052	12	2.76	2.41	3.33	2.98	3.91	3.56	5.07	4.71
VWR	053	12	1.88	1.88	2.38	2.38	2.88	2.88	3.88	3.88
VWR & ESQ	054	12	2.36	2.08	2.86	2.58	3.36	3.08	4.36	4.08
ESQ	055	12	3.66	2.59	4.16	2.59	4.65	3.60	5.69	5.95
ESQ	056	12	2.58	2.23	3.10	2.49	3.60	2.74	4.57	3.23
ESQ	057	12	2.35	2.12	2.87	2.38	3.36	2.62	4.33	3.11
ESQ	058	12	1.88	1.88	2.38	2.38	2.88	2.88	3.88	3.88
ESQ	059	12	3.29	1.93	3.80	2.43	4.31	2.93	5.32	3.93
ESQ	060	12	5.04	3.14	5.54	3.64	6.05	4.14	7.06	5.15

5% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
ESQ	061	12	5.59	3.40	6.09	3.90	6.60	4.41	7.61	5.41
ESQ	062	12	4.26	2.81	4.76	3.31	5.27	3.81	6.27	4.81
ESQ	063	12	3.89	2.63	4.39	3.13	4.89	3.63	5.90	4.63
ESQ	064	12	4.23	2.82	4.73	3.32	5.23	3.70	6.25	4.83
ESQ	065	12	7.09	4.07	7.61	4.58	8.12	5.08	9.13	6.08
ESQ & COV	066	12	2.36	2.08	2.86	2.58	3.36	3.08	4.37	4.08
COV	067	12	2.53	2.15	3.04	2.65	3.54	3.15	4.56	4.10
VWR, ESQ, COV & DOS	068	12	1.89	1.89	2.39	2.39	2.89	2.89	3.89	3.89
COV	069	12	2.61	2.61	3.11	2.61	3.60	2.86	4.55	4.55
COV	070	12	5.78	3.90	6.27	3.90	6.75	3.90	7.75	5.41
COV	071	13	6.70	4.02	7.64	4.52	8.26	5.03	9.33	6.03
COV	072	13	6.03	2.12	6.88	3.49	7.43	4.91	8.40	6.64
COV	073	13	3.17	2.33	3.67	2.83	4.17	3.33	5.17	4.33
COV	074	13	3.04	2.30	3.54	2.80	4.04	3.30	5.05	4.30
COV	075	13	7.36	4.21	7.87	4.72	8.38	5.22	9.40	6.23
COV	076	13	3.45	2.46	3.95	2.96	4.45	3.46	5.46	4.46
COV	077	13	4.12	2.80	4.62	3.30	5.12	3.80	6.13	4.80
COV	078	13	3.52	2.49	4.03	2.99	4.53	3.39	5.54	4.35
COV	079	13	4.27	2.87	4.77	3.38	5.27	3.87	6.28	4.88
COV & OAK	080	13	2.79	2.20	3.29	2.70	3.79	3.20	4.79	4.20
OAK	081	13	3.84	2.66	4.35	3.16	4.85	3.66	5.86	4.66
OAK	082	13	5.28	3.35	5.79	3.85	6.30	4.36	7.32	5.37
OAK	083	13	5.76	3.30	6.62	3.30	7.48	3.30	9.01	4.23
OAK	084	13	6.23	3.74	6.74	3.82	7.26	3.82	8.27	4.89
OAK	085	14	5.78	3.44	6.30	3.95	6.81	4.45	7.83	5.46
OAK	086	14	4.41	2.83	4.91	3.34	5.42	3.84	6.43	4.85
OAK	087	14	3.91	2.64	4.42	3.14	4.92	3.64	5.94	4.65
OAK	088	14	4.96	4.39	6.00	4.39	7.00	4.39	9.11	4.39
OAK	089	14	3.94	3.67	5.14	3.67	6.31	3.67	8.62	4.61
OAK	090	14	2.52	2.12	3.03	2.62	3.53	3.12	4.53	4.12

5% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
OAK	091	14	3.22	2.38	3.73	2.88	4.23	3.09	5.24	4.38
OAK	092	14	4.12	2.73	4.63	3.24	5.13	3.74	6.16	4.76
OAK	093	14	3.27	2.39	3.78	2.89	4.28	3.39	5.30	4.40
OAK & DOS	094	14	2.63	2.16	3.14	2.67	3.64	3.17	4.65	4.17
DOS	095	14	2.75	2.22	3.26	2.72	3.76	3.21	4.76	4.22
DOS	096	14	3.03	2.31	3.54	2.82	4.05	3.32	5.06	4.32
DOS	097	14	4.12	2.73	4.62	3.24	5.13	3.74	6.14	4.75
DOS	098	14	4.02	2.69	4.52	3.19	5.03	3.70	6.04	4.70
DOS	099	14	4.53	2.87	5.04	3.37	5.55	3.88	6.56	4.88
DOS	100	14	5.42	3.24	5.92	3.75	6.43	4.25	7.45	5.26
DOS	101	14	4.18	2.75	4.68	3.25	5.19	3.75	6.20	4.75
DOS	102	14	4.99	3.08	5.49	3.58	6.00	4.09	7.02	5.09
DOS	103	14	2.48	2.11	2.98	2.61	3.48	3.11	4.49	4.11
DOS	104	14	4.58	2.90	5.08	3.40	5.59	3.91	6.60	4.91
DOS	105	15	4.23	2.75	4.74	3.25	5.24	3.76	6.25	4.76
DOS	106	15	2.01	1.90	2.51	2.40	3.01	2.90	4.01	3.90
DOS	107	15	2.04	1.90	2.54	2.40	3.04	2.90	4.04	3.90
DOS	108	15	2.33	2.03	2.83	2.53	3.33	3.03	4.34	4.03
DOS	109	15	2.48	2.07	2.98	2.57	3.48	3.07	4.49	4.07
DOS	110	15	2.64	2.13	3.15	2.63	3.65	3.13	4.65	4.13
DOS	111	15	4.91	2.16	5.77	2.66	6.48	3.16	7.47	4.16
DOS	112	15	2.60	2.19	3.11	2.69	3.61	3.19	4.61	4.19
DOS & DCS	113	15	2.71	2.27	3.23	2.78	3.72	3.27	4.72	4.27
DCS	114	15	3.09	2.42	3.59	2.92	4.09	3.42	5.09	4.42
DCS	115	16	2.94	2.42	3.44	2.90	3.93	3.40	4.93	4.40
DCS	116	16	2.83	2.39	3.34	2.83	3.85	3.40	4.83	4.39
DCS	117	16	3.76	2.77	4.29	3.28	4.78	3.76	5.75	4.74
DCS	118	16	2.68	2.34	3.18	2.84	3.69	3.34	4.69	4.35
DCS	119	16	6.02	3.69	6.53	4.19	7.04	4.69	8.06	5.55
DCS	120	16	3.21	2.55	3.71	3.05	4.21	3.55	5.21	4.55

5% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
DCS & DNS	121	16	3.15	2.54	3.65	3.04	4.15	3.54	5.15	4.54
DNS	122	16	3.11	2.54	3.61	3.04	4.12	3.54	5.12	4.54
DNS	123	16	2.59	2.35	3.09	2.85	3.59	3.35	4.59	4.35
DNS & SID	124	17	5.86	2.56	6.37	3.06	6.88	3.56	7.89	4.56
SID	125	17	4.09	2.91	4.59	3.41	5.10	3.93	6.13	4.93
SID	126	17	5.20	3.96	6.74	4.47	8.23	4.97	10.69	5.99
SID	127	17	3.49	2.68	3.99	3.18	4.49	3.68	5.50	4.68
SID	128	17	4.93	3.69	5.63	4.19	6.32	4.70	7.47	5.71
SID	129	17	3.12	2.54	3.62	3.04	4.12	3.54	5.13	4.54
SID	130	17	3.27	2.60	3.77	3.10	4.28	3.51	5.29	4.60
SID	131	17	2.54	2.33	3.04	2.83	3.54	3.34	4.54	4.33
SID	132	17	3.84	2.78	4.35	3.28	4.85	3.78	5.86	4.78
SID & DNS	133	17	2.75	2.42	3.26	2.92	3.76	3.42	4.77	4.42
DNS	134	17	2.97	2.502	3.47	3.015	4.00	3.523	5.01	4.526
DNS	135	17	8.92	4.08	9.44	4.58	9.91	5.08	10.84	5.69
DNS	136	17	4.34	2.96	4.86	3.47	5.37	3.97	6.39	4.98
DNS	137	17	3.55	2.64	4.05	3.14	4.56	3.64	5.57	4.65
DNS	138	17	2.75	2.31	3.25	2.81	3.75	3.31	4.75	4.31
DNS	139	17	3.75	2.51	4.32	3.01	4.80	3.51	5.74	4.51
DNS	140	17	3.86	2.71	4.36	3.21	4.87	3.71	5.87	4.71
DNS	141	17	3.41	2.49	3.91	2.99	4.42	3.49	5.43	4.50
DNS	142	18	4.31	2.92	4.81	3.42	5.32	3.92	6.32	4.92
DNS	143	18	2.89	2.37	3.38	2.87	3.88	3.37	4.89	4.37
DNS	144	18	2.42	2.21	2.92	2.71	3.42	3.21	4.42	4.21
DNS	145	18	2.96	2.32	3.46	2.83	3.96	3.33	4.96	4.33
DNS	146	18	2.23	2.19	2.73	2.69	3.23	3.19	4.23	4.19
DNS	147	18	2.19	2.18	2.69	2.68	3.19	3.18	4.19	4.18
DNS	148	18	2.42	2.19	2.92	2.69	3.42	3.19	4.42	4.19
DNS	149	18	2.20	2.18	2.70	2.68	3.20	3.18	4.20	4.18
DNS & DCS	150	19	3.30	2.39	3.80	2.89	4.30	3.35	5.31	4.40

5% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
DCS	151	19	2.44	2.18	2.94	2.68	3.44	3.18	4.44	4.18
DCS	152	19	2.21	2.16	2.71	2.66	3.21	3.16	4.21	4.16
DCS	153	19	2.15	2.15	2.65	2.65	3.15	3.15	4.15	4.15
DCS & JDF	154	19	4.24	2.73	4.74	3.23	5.24	3.73	6.24	4.73
JDF	155	19	4.33	2.76	4.83	3.26	5.33	3.76	6.33	4.76
JDF & DOH	156	19	4.45	2.80	4.95	3.30	5.45	3.80	6.45	4.80
DOH	157	19	4.30	2.73	4.80	3.23	5.30	3.73	6.30	4.73
DOH, LAN, JDF	158	20	2.06	2.15	2.58	2.58	3.09	3.09	4.12	4.12
SSI	159	21	2.59	2.22	3.08	2.71	3.58	3.21	4.58	4.21
SSI	160	21	2.49	2.30	2.99	2.80	3.49	3.30	4.49	4.30
SSI	161	21	2.73	2.40	3.23	2.90	3.73	3.40	4.73	4.40
SSI	162	22	3.45	2.64	3.95	3.14	4.45	3.64	5.45	4.64
SSI	163	22	2.58	2.17	3.07	2.67	3.56	3.17	4.55	4.17
SSI	164	22	3.82	2.84	4.33	3.34	4.83	3.84	5.84	4.84
SSI	165	22	2.68	2.39	3.19	2.89	3.69	3.39	4.69	4.39
SSI	166	22	2.76	2.42	3.27	2.93	3.77	3.43	4.77	4.43
SSI	167	22	3.03	2.52	3.53	3.03	4.04	3.53	5.04	4.52
SSI	168	23	4.01	2.89	4.52	3.39	5.02	3.89	6.03	4.90
SSI	169	24	2.53	2.33	3.04	2.83	3.55	3.35	4.54	4.33
SSI	170	24	4.16	2.94	4.67	3.44	5.17	3.94	6.17	4.94
SSI	171	24	10.58	7.47	11.03	7.98	11.49	8.49	12.40	9.50
SSI	172	25	3.79	2.79	4.29	3.29	4.79	3.79	5.79	4.79
SSI	173	26	2.21	2.17	2.71	2.67	3.21	3.17	4.21	4.17
SSI	174	26	2.59	2.23	3.09	2.73	3.59	3.23	4.59	4.23
SSI	175	27	2.97	2.40	3.47	2.90	3.97	3.40	4.98	4.40
SSI	176	27	4.08	2.79	4.59	3.29	5.10	3.79	6.11	4.79
SGI	177	28	4.22	2.96	4.72	3.46	5.22	3.96	6.23	4.97
SGI	178	29	5.09	3.36	5.59	3.86	6.10	4.36	7.11	5.37
SGI	179	30	6.56	3.93	7.06	4.43	7.57	4.93	8.58	5.93
SGI	180	31	6.49	3.58	6.93	3.58	7.34	3.58	8.12	6.39

5% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
SGI	181	28	4.54	3.17	5.02	3.17	5.49	3.30	6.48	5.29
SGI	182	32	4.16	2.90	4.66	3.40	5.16	3.91	6.16	4.91
SGI	183	32	3.75	2.78	4.25	3.28	4.75	3.78	5.76	4.78
SGI	184	32	3.16	2.56	3.66	3.06	4.16	3.56	5.16	4.56
SGI	185	33	5.29	3.37	5.80	3.87	6.30	4.37	7.31	5.38
SGI	186	33	4.80	3.21	5.30	3.71	5.81	4.21	6.82	5.22
SGI	187	33	3.18	2.58	3.68	3.08	4.18	3.58	5.19	4.58
SGI	188	33	3.39	2.63	3.89	3.13	4.39	3.63	5.40	4.63
SGI	189	34	2.58	2.35	3.08	2.85	3.57	3.34	4.57	4.34
SGI	190	34	2.26	2.18	2.76	2.68	3.26	3.18	4.26	4.18
SGI	191	34	2.51	2.23	3.01	2.73	3.51	3.23	4.51	4.23
SGI	192	36	6.11	3.64	6.60	4.15	7.10	4.59	8.08	4.59
SGI	193	35	7.06	4.01	7.56	4.52	8.07	5.02	9.08	6.02
SGI	194	35	7.19	4.25	7.69	3.65	8.19	3.90	9.20	4.47
SGI	195	35	2.96	2.48	3.46	2.97	3.96	3.47	4.97	4.47
SGI	196	36	5.33	3.42	5.83	3.93	6.34	4.43	7.34	5.43
SGI	197	36	2.33	2.18	2.83	2.68	3.33	3.18	4.33	4.18
SGI	198	36	3.695	2.562	4.24	3.05	4.76	3.59	5.81	4.60
SGI	198a	36	2.169	2.169	2.67	2.67	3.17	3.17	4.17	4.17
SGI	199	36	2.49	2.21	2.99	2.71	3.49	3.21	4.49	4.21
SGI	200	38	4.21	2.89	4.71	3.39	5.22	3.89	6.22	4.89
SGI	201	37	2.83	2.46	3.34	2.94	3.84	3.46	4.84	4.45
SGI	201a	37	2.83	2.46	3.34	2.94	3.84	3.46	4.84	4.45
SGI	202	37	6.49	3.17	7.06	3.55	7.56	3.96	8.37	5.03
SGI	203	38	5.89	3.69	6.39	4.19	6.89	4.69	7.90	5.69
SGI	204	38	4.50	3.05	5.00	3.55	5.51	4.05	6.52	5.06
SGI	205	37	4.15	2.91	4.66	3.41	5.16	3.91	6.17	4.92
SGI	206	37	3.82	2.78	4.33	3.28	4.83	3.78	5.83	4.78
SGI	207	37	6.37	3.85	6.87	4.35	7.37	4.85	8.37	5.85
SGI	208	39	2.27	2.18	2.77	2.68	3.27	3.18	4.27	4.18
SGI	209	39	6.61	4.02	7.11	4.52	7.61	5.02	8.62	6.03
SGI	210	17	2.87	2.47	3.37	2.97	3.87	3.47	4.87	4.47
SGI	211	17	3.17	2.58	3.67	3.08	4.17	3.58	5.17	4.58

5% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
SGI	212	17	2.41	2.19	2.91	2.69	3.41	3.19	4.41	4.19
SGI	213	39	3.02	2.32	3.52	2.82	4.02	3.32	5.02	4.32
SGI	214	39	3.46	2.66	3.96	3.15	4.46	3.65	5.46	4.65
SGI	215	39	4.67	3.06	5.17	3.56	5.67	4.06	6.67	5.06
SGI	216	40	2.59	2.34	3.09	2.84	3.59	3.34	4.59	4.34
SGI	217	40	4.19	2.87	4.70	3.38	5.22	3.39	6.21	4.43
SGI	218	40	2.93	2.44	3.43	2.95	3.93	3.45	4.94	4.45
SGI	219	41	2.91	2.43	3.41	2.93	3.92	3.43	4.92	4.43
SGI	220	41	3.03	2.06	4.53	2.56	6.09	3.05	8.92	4.05

2% AEP TWL (m CGVD2013)

2% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
JDF	001	1	3.96	3.15	4.46	3.66	4.97	4.17	5.98	5.17
JDF	002	1	3.82	3.02	4.33	3.52	4.81	4.02	5.81	5.03
JDF	003	1	5.37	3.85	5.88	4.35	6.39	4.85	7.41	5.86
JDF	004	1	9.84	5.67	10.38	6.19	10.92	6.70	12.00	7.74
JDF	005	2	7.76	4.82	8.26	5.32	8.76	5.82	9.77	6.83
JDF	006	3	4.87	3.46	5.38	3.96	5.88	4.46	6.89	5.47
JDF	007	3	4.31	3.24	4.81	3.74	5.32	4.24	6.33	5.25
JDF	008	4	3.98	3.11	4.48	3.61	4.99	4.11	6.00	5.12
JDF	009	5	3.30	2.82	3.81	3.33	4.32	3.85	5.31	4.84
JDF	010	5	3.44	2.87	3.94	3.38	4.44	3.88	5.45	4.88
JDF	011	6	3.20	2.75	3.70	3.25	4.20	3.75	5.21	4.77
JDF	012	6	4.03	2.95	4.53	3.45	5.04	3.95	6.05	4.96
JDF	013	6	2.58	2.25	3.08	2.75	3.59	3.26	4.59	4.26
JDF	014	6	4.27	2.76	4.78	3.26	5.28	3.76	6.29	4.77
JDF	015	7	4.16	2.69	4.66	3.19	5.16	3.69	6.16	4.69
JDF & SOO	016	7	3.27	2.38	3.78	2.88	4.28	3.39	5.29	4.39
SOO	017	7	3.08	2.34	3.59	2.85	4.09	3.34	5.10	4.35
SOO	018	7	2.80	2.29	3.30	2.79	3.80	3.29	4.81	4.29
SOO	019	7	2.96	2.32	3.46	2.85	3.96	3.35	4.96	4.35
SOO	020	8	1.96	1.95	2.46	2.45	2.96	2.95	3.96	3.95
SOO	021	8	1.97	1.95	2.46	2.45	2.96	2.95	3.96	4.01
SOO	022	8	1.97	1.95	2.48	2.46	2.98	2.95	3.98	3.95
SOO	023	9	3.96	2.64	4.48	3.14	4.98	3.64	5.99	4.64
SOO	024	9	10.14	2.61	11.67	3.06	13.65	3.91	16.88	5.26
SOO	025	9	3.02	2.32	3.52	2.81	4.02	3.31	5.02	4.31
SOO	026	9	2.46	2.11	2.96	2.61	3.46	3.11	4.46	4.11
SOO	027	9	3.50	2.50	4.00	3.00	4.51	3.50	5.51	4.50
SOO	028	9	2.08	2.01	2.58	2.51	3.08	3.00	4.08	4.00
SOO & MET	029	9	2.17	2.03	2.67	2.53	3.17	3.03	4.17	4.03
MET	030	9	2.33	2.08	2.83	2.58	3.33	3.08	4.34	4.08

2% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
MET	031	9	5.16	2.94	5.66	3.44	6.17	3.94	7.21	4.96
MET	032	10	2.77	2.22	3.27	2.72	3.78	3.23	4.78	4.22
MET	033	10	4.40	2.89	4.91	3.29	5.41	3.20	6.42	4.41
MET	034	10	4.60	2.83	5.10	3.33	5.61	3.83	6.62	4.83
MET	035	10	3.77	2.55	4.27	3.05	4.79	3.43	5.79	4.56
MET	036	10	7.13	4.14	7.64	4.65	8.15	5.16	9.17	6.17
MET	037	10	2.56	2.16	3.06	2.67	3.58	3.17	4.57	4.16
MET	038	10	3.62	2.52	4.12	3.02	4.63	3.52	5.63	4.53
MET	039	10	2.84	2.25	3.34	2.75	3.84	3.25	4.85	4.25
MET	040	11	4.17	2.74	4.67	3.24	5.18	3.74	6.19	4.75
MET	041	11	5.30	3.25	5.80	3.76	6.32	4.26	7.33	5.09
MET	042	11	11.11	5.90	11.63	6.41	12.15	6.92	13.19	7.94
MET & COL	043	11	3.47	2.46	3.98	2.96	4.48	3.46	5.49	4.46
COL	044	11	3.70	2.55	4.21	3.05	4.71	3.55	5.72	4.55
COL	045	11	3.24	2.39	3.74	2.89	4.24	3.21	5.25	4.39
COL	046	11	2.76	2.23	3.26	2.74	3.76	3.06	4.76	4.02
COL	047	11	2.81	2.27	3.31	2.76	3.81	3.27	4.82	4.27
COL	048	11	2.61	2.18	3.12	2.69	3.62	3.17	4.62	4.18
COL	049	11	2.74	2.64	3.22	2.64	3.70	3.70	4.67	4.27
COL	050	12	2.90	2.31	3.40	2.81	3.91	3.32	4.92	4.32
COL & VWR	051	12	2.54	2.18	3.04	2.68	3.54	3.18	4.55	4.18
VWR	052	12	2.92	2.51	3.50	3.08	4.07	3.66	5.23	4.81
VWR	053	12	1.94	1.94	2.44	2.44	2.94	2.94	3.94	3.94
VWR & ESQ	054	12	2.50	2.17	3.00	2.67	3.50	3.16	4.50	4.16
ESQ	055	12	4.12	2.59	4.62	2.59	5.11	3.60	6.17	5.95
ESQ	056	12	2.80	2.37	3.34	2.64	3.85	2.90	4.82	3.38
ESQ	057	12	2.54	2.24	3.08	2.52	3.57	2.76	4.54	3.24
ESQ	058	12	1.95	1.95	2.45	2.45	2.95	2.95	3.95	3.95
ESQ	059	12	4.19	1.96	4.71	2.46	5.22	2.96	6.24	3.96
ESQ	060	12	5.43	3.31	5.94	3.81	6.45	4.31	7.46	5.32

2% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
ESQ	061	12	6.05	3.64	6.55	4.14	7.06	4.64	8.07	5.65
ESQ	062	12	4.62	2.95	5.13	3.46	5.64	3.96	6.65	4.96
ESQ	063	12	4.29	2.78	4.80	3.27	5.31	3.77	6.31	4.77
ESQ	064	12	4.56	2.99	5.06	3.33	5.57	3.70	6.59	5.01
ESQ	065	12	7.52	4.32	8.03	4.83	8.55	5.33	9.56	6.34
ESQ & COV	066	12	2.48	2.15	2.98	2.65	3.48	3.15	4.49	4.15
COV	067	12	2.69	2.24	3.20	2.75	3.70	3.25	4.72	4.10
VWR, ESQ, COV & DOS	068	12	1.95	1.95	2.45	2.45	2.95	2.95	3.95	3.95
COV	069	12	2.85	2.85	3.35	2.85	3.85	2.86	4.79	4.79
COV	070	12	6.22	3.90	6.71	3.90	7.20	3.90	8.18	5.41
COV	071	13	7.06	4.28	8.01	4.79	8.60	5.29	9.66	6.30
COV	072	13	6.35	2.26	7.21	3.79	7.74	5.18	8.69	6.64
COV	073	13	3.52	2.44	4.02	2.94	4.52	3.44	5.53	4.44
COV	074	13	3.29	2.37	3.79	2.87	4.30	3.38	5.30	4.38
COV	075	13	7.89	4.56	8.40	5.07	8.91	5.57	9.93	6.58
COV	076	13	3.77	2.56	4.28	3.06	4.78	3.57	5.78	4.57
COV	077	13	4.47	3.01	4.97	3.51	5.47	4.01	6.48	5.02
COV	078	13	3.86	2.60	4.37	3.10	4.88	3.39	5.89	4.35
COV	079	13	4.64	3.11	5.14	3.62	5.65	4.11	6.66	5.08
COV & OAK	080	13	3.00	2.26	3.49	2.76	4.00	3.26	5.00	4.26
OAK	081	13	4.19	2.83	4.69	3.34	5.20	3.83	6.20	4.84
OAK	082	13	5.78	3.74	6.29	4.24	6.80	4.75	7.82	5.75
OAK	083	13	5.99	3.30	6.90	3.30	7.88	3.30	9.66	4.23
OAK	084	13	6.77	3.82	7.27	3.82	7.79	3.82	8.81	4.89
OAK	085	14	6.57	3.77	7.09	4.28	7.61	4.78	8.63	5.80
OAK	086	14	4.91	3.03	5.42	3.53	5.93	4.04	6.94	5.04
OAK	087	14	4.30	2.78	4.81	3.29	5.32	3.79	6.33	4.80
OAK	088	14	5.18	4.39	6.21	4.39	7.28	4.39	9.87	4.39
OAK	089	14	4.12	3.67	5.33	3.67	6.55	3.67	9.26	4.61
OAK	090	14	2.64	2.18	3.15	2.68	3.65	3.18	4.66	4.18

2% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
OAK	091	14	3.47	2.47	3.98	2.98	4.48	3.09	5.49	4.48
OAK	092	14	4.57	2.89	5.09	3.40	5.58	3.90	6.61	4.92
OAK	093	14	3.50	2.47	4.01	2.97	4.51	3.48	5.53	4.48
OAK & DOS	094	14	2.74	2.23	3.24	2.73	3.75	3.24	4.76	4.24
DOS	095	14	2.89	2.29	3.40	2.80	3.89	3.28	4.90	4.29
DOS	096	14	3.32	2.49	3.83	2.99	4.34	3.49	5.35	4.50
DOS	097	14	4.57	2.89	5.07	3.40	5.58	3.90	6.60	4.91
DOS	098	14	4.46	2.84	4.97	3.34	5.48	3.85	6.49	4.85
DOS	099	14	5.18	3.07	5.69	3.58	6.20	4.08	7.22	5.09
DOS	100	14	6.22	3.53	6.74	4.03	7.26	4.54	8.27	5.54
DOS	101	14	4.62	2.91	5.12	3.41	5.63	3.91	6.64	4.92
DOS	102	14	5.52	3.28	6.03	3.79	6.54	4.29	7.56	5.30
DOS	103	14	2.58	2.17	3.08	2.67	3.58	3.17	4.58	4.17
DOS	104	14	5.02	3.07	5.53	3.57	6.04	4.08	7.05	5.08
DOS	105	15	4.58	2.88	5.09	3.38	5.60	3.88	6.61	4.89
DOS	106	15	2.06	1.95	2.56	2.45	3.06	2.95	4.06	3.95
DOS	107	15	2.10	1.95	2.60	2.45	3.10	2.95	4.10	3.95
DOS	108	15	2.40	2.08	2.90	2.58	3.40	3.08	4.41	4.08
DOS	109	15	2.55	2.11	3.05	2.61	3.55	3.11	4.56	4.12
DOS	110	15	2.73	2.17	3.24	2.67	3.74	3.17	4.74	4.17
DOS	111	15	5.23	2.20	6.19	2.70	7.00	3.20	8.02	4.20
DOS	112	15	2.67	2.22	3.18	2.73	3.68	3.23	4.68	4.23
DOS & DCS	113	15	2.77	2.30	3.30	2.81	3.78	3.30	4.78	4.30
DCS	114	15	3.20	2.45	3.70	2.95	4.20	3.45	5.21	4.45
DCS	115	16	3.01	2.44	3.51	2.92	4.00	3.42	5.00	4.42
DCS	116	16	2.88	2.41	3.40	2.83	3.90	3.41	4.89	4.41
DCS	117	16	3.93	2.82	4.48	3.34	4.97	3.81	5.94	4.79
DCS	118	16	2.73	2.37	3.23	2.87	3.73	3.37	4.73	4.37
DCS	119	16	6.48	3.89	7.00	4.39	7.51	4.90	8.53	5.55
DCS	120	16	3.30	2.57	3.79	3.07	4.30	3.57	5.30	4.57

2% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
DCS & DNS	121	16	3.22	2.56	3.71	3.06	4.22	3.56	5.23	4.56
DNS	122	16	3.17	2.57	3.67	3.07	4.18	3.57	5.18	4.57
DNS	123	16	2.61	2.39	3.11	2.89	3.61	3.39	4.62	4.39
DNS & SID	124	17	6.18	2.59	6.69	3.09	7.20	3.59	8.22	4.59
SID	125	17	4.24	2.95	4.74	3.46	5.25	3.97	6.28	4.97
SID	126	17	5.28	4.10	6.89	4.61	8.50	5.11	11.44	6.14
SID	127	17	3.58	2.71	4.08	3.21	4.59	3.71	5.59	4.71
SID	128	17	5.07	3.79	5.79	4.30	6.55	4.81	7.80	5.82
SID	129	17	3.18	2.57	3.68	3.07	4.18	3.57	5.18	4.57
SID	130	17	3.34	2.63	3.84	3.13	4.35	3.51	5.36	4.63
SID	131	17	2.57	2.37	3.07	2.87	3.57	3.37	4.57	4.33
SID	132	17	3.99	2.81	4.49	3.32	5.00	3.82	6.01	4.82
SID & DNS	133	17	2.79	2.45	3.30	2.95	3.80	3.46	4.81	4.46
DNS	134	17	3.01	2.539	3.52	3.057	4.05	3.561	5.06	4.563
DNS	135	17	9.73	4.26	10.30	4.77	10.76	5.27	11.68	5.69
DNS	136	17	4.59	3.02	5.10	3.52	5.61	4.03	6.64	5.04
DNS	137	17	3.80	2.72	4.31	3.22	4.82	3.73	5.83	4.73
DNS	138	17	3.02	2.42	3.52	2.92	4.02	3.42	5.02	4.42
DNS	139	17	4.20	2.69	4.87	3.19	5.35	3.65	6.28	4.69
DNS	140	17	4.28	2.96	4.78	3.46	5.29	3.88	6.29	4.96
DNS	141	17	3.62	2.57	4.12	3.08	4.63	3.58	5.64	4.58
DNS	142	18	4.58	2.99	5.08	3.49	5.58	3.99	6.59	4.99
DNS	143	18	3.06	2.44	3.55	2.94	4.05	3.44	5.06	4.44
DNS	144	18	2.53	2.26	3.03	2.76	3.53	3.26	4.53	4.26
DNS	145	18	3.21	2.43	3.71	2.93	4.22	3.43	5.22	4.43
DNS	146	18	2.28	2.23	2.78	2.74	3.28	3.23	4.28	4.24
DNS	147	18	2.23	2.22	2.73	2.72	3.23	3.22	4.23	4.22
DNS	148	18	2.56	2.24	3.06	2.74	3.55	3.24	4.55	4.24
DNS	149	18	2.24	2.22	2.74	2.72	3.24	3.22	4.24	4.22
DNS & DCS	150	19	3.62	2.51	4.13	3.01	4.62	3.35	5.63	4.51

2% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
DCS	151	19	2.57	2.23	3.07	2.73	3.57	3.23	4.57	4.23
DCS	152	19	2.28	2.21	2.78	2.71	3.27	3.21	4.27	4.21
DCS	153	19	2.20	2.20	2.70	2.70	3.20	3.20	4.20	4.20
DCS & JDF	154	19	4.67	2.92	5.17	3.42	5.67	3.92	6.67	4.92
JDF	155	19	4.82	2.95	5.32	3.45	5.82	3.95	6.82	4.95
JDF & DOH	156	19	4.97	2.99	5.47	3.49	5.97	3.99	6.97	4.99
DOH	157	19	4.83	2.94	5.33	3.44	5.83	3.94	6.83	4.94
DOH, LAN, JDF	158	20	2.11	2.15	2.62	2.62	3.13	3.13	4.18	4.18
SSI	159	21	2.73	2.27	3.23	2.77	3.73	3.27	4.73	4.27
SSI	160	21	2.54	2.30	3.03	2.84	3.53	3.34	4.53	4.34
SSI	161	21	2.79	2.45	3.29	2.95	3.79	3.45	4.79	4.45
SSI	162	22	3.60	2.69	4.11	3.19	4.61	3.69	5.61	4.69
SSI	163	22	2.64	2.22	3.13	2.72	3.62	3.22	4.61	4.22
SSI	164	22	3.96	2.90	4.46	3.40	4.96	3.90	5.97	4.90
SSI	165	22	2.74	2.44	3.24	2.94	3.75	3.44	4.75	4.44
SSI	166	22	2.82	2.47	3.33	2.98	3.83	3.48	4.83	4.48
SSI	167	22	3.10	2.58	3.61	3.09	4.11	3.59	5.11	4.58
SSI	168	23	4.22	2.96	4.73	3.46	5.23	3.96	6.24	4.96
SSI	169	24	2.58	2.38	3.08	2.88	3.60	3.39	4.58	4.38
SSI	170	24	4.35	2.99	4.85	3.49	5.36	3.99	6.36	5.00
SSI	171	24	11.64	8.05	12.09	8.56	12.55	9.07	13.45	10.09
SSI	172	25	3.95	2.85	4.45	3.35	4.95	3.85	5.95	4.85
SSI	173	26	2.28	2.22	2.77	2.72	3.27	3.22	4.27	4.22
SSI	174	26	2.75	2.29	3.25	2.79	3.75	3.29	4.75	4.29
SSI	175	27	3.18	2.48	3.68	2.98	4.18	3.48	5.18	4.48
SSI	176	27	4.50	2.94	5.01	3.44	5.52	3.94	6.53	4.95
SGI	177	28	4.43	3.02	4.94	3.52	5.44	4.02	6.45	5.03
SGI	178	29	5.40	3.50	5.91	4.00	6.41	4.50	7.43	5.51
SGI	179	30	7.11	4.17	7.62	4.67	8.12	5.17	9.13	6.18
SGI	180	31	7.03	3.58	7.42	3.58	7.82	3.58	8.56	6.39

2% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
SGI	181	28	5.12	3.17	5.60	3.17	6.07	3.30	7.05	5.29
SGI	182	32	4.38	2.97	4.88	3.47	5.38	3.97	6.39	4.97
SGI	183	32	3.92	2.84	4.42	3.34	4.92	3.84	5.93	4.84
SGI	184	32	3.26	2.61	3.76	3.11	4.26	3.61	5.26	4.61
SGI	185	33	5.76	3.56	6.27	4.06	6.77	4.56	7.79	5.57
SGI	186	33	5.16	3.37	5.66	3.87	6.17	4.37	7.18	5.37
SGI	187	33	3.25	2.61	3.75	3.11	4.25	3.61	5.25	4.61
SGI	188	33	3.50	2.67	4.00	3.17	4.50	3.67	5.51	4.67
SGI	189	34	2.64	2.40	3.13	2.89	3.63	3.39	4.62	4.39
SGI	190	34	2.33	2.23	2.83	2.73	3.33	3.23	4.33	4.23
SGI	191	34	2.63	2.27	3.13	2.77	3.63	3.27	4.63	4.27
SGI	192	36	7.06	3.89	7.55	4.40	8.04	4.59	9.02	4.59
SGI	193	35	7.94	4.37	8.45	4.88	8.96	5.38	9.97	6.39
SGI	194	35	7.84	4.53	8.34	3.65	8.85	3.90	9.85	4.47
SGI	195	35	3.02	2.51	3.53	3.01	4.03	3.51	5.03	4.51
SGI	196	36	5.70	3.56	6.20	4.06	6.71	4.56	7.72	5.56
SGI	197	36	2.43	2.23	2.93	2.73	3.43	3.23	4.43	4.23
SGI	198	36	4.106	2.700	4.66	3.05	5.19	3.73	6.25	4.75
SGI	198a	36	2.216	2.216	2.72	2.72	3.22	3.22	4.22	4.22
SGI	199	36	2.62	2.26	3.12	2.76	3.62	3.27	4.62	4.27
SGI	200	38	4.44	2.93	4.94	3.44	5.44	3.94	6.45	4.94
SGI	201	37	2.89	2.50	3.39	2.94	3.89	3.50	4.89	4.50
SGI	201a	37	2.89	2.50	3.39	2.94	3.89	3.50	4.89	4.50
SGI	202	37	6.96	3.17	7.55	3.55	8.09	3.96	8.85	5.03
SGI	203	38	6.48	3.92	6.98	4.42	7.48	4.92	8.49	5.92
SGI	204	38	4.80	3.15	5.30	3.65	5.81	4.15	6.82	5.15
SGI	205	37	4.34	2.97	4.85	3.47	5.35	3.97	6.36	4.97
SGI	206	37	4.01	2.83	4.51	3.32	5.01	3.82	6.01	4.82
SGI	207	37	6.82	4.01	7.32	4.51	7.82	5.01	8.82	6.01
SGI	208	39	2.34	2.22	2.84	2.72	3.33	3.22	4.33	4.22
SGI	209	39	7.16	4.26	7.66	4.77	8.16	5.26	9.17	6.27
SGI	210	17	2.91	2.51	3.41	3.01	3.91	3.51	4.92	4.51
SGI	211	17	3.23	2.62	3.73	3.12	4.24	3.62	5.24	4.62

2% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
SGI	212	17	2.54	2.24	3.04	2.74	3.54	3.24	4.54	4.24
SGI	213	39	3.26	2.42	3.76	2.92	4.27	3.42	5.27	4.42
SGI	214	39	3.58	2.69	4.08	3.19	4.57	3.69	5.58	4.69
SGI	215	39	4.99	3.19	5.49	3.69	5.99	4.19	6.99	5.19
SGI	216	40	2.62	2.38	3.12	2.88	3.62	3.38	4.62	4.38
SGI	217	40	4.53	2.97	5.05	3.40	5.57	3.39	6.56	4.43
SGI	218	40	2.99	2.51	3.49	3.01	4.00	3.51	5.00	4.51
SGI	219	41	2.98	2.45	3.49	2.95	3.99	3.45	4.99	4.45
SGI	220	41	3.43	2.12	4.72	2.62	6.27	3.11	9.06	4.11

1% AEP TWL (m CGVD2013)

1% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
JDF	001	1	4.16	3.34	4.67	3.85	5.18	4.36	6.17	5.31
JDF	002	1	4.08	3.19	4.60	3.70	5.06	4.20	6.05	5.20
JDF	003	1	5.57	4.08	6.09	4.59	6.60	5.09	7.62	6.09
JDF	004	1	10.06	5.87	10.60	6.39	11.14	6.90	12.21	7.94
JDF	005	2	7.88	4.98	8.38	5.48	8.88	5.97	9.88	6.98
JDF	006	3	5.16	3.61	5.67	4.11	6.17	4.61	7.18	5.62
JDF	007	3	4.40	3.34	4.91	3.84	5.41	4.34	6.43	5.35
JDF	008	4	4.04	3.20	4.55	3.70	5.05	4.20	6.06	5.18
JDF	009	5	3.39	2.92	3.89	3.42	4.40	3.95	5.39	4.93
JDF	010	5	3.51	2.97	4.01	3.47	4.52	3.98	5.52	4.98
JDF	011	6	3.30	2.88	3.80	3.38	4.30	3.88	5.32	4.90
JDF	012	6	4.08	3.03	4.58	3.53	5.09	4.03	6.10	5.03
JDF	013	6	2.63	2.30	3.13	2.80	3.63	3.30	4.64	4.30
JDF	014	6	4.33	2.80	4.84	3.30	5.34	3.80	6.35	4.81
JDF	015	7	4.25	2.71	4.75	3.22	5.25	3.72	6.26	4.72
JDF & SOO	016	7	3.34	2.41	3.85	2.91	4.35	3.41	5.36	4.41
SOO	017	7	3.13	2.39	3.64	2.89	4.14	3.39	5.15	4.39
SOO	018	7	2.83	2.32	3.33	2.82	3.83	3.32	4.83	4.32
SOO	019	7	2.98	2.32	3.48	2.89	3.98	3.39	4.98	4.39
SOO	020	8	1.99	1.99	2.49	2.49	2.99	2.99	3.99	3.99
SOO	021	8	2.00	1.98	2.49	2.48	2.99	2.98	3.99	4.01
SOO	022	8	2.00	1.99	2.51	2.49	3.01	2.99	4.01	3.99
SOO	023	9	4.01	2.68	4.52	3.18	5.03	3.68	6.03	4.68
SOO	024	9	10.26	2.61	11.81	3.06	14.03	3.91	18.01	5.26
SOO	025	9	3.10	2.35	3.60	2.84	4.09	3.34	5.09	4.34
SOO	026	9	2.50	2.14	3.00	2.64	3.50	3.13	4.50	4.13
SOO	027	9	3.59	2.55	4.10	3.05	4.60	3.55	5.60	4.55
SOO	028	9	2.10	2.03	2.60	2.53	3.10	3.03	4.10	4.03
SOO & MET	029	9	2.20	2.06	2.70	2.56	3.20	3.06	4.20	4.06
MET	030	9	2.36	2.12	2.86	2.62	3.36	3.12	4.36	4.12

1% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
MET	031	9	5.34	2.97	5.85	3.48	6.35	3.98	7.39	4.99
MET	032	10	2.83	2.25	3.33	2.75	3.83	3.25	4.83	4.25
MET	033	10	4.48	2.95	4.99	3.29	5.48	3.20	6.49	4.41
MET	034	10	5.02	2.93	5.52	3.43	6.03	3.93	7.04	4.93
MET	035	10	3.97	2.60	4.47	3.11	4.99	3.43	5.98	4.61
MET	036	10	7.50	4.34	8.01	4.85	8.53	5.36	9.55	6.37
MET	037	10	2.61	2.19	3.11	2.69	3.62	3.20	4.62	4.19
MET	038	10	3.76	2.58	4.27	3.08	4.77	3.58	5.78	4.58
MET	039	10	2.92	2.29	3.42	2.79	3.92	3.29	4.93	4.29
MET	040	11	4.36	2.81	4.87	3.31	5.37	3.81	6.39	4.82
MET	041	11	5.55	3.37	6.05	3.87	6.57	4.38	7.58	5.09
MET	042	11	11.61	6.16	12.13	6.67	12.65	7.18	13.69	8.20
MET & COL	043	11	3.59	2.50	4.10	3.00	4.61	3.51	5.61	4.51
COL	044	11	3.85	2.60	4.35	3.10	4.86	3.60	5.87	4.60
COL	045	11	3.35	2.43	3.86	2.93	4.35	3.21	5.35	4.43
COL	046	11	2.82	2.27	3.32	2.77	3.83	3.06	4.83	4.02
COL	047	11	2.87	2.31	3.37	2.80	3.88	3.31	4.88	4.30
COL	048	11	2.66	2.21	3.17	2.73	3.67	3.21	4.67	4.22
COL	049	11	2.80	2.64	3.27	2.64	3.75	3.75	4.72	4.27
COL	050	12	3.04	2.38	3.54	2.88	4.04	3.38	5.05	4.38
COL & VWR	051	12	2.64	2.24	3.14	2.74	3.64	3.24	4.65	4.24
VWR	052	12	3.03	2.57	3.61	3.15	4.19	3.73	5.35	4.88
VWR	053	12	1.98	1.98	2.48	2.48	2.98	2.98	3.98	3.98
VWR & ESQ	054	12	2.60	2.22	3.10	2.72	3.60	3.22	4.60	4.22
ESQ	055	12	4.50	2.59	4.99	2.59	5.49	3.60	6.57	5.95
ESQ	056	12	2.97	2.48	3.52	2.75	4.04	3.01	5.01	3.50
ESQ	057	12	2.69	2.34	3.25	2.62	3.73	2.86	4.70	3.34
ESQ	058	12	1.99	1.99	2.49	2.49	2.99	2.99	3.99	3.99
ESQ	059	12	5.06	1.97	5.58	2.47	6.10	2.98	7.15	3.98
ESQ	060	12	5.70	3.42	6.21	3.92	6.72	4.43	7.74	5.43

1% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
ESQ	061	12	6.37	3.81	6.87	4.30	7.38	4.81	8.40	5.81
ESQ	062	12	4.88	3.05	5.39	3.55	5.90	4.05	6.91	5.06
ESQ	063	12	4.60	2.87	5.11	3.35	5.61	3.86	6.62	4.86
ESQ	064	12	4.79	3.11	5.30	3.33	5.80	3.70	6.82	5.13
ESQ	065	12	7.79	4.49	8.31	5.00	8.82	5.50	9.84	6.50
ESQ & COV	066	12	2.56	2.19	3.06	2.69	3.56	3.20	4.57	4.20
COV	067	12	2.81	2.31	3.31	2.81	3.82	3.31	4.84	4.10
VWR, ESQ, COV & DOS	068	12	1.99	1.99	2.49	2.49	2.99	2.99	3.99	3.99
COV	069	12	3.05	2.86	3.55	2.86	4.06	2.86	4.99	4.99
COV	070	12	6.52	3.90	7.01	3.90	7.50	3.90	8.48	5.41
COV	071	13	7.29	4.46	8.24	4.97	8.82	5.47	9.86	6.49
COV	072	13	6.56	2.36	7.42	4.00	7.93	5.36	8.87	6.64
COV	073	13	3.80	2.50	4.30	3.00	4.80	3.50	5.80	4.50
COV	074	13	3.48	2.41	3.98	2.91	4.49	3.42	5.50	4.42
COV	075	13	8.23	4.80	8.75	5.32	9.26	5.81	10.28	6.82
COV	076	13	4.02	2.63	4.52	3.13	5.02	3.63	6.02	4.63
COV	077	13	4.72	3.17	5.23	3.67	5.73	4.17	6.74	5.18
COV	078	13	4.12	2.67	4.63	3.17	5.14	3.39	6.15	4.35
COV	079	13	4.91	3.28	5.41	3.80	5.92	4.29	6.93	5.08
COV & OAK	080	13	3.14	2.29	3.64	2.79	4.15	3.29	5.15	4.29
OAK	081	13	4.44	2.95	4.95	3.46	5.46	3.96	6.46	4.96
OAK	082	13	6.14	4.05	6.65	4.56	7.16	5.06	8.18	6.04
OAK	083	13	6.12	3.30	7.06	3.30	8.13	3.30	10.11	4.23
OAK	084	13	7.14	3.82	7.64	3.82	8.16	3.82	9.18	4.89
OAK	085	14	7.17	4.00	7.70	4.51	8.22	5.02	9.25	6.04
OAK	086	14	5.28	3.16	5.79	3.66	6.30	4.17	7.32	5.18
OAK	087	14	4.58	2.88	5.10	3.38	5.60	3.89	6.62	4.90
OAK	088	14	5.31	4.39	6.33	4.39	7.44	4.39	10.39	4.39
OAK	089	14	4.23	3.67	5.44	3.67	6.68	3.67	9.70	4.61
OAK	090	14	2.72	2.21	3.22	2.71	3.73	3.22	4.73	4.22

1% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
OAK	091	14	3.65	2.53	4.15	3.03	4.66	3.09	5.67	4.54
OAK	092	14	4.91	2.99	5.43	3.51	5.91	4.00	6.95	5.02
OAK	093	14	3.66	2.52	4.16	3.02	4.67	3.53	5.68	4.53
OAK & DOS	094	14	2.80	2.27	3.30	2.77	3.81	3.27	4.82	4.28
DOS	095	14	2.97	2.33	3.48	2.84	3.98	3.32	4.98	4.33
DOS	096	14	3.55	2.62	4.06	3.13	4.56	3.63	5.58	4.55
DOS	097	14	4.91	2.99	5.41	3.51	5.91	4.01	6.94	5.01
DOS	098	14	4.80	2.94	5.30	3.43	5.82	3.95	6.83	4.95
DOS	099	14	5.70	3.21	6.21	3.71	6.73	4.22	7.76	5.23
DOS	100	14	6.88	3.73	7.40	4.24	7.92	4.74	8.94	5.75
DOS	101	14	4.94	3.02	5.44	3.51	5.95	4.02	6.97	5.02
DOS	102	14	5.91	3.42	6.42	3.92	6.93	4.43	7.95	5.43
DOS	103	14	2.63	2.20	3.13	2.70	3.63	3.20	4.64	4.20
DOS	104	14	5.34	3.18	5.85	3.68	6.36	4.18	7.38	5.19
DOS	105	15	4.82	2.95	5.33	3.46	5.84	3.96	6.85	4.97
DOS	106	15	2.09	1.98	2.59	2.48	3.09	2.98	4.09	3.98
DOS	107	15	2.15	1.98	2.65	2.48	3.15	2.98	4.15	3.98
DOS	108	15	2.44	2.11	2.94	2.61	3.44	3.11	4.44	4.11
DOS	109	15	2.59	2.14	3.09	2.64	3.60	3.14	4.60	4.14
DOS	110	15	2.78	2.19	3.29	2.69	3.79	3.19	4.79	4.20
DOS	111	15	5.43	2.22	6.48	2.72	7.38	3.22	8.41	4.22
DOS	112	15	2.71	2.24	3.22	2.75	3.72	3.24	4.72	4.25
DOS & DCS	113	15	2.81	2.32	3.34	2.83	3.82	3.32	4.82	4.32
DCS	114	15	3.26	2.47	3.76	2.96	4.27	3.47	5.27	4.47
DCS	115	16	3.04	2.45	3.55	2.93	4.03	3.43	5.03	4.43
DCS	116	16	2.91	2.42	3.43	2.83	3.93	3.42	4.92	4.42
DCS	117	16	4.04	2.84	4.60	3.36	5.09	3.83	6.05	4.82
DCS	118	16	2.75	2.38	3.25	2.88	3.75	3.39	4.76	4.39
DCS	119	16	6.80	4.03	7.31	4.53	7.82	5.03	8.85	5.55
DCS	120	16	3.34	2.58	3.84	3.08	4.34	3.58	5.35	4.58

1% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
DCS & DNS	121	16	3.26	2.57	3.75	3.08	4.25	3.58	5.26	4.58
DNS	122	16	3.20	2.58	3.70	3.08	4.21	3.58	5.22	4.58
DNS	123	16	2.62	2.40	3.13	2.90	3.63	3.40	4.63	4.40
DNS & SID	124	17	6.39	2.60	6.90	3.10	7.41	3.60	8.43	4.60
SID	125	17	4.33	2.97	4.83	3.48	5.34	3.99	6.38	4.99
SID	126	17	5.32	4.18	6.96	4.69	8.66	5.19	11.97	6.22
SID	127	17	3.63	2.72	4.13	3.22	4.64	3.72	5.64	4.72
SID	128	17	5.15	3.85	5.88	4.36	6.70	4.87	8.02	5.89
SID	129	17	3.21	2.58	3.71	3.08	4.21	3.58	5.21	4.58
SID	130	17	3.38	2.64	3.88	3.14	4.39	3.51	5.40	4.64
SID	131	17	2.58	2.39	3.08	2.89	3.59	3.39	4.59	4.33
SID	132	17	4.07	2.83	4.58	3.33	5.09	3.84	6.10	4.84
SID & DNS	133	17	2.81	2.47	3.32	2.97	3.82	3.47	4.83	4.48
DNS	134	17	3.04	2.557	3.55	3.079	4.08	3.581	5.09	4.581
DNS	135	17	10.34	4.38	10.94	4.88	11.40	5.39	12.32	5.69
DNS	136	17	4.75	3.05	5.27	3.55	5.78	4.06	6.81	5.07
DNS	137	17	3.99	2.77	4.50	3.27	5.01	3.78	6.02	4.79
DNS	138	17	3.23	2.50	3.74	3.00	4.24	3.50	5.24	4.50
DNS	139	17	4.56	2.83	5.33	3.33	5.82	3.69	6.73	4.84
DNS	140	17	4.61	3.16	5.11	3.67	5.62	3.88	6.62	5.17
DNS	141	17	3.76	2.62	4.26	3.13	4.77	3.63	5.78	4.63
DNS	142	18	4.76	3.02	5.26	3.53	5.77	4.03	6.77	5.03
DNS	143	18	3.17	2.48	3.67	2.98	4.17	3.48	5.17	4.48
DNS	144	18	2.61	2.28	3.11	2.78	3.61	3.28	4.61	4.28
DNS	145	18	3.40	2.50	3.90	3.00	4.41	3.50	5.41	4.50
DNS	146	18	2.31	2.26	2.81	2.76	3.31	3.26	4.31	4.26
DNS	147	18	2.26	2.25	2.76	2.75	3.26	3.25	4.26	4.25
DNS	148	18	2.65	2.27	3.15	2.77	3.65	3.27	4.65	4.27
DNS	149	18	2.26	2.25	2.76	2.75	3.26	3.25	4.26	4.25
DNS & DCS	150	19	3.85	2.59	4.36	3.09	4.86	3.35	5.87	4.59

1% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
DCS	151	19	2.67	2.25	3.17	2.75	3.67	3.25	4.67	4.25
DCS	152	19	2.31	2.23	2.82	2.73	3.31	3.23	4.31	4.23
DCS	153	19	2.23	2.23	2.72	2.72	3.22	3.22	4.22	4.22
DCS & JDF	154	19	4.97	3.05	5.47	3.55	5.97	4.05	6.97	5.05
JDF	155	19	5.17	3.08	5.67	3.58	6.17	4.08	7.17	5.08
JDF & DOH	156	19	5.34	3.13	5.84	3.63	6.34	4.13	7.34	5.13
DOH	157	19	5.22	3.09	5.72	3.59	6.22	4.09	7.22	5.09
DOH, LAN, JDF	158	20	2.14	2.15	2.65	2.65	3.16	3.16	4.21	4.21
SSI	159	21	2.83	2.31	3.33	2.81	3.83	3.31	4.83	4.31
SSI	160	21	2.56	2.30	3.06	2.86	3.56	3.36	4.56	4.36
SSI	161	21	2.82	2.47	3.32	2.97	3.82	3.47	4.82	4.47
SSI	162	22	3.71	2.72	4.21	3.22	4.71	3.72	5.72	4.72
SSI	163	22	2.67	2.24	3.16	2.74	3.66	3.24	4.65	4.24
SSI	164	22	4.04	2.94	4.55	3.44	5.05	3.94	6.06	4.94
SSI	165	22	2.77	2.46	3.28	2.96	3.78	3.47	4.78	4.47
SSI	166	22	2.86	2.50	3.36	3.00	3.87	3.50	4.87	4.50
SSI	167	22	3.14	2.61	3.65	3.12	4.15	3.62	5.16	4.61
SSI	168	23	4.35	2.99	4.87	3.49	5.36	3.99	6.37	4.99
SSI	169	24	2.61	2.40	3.11	2.90	3.63	3.39	4.61	4.40
SSI	170	24	4.47	3.02	4.97	3.52	5.48	4.02	6.48	5.02
SSI	171	24	12.44	8.46	12.89	8.98	13.34	9.49	14.24	10.51
SSI	172	25	4.05	2.88	4.55	3.38	5.05	3.88	6.05	4.88
SSI	173	26	2.31	2.25	2.81	2.75	3.31	3.25	4.31	4.25
SSI	174	26	2.86	2.32	3.36	2.82	3.86	3.32	4.86	4.32
SSI	175	27	3.33	2.53	3.83	3.03	4.33	3.53	5.33	4.53
SSI	176	27	4.81	3.04	5.32	3.54	5.83	4.05	6.85	5.05
SGI	177	28	4.57	3.05	5.08	3.55	5.59	4.05	6.60	5.06
SGI	178	29	5.62	3.58	6.12	4.09	6.63	4.59	7.64	5.60
SGI	179	30	7.51	4.34	8.01	4.84	8.52	5.34	9.53	6.35
SGI	180	31	7.39	3.58	7.73	3.58	8.14	3.58	8.83	6.39

1% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
SGI	181	28	5.58	3.17	6.06	3.17	6.52	3.30	7.51	5.29
SGI	182	32	4.52	3.01	5.03	3.51	5.53	4.01	6.54	5.01
SGI	183	32	4.03	2.87	4.53	3.37	5.03	3.87	6.04	4.87
SGI	184	32	3.31	2.63	3.81	3.13	4.31	3.63	5.32	4.63
SGI	185	33	6.11	3.69	6.62	4.19	7.12	4.70	8.14	5.70
SGI	186	33	5.42	3.47	5.92	3.97	6.43	4.47	7.44	5.48
SGI	187	33	3.28	2.63	3.78	3.13	4.29	3.63	5.29	4.63
SGI	188	33	3.57	2.69	4.07	3.19	4.57	3.69	5.58	4.69
SGI	189	34	2.67	2.43	3.16	2.92	3.65	3.41	4.65	4.41
SGI	190	34	2.37	2.25	2.87	2.75	3.37	3.25	4.37	4.25
SGI	191	34	2.71	2.29	3.21	2.79	3.71	3.29	4.71	4.29
SGI	192	36	7.85	4.07	8.34	4.57	8.82	4.59	9.80	4.59
SGI	193	35	8.63	4.65	9.14	5.15	9.64	5.66	10.66	6.66
SGI	194	35	8.31	4.72	8.82	3.65	9.32	3.90	10.33	4.47
SGI	195	35	3.06	2.53	3.56	3.02	4.06	3.52	5.07	4.52
SGI	196	36	5.95	3.64	6.46	4.14	6.96	4.64	7.97	5.64
SGI	197	36	2.50	2.25	3.00	2.75	3.50	3.25	4.50	4.25
SGI	198	36	4.429	2.799	5.00	3.05	5.53	3.84	6.60	4.86
SGI	198a	36	2.242	2.242	2.74	2.74	3.24	3.24	4.24	4.24
SGI	199	36	2.71	2.30	3.21	2.80	3.71	3.30	4.72	4.30
SGI	200	38	4.60	2.96	5.09	3.46	5.60	3.96	6.60	4.97
SGI	201	37	2.92	2.52	3.42	2.94	3.92	3.52	4.92	4.52
SGI	201a	37	2.92	2.52	3.42	2.94	3.92	3.52	4.92	4.52
SGI	202	37	7.27	3.17	7.88	3.55	8.45	3.96	9.17	5.03
SGI	203	38	6.91	4.07	7.41	4.57	7.91	5.07	8.91	6.08
SGI	204	38	4.99	3.20	5.49	3.71	6.00	4.21	7.01	5.21
SGI	205	37	4.47	3.00	4.98	3.50	5.48	4.00	6.49	5.01
SGI	206	37	4.12	2.85	4.63	3.35	5.13	3.85	6.13	4.85
SGI	207	37	7.12	4.11	7.62	4.61	8.12	5.11	9.12	6.11
SGI	208	39	2.38	2.25	2.87	2.75	3.37	3.25	4.37	4.25
SGI	209	39	7.53	4.42	8.05	4.92	8.54	5.42	9.56	6.43
SGI	210	17	2.94	2.54	3.44	3.04	3.94	3.54	4.94	4.54
SGI	211	17	3.27	2.65	3.77	3.15	4.27	3.65	5.28	4.65

1% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
SGI	212	17	2.63	2.27	3.13	2.77	3.63	3.27	4.63	4.27
SGI	213	39	3.44	2.48	3.94	2.98	4.44	3.48	5.45	4.48
SGI	214	39	3.64	2.71	4.15	3.21	4.64	3.71	5.65	4.71
SGI	215	39	5.21	3.27	5.71	3.77	6.21	4.27	7.22	5.28
SGI	216	40	2.63	2.40	3.13	2.90	3.63	3.40	4.64	4.40
SGI	217	40	4.77	3.04	5.29	3.40	5.81	3.39	6.80	4.43
SGI	218	40	3.02	2.54	3.53	3.04	4.03	3.54	5.03	4.54
SGI	219	41	3.02	2.47	3.52	2.97	4.03	3.47	5.03	4.47
SGI	220	41	3.75	2.16	4.84	2.65	6.37	3.15	9.12	4.14

0.5% AEP TWL (m CGVD2013)

0.5% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
JDF	001	1	4.36	3.54	4.87	4.05	5.38	4.57	6.37	5.31
JDF	002	1	4.38	3.39	4.90	3.90	5.34	4.39	6.31	5.39
JDF	003	1	5.77	4.34	6.29	4.84	6.80	5.34	7.82	6.34
JDF	004	1	10.25	6.06	10.80	6.58	11.33	7.10	12.41	8.13
JDF	005	2	7.98	5.13	8.47	5.63	8.98	6.12	9.98	7.14
JDF	006	3	5.48	3.76	5.98	4.26	6.49	4.77	7.50	5.78
JDF	007	3	4.49	3.43	5.00	3.93	5.51	4.44	6.52	5.44
JDF	008	4	4.09	3.28	4.60	3.79	5.10	4.29	6.11	5.18
JDF	009	5	3.46	3.01	3.97	3.52	4.48	4.05	5.46	5.02
JDF	010	5	3.58	3.07	4.08	3.57	4.58	4.07	5.59	5.08
JDF	011	6	3.40	3.01	3.91	3.51	4.40	4.01	5.42	5.03
JDF	012	6	4.12	3.10	4.62	3.60	5.13	4.10	6.14	5.10
JDF	013	6	2.67	2.34	3.17	2.84	3.67	3.34	4.68	4.34
JDF	014	6	4.38	2.84	4.88	3.34	5.39	3.84	6.40	4.84
JDF	015	7	4.32	2.73	4.83	3.24	5.33	3.73	6.33	4.73
JDF & SOO	016	7	3.40	2.43	3.91	2.93	4.41	3.43	5.42	4.43
SOO	017	7	3.18	2.43	3.68	2.93	4.18	3.43	5.19	4.43
SOO	018	7	2.84	2.35	3.35	2.85	3.85	3.35	4.85	4.35
SOO	019	7	2.99	2.32	3.49	2.91	4.00	3.42	5.00	4.42
SOO	020	8	2.02	2.02	2.52	2.52	3.02	3.02	4.02	4.02
SOO	021	8	2.02	2.01	2.52	2.51	3.02	3.01	4.02	4.01
SOO	022	8	2.03	2.01	2.54	2.52	3.03	3.01	4.03	4.01
SOO	023	9	4.04	2.71	4.56	3.21	5.06	3.71	6.07	4.71
SOO	024	9	10.36	2.61	11.91	3.06	14.37	3.91	19.15	5.26
SOO	025	9	3.16	2.37	3.66	2.87	4.15	3.37	5.15	4.37
SOO	026	9	2.53	2.15	3.03	2.65	3.53	3.15	4.53	4.15
SOO	027	9	3.68	2.59	4.18	3.09	4.69	3.59	5.68	4.59
SOO	028	9	2.12	2.05	2.62	2.55	3.12	3.05	4.12	4.05
SOO & MET	029	9	2.22	2.08	2.72	2.58	3.22	3.08	4.22	4.08
MET	030	9	2.38	2.16	2.88	2.66	3.38	3.16	4.38	4.16

0.5% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
MET	031	9	5.51	3.00	6.02	3.51	6.51	4.01	7.57	5.02
MET	032	10	2.86	2.26	3.36	2.76	3.87	3.27	4.87	4.26
MET	033	10	4.53	3.00	5.04	3.29	5.54	3.20	6.55	4.41
MET	034	10	5.46	3.03	5.96	3.52	6.47	4.02	7.49	5.02
MET	035	10	4.14	2.65	4.64	3.16	5.17	3.43	6.15	4.66
MET	036	10	7.84	4.53	8.35	5.03	8.88	5.55	9.89	6.55
MET	037	10	2.64	2.21	3.14	2.72	3.66	3.22	4.65	4.22
MET	038	10	3.89	2.62	4.39	3.12	4.90	3.62	5.91	4.63
MET	039	10	2.99	2.32	3.49	2.82	3.99	3.32	5.00	4.32
MET	040	11	4.53	2.87	5.04	3.37	5.55	3.87	6.56	4.88
MET	041	11	5.77	3.46	6.28	3.97	6.79	4.48	7.81	5.09
MET	042	11	12.05	6.39	12.57	6.90	13.09	7.41	14.13	8.43
MET & COL	043	11	3.70	2.54	4.20	3.04	4.71	3.54	5.72	4.54
COL	044	11	3.98	2.64	4.49	3.14	4.99	3.64	6.00	4.65
COL	045	11	3.44	2.46	3.95	2.96	4.45	3.21	5.45	4.46
COL	046	11	2.88	2.30	3.38	2.80	3.88	3.06	4.88	4.02
COL	047	11	2.93	2.34	3.43	2.83	3.93	3.34	4.94	4.34
COL	048	11	2.70	2.24	3.21	2.76	3.71	3.24	4.71	4.25
COL	049	11	2.84	2.64	3.31	2.64	3.79	3.79	4.77	4.27
COL	050	12	3.16	2.43	3.66	2.94	4.17	3.44	5.18	4.44
COL & VWR	051	12	2.73	2.29	3.23	2.79	3.73	3.29	4.74	4.29
VWR	052	12	3.14	2.63	3.72	3.21	4.29	3.79	5.45	4.94
VWR	053	12	2.01	2.01	2.51	2.51	3.01	3.01	4.01	4.01
VWR & ESQ	054	12	2.70	2.27	3.20	2.77	3.70	3.26	4.70	4.26
ESQ	055	12	4.90	2.59	5.39	2.59	5.88	3.60	7.00	5.95
ESQ	056	12	3.14	2.58	3.71	2.86	4.24	3.13	5.21	3.62
ESQ	057	12	2.83	2.43	3.42	2.72	3.89	2.96	4.86	3.44
ESQ	058	12	2.02	2.02	2.52	2.52	3.02	3.02	4.02	4.02
ESQ	059	12	6.13	1.99	6.68	2.48	7.21	2.99	8.27	3.99
ESQ	060	12	5.95	3.52	6.46	4.02	6.97	4.52	7.99	5.53

0.5% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
ESQ	061	12	6.66	3.96	7.17	4.44	7.68	4.95	8.70	5.95
ESQ	062	12	5.13	3.14	5.64	3.64	6.15	4.14	7.17	5.15
ESQ	063	12	4.90	2.95	5.42	3.43	5.92	3.94	6.93	4.93
ESQ	064	12	5.01	3.22	5.52	3.33	6.02	3.70	7.05	5.25
ESQ	065	12	8.03	4.64	8.54	5.15	9.06	5.65	10.08	6.65
ESQ & COV	066	12	2.63	2.23	3.13	2.73	3.64	3.23	4.64	4.23
COV	067	12	2.92	2.36	3.43	2.86	3.93	3.36	4.96	4.10
VWR, ESQ, COV & DOS	068	12	2.03	2.03	2.53	2.53	3.03	3.03	4.03	4.03
COV	069	12	3.25	2.86	3.75	2.86	4.29	2.86	5.19	5.19
COV	070	12	6.80	3.90	7.29	3.90	7.78	3.90	8.76	5.41
COV	071	13	7.49	4.62	8.45	5.13	9.00	5.64	10.02	6.65
COV	072	13	6.74	2.46	7.60	4.21	8.10	5.52	9.02	6.64
COV	073	13	4.08	2.56	4.59	3.06	5.08	3.56	6.09	4.56
COV	074	13	3.67	2.45	4.17	2.95	4.68	3.45	5.69	4.45
COV	075	13	8.55	5.04	9.06	5.55	9.57	6.05	10.59	7.06
COV	076	13	4.27	2.68	4.77	3.18	5.26	3.68	6.27	4.69
COV	077	13	4.96	3.32	5.47	3.83	5.97	4.32	6.98	5.33
COV	078	13	4.38	2.73	4.89	3.23	5.40	3.39	6.41	4.35
COV	079	13	5.17	3.46	5.67	3.98	6.18	4.47	7.19	5.08
COV & OAK	080	13	3.29	2.31	3.78	2.81	4.29	3.31	5.29	4.31
OAK	081	13	4.69	3.07	5.19	3.57	5.70	4.07	6.70	5.08
OAK	082	13	6.49	4.39	7.00	4.89	7.51	5.39	8.53	6.04
OAK	083	13	6.23	3.30	7.19	3.30	8.35	3.30	10.54	4.23
OAK	084	13	7.49	3.82	7.99	3.82	8.51	3.82	9.53	4.89
OAK	085	14	7.78	4.22	8.31	4.74	8.83	5.25	9.87	6.26
OAK	086	14	5.65	3.27	6.16	3.78	6.67	4.29	7.69	5.30
OAK	087	14	4.85	2.96	5.37	3.47	5.88	3.97	6.90	4.98
OAK	088	14	5.42	4.39	6.41	4.39	7.56	4.39	10.87	4.39
OAK	089	14	4.32	3.67	5.52	3.67	6.78	3.67	10.09	4.61
OAK	090	14	2.78	2.24	3.29	2.74	3.79	3.24	4.80	4.25

0.5% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
OAK	091	14	3.81	2.58	4.31	3.08	4.82	3.09	5.83	4.59
OAK	092	14	5.24	3.08	5.77	3.60	6.24	4.09	7.29	5.11
OAK	093	14	3.80	2.56	4.30	3.06	4.80	3.57	5.82	4.57
OAK & DOS	094	14	2.85	2.30	3.35	2.80	3.86	3.30	4.87	4.31
DOS	095	14	3.05	2.37	3.56	2.87	4.05	3.36	5.06	4.36
DOS	096	14	3.79	2.75	4.30	3.26	4.80	3.76	5.82	4.55
DOS	097	14	5.24	3.08	5.74	3.60	6.24	4.10	7.28	5.10
DOS	098	14	5.14	3.02	5.64	3.52	6.16	4.04	7.17	5.04
DOS	099	14	6.26	3.34	6.76	3.84	7.28	4.35	8.32	5.36
DOS	100	14	7.57	3.92	8.09	4.44	8.62	4.94	9.64	5.95
DOS	101	14	5.25	3.11	5.74	3.60	6.26	4.11	7.28	5.12
DOS	102	14	6.30	3.53	6.81	4.04	7.32	4.55	8.34	5.56
DOS	103	14	2.67	2.23	3.17	2.73	3.68	3.23	4.68	4.23
DOS	104	14	5.65	3.27	6.16	3.78	6.67	4.28	7.69	5.29
DOS	105	15	5.05	3.02	5.56	3.52	6.07	4.02	7.08	5.03
DOS	106	15	2.12	2.01	2.62	2.51	3.12	3.01	4.12	4.01
DOS	107	15	2.19	2.01	2.69	2.51	3.19	3.01	4.19	4.01
DOS	108	15	2.47	2.14	2.97	2.64	3.47	3.14	4.48	4.14
DOS	109	15	2.62	2.15	3.12	2.66	3.63	3.16	4.63	4.16
DOS	110	15	2.82	2.21	3.33	2.71	3.83	3.21	4.84	4.21
DOS	111	15	5.61	2.23	6.74	2.73	7.73	3.23	8.78	4.24
DOS	112	15	2.74	2.26	3.24	2.76	3.74	3.26	4.75	4.26
DOS & DCS	113	15	2.83	2.33	3.37	2.84	3.84	3.33	4.84	4.33
DCS	114	15	3.32	2.48	3.82	2.97	4.32	3.47	5.33	4.48
DCS	115	16	3.07	2.45	3.57	2.94	4.06	3.44	5.06	4.44
DCS	116	16	2.93	2.43	3.45	2.83	3.95	3.42	4.94	4.43
DCS	117	16	4.13	2.86	4.70	3.38	5.19	3.85	6.15	4.84
DCS	118	16	2.76	2.39	3.26	2.89	3.77	3.39	4.77	4.39
DCS	119	16	7.08	4.15	7.60	4.64	8.11	5.15	9.14	5.55
DCS	120	16	3.38	2.59	3.88	3.09	4.38	3.59	5.39	4.59

0.5% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
DCS & DNS	121	16	3.28	2.58	3.78	3.08	4.28	3.58	5.29	4.58
DNS	122	16	3.22	2.59	3.73	3.09	4.23	3.59	5.24	4.59
DNS	123	16	2.63	2.42	3.13	2.92	3.63	3.42	4.64	4.42
DNS & SID	124	17	6.57	2.61	7.08	3.11	7.59	3.61	8.61	4.61
SID	125	17	4.40	2.99	4.91	3.49	5.41	4.01	6.45	5.01
SID	126	17	5.35	4.25	7.02	4.75	8.79	5.25	12.48	6.29
SID	127	17	3.67	2.73	4.17	3.23	4.67	3.73	5.68	4.73
SID	128	17	5.21	3.90	5.95	4.41	6.82	4.91	8.22	5.93
SID	129	17	3.23	2.59	3.73	3.09	4.23	3.59	5.24	4.59
SID	130	17	3.41	2.65	3.91	3.15	4.41	3.51	5.43	4.65
SID	131	17	2.59	2.41	3.10	2.91	3.60	3.41	4.60	4.33
SID	132	17	4.15	2.85	4.66	3.35	5.16	3.85	6.18	4.85
SID & DNS	133	17	2.83	2.49	3.33	2.99	3.83	3.49	4.84	4.49
DNS	134	17	3.06	2.571	3.56	3.095	4.10	3.595	5.11	4.595
DNS	135	17	10.94	4.48	11.59	4.99	12.05	5.49	12.96	5.69
DNS	136	17	4.91	3.07	5.42	3.57	5.94	4.09	6.96	5.10
DNS	137	17	4.18	2.82	4.69	3.32	5.20	3.83	6.22	4.83
DNS	138	17	3.46	2.57	3.96	3.07	4.46	3.57	5.47	4.57
DNS	139	17	4.95	2.98	5.84	3.48	6.34	3.72	7.24	4.32
DNS	140	17	4.95	3.39	5.45	3.89	5.96	3.88	6.97	5.40
DNS	141	17	3.89	2.67	4.39	3.17	4.90	3.67	5.91	4.68
DNS	142	18	4.94	3.05	5.44	3.56	5.94	4.06	6.95	5.06
DNS	143	18	3.27	2.52	3.77	3.02	4.27	3.52	5.27	4.52
DNS	144	18	2.68	2.30	3.18	2.80	3.68	3.30	4.68	4.30
DNS	145	18	3.59	2.57	4.09	3.07	4.59	3.57	5.60	4.57
DNS	146	18	2.33	2.28	2.83	2.78	3.33	3.28	4.33	4.28
DNS	147	18	2.28	2.27	2.78	2.77	3.28	3.27	4.28	4.27
DNS	148	18	2.75	2.29	3.25	2.79	3.75	3.29	4.75	4.29
DNS	149	18	2.28	2.27	2.78	2.77	3.28	3.27	4.28	4.27
DNS & DCS	150	19	4.08	2.67	4.59	3.17	5.09	3.35	6.10	4.67

0.5% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
DCS	151	19	2.75	2.27	3.26	2.77	3.76	3.27	4.76	4.27
DCS	152	19	2.35	2.25	2.85	2.75	3.34	3.25	4.34	4.25
DCS	153	19	2.25	2.25	2.75	2.75	3.25	3.25	4.25	4.25
DCS & JDF	154	19	5.25	3.18	5.75	3.68	6.25	4.18	7.25	5.18
JDF	155	19	5.50	3.21	6.00	3.71	6.50	4.21	7.50	5.21
JDF & DOH	156	19	5.69	3.26	6.19	3.76	6.69	4.26	7.70	5.26
DOH	157	19	5.61	3.24	6.11	3.74	6.61	4.24	7.61	5.24
DOH, LAN, JDF	158	20	2.16	2.15	2.67	2.67	3.17	3.17	4.23	4.23
SSI	159	21	2.92	2.34	3.42	2.84	3.92	3.34	4.92	4.34
SSI	160	21	2.58	2.30	3.08	2.88	3.58	3.38	4.58	4.38
SSI	161	21	2.85	2.49	3.35	2.99	3.85	3.49	4.85	4.49
SSI	162	22	3.80	2.74	4.30	3.24	4.81	3.74	5.81	4.74
SSI	163	22	2.70	2.26	3.19	2.76	3.68	3.26	4.67	4.26
SSI	164	22	4.10	2.96	4.62	3.46	5.11	3.96	6.13	4.97
SSI	165	22	2.80	2.48	3.30	2.98	3.81	3.49	4.81	4.48
SSI	166	22	2.88	2.52	3.39	3.02	3.89	3.52	4.90	4.52
SSI	167	22	3.18	2.63	3.69	3.14	4.19	3.64	5.19	4.63
SSI	168	23	4.47	3.01	4.99	3.51	5.48	4.01	6.49	5.02
SSI	169	24	2.62	2.42	3.13	2.92	3.65	3.39	4.63	4.42
SSI	170	24	4.58	3.04	5.08	3.54	5.58	4.04	6.58	5.04
SSI	171	24	13.23	8.86	13.68	9.38	14.13	9.89	15.02	10.92
SSI	172	25	4.14	2.90	4.64	3.40	5.14	3.90	6.14	4.90
SSI	173	26	2.35	2.27	2.84	2.77	3.34	3.27	4.34	4.27
SSI	174	26	2.97	2.35	3.47	2.85	3.97	3.35	4.97	4.35
SSI	175	27	3.47	2.57	3.97	3.07	4.48	3.57	5.48	4.58
SSI	176	27	5.13	3.14	5.64	3.64	6.15	4.15	7.17	5.15
SGI	177	28	4.70	3.07	5.21	3.57	5.72	4.07	6.73	5.08
SGI	178	29	5.82	3.66	6.32	4.16	6.83	4.67	7.85	5.67
SGI	179	30	7.89	4.50	8.40	5.00	8.91	5.50	9.92	6.51
SGI	180	31	7.72	3.58	8.01	3.58	8.41	3.58	9.07	6.39

0.5% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
SGI	181	28	6.07	3.17	6.55	3.17	7.01	3.30	8.00	5.29
SGI	182	32	4.65	3.03	5.16	3.54	5.66	4.04	6.67	5.04
SGI	183	32	4.12	2.89	4.62	3.39	5.13	3.89	6.14	4.90
SGI	184	32	3.36	2.65	3.86	3.15	4.36	3.65	5.37	4.65
SGI	185	33	6.45	3.82	6.96	4.32	7.47	4.82	8.48	5.83
SGI	186	33	5.66	3.56	6.17	4.07	6.68	4.57	7.69	5.57
SGI	187	33	3.31	2.64	3.81	3.14	4.31	3.64	5.32	4.65
SGI	188	33	3.62	2.70	4.12	3.20	4.63	3.70	5.63	4.70
SGI	189	34	2.69	2.45	3.18	2.94	3.68	3.43	4.68	4.43
SGI	190	34	2.41	2.28	2.91	2.78	3.41	3.28	4.41	4.28
SGI	191	34	2.79	2.30	3.29	2.80	3.79	3.30	4.79	4.30
SGI	192	36	8.70	4.24	9.18	4.59	9.67	4.59	10.64	4.59
SGI	193	35	9.33	4.92	9.85	5.43	10.35	5.93	11.37	6.94
SGI	194	35	8.76	4.90	9.28	3.65	9.78	3.90	10.79	4.47
SGI	195	35	3.08	2.54	3.59	3.04	4.09	3.53	5.09	4.53
SGI	196	36	6.19	3.70	6.70	4.21	7.20	4.71	8.21	5.71
SGI	197	36	2.56	2.28	3.06	2.78	3.56	3.28	4.56	4.28
SGI	198	36	4.76	2.89	5.35	3.05	5.87	3.94	6.95	4.96
SGI	198a	36	2.26	2.26	2.76	2.76	3.26	3.26	4.26	4.26
SGI	199	36	2.79	2.32	3.30	2.82	3.80	3.32	4.80	4.32
SGI	200	38	4.74	2.98	5.23	3.48	5.74	3.98	6.75	4.99
SGI	201	37	2.94	2.54	3.44	2.94	3.94	3.54	4.94	4.54
SGI	201a	37	2.94	2.54	3.44	2.94	3.94	3.54	4.94	4.54
SGI	202	37	7.56	3.17	8.18	3.55	8.78	3.96	9.46	5.03
SGI	203	38	7.32	4.21	7.82	4.71	8.32	5.21	9.32	6.21
SGI	204	38	5.16	3.25	5.67	3.75	6.17	4.25	7.18	5.26
SGI	205	37	4.58	3.02	5.08	3.52	5.59	4.02	6.60	5.03
SGI	206	37	4.23	2.87	4.73	3.36	5.23	3.86	6.24	4.87
SGI	207	37	7.40	4.20	7.90	4.70	8.40	5.20	9.40	6.20
SGI	208	39	2.41	2.27	2.91	2.77	3.40	3.27	4.40	4.27
SGI	209	39	7.89	4.56	8.40	5.07	8.90	5.56	9.92	6.58
SGI	210	17	2.96	2.55	3.46	3.05	3.96	3.55	4.96	4.55
SGI	211	17	3.30	2.66	3.80	3.16	4.30	3.66	5.30	4.66

0.5% AEP TWL (m CGVD2013)										
Local Gov. or EA	Transect (TR_)	Map Sheet No.	0.0 m RSLR $R_{2\%}$	0.0 m RSLR R_{mean}	0.5 m RSLR $R_{2\%}$	0.5 m RSLR R_{mean}	1.0 m RSLR $R_{2\%}$	1.0 m RSLR R_{mean}	2.0 m RSLR $R_{2\%}$	2.0 m RSLR R_{mean}
SGI	212	17	2.73	2.29	3.22	2.79	3.72	3.29	4.72	4.29
SGI	213	39	3.61	2.54	4.11	3.04	4.61	3.54	5.62	4.54
SGI	214	39	3.70	2.72	4.20	3.22	4.70	3.72	5.70	4.72
SGI	215	39	5.43	3.35	5.92	3.85	6.43	4.35	7.43	5.35
SGI	216	40	2.64	2.41	3.14	2.91	3.64	3.41	4.64	4.42
SGI	217	40	4.99	3.08	5.51	3.40	6.05	3.39	7.03	4.43
SGI	218	40	3.05	2.56	3.55	3.06	4.05	3.56	5.05	4.56
SGI	219	41	3.05	2.47	3.55	2.97	4.05	3.47	5.06	4.47
SGI	220	41	4.07	2.19	4.93	2.68	6.45	3.18	9.16	4.17

APPENDIX E - DETAILED INUNDATION MAPPING

Appendix E includes detailed inundation mapping for all 5 detailed model domains (Victoria Harbour, Oak Bay - McNeill Bay, Saanich - Cadboro Bay, Sidney - Ferry Terminal and Sidney - Roberts Bay). Results are provided for all four RSLR scenarios (i.e. 0.0 m, 0.5 m, 1.0 m, 2.0 m).

The detailed inundation results are presented in two different formats. **Appendix E1** gives inundation mapping classified to the following specific depth bands: 0 to 0.1 m, 0.1 m to 0.25 m, 0.25 m to 0.5 m, 0.5 m to 1 m, 1 m to 2 m, and >2 m. **Appendix E2** gives simplified inundation plots, outputted directly from the MIKE Zero modelling environment, that could be used for quick referencing.

E.1. DETAILED SEA LEVEL RISE INUNDATION DEPTH MAPS

Appendix E1, which contains detailed inundation maps, is provided in a stand-alone pdf file.

468000E

470000E

5364000N

5362000N

0 250 500 750 1,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Detailed Sea Level Rise Inundation
Depth Map
0.5% AEP - 0.5m Relative Sea Level Rise

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CRD



Map Area



Legend

Coastline

Inundation Depth (m)

- 0 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 2
- >2

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4. Data sources: Orthoimagery (CRD, 2017);
5. Relative Sea Level Rise (RSLR) is an absolute increase in mean sea level, incorporating the effects of land subsidence or uplift.
6. For further information, please refer to Task 2 – Sea Level Rise Modelling and Mapping Report. These maps constitute Appendix E1 of said report.

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Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 1 of 7

plot date: 2020.04.12
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472000E

0 250 500 750 1,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

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Detailed Sea Level Rise Inundation Depth Map
0.5% AEP - 0.5m Relative Sea Level Rise

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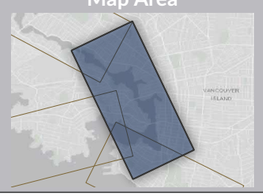
Map Area



Legend

Coastline

Inundation Depth (m)

- 0 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 2
- >2

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470000E

5368000N

5366000N

0 250 500 750 1,000 m

468000E

470000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

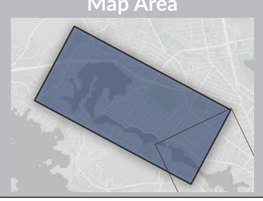
March 2020

Detailed Sea Level Rise Inundation Depth Map
0.5% AEP - 0.5m Relative Sea Level Rise

CRD



Map Area



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Legend

Coastline

Inundation Depth (m)

- 0 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 2
- >2

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Map Sheet 3 of 7

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472000E

474000E

5362000N



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472000E

474000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Detailed Sea Level Rise Inundation Depth Map
0.5% AEP - 0.5m Relative Sea Level Rise

CRD



Map Area



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Legend

- Coastline

Inundation Depth (m)

- 0 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 2
- >2

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Map Sheet 4 of 7

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0 250 500 750 1,000 m

478000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Detailed Sea Level Rise Inundation Depth Map
0.5% AEP - 0.5m Relative Sea Level Rise

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CRD



Map Area



Legend

Coastline

Inundation Depth (m)

- 0 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 2
- >2

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Map Sheet 5 of 7

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478000E

480000E

5368000N

0 250 500 750 1,000 m

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478000E

Coastal Flood Inundation Mapping Project

Capital Regional District

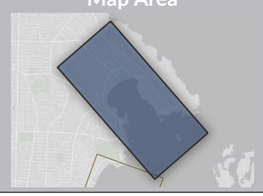
March 2020

Detailed Sea Level Rise Inundation Depth Map
0.5% AEP - 0.5m Relative Sea Level Rise

CRD



Map Area



Legend

Coastline

Inundation Depth (m)

- 0 - 0.1
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0 250 500 750 1,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

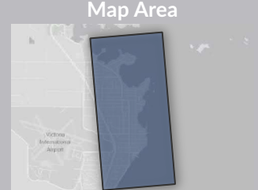
March 2020

Detailed Sea Level Rise Inundation Depth Map
0.5% AEP - 0.5m Relative Sea Level Rise

CRD



Map Area



Legend

- Coastline

Inundation Depth (m)

- 0 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- 0.5 - 1
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Map Sheet 7 of 7

plot date: 2020.06.12
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468000E

470000E

5364000N

5362000N

0 250 500 750 1,000 m

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468000E

470000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Detailed Sea Level Rise Inundation
Depth Map
0.5% AEP - 0.0m Relative Sea Level Rise

CRD



Map Area



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DHI

Legend

Coastline

Inundation Depth (m)

- 0 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
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plot date: 2020.04.12
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

472000E

0 250 500 750 1,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

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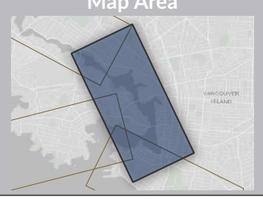
0.5% AEP - 0.0m Relative Sea Level Rise

CRD



Map Area



Legend

Coastline

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- 0 - 0.1
- 0.1 - 0.25
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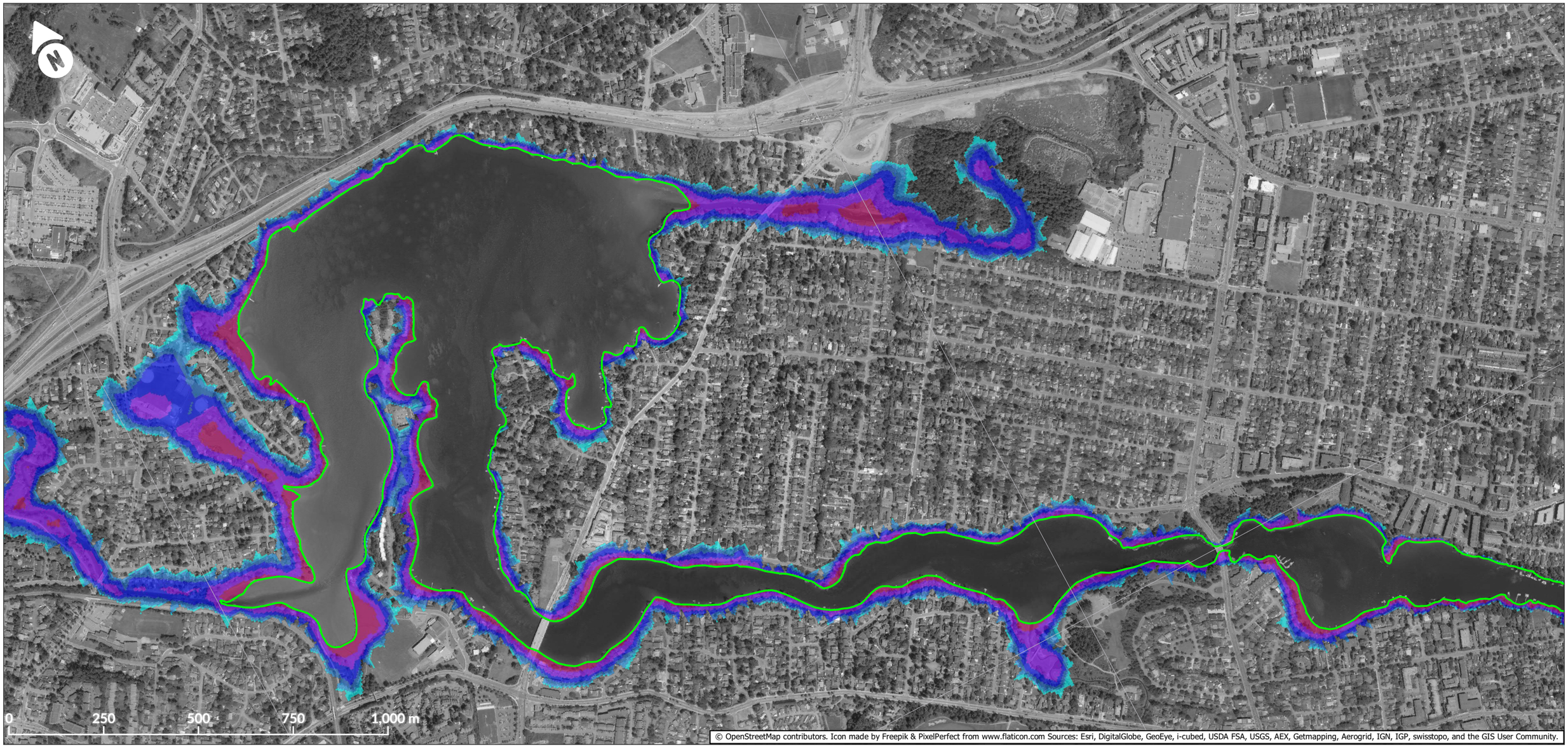
Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

plot date: 2020.06.12
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

470000E

5368000N

5366000N



468000E

470000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Detailed Sea Level Rise Inundation Depth Map
0.5% AEP - 0.0m Relative Sea Level Rise

CRD



Map Area



Legend

Coastline

Inundation Depth (m)

- 0 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 2
- >2

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Approved by D. Forde, P.Eng.
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Map Sheet 3 of 7

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472000E

474000E

5362000N



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472000E

474000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Detailed Sea Level Rise Inundation
Depth Map
0.5% AEP - 0.0m Relative Sea Level Rise

CRD



Map Area



Making a difference...together

DHI

Legend

Coastline

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Map Sheet 4 of 7

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0 250 500 750 1,000 m

478000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

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CRD



Map Area



Legend

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Map Sheet 5 of 7

plot date: 2020.04.12
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

478000E

480000E

5368000N

0 250 500 750 1,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

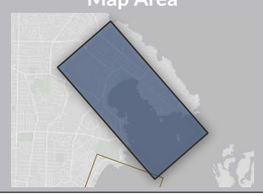
March 2020

Detailed Sea Level Rise Inundation Depth Map
0.5% AEP - 0.0m Relative Sea Level Rise

CRD



Map Area



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Coastline

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Approved by D. Forde, P.Eng.
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Map Sheet 6 of 7

plot date: 2020.06.12
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N

0 250 500 750 1,000 m

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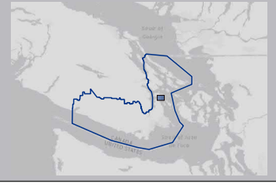
Coastal Flood Inundation Mapping Project

Capital Regional District

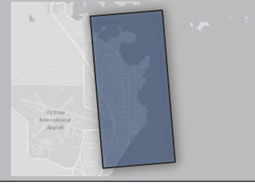
March 2020

Detailed Sea Level Rise Inundation Depth Map
0.5% AEP - 0.0m Relative Sea Level Rise

CRD



Map Area



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DHI

Legend

Coastline

Inundation Depth (m)

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Approved by D. Forde, P.Eng.
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Map Sheet 7 of 7

plot date: 2020.04.12
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

468000E

470000E

5364000N

5362000N

0 250 500 750 1,000 m

468000E

470000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Detailed Sea Level Rise Inundation Depth Map
0.5% AEP - 1.0m Relative Sea Level Rise

CRD

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CRD



Map Area



Legend

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Approved by D. Forde, P.Eng.
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Map Sheet 1 of 7

plot date: 2020.06.12
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472000E

0 250 500 750 1,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

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0.5% AEP - 1.0m Relative Sea Level Rise

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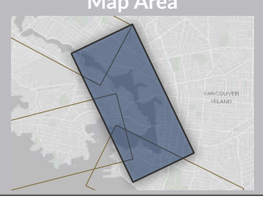

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Approved by D. Forde, P.Eng.
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Map Sheet 2 of 7

plot date: 2020.06.12
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

470000E

5368000N

5366000N

0 250 500 750 1,000 m

468000E

470000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Detailed Sea Level Rise Inundation Depth Map
0.5% AEP - 1.0m Relative Sea Level Rise

CRD



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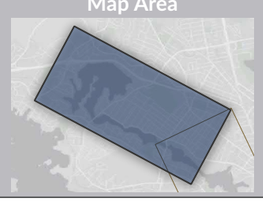

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Legend

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Map Sheet 3 of 7

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file: P:\20192676\00_Coast\Flood\tsunami\Working_Dwgs\010_GIS

472000E

474000E

5362000N



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472000E

474000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Detailed Sea Level Rise Inundation
Depth Map
0.5% AEP - 1.0m Relative Sea Level Rise

CRD



Map Area



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Legend

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Map Sheet 4 of 7

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0 250 500 750 1,000 m

478000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

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CRD



Map Area



Legend

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Map Sheet 5 of 7

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478000E

480000E

5368000N

0 250 500 750 1,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

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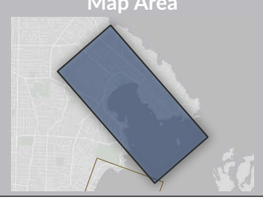
CRD



Map Area



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Map Sheet 6 of 7

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0 250 500 750 1,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Detailed Sea Level Rise Inundation Depth Map
0.5% AEP - 1.0m Relative Sea Level Rise

CRD



Map Area



Making a difference...together

DHI

Legend

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6. For further information, please refer to Task 2 – Sea Level Rise Modelling and Mapping Report. These maps constitute Appendix E1 of said report.

Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 7 of 7

plot date: 2020.06.12
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

468000E

470000E

5364000N

5362000N

0 250 500 750 1,000 m

468000E

470000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Detailed Sea Level Rise Inundation Depth Map
0.5% AEP - 2.0m Relative Sea Level Rise

CRD



Map Area



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DHI

Legend

- Coastline

Inundation Depth (m)

- 0 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 2
- >2

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 1 of 7

plot date: 2020.06.12
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

472000E

0 250 500 750 1,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

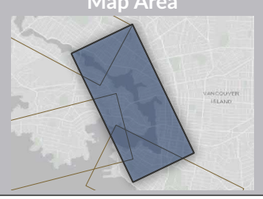
March 2020

Detailed Sea Level Rise Inundation Depth Map
0.5% AEP - 2.0m Relative Sea Level Rise

CRD



Map Area



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Legend

Coastline

Inundation Depth (m)

- 0 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 2
- >2

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 2 of 7

plot date: 2020.06.12
file: P:\20192676\00_CoastFloodPlan\mWorking_Dwgs\010_GIS

470000E

5368000N

5366000N

0 250 500 750 1,000 m

468000E

470000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

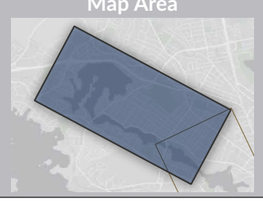
March 2020

Detailed Sea Level Rise Inundation Depth Map
0.5% AEP - 2.0m Relative Sea Level Rise

CRD



Map Area



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Legend

Coastline

Inundation Depth (m)

- 0 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 2
- >2

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 3 of 7

plot date: 2020.06.12
file: P:\20192676\00_Coast\Flood\tsunami\Working_Dwgs\010_GIS

472000E

474000E

5362000N

N

0 250 500 750 1,000 m

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472000E

474000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Detailed Sea Level Rise Inundation Depth Map
0.5% AEP - 2.0m Relative Sea Level Rise

CRD

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DHI

CRD



Map Area



Legend

Coastline

Inundation Depth (m)

- 0 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 2
- >2

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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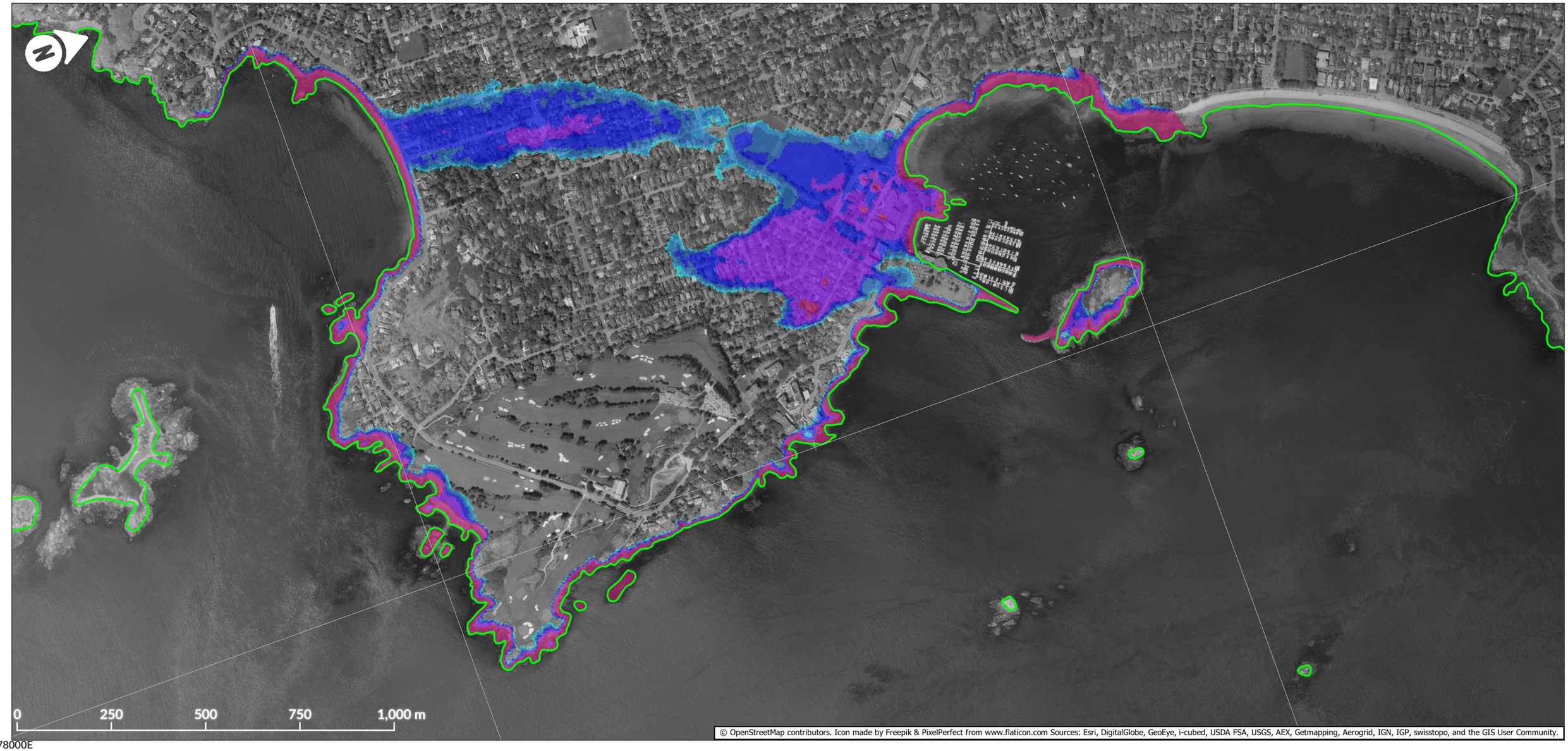
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 4 of 7

plot date: 2020.06.12
file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS



Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Detailed Sea Level Rise Inundation Depth Map
0.5% AEP - 2.0m Relative Sea Level Rise

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CRD



Map Area



Legend

- Coastline

Inundation Depth (m)

- 0 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 2
- >2

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 5 of 7

plot date: 2020.04.12
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

478000E

480000E

5368000N



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478000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Detailed Sea Level Rise Inundation
Depth Map
0.5% AEP - 2.0m Relative Sea Level Rise

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CRD



Map Area



Legend

Coastline

Inundation Depth (m)

- 0 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 2
- >2

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Approved by D. Forde, P.Eng.
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Map Sheet 6 of 7

plot date: 2020.04.12
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

N

0 250 500 750 1,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

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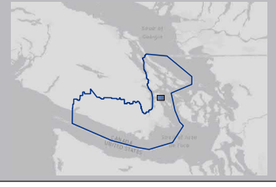
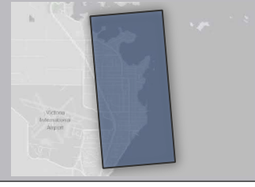
0.5% AEP - 2.0m Relative Sea Level Rise

CRD



Map Area



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Legend

Coastline

Inundation Depth (m)

- 0 - 0.1
- 0.1 - 0.25
- 0.25 - 0.5
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- 1 - 2
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Map Sheet 7 of 7

plot date: 2020.04.12
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

E.2. DETAILED INUNDATION PLOTS

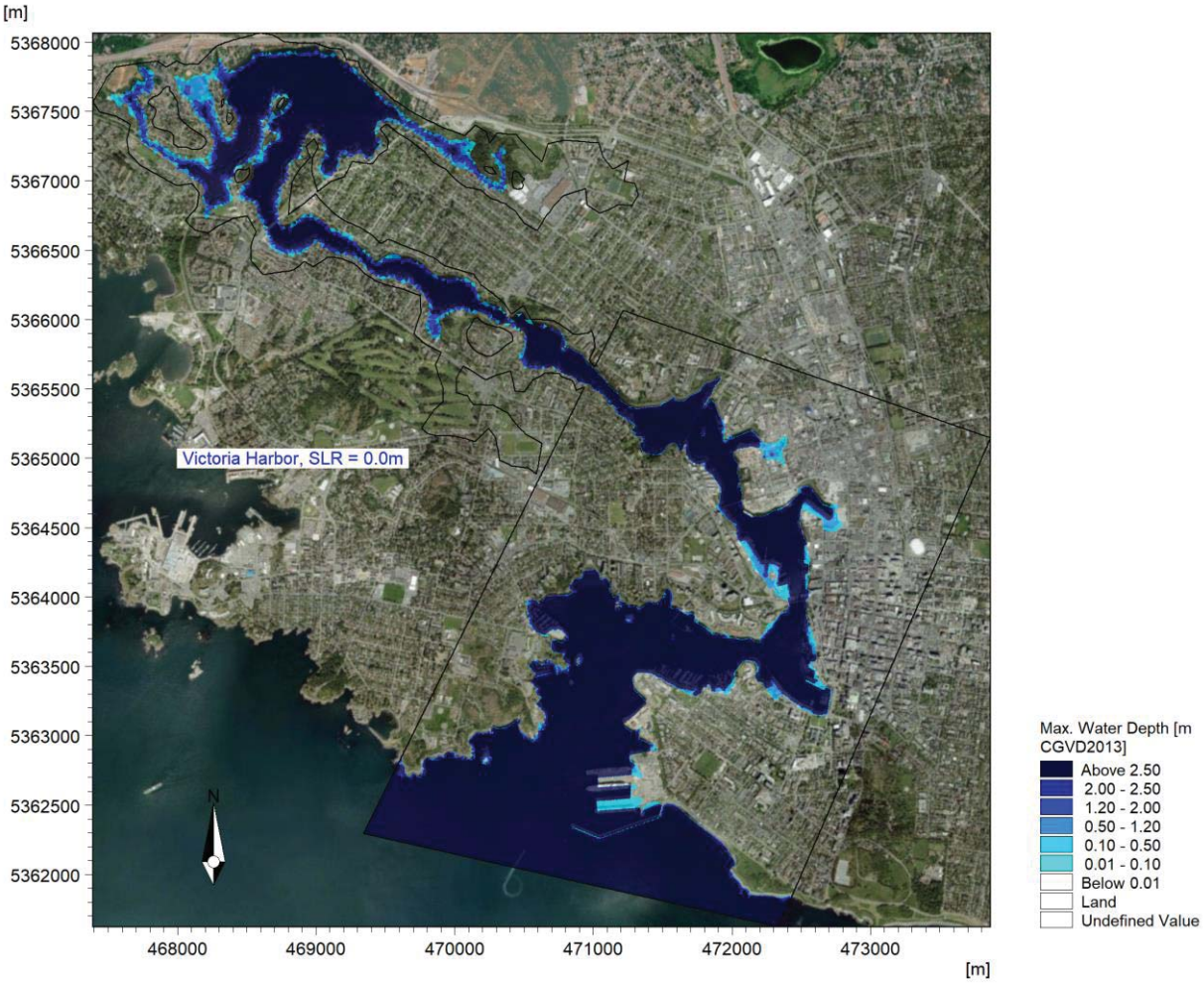

Figure E – 1
Maximum extent and depth of flooding in local area Victoria Harbour. RSLR = 0.0 m, AEP: 0.5%

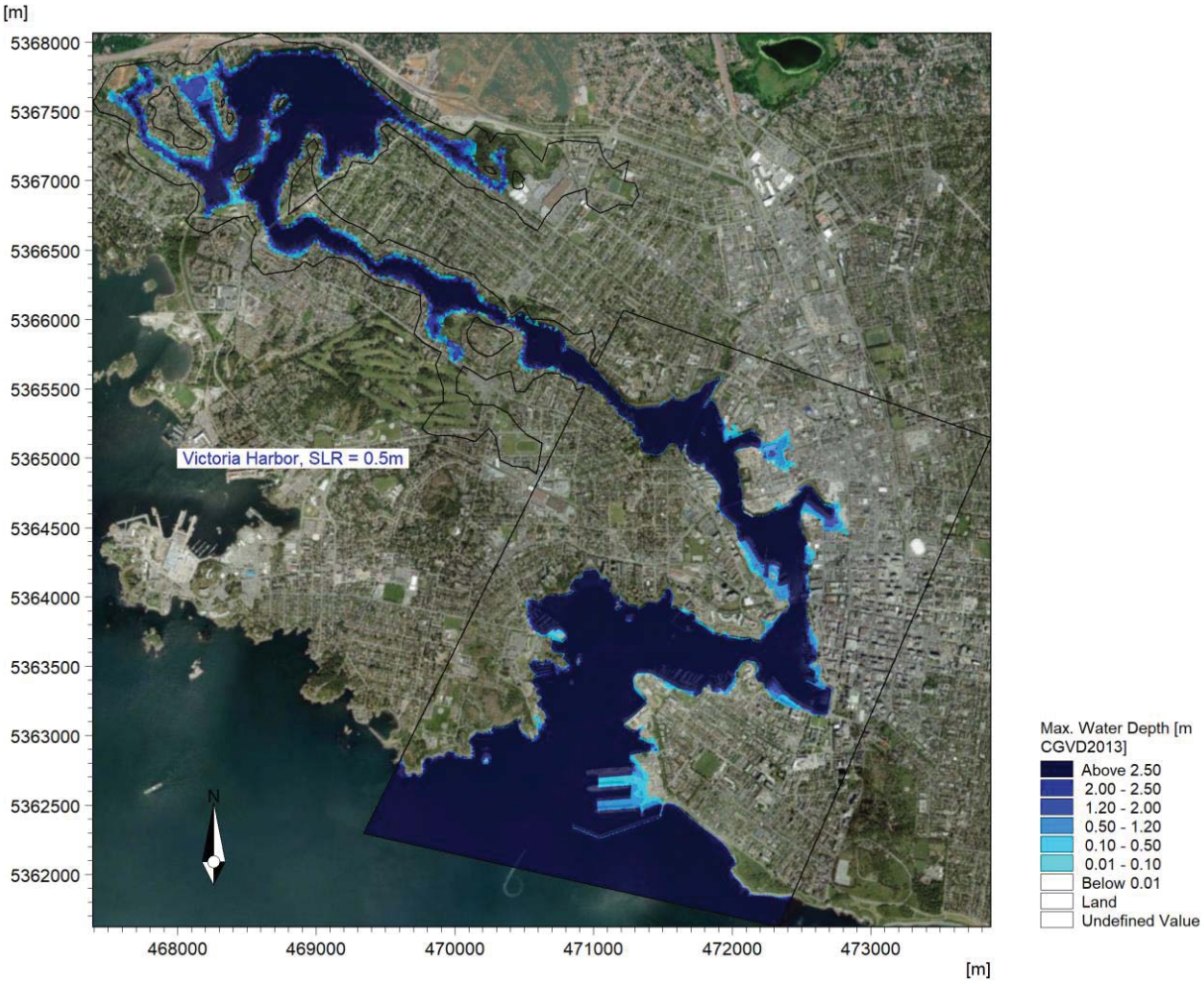

Figure E – 2
Maximum extent and depth of flooding in local area Victoria Harbour. RSLR = 0.5 m, AEP: 0.5%

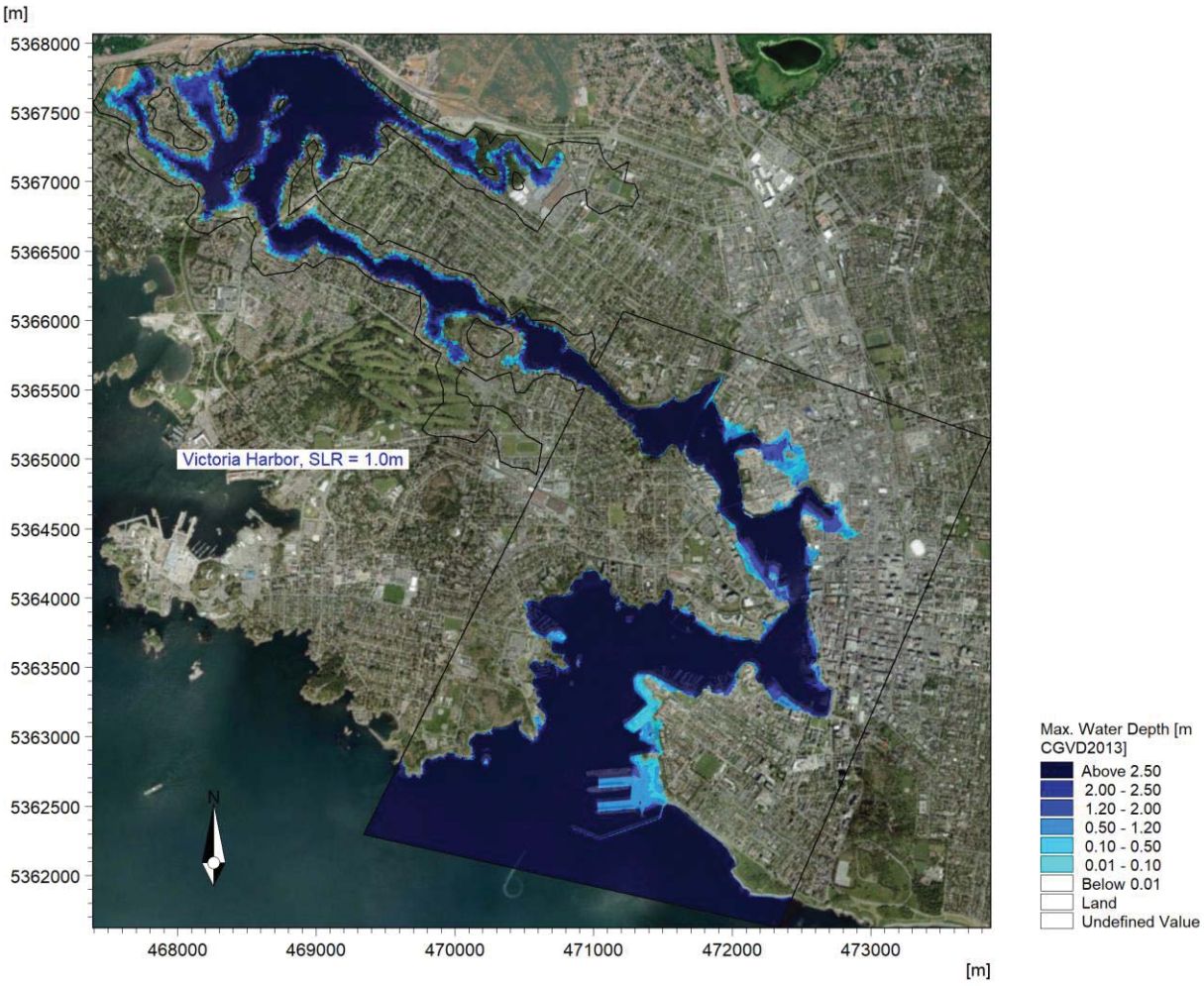

Figure E – 3
Maximum extent and depth of flooding in local area Victoria Harbour. RSLR = 1.0 m, AEP: 0.5%

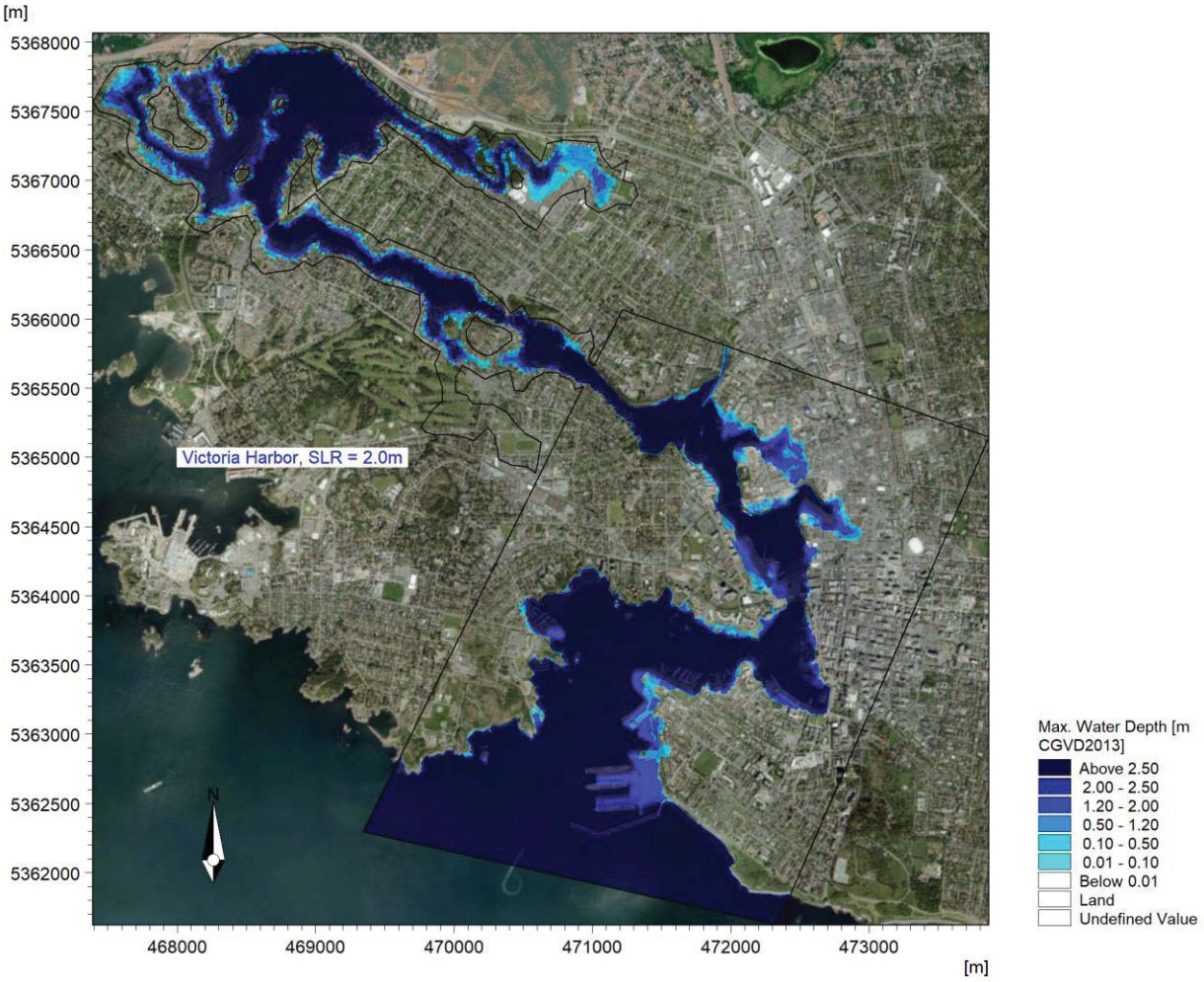

Figure E – 4
Maximum extent and depth of flooding in local area Victoria Harbour. RSLR = 2.0 m, AEP: 0.5%

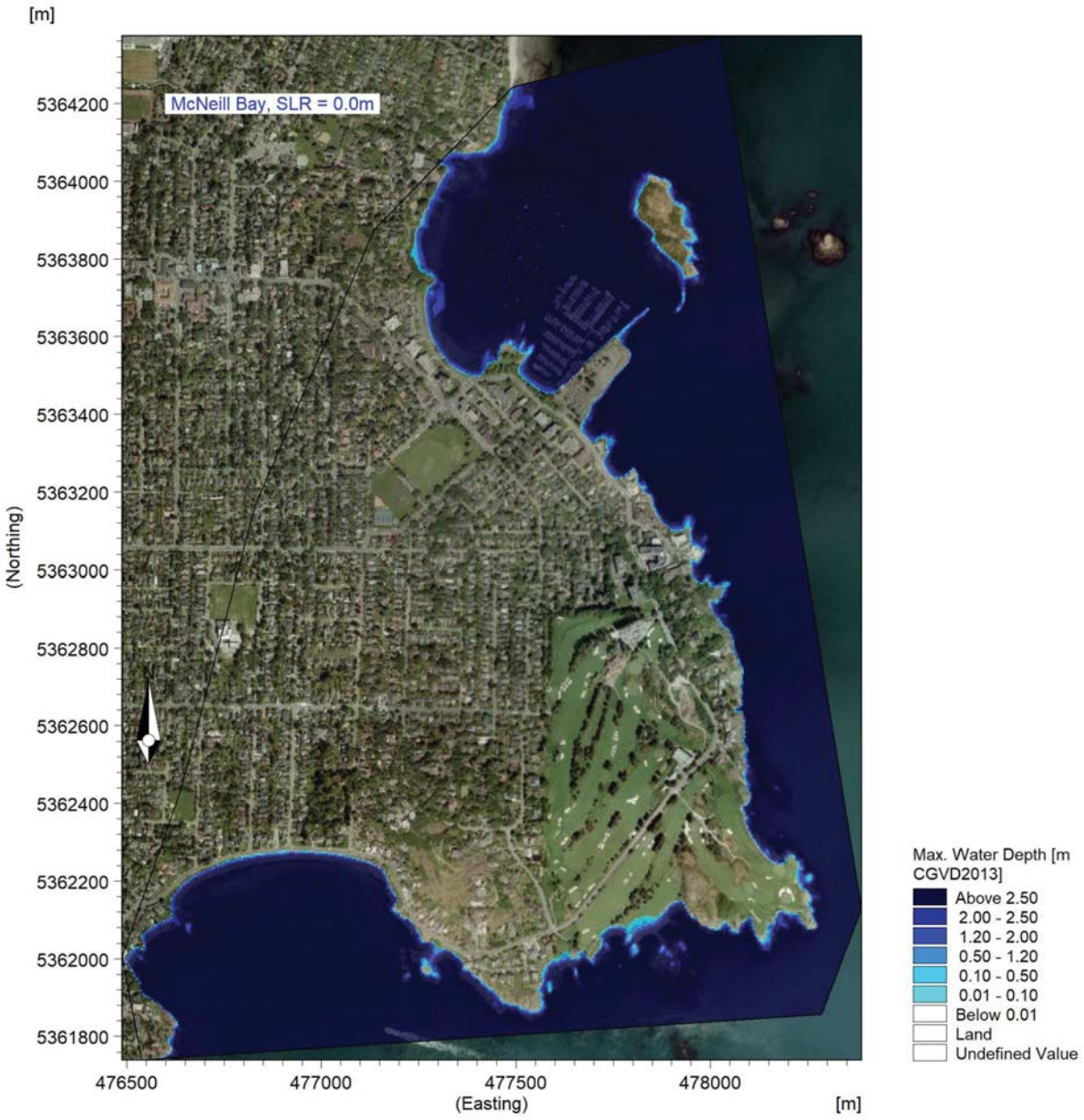

Figure E – 5
Maximum extent and depth of flooding in local area McNeill Bay. RSLR = 0.0 m, AEP: 0.5%

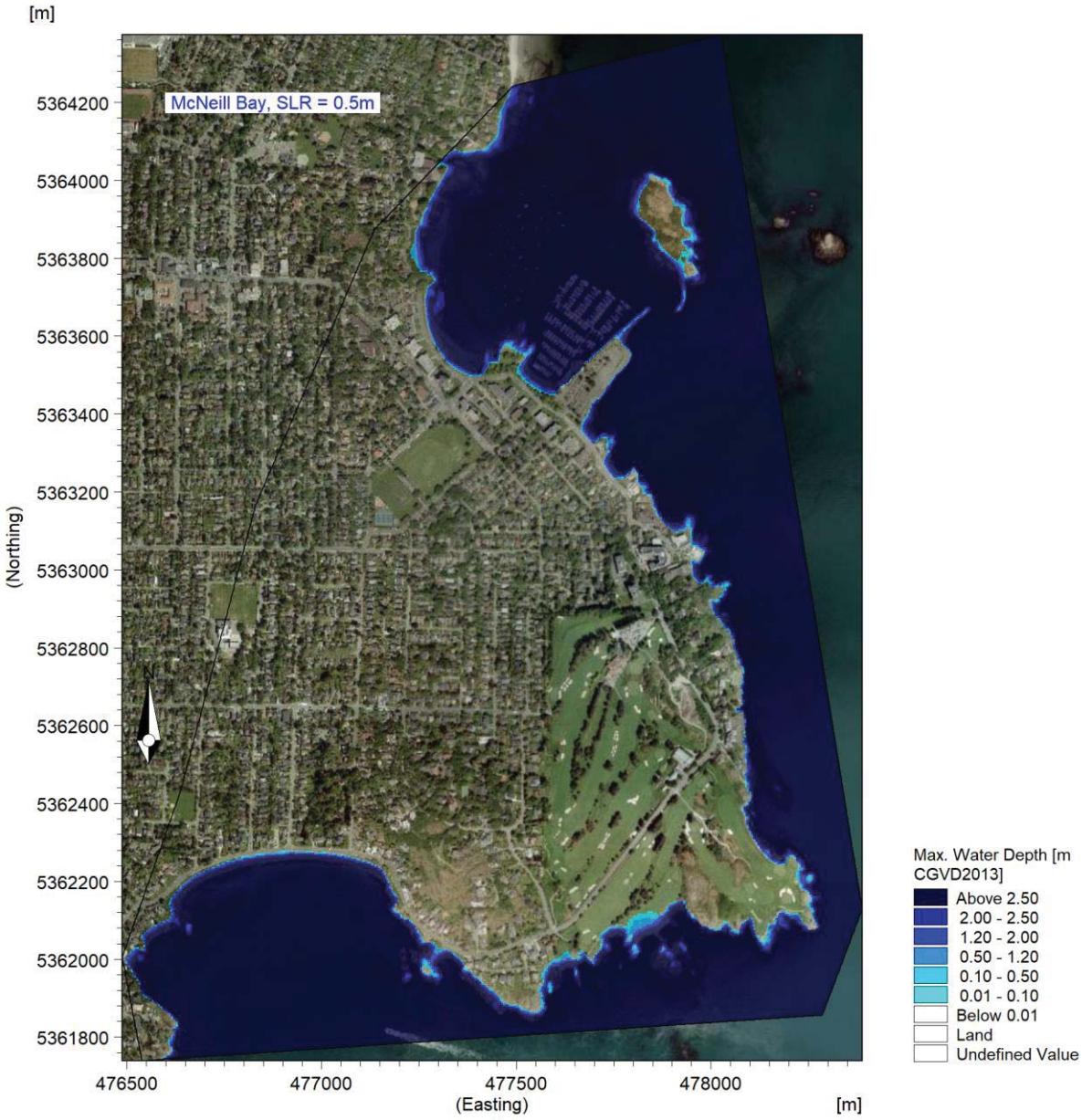

Figure E – 6
Maximum extent and depth of flooding in local area McNeill Bay. RSLR = 0.5 m, AEP: 0.5%

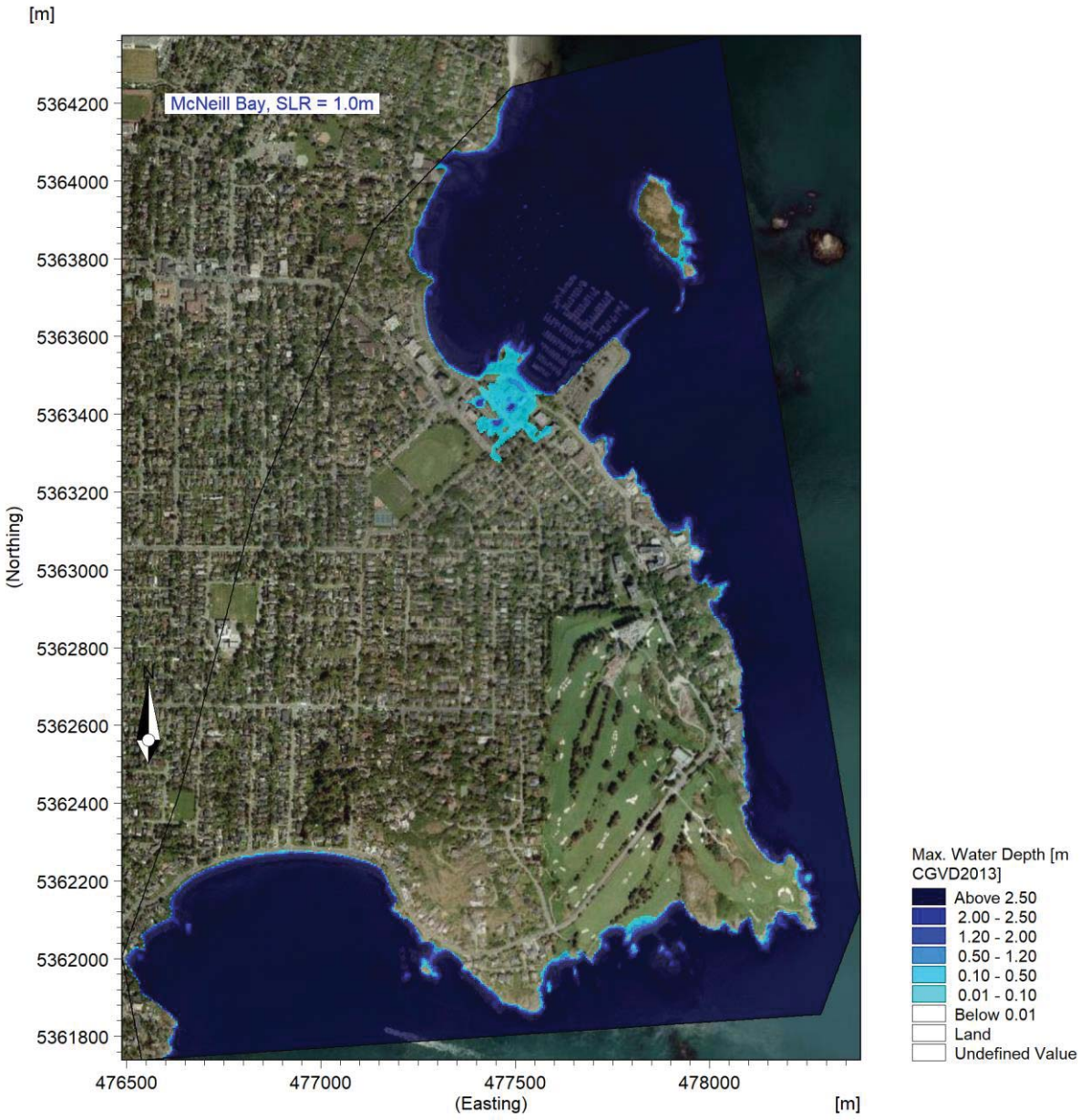

Figure E – 7
Maximum extent and depth of flooding in local area McNeill Bay. RSLR = 1.0 m, AEP: 0.5%

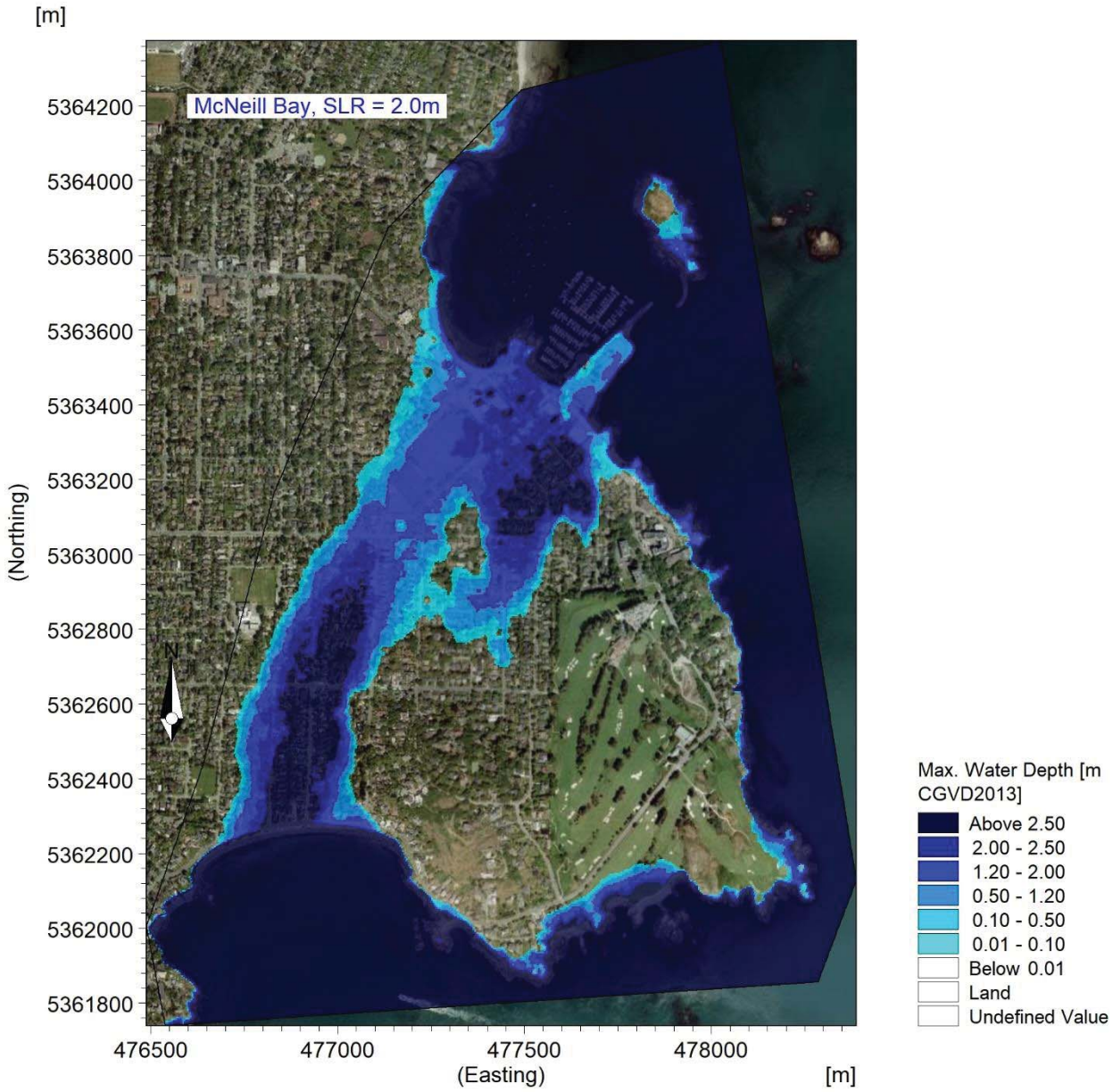

Figure E – 8
Maximum extent and depth of flooding in local area McNeill Bay. RSLR = 2.0 m, AEP: 0.5%

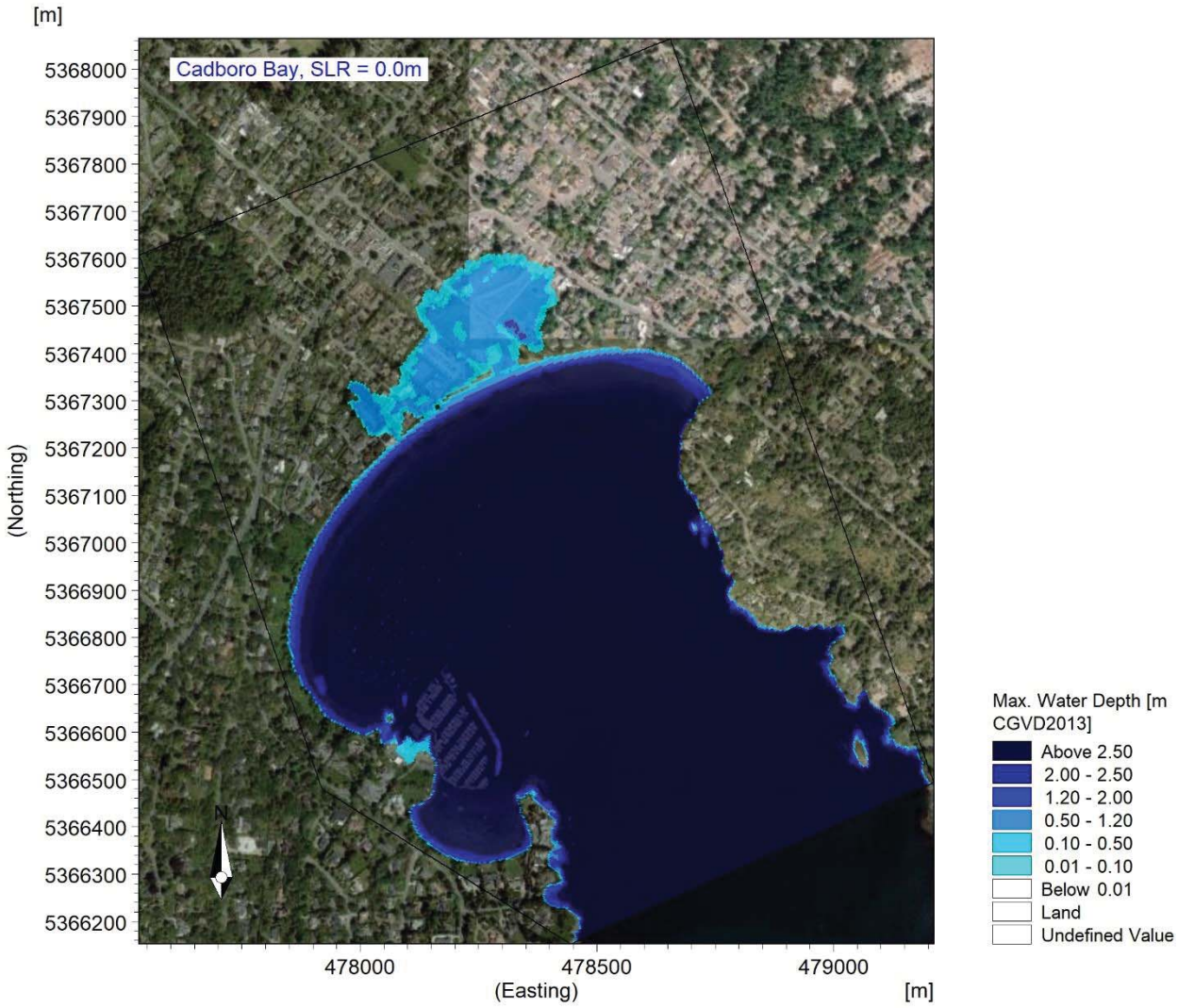

Figure E – 9
Maximum extent and depth of flooding in local area Cadboro Bay. RSLR = 0.0 m, AEP: 0.5%

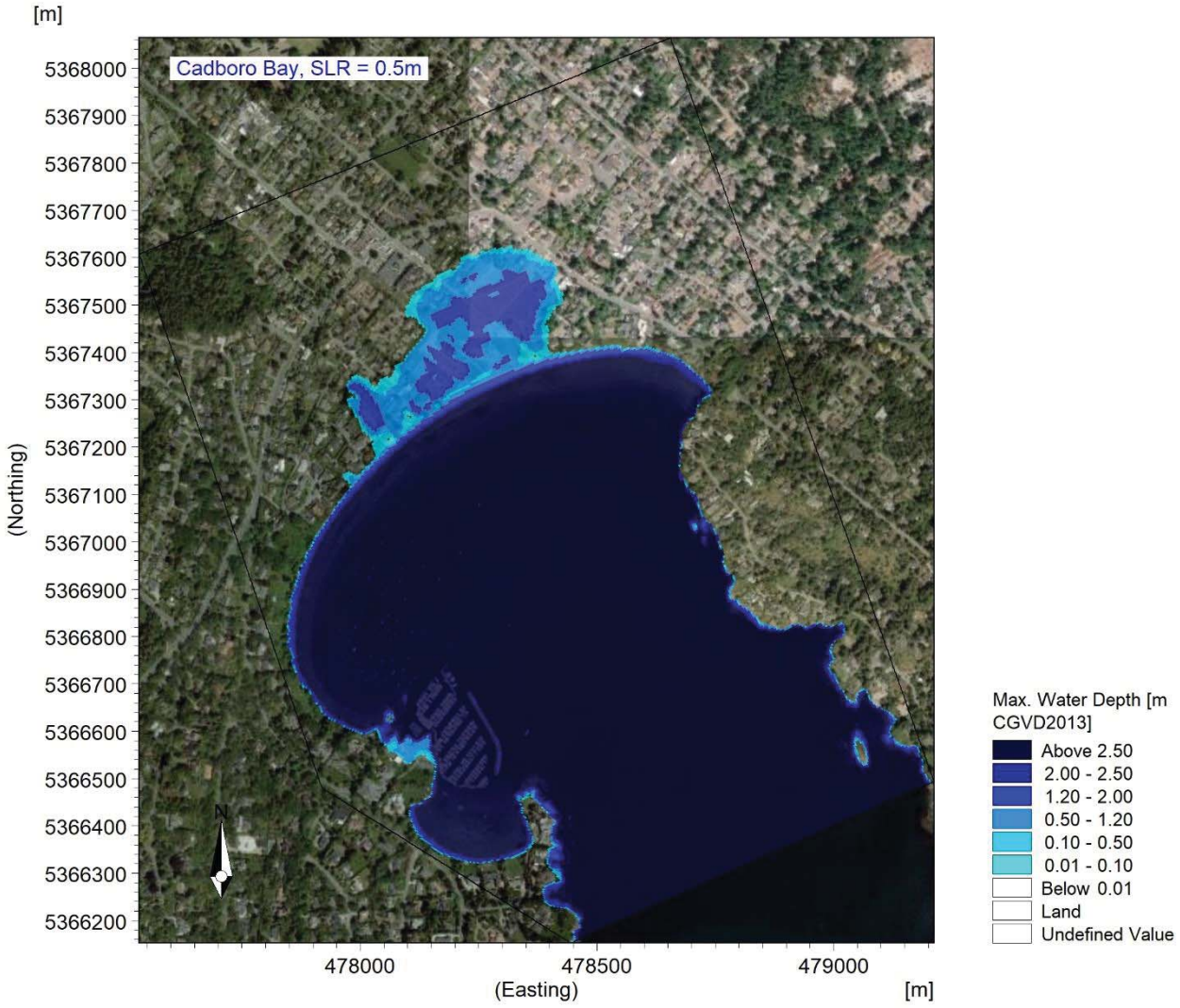

Figure E – 10
Maximum extent and depth of flooding in local area Cadboro Bay. RSLR = 0.5 m, AEP: 0.5%

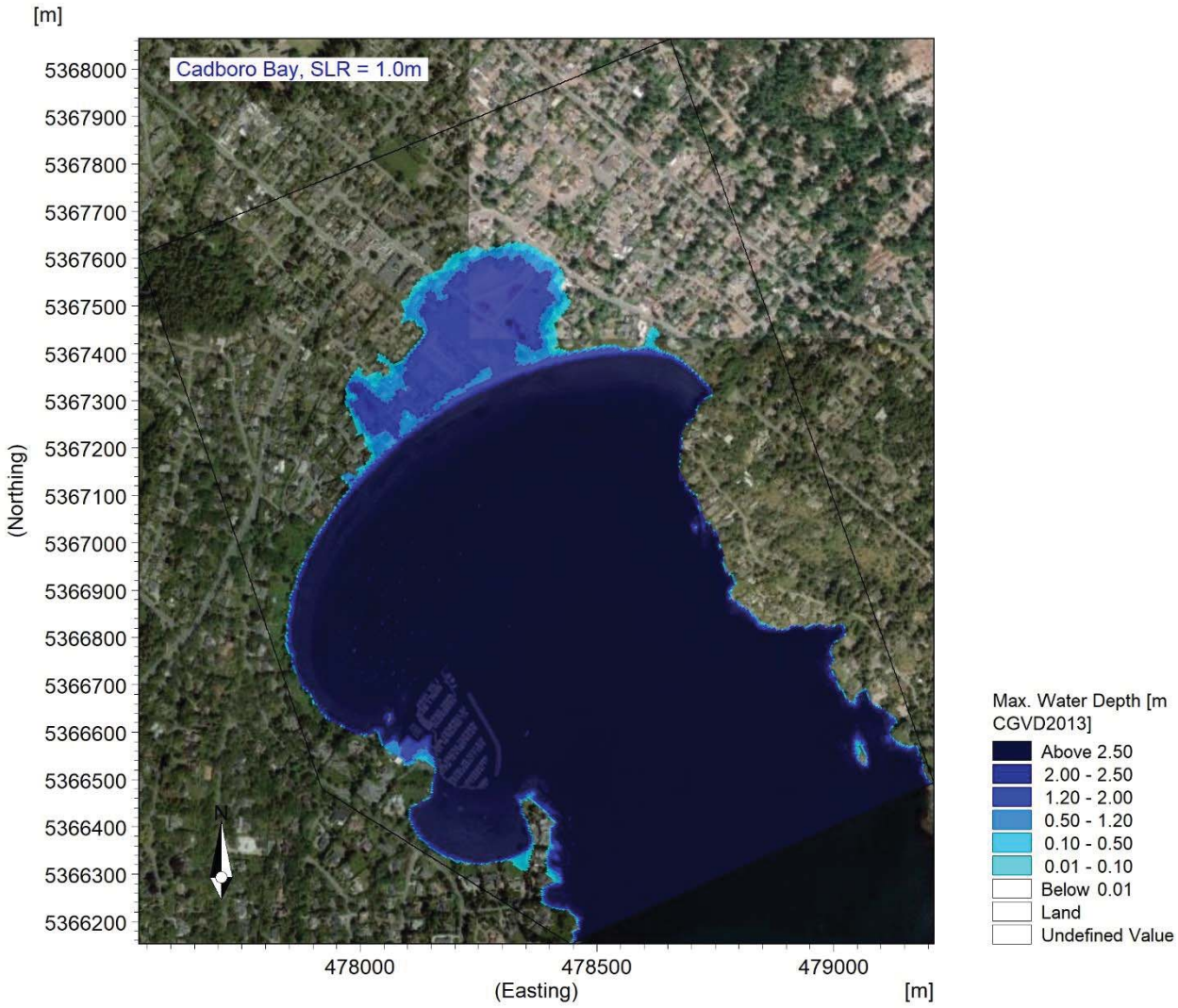

Figure E – 11
Maximum extent and depth of flooding in local area Cadboro Bay. RSLR = 1.0 m, AEP: 0.5%

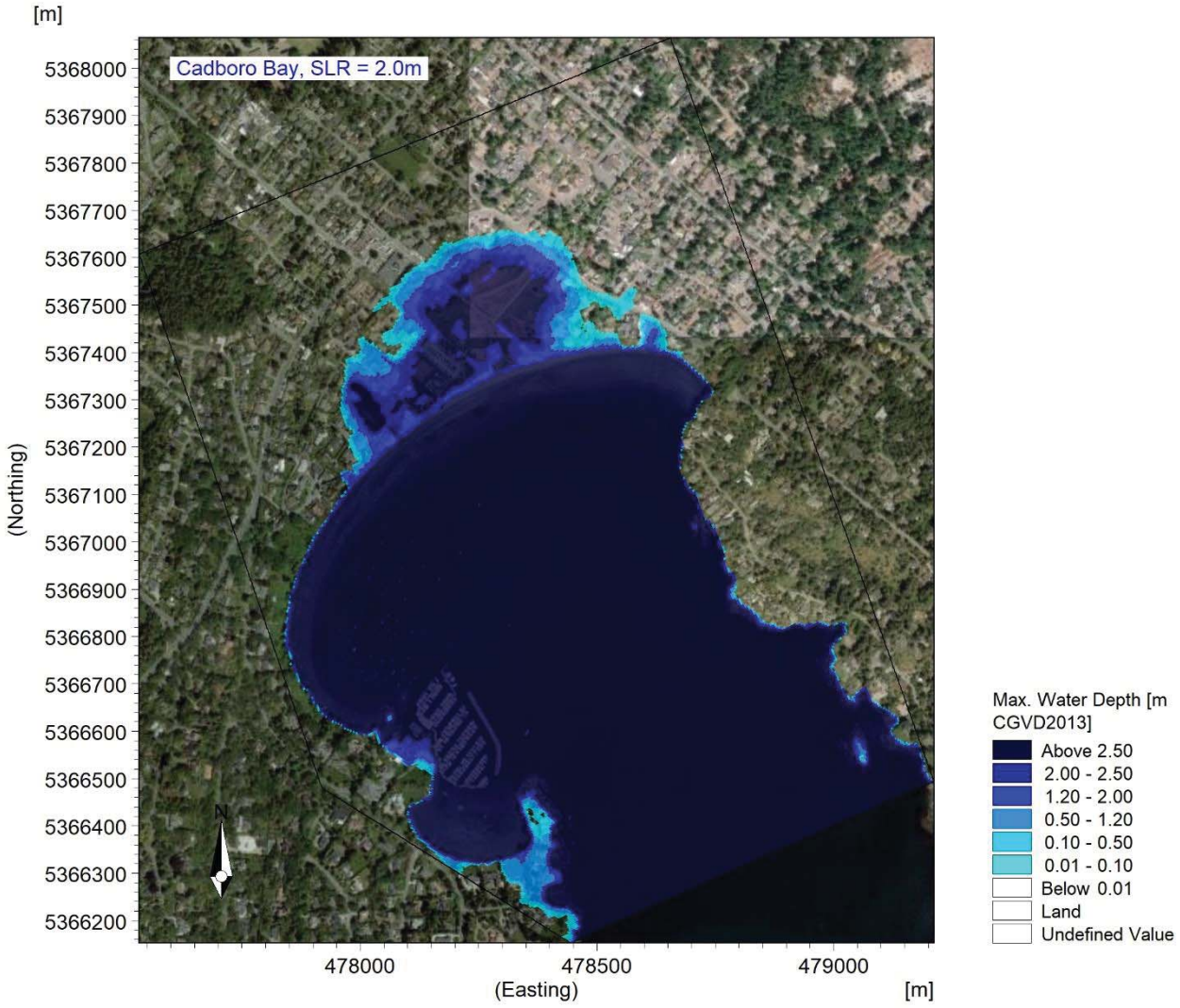

Figure E – 12
Maximum extent and depth of flooding in local area Cadboro Bay. RSLR = 2.0 m, AEP: 0.5%

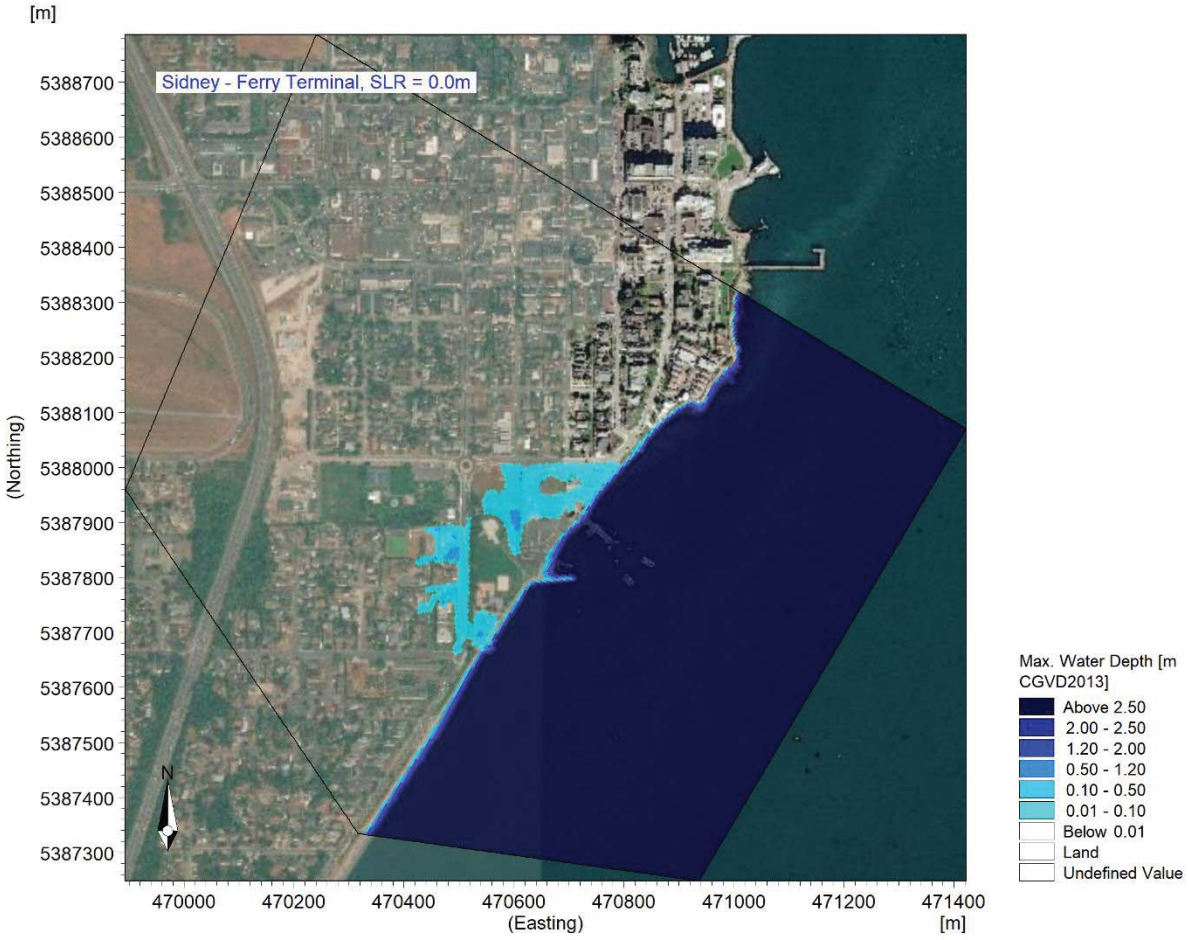

Figure E – 13
Maximum extent and depth of flooding in local area Sidney Ferry Terminal. RSLR = 0.0 m, AEP: 0.5%

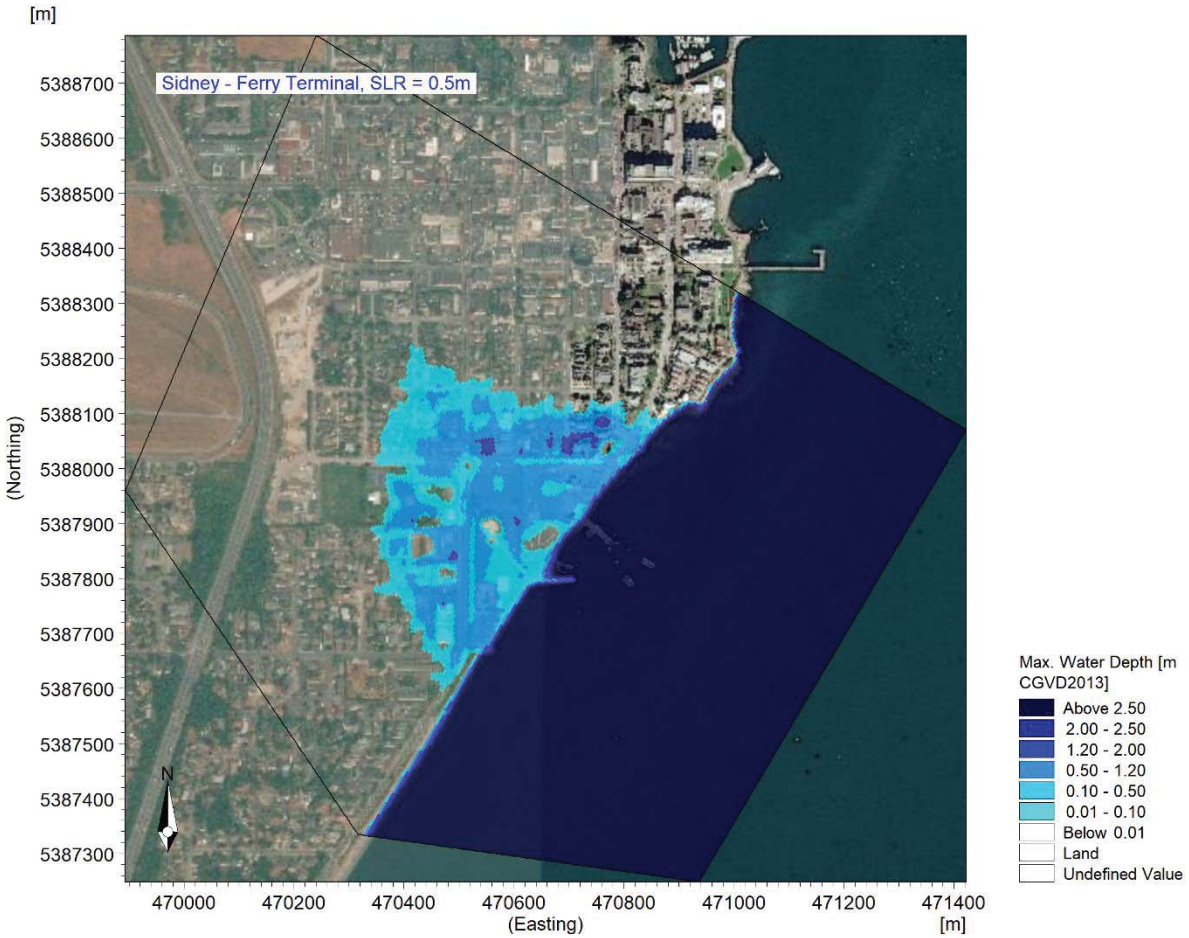

Figure E – 14
Maximum extent and depth of flooding in local area Sidney Ferry Terminal. RSLR = 0.5 m, AEP: 0.5%

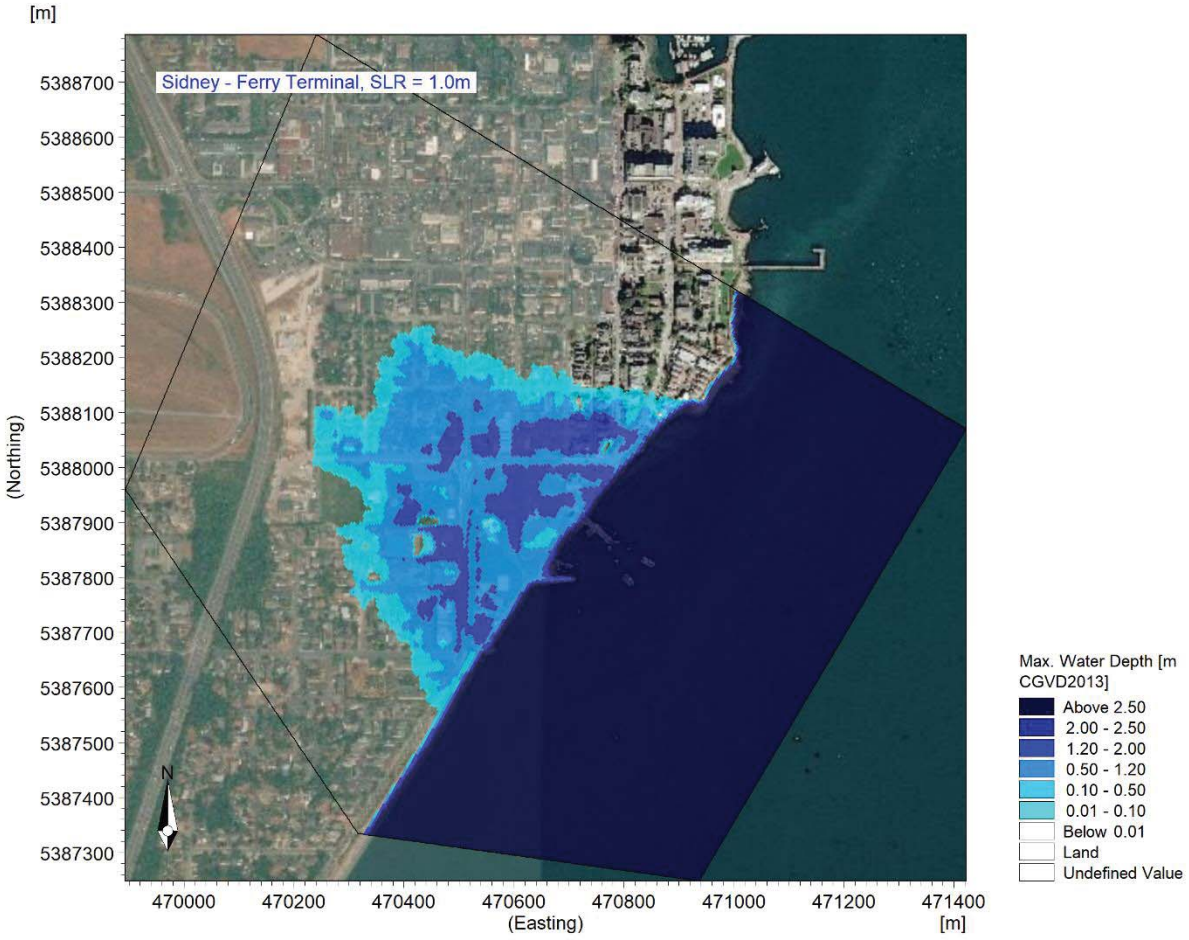

Figure E – 15
Maximum extent and depth of flooding in local area Sidney Ferry Terminal. RSLR = 1.0 m, AEP: 0.5%

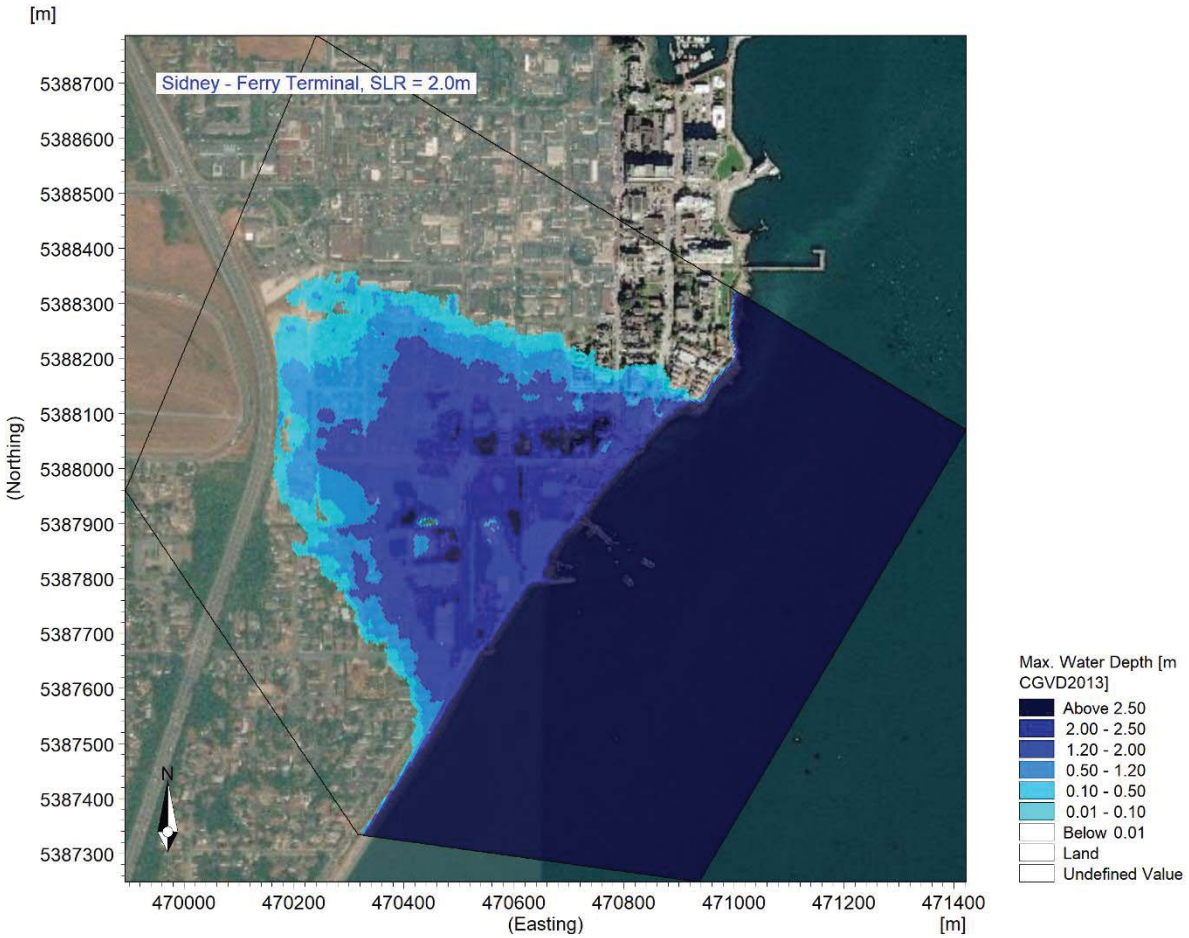

Figure E – 16
Maximum extent and depth of flooding in local area Sidney Ferry Terminal. RSLR = 2.0 m, AEP: 0.5%

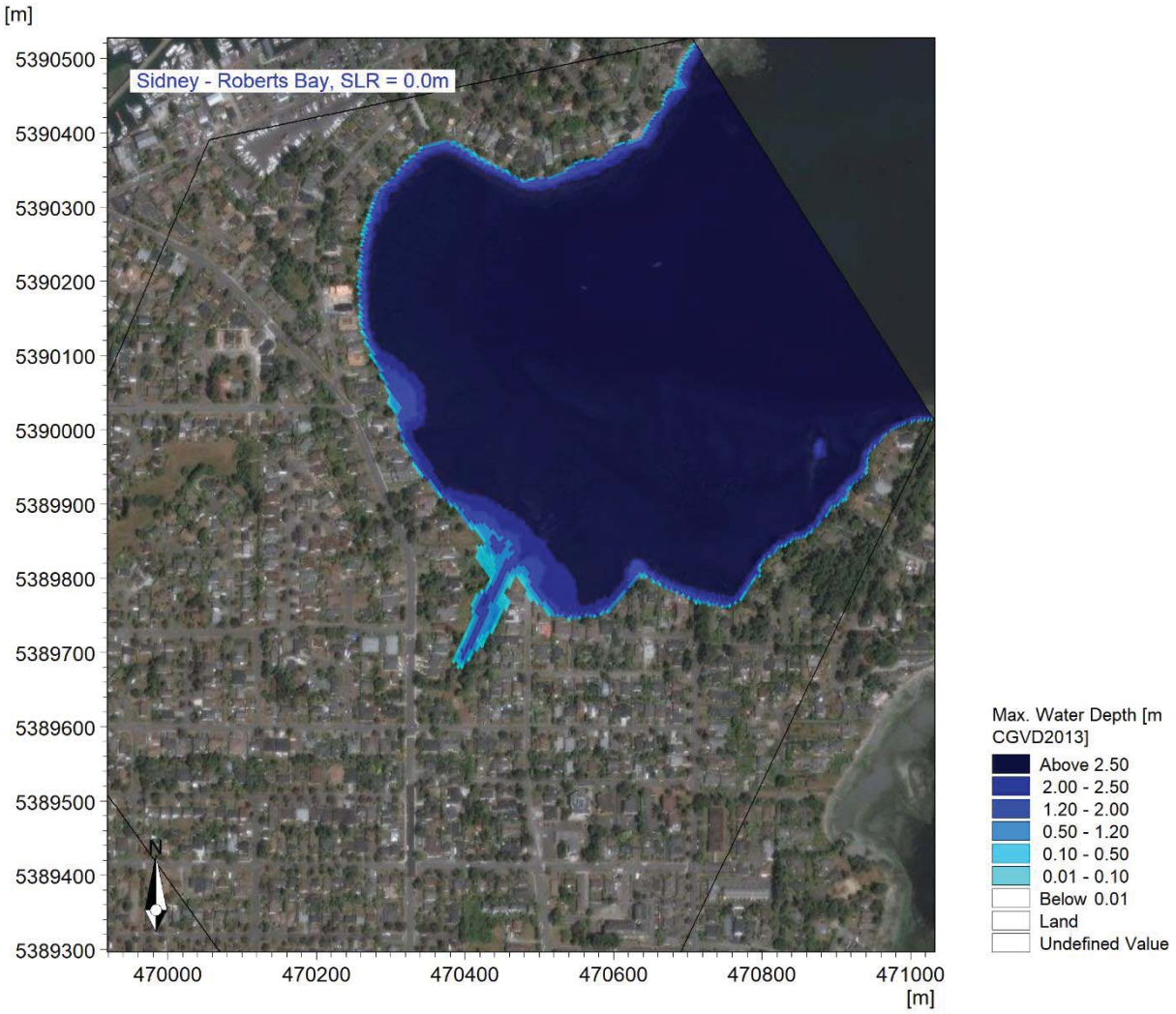

Figure E – 17
Maximum extent and depth of flooding in local area Sidney Roberts Bay. RSLR = 0.0 m, AEP: 0.5%

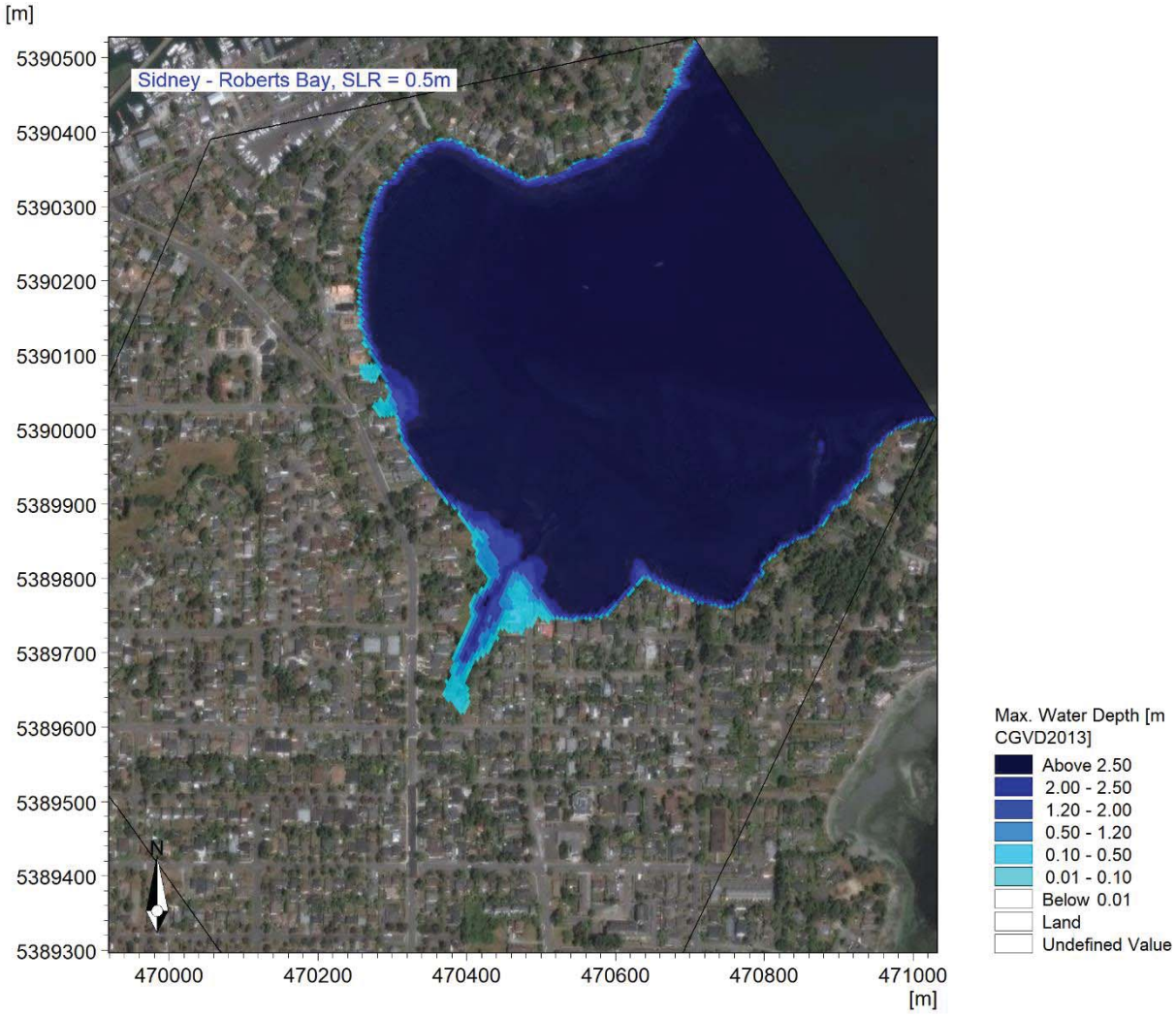

Figure E – 18
Maximum extent and depth of flooding in local area Sidney Roberts Bay. RSLR = 0.5 m, AEP: 0.5%

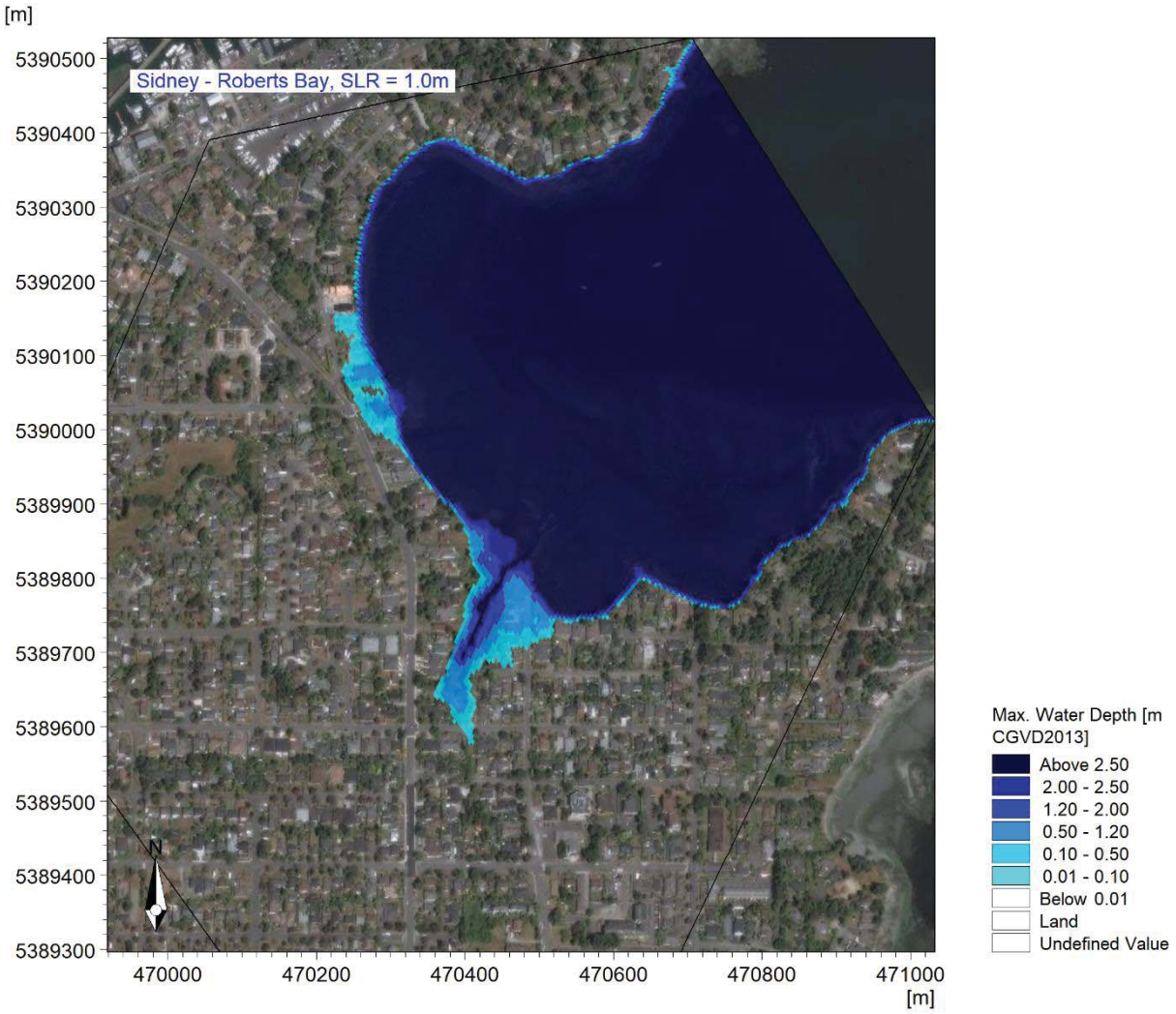

Figure E – 19
Maximum extent and depth of flooding in local area Sidney Roberts Bay. RSLR = 1.0 m, AEP: 0.5%

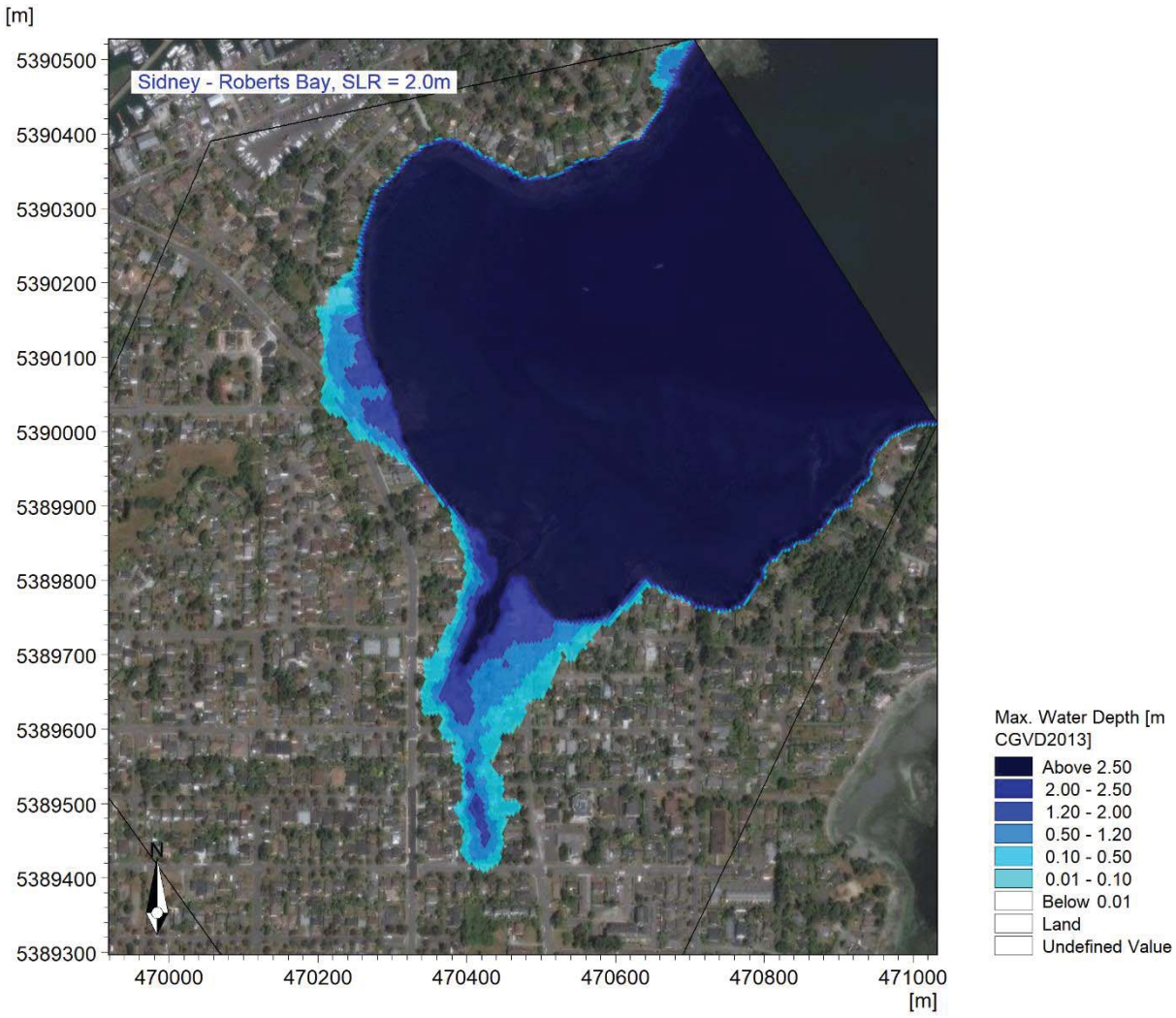

Figure E – 20
Maximum extent and depth of flooding in local area Sidney Roberts Bay. RSLR = 2.0 m, AEP: 0.5%

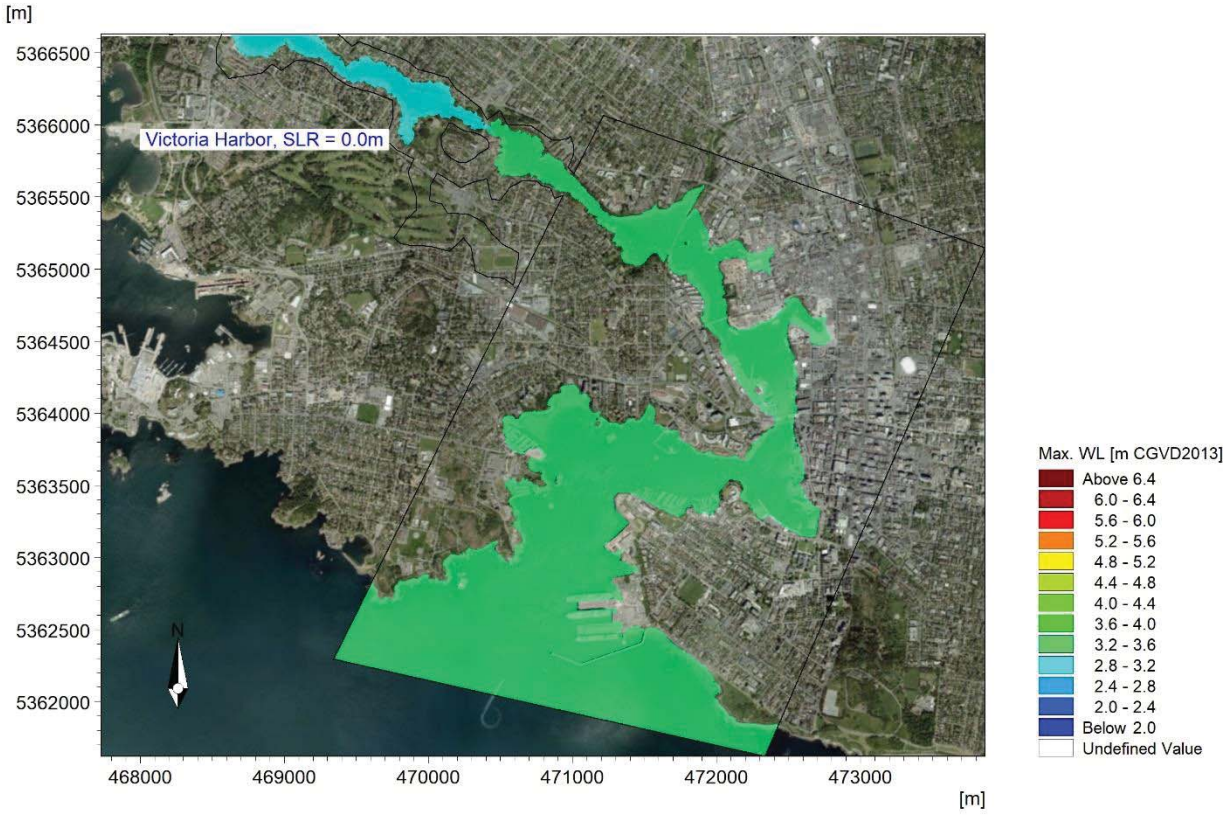

Figure E – 21
Maximum surface elevation in local area Victoria Harbour. RSLR = 0.0 m, AEP: 0.5%

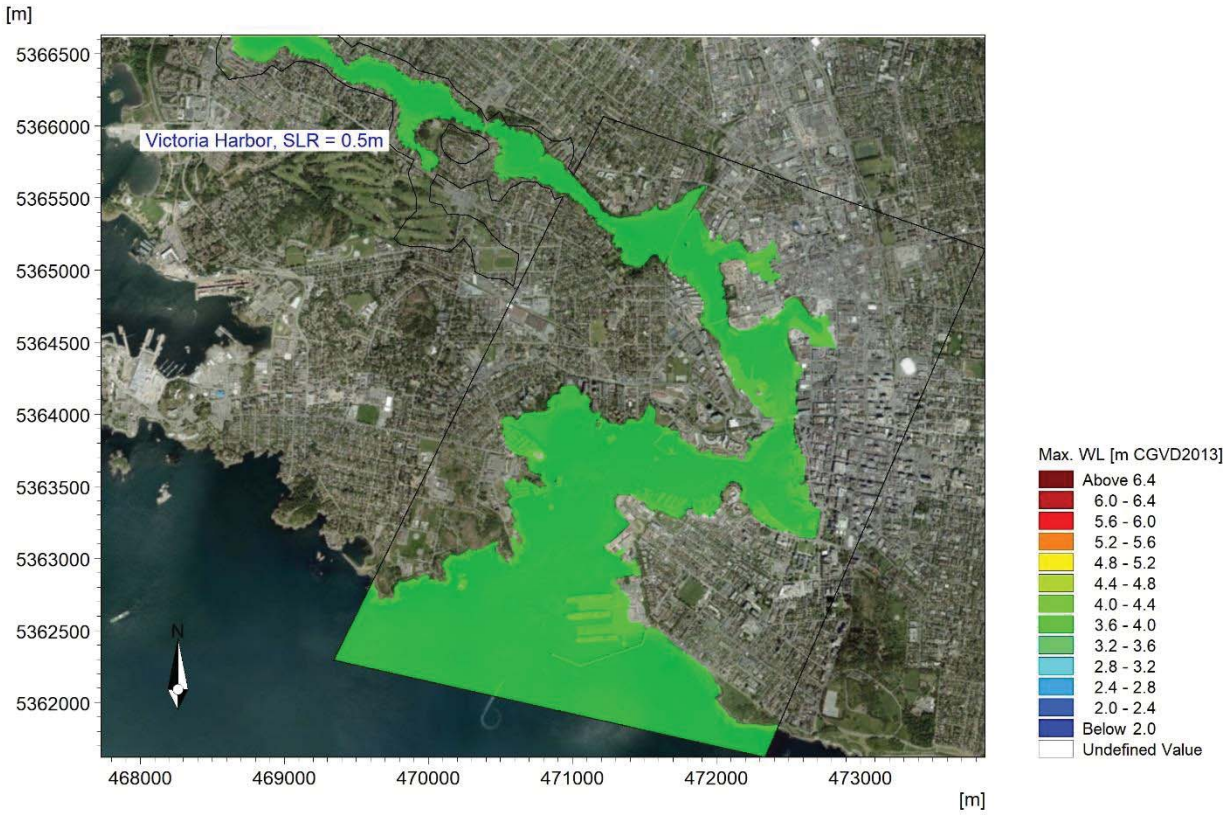

Figure E – 22
Maximum surface elevation in local area Victoria Harbour. RSLR = 0.5 m, AEP: 0.5%

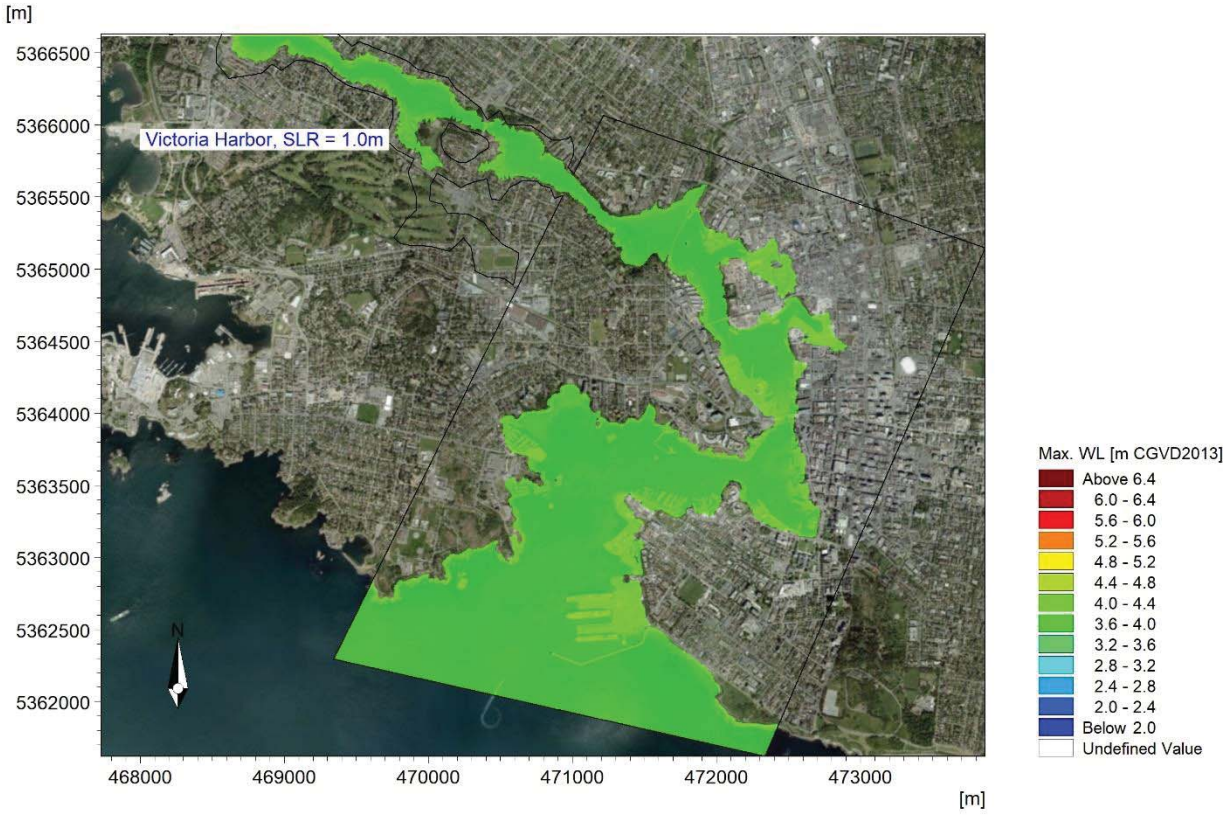

Figure E – 23
Maximum surface elevation in local area Victoria Harbour. RSLR = 1.0 m, AEP: 0.5%

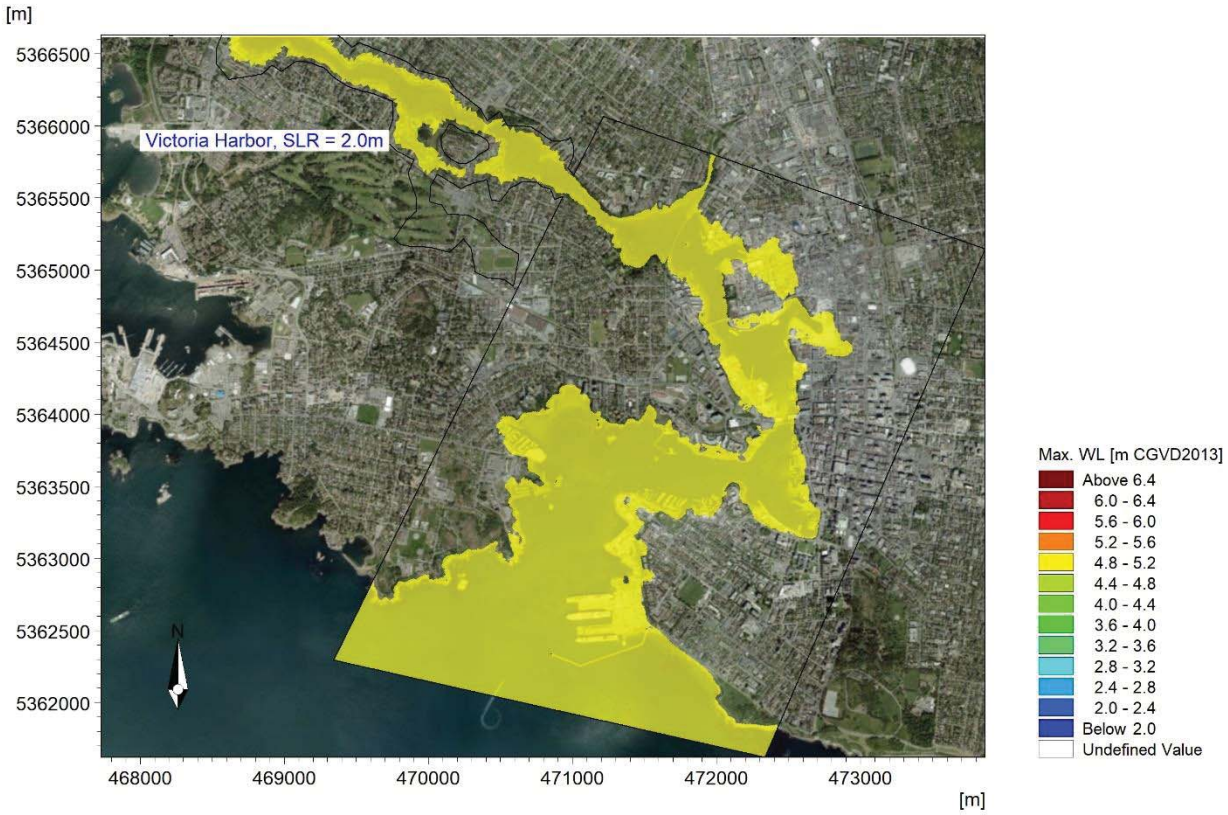

Figure E – 24
Maximum surface elevation in local area Victoria Harbour. RSLR = 2.0 m, AEP: 0.5%

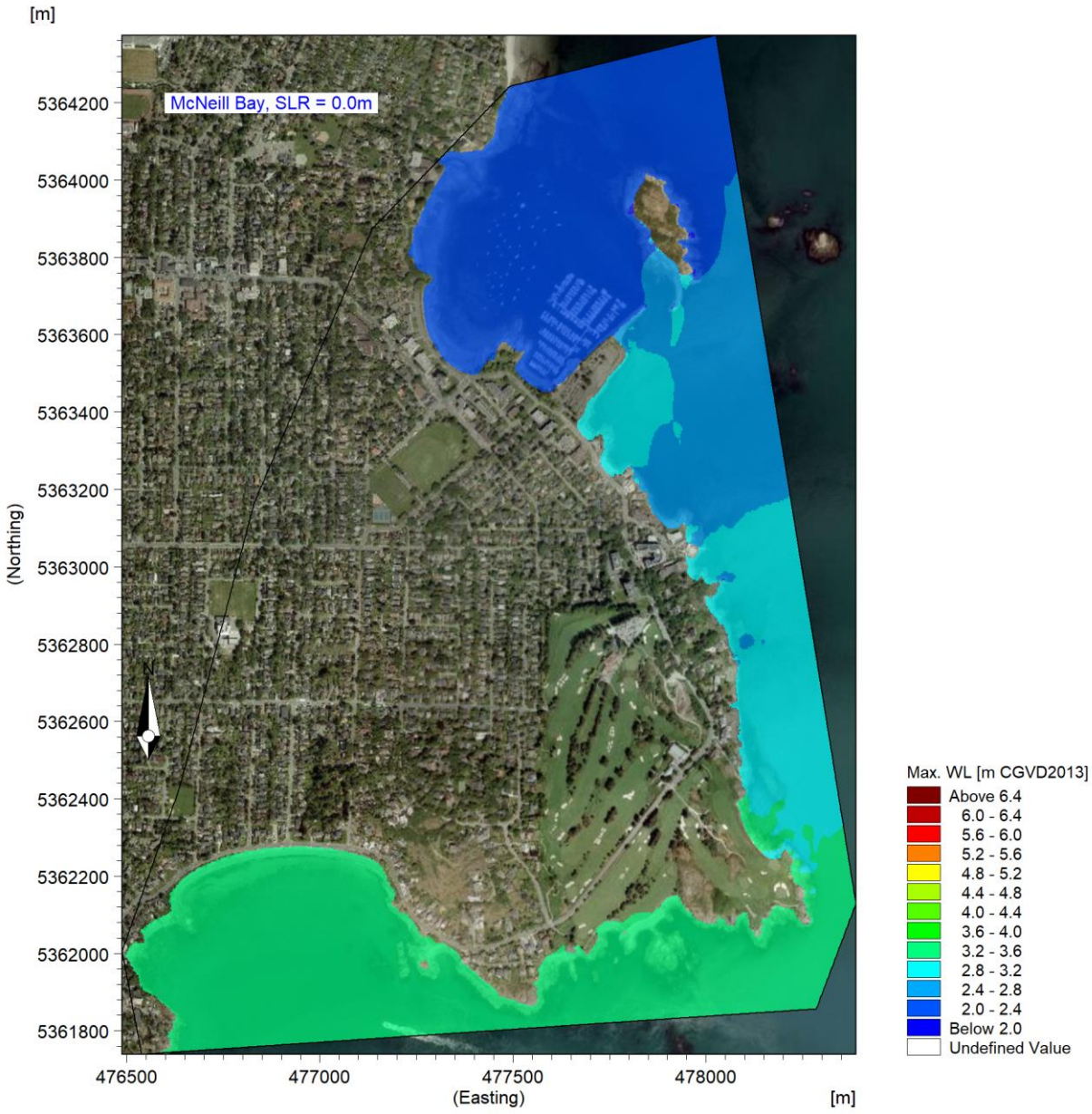

Figure E-25
Maximum surface elevation in local area McNeill Bay. RSLR = 0.0 m, AEP: 0.5%

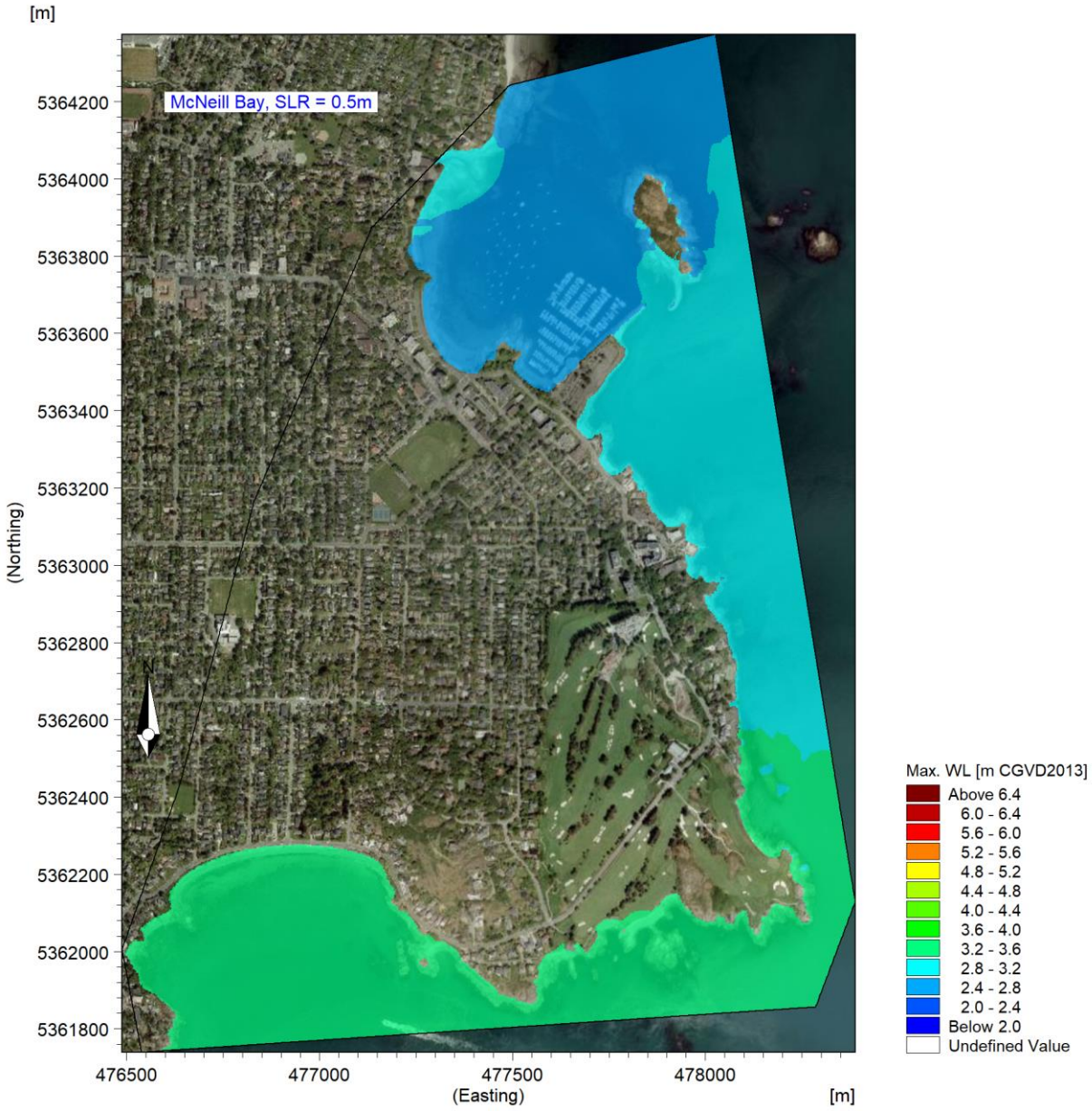

Figure E-26
Maximum surface elevation in local area McNeill Bay. RSLR = 0.5 m, AEP: 0.5%

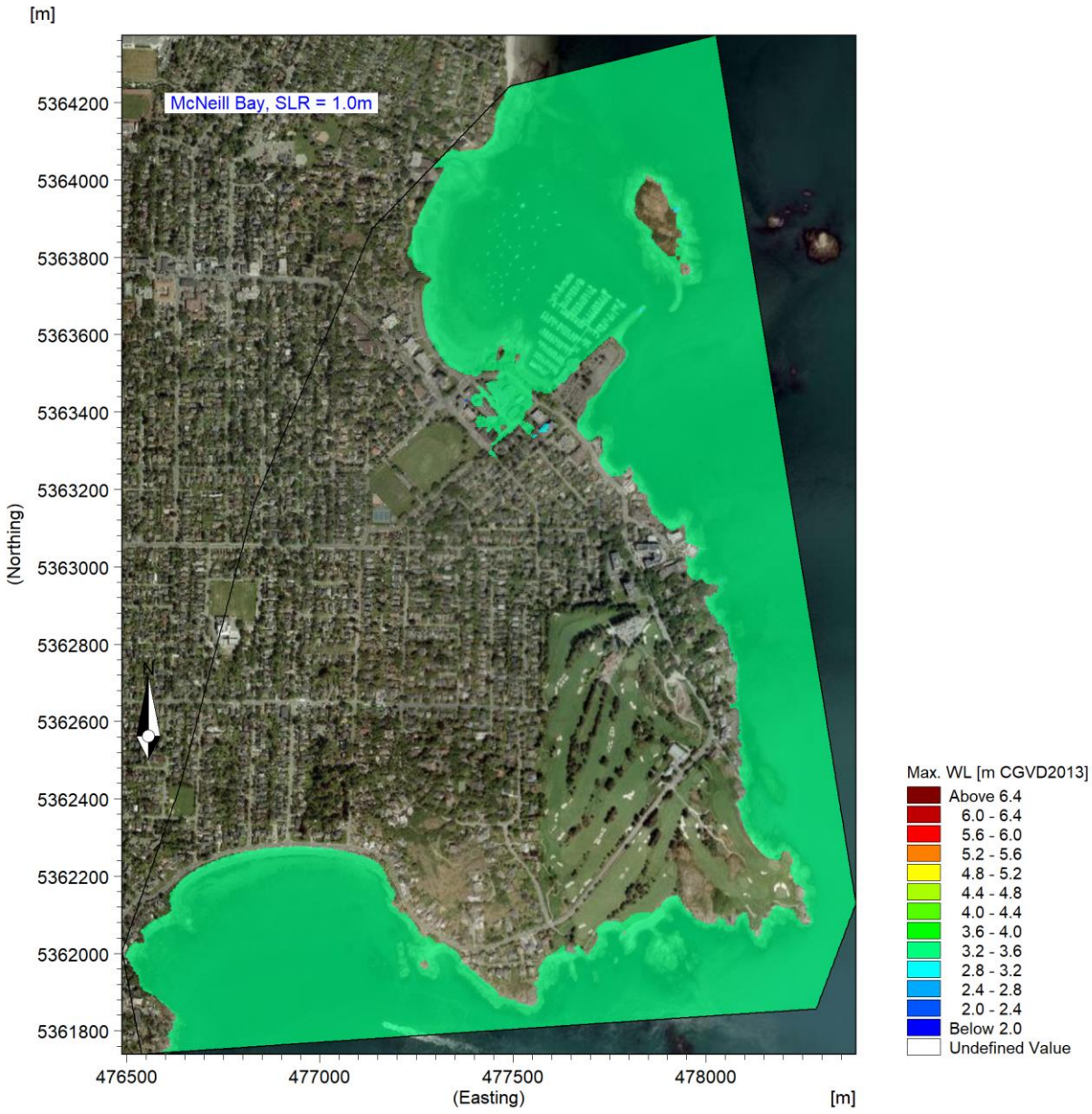

Figure E-27
Maximum surface elevation in local area McNeill Bay. RSLR = 1.0 m, AEP: 0.5%

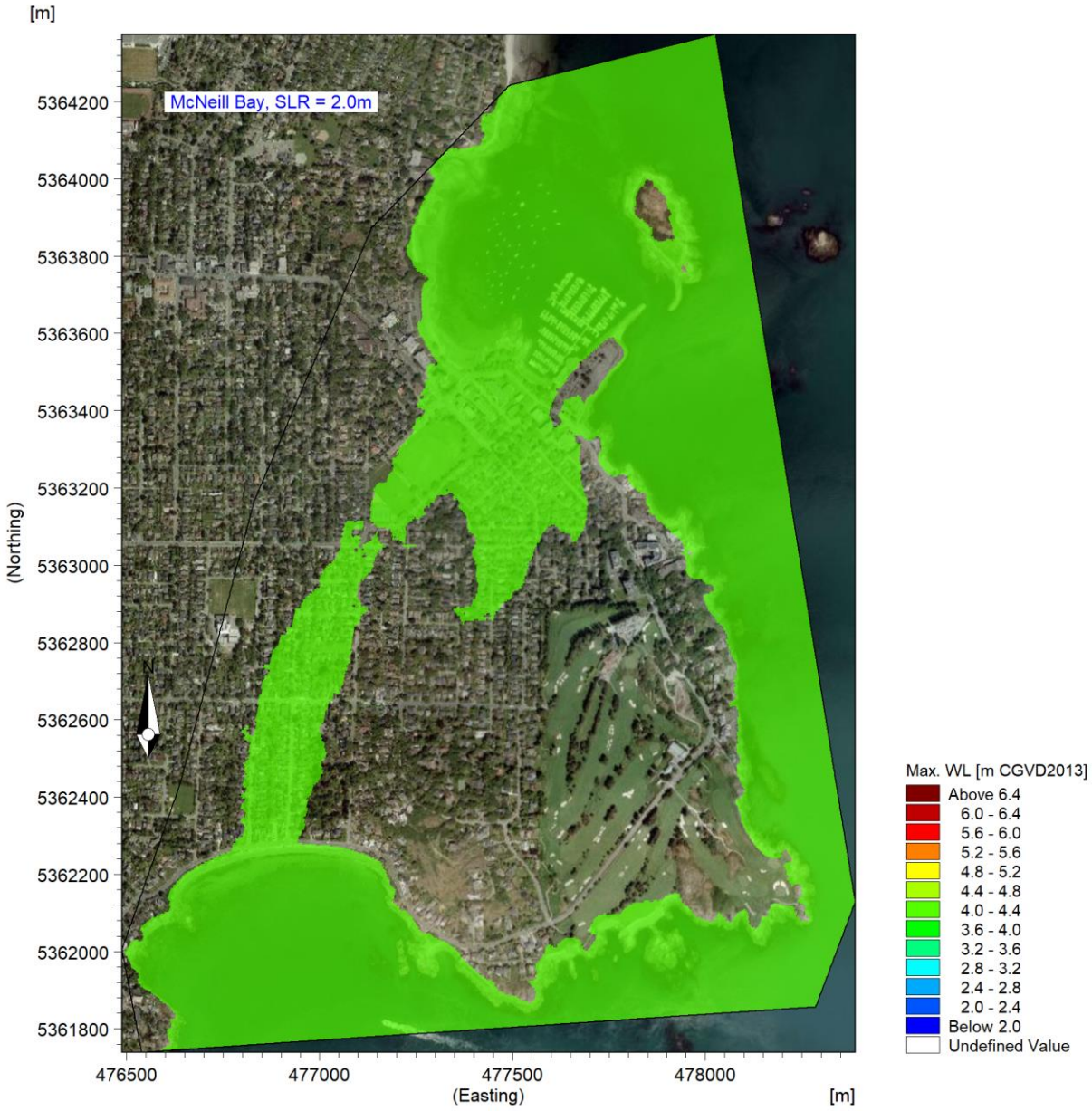

Figure E-28
Maximum surface elevation in local area McNeill Bay. RSLR = 2.0 m, AEP: 0.5%

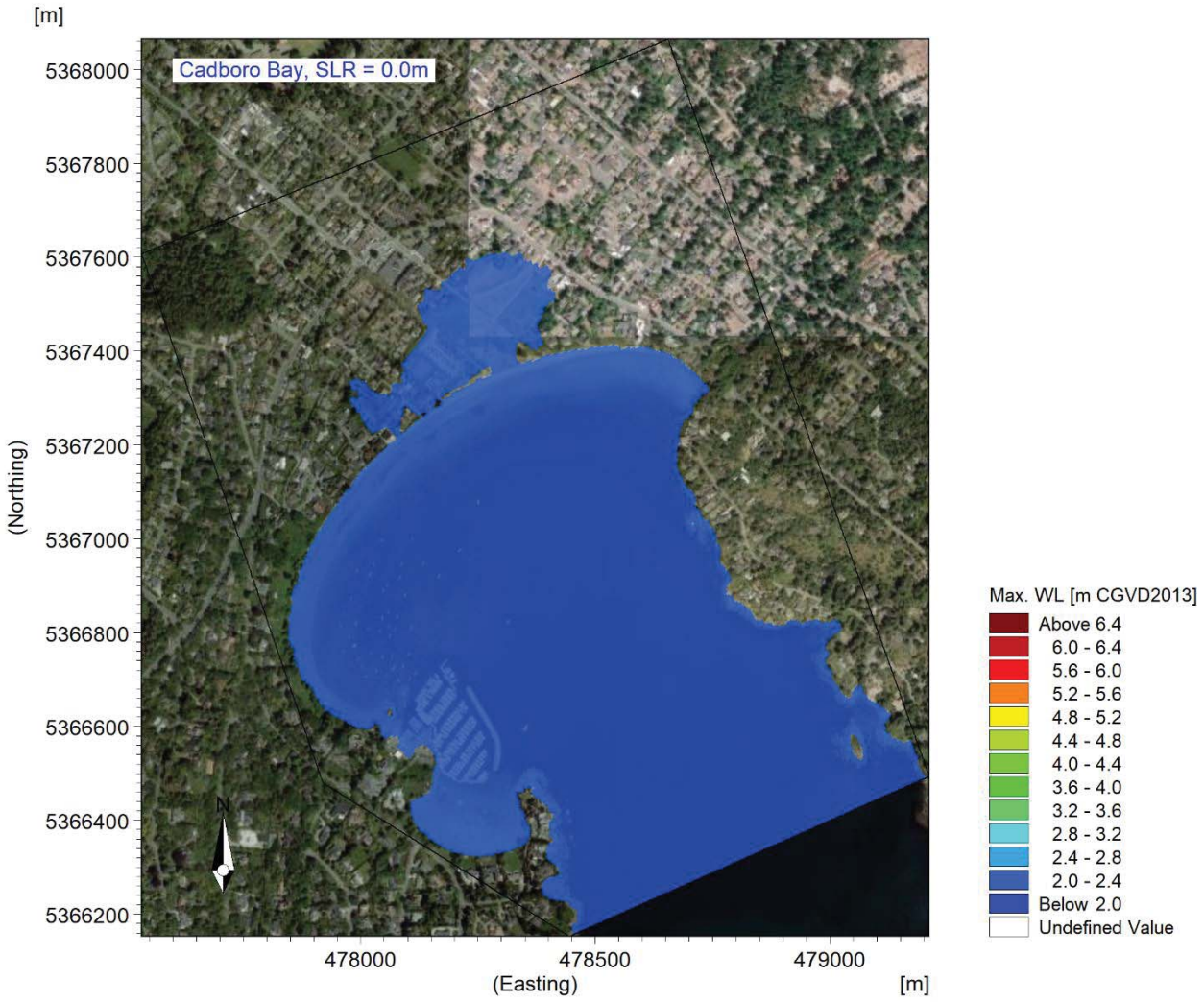

Figure E – 29
Maximum surface elevation in local area Cadboro Bay. RSLR = 0.0 m, AEP: 0.5%

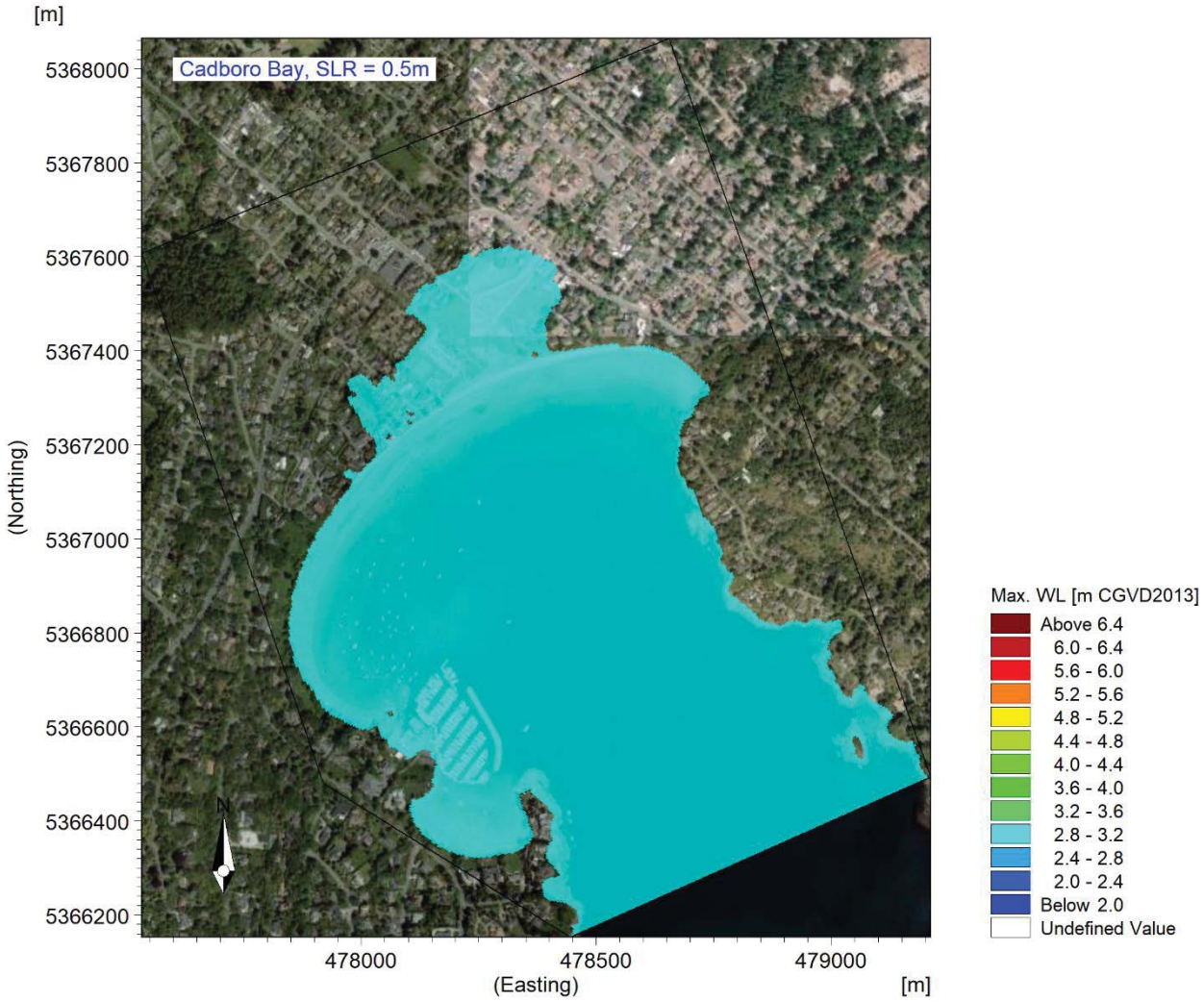

Figure E – 30
Maximum surface elevation in local area Cadboro Bay. RSLR = 0.5 m, AEP: 0.5%

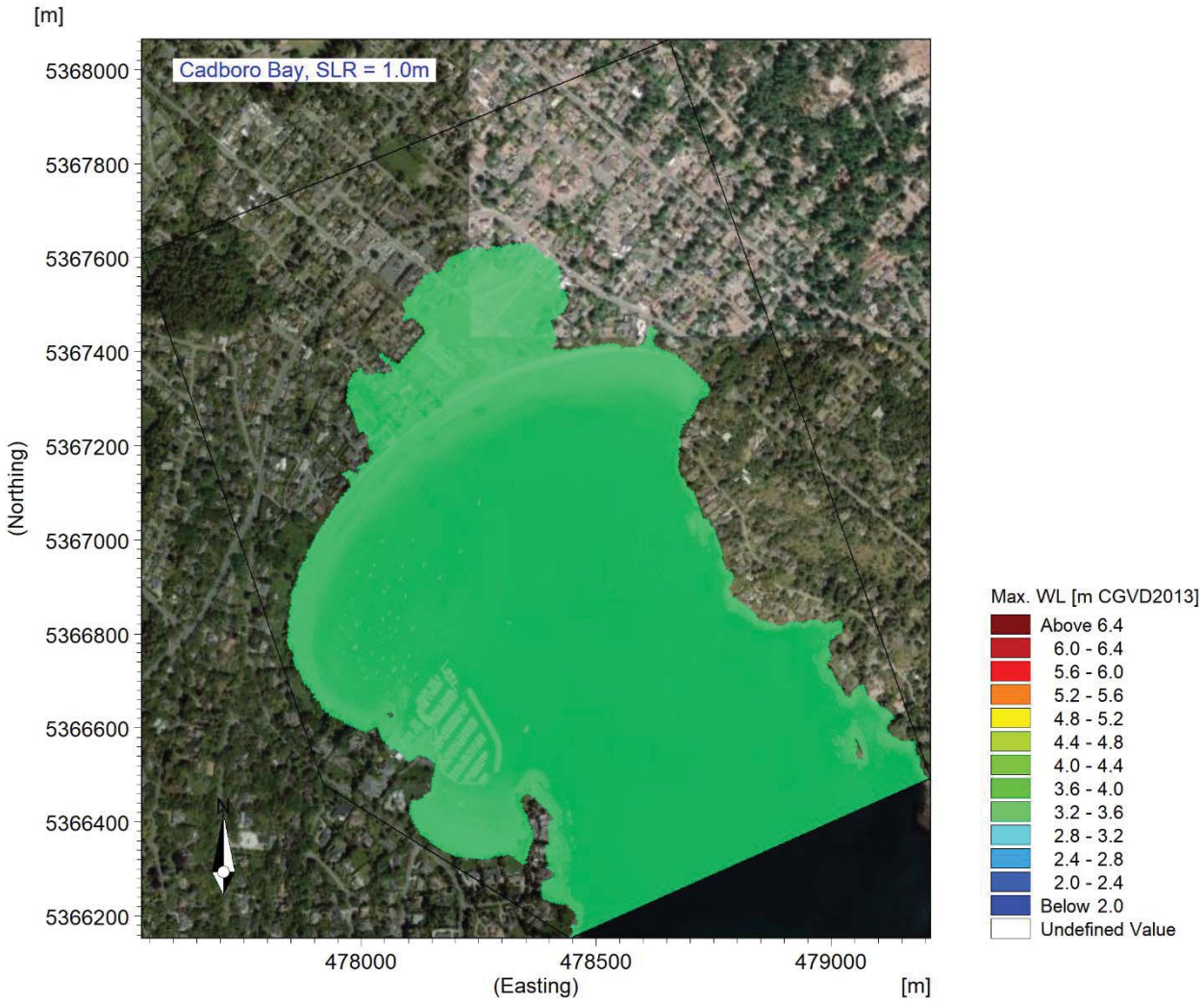

Figure E – 31
Maximum surface elevation in local area Cadboro Bay. RSLR = 1.0 m, AEP: 0.5%

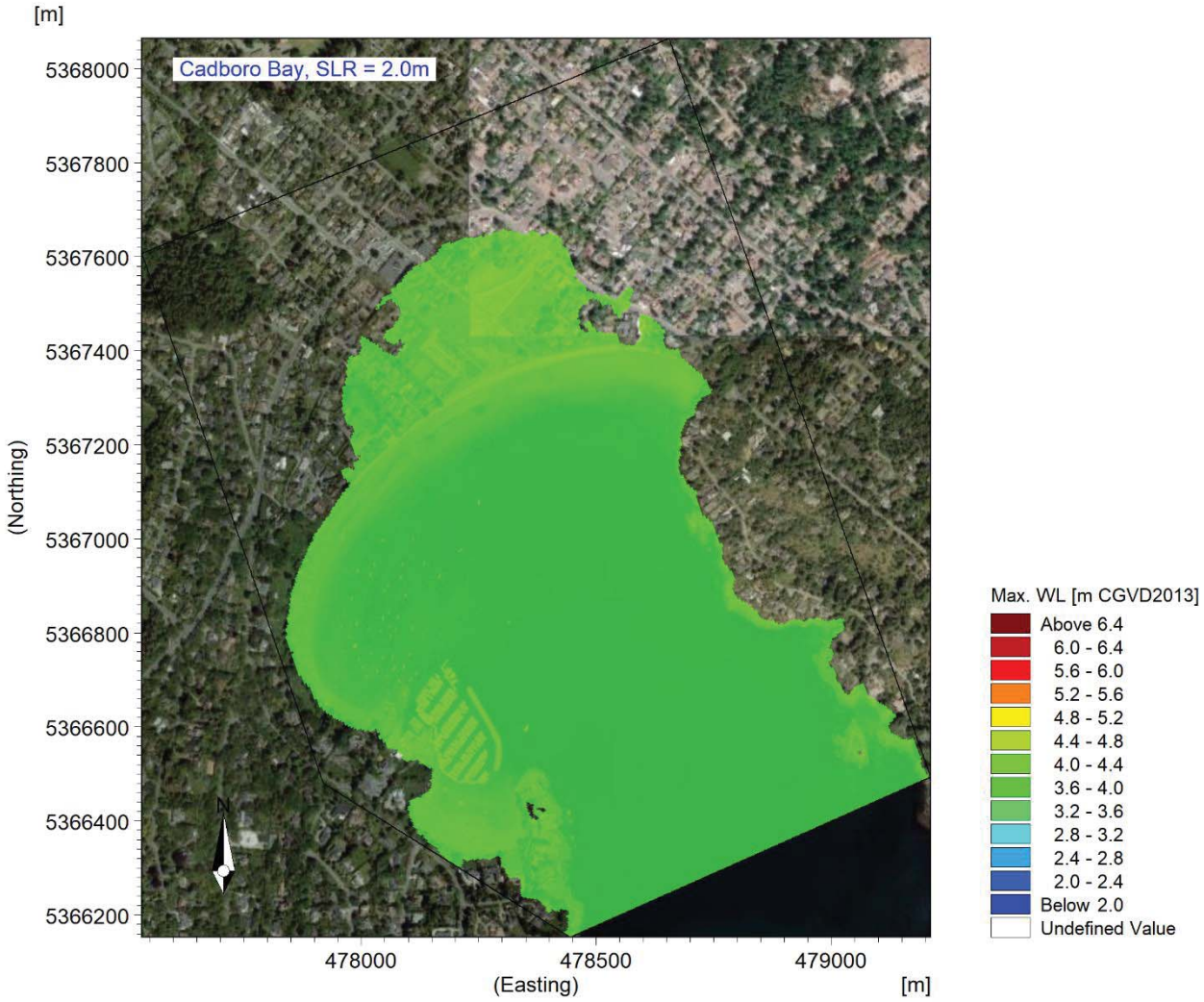

Figure E – 32
Maximum surface elevation in local area Cadboro Bay. RSLR = 2.0 m, AEP: 0.5%

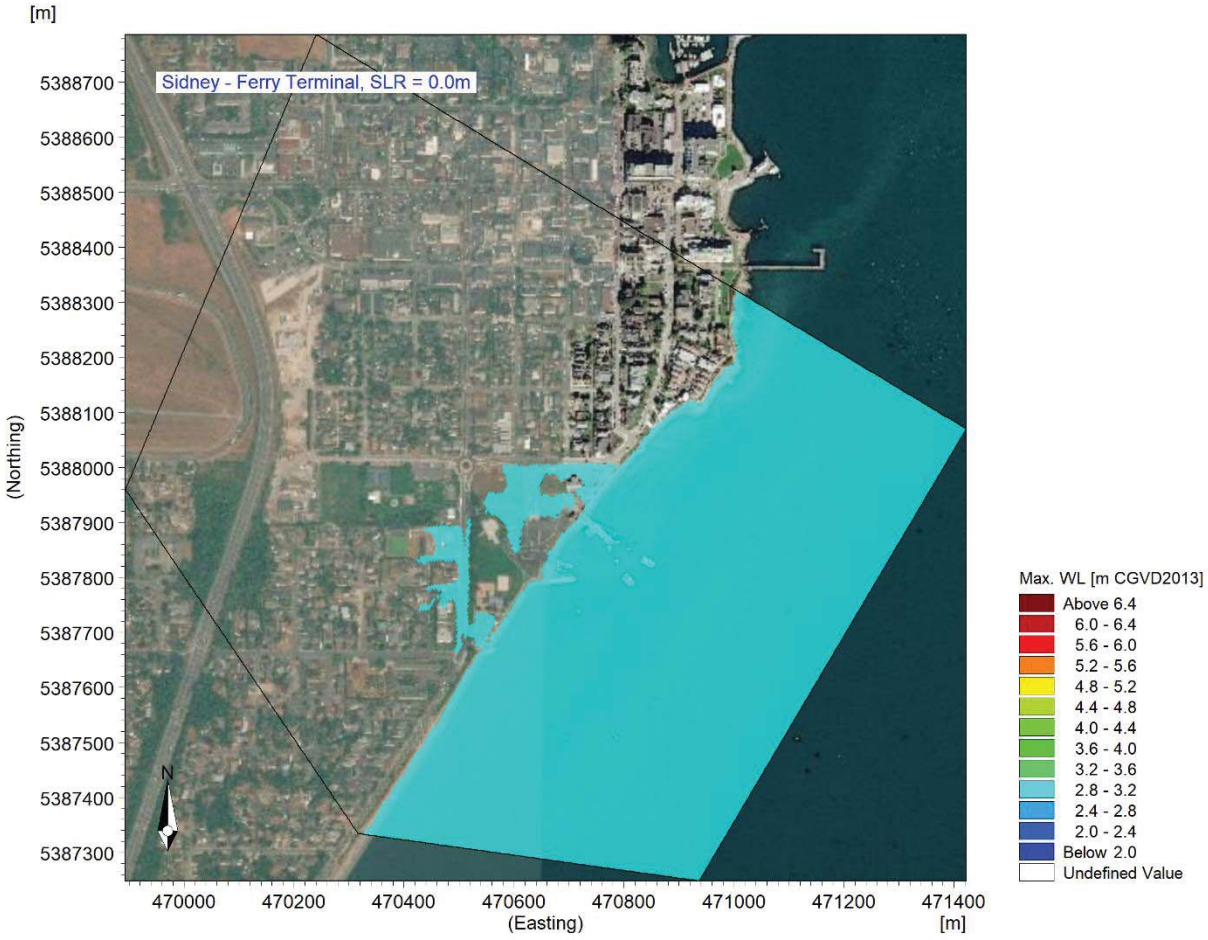

Figure E – 33
Maximum surface elevation in local area Sidney Ferry Terminal. RSLR = 0.0 m, AEP: 0.5%

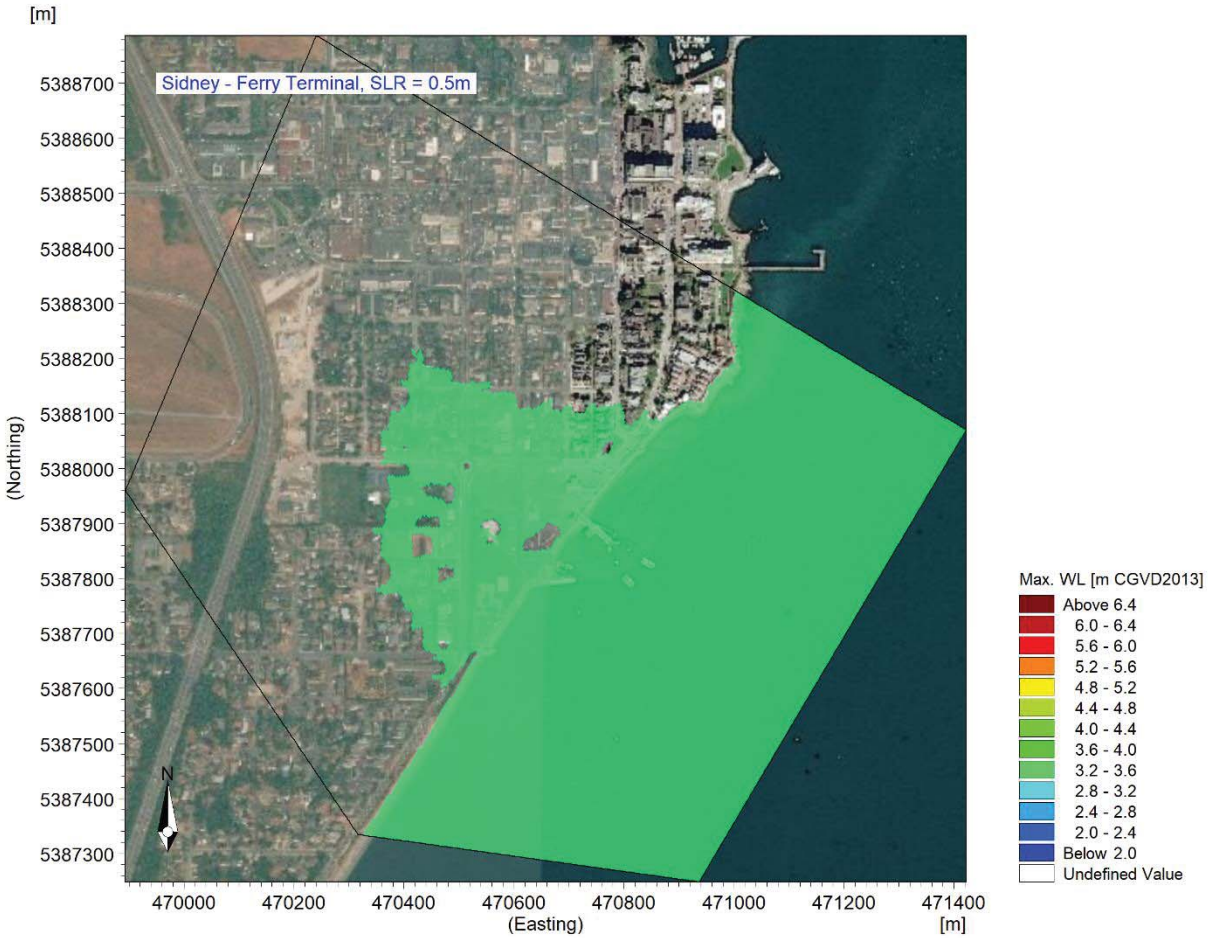

Figure E – 34
Maximum surface elevation in local area Sidney Ferry Terminal. RSLR = 0.5 m, AEP: 0.5%

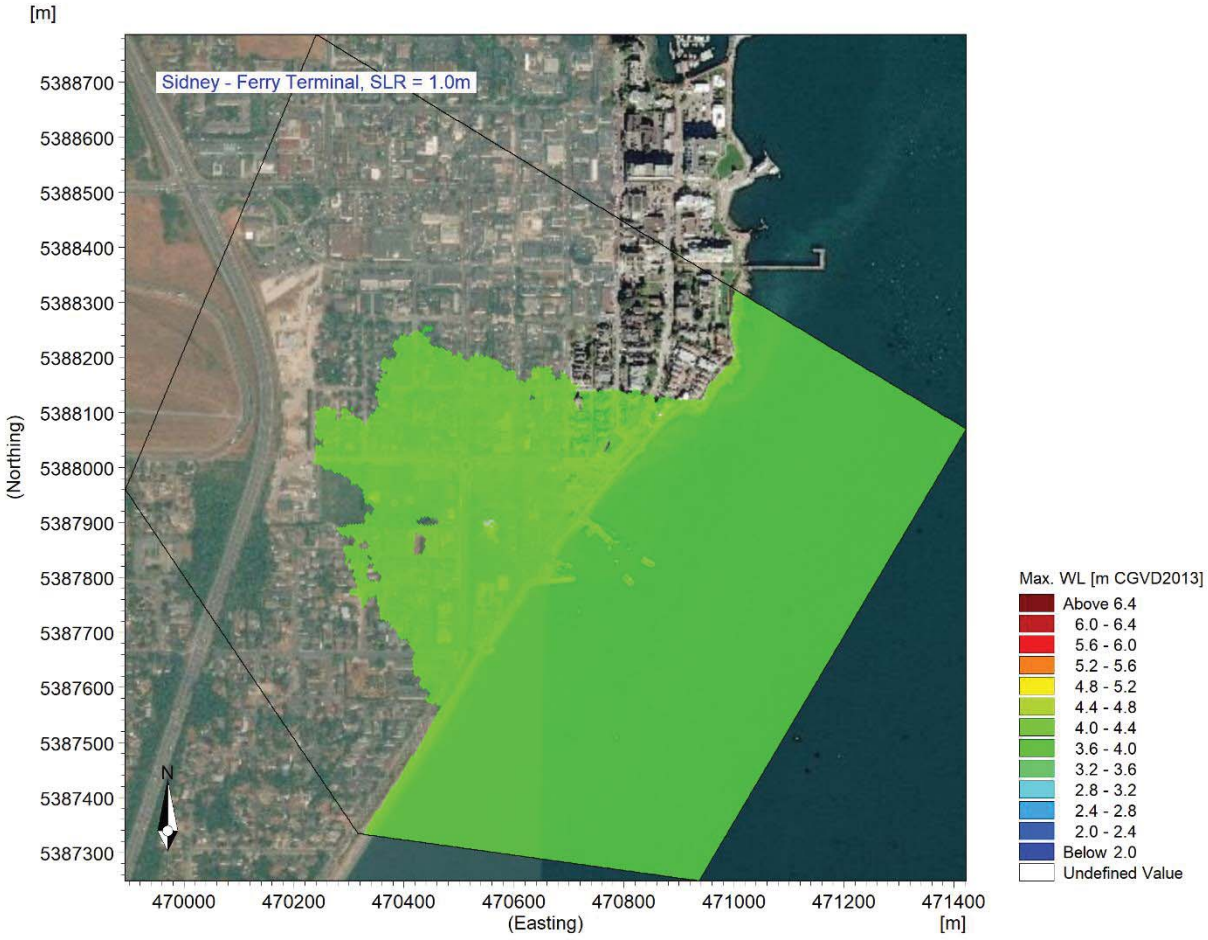

Figure E – 35
Maximum surface elevation in local area Sidney Ferry Terminal. RSLR = 1.0 m, AEP: 0.5%

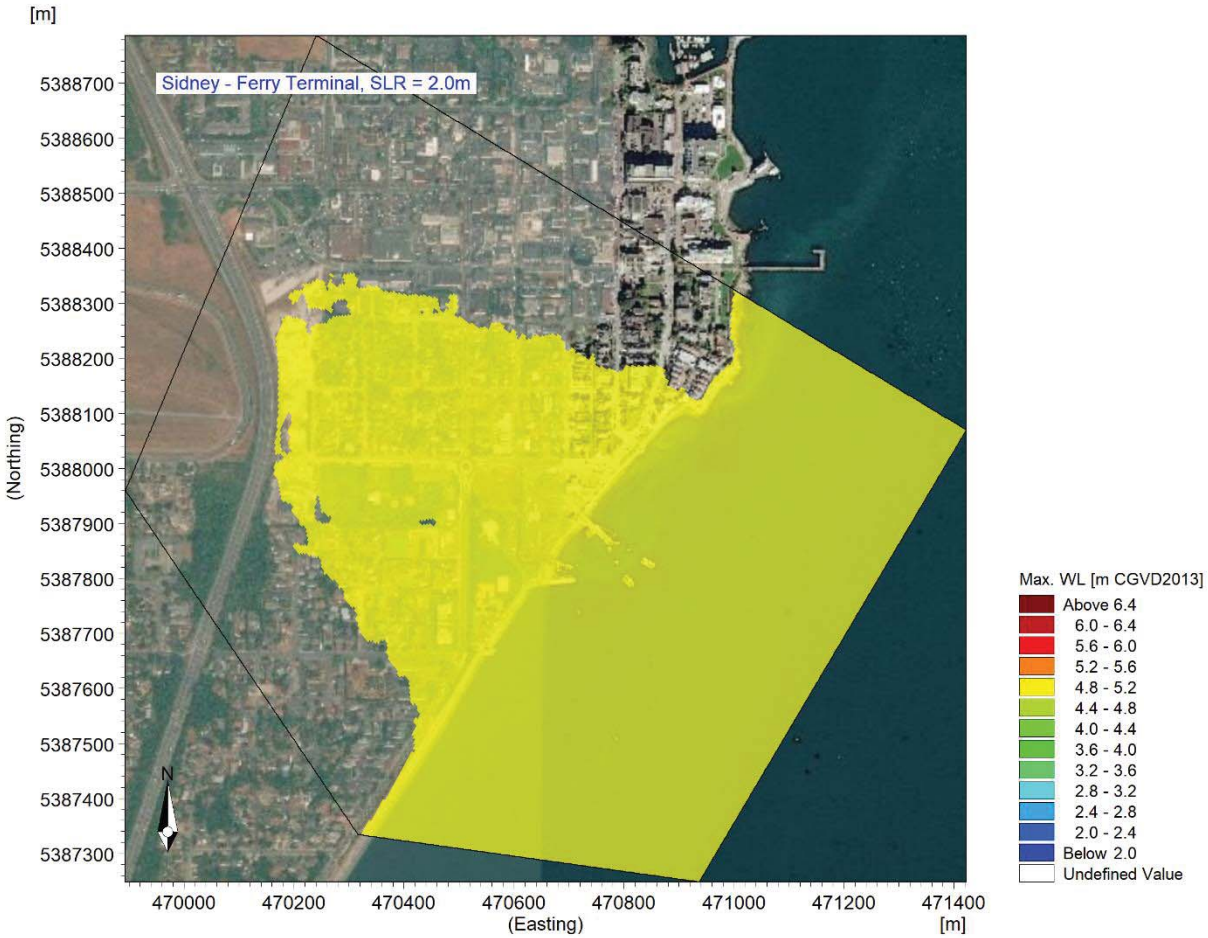

Figure E – 36
Maximum surface elevation in local area Sidney Ferry Terminal. RSLR = 2.0 m, AEP: 0.5%

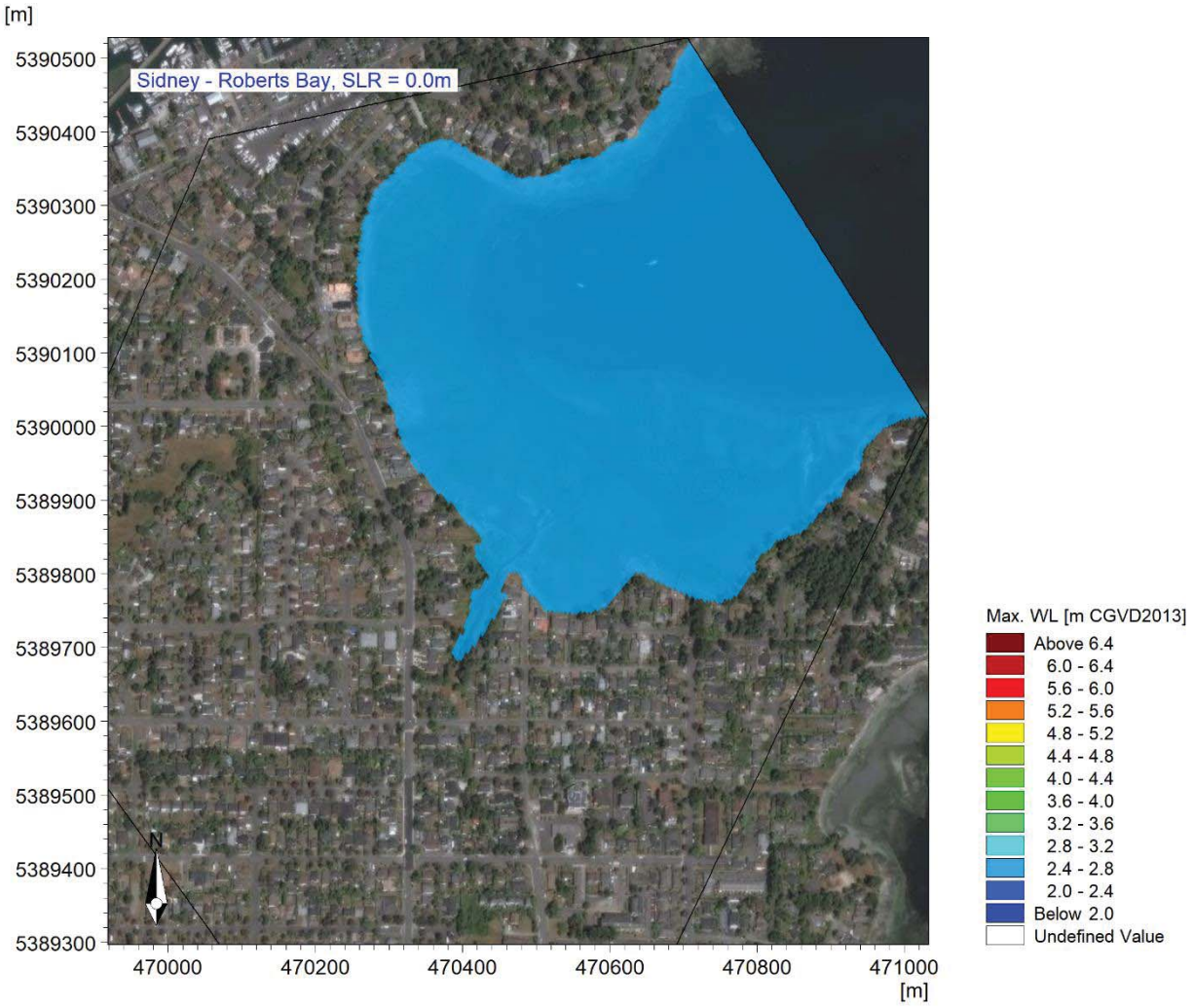

Figure E – 37
Maximum surface elevation in local area Sidney Roberts Bay. RSLR = 0.0 m, AEP: 0.5%

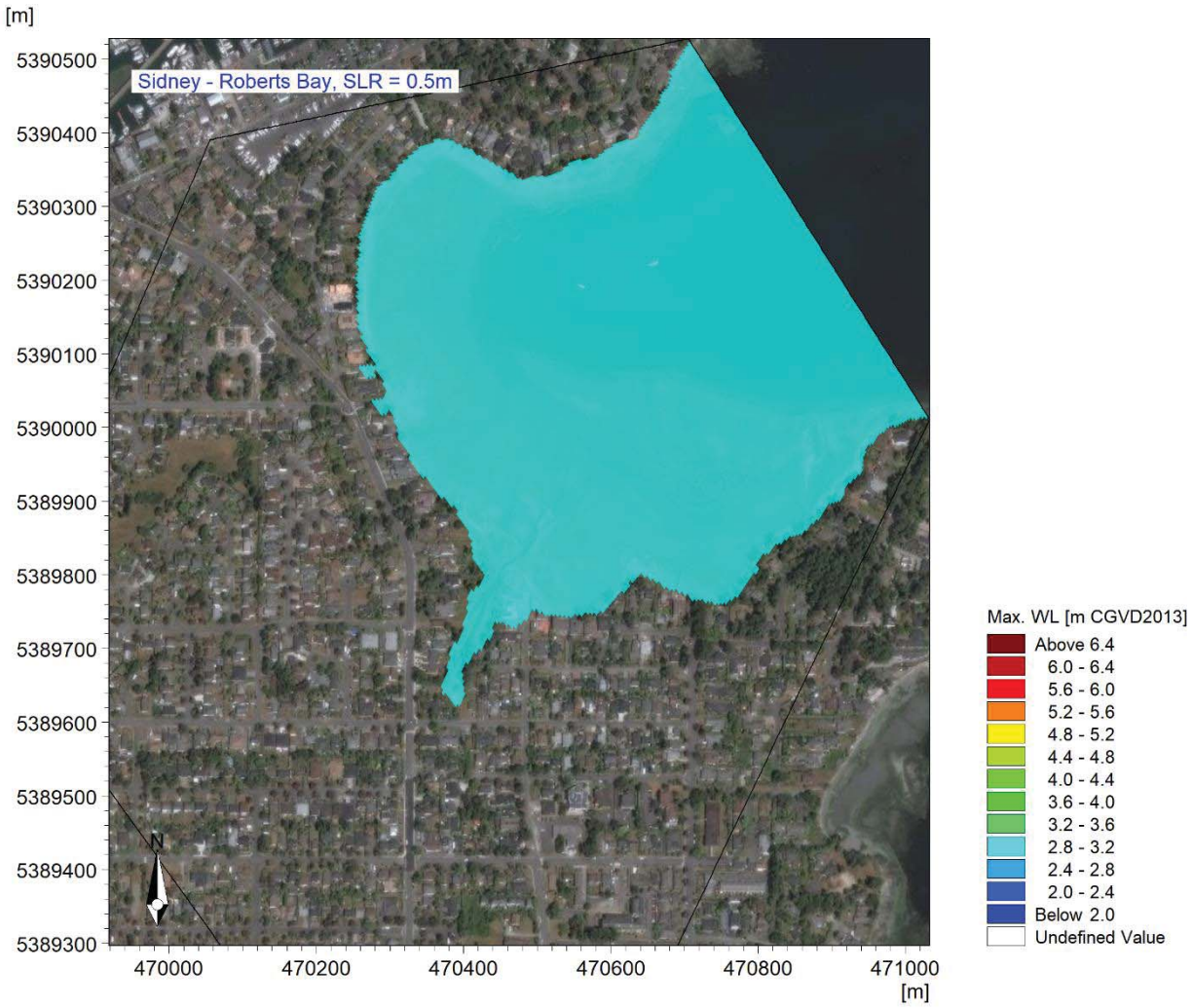

Figure E – 38
Maximum surface elevation in local area Sidney Roberts Bay. RSLR = 0.5 m, AEP: 0.5%

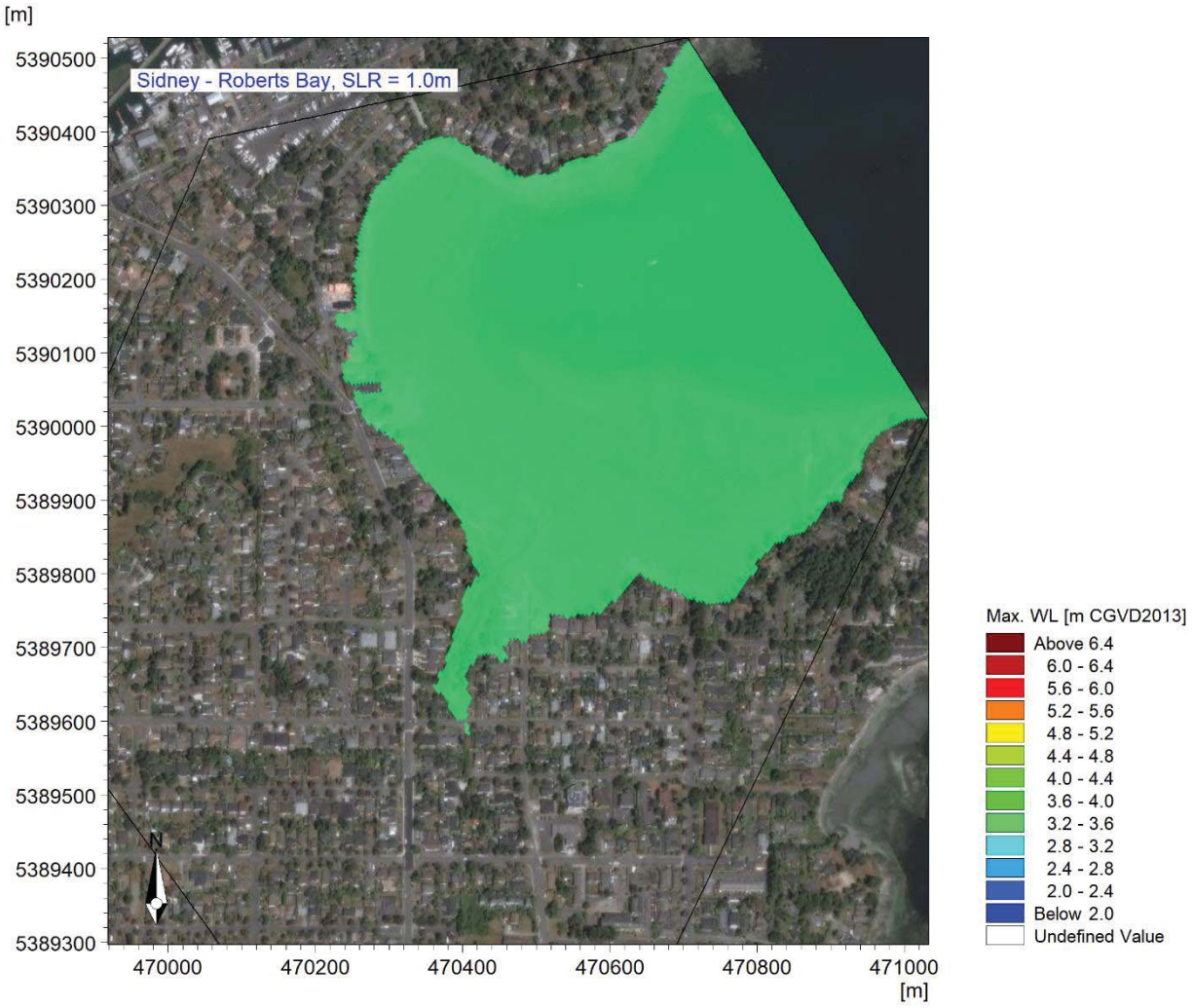

Figure E – 39
Maximum surface elevation in local area Sidney Roberts Bay. RSLR = 1.0 m, AEP: 0.5%

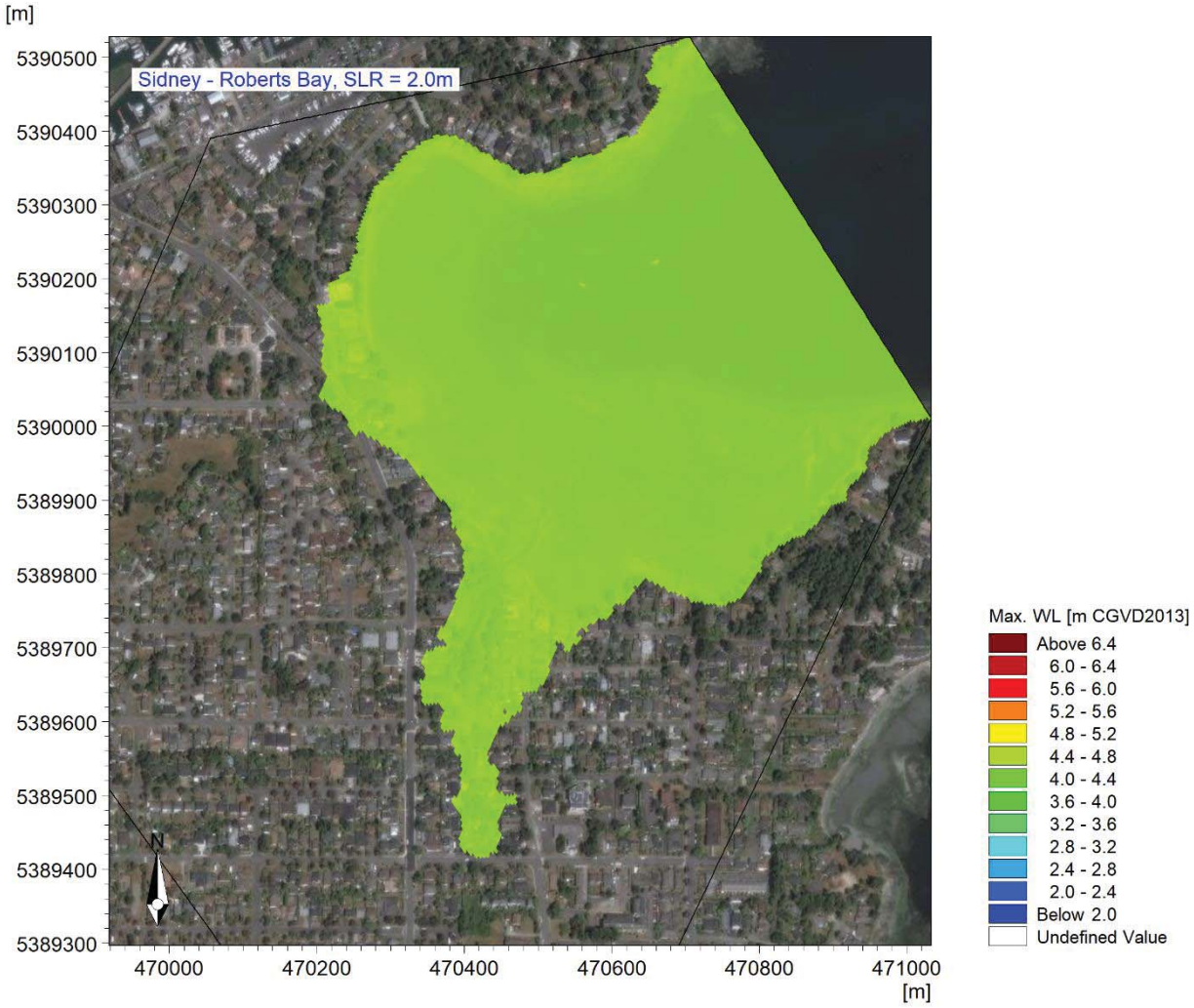

Figure E – 40
Maximum surface elevation in local area Sidney Roberts Bay. RSLR = 2.0 m, AEP: 0.5%

APPENDIX F - RELATIVE SEA LEVEL RISE (RSLR) INUNDATION MAPPING

Appendix F provides inundation mapping based on the still water levels calculated at each transect for the 0.5% AEP 1.0 m and 2.0 m RSLR scenarios, across the entire capital region. These mapping datasets are intended to complement the detailed (2D) inundation model domains. This appendix is provided in a stand-alone pdf file.

\\ae.ca\data\projects\van\2019267 6\00_CoastFloodTsunami\Engineering\03.02_Conceptual_Feasibility_Master_Plan_Report\2.0 SLR Report\version 2.0\rpt_crd_task 2_slr modelling_20211020.docx

350000E
400000E
450000E
500000E
5400000N
5350000N

N

0 10 20 30 40 50 km

Coastal Flood Inundation Mapping Project

Still Water Level Map Index Sheet

Location



Project No. 20192676

Legend

CRD Boundary

1. For further information, please refer to Task 2 – Sea Level Rise Modelling and Mapping Report. These maps constitute Appendix C of said report.

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plot date: 2021.07.27
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

388000E 390000E 392000E 394000E 396000E

5380000N

5378000N

5384000N

5382000N

R_001

TR_001

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_001	3.98	4.98

0 1,000 2,000 3,000 4,000 m

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390000E 392000E 394000E 396000E 398000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

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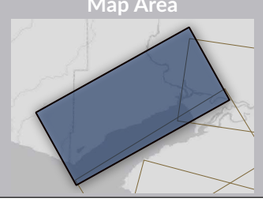
CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
2. Users must note the dates of base mapping, aerial photography, ground or bathymetric surveys and issue of mapping relevant to dates of development in the map area. Subsequent changes along the coastline and/or in the floodplain can affect analytical results and render site-specific map information obsolete.
3. Digital Elevation Model includes topographic surface data from GeoBC (2019), and bathymetric surface data from CHS and NOAA (dates vary). Elevations are reported with reference to CGVD2013 vertical datum. Map Projection is NAD83 UTM Zone 10N (CSRS).
4. Data sources: Orthoimagery (CRD, 2017);
5. Relative Sea Level Rise (RSLR) is an absolute increase in mean sea level, incorporating the effects of land subsidence or uplift.
6. Total sea level for a given return period, including sea level rise allowance, tide and storm surge. Wave effects are excluded.
7. For further information, please refer to Task 2 – Sea Level Rise Modelling and Mapping Report. These maps constitute Appendix C of said report.

Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 1 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

398000E 400000E 402000E 404000E 406000E

5384000N

5382000N

R_001

TR_001

0 1,000 2,000 3,000 4,000 m

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_001	3.98	4.98

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396000E 398000E 400000E 402000E 404000E

5382000N

5380000N

Coastal Flood Inundation Mapping Project

Capital Regional District

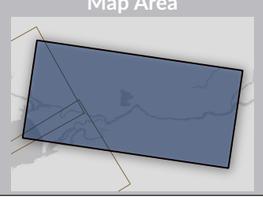
August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

390000E 392000E 394000E 396000E 398000E

5382000N 5380000N 5378000N

5376000N 5374000N

TR_001 TR_002 TR_003 TR_004

R_002 R_003 R_004 R_005

0 1,000 2,000 3,000 4,000 m

394000E 396000E 398000E 400000E

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_001	3.98	4.98
R_002	3.98	4.98
R_003	3.98	4.98
R_004	3.98	4.98
R_005	3.98	4.98

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Map Sheet 3 of 43

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file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS

394000E 396000E 398000E 400000E 402000E

5376000N

5374000N

5372000N

R_005

R_006

TR_005

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_004	3.98	4.98
R_005	3.98	4.98
R_006	3.98	4.98

0 1,000 2,000 3,000 4,000 m

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394000E 396000E 398000E 400000E 402000E

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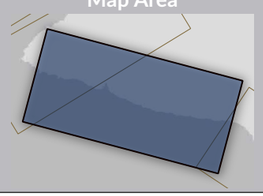
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Map Sheet 4 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastFloodPlanam\Working_Dwgs\1010_GIS

404000E 406000E 408000E 410000E 412000E

5374000N

5372000N

5368000N

5366000N

TR_006

R_006

R_007

TR_007

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_006	3.98	4.98
R_007	3.98	4.98

0 1,000 2,000 3,000 4,000 m

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402000E 404000E 406000E 408000E

Coastal Flood Inundation Mapping Project

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Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

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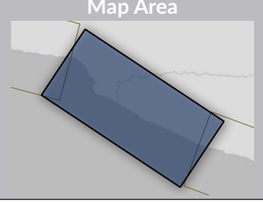
CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 5 of 43

plot date: 2021.08.02
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

412000E 414000E 416000E 418000E 420000E

5366000N 5364000N 5362000N

5368000N 5366000N

R_007 R_008 R_009 TR_008

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_007	3.98	4.98
R_008	3.98	4.98
R_009	3.98	4.98

0 1,000 2,000 3,000 4,000 m

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410000E 412000E 414000E 416000E 418000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Map Sheet 6 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

422000E 424000E 426000E 428000E 430000E

5366000N 5362000N 5364000N 5360000N 5362000N 5358000N

R_009 R_010 R_011

TR_009 TR_010 TR_011

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_009	3.98	4.98
R_010	3.98	4.98
R_011	3.98	4.98

0 1,000 2,000 3,000 4,000 m

420000E 422000E 424000E 426000E 428000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

Making a difference...together

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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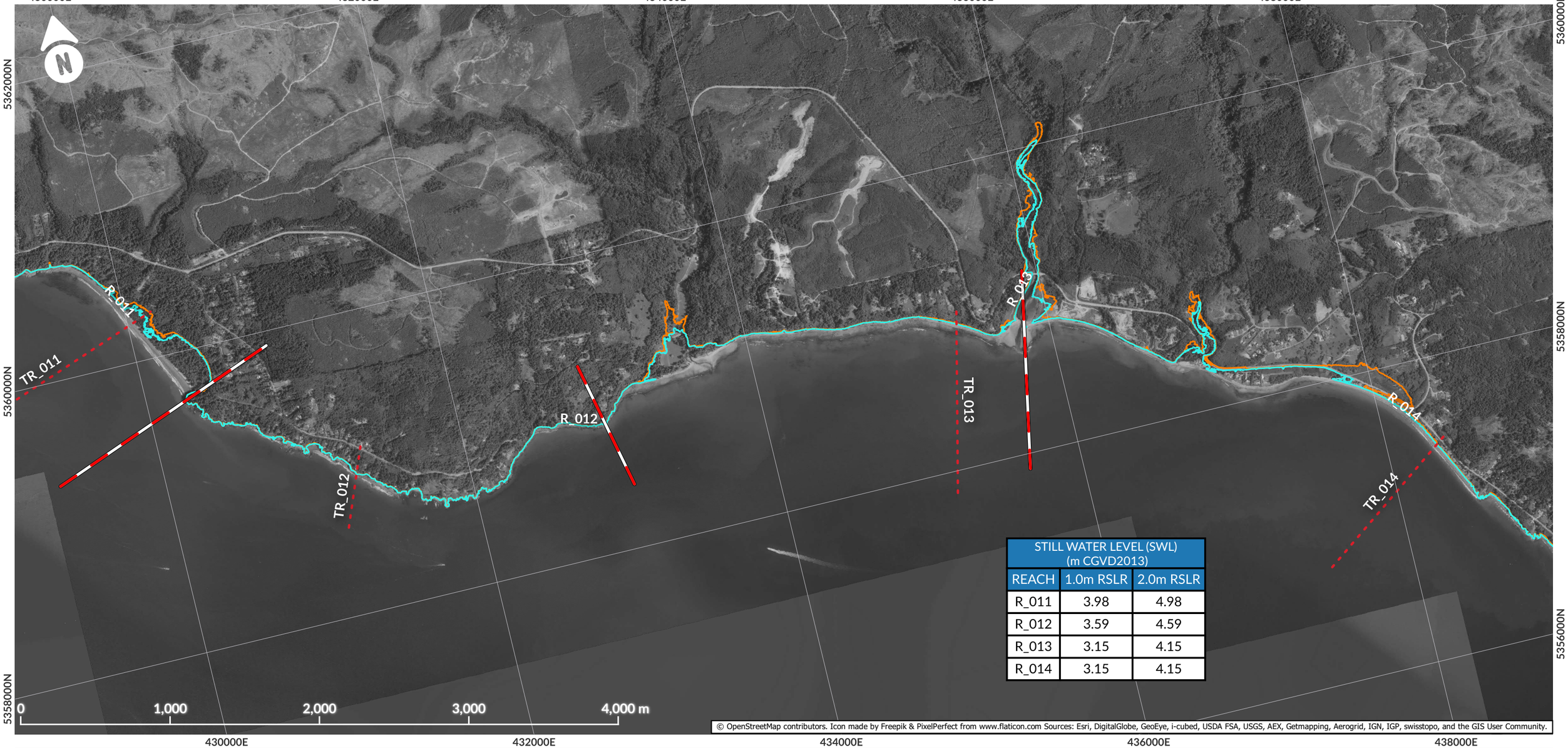
Map Sheet 7 of 43

plot date: 2021.08.02
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS



STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_011	3.98	4.98
R_012	3.59	4.59
R_013	3.15	4.15
R_014	3.15	4.15

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Coastal Flood Inundation Mapping Project

Capital Regional District

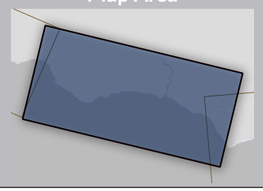
August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 8 of 43

plot date: 2021.08.02
file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS

438000E 440000E 442000E 444000E 446000E 448000E

5358000N

5356000N

N

R_014 TR_014 R_015 TR_015 R_016 TR_016 R_017 TR_017 R_018 TR_018 TR_019 R_019 R_020 TR_020 R_021 R_022 R_023

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_014	3.15	4.15
R_015	3.04	4.04
R_016	3.03	4.03
R_017	3.03	4.03
R_018	3.03	4.03
R_019	3.03	4.03
R_020	3.03	4.03
R_021	3.02	4.02
R_022	3.03	4.03
R_023	3.03	4.03

0 1,000 2,000 3,000 4,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD

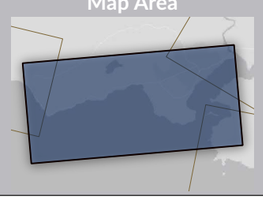
Making a difference...together

DHI

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 9 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

448000E 450000E 452000E 454000E 456000E

5362000N 5360000N 5358000N 5356000N 5354000N

TR_022 TR_021 R_021 R_022 R_020

0 1,000 2,000 3,000 4,000 m

446000E 448000E 450000E 452000E

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_020	3.03	4.03
R_021	3.02	4.02
R_022	3.03	4.03

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

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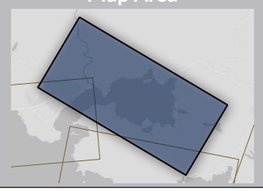
CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Map Sheet 10 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

448000E 450000E 452000E 454000E 456000E

5356000N 5354000N 5352000N

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_019	3.03	4.03
R_022	3.03	4.03
R_023	3.03	4.03
R_024	3.03	4.03
R_025	3.03	4.03
R_026	3.03	4.03
R_027	3.03	4.03
R_028	3.03	4.03
R_029	3.03	4.03
R_030	3.03	4.03
R_031	3.03	4.03

0 1,000 2,000 3,000 4,000 m

446000E 448000E 450000E 452000E 454000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD

Map Area

Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Map Sheet 11 of 43

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file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

456000E

458000E

5360000N

5350000N

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_031	3.03	4.03
R_032	3.03	4.03
R_033	3.03	4.03
R_034	3.03	4.03
R_035	3.03	4.03
R_036	3.03	4.03
R_037	3.03	4.03
R_038	3.03	4.03
R_039	3.03	4.03

R_031
TR_032
R_032
R_035
TR_035
TR_033
R_033
R_034
TR_034
R_036
TR_036
R_037
TR_037
R_038
TR_038
R_039
TR_039
TR_040

0 1,000 2,000 3,000 4,000 m

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462000E

Coastal Flood Inundation Mapping Project

Capital Regional District

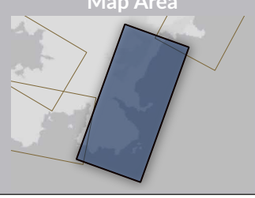
August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Map Sheet 12 of 43

plot date: 2021.08.02
file: P:\20192676\100_CoastFloodTsunami\Working_Dwgs\010_GIS

462000E

464000E

5368000N

5358000N

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_039	3.03	4.03
R_040	3.03	4.03
R_041	3.03	4.03
R_042	3.03	4.03
R_043	3.03	4.03
R_044	3.02	4.02
R_045	3.02	4.02
R_046	3.02	4.02
R_047	3.02	4.02
R_048	3.02	4.02
R_049	3.01	4.01
R_050	3.01	4.01

REACH	1.0m RSLR	2.0m RSLR
R_051	3.01	4.01
R_052	3.01	4.01
R_053	3.01	4.01
R_054	3.02	4.02
R_055	3.02	4.02
R_056	3.02	4.02
R_057	3.02	4.02
R_058	3.02	4.02
R_059	3.02	4.02
R_060	3.02	4.02
R_061	3.03	4.03

0 1,000 2,000 3,000 4,000 m

466000E

468000E

470000E

5366000N

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Coastal Flood Inundation Mapping Project

Capital Regional District

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CRD



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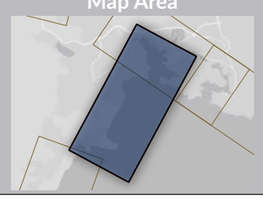

Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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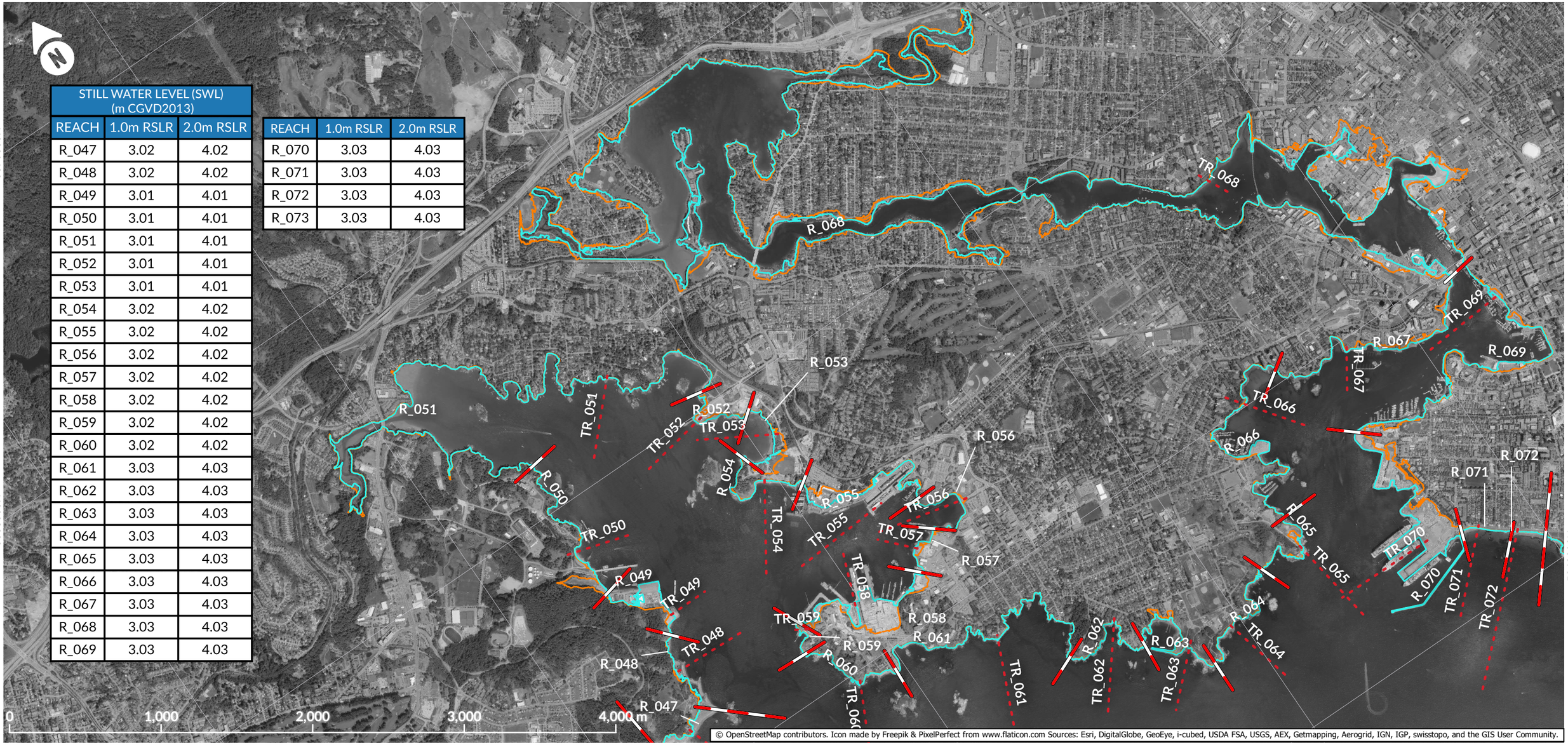
Map Sheet 13 of 43

plot date: 2021.08.02
file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_047	3.02	4.02
R_048	3.02	4.02
R_049	3.01	4.01
R_050	3.01	4.01
R_051	3.01	4.01
R_052	3.01	4.01
R_053	3.01	4.01
R_054	3.02	4.02
R_055	3.02	4.02
R_056	3.02	4.02
R_057	3.02	4.02
R_058	3.02	4.02
R_059	3.02	4.02
R_060	3.02	4.02
R_061	3.03	4.03
R_062	3.03	4.03
R_063	3.03	4.03
R_064	3.03	4.03
R_065	3.03	4.03
R_066	3.03	4.03
R_067	3.03	4.03
R_068	3.03	4.03
R_069	3.03	4.03

REACH	1.0m RSLR	2.0m RSLR
R_070	3.03	4.03
R_071	3.03	4.03
R_072	3.03	4.03
R_073	3.03	4.03



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Coastal Flood Inundation Mapping Project

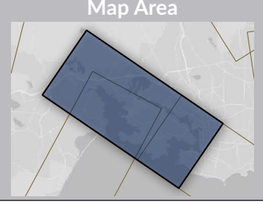
Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD
Map Area





Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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7. For further information, please refer to Task 2 – Sea Level Rise Modelling and Mapping Report. These maps constitute Appendix C of said report.

Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 14 of 43

plot date: 2021.08.02
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

472000E 474000E 476000E 478000E

5366000N 5360000N 5364000N 5358000N



STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_062	3.03	4.03
R_063	3.03	4.03
R_064	3.03	4.03
R_065	3.03	4.03
R_066	3.03	4.03
R_067	3.03	4.03
R_068	3.03	4.03
R_069	3.03	4.03
R_070	3.03	4.03
R_071	3.03	4.03
R_072	3.03	4.03
R_073	3.03	4.03
R_074	3.03	4.03
R_075	3.03	4.03
R_076	3.03	4.03
R_077	3.03	4.03
R_078	3.03	4.03
R_079	3.03	4.03
R_080	3.03	4.03
R_081	3.03	4.03
R_082	3.03	4.03
R_083	3.03	4.03
R_084	3.03	4.03
R_085	3.03	4.03

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470000E 472000E 474000E 476000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 15 of 43

plot date: 2021.08.02
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476000E

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_083	3.03	4.03
R_084	3.03	4.03
R_085	3.03	4.03
R_086	3.03	4.03
R_087	3.03	4.03
R_088	3.03	4.03
R_089	3.03	4.03
R_090	3.03	4.03
R_091	3.03	4.03
R_092	3.03	4.03
R_093	3.03	4.03
R_094	3.03	4.03

REACH	1.0m RSLR	2.0m RSLR
R_095	3.03	4.03
R_096	3.03	4.03
R_097	3.03	4.03
R_098	3.03	4.03
R_099	3.03	4.03
R_100	3.03	4.03
R_101	3.03	4.03
R_102	3.02	4.02
R_103	3.02	4.02
R_104	3.01	4.01
R_105	3	4

0 1,000 2,000 3,000 4,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 16 of 43

plot date: 2021.08.02
file: P:\20192676\100_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

474000E 472000E 470000E

5370000N

5378000N

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_104	3.01	4.01
R_105	3	4
R_106	2.99	3.99
R_107	2.98	3.98
R_108	2.97	3.97
R_109	2.95	3.95
R_110	2.94	3.94
R_111	3.06	4.06
R_112	3.06	4.06
R_113	3.12	4.12
R_114	3.15	4.15
R_115	3.2	4.2

R_110 R_111 R_109 R_108 R_107 R_106 R_105 R_104 R_112 R_113 R_114 R_115

TR_109 TR_110 TR_111 TR_108 TR_107 TR_106 TR_105 TR_112 TR_113 TR_114

0 1,000 2,000 3,000 4,000 m

5380000N

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478000E 476000E 474000E

Coastal Flood Inundation Mapping Project

Capital Regional District

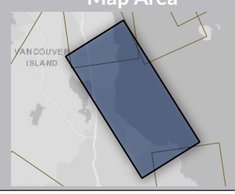
August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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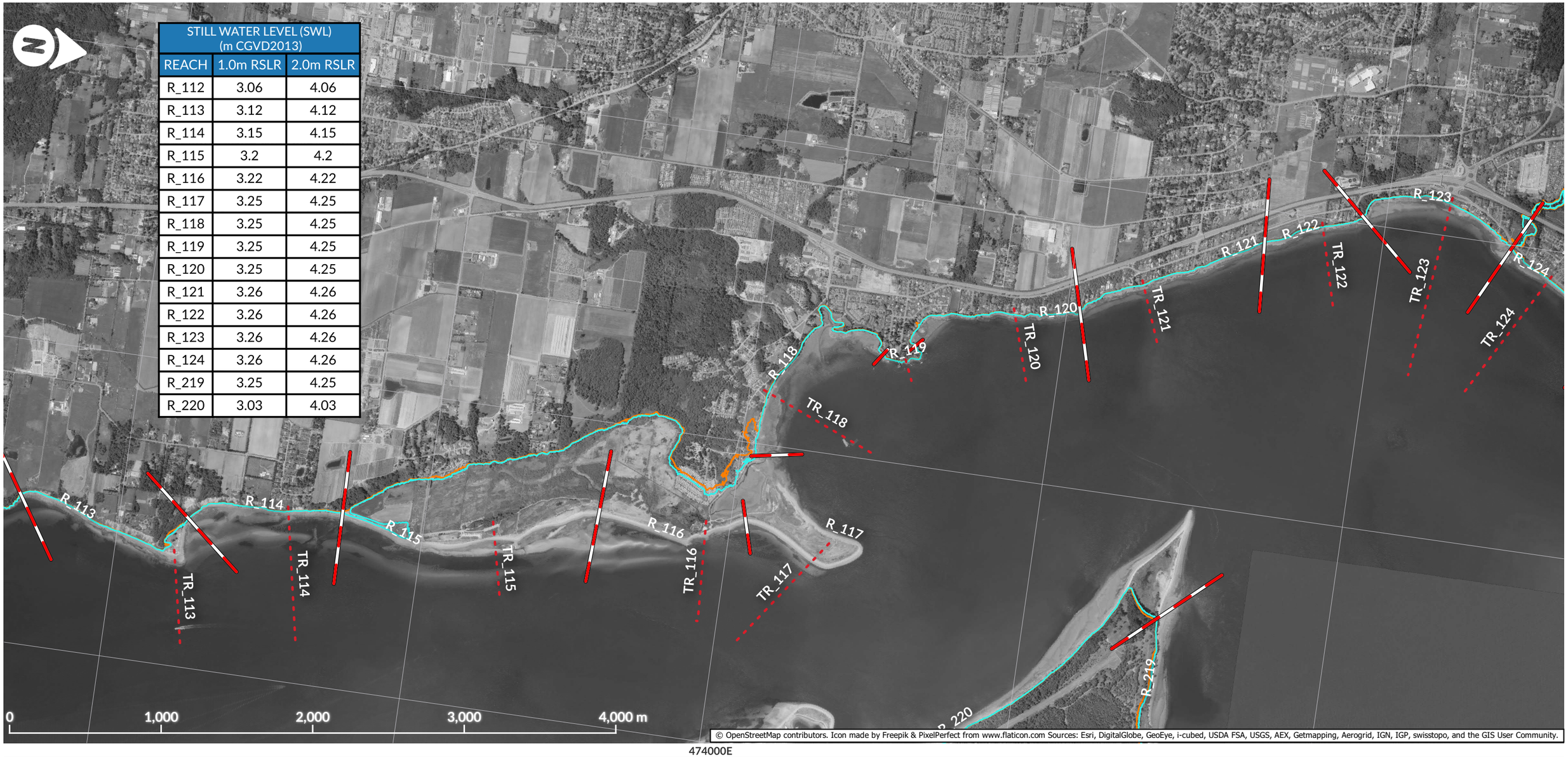
Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 17 of 43

plot date: 2021.08.02
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_112	3.06	4.06
R_113	3.12	4.12
R_114	3.15	4.15
R_115	3.2	4.2
R_116	3.22	4.22
R_117	3.25	4.25
R_118	3.25	4.25
R_119	3.25	4.25
R_120	3.25	4.25
R_121	3.26	4.26
R_122	3.26	4.26
R_123	3.26	4.26
R_124	3.26	4.26
R_219	3.25	4.25
R_220	3.03	4.03



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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

Making a difference...together

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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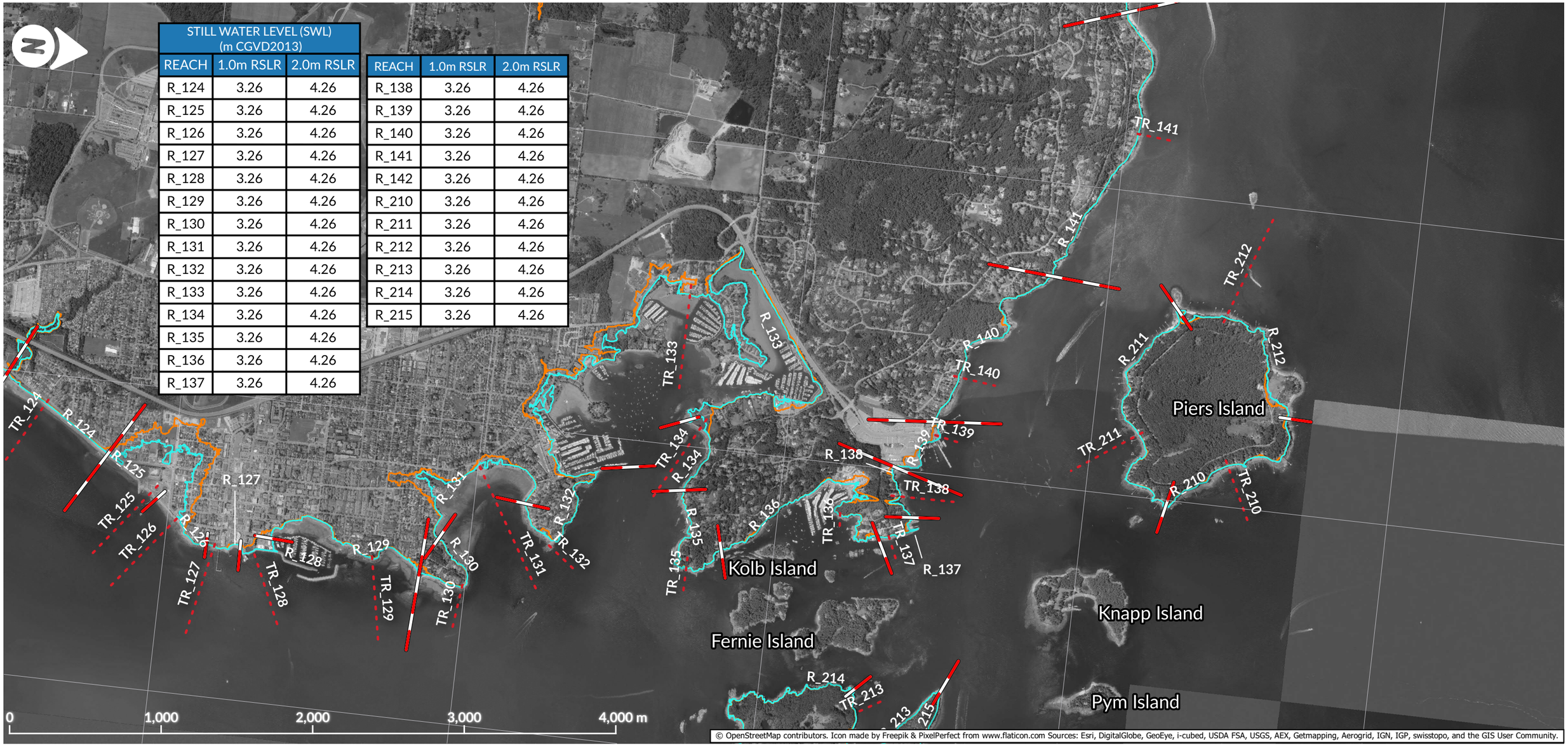
Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 18 of 43

plot date: 2021.08.02
file: P:\20192676\00_Coast\Flood\tunami\Working_Dwgs\010_GIS

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_124	3.26	4.26
R_125	3.26	4.26
R_126	3.26	4.26
R_127	3.26	4.26
R_128	3.26	4.26
R_129	3.26	4.26
R_130	3.26	4.26
R_131	3.26	4.26
R_132	3.26	4.26
R_133	3.26	4.26
R_134	3.26	4.26
R_135	3.26	4.26
R_136	3.26	4.26
R_137	3.26	4.26

REACH	1.0m RSLR	2.0m RSLR
R_138	3.26	4.26
R_139	3.26	4.26
R_140	3.26	4.26
R_141	3.26	4.26
R_142	3.26	4.26
R_210	3.26	4.26
R_211	3.26	4.26
R_212	3.26	4.26
R_213	3.26	4.26
R_214	3.26	4.26
R_215	3.26	4.26



Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD
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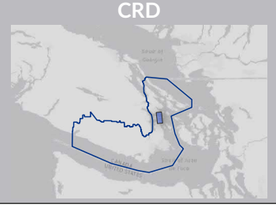
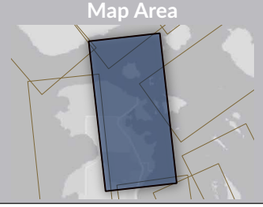
DHI

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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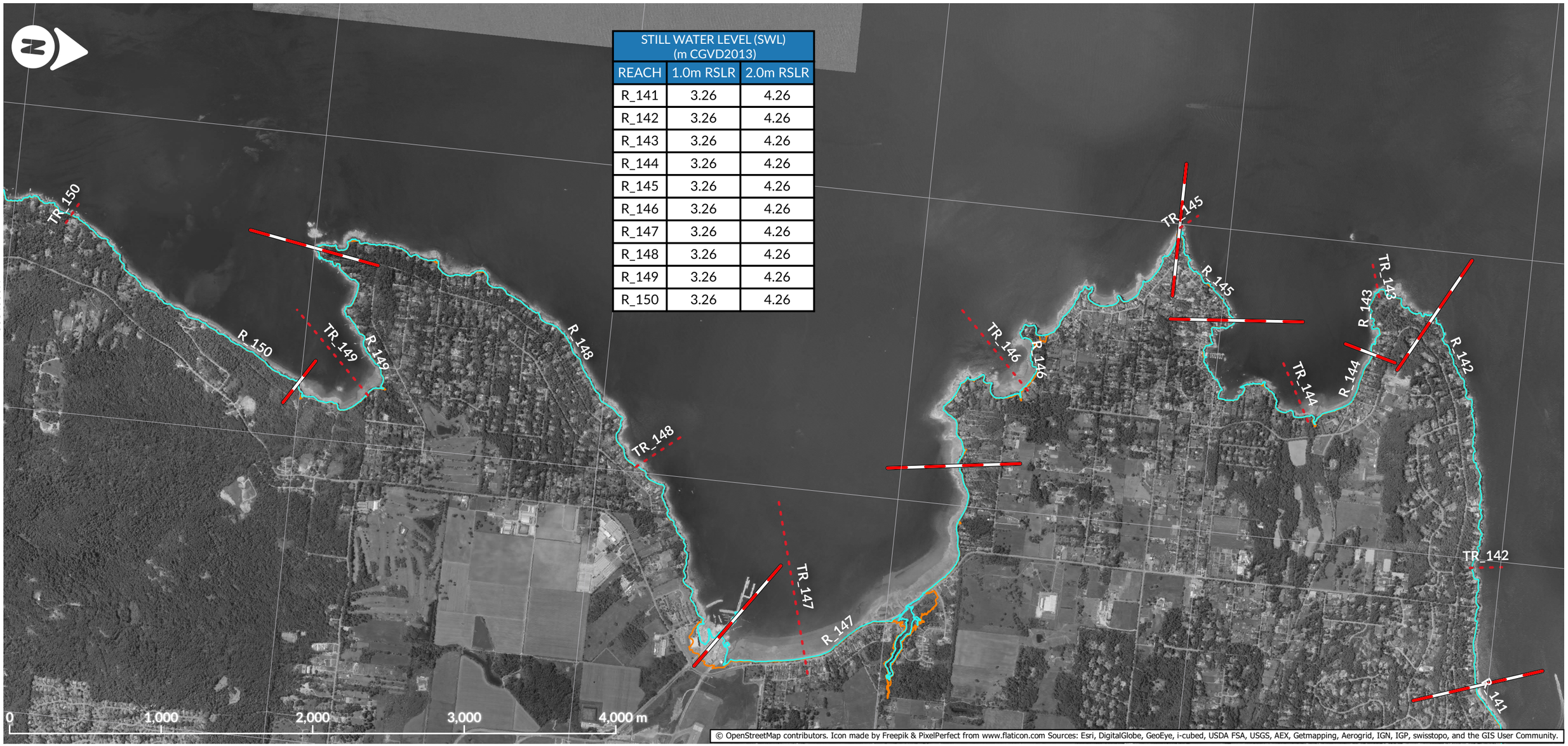
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 19 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastalFloodTsunami\Working_Dwgs\010_GIS

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_141	3.26	4.26
R_142	3.26	4.26
R_143	3.26	4.26
R_144	3.26	4.26
R_145	3.26	4.26
R_146	3.26	4.26
R_147	3.26	4.26
R_148	3.26	4.26
R_149	3.26	4.26
R_150	3.26	4.26



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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

Making a difference...together

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 20 of 43

plot date: 2021.08.02
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

460000E

462000E

464000E

5376000N

5384000N

R_158

TR_157

R_157

R_156

TR_156

TR_155

R_155

R_154

TR_154

R_153

R_152

TR_151

R_151

TR_150

R_150

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_150	3.26	4.26
R_151	3.26	4.26
R_152	3.25	4.25
R_153	3.25	4.25
R_154	3.26	4.26
R_155	3.26	4.26
R_156	3.25	4.25
R_157	3.24	4.24
R_158	3.16	4.16

0 1,000 2,000 3,000 4,000 m

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464000E

466000E

468000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

Making a difference...together

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Map Sheet 21 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastalFloodTsunami\Working_Dwgs\010_GIS

458000E

TR_158

R_158

TR_157

R_157

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_157	3.24	4.24
R_158	3.16	4.16

0 1,000 2,000 3,000 4,000 m

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462000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

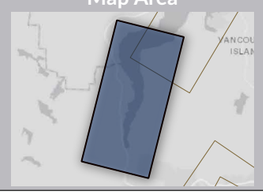
Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

Making a difference...together

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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7. For further information, please refer to Task 2 – Sea Level Rise Modelling and Mapping Report. These maps constitute Appendix C of said report.

Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 22 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

458000E 460000E 462000E 464000E

5422000N

5414000N

Wallace Island

Salt Spring Island

TR_159 R_159 R_160 TR_160 TR_161 R_161 R_162 R_176

0 1,000 2,000 3,000 4,000 m

456000E 458000E 460000E

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_159	3.26	4.26
R_160	3.26	4.26
R_161	3.26	4.26
R_162	3.26	4.26
R_176	3.26	4.26

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Coastal Flood Inundation Mapping Project

Capital Regional District

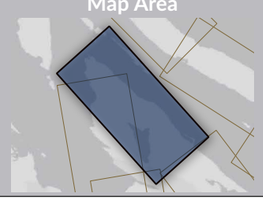
August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 23 of 43

plot date: 2021.08.02
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466000E 468000E 470000E

5416000N 5408000N 5414000N 5406000N

Salt Spring Island

Third Sister Island

First Sister Island

Deadman Islands

Goat Island

Salt Spring Island

TR_162 R_162 TR_163 R_163 TR_164 R_164 TR_165 R_165 TR_166 R_166 R_167 TR_167 R_184

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_162	3.26	4.26
R_163	3.26	4.26
R_164	3.26	4.26
R_165	3.26	4.26
R_166	3.26	4.26
R_167	3.26	4.26
R_184	3.26	4.26

0 1,000 2,000 3,000 4,000 m

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462000E 464000E 466000E

Coastal Flood Inundation Mapping Project

Capital Regional District

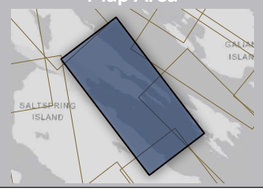
August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Making a difference...together

Legend

- FCL Reach Boundary
- Transcect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 24 of 43

plot date: 2021.08.02
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

470000E
472000E
474000E
5408000N
5400000N
5406000N
5398000N
Salt Spring Island
Russell Island
TR_167
R_167
TR_168
R_168
0
1,000
2,000
3,000
4,000 m
466000E
468000E
470000E

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_167	3.26	4.26
R_168	3.26	4.26

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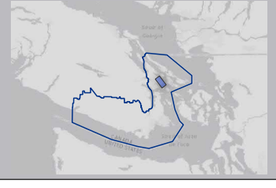
Coastal Flood Inundation Mapping Project

Capital Regional District

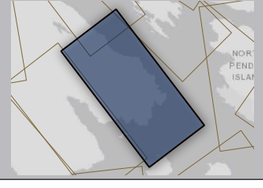
August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 25 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastFloodMapping\Working_Dwgs\010_GIS

466000E

468000E

470000E

5406000N

5404000N

5396000N

TR_169

R_169

TR_170

R_170

TR_171

R_171

Salt Spring Island

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_168	3.26	4.26
R_169	3.26	4.26
R_170	3.26	4.26
R_171	3.26	4.26

0 1,000 2,000 3,000 4,000 m

462000E

464000E

466000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD

Map Area

Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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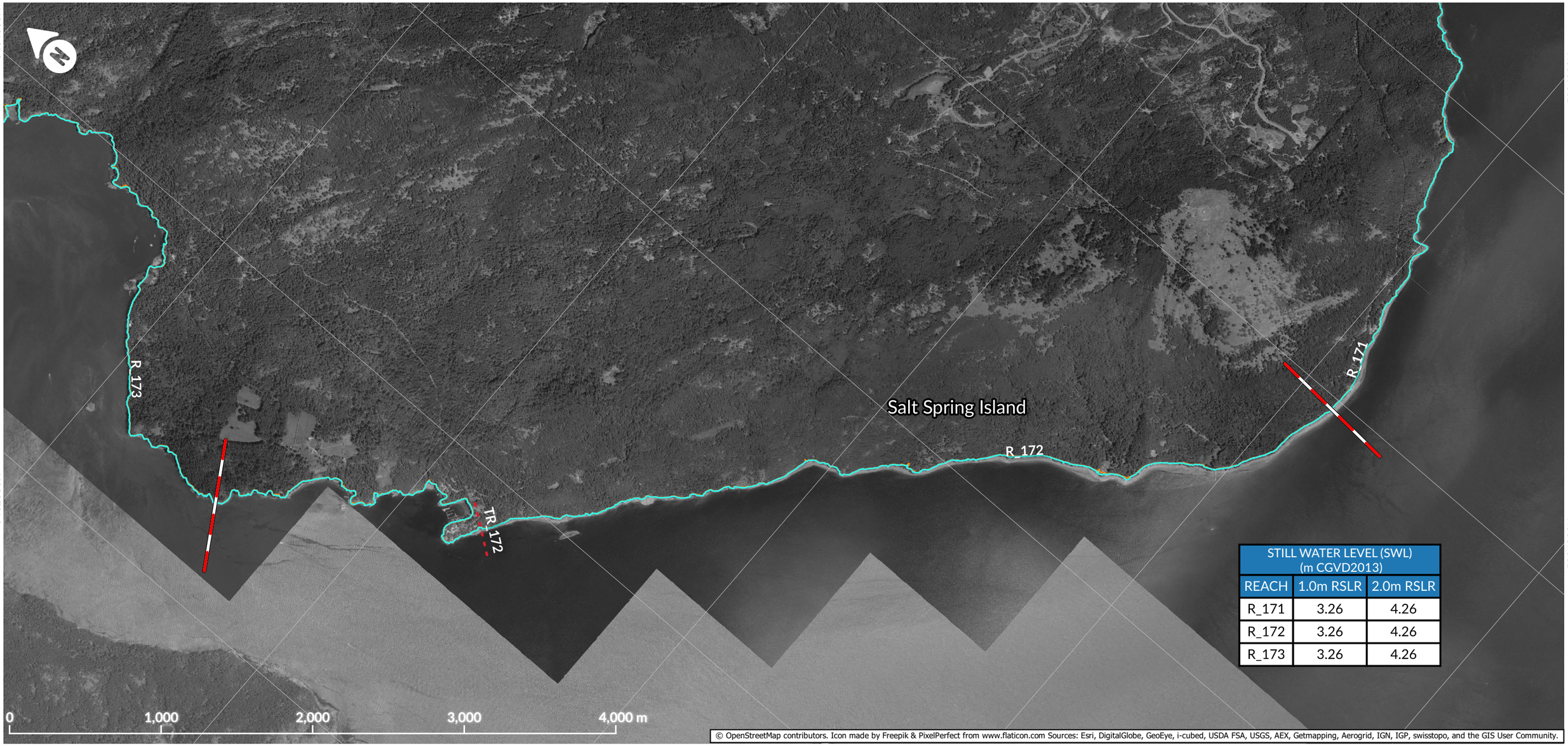
Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 26 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\1010_GIS

462000E 464000E 466000E

5404000N 5396000N



5402000N 5394000N

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_171	3.26	4.26
R_172	3.26	4.26
R_173	3.26	4.26

0 1,000 2,000 3,000 4,000 m

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458000E 460000E 462000E

Coastal Flood Inundation Mapping Project

Capital Regional District

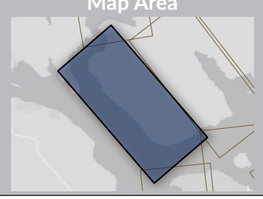
August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Making a difference...together

Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

plot date: 2021.08.02
file: P:\20192676\00_Coast\Flood\tsunami\Working_Dwgs\010_GIS

462000E

Salt Spring Island

R_175

TR_174

R_174

R_173

TR_173

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_173	3.26	4.26
R_174	3.26	4.26
R_175	3.26	4.26

0 1,000 2,000 3,000 4,000 m

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458000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Project No. 20192676
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plot date: 2021.08.02
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

460000E

5420000N

5410000N

Salt Spring Island

R_159

TR_176

R_176

TR_175

R_175

TR_174

R_174

0 1,000 2,000 3,000 4,000 m

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_159	3.26	4.26
R_160	3.26	4.26
R_174	3.26	4.26
R_175	3.26	4.26
R_176	3.26	4.26

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456000E

Coastal Flood Inundation Mapping Project

Capital Regional District

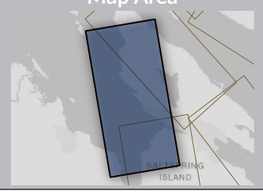
August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Making a difference...together

DHI

Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 29 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

460000E 462000E 464000E

5430000N

5428000N

5422000N

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_177	3.26	4.26
R_178	3.26	4.26
R_181	3.26	4.26

TR_177

R_177

R_178

Galiano Island

TR_181

R_181

0 1,000 2,000 3,000 4,000 m

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456000E 458000E 460000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Making a difference...together

Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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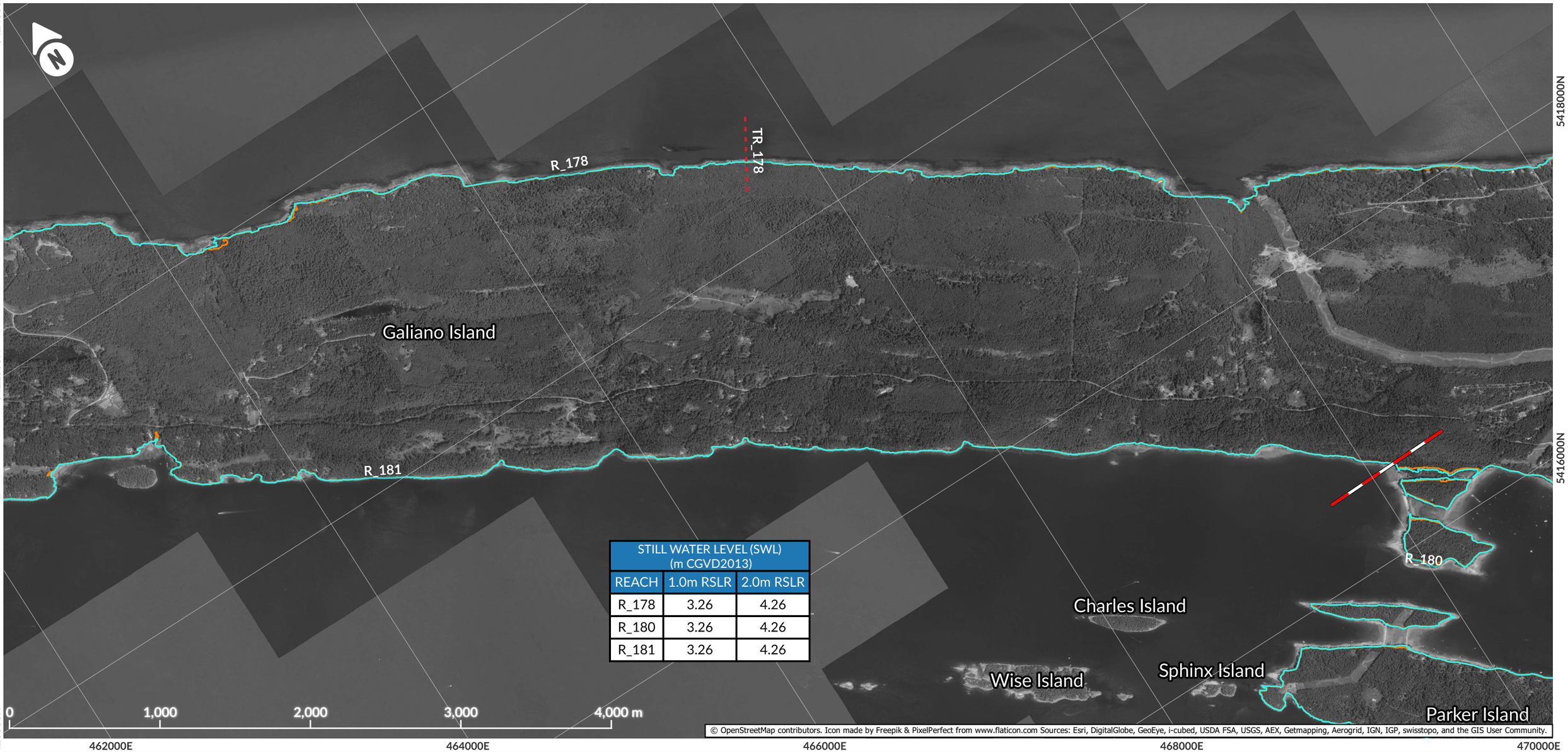
Map Sheet 30 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS



STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_178	3.26	4.26
R_180	3.26	4.26
R_181	3.26	4.26

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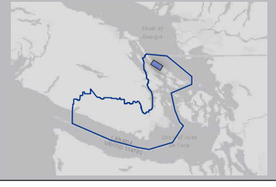
Coastal Flood Inundation Mapping Project

Capital Regional District

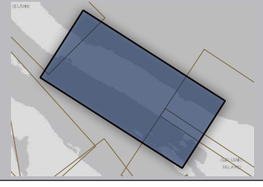
August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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7. For further information, please refer to Task 2 – Sea Level Rise Modelling and Mapping Report. These maps constitute Appendix C of said report.

Making a difference...together

Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 31 of 43

plot date: 2021.08.02
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

472000E 474000E 476000E 478000E 480000E

5420000N 5418000N 5416000N 5414000N 5412000N

Galiano island

Gossip Island

R_178 R_179 TR_179 R_185

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_178	3.26	4.26
R_179	3.26	4.26
R_185	3.26	4.26
R_191	3.26	4.26

0 1,000 2,000 3,000 4,000 m

470000E 472000E 474000E 476000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

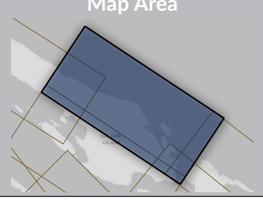
August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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Making a difference...together

Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 32 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

470000E 472000E 474000E 476000E

5418000N 5412000N 5416000N 5410000N 5414000N

R_181 R_179 R_180 R_191 R_190 TR_180 TR_190

Galiano Island

Sphinx Island

Parker Island

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_179	3.26	4.26
R_180	3.26	4.26
R_181	3.26	4.26
R_190	3.26	4.26
R_191	3.26	4.26

0 1,000 2,000 3,000 4,000 m

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468000E 470000E 472000E 474000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD

Map Area

Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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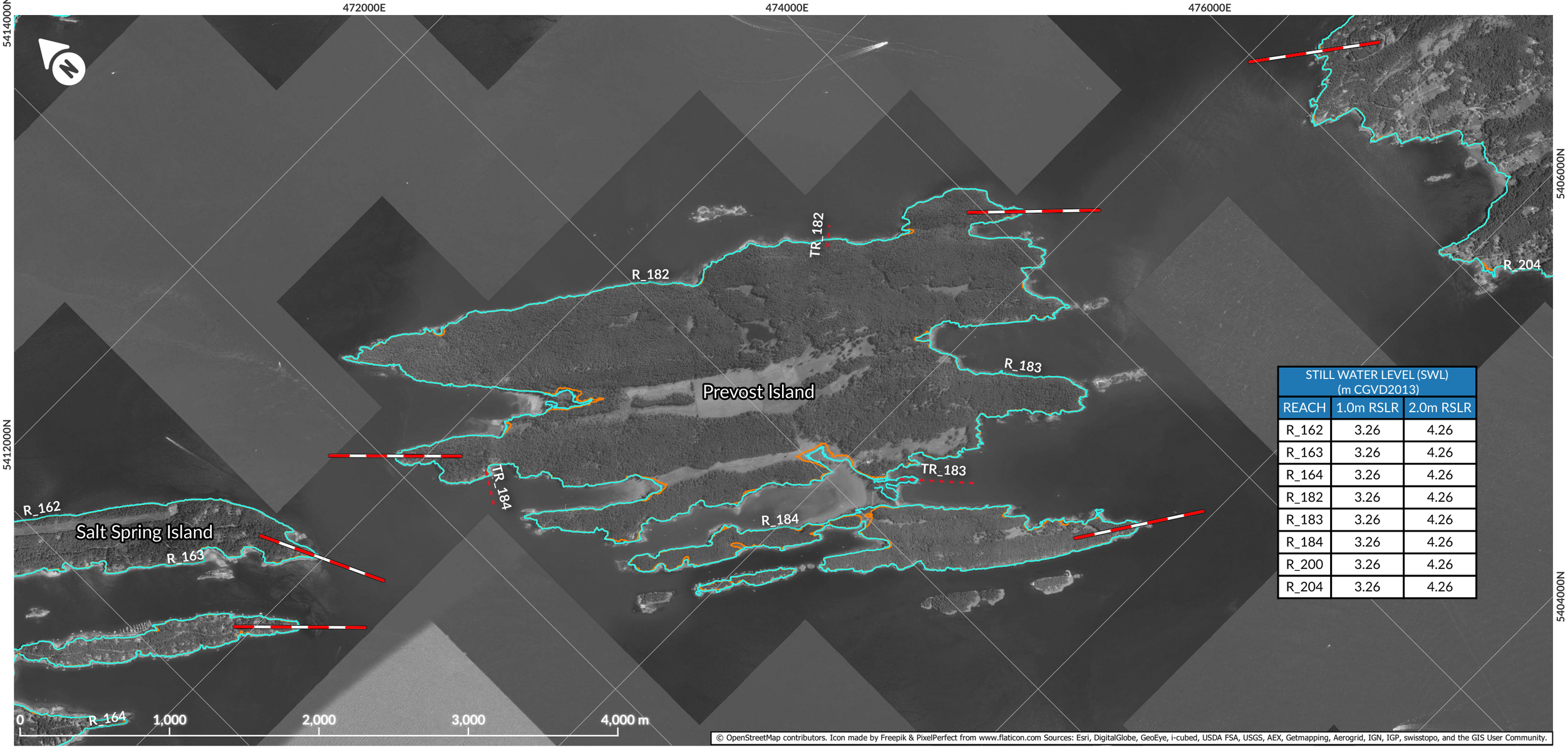
Making a difference...together

Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 33 of 43

plot date: 2021.08.02
file: P:\20192676\00_Coast\Flood\Ianami\Working_Dwgs\010_GIS



STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_162	3.26	4.26
R_163	3.26	4.26
R_164	3.26	4.26
R_182	3.26	4.26
R_183	3.26	4.26
R_184	3.26	4.26
R_200	3.26	4.26
R_204	3.26	4.26

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Coastal Flood Inundation Mapping Project

Capital Regional District

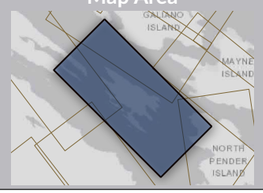
August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 34 of 43

plot date: 2021.08.02
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

480000E 482000E 484000E 486000E

5416000N 5410000N 5414000N 5408000N

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_179	3.26	4.26
R_180	3.26	4.26
R_185	3.26	4.26
R_186	3.26	4.26
R_187	3.26	4.26
R_188	3.26	4.26
R_191	3.26	4.26

TR_186 R_186 TR_185 TR_187 R_187 TR_179 R_179 R_185 Mayne Island Georgeson Island TR_188 Curlew Island Samuel Island R_188

0 1,000 2,000 3,000 4,000 m

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478000E 480000E 482000E 484000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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Project No. 20192676
Approved by D. Forde, P.Eng.
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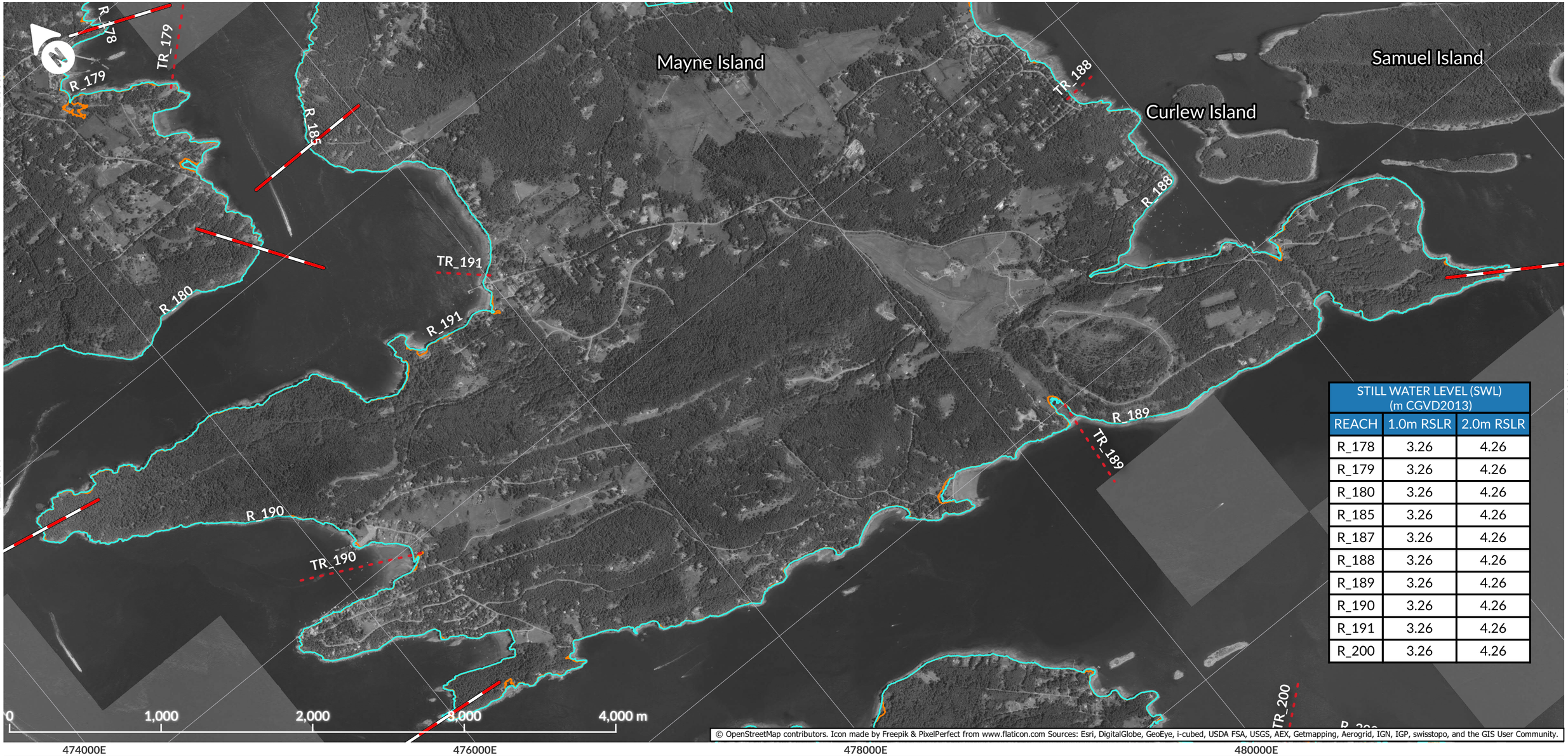
Map Sheet 35 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastFloodTsunami\Working_Dvgs\010_GIS



STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_178	3.26	4.26
R_179	3.26	4.26
R_180	3.26	4.26
R_185	3.26	4.26
R_187	3.26	4.26
R_188	3.26	4.26
R_189	3.26	4.26
R_190	3.26	4.26
R_191	3.26	4.26
R_200	3.26	4.26

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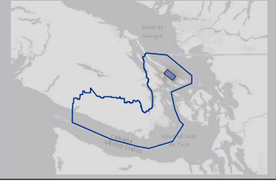
Coastal Flood Inundation Mapping Project

Capital Regional District

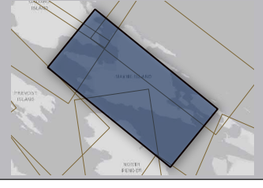
August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Making a difference...together

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Map Sheet 36 of 43

plot date: 2021.08.02
file: P:\20192676\00_Coast\Flood\tunami\Working_Dwgs\1010_GIS

490000E 492000E 494000E 496000E 498000E

5408000N 5404000N 5406000N 5402000N 5400000N

Tumbo Island

Saturna Island

TR_192 R_192 TR_193 R_193 R_194 TR_194 TR_195 R_195 R_196

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_192	3.26	4.26
R_193	3.26	4.26
R_194	3.26	4.26
R_195	3.26	4.26
R_196	3.26	4.26
R_199	3.26	4.26

0 1,000 2,000 3,000 4,000 m

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488000E 490000E 492000E 494000E 496000E

Coastal Flood Inundation Mapping Project

Capital Regional District

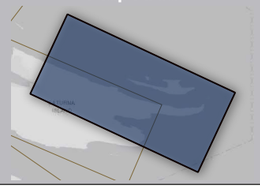
August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Making a difference...together

Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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Approved by D. Forde, P.Eng.
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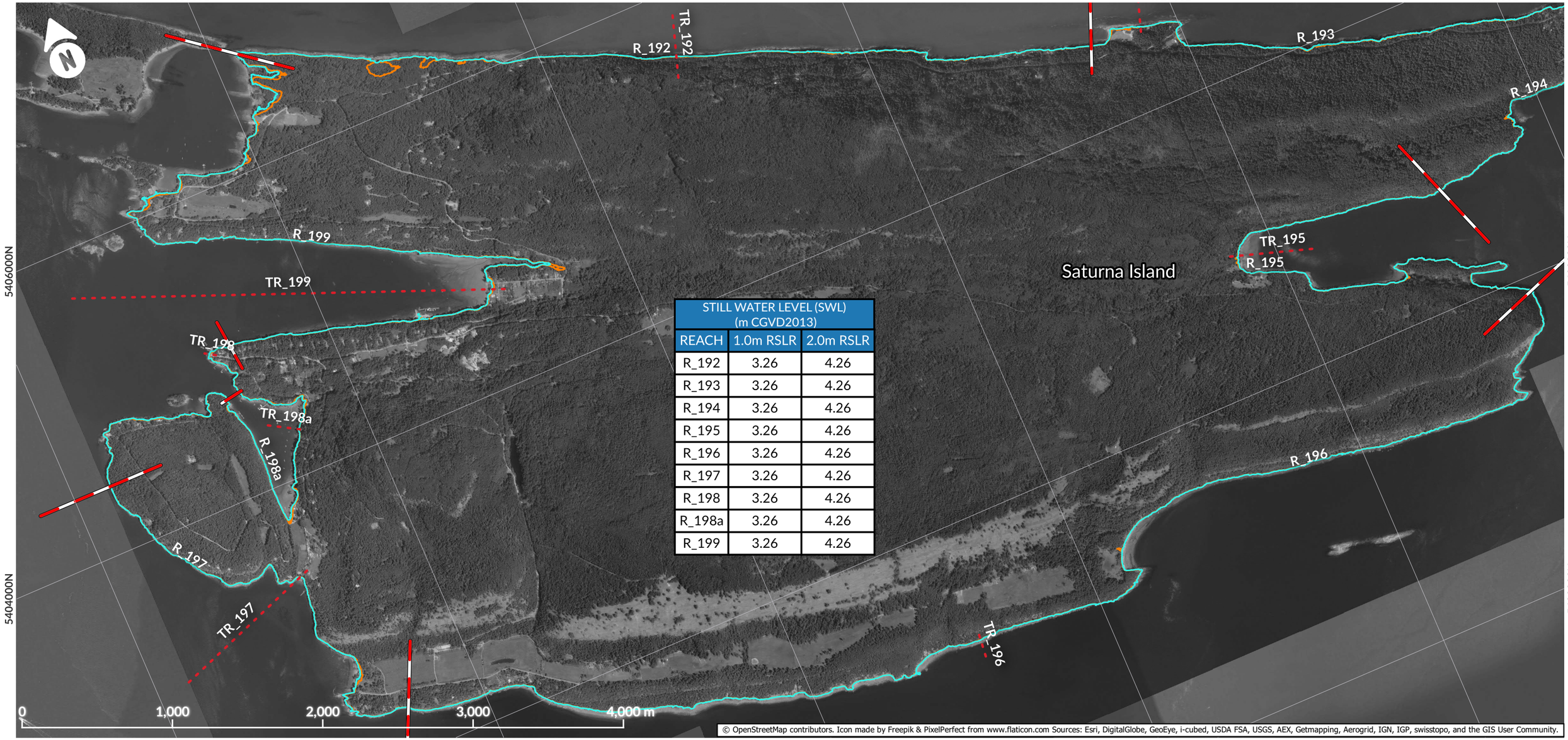
Map Sheet 37 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS



STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_192	3.26	4.26
R_193	3.26	4.26
R_194	3.26	4.26
R_195	3.26	4.26
R_196	3.26	4.26
R_197	3.26	4.26
R_198	3.26	4.26
R_198a	3.26	4.26
R_199	3.26	4.26

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

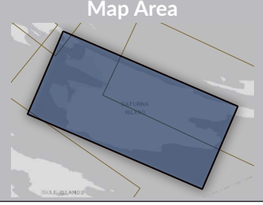
Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

Making a difference...together

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Drawn by C. Duncan and S. Haley

Map Sheet 38 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastalFloodTsunami\Working_Dwgs\010_GIS

482000E 484000E 486000E 488000E

5404000N 5398000N 5402000N 5396000N

R_200 TR_205 R_205 R_206 TR_206 TR_201 R_201 R_201a South Pender Island TR_201a TR_207 R_207 North Pender Island TR_202 R_203 R_202

0 1,000 2,000 3,000 4,000 m

478000E 480000E 482000E 484000E 486000E

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_200	3.26	4.26
R_201	3.26	4.26
R_201a	3.26	4.26
R_202	3.26	4.26
R_203	3.26	4.26
R_205	3.26	4.26
R_206	3.26	4.26
R_207	3.26	4.26

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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4. Data sources: Orthoimagery (CRD, 2017);
5. Relative Sea Level Rise (RSLR) is an absolute increase in mean sea level, incorporating the effects of land subsidence or uplift.
6. Total sea level for a given return period, including sea level rise allowance, tide and storm surge. Wave effects are excluded.
7. For further information, please refer to Task 2 – Sea Level Rise Modelling and Mapping Report. These maps constitute Appendix C of said report.

Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 39 of 43

plot date: 2021.08.02
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS



STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_189	3.26	4.26
R_200	3.26	4.26
R_201	3.26	4.26
R_201a	3.26	4.26
R_202	3.26	4.26
R_203	3.26	4.26
R_204	3.26	4.26

476000E

Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Drawn by C. Duncan and S. Haley

Map Sheet 40 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastFloodPlan\mWorking_Dwgs\1010_GIS

470000E 472000E 474000E 476000E 478000E

5392000N 5398000N

Pym Island

R_137

R_213 TR_213 TR_215 R_215

Coal Island

R_214 TR_214

Ker Island Dock Island Reay Island

R_208 TR_208

Moresby Island

R_209 TR_209

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_208	3.26	4.26
R_209	3.26	4.26
R_213	3.26	4.26
R_214	3.26	4.26
R_215	3.26	4.26

5390000N 5396000N

0 1,000 2,000 3,000 4,000 m

474000E 476000E 478000E 480000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Map Sheet 41 of 43

plot date: 2021.08.02
file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS

476000E

474000E

5380000N

5390000N

TR_218

R_218

R_216

TR_217

R_217

Sidney Island

TR_216

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_216	3.24	4.24
R_217	3.13	4.13
R_218	3.23	4.23

Rubly Island

Bare Island 9

0 1,000 2,000 3,000 4,000 m

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480000E

478000E

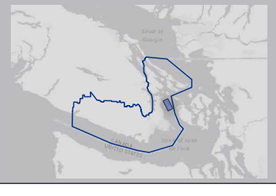
Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD



Map Area



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DHI

Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Map Sheet 42 of 43

plot date: 2021.08.02
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

474000E

472000E

5378000N

5388000N

478000E

476000E

TR_117

R_117

TR_220

R_220

R_219

James Island

TR_219

TR_218

R_218

R_216

STILL WATER LEVEL (SWL) (m CGVD2013)		
REACH	1.0m RSLR	2.0m RSLR
R_117	3.25	4.25
R_216	3.24	4.24
R_218	3.23	4.23
R_219	3.25	4.25
R_220	3.03	4.03

0 1,000 2,000 3,000 4,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

August 2021

Still Water Level - 0.5% Annual Exceedance Probability (AEP)
1.0 m and 2.0 m Relative Sea Level Rise Scenarios

CRD

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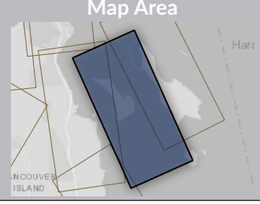
DHI

CRD



Map Area



Legend

- FCL Reach Boundary
- Transect
- SWL-RSLR-1m-200yr
- SWL-RSLR-2m-200yr

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Map Sheet 43 of 43

plot date: 2021.08.02
file: P:\20192676\00_Coast\Flood\Isnam\Working_Dwgs\010_GIS

APPENDIX G – STILL WATER LEVELS (SWL) RESULTS

Appendix G presents a full suite of still water level results (i.e. tide + surge). These results are offered for the five AEP (10%, 5%, 2%, 1%, 0.5%) scenarios and all four RSLR scenarios (i.e. 0.0 m, 0.5 m, 1.0 m, 2.0 m). In the column below, labelled 'Map Sheet No.', readers are given the relevant map sheet for that particular transect location in **Appendix C**.

RSLR = + 0 m (m CGVD2013)

RSLR = + 0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
001	1	2.21	2.34	2.55	2.74	2.98
002	1	2.21	2.34	2.55	2.74	2.98
003	1	2.21	2.34	2.55	2.74	2.98
004	1	2.21	2.34	2.55	2.74	2.98
005	2	2.21	2.34	2.55	2.74	2.98
006	3	2.21	2.34	2.55	2.74	2.98
007	3	2.21	2.34	2.55	2.74	2.98
008	4	2.21	2.34	2.55	2.74	2.98
009	5	2.21	2.34	2.55	2.74	2.98
010	5	2.21	2.34	2.55	2.74	2.98
011	6	2.21	2.34	2.55	2.74	2.98
012	6	2.00	2.12	2.28	2.43	2.59
013	6	1.86	1.93	2.02	2.09	2.15
014	6	1.86	1.93	2.02	2.09	2.15
015	7	1.83	1.89	1.96	2.00	2.04
016	7	1.83	1.89	1.95	2.00	2.03
017	7	1.83	1.89	1.95	1.99	2.03
018	7	1.83	1.89	1.95	1.99	2.03
019	7	1.83	1.89	1.95	1.99	2.03
020	8	1.83	1.89	1.95	1.99	2.03
021	8	1.83	1.89	1.95	1.99	2.02
022	8	1.83	1.89	1.95	1.99	2.03
023	9	1.83	1.89	1.95	1.99	2.03
024	9	1.83	1.89	1.95	1.99	2.03
025	9	1.83	1.89	1.95	1.99	2.03
026	9	1.83	1.89	1.95	1.99	2.03

\\ae.ca\data\projects\van\2019267 6\00_CoastFloodTsunami\Engineering\03.02_Conceptual_Feasibility_Master_Plan_Report\2.0 SLR Report\version 2.0\rpt_crd_task 2_slr modelling_20211020.docx

RSLR = + 0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
027	9	1.83	1.89	1.95	1.99	2.03
028	9	1.83	1.89	1.95	1.99	2.03
029	9	1.83	1.89	1.95	1.99	2.03
030	9	1.83	1.89	1.95	1.99	2.03
031	9	1.83	1.89	1.95	1.99	2.03
032	10	1.83	1.89	1.95	1.99	2.03
033	10	1.83	1.89	1.95	1.99	2.03
034	10	1.83	1.89	1.95	1.99	2.03
035	10	1.83	1.89	1.95	1.99	2.03
036	10	1.83	1.89	1.95	1.99	2.03
037	10	1.83	1.89	1.95	1.99	2.03
038	10	1.83	1.89	1.95	1.99	2.03
039	10	1.83	1.89	1.95	1.99	2.03
040	11	1.83	1.89	1.95	1.99	2.03
041	11	1.83	1.89	1.95	1.99	2.03
042	11	1.83	1.89	1.95	1.99	2.03
043	11	1.83	1.89	1.95	1.99	2.03
044	11	1.83	1.89	1.95	1.99	2.02
045	11	1.83	1.89	1.95	1.99	2.02
046	11	1.83	1.89	1.95	1.99	2.02
047	11	1.83	1.89	1.95	1.99	2.02
048	11	1.83	1.89	1.95	1.99	2.02
049	11	1.82	1.88	1.94	1.98	2.01
050	12	1.82	1.88	1.94	1.98	2.01
051	12	1.82	1.88	1.94	1.97	2.01
052	12	1.82	1.88	1.94	1.98	2.01
053	12	1.82	1.88	1.94	1.98	2.01
054	12	1.83	1.88	1.94	1.98	2.02
055	12	1.83	1.88	1.95	1.98	2.02
056	12	1.83	1.88	1.95	1.99	2.02
057	12	1.83	1.88	1.95	1.99	2.02
058	12	1.83	1.88	1.95	1.99	2.02
059	12	1.83	1.88	1.95	1.98	2.02

RSLR = + 0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
060	12	1.83	1.89	1.95	1.99	2.02
061	12	1.83	1.89	1.95	1.99	2.03
062	12	1.83	1.89	1.95	1.99	2.03
063	12	1.83	1.89	1.95	1.99	2.03
064	12	1.83	1.89	1.95	1.99	2.03
065	12	1.83	1.89	1.95	1.99	2.03
066	12	1.83	1.89	1.95	1.99	2.03
067	12	1.83	1.89	1.95	1.99	2.03
068	12	1.83	1.89	1.95	1.99	2.03
069	12	1.83	1.89	1.95	1.99	2.03
070	12	1.83	1.89	1.95	1.99	2.03
071	13	1.83	1.89	1.95	1.99	2.03
072	13	1.83	1.89	1.95	1.99	2.03
073	13	1.83	1.89	1.95	1.99	2.03
074	13	1.83	1.89	1.95	1.99	2.03
075	13	1.83	1.89	1.95	1.99	2.03
076	13	1.83	1.89	1.95	1.99	2.03
077	13	1.83	1.89	1.95	1.99	2.03
078	13	1.83	1.89	1.95	1.99	2.03
079	13	1.83	1.89	1.95	1.99	2.03
080	13	1.83	1.89	1.95	1.99	2.03
081	13	1.83	1.89	1.95	1.99	2.03
082	13	1.83	1.89	1.95	1.99	2.03
083	13	1.83	1.89	1.95	1.99	2.03
084	13	1.83	1.89	1.95	1.99	2.03
085	14	1.83	1.89	1.95	1.99	2.03
086	14	1.83	1.89	1.95	1.99	2.03
087	14	1.83	1.89	1.95	1.99	2.03
088	14	1.83	1.89	1.95	1.99	2.03
089	14	1.83	1.89	1.95	1.99	2.03
090	14	1.83	1.89	1.95	1.99	2.03
091	14	1.83	1.89	1.95	1.99	2.03
092	14	1.83	1.89	1.95	1.99	2.03

RSLR = + 0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
093	14	1.83	1.89	1.95	1.99	2.03
094	14	1.83	1.89	1.95	1.99	2.03
095	14	1.83	1.89	1.95	1.99	2.03
096	14	1.83	1.89	1.95	1.99	2.03
097	14	1.83	1.89	1.95	1.99	2.03
098	14	1.83	1.89	1.95	1.99	2.03
099	14	1.83	1.89	1.95	1.99	2.03
100	14	1.83	1.89	1.95	1.99	2.03
101	14	1.83	1.89	1.95	1.99	2.03
102	14	1.83	1.89	1.95	1.99	2.02
103	14	1.83	1.88	1.95	1.99	2.02
104	14	1.82	1.88	1.94	1.98	2.01
105	15	1.82	1.87	1.93	1.97	2.00
106	15	1.81	1.87	1.93	1.96	1.99
107	15	1.81	1.86	1.92	1.95	1.98
108	15	1.81	1.86	1.91	1.95	1.97
109	15	1.80	1.85	1.90	1.93	1.95
110	15	1.80	1.85	1.89	1.92	1.94
111	15	1.90	1.95	2.00	2.03	2.06
112	15	1.90	1.95	2.00	2.03	2.06
113	15	1.97	2.02	2.07	2.10	2.12
114	15	2.00	2.05	2.10	2.13	2.15
115	16	2.05	2.10	2.15	2.18	2.20
116	16	2.08	2.13	2.18	2.20	2.22
117	16	2.10	2.15	2.20	2.22	2.25
118	16	2.10	2.15	2.20	2.22	2.25
119	16	2.11	2.15	2.20	2.23	2.25
120	16	2.11	2.16	2.21	2.23	2.25
121	16	2.12	2.16	2.21	2.24	2.26
122	16	2.12	2.17	2.21	2.24	2.26
123	16	2.12	2.17	2.21	2.24	2.26
124	17	2.12	2.17	2.21	2.24	2.26
125	17	2.12	2.17	2.21	2.24	2.26

RSLR = + 0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
126	17	2.12	2.17	2.21	2.24	2.26
127	17	2.12	2.17	2.21	2.24	2.26
128	17	2.12	2.17	2.22	2.24	2.26
129	17	2.12	2.17	2.22	2.24	2.26
130	17	2.12	2.17	2.22	2.24	2.26
131	17	2.12	2.17	2.22	2.24	2.26
132	17	2.12	2.17	2.22	2.24	2.26
133	17	2.12	2.17	2.22	2.24	2.26
134	17	2.12	2.17	2.22	2.24	2.26
135	17	2.12	2.17	2.22	2.24	2.26
136	17	2.12	2.17	2.22	2.24	2.26
137	17	2.12	2.17	2.22	2.24	2.26
138	17	2.12	2.17	2.22	2.24	2.26
139	17	2.12	2.17	2.22	2.24	2.26
140	17	2.12	2.17	2.22	2.24	2.26
141	17	2.12	2.17	2.22	2.24	2.26
142	18	2.12	2.17	2.22	2.24	2.26
143	18	2.12	2.17	2.22	2.24	2.26
144	18	2.12	2.17	2.22	2.24	2.26
145	18	2.12	2.17	2.22	2.24	2.26
146	18	2.12	2.17	2.22	2.24	2.26
147	18	2.12	2.17	2.22	2.24	2.26
148	18	2.12	2.17	2.22	2.24	2.26
149	18	2.12	2.17	2.22	2.24	2.26
150	19	2.12	2.17	2.21	2.24	2.26
151	19	2.11	2.16	2.21	2.23	2.26
152	19	2.11	2.16	2.20	2.23	2.25
153	19	2.10	2.15	2.20	2.22	2.25
154	19	2.11	2.16	2.21	2.23	2.26
155	19	2.11	2.16	2.21	2.23	2.26
156	19	2.11	2.15	2.20	2.23	2.25
157	19	2.10	2.15	2.19	2.22	2.24
158	20	2.02	2.06	2.11	2.14	2.16

RSLR = + 0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
159	21	2.12	2.17	2.22	2.24	2.26
160	21	2.12	2.17	2.22	2.24	2.26
161	21	2.12	2.17	2.22	2.24	2.26
162	22	2.12	2.17	2.22	2.24	2.26
163	22	2.12	2.17	2.22	2.24	2.26
164	22	2.12	2.17	2.22	2.24	2.26
165	22	2.12	2.17	2.22	2.24	2.26
166	22	2.12	2.17	2.22	2.24	2.26
167	22	2.12	2.17	2.22	2.24	2.26
168	23	2.12	2.17	2.22	2.24	2.26
169	24	2.12	2.17	2.22	2.24	2.26
170	24	2.12	2.17	2.22	2.24	2.26
171	24	2.12	2.17	2.22	2.24	2.26
172	25	2.12	2.17	2.22	2.24	2.26
173	26	2.12	2.17	2.22	2.24	2.26
174	26	2.12	2.17	2.22	2.24	2.26
175	27	2.12	2.17	2.22	2.24	2.26
176	27	2.12	2.17	2.22	2.24	2.26
177	28	2.12	2.17	2.22	2.24	2.26
178	29	2.12	2.17	2.22	2.24	2.26
179	30	2.12	2.17	2.22	2.24	2.26
180	31	2.12	2.17	2.22	2.24	2.26
181	28	2.12	2.17	2.22	2.24	2.26
182	32	2.12	2.17	2.22	2.24	2.26
183	32	2.12	2.17	2.22	2.24	2.26
184	32	2.12	2.17	2.22	2.24	2.26
185	33	2.12	2.17	2.22	2.24	2.26
186	33	2.12	2.17	2.22	2.24	2.26
187	33	2.12	2.17	2.22	2.24	2.26
188	33	2.12	2.17	2.22	2.24	2.26
189	34	2.12	2.17	2.22	2.24	2.26
190	34	2.12	2.17	2.22	2.24	2.26
191	34	2.12	2.17	2.22	2.24	2.26

RSLR = + 0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
192	36	2.12	2.17	2.22	2.24	2.26
193	35	2.12	2.17	2.22	2.24	2.26
194	35	2.12	2.17	2.22	2.24	2.26
195	35	2.12	2.17	2.22	2.24	2.26
196	36	2.12	2.17	2.22	2.24	2.26
197	36	2.12	2.17	2.22	2.24	2.26
198	36	2.12	2.17	2.22	2.24	2.26
198a	36	2.12	2.17	2.22	2.24	2.26
199	36	2.12	2.17	2.22	2.24	2.26
200	38	2.12	2.17	2.22	2.24	2.26
201	37	2.12	2.17	2.22	2.24	2.26
201a	37	2.12	2.17	2.22	2.24	2.26
202	37	2.12	2.17	2.22	2.24	2.26
203	38	2.12	2.17	2.22	2.24	2.26
204	38	2.12	2.17	2.22	2.24	2.26
205	37	2.12	2.17	2.22	2.24	2.26
206	37	2.12	2.17	2.22	2.24	2.26
207	37	2.12	2.17	2.22	2.24	2.26
208	39	2.12	2.17	2.22	2.24	2.26
209	39	2.12	2.17	2.22	2.24	2.26
210	17	2.12	2.17	2.22	2.24	2.26
211	17	2.12	2.17	2.22	2.24	2.26
212	17	2.12	2.17	2.22	2.24	2.26
213	39	2.12	2.17	2.22	2.24	2.26
214	39	2.12	2.17	2.22	2.24	2.26
215	39	2.12	2.17	2.22	2.24	2.26
216	40	2.10	2.15	2.19	2.22	2.24
217	40	1.98	2.03	2.08	2.11	2.13
218	40	2.08	2.13	2.18	2.20	2.23
219	41	2.10	2.15	2.20	2.22	2.25
220	41	1.88	1.93	1.98	2.01	2.03

RSLR = + 0.5 m (m CGVD2013)

RSLR = + 0.5 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
001	1	2.71	2.84	3.05	3.24	3.48
002	1	2.71	2.84	3.05	3.24	3.48
003	1	2.71	2.84	3.05	3.24	3.48
004	1	2.71	2.84	3.05	3.24	3.48
005	2	2.71	2.84	3.05	3.24	3.48
006	3	2.71	2.84	3.05	3.24	3.48
007	3	2.71	2.84	3.05	3.24	3.48
008	4	2.71	2.84	3.05	3.24	3.48
009	5	2.71	2.84	3.05	3.24	3.48
010	5	2.71	2.84	3.05	3.24	3.48
011	6	2.71	2.84	3.05	3.24	3.48
012	6	2.50	2.62	2.78	2.93	3.09
013	6	2.36	2.43	2.52	2.59	2.65
014	6	2.36	2.43	2.52	2.59	2.65
015	7	2.33	2.39	2.46	2.50	2.54
016	7	2.33	2.39	2.45	2.50	2.53
017	7	2.33	2.39	2.45	2.49	2.53
018	7	2.33	2.39	2.45	2.49	2.53
019	7	2.33	2.39	2.45	2.49	2.53
020	8	2.33	2.39	2.45	2.49	2.53
021	8	2.33	2.39	2.45	2.49	2.52
022	8	2.33	2.39	2.45	2.49	2.52
023	9	2.33	2.39	2.45	2.49	2.53
024	9	2.33	2.39	2.45	2.49	2.53
025	9	2.33	2.39	2.45	2.49	2.53
026	9	2.33	2.39	2.45	2.49	2.53
027	9	2.33	2.39	2.45	2.49	2.53
028	9	2.33	2.39	2.45	2.49	2.53
029	9	2.33	2.39	2.45	2.49	2.53

RSLR = + 0.5 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
030	9	2.33	2.39	2.45	2.49	2.53
031	9	2.33	2.39	2.45	2.49	2.53
032	10	2.33	2.39	2.45	2.49	2.53
033	10	2.33	2.39	2.45	2.49	2.53
034	10	2.33	2.39	2.45	2.49	2.53
035	10	2.33	2.39	2.45	2.49	2.53
036	10	2.33	2.39	2.45	2.49	2.53
037	10	2.33	2.39	2.45	2.49	2.53
038	10	2.33	2.39	2.45	2.49	2.53
039	10	2.33	2.39	2.45	2.49	2.53
040	11	2.33	2.39	2.45	2.49	2.53
041	11	2.33	2.39	2.45	2.49	2.53
042	11	2.33	2.39	2.45	2.49	2.53
043	11	2.33	2.39	2.45	2.49	2.53
044	11	2.33	2.39	2.45	2.49	2.52
045	11	2.33	2.39	2.45	2.49	2.52
046	11	2.33	2.39	2.45	2.49	2.52
047	11	2.33	2.39	2.45	2.49	2.52
048	11	2.33	2.39	2.45	2.49	2.52
049	11	2.32	2.38	2.44	2.48	2.51
050	12	2.32	2.38	2.44	2.48	2.51
051	12	2.32	2.38	2.44	2.47	2.51
052	12	2.32	2.38	2.44	2.48	2.51
053	12	2.32	2.38	2.44	2.48	2.51
054	12	2.33	2.38	2.44	2.48	2.52
055	12	2.33	2.38	2.45	2.48	2.52
056	12	2.33	2.38	2.45	2.49	2.52
057	12	2.33	2.38	2.45	2.49	2.52
058	12	2.33	2.38	2.45	2.49	2.52
059	12	2.33	2.38	2.45	2.48	2.52
060	12	2.33	2.39	2.45	2.49	2.52

RSLR = + 0.5 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
061	12	2.33	2.39	2.45	2.49	2.53
062	12	2.33	2.39	2.45	2.49	2.53
063	12	2.33	2.39	2.45	2.49	2.53
064	12	2.33	2.39	2.45	2.49	2.53
065	12	2.33	2.39	2.45	2.49	2.53
066	12	2.33	2.39	2.45	2.49	2.53
067	12	2.33	2.39	2.45	2.49	2.53
068	12	2.33	2.39	2.45	2.49	2.53
069	12	2.33	2.39	2.45	2.49	2.53
070	12	2.33	2.39	2.45	2.49	2.53
071	13	2.33	2.39	2.45	2.49	2.53
072	13	2.33	2.39	2.45	2.49	2.53
073	13	2.33	2.39	2.45	2.49	2.53
074	13	2.33	2.39	2.45	2.49	2.53
075	13	2.33	2.39	2.45	2.49	2.53
076	13	2.33	2.39	2.45	2.49	2.53
077	13	2.33	2.39	2.45	2.49	2.53
078	13	2.33	2.39	2.45	2.49	2.53
079	13	2.33	2.39	2.45	2.49	2.53
080	13	2.33	2.39	2.45	2.49	2.53
081	13	2.33	2.39	2.45	2.49	2.53
082	13	2.33	2.39	2.45	2.49	2.53
083	13	2.33	2.39	2.45	2.49	2.53
084	13	2.33	2.39	2.45	2.49	2.53
085	14	2.33	2.39	2.45	2.49	2.53
086	14	2.33	2.39	2.45	2.49	2.53
087	14	2.33	2.39	2.45	2.49	2.53
088	14	2.33	2.39	2.45	2.49	2.53
089	14	2.33	2.39	2.45	2.49	2.53
090	14	2.33	2.39	2.45	2.49	2.53

RSLR = + 0.5 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
091	14	2.33	2.39	2.45	2.49	2.53
092	14	2.33	2.39	2.45	2.49	2.53
093	14	2.33	2.39	2.45	2.49	2.53
094	14	2.33	2.39	2.45	2.49	2.53
095	14	2.33	2.39	2.45	2.49	2.53
096	14	2.33	2.39	2.45	2.49	2.53
097	14	2.33	2.39	2.45	2.49	2.53
098	14	2.33	2.39	2.45	2.49	2.53
099	14	2.33	2.39	2.45	2.49	2.53
100	14	2.33	2.39	2.45	2.49	2.53
101	14	2.33	2.39	2.45	2.49	2.53
102	14	2.33	2.39	2.45	2.49	2.52
103	14	2.33	2.38	2.45	2.49	2.52
104	14	2.32	2.38	2.44	2.48	2.51
105	15	2.32	2.37	2.43	2.47	2.50
106	15	2.31	2.37	2.43	2.46	2.49
107	15	2.31	2.36	2.42	2.45	2.48
108	15	2.31	2.36	2.41	2.45	2.47
109	15	2.30	2.35	2.40	2.43	2.45
110	15	2.30	2.35	2.39	2.42	2.44
111	15	2.40	2.45	2.50	2.53	2.56
112	15	2.40	2.45	2.50	2.53	2.56
113	15	2.47	2.52	2.57	2.60	2.62
114	15	2.50	2.55	2.60	2.63	2.65
115	16	2.55	2.60	2.65	2.68	2.70
116	16	2.58	2.63	2.68	2.70	2.72
117	16	2.60	2.65	2.70	2.72	2.75
118	16	2.60	2.65	2.70	2.72	2.75
119	16	2.61	2.65	2.70	2.73	2.75
120	16	2.61	2.66	2.71	2.73	2.75
121	16	2.62	2.66	2.71	2.74	2.76

RSLR = + 0.5 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
122	16	2.62	2.67	2.71	2.74	2.76
123	16	2.62	2.67	2.71	2.74	2.76
124	17	2.62	2.67	2.71	2.74	2.76
125	17	2.62	2.67	2.71	2.74	2.76
126	17	2.62	2.67	2.71	2.74	2.76
127	17	2.62	2.67	2.71	2.74	2.76
128	17	2.62	2.67	2.72	2.74	2.76
129	17	2.62	2.67	2.72	2.74	2.76
130	17	2.62	2.67	2.72	2.74	2.76
131	17	2.62	2.67	2.72	2.74	2.76
132	17	2.62	2.67	2.72	2.74	2.76
133	17	2.62	2.67	2.72	2.74	2.76
134	17	2.62	2.67	2.72	2.74	2.76
135	17	2.62	2.67	2.72	2.74	2.76
136	17	2.62	2.67	2.72	2.74	2.76
137	17	2.62	2.67	2.72	2.74	2.76
138	17	2.62	2.67	2.72	2.74	2.76
139	17	2.62	2.67	2.72	2.74	2.76
140	17	2.62	2.67	2.72	2.74	2.76
141	17	2.62	2.67	2.72	2.74	2.76
142	18	2.62	2.67	2.72	2.74	2.76
143	18	2.62	2.67	2.72	2.74	2.76
144	18	2.62	2.67	2.72	2.74	2.76
145	18	2.62	2.67	2.72	2.74	2.76
146	18	2.62	2.67	2.72	2.74	2.76
147	18	2.62	2.67	2.72	2.74	2.76
148	18	2.62	2.67	2.72	2.74	2.76
149	18	2.62	2.67	2.72	2.74	2.76
150	19	2.62	2.67	2.71	2.74	2.76
151	19	2.61	2.66	2.71	2.73	2.76

RSLR = + 0.5 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
152	19	2.61	2.66	2.70	2.73	2.75
153	19	2.60	2.65	2.70	2.72	2.75
154	19	2.61	2.66	2.71	2.73	2.76
155	19	2.61	2.66	2.71	2.73	2.76
156	19	2.61	2.65	2.70	2.73	2.75
157	19	2.60	2.65	2.69	2.72	2.74
158	20	2.52	2.56	2.61	2.64	2.66
159	21	2.62	2.67	2.72	2.74	2.76
160	21	2.62	2.67	2.72	2.74	2.76
161	21	2.62	2.67	2.72	2.74	2.76
162	22	2.62	2.67	2.72	2.74	2.76
163	22	2.62	2.67	2.72	2.74	2.76
164	22	2.62	2.67	2.72	2.74	2.76
165	22	2.62	2.67	2.72	2.74	2.76
166	22	2.62	2.67	2.72	2.74	2.76
167	22	2.62	2.67	2.72	2.74	2.76
168	23	2.62	2.67	2.72	2.74	2.76
169	24	2.62	2.67	2.72	2.74	2.76
170	24	2.62	2.67	2.72	2.74	2.76
171	24	2.62	2.67	2.72	2.74	2.76
172	25	2.62	2.67	2.72	2.74	2.76
173	26	2.62	2.67	2.72	2.74	2.76
174	26	2.62	2.67	2.72	2.74	2.76
175	27	2.62	2.67	2.72	2.74	2.76
176	27	2.62	2.67	2.72	2.74	2.76
177	28	2.62	2.67	2.72	2.74	2.76
178	29	2.62	2.67	2.72	2.74	2.76
179	30	2.62	2.67	2.72	2.74	2.76
180	31	2.62	2.67	2.72	2.74	2.76
181	28	2.62	2.67	2.72	2.74	2.76
182	32	2.62	2.67	2.72	2.74	2.76

RSLR = + 0.5 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
183	32	2.62	2.67	2.72	2.74	2.76
184	32	2.62	2.67	2.72	2.74	2.76
185	33	2.62	2.67	2.72	2.74	2.76
186	33	2.62	2.67	2.72	2.74	2.76
187	33	2.62	2.67	2.72	2.74	2.76
188	33	2.62	2.67	2.72	2.74	2.76
189	34	2.62	2.67	2.72	2.74	2.76
190	34	2.62	2.67	2.72	2.74	2.76
191	34	2.62	2.67	2.72	2.74	2.76
192	36	2.62	2.67	2.72	2.74	2.76
193	35	2.62	2.67	2.72	2.74	2.76
194	35	2.62	2.67	2.72	2.74	2.76
195	35	2.62	2.67	2.72	2.74	2.76
196	36	2.62	2.67	2.72	2.74	2.76
197	36	2.62	2.67	2.72	2.74	2.76
198	36	2.62	2.67	2.72	2.74	2.76
198a	36	2.62	2.67	2.72	2.74	2.76
199	36	2.62	2.67	2.72	2.74	2.76
200	38	2.62	2.67	2.72	2.74	2.76
201	37	2.62	2.67	2.72	2.74	2.76
201a	37	2.62	2.67	2.72	2.74	2.76
202	37	2.62	2.67	2.72	2.74	2.76
203	38	2.62	2.67	2.72	2.74	2.76
204	38	2.62	2.67	2.72	2.74	2.76
205	37	2.62	2.67	2.72	2.74	2.76
206	37	2.62	2.67	2.72	2.74	2.76
207	37	2.62	2.67	2.72	2.74	2.76
208	39	2.62	2.67	2.72	2.74	2.76
209	39	2.62	2.67	2.72	2.74	2.76
210	17	2.62	2.67	2.72	2.74	2.76

RSLR = + 0.5 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
211	17	2.62	2.67	2.72	2.74	2.76
212	17	2.62	2.67	2.72	2.74	2.76
213	39	2.62	2.67	2.72	2.74	2.76
214	39	2.62	2.67	2.72	2.74	2.76
215	39	2.62	2.67	2.72	2.74	2.76
216	40	2.60	2.65	2.69	2.72	2.74
217	40	2.48	2.53	2.58	2.61	2.63
218	40	2.58	2.63	2.68	2.70	2.73
219	41	2.60	2.65	2.70	2.72	2.75
220	41	2.38	2.43	2.48	2.51	2.53

RSLR = + 1.0 m (m CGVD2013)

RSLR = + 1.0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
001	1	3.21	3.34	3.55	3.74	3.98
002	1	3.21	3.34	3.55	3.74	3.98
003	1	3.21	3.34	3.55	3.74	3.98
004	1	3.21	3.34	3.55	3.74	3.98
005	2	3.21	3.34	3.55	3.74	3.98
006	3	3.21	3.34	3.55	3.74	3.98
007	3	3.21	3.34	3.55	3.74	3.98
008	4	3.21	3.34	3.55	3.74	3.98
009	5	3.21	3.34	3.55	3.74	3.98
010	5	3.21	3.34	3.55	3.74	3.98
011	6	3.21	3.34	3.55	3.74	3.98
012	6	3.00	3.12	3.28	3.43	3.59
013	6	2.86	2.93	3.02	3.09	3.15
014	6	2.86	2.93	3.02	3.09	3.15
015	7	2.83	2.89	2.96	3.00	3.04
016	7	2.83	2.89	2.95	3.00	3.03
017	7	2.83	2.89	2.95	2.99	3.03
018	7	2.83	2.89	2.95	2.99	3.03
019	7	2.83	2.89	2.95	2.99	3.03
020	8	2.83	2.89	2.95	2.99	3.03
021	8	2.83	2.89	2.95	2.99	3.02
022	8	2.83	2.89	2.95	2.99	3.03
023	9	2.83	2.89	2.95	2.99	3.03
024	9	2.83	2.89	2.95	2.99	3.03
025	9	2.83	2.89	2.95	2.99	3.03
026	9	2.83	2.89	2.95	2.99	3.03
027	9	2.83	2.89	2.95	2.99	3.03
028	9	2.83	2.89	2.95	2.99	3.03
029	9	2.83	2.89	2.95	2.99	3.03

RSLR = + 1.0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
030	9	2.83	2.89	2.95	2.99	3.03
031	9	2.83	2.89	2.95	2.99	3.03
032	10	2.83	2.89	2.95	2.99	3.03
033	10	2.83	2.89	2.95	2.99	3.03
034	10	2.83	2.89	2.95	2.99	3.03
035	10	2.83	2.89	2.95	2.99	3.03
036	10	2.83	2.89	2.95	2.99	3.03
037	10	2.83	2.89	2.95	2.99	3.03
038	10	2.83	2.89	2.95	2.99	3.03
039	10	2.83	2.89	2.95	2.99	3.03
040	11	2.83	2.89	2.95	2.99	3.03
041	11	2.83	2.89	2.95	2.99	3.03
042	11	2.83	2.89	2.95	2.99	3.03
043	11	2.83	2.89	2.95	2.99	3.03
044	11	2.83	2.89	2.95	2.99	3.02
045	11	2.83	2.89	2.95	2.99	3.02
046	11	2.83	2.89	2.95	2.99	3.02
047	11	2.83	2.89	2.95	2.99	3.02
048	11	2.83	2.89	2.95	2.99	3.02
049	11	2.82	2.88	2.94	2.98	3.01
050	12	2.82	2.88	2.94	2.98	3.01
051	12	2.82	2.88	2.94	2.97	3.01
052	12	2.82	2.88	2.94	2.98	3.01
053	12	2.82	2.88	2.94	2.98	3.01
054	12	2.83	2.88	2.94	2.98	3.02
055	12	2.83	2.88	2.95	2.98	3.02
056	12	2.83	2.88	2.95	2.99	3.02
057	12	2.83	2.88	2.95	2.99	3.02
058	12	2.83	2.88	2.95	2.99	3.02
059	12	2.83	2.88	2.95	2.98	3.02
060	12	2.83	2.89	2.95	2.99	3.02

RSLR = + 1.0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
061	12	2.83	2.89	2.95	2.99	3.03
062	12	2.83	2.89	2.95	2.99	3.03
063	12	2.83	2.89	2.95	2.99	3.03
064	12	2.83	2.89	2.95	2.99	3.03
065	12	2.83	2.89	2.95	2.99	3.03
066	12	2.83	2.89	2.95	2.99	3.03
067	12	2.83	2.89	2.95	2.99	3.03
068	12	2.83	2.89	2.95	2.99	3.03
069	12	2.83	2.89	2.95	2.99	3.03
070	12	2.83	2.89	2.95	2.99	3.03
071	13	2.83	2.89	2.95	2.99	3.03
072	13	2.83	2.89	2.95	2.99	3.03
073	13	2.83	2.89	2.95	2.99	3.03
074	13	2.83	2.89	2.95	2.99	3.03
075	13	2.83	2.89	2.95	2.99	3.03
076	13	2.83	2.89	2.95	2.99	3.03
077	13	2.83	2.89	2.95	2.99	3.03
078	13	2.83	2.89	2.95	2.99	3.03
079	13	2.83	2.89	2.95	2.99	3.03
080	13	2.83	2.89	2.95	2.99	3.03
081	13	2.83	2.89	2.95	2.99	3.03
082	13	2.83	2.89	2.95	2.99	3.03
083	13	2.83	2.89	2.95	2.99	3.03
084	13	2.83	2.89	2.95	2.99	3.03
085	14	2.83	2.89	2.95	2.99	3.03
086	14	2.83	2.89	2.95	2.99	3.03
087	14	2.83	2.89	2.95	2.99	3.03
088	14	2.83	2.89	2.95	2.99	3.03
089	14	2.83	2.89	2.95	2.99	3.03
090	14	2.83	2.89	2.95	2.99	3.03

RSLR = + 1.0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
091	14	2.83	2.89	2.95	2.99	3.03
092	14	2.83	2.89	2.95	2.99	3.03
093	14	2.83	2.89	2.95	2.99	3.03
094	14	2.83	2.89	2.95	2.99	3.03
095	14	2.83	2.89	2.95	2.99	3.03
096	14	2.83	2.89	2.95	2.99	3.03
097	14	2.83	2.89	2.95	2.99	3.03
098	14	2.83	2.89	2.95	2.99	3.03
099	14	2.83	2.89	2.95	2.99	3.03
100	14	2.83	2.89	2.95	2.99	3.03
101	14	2.83	2.89	2.95	2.99	3.03
102	14	2.83	2.89	2.95	2.99	3.02
103	14	2.83	2.88	2.95	2.99	3.02
104	14	2.82	2.88	2.94	2.98	3.01
105	15	2.82	2.87	2.93	2.97	3.00
106	15	2.81	2.87	2.93	2.96	2.99
107	15	2.81	2.86	2.92	2.95	2.98
108	15	2.81	2.86	2.91	2.95	2.97
109	15	2.80	2.85	2.90	2.93	2.95
110	15	2.80	2.85	2.89	2.92	2.94
111	15	2.90	2.95	3.00	3.03	3.06
112	15	2.90	2.95	3.00	3.03	3.06
113	15	2.97	3.02	3.07	3.10	3.12
114	15	3.00	3.05	3.10	3.13	3.15
115	16	3.05	3.10	3.15	3.18	3.20
116	16	3.08	3.13	3.18	3.20	3.22
117	16	3.10	3.15	3.20	3.22	3.25
118	16	3.10	3.15	3.20	3.22	3.25
119	16	3.11	3.15	3.20	3.23	3.25
120	16	3.11	3.16	3.21	3.23	3.25
121	16	3.12	3.16	3.21	3.24	3.26

RSLR = + 1.0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
122	16	3.12	3.17	3.21	3.24	3.26
123	16	3.12	3.17	3.21	3.24	3.26
124	17	3.12	3.17	3.21	3.24	3.26
125	17	3.12	3.17	3.21	3.24	3.26
126	17	3.12	3.17	3.21	3.24	3.26
127	17	3.12	3.17	3.21	3.24	3.26
128	17	3.12	3.17	3.22	3.24	3.26
129	17	3.12	3.17	3.22	3.24	3.26
130	17	3.12	3.17	3.22	3.24	3.26
131	17	3.12	3.17	3.22	3.24	3.26
132	17	3.12	3.17	3.22	3.24	3.26
133	17	3.12	3.17	3.22	3.24	3.26
134	17	3.12	3.17	3.22	3.24	3.26
135	17	3.12	3.17	3.22	3.24	3.26
136	17	3.12	3.17	3.22	3.24	3.26
137	17	3.12	3.17	3.22	3.24	3.26
138	17	3.12	3.17	3.22	3.24	3.26
139	17	3.12	3.17	3.22	3.24	3.26
140	17	3.12	3.17	3.22	3.24	3.26
141	17	3.12	3.17	3.22	3.24	3.26
142	18	3.12	3.17	3.22	3.24	3.26
143	18	3.12	3.17	3.22	3.24	3.26
144	18	3.12	3.17	3.22	3.24	3.26
145	18	3.12	3.17	3.22	3.24	3.26
146	18	3.12	3.17	3.22	3.24	3.26
147	18	3.12	3.17	3.22	3.24	3.26
148	18	3.12	3.17	3.22	3.24	3.26
149	18	3.12	3.17	3.22	3.24	3.26
150	19	3.12	3.17	3.21	3.24	3.26
151	19	3.11	3.16	3.21	3.23	3.26

RSLR = + 1.0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
152	19	3.11	3.16	3.20	3.23	3.25
153	19	3.10	3.15	3.20	3.22	3.25
154	19	3.11	3.16	3.21	3.23	3.26
155	19	3.11	3.16	3.21	3.23	3.26
156	19	3.11	3.15	3.20	3.23	3.25
157	19	3.10	3.15	3.19	3.22	3.24
158	20	3.02	3.06	3.11	3.14	3.16
159	21	3.12	3.17	3.22	3.24	3.26
160	21	3.12	3.17	3.22	3.24	3.26
161	21	3.12	3.17	3.22	3.24	3.26
162	22	3.12	3.17	3.22	3.24	3.26
163	22	3.12	3.17	3.22	3.24	3.26
164	22	3.12	3.17	3.22	3.24	3.26
165	22	3.12	3.17	3.22	3.24	3.26
166	22	3.12	3.17	3.22	3.24	3.26
167	22	3.12	3.17	3.22	3.24	3.26
168	23	3.12	3.17	3.22	3.24	3.26
169	24	3.12	3.17	3.22	3.24	3.26
170	24	3.12	3.17	3.22	3.24	3.26
171	24	3.12	3.17	3.22	3.24	3.26
172	25	3.12	3.17	3.22	3.24	3.26
173	26	3.12	3.17	3.22	3.24	3.26
174	26	3.12	3.17	3.22	3.24	3.26
175	27	3.12	3.17	3.22	3.24	3.26
176	27	3.12	3.17	3.22	3.24	3.26
177	28	3.12	3.17	3.22	3.24	3.26
178	29	3.12	3.17	3.22	3.24	3.26
179	30	3.12	3.17	3.22	3.24	3.26
180	31	3.12	3.17	3.22	3.24	3.26
181	28	3.12	3.17	3.22	3.24	3.26
182	32	3.12	3.17	3.22	3.24	3.26

RSLR = + 1.0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
183	32	3.12	3.17	3.22	3.24	3.26
184	32	3.12	3.17	3.22	3.24	3.26
185	33	3.12	3.17	3.22	3.24	3.26
186	33	3.12	3.17	3.22	3.24	3.26
187	33	3.12	3.17	3.22	3.24	3.26
188	33	3.12	3.17	3.22	3.24	3.26
189	34	3.12	3.17	3.22	3.24	3.26
190	34	3.12	3.17	3.22	3.24	3.26
191	34	3.12	3.17	3.22	3.24	3.26
192	36	3.12	3.17	3.22	3.24	3.26
193	35	3.12	3.17	3.22	3.24	3.26
194	35	3.12	3.17	3.22	3.24	3.26
195	35	3.12	3.17	3.22	3.24	3.26
196	36	3.12	3.17	3.22	3.24	3.26
197	36	3.12	3.17	3.22	3.24	3.26
198	36	3.12	3.17	3.22	3.24	3.26
198a	36	3.12	3.17	3.22	3.24	3.26
199	36	3.12	3.17	3.22	3.24	3.26
200	38	3.12	3.17	3.22	3.24	3.26
201	37	3.12	3.17	3.22	3.24	3.26
201a	37	3.12	3.17	3.22	3.24	3.26
202	37	3.12	3.17	3.22	3.24	3.26
203	38	3.12	3.17	3.22	3.24	3.26
204	38	3.12	3.17	3.22	3.24	3.26
205	37	3.12	3.17	3.22	3.24	3.26
206	37	3.12	3.17	3.22	3.24	3.26
207	37	3.12	3.17	3.22	3.24	3.26
208	39	3.12	3.17	3.22	3.24	3.26
209	39	3.12	3.17	3.22	3.24	3.26
210	17	3.12	3.17	3.22	3.24	3.26

RSLR = + 1.0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
211	17	3.12	3.17	3.22	3.24	3.26
212	17	3.12	3.17	3.22	3.24	3.26
213	39	3.12	3.17	3.22	3.24	3.26
214	39	3.12	3.17	3.22	3.24	3.26
215	39	3.12	3.17	3.22	3.24	3.26
216	40	3.10	3.15	3.19	3.22	3.24
217	40	2.98	3.03	3.08	3.11	3.13
218	40	3.08	3.13	3.18	3.20	3.23
219	41	3.10	3.15	3.20	3.22	3.25
220	41	2.88	2.93	2.98	3.01	3.03

RSLR = + 2.0 m (m CGVD2013)

RSLR = + 2.0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
001	1	4.21	4.34	4.55	4.74	4.98
002	1	4.21	4.34	4.55	4.74	4.98
003	1	4.21	4.34	4.55	4.74	4.98
004	1	4.21	4.34	4.55	4.74	4.98
005	2	4.21	4.34	4.55	4.74	4.98
006	3	4.21	4.34	4.55	4.74	4.98
007	3	4.21	4.34	4.55	4.74	4.98
008	4	4.21	4.34	4.55	4.74	4.98
009	5	4.21	4.34	4.55	4.74	4.98
010	5	4.21	4.34	4.55	4.74	4.98
011	6	4.21	4.34	4.55	4.74	4.98
012	6	4.00	4.12	4.28	4.43	4.59
013	6	3.86	3.93	4.02	4.09	4.15
014	6	3.86	3.93	4.02	4.09	4.15
015	7	3.83	3.89	3.96	4.00	4.04
016	7	3.83	3.89	3.95	4.00	4.03
017	7	3.83	3.89	3.95	3.99	4.03
018	7	3.83	3.89	3.95	3.99	4.03
019	7	3.83	3.89	3.95	3.99	4.03
020	8	3.83	3.89	3.95	3.99	4.03
021	8	3.83	3.89	3.95	3.99	4.02
022	8	3.83	3.89	3.95	3.99	4.03
023	9	3.83	3.89	3.95	3.99	4.03
024	9	3.83	3.89	3.95	3.99	4.03
025	9	3.83	3.89	3.95	3.99	4.03
026	9	3.83	3.89	3.95	3.99	4.03
027	9	3.83	3.89	3.95	3.99	4.03
028	9	3.83	3.89	3.95	3.99	4.03
029	9	3.83	3.89	3.95	3.99	4.03

RSLR = + 2.0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
030	9	3.83	3.89	3.95	3.99	4.03
031	9	3.83	3.89	3.95	3.99	4.03
032	10	3.83	3.89	3.95	3.99	4.03
033	10	3.83	3.89	3.95	3.99	4.03
034	10	3.83	3.89	3.95	3.99	4.03
035	10	3.83	3.89	3.95	3.99	4.03
036	10	3.83	3.89	3.95	3.99	4.03
037	10	3.83	3.89	3.95	3.99	4.03
038	10	3.83	3.89	3.95	3.99	4.03
039	10	3.83	3.89	3.95	3.99	4.03
040	11	3.83	3.89	3.95	3.99	4.03
041	11	3.83	3.89	3.95	3.99	4.03
042	11	3.83	3.89	3.95	3.99	4.03
043	11	3.83	3.89	3.95	3.99	4.03
044	11	3.83	3.89	3.95	3.99	4.02
045	11	3.83	3.89	3.95	3.99	4.02
046	11	3.83	3.89	3.95	3.99	4.02
047	11	3.83	3.89	3.95	3.99	4.02
048	11	3.83	3.89	3.95	3.99	4.02
049	11	3.82	3.88	3.94	3.98	4.01
050	12	3.82	3.88	3.94	3.98	4.01
051	12	3.82	3.88	3.94	3.97	4.01
052	12	3.82	3.88	3.94	3.98	4.01
053	12	3.82	3.88	3.94	3.98	4.01
054	12	3.83	3.88	3.94	3.98	4.02
055	12	3.83	3.88	3.95	3.98	4.02
056	12	3.83	3.88	3.95	3.99	4.02
057	12	3.83	3.88	3.95	3.99	4.02
058	12	3.83	3.88	3.95	3.99	4.02
059	12	3.83	3.88	3.95	3.98	4.02
060	12	3.83	3.89	3.95	3.99	4.02

RSLR = + 2.0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
061	12	3.83	3.89	3.95	3.99	4.03
062	12	3.83	3.89	3.95	3.99	4.03
063	12	3.83	3.89	3.95	3.99	4.03
064	12	3.83	3.89	3.95	3.99	4.03
065	12	3.83	3.89	3.95	3.99	4.03
066	12	3.83	3.89	3.95	3.99	4.03
067	12	3.83	3.89	3.95	3.99	4.03
068	12	3.83	3.89	3.95	3.99	4.03
069	12	3.83	3.89	3.95	3.99	4.03
070	12	3.83	3.89	3.95	3.99	4.03
071	13	3.83	3.89	3.95	3.99	4.03
072	13	3.83	3.89	3.95	3.99	4.03
073	13	3.83	3.89	3.95	3.99	4.03
074	13	3.83	3.89	3.95	3.99	4.03
075	13	3.83	3.89	3.95	3.99	4.03
076	13	3.83	3.89	3.95	3.99	4.03
077	13	3.83	3.89	3.95	3.99	4.03
078	13	3.83	3.89	3.95	3.99	4.03
079	13	3.83	3.89	3.95	3.99	4.03
080	13	3.83	3.89	3.95	3.99	4.03
081	13	3.83	3.89	3.95	3.99	4.03
082	13	3.83	3.89	3.95	3.99	4.03
083	13	3.83	3.89	3.95	3.99	4.03
084	13	3.83	3.89	3.95	3.99	4.03
085	14	3.83	3.89	3.95	3.99	4.03
086	14	3.83	3.89	3.95	3.99	4.03
087	14	3.83	3.89	3.95	3.99	4.03
088	14	3.83	3.89	3.95	3.99	4.03
089	14	3.83	3.89	3.95	3.99	4.03
090	14	3.83	3.89	3.95	3.99	4.03

RSLR = + 2.0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
091	14	3.83	3.89	3.95	3.99	4.03
092	14	3.83	3.89	3.95	3.99	4.03
093	14	3.83	3.89	3.95	3.99	4.03
094	14	3.83	3.89	3.95	3.99	4.03
095	14	3.83	3.89	3.95	3.99	4.03
096	14	3.83	3.89	3.95	3.99	4.03
097	14	3.83	3.89	3.95	3.99	4.03
098	14	3.83	3.89	3.95	3.99	4.03
099	14	3.83	3.89	3.95	3.99	4.03
100	14	3.83	3.89	3.95	3.99	4.03
101	14	3.83	3.89	3.95	3.99	4.03
102	14	3.83	3.89	3.95	3.99	4.02
103	14	3.83	3.88	3.95	3.99	4.02
104	14	3.82	3.88	3.94	3.98	4.01
105	15	3.82	3.87	3.93	3.97	4.00
106	15	3.81	3.87	3.93	3.96	3.99
107	15	3.81	3.86	3.92	3.95	3.98
108	15	3.81	3.86	3.91	3.95	3.97
109	15	3.80	3.85	3.90	3.93	3.95
110	15	3.80	3.85	3.89	3.92	3.94
111	15	3.90	3.95	4.00	4.03	4.06
112	15	3.90	3.95	4.00	4.03	4.06
113	15	3.97	4.02	4.07	4.10	4.12
114	15	4.00	4.05	4.10	4.13	4.15
115	16	4.05	4.10	4.15	4.18	4.20
116	16	4.08	4.13	4.18	4.20	4.22
117	16	4.10	4.15	4.20	4.22	4.25
118	16	4.10	4.15	4.20	4.22	4.25
119	16	4.11	4.15	4.20	4.23	4.25
120	16	4.11	4.16	4.21	4.23	4.25
121	16	4.12	4.16	4.21	4.24	4.26

RSLR = + 2.0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
122	16	4.12	4.17	4.21	4.24	4.26
123	16	4.12	4.17	4.21	4.24	4.26
124	17	4.12	4.17	4.21	4.24	4.26
125	17	4.12	4.17	4.21	4.24	4.26
126	17	4.12	4.17	4.21	4.24	4.26
127	17	4.12	4.17	4.21	4.24	4.26
128	17	4.12	4.17	4.22	4.24	4.26
129	17	4.12	4.17	4.22	4.24	4.26
130	17	4.12	4.17	4.22	4.24	4.26
131	17	4.12	4.17	4.22	4.24	4.26
132	17	4.12	4.17	4.22	4.24	4.26
133	17	4.12	4.17	4.22	4.24	4.26
134	17	4.12	4.17	4.22	4.24	4.26
135	17	4.12	4.17	4.22	4.24	4.26
136	17	4.12	4.17	4.22	4.24	4.26
137	17	4.12	4.17	4.22	4.24	4.26
138	17	4.12	4.17	4.22	4.24	4.26
139	17	4.12	4.17	4.22	4.24	4.26
140	17	4.12	4.17	4.22	4.24	4.26
141	17	4.12	4.17	4.22	4.24	4.26
142	18	4.12	4.17	4.22	4.24	4.26
143	18	4.12	4.17	4.22	4.24	4.26
144	18	4.12	4.17	4.22	4.24	4.26
145	18	4.12	4.17	4.22	4.24	4.26
146	18	4.12	4.17	4.22	4.24	4.26
147	18	4.12	4.17	4.22	4.24	4.26
148	18	4.12	4.17	4.22	4.24	4.26
149	18	4.12	4.17	4.22	4.24	4.26
150	19	4.12	4.17	4.21	4.24	4.26
151	19	4.11	4.16	4.21	4.23	4.26

RSLR = + 2.0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
152	19	4.11	4.16	4.20	4.23	4.25
153	19	4.10	4.15	4.20	4.22	4.25
154	19	4.11	4.16	4.21	4.23	4.26
155	19	4.11	4.16	4.21	4.23	4.26
156	19	4.11	4.15	4.20	4.23	4.25
157	19	4.10	4.15	4.19	4.22	4.24
158	20	4.02	4.06	4.11	4.14	4.16
159	21	4.12	4.17	4.22	4.24	4.26
160	21	4.12	4.17	4.22	4.24	4.26
161	21	4.12	4.17	4.22	4.24	4.26
162	22	4.12	4.17	4.22	4.24	4.26
163	22	4.12	4.17	4.22	4.24	4.26
164	22	4.12	4.17	4.22	4.24	4.26
165	22	4.12	4.17	4.22	4.24	4.26
166	22	4.12	4.17	4.22	4.24	4.26
167	22	4.12	4.17	4.22	4.24	4.26
168	23	4.12	4.17	4.22	4.24	4.26
169	24	4.12	4.17	4.22	4.24	4.26
170	24	4.12	4.17	4.22	4.24	4.26
171	24	4.12	4.17	4.22	4.24	4.26
172	25	4.12	4.17	4.22	4.24	4.26
173	26	4.12	4.17	4.22	4.24	4.26
174	26	4.12	4.17	4.22	4.24	4.26
175	27	4.12	4.17	4.22	4.24	4.26
176	27	4.12	4.17	4.22	4.24	4.26
177	28	4.12	4.17	4.22	4.24	4.26
178	29	4.12	4.17	4.22	4.24	4.26
179	30	4.12	4.17	4.22	4.24	4.26
180	31	4.12	4.17	4.22	4.24	4.26
181	28	4.12	4.17	4.22	4.24	4.26
182	32	4.12	4.17	4.22	4.24	4.26

RSLR = + 2.0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
183	32	4.12	4.17	4.22	4.24	4.26
184	32	4.12	4.17	4.22	4.24	4.26
185	33	4.12	4.17	4.22	4.24	4.26
186	33	4.12	4.17	4.22	4.24	4.26
187	33	4.12	4.17	4.22	4.24	4.26
188	33	4.12	4.17	4.22	4.24	4.26
189	34	4.12	4.17	4.22	4.24	4.26
190	34	4.12	4.17	4.22	4.24	4.26
191	34	4.12	4.17	4.22	4.24	4.26
192	36	4.12	4.17	4.22	4.24	4.26
193	35	4.12	4.17	4.22	4.24	4.26
194	35	4.12	4.17	4.22	4.24	4.26
195	35	4.12	4.17	4.22	4.24	4.26
196	36	4.12	4.17	4.22	4.24	4.26
197	36	4.12	4.17	4.22	4.24	4.26
198	36	4.12	4.17	4.22	4.24	4.26
198a	36	4.12	4.17	4.22	4.24	4.26
199	36	4.12	4.17	4.22	4.24	4.26
200	38	4.12	4.17	4.22	4.24	4.26
201	37	4.12	4.17	4.22	4.24	4.26
201a	37	4.12	4.17	4.22	4.24	4.26
202	37	4.12	4.17	4.22	4.24	4.26
203	38	4.12	4.17	4.22	4.24	4.26
204	38	4.12	4.17	4.22	4.24	4.26
205	37	4.12	4.17	4.22	4.24	4.26
206	37	4.12	4.17	4.22	4.24	4.26
207	37	4.12	4.17	4.22	4.24	4.26
208	39	4.12	4.17	4.22	4.24	4.26
209	39	4.12	4.17	4.22	4.24	4.26
210	17	4.12	4.17	4.22	4.24	4.26

RSLR = + 2.0 m (m CGVD2013)						
Transect	Map Sheet No.	10% AEP	5.0% AEP	2.0% AEP	1.0% AEP	0.5% AEP
211	17	4.12	4.17	4.22	4.24	4.26
212	17	4.12	4.17	4.22	4.24	4.26
213	39	4.12	4.17	4.22	4.24	4.26
214	39	4.12	4.17	4.22	4.24	4.26
215	39	4.12	4.17	4.22	4.24	4.26
216	40	4.10	4.15	4.19	4.22	4.24
217	40	3.98	4.03	4.08	4.11	4.13
218	40	4.08	4.13	4.18	4.20	4.23
219	41	4.10	4.15	4.20	4.22	4.25
220	41	3.88	3.93	3.98	4.01	4.03

APPENDIX H - INTERTIDAL RISK ANALYSIS - SENSITIVE ECOSYSTEM INVENTORY AREA MAPPING

Appendix H includes Sensitive Ecosystem Inventory (SEI) mapping, overlain with present and future tide levels. The purpose of this mapping is to demonstrate the vulnerability of various environmental risk receptors to intertidal zone changes. This work is explained in greater detail in Section 5. This appendix is provided in a stand-alone pdf file.

350000E 400000E 450000E 500000E

5400000N

5350000N

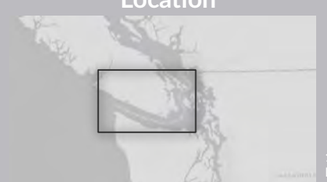
N

0 10 20 30 40 50 km

Coastal Flood Inundation Mapping Project

Intertidal Risk Analysis Map Index Sheet

Location



Legend

CRD Boundary

1. For further information, please refer to Task 2 – Sea Level Rise Modelling and Mapping Report.These maps constitute Appendix H of said report.

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plot date: 2020.06.10
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

390000E

392000E

5378000N

5380000N

0 500 1,000 1,500 2,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
- Disturbed Areas

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
2. Users must note the dates of base mapping, aerial photography, ground or bathymetric surveys and issue of mapping relevant to dates of development in the map area. Subsequent changes along the coastline and/or in the floodplain can affect analytical results and render site-specific map information obsolete.
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Map Sheet 1 of 116

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394000E

396000E

5384000N

5380000N

0 500 1,000 1,500 2,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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396000E

398000E

5384000N

5380000N

0 500 1,000 1,500 2,000 m

394000E

396000E

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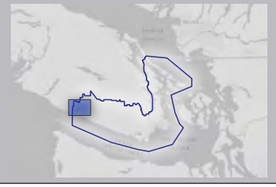
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 3 of 116

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398000E

400000E

5382000N

5380000N

0 500 1,000 1,500 2,000 m

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398000E

400000E

402000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

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CRD

Map Area

0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 4 of 116

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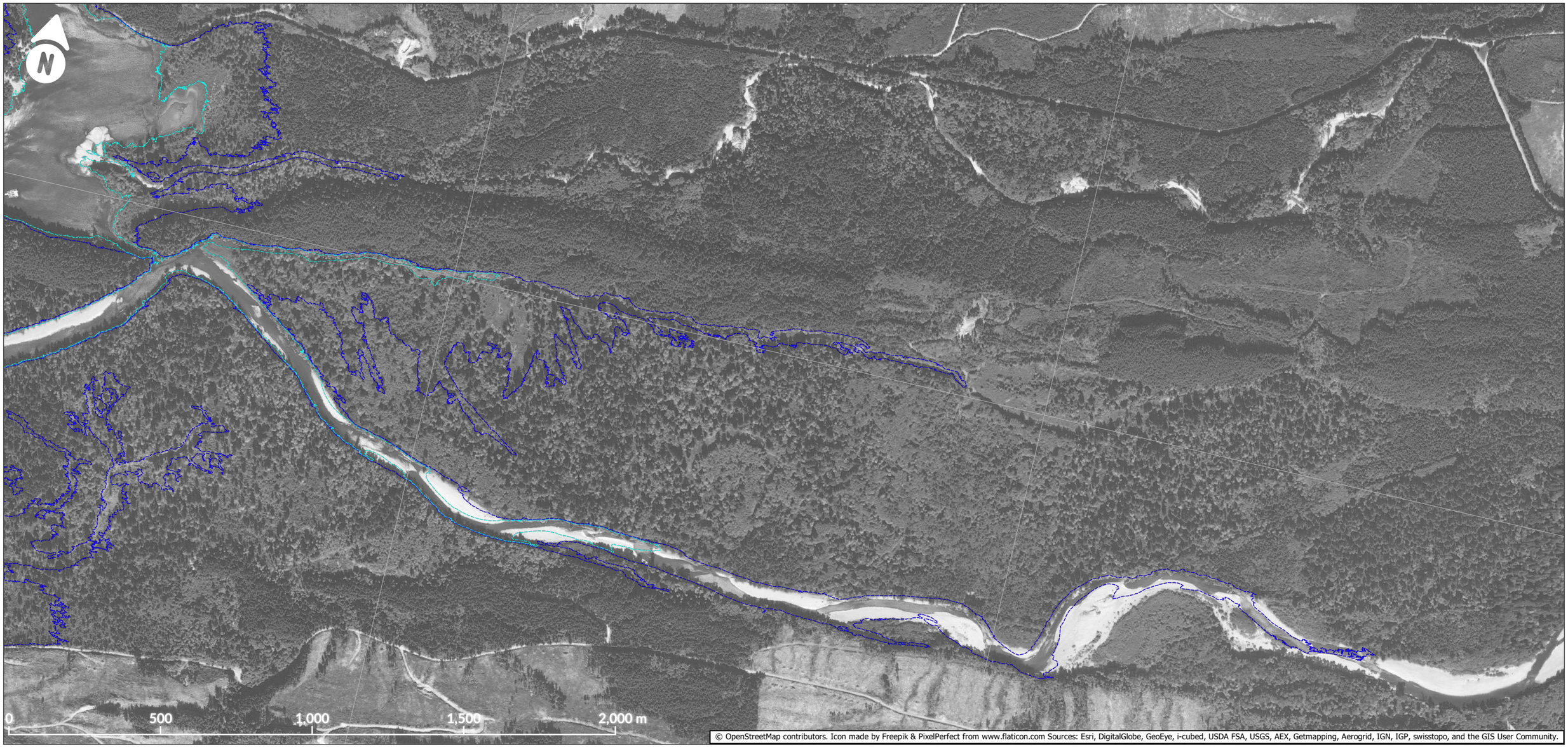
402000E

404000E

5382000N



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402000E

404000E

5382000N

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

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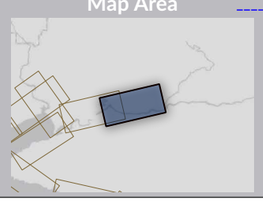
DHI

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
- Disturbed Areas

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 5 of 116

plot date: 2020.06.10
file: P:\20192676\00_Coast\Flood\tunami\Working_Dwgs\010_GIS

394000E

396000E

5378000N

5380000N

0 500 1,000 1,500 2,000 m

394000E 396000E 398000E

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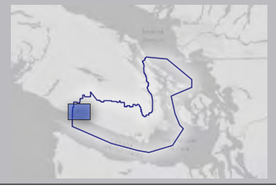
Coastal Flood Inundation Mapping Project

Capital Regional District

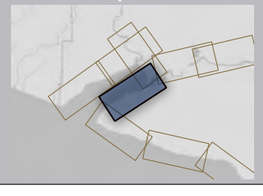
March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

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Map Sheet 6 of 116

plot date: 2020.06.10
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

394000E

396000E

5378000N

5374000N

392000E

394000E

0 500 1,000 1,500 2,000 m

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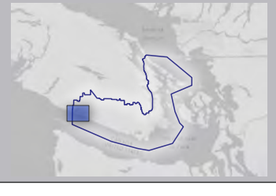
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

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Project No. 20192676
Approved by D. Forde, P.Eng.
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Map Sheet 7 of 116

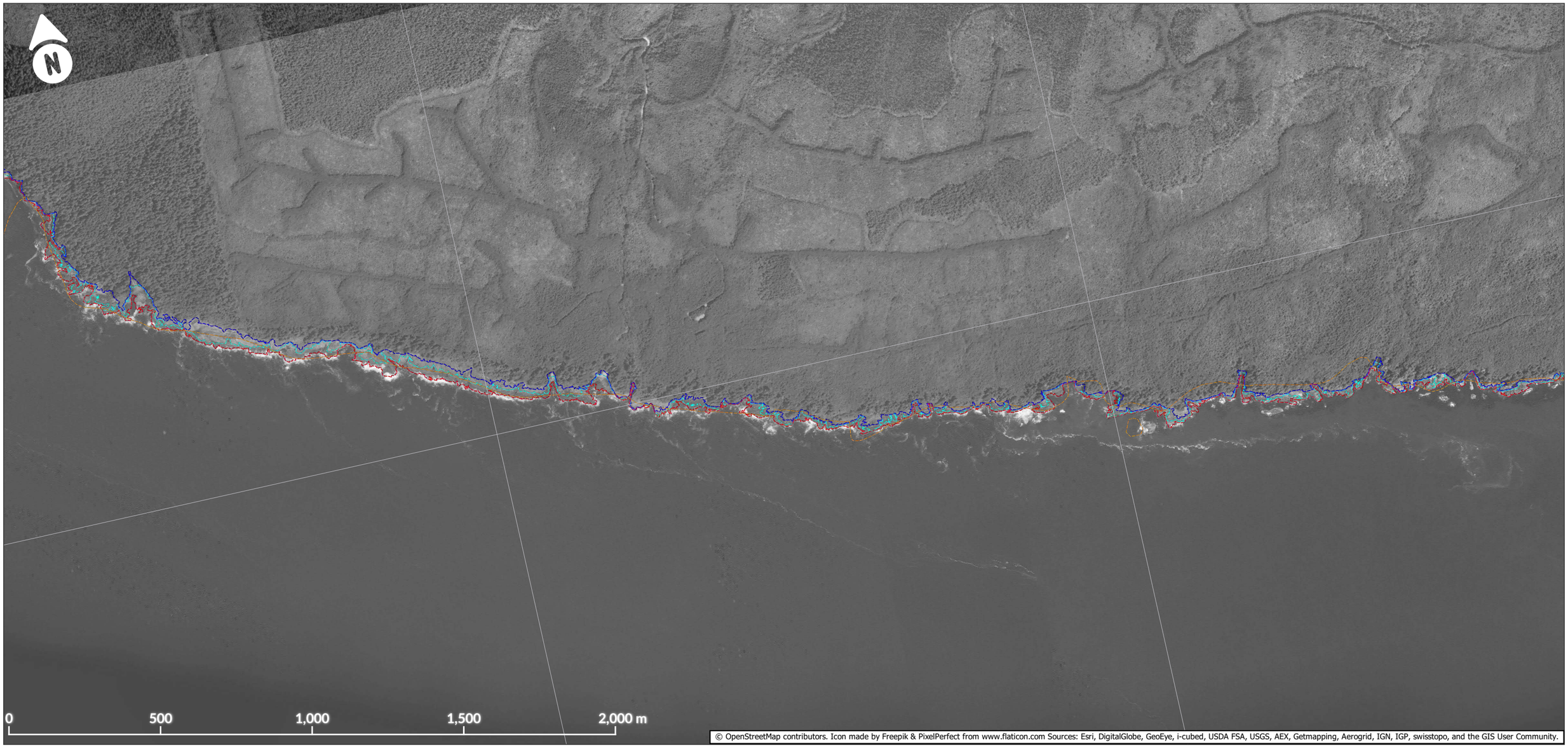
plot date: 2020.06.10
file: P:\20192676\00_CoastFloodMapping\Working_Dwgs\010_GIS

398000E

400000E

5374000N

5374000N



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398000E

400000E

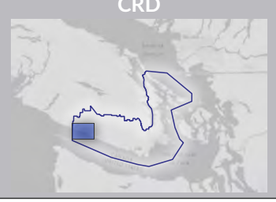
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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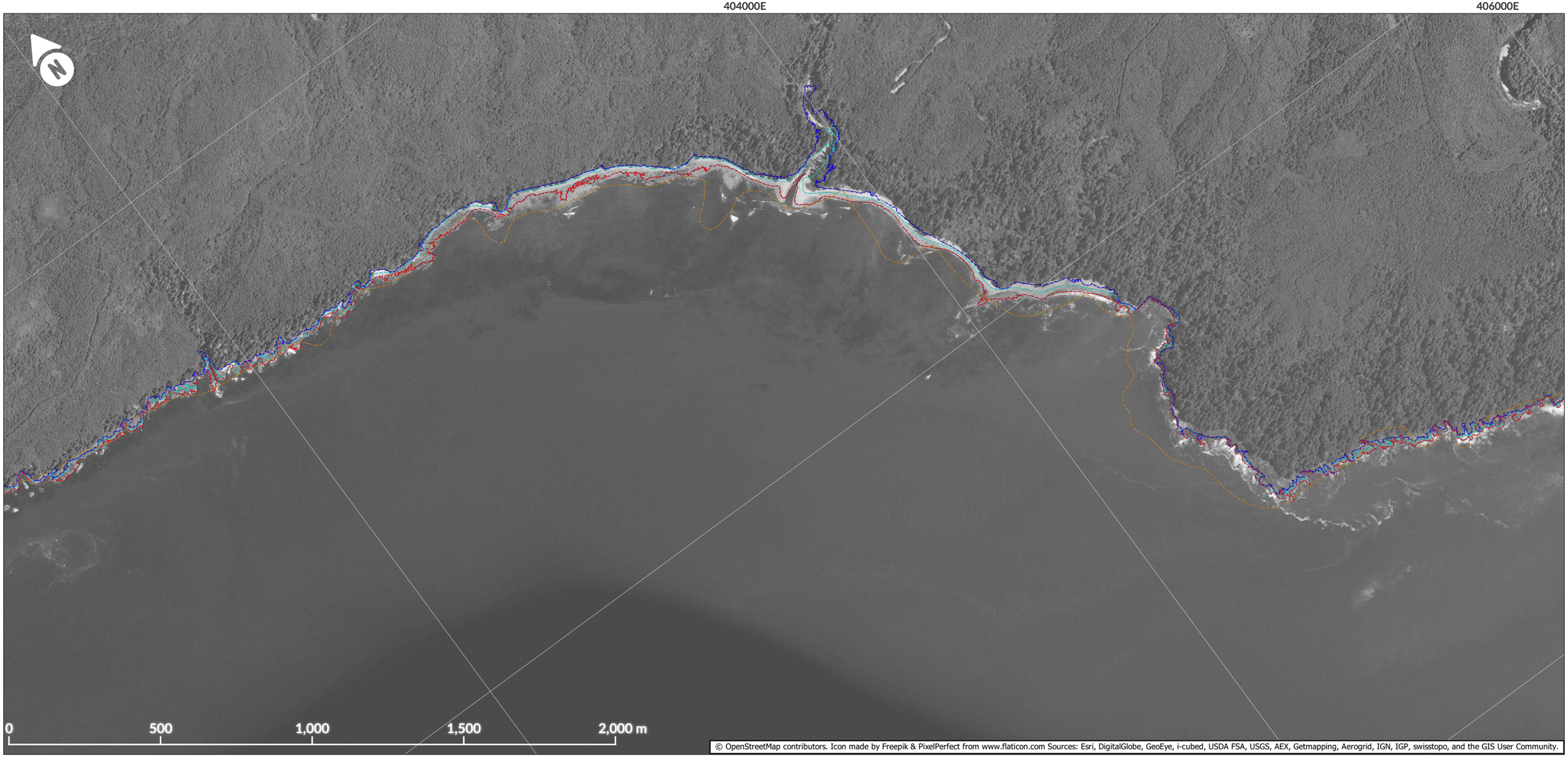
Map Sheet 8 of 116

plot date: 2020.06.10
file: P:\20192676\00_CoastFloodPlan\mxd\Working_Dwgs\1010_GIS

404000E

406000E

5374000N



5370000N

402000E

404000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Making a difference...together

DHI

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 9 of 116

plot date: 2020.06.10
file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS

406000E

408000E

410000E

5370000N

5368000N

0 500 1,000 1,500 2,000 m

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406000E

408000E

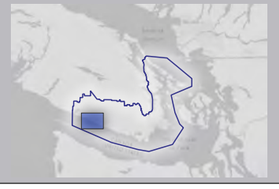
Coastal Flood Inundation Mapping Project

Capital Regional District

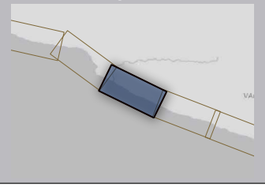
March 2020

Intertidal Risk Analysis

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 10 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodPlanam\Working_Dwgs\010_GIS

412000E

414000E

5368000N

5366000N

0 500 1,000 1,500 2,000 m

410000E

412000E

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Coastal Flood Inundation Mapping Project

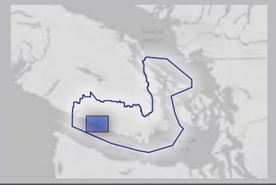
Capital Regional District

March 2020

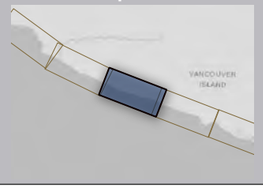
Intertidal Risk Analysis

Making a difference...together

CRD



Map Area



0.0m RSLR LLWLT

0.0m RSLR HHWLT

2.0m RSLR LLWLT

2.0m RSLR HHWLT

Legend

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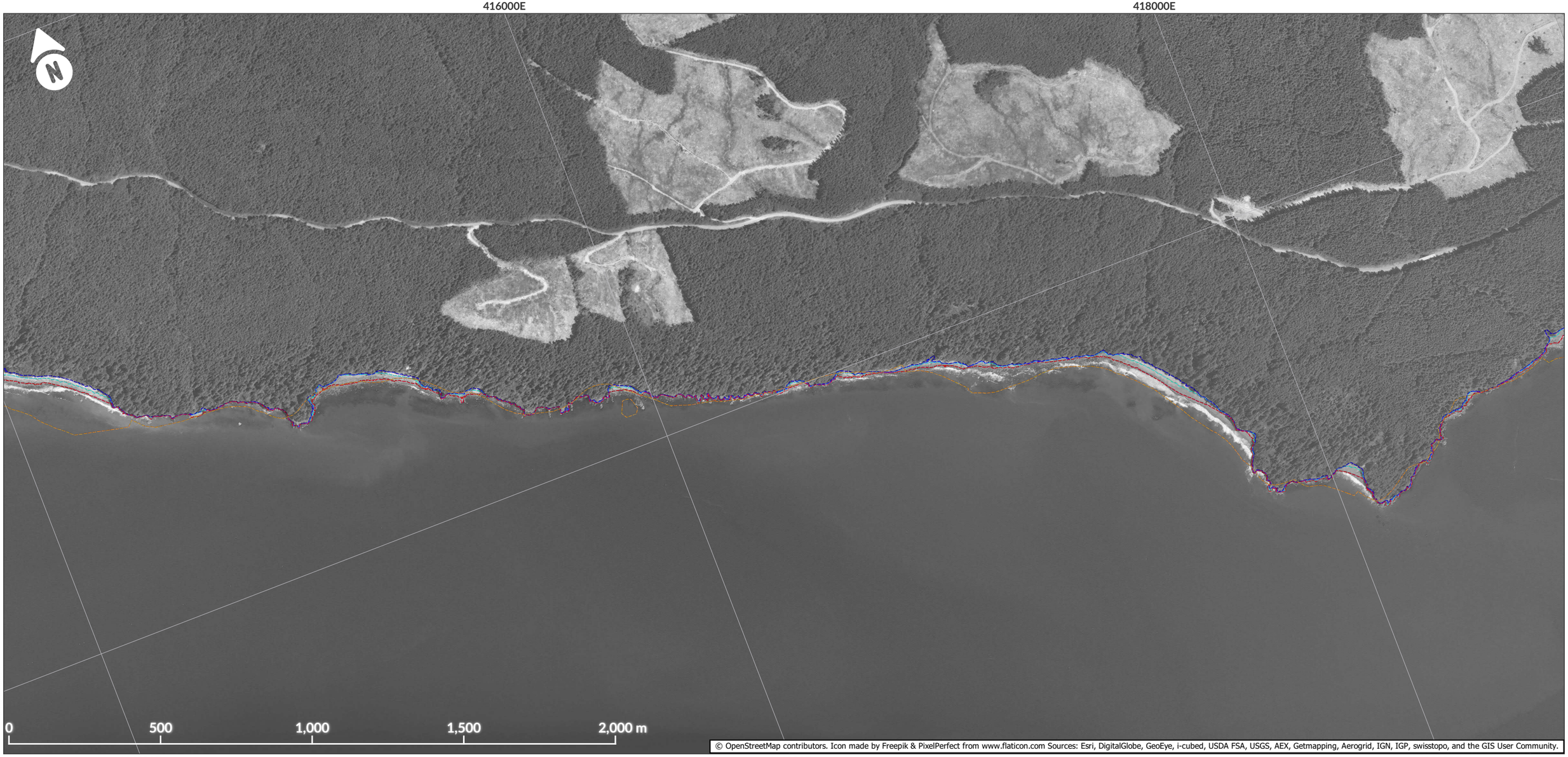
Map Sheet 11 of 116

plot date: 2020.04.11
file: P:\20192676\00_CoastalFloodTsunami\Working_Dwgs\010_GIS



Coastal Flood Inundation Mapping Project

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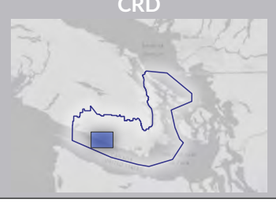

Map Area



0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 12 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\tsunami\Working_Dwgs\010_GIS

420000E

422000E

424000E

5366000N

5364000N



5364000N

420000E

422000E

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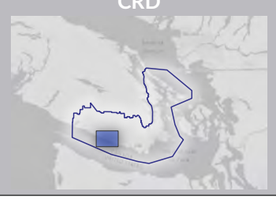
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
- Disturbed Areas

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Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 13 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\1010_GIS

424000E

426000E

428000E

5364000N

5362000N



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424000E

426000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

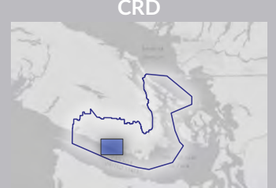
Intertidal Risk Analysis

CRD

Making a difference...together

DHI

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 14 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Isnam\Working_Dwgs\010_GIS

430000E

432000E

5362000N

5358000N

428000E

430000E

0 500 1000 1500 2000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
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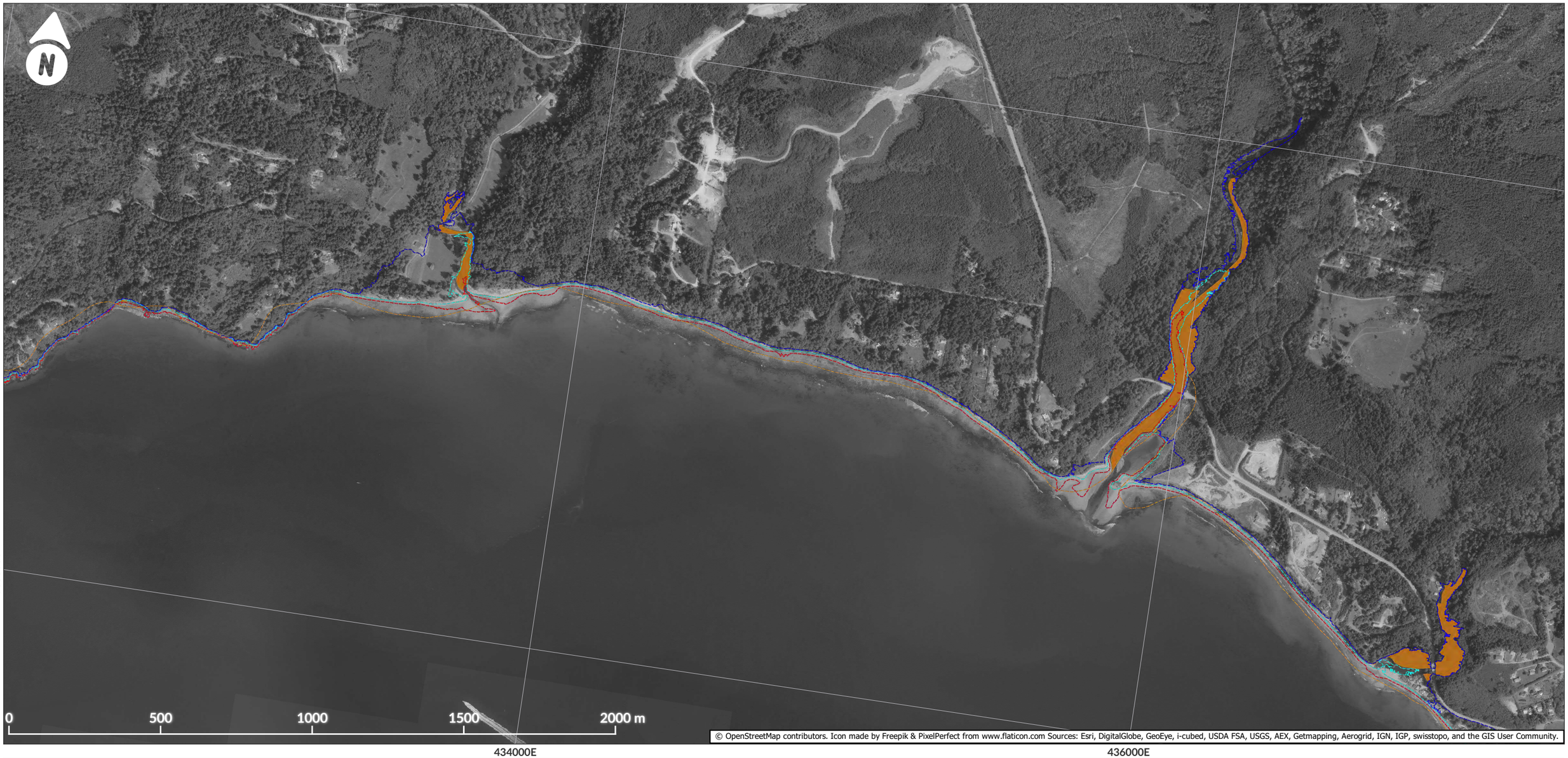
Map Sheet 15 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS



Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

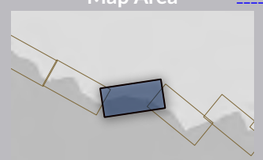
Making a difference...together

DHI

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 16 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

438000E

440000E

5360000N

5356000N

436000E

438000E

0 500 1,000 1,500 2,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

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Map Sheet 17 of 116

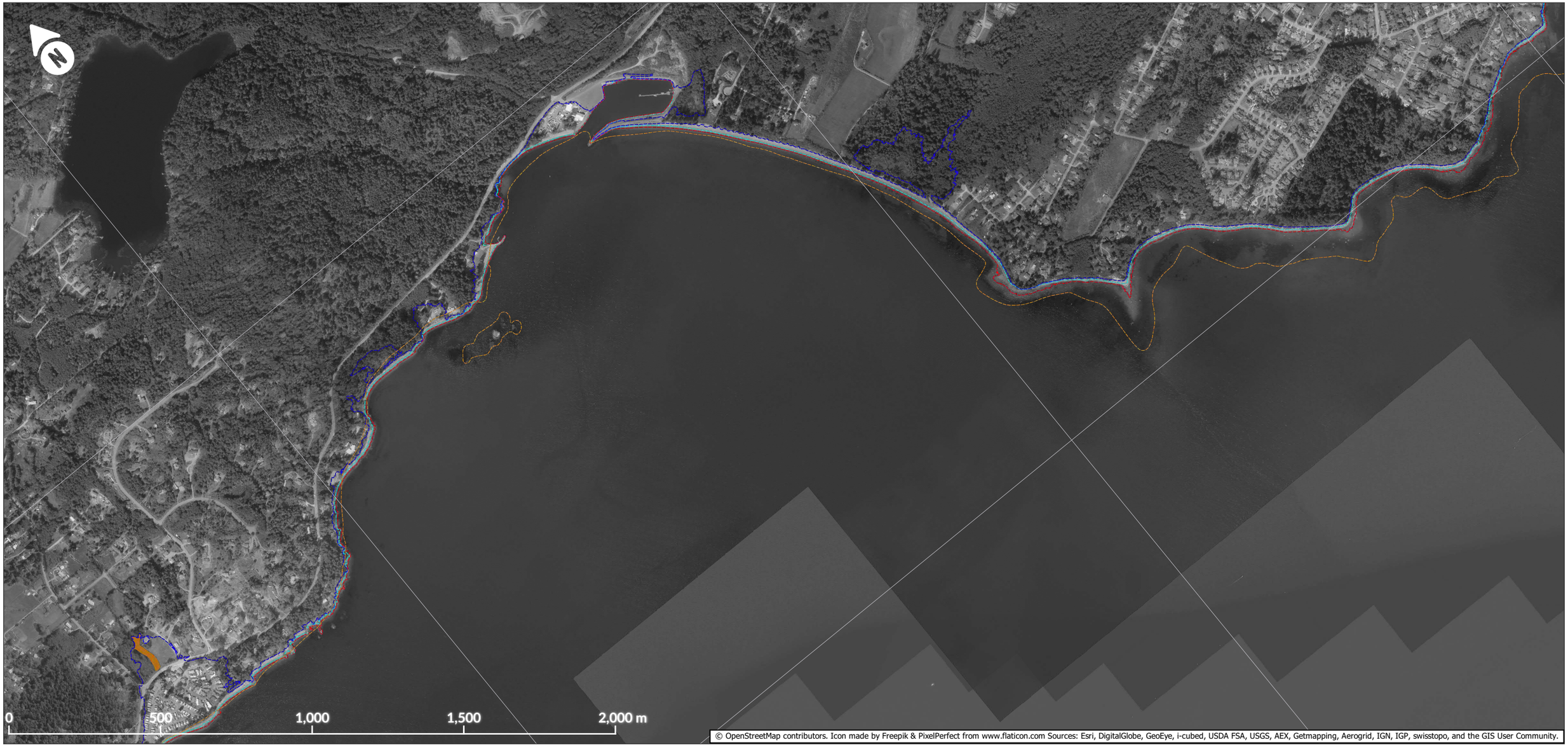
plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

444000E

446000E

5356000N

5358000N



442000E

444000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

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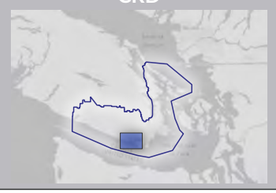
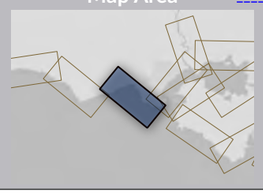
CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

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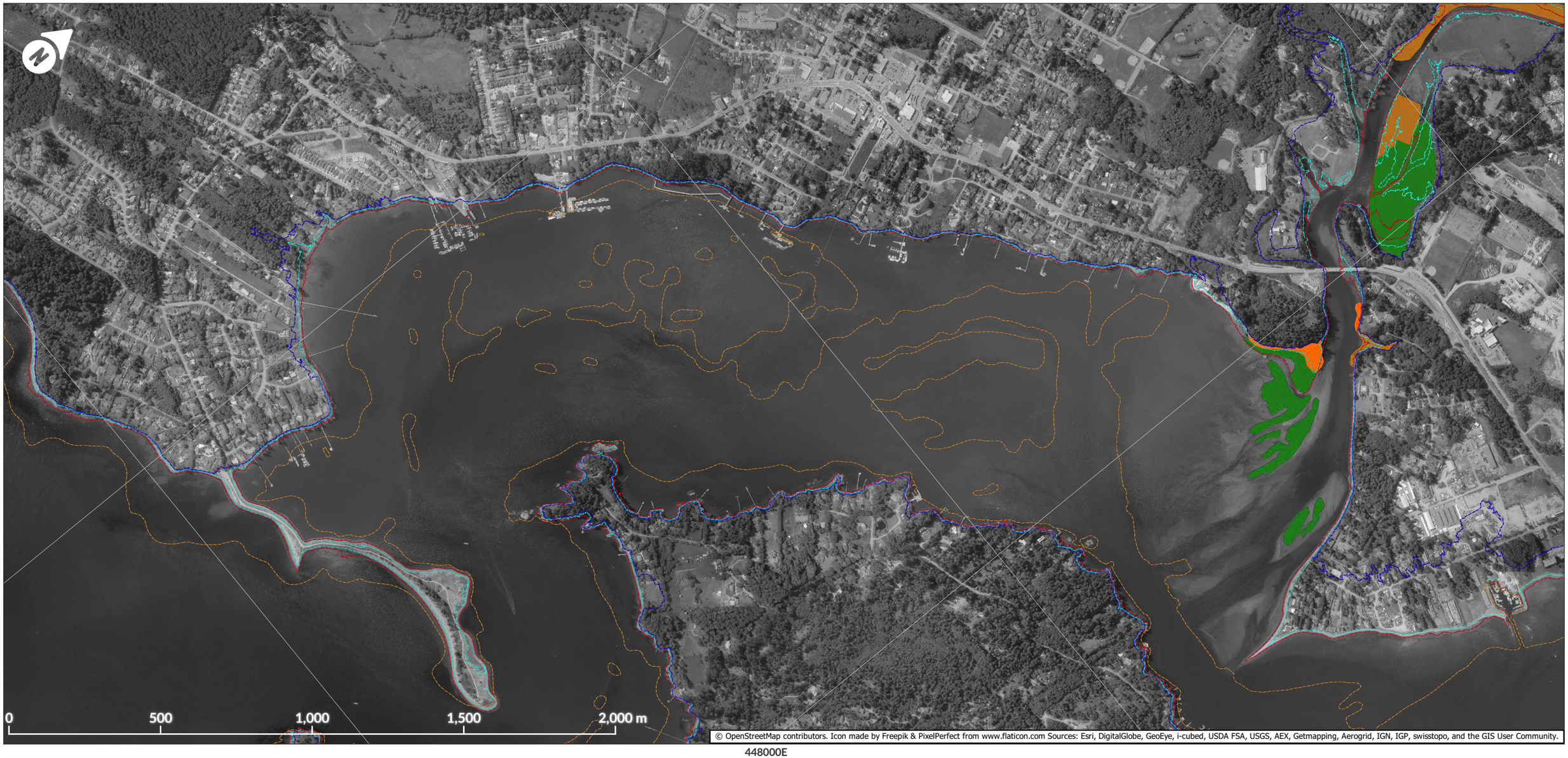
Map Sheet 18 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodMapping\Working_Dwgs\010_GIS

446000E

5356000N

5360000N



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448000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

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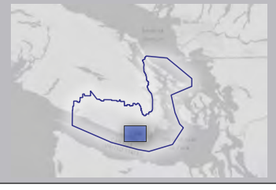
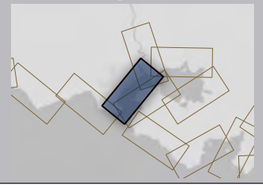
CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

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file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

5358000N

0 500 1,000 1,500 2,000 m

450000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
- Disturbed Areas

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 20 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\tsunami\Working_Dwgs\010_GIS

450000E

452000E

5360000N

5360000N

0 500 1,000 1,500 2,000 m

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450000E

452000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 21 of 116

Making a difference...together

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

450000E

452000E

5356000N

5358000N

0 500 1,000 1,500 2,000 m

452000E

454000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
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- Terrestrial Herbaceous
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- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
- Disturbed Areas

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Map Sheet 22 of 116

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plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

446000E

448000E

5356000N

5358000N

0 500 1,000 1,500 2,000 m

448000E

450000E

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Coastal Flood Inundation Mapping Project

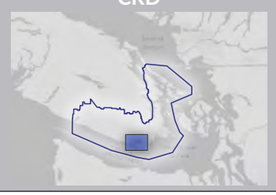
Capital Regional District

March 2020

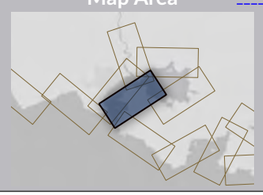
Intertidal Risk Analysis

Making a difference...together

CRD



Map Area



Legend

0.0m RSLR LLWLT

0.0m RSLR HHWLT

2.0m RSLR LLWLT

2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
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Map Sheet 23 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodPlanam\Working_Dwgs\010_GIS

448000E

450000E

5356000N

5352000N

0 500 1,000 1,500 2,000 m

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448000E

450000E

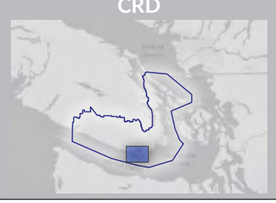
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
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- Riparian
- Seasonally Flooded Agricultural Field
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Map Sheet 24 of 116

Making a difference...together

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\tsunami\Working_Dwgs\010_GIS

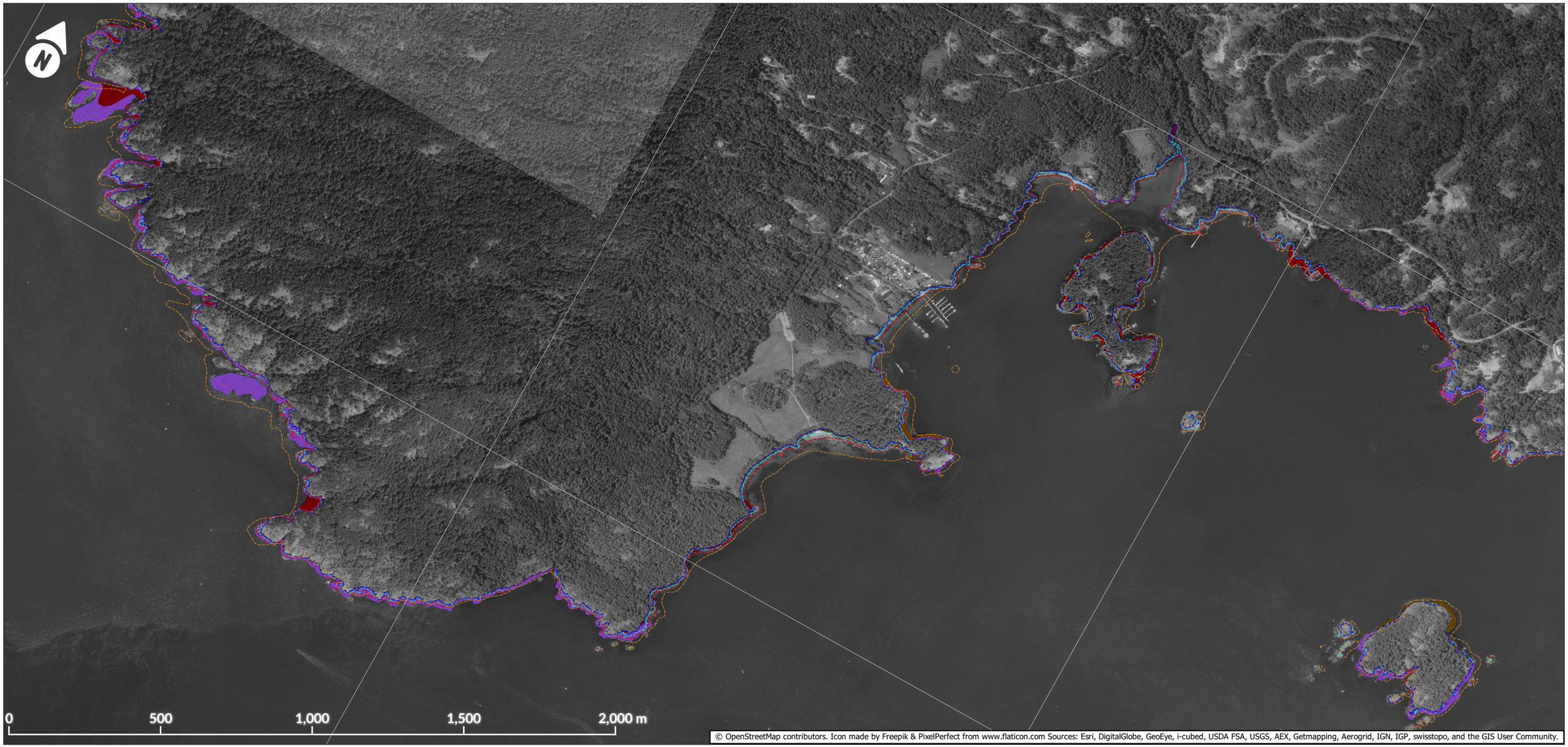
450000E

452000E

454000E

5352000N

5354000N



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452000E

454000E

Coastal Flood Inundation Mapping Project

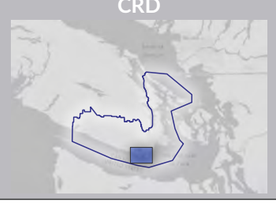
Capital Regional District

March 2020

Intertidal Risk Analysis

Making a difference...together

CRD



Map Area



Legend

0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
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Map Sheet 25 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS

454000E

5350000N

456000E

0 500 1,000 1,500 2,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 26 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastalFloodTsunami\Working_Dwgs\010_GIS

456000E

458000E

460000E

5352000N

5352000N

5350000N

0 500 1,000 1,500 2,000 m

458000E

460000E

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Coastal Flood Inundation Mapping Project

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Intertidal Risk Analysis

CRD

Map Area

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 27 of 116

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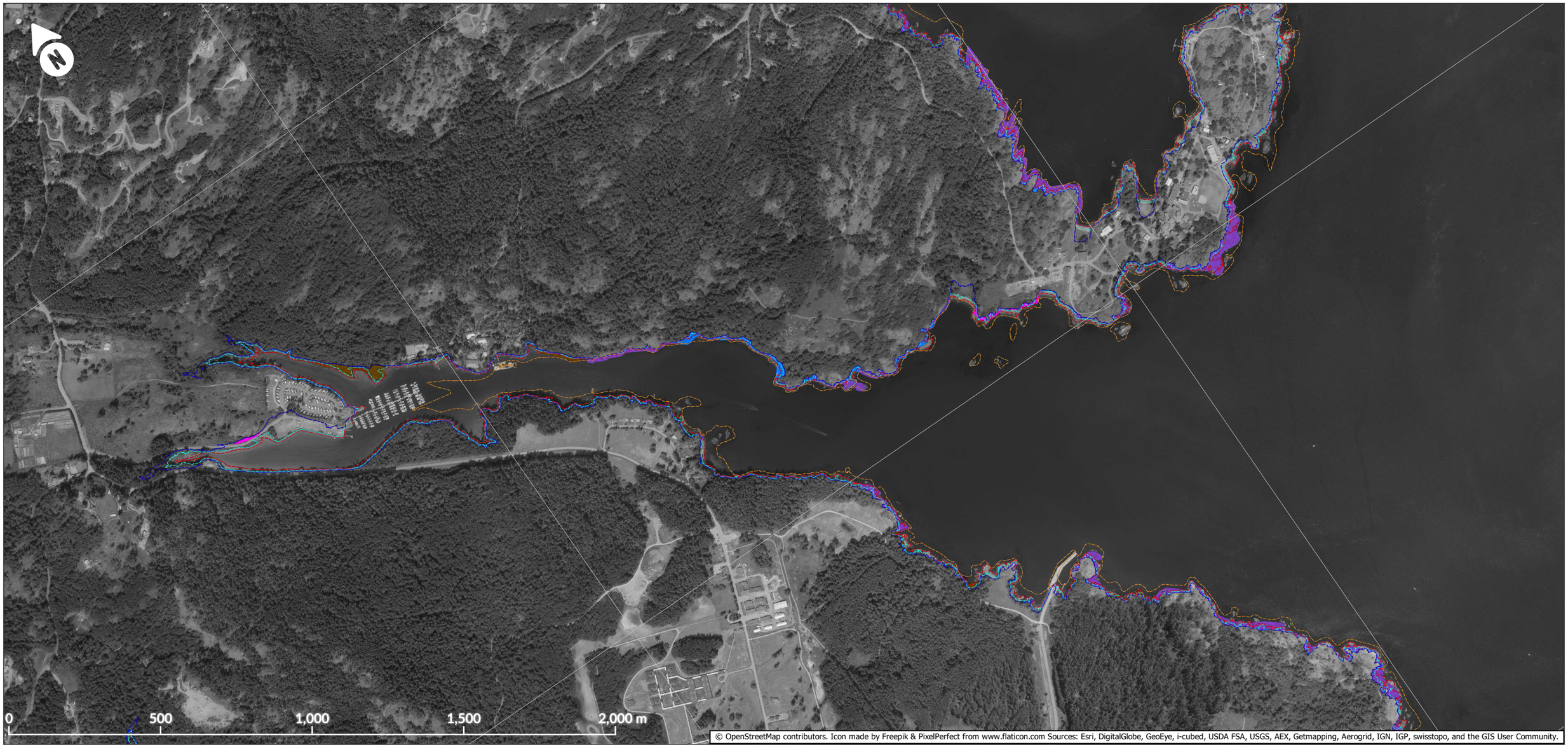
plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

458000E

460000E

5356000N



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458000E

460000E

5352000N

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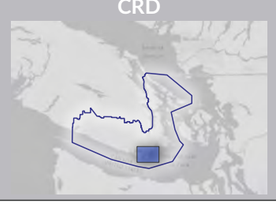
Intertidal Risk Analysis

CRD



Map Area



Making a difference...together

DHI

Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
- Disturbed Areas

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 28 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\tsunami\Working_Dwgs\010_GIS

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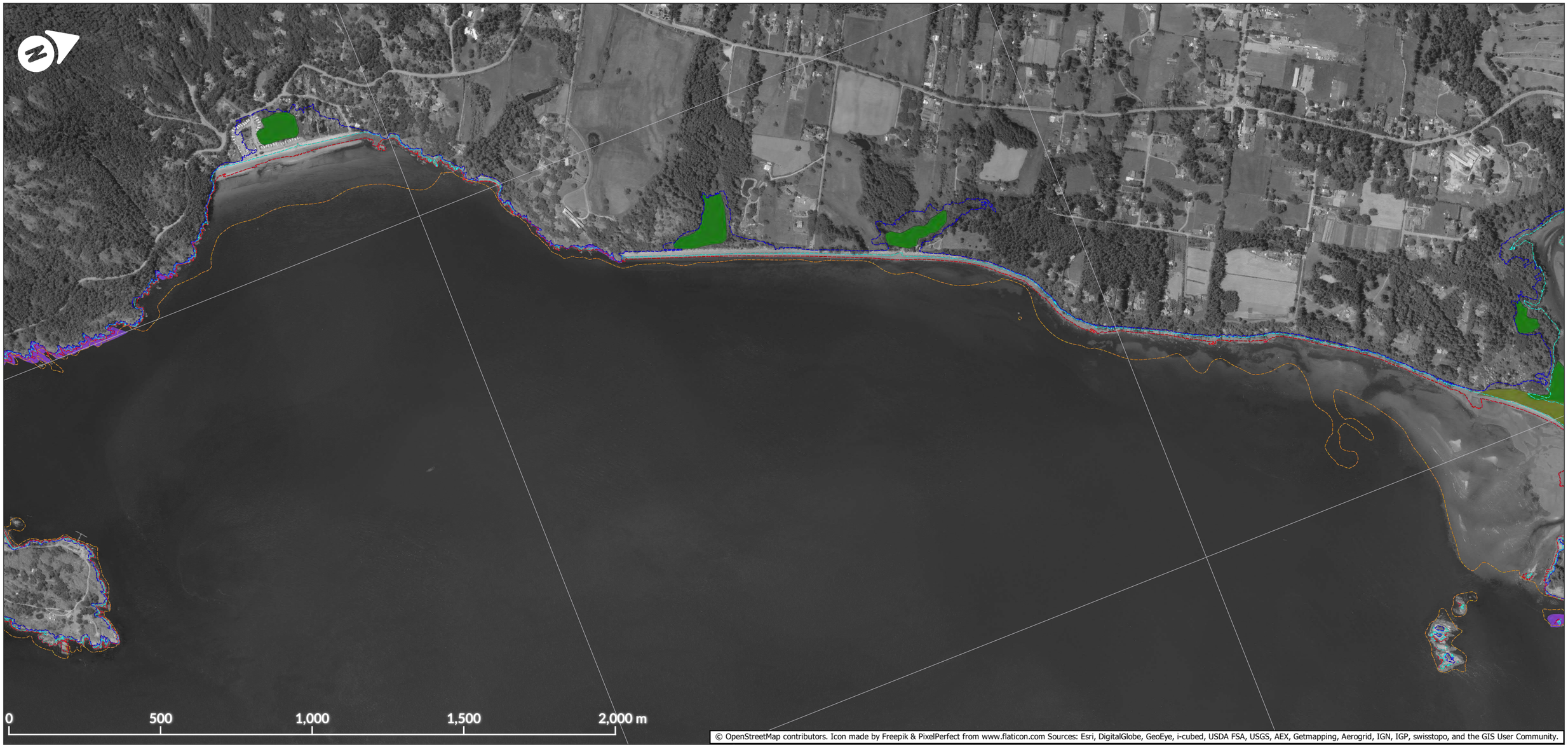

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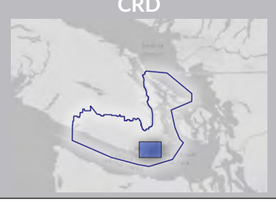
Coastal Flood Inundation Mapping Project

Capital Regional District

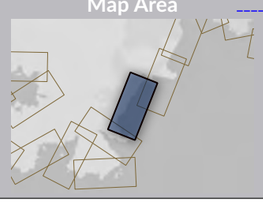
March 2020

Intertidal Risk Analysis

CRD



Map Area



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- 0.0m RSLR LLWLT
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Map Sheet 29 of 116

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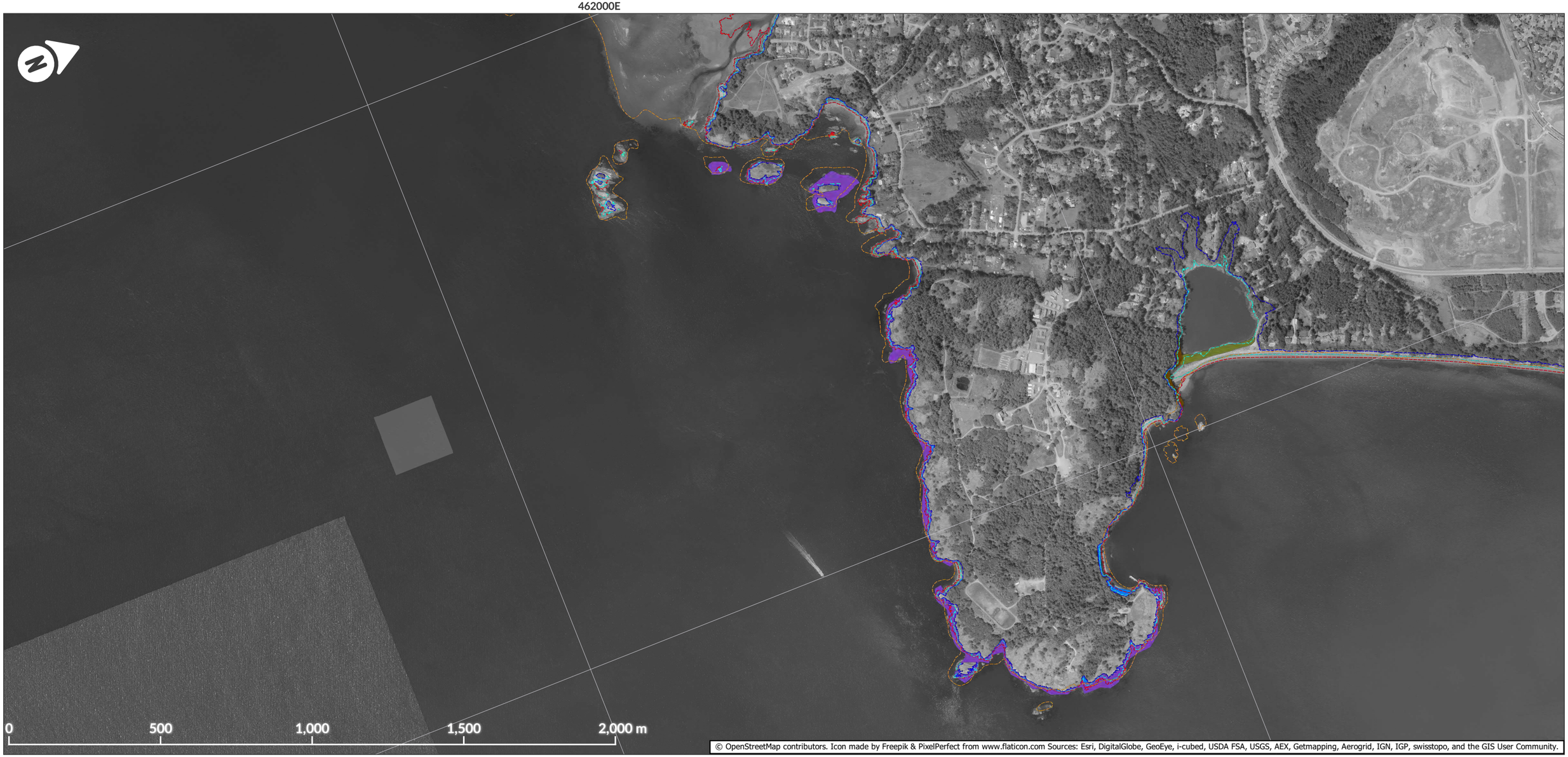

464000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

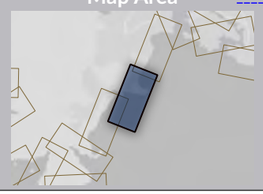
March 2020

Intertidal Risk Analysis

CRD



Map Area



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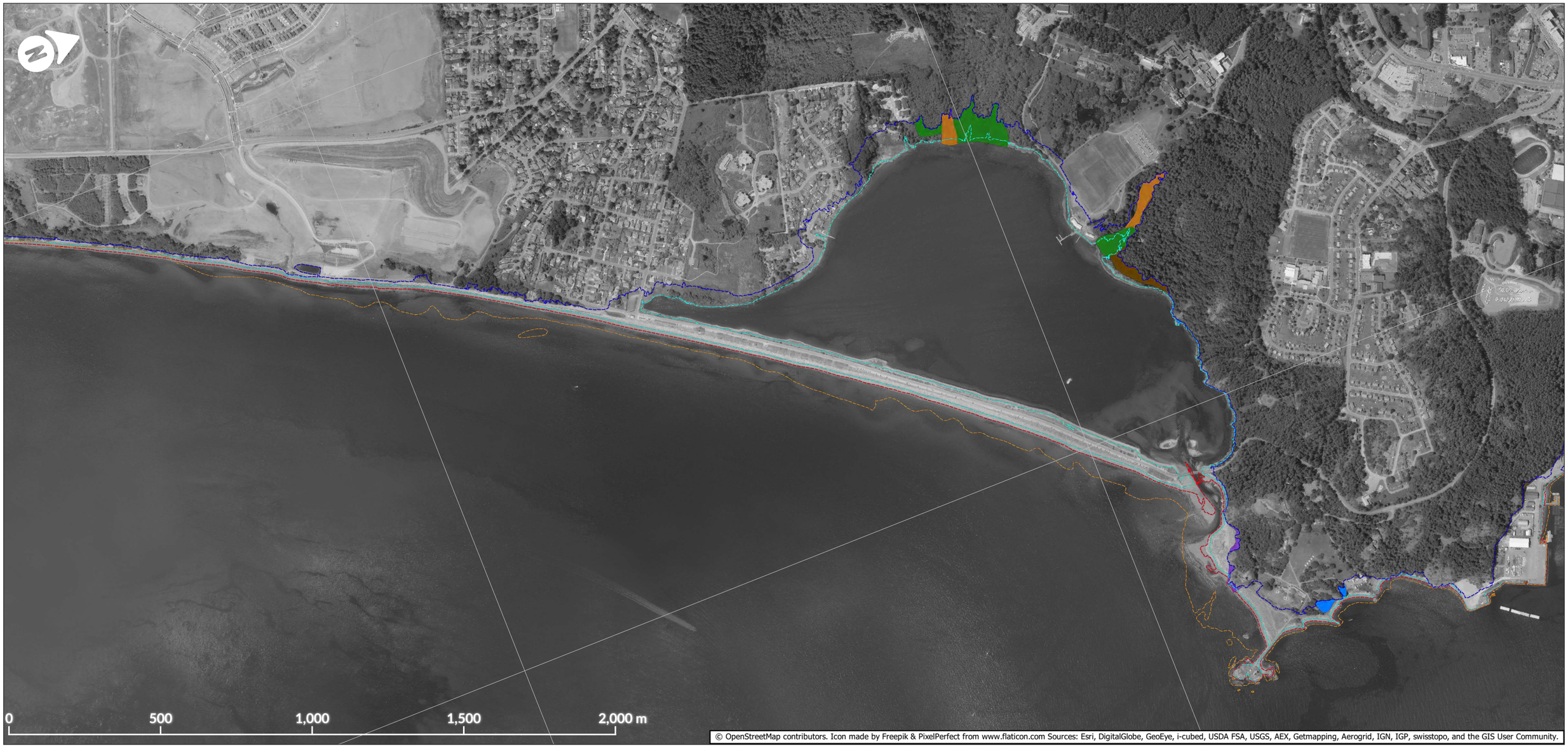

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Coastal Flood Inundation Mapping Project

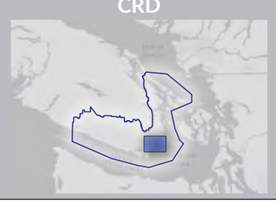
Capital Regional District

March 2020

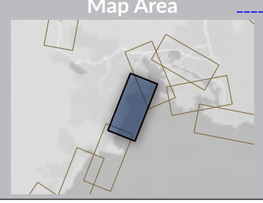
Intertidal Risk Analysis

Making a difference...together

CRD



Map Area



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Map Sheet 31 of 116

plot date: 2020.06.11
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466000E

5368000N

0 500 1,000 1,500 2,000 m

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468000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
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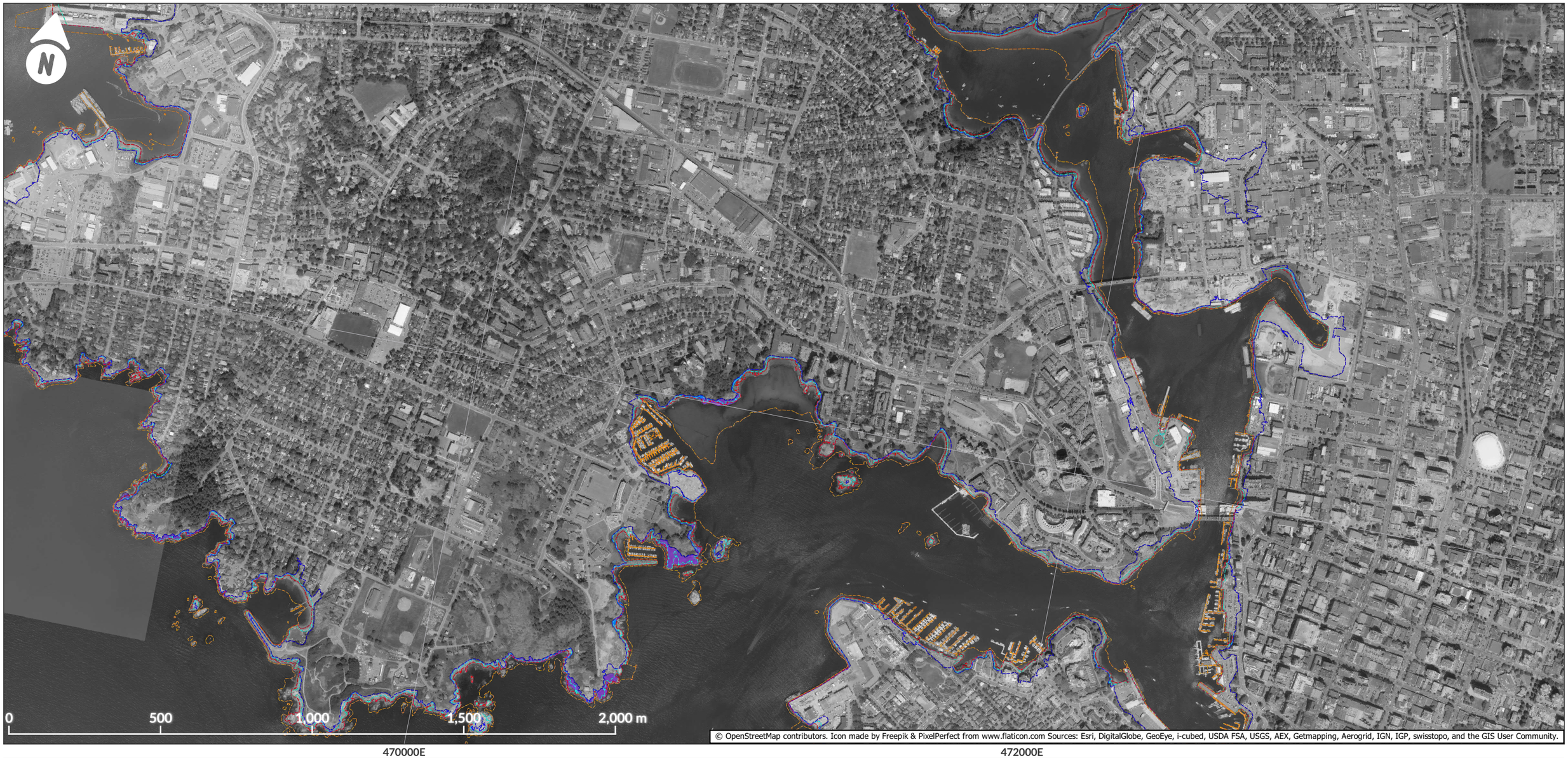
470000E

472000E

5364000N



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472000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

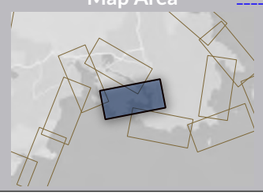
March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
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470000E

472000E

5368000N

5366000N

0 500 1,000 1,500 2,000 m

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Capital Regional District

March 2020

Intertidal Risk Analysis

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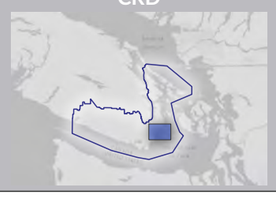

Map Area



Legend

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472000E

474000E

476000E

5362000N

5362000N



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472000E

474000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

Making a difference...together

CRD



Map Area



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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 35 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS

476000E

478000E

480000E

Great Chain Island

5360000N

5362000N

0 500 1,000 1,500 2,000 m

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478000E

480000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

Making a difference...together

Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
- Disturbed Areas

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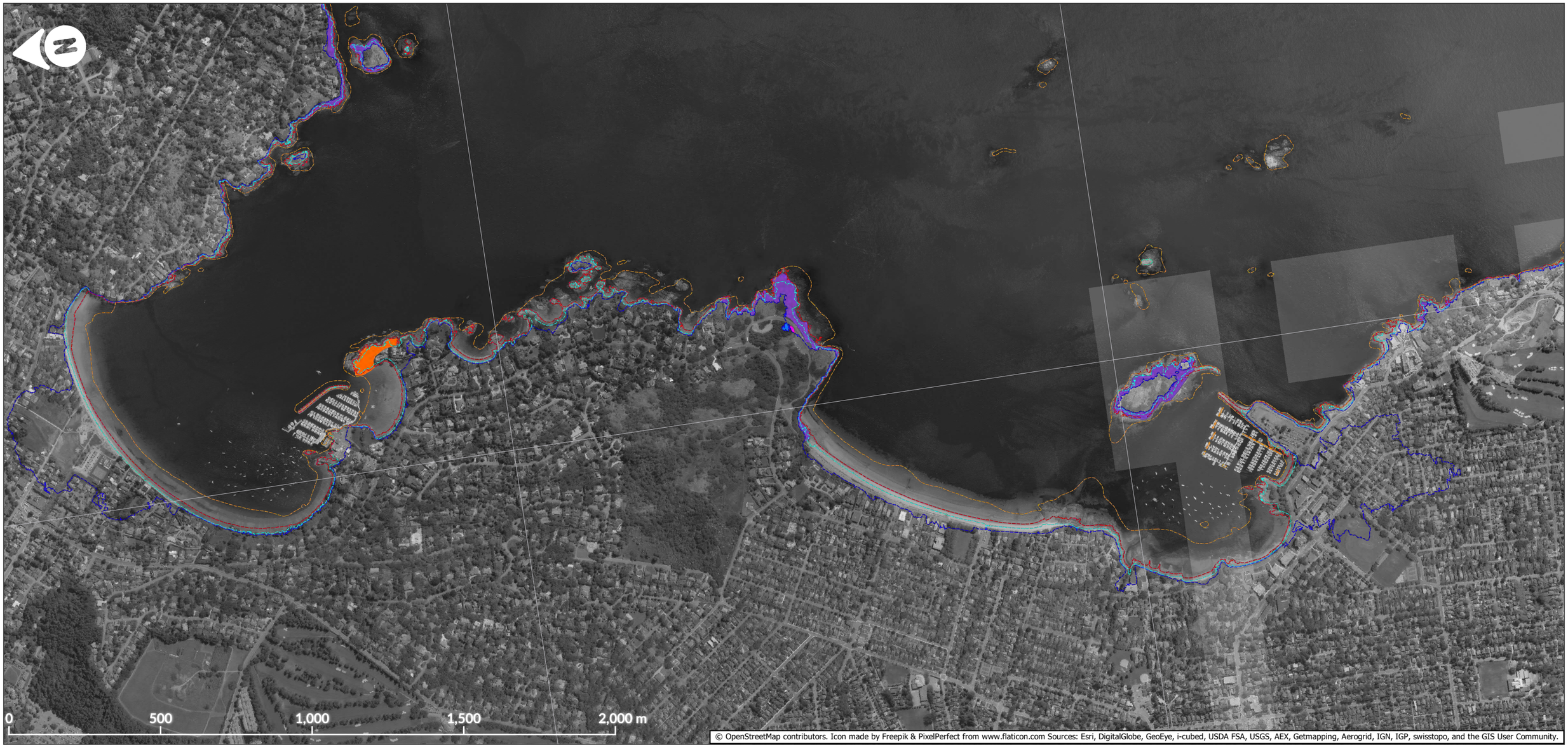
Map Sheet 36 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS



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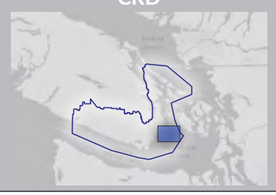
Coastal Flood Inundation Mapping Project

Capital Regional District

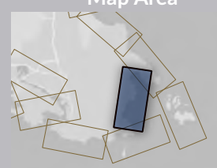
March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
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Map Sheet 37 of 116

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plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

484000E

5366000N

Chatham Islands

Discovery Island

0 500 1,000 1,500 2,000 m

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482000E

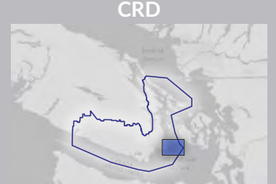
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
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- Riparian
- Seasonally Flooded Agricultural Field
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- Disturbed Areas

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 38 of 116

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plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\tsunami\Working_Dwgs\010_GIS

480000E

5370000N

5366000N

0 500 1,000 1,500 2,000 m

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478000E

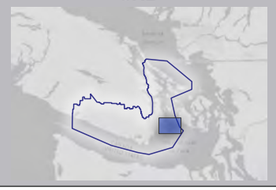
Coastal Flood Inundation Mapping Project

Capital Regional District

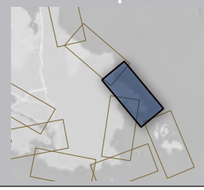
March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

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Map Sheet 39 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

476000E

478000E

5370000N



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474000E

476000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

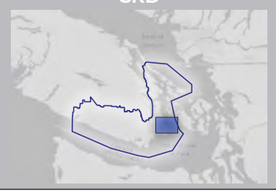
Intertidal Risk Analysis

CRD

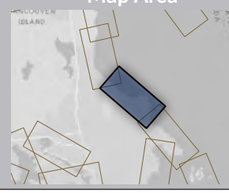
Making a difference...together

DHI

CRD



Map Area



0.0m RSLR LLWLT

0.0m RSLR HHWLT

2.0m RSLR LLWLT

2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 40 of 116

plot date: 2020.06.11
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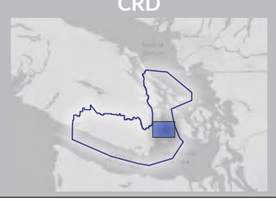
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
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Map Sheet 41 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

474000E

5376000N

0 500 1,000 1,500 2,000 m

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472000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

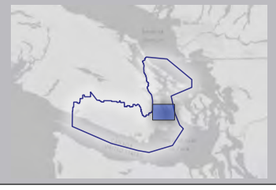
Intertidal Risk Analysis

CRD

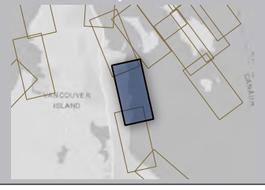
Making a difference...together

DHI

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

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Map Sheet 42 of 116

plot date: 2020.04.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

472000E

5380000N

0 500 1,000 1,500 2,000 m

470000E

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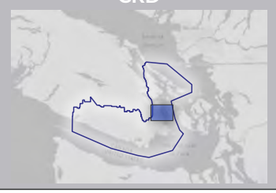
Coastal Flood Inundation Mapping Project

Capital Regional District

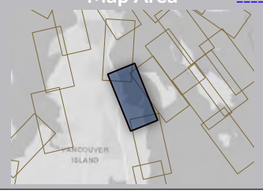
March 2020

Intertidal Risk Analysis

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
- Disturbed Areas

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 43 of 116

plot date: 2020.06.11
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0 500 1,000 1,500 2,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

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Map Sheet 44 of 116

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plot date: 2020.06.11
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472000E

Kolb Island

Harlock Island

0 500 1,000 1,500 2,000 m

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468000E

470000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 45 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\tsunami\Working_Dwgs\010_GIS



Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

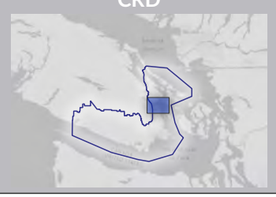
Intertidal Risk Analysis

CRD

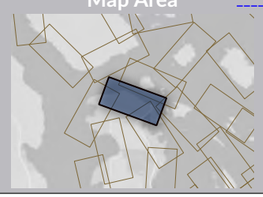
Making a difference...together

DHI

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 46 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS

464000E

5390000N

5394000N

0 500 1,000 1,500 2,000 m

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466000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

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0 500 1,000 1,500 2,000 m

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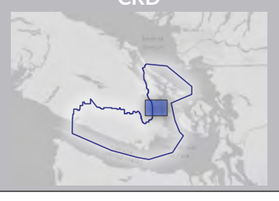
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

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Map Sheet 48 of 116

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Coastal Flood Inundation Mapping Project

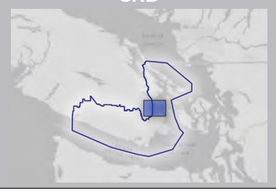
Capital Regional District

March 2020

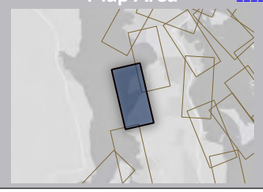
Intertidal Risk Analysis

Making a difference...together

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

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Map Sheet 49 of 116

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464000E

N

0 500 1,000 1,500 2,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

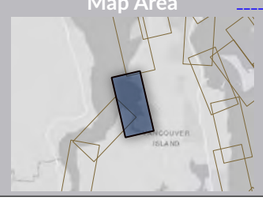
CRD Making a difference...together

DHI

CRD



Map Area



0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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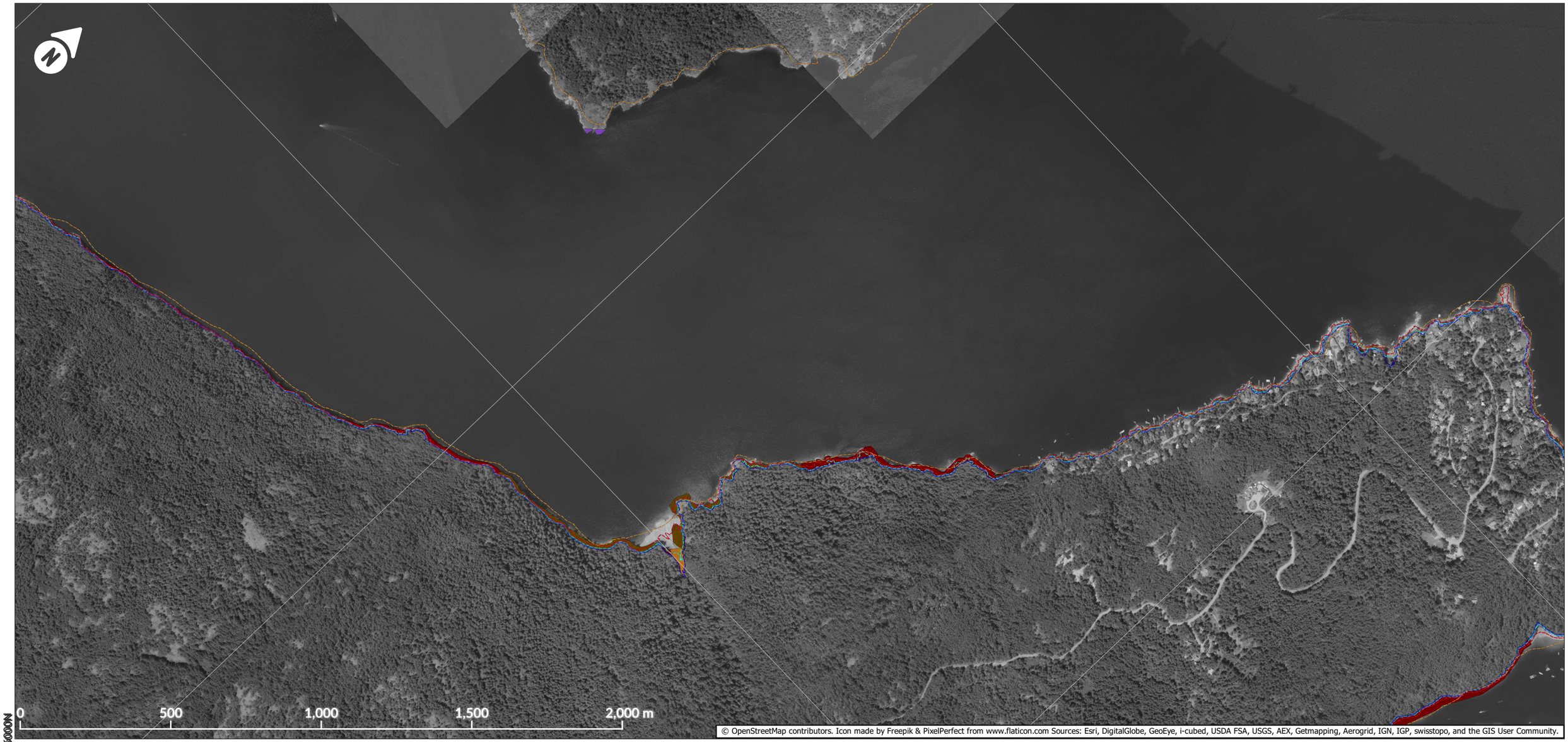

5380000N

5376000N

462000E

464000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

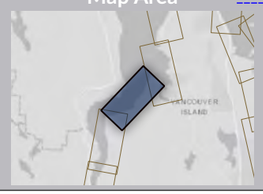
Intertidal Risk Analysis

Making a difference...together

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
- Disturbed Areas

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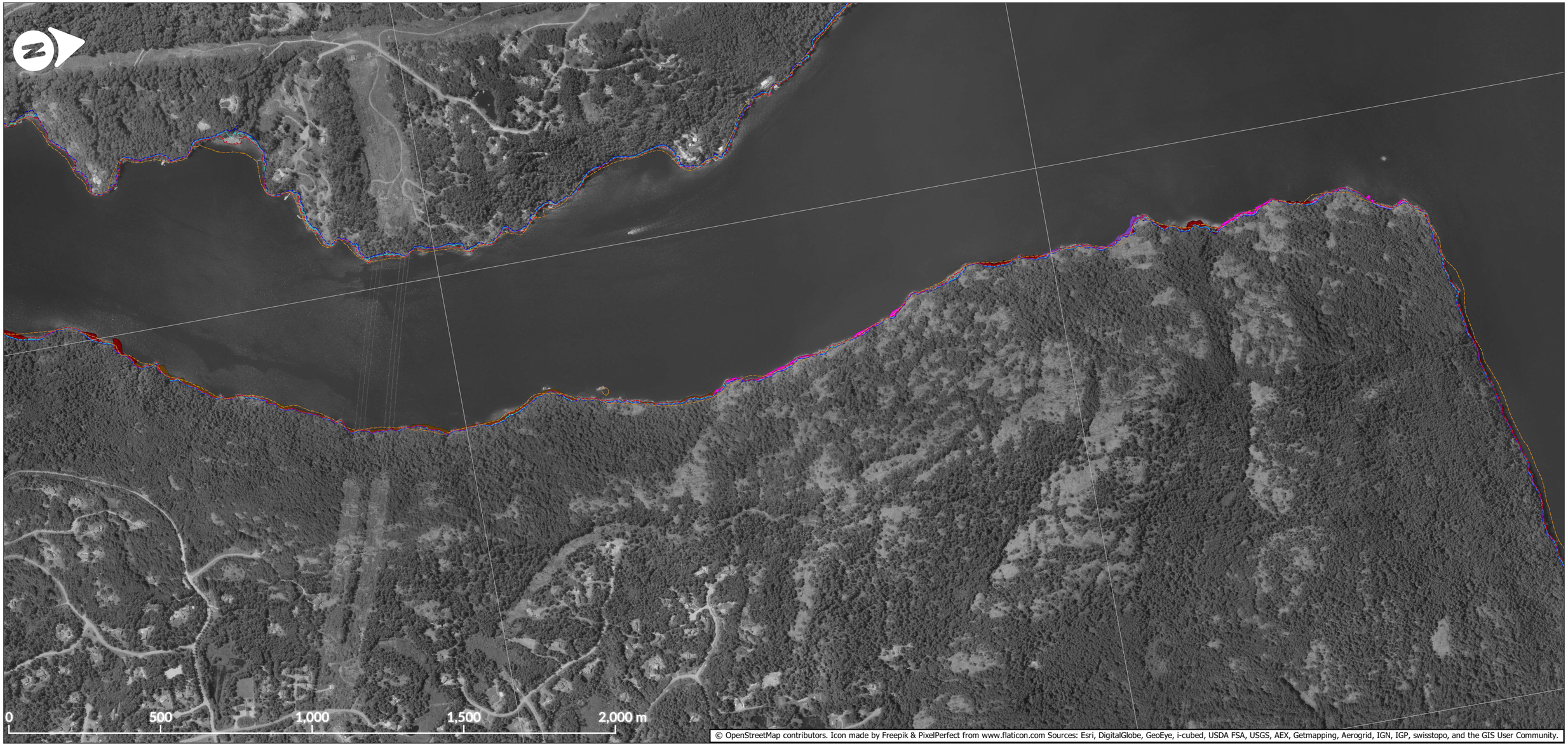
Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 51 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS



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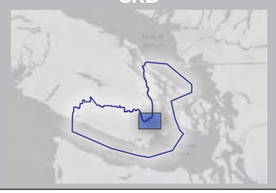
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
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- Older Second Growth Forest
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Map Sheet 52 of 116

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plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

458000E

5368000N

0 500 1,000 1,500 2,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
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- Woodland
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Map Sheet 53 of 116

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plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

462000E

464000E

5396000N

Salt Spring Island

N

0 500 1,000 1,500 2,000 m

5398000N

460000E

462000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

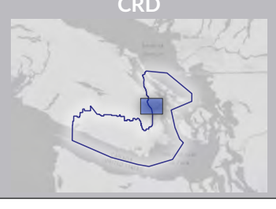
Intertidal Risk Analysis

CRD

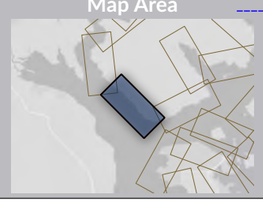
Making a difference...together

DHI

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
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Map Sheet 54 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

458000E

5398000N

Salt Spring Island

0 500 1,000 1,500 2,000 m

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

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CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 55 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

460000E

462000E

5406000N

5402000N

Salt Spring Island

0 500 1,000 1,500 2,000 m

460000E

462000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
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Map Sheet 56 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

460000E

462000E

5408000N

5404000N

Salt Spring Island

0 500 1,000 1,500 2,000 m

458000E

460000E

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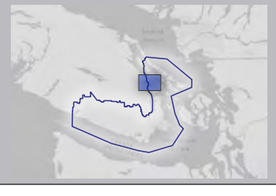
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



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Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
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Map Sheet 57 of 116

plot date: 2020.06.11
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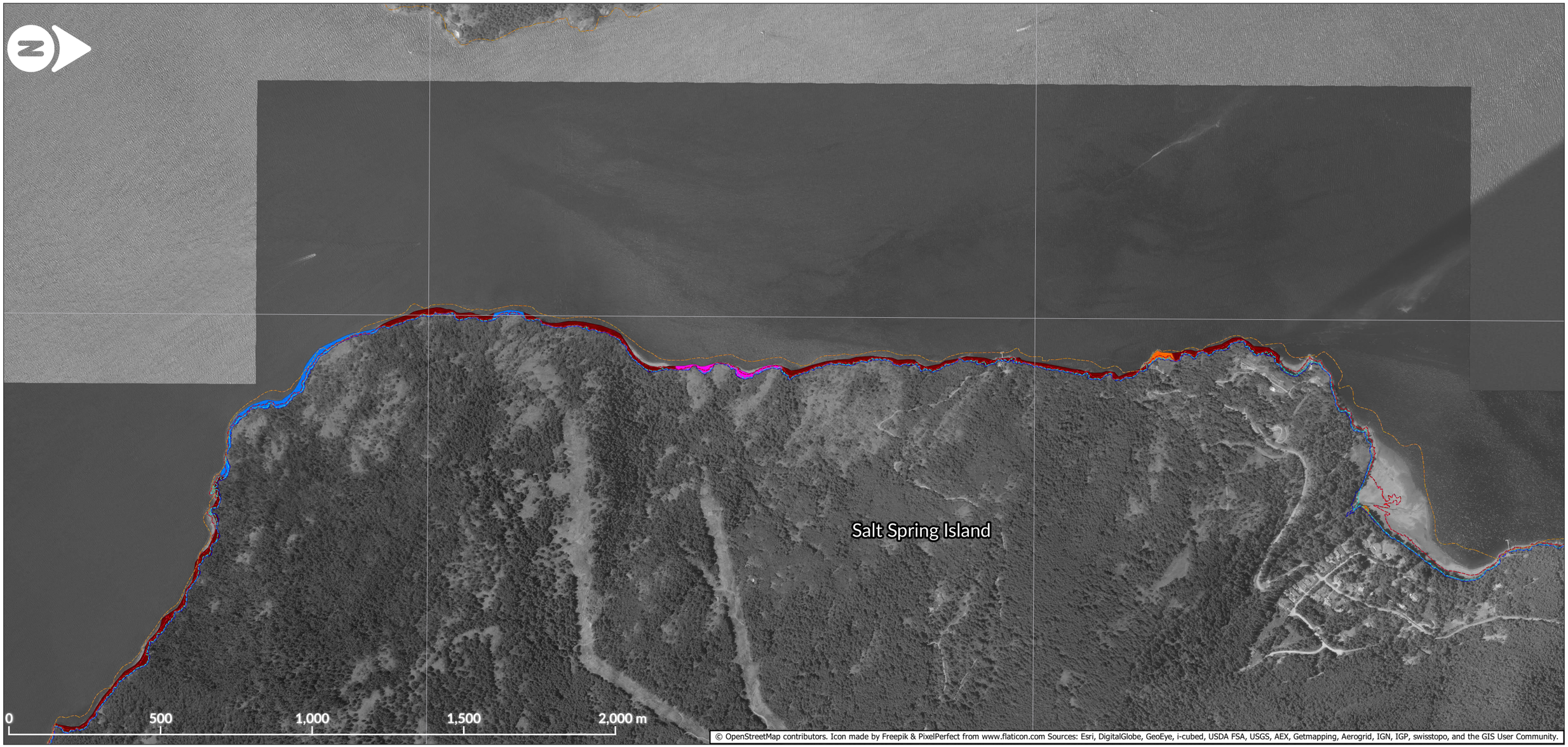

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
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- Older Forest
- Woodland
- Wetland
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- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
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Map Sheet 58 of 116

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460000E

462000E

5412000N

5414000N

Salt Spring Island

0 500 1,000 1,500 2,000 m

458000E

460000E

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Capital Regional District

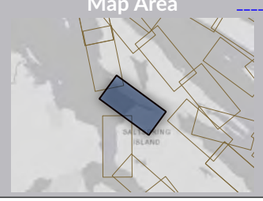
March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
- Disturbed Areas

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 59 of 116

Making a difference...together

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

456000E

5414000N

Salt Spring Island

0 500 1,000 1,500 2,000 m

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458000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

Making a difference...together

CRD



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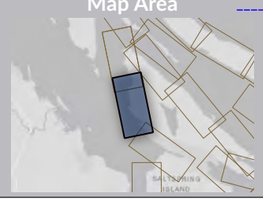

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Map Sheet 60 of 116

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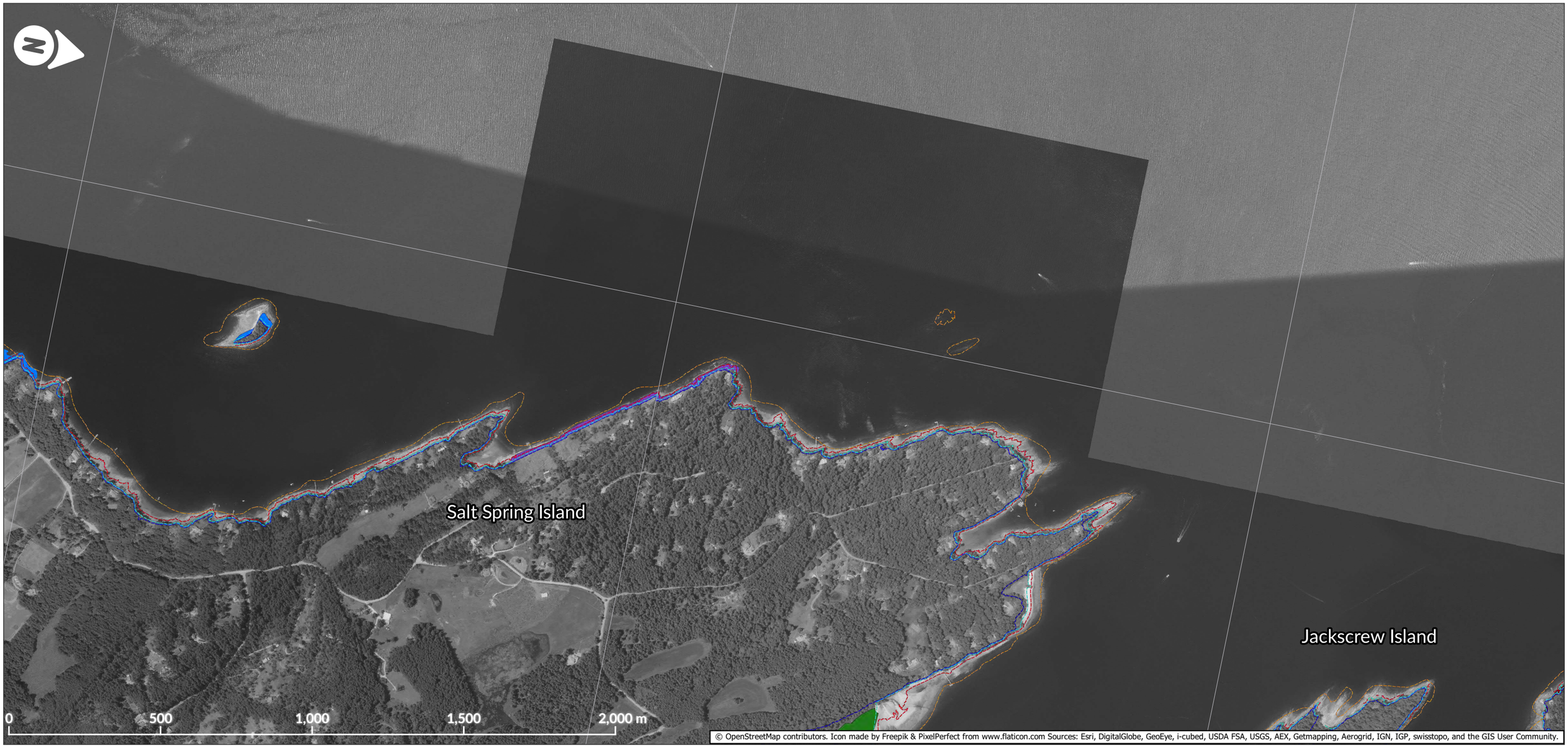

Coastal Flood Inundation Mapping Project

Capital Regional District

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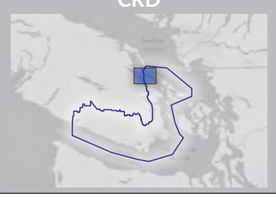
Intertidal Risk Analysis

Making a difference...together

CRD



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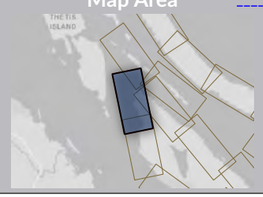

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460000E

5422000N

5418000N

Salt Spring Island

0 500 1,000 1,500 2,000 m

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458000E

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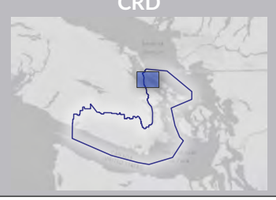

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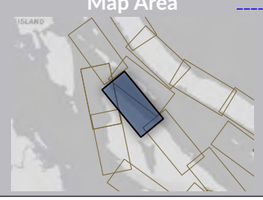

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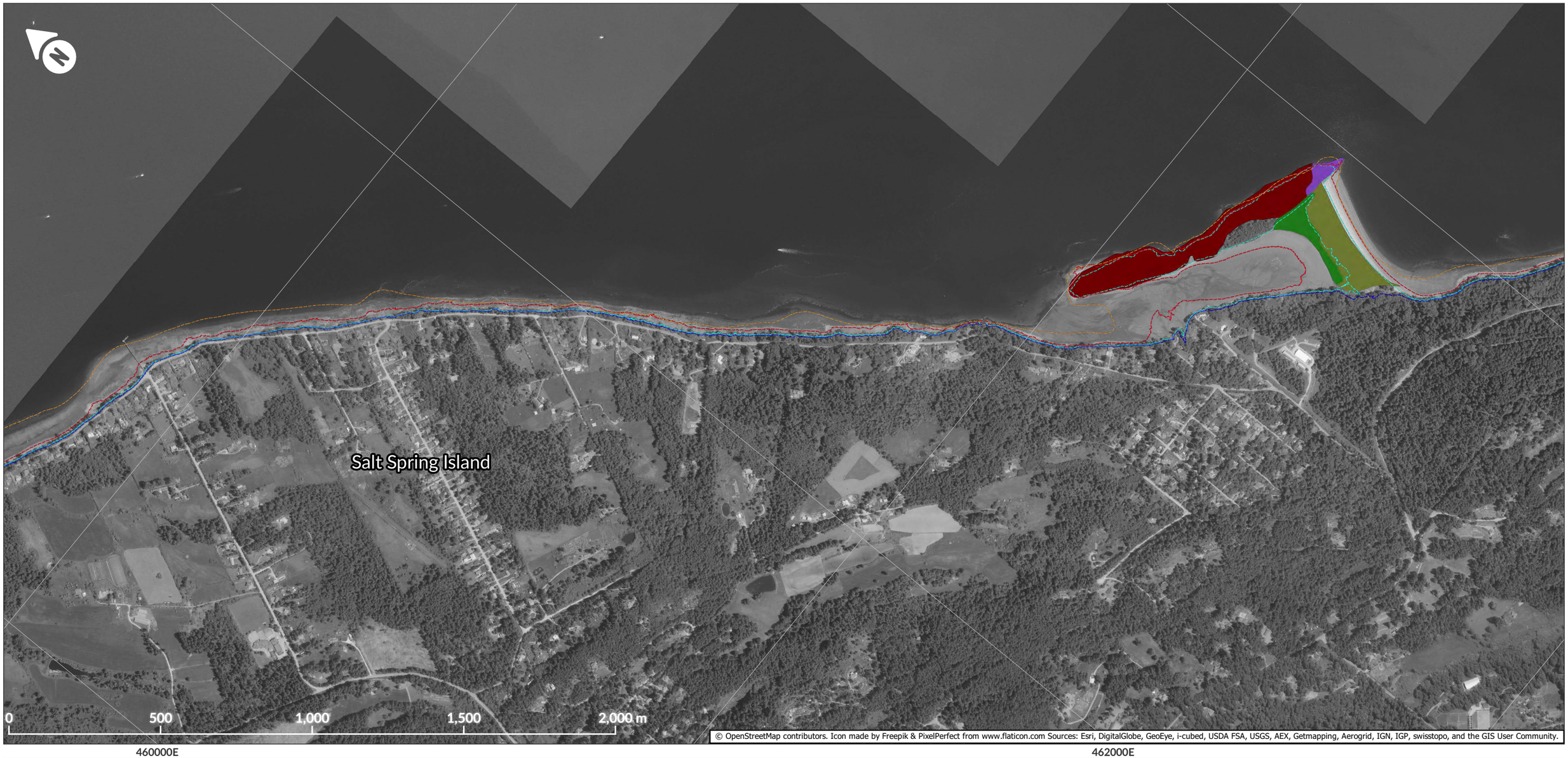
462000E

464000E



460000E

462000E

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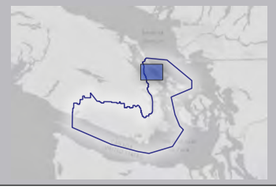

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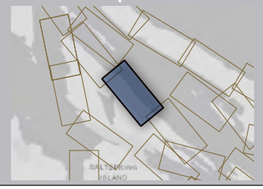

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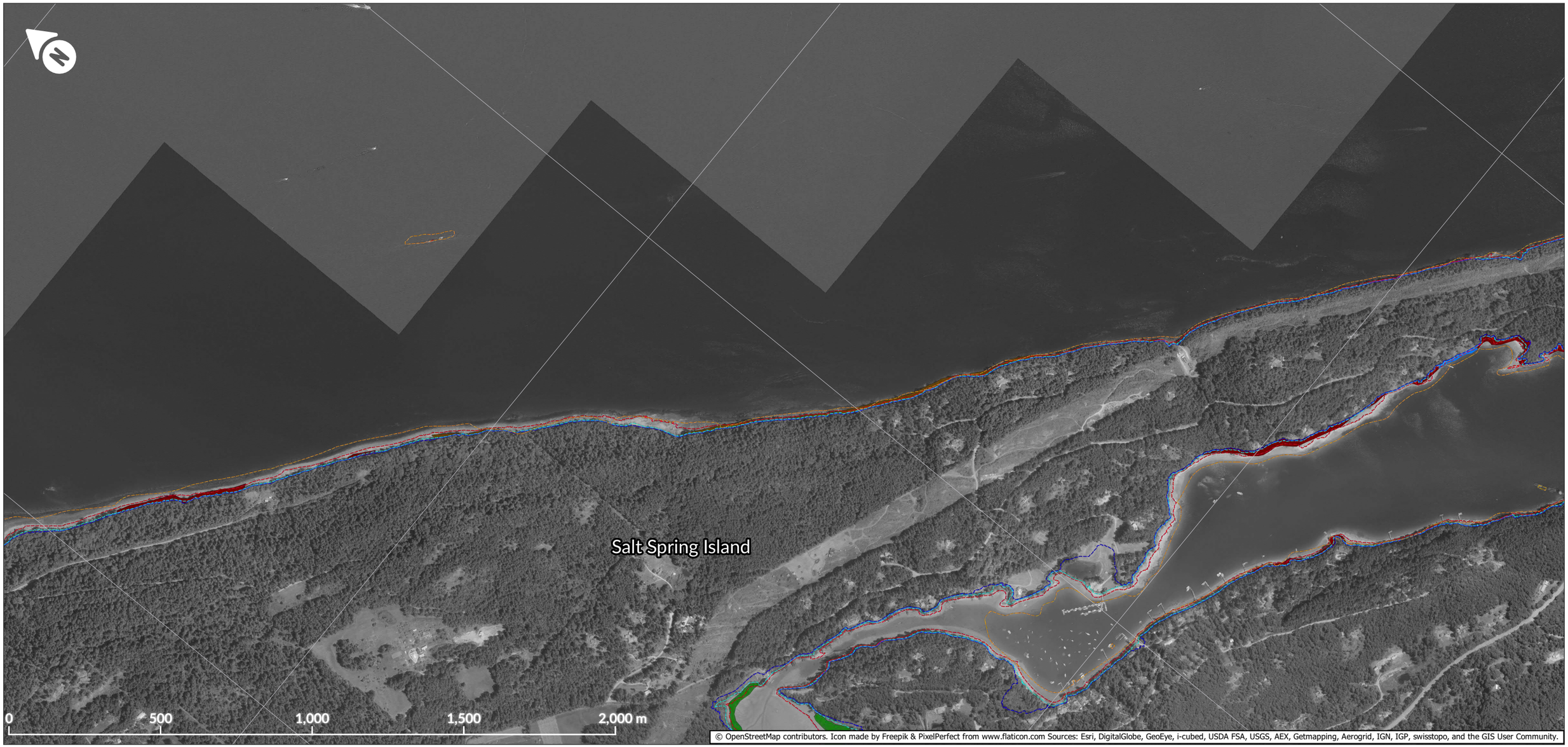
466000E

468000E

5416000N

5412000N



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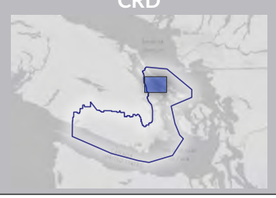

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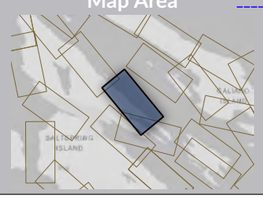

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466000E

468000E

470000E

5412000N

5410000N

Salt Spring Island

Deadman Islands

Third Sister Island

First Sister Island

0 500 1,000 1,500 2,000 m

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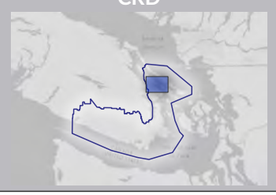

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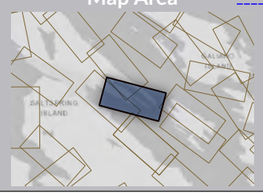

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Goat Island

Salt Spring Island

5412000N

5408000N

0 500 1,000 1,500 2,000 m

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464000E

466000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
- Disturbed Areas

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 66 of 116

Making a difference...together

pkt date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

468000E

470000E

5406000N

5408000N

Salt Spring Island

0 500 1,000 1,500 2,000 m

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466000E

468000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
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- Older Forest
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- Wetland
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- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
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Map Sheet 67 of 116

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plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

472000E

474000E

5406000N

5402000N

Salt Spring Island

0 500 1,000 1,500 2,000 m

470000E

472000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

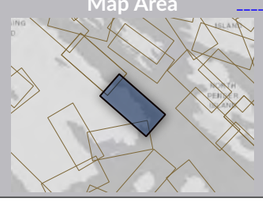
March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 68 of 116

Making a difference...together

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

468000E

470000E

472000E

5402000N

5400000N

Salt Spring Island

Russell Island

0 500 1,000 1,500 2,000 m

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470000E

472000E

5400000N

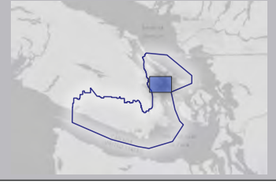
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 69 of 116

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plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dvgs\1010_GIS

468000E

Salt Spring Island

0 500 1,000 1,500 2,000 m

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466000E

Coastal Flood Inundation Mapping Project

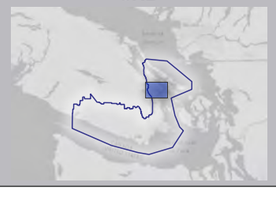
Capital Regional District

March 2020

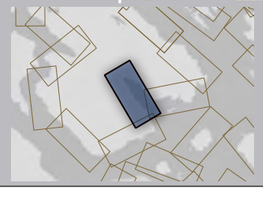
Intertidal Risk Analysis

Making a difference...together

CRD



Map Area



0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 70 of 116

plot date: 2020.04.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\1010_GIS

464000E

466000E

468000E

5396000N

5398000N

Salt Spring Island

0 500 1,000 1,500 2,000 m

466000E

468000E

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Coastal Flood Inundation Mapping Project

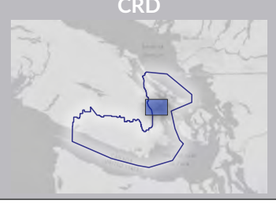
Capital Regional District

March 2020

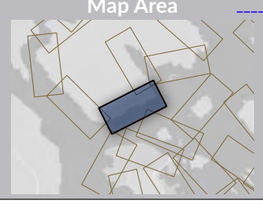
Intertidal Risk Analysis

Making a difference...together

CRD



Map Area



0.0m RSLR LLWLT

0.0m RSLR HHWLT

2.0m RSLR LLWLT

2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
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- Older Forest
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Map Sheet 71 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS

456000E

458000E

Hall Island

Mowgli Island

Secretary Islands

Norway Island

Jackscrew Island

5426000N

5422000N

0 500 1,000 1,500 2,000 m

454000E

456000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

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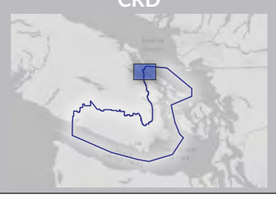
CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
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- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
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Drawn by C. Duncan and S. Haley

Map Sheet 72 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

460000E

462000E

5420000N

Wallace Island

5422000N

0 500 1,000 1,500 2,000 m

458000E

460000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

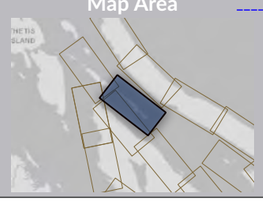
Intertidal Risk Analysis

Making a difference...together

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 73 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

460000E

Galiano Island

0 500 1,000 1,500 2,000 m

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456000E

458000E

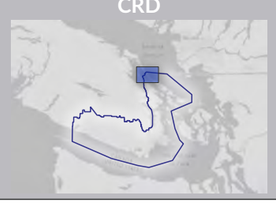
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



Making a difference...together

Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
- Disturbed Areas

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Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 74 of 116

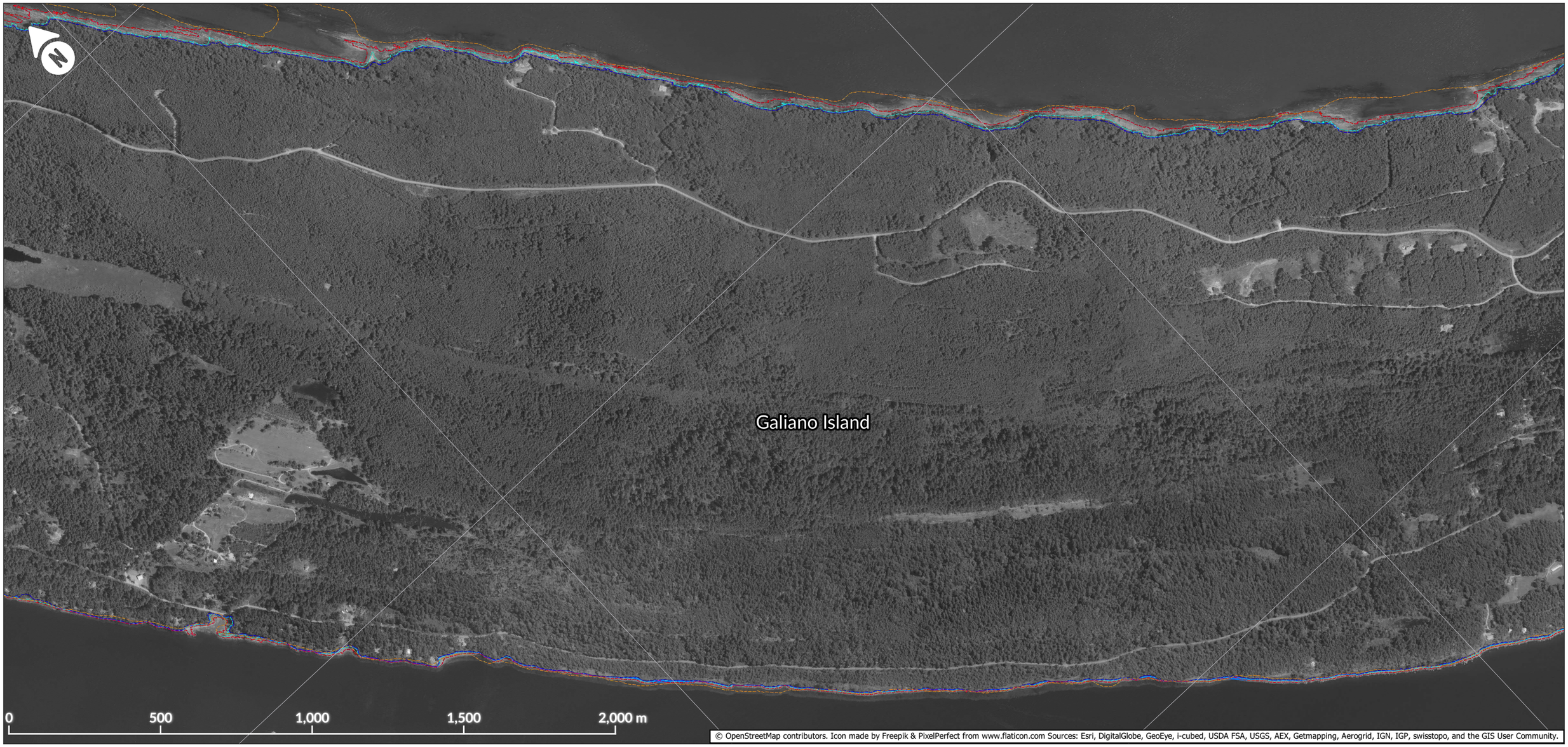
plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

460000E

462000E

5426000N

5422000N



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460000E

462000E

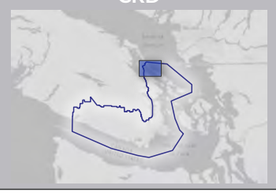
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

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Map Sheet 75 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\1010_GIS

464000E

466000E

Galiano Island

5420000N

5422000N

0 500 1,000 1,500 2,000 m

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462000E

464000E

466000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
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Approved by D. Forde, P.Eng.
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Map Sheet 76 of 116

Making a difference...together

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\tsunami\Working_Dwgs\010_GIS

468000E

470000E

5420000N

5418000N

Galiano Island

0 500 1,000 1,500 2,000 m

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468000E

470000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

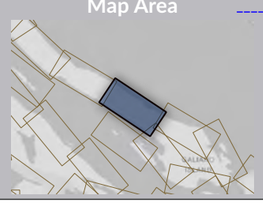
Intertidal Risk Analysis

Making a difference...together

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
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Drawn by C. Duncan and S. Haley

Map Sheet 77 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

472000E

474000E

476000E

5418000N

5416000N

Galiano island

0 500 1,000 1,500 2,000 m

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472000E

474000E

Coastal Flood Inundation Mapping Project

Capital Regional District

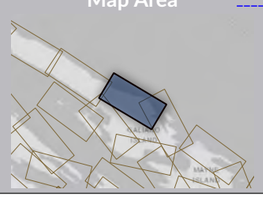
March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
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Making a difference...together

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Map Sheet 78 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

478000E

Gossip Island

Galiano Island

0 500 1,000 1,500 2,000 m

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474000E

476000E

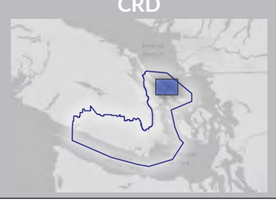
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
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Making a difference...together

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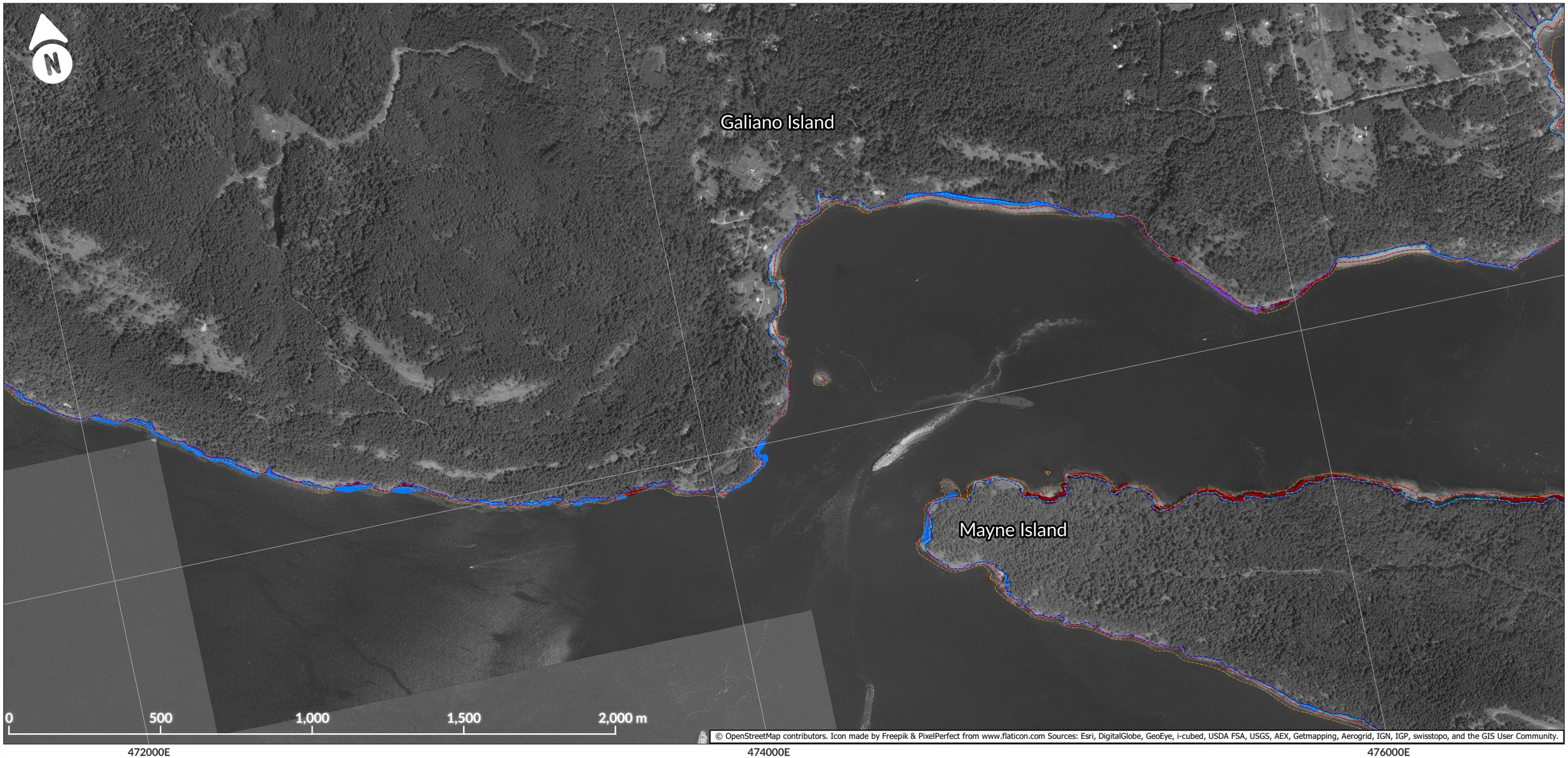
Map Sheet 79 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS



Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 80 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

472000E

Galiano Island

Parker Island

5416000N

5412000N

0 500 1,000 1,500 2,000 m

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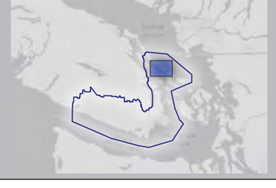
Coastal Flood Inundation Mapping Project

Capital Regional District

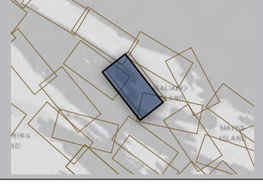
March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

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- Disturbed Areas

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 81 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastalFloodTsunami\Working_Dwgs\010_GIS

468000E

470000E

5418000N

Charles Island

Sphinx Island

Wise Island

Parker Island

5414000N

0 500 1,000 1,500 2,000 m

466000E

468000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
- Disturbed Areas

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Map Sheet 82 of 116

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plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

472000E

474000E

5408000N

Owl Island

0 500 1,000 1,500 2,000 m

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470000E

472000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
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Map Sheet 83 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

472000E

474000E

5410000N

Owl Island

5406000N

0 500 1000 1500 2000 m

470000E

472000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

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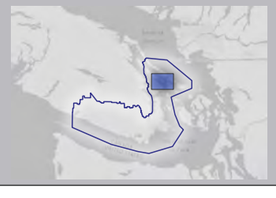
CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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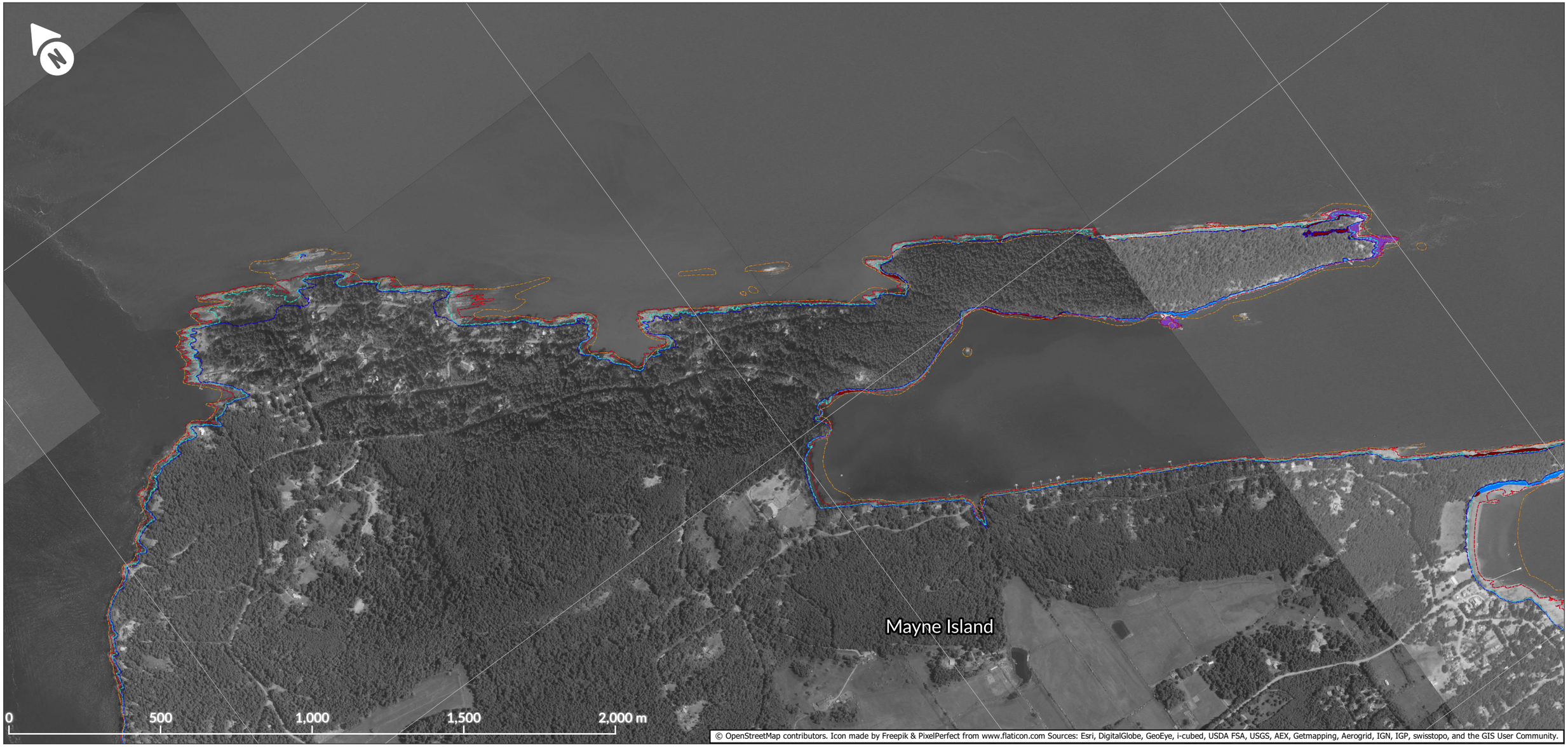
Map Sheet 84 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

480000E

482000E

5414000N



5410000N

478000E

480000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

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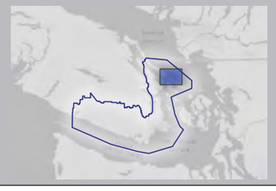
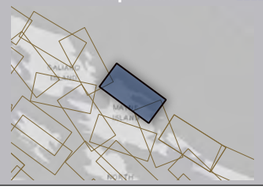
CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
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Map Sheet 85 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\tunami\Working_Dwgs\010_GIS

484000E

Georgeson Island

Samuel Island

Curlew Island

Mayne Island

0 500 1,000 1,500 2,000 m

5406000N

482000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

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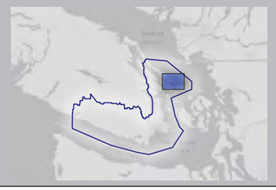
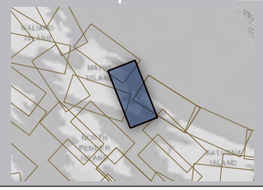
CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
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Map Sheet 86 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

478000E

480000E

482000E

5410000N

5408000N

Mayne Island

0 500 1,000 1,500 2,000 m

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478000E

480000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
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Map Sheet 87 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

478000E

5412000N

Mayne Island

North Pender Island

0 500 1,000 1,500 2,000 m

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476000E

Coastal Flood Inundation Mapping Project

Capital Regional District

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Intertidal Risk Analysis

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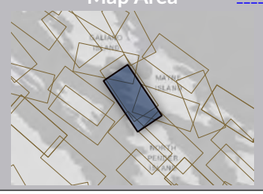
CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 88 of 116

plot date: 2020.06.11
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476000E

478000E

5414000N

5410000N

Mayne Island

0 500 1,000 1,500 2,000 m

478000E

480000E

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Coastal Flood Inundation Mapping Project

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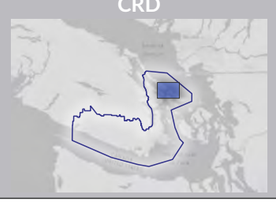
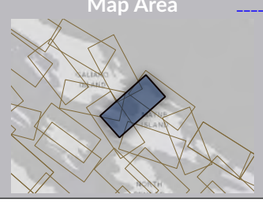


Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
- Disturbed Areas

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 89 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

484000E

486000E

5410000N

5406000N

Samuel Island

0 500 1,000 1,500 2,000 m

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484000E

486000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

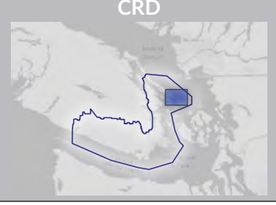
Intertidal Risk Analysis

CRD

Making a difference...together

DHI

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 90 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS

488000E

490000E

492000E

5406000N

5404000N

Saturna Island

0 500 1,000 1,500 2,000 m

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488000E

490000E

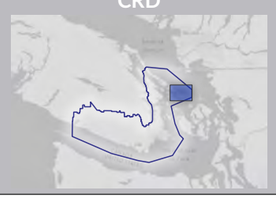
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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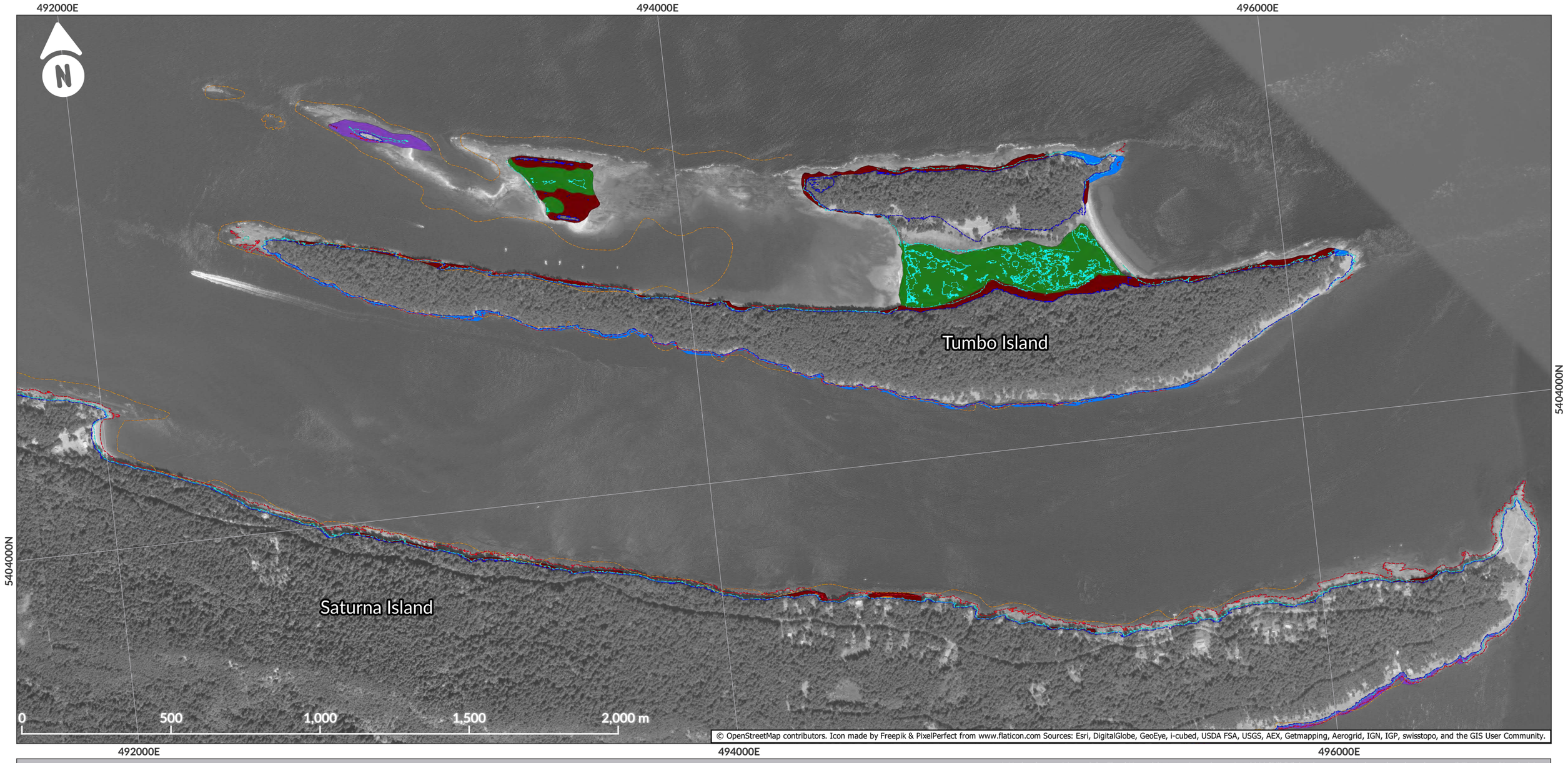
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 91 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS



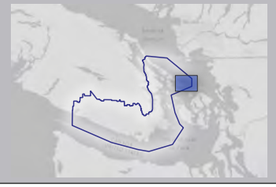
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 92 of 116

Making a difference...together

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

490000E

492000E

494000E

N

Saturna Island

5402000N

0 500 1,000 1,500 2,000 m

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Coastal Flood Inundation Mapping Project

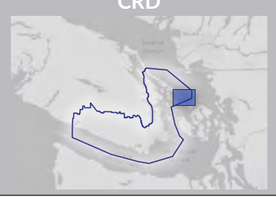
Capital Regional District

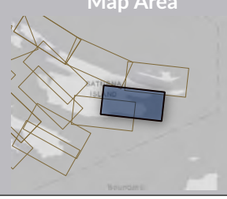
March 2020

Intertidal Risk Analysis

CRD

Map Area





Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

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Map Sheet 93 of 116

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488000E

490000E

492000E

5402000N

Saturna Island

0 500 1,000 1,500 2,000 m

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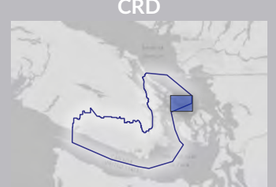
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

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Map Sheet 94 of 116

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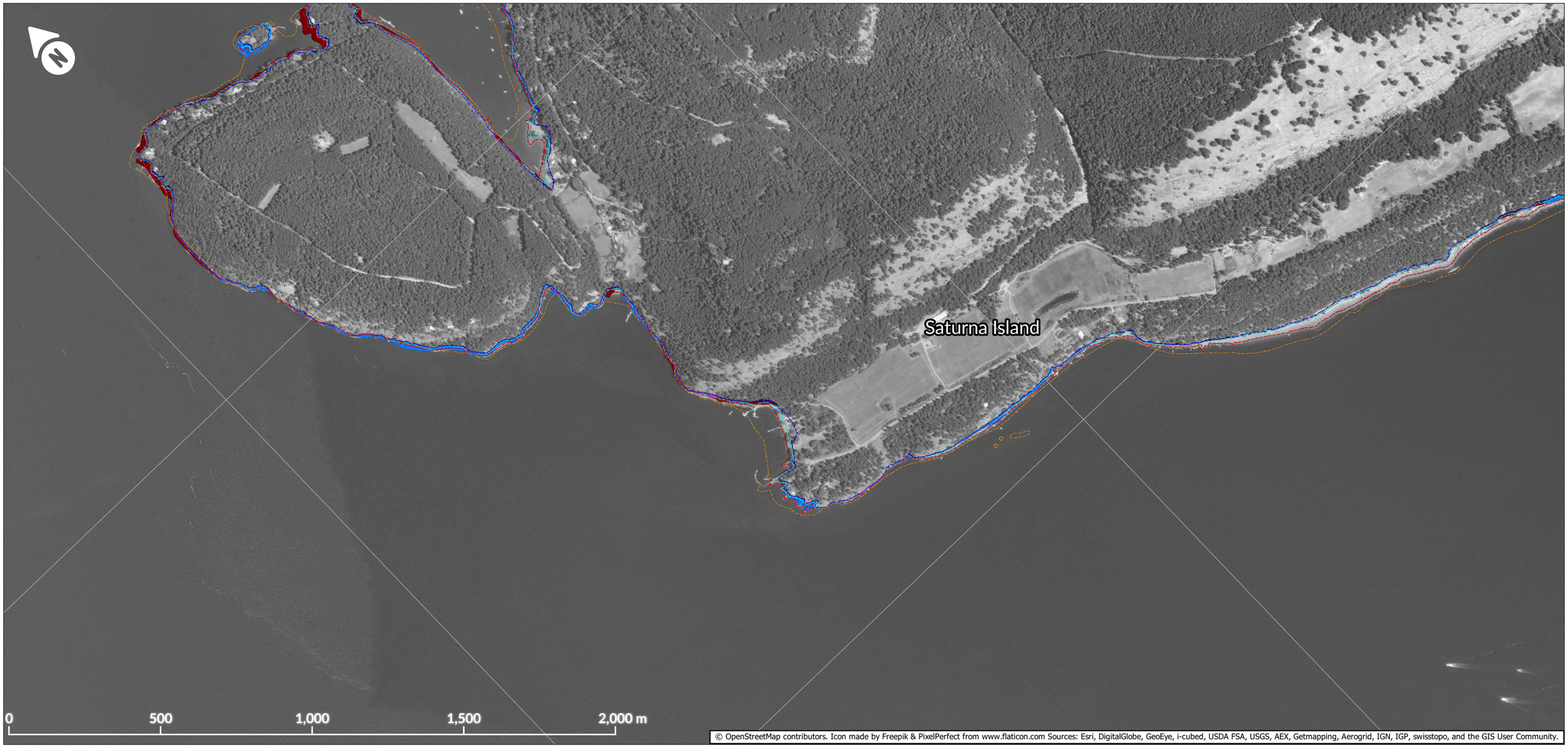
plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS



Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

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Map Sheet 95 of 116

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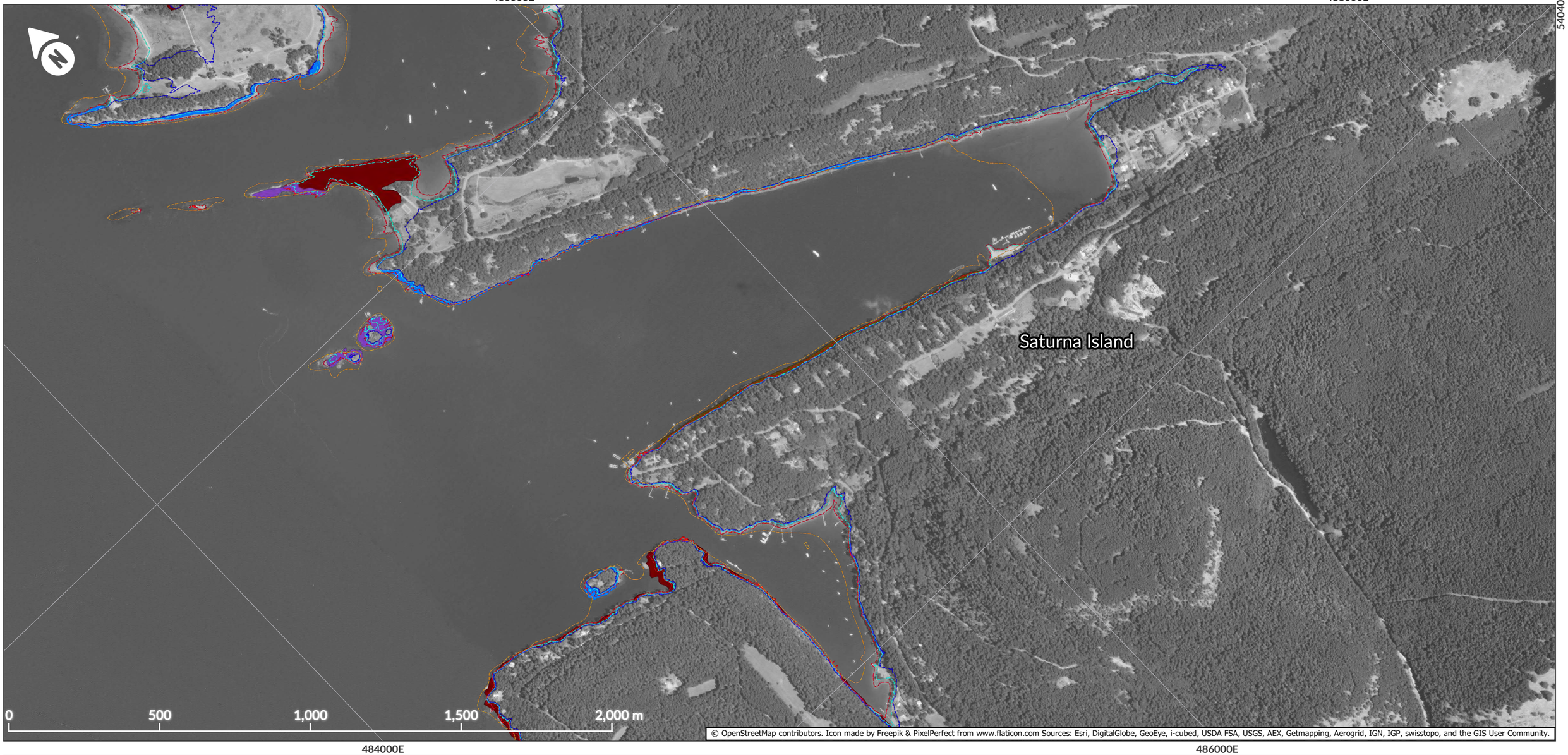


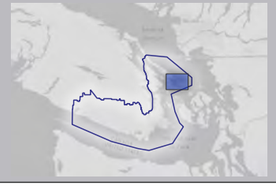
Coastal Flood Inundation Mapping Project

Capital Regional District

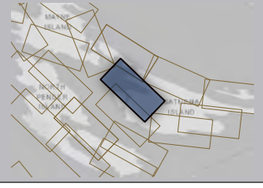
March 2020

Intertidal Risk Analysis

CRD



Map Area



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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 96 of 116

Making a difference...together

plot date: 2020.04.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\1010_GIS

480000E

482000E

5408000N

5404000N

North Pender Island

0 500 1,000 1,500 2,000 m

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478000E

480000E

Coastal Flood Inundation Mapping Project

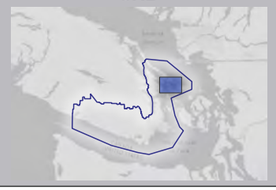
Capital Regional District

March 2020

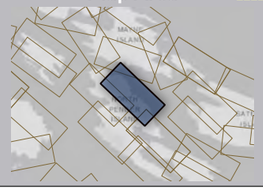
Intertidal Risk Analysis

Making a difference...together

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
- Disturbed Areas

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Map Sheet 97 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\tunami\Working_Dwgs\010_GIS

482000E

484000E

5404000N

5400000N

North Pender Island

South Pender Island

0 500 1,000 1,500 2,000 m

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480000E

482000E

Coastal Flood Inundation Mapping Project

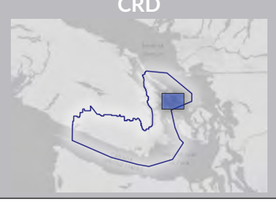
Capital Regional District

March 2020

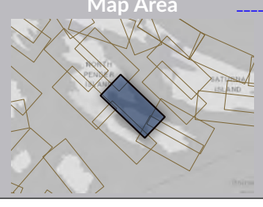
Intertidal Risk Analysis

Making a difference...together

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

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Map Sheet 98 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

482000E

5402000N

5398000N

North Pender Island

0 500 1,000 1,500 2,000 m

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480000E

482000E

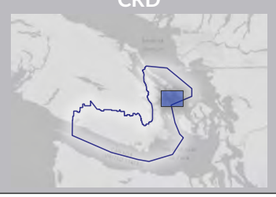
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 99 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

478000E

480000E

5404000N

North Pender Island

5400000N

0 500 1,000 1,500 2,000 m

476000E

478000E

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Coastal Flood Inundation Mapping Project

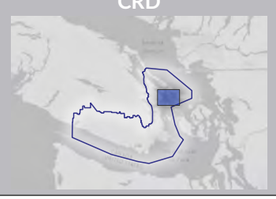
Capital Regional District

March 2020

Intertidal Risk Analysis

Making a difference...together

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
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Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 100 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

478000E

5408000N

5404000N

North Pender Island

0 500 1,000 1,500 2,000 m

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476000E

478000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

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Map Sheet 101 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

486000E

488000E

5402000N

South Pender Island

0 500 1,000 1,500 2,000 m

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5398000N

484000E

486000E

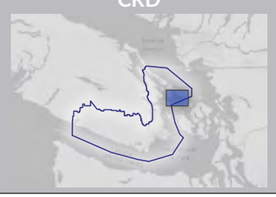
Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Drawn by C. Duncan and S. Haley

Map Sheet 102 of 116

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plot date: 2020.06.11
file: P:\20192676\00_CoastFloodPlan\mWorking_Dwgs\010_GIS

484000E

486000E

5400000N

5398000N

South Pender Island

0 500 1,000 1,500 2,000 m

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484000E

486000E

Coastal Flood Inundation Mapping Project

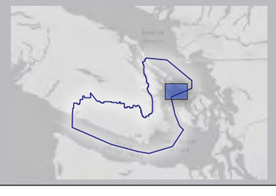
Capital Regional District

March 2020

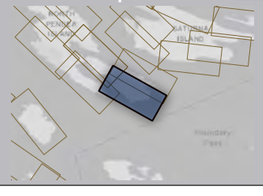
Intertidal Risk Analysis

Making a difference...together

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

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Map Sheet 103 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodPlan\am\Working_Dwgs\010_GIS

478000E

5398000N

5394000N

Moresby Island

0 500 1,000 1,500 2,000 m

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476000E

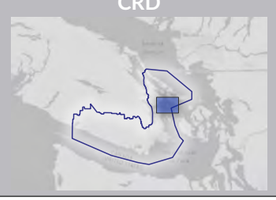
Coastal Flood Inundation Mapping Project

Capital Regional District

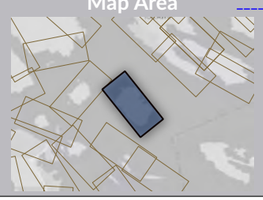
March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
- Disturbed Areas

1. Under the provisions of the Flood Hazard Statutes Amendment Act, 2003 (Bill 56), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines.
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Making a difference...together

Project No. 20192676
Approved by D. Forde, P.Eng.
Drawn by C. Duncan and S. Haley

Map Sheet 104 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

470000E

472000E

Brackman Island

Portland Island

0 500 1,000 1,500 2,000 m

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472000E

474000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

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Map Sheet 105 of 116

Making a difference...together

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodPlan\mi\Working_Dwgs\1010_GIS

468000E 470000E 472000E

5396000N

5394000N

Piers Island

Knapp Island

Pym Island

0 500 1,000 1,500 2,000 m

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468000E 470000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

Map Area

0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 106 of 116

Making a difference...together

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunamiWorking_Dwgs\010_GIS

472000E

474000E

5394000N

5390000N

Coal Island

Dock Island

Goudge Island

Fernie Island

Little Group Island

Ker Island

Little Shell Island

0 500 1,000 1,500 2,000 m

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472000E

Coastal Flood Inundation Mapping Project

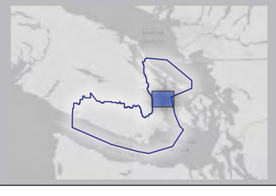
Capital Regional District

March 2020

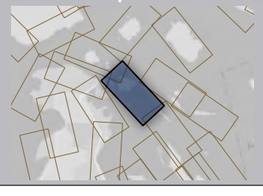
Intertidal Risk Analysis

Making a difference...together

CRD



Map Area



Legend

0.0m RSLR LLWLT

0.0m RSLR HHWLT

2.0m RSLR LLWLT

2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

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Map Sheet 107 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastFloodMapping\Working_Dwgs\010_GIS

476000E

478000E

5394000N

Reay Island

Brethour Island

Comet Island

Sheep Island

Domville Island

Rubly Island

5390000N

0 500 1,000 1,500 2,000 m

474000E

476000E

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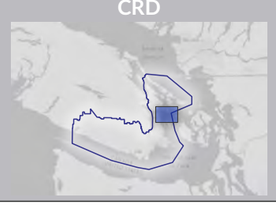
Coastal Flood Inundation Mapping Project

Capital Regional District

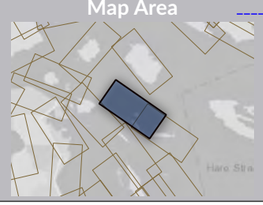
March 2020

Intertidal Risk Analysis

CRD



Map Area



Making a difference...together

DHI

Legend

0.0m RSLR LLWLT

0.0m RSLR HHWLT

2.0m RSLR LLWLT

2.0m RSLR HHWLT

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Map Sheet 108 of 116

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478000E

480000E

5392000N

5388000N

Comet Island

Gooch Island

Rubly Island

0 500 1,000 1,500 2,000 m

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478000E

480000E

Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

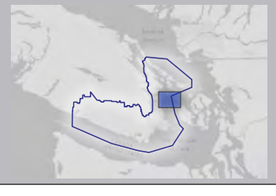
Intertidal Risk Analysis

CRD

Making a difference...together

DHI

CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 109 of 116

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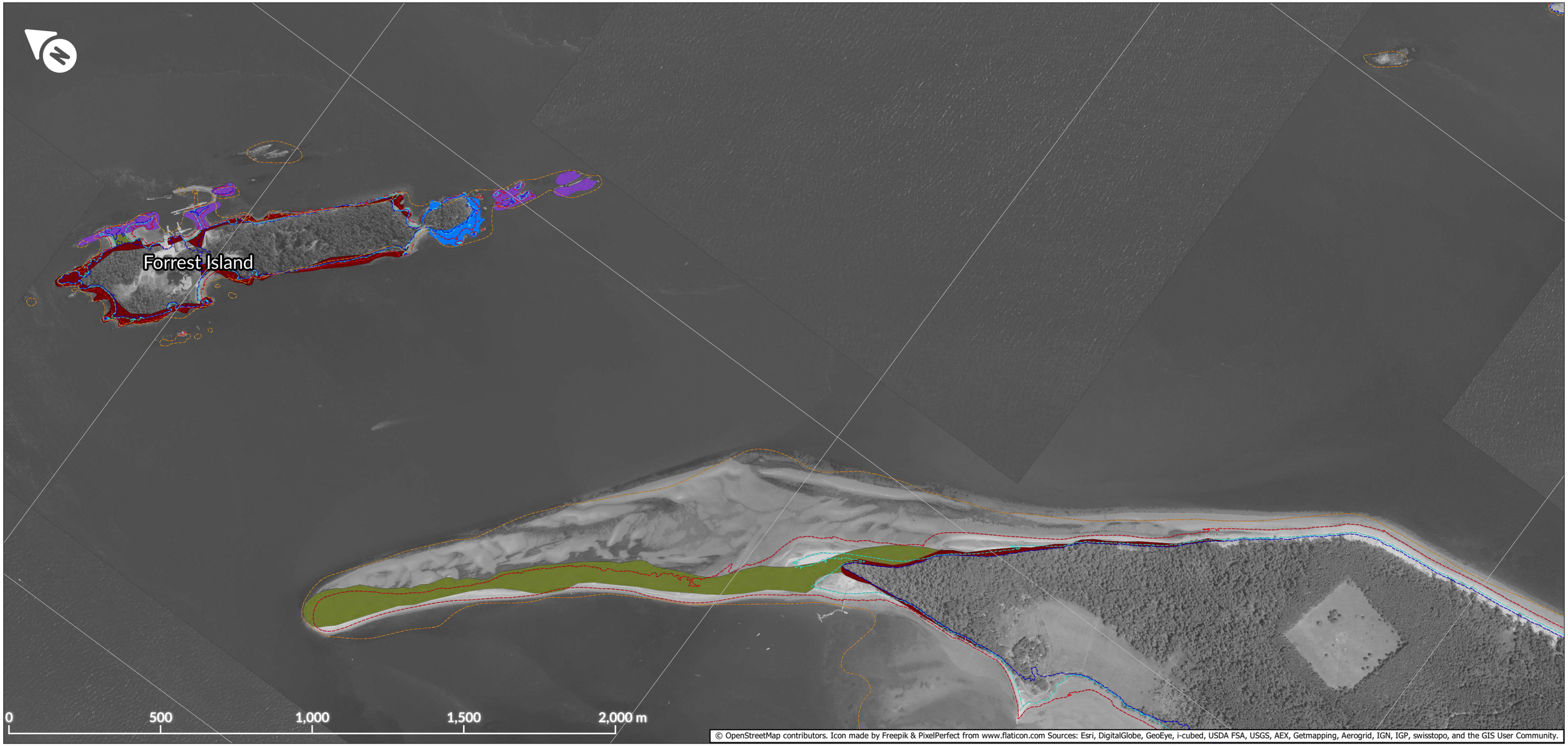

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

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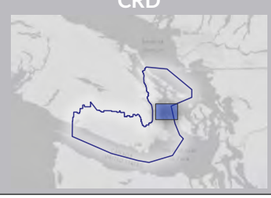
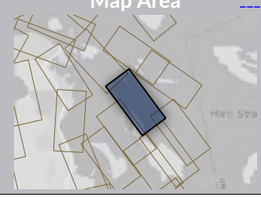


Map Area



0.0m RSLR LLWLT
0.0m RSLR HHWLT
2.0m RSLR LLWLT
2.0m RSLR HHWLT

Legend

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Map Sheet 110 of 116

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plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

480000E

5386000N

5382000N

Sidney Island

0 500 1,000 1,500 2,000 m

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478000E

Coastal Flood Inundation Mapping Project

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March 2020

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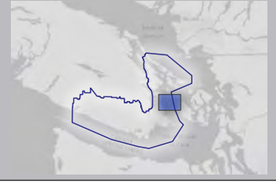

Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
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Legend

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Map Sheet 111 of 116

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plot date: 2020.06.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\010_GIS

478000E

480000E

Sidney Island

N

0 500 1,000 1,500 2,000 m

476000E

478000E

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Coastal Flood Inundation Mapping Project

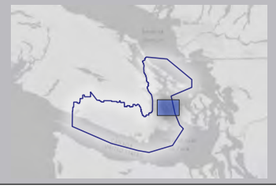
Capital Regional District

March 2020

Intertidal Risk Analysis

Making a difference...together

CRD



Map Area



0.0m RSLR LLWLT

0.0m RSLR HHWLT

2.0m RSLR LLWLT

2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

- Coastal Bluff
- Sparsely Vegetated
- Terrestrial Herbaceous
- Older Forest
- Woodland
- Wetland
- Riparian
- Seasonally Flooded Agricultural Field
- Older Second Growth Forest
- Disturbed Areas

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Map Sheet 112 of 116

plot date: 2020.06.11
file: P:\20192676\00_CoastalFloodTsunami\Working_Dwgs\010_GIS

476000E

5388000N

5384000N

0 500 1,000 1,500 2,000 m

474000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

CRD

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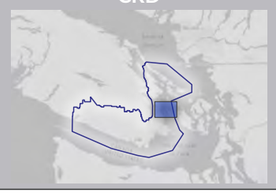
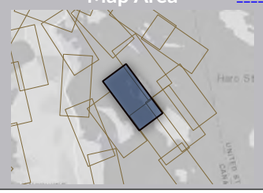
DHI

CRD



Map Area



0.0m RSLR LLWLT

0.0m RSLR HHWLT

2.0m RSLR LLWLT

2.0m RSLR HHWLT

Legend

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Map Sheet 113 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\Flood\Tsunami\Working_Dwgs\010_GIS

480000E

482000E

5388000N

5384000N

Bare Island 9

Halibut Island

0 500 1,000 1,500 2,000 m

478000E

480000E

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Coastal Flood Inundation Mapping Project

Capital Regional District

March 2020

Intertidal Risk Analysis

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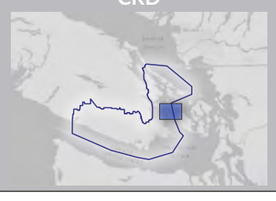
CRD



Map Area



- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Legend

Sensitive Ecosystem Inventory Areas

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Map Sheet 114 of 116

plot date: 2020.06.11
file: P:\20192676\00_Coast\FloodTsunami\Working_Dwgs\010_GIS

474000E

476000E

5386000N

5382000N

James Island

0 500 1,000 1,500 2,000 m

472000E

474000E

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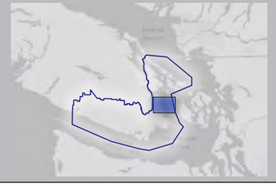
Coastal Flood Inundation Mapping Project

Capital Regional District

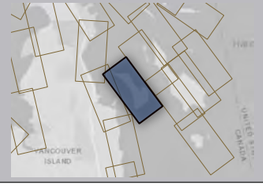
March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

Sensitive Ecosystem Inventory Areas

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Map Sheet 115 of 116

plot date: 2020.04.11
file: P:\20192676\00_CoastFloodTsunami\Working_Dwgs\1010_GIS

480000E

482000E

Little D'Arcy Island

D'Arcy Island

0 500 1,000 1,500 2,000 m

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478000E

480000E

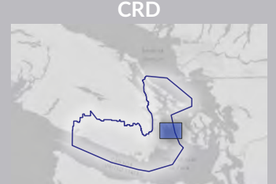
Coastal Flood Inundation Mapping Project

Capital Regional District

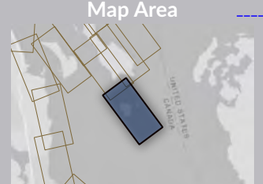
March 2020

Intertidal Risk Analysis

CRD



Map Area



Legend

- 0.0m RSLR LLWLT
- 0.0m RSLR HHWLT
- 2.0m RSLR LLWLT
- 2.0m RSLR HHWLT

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Map Sheet 116 of 116

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APPENDIX I - INTERTIDAL RISK ANALYSIS - POTENTIAL FOR THE PRESENCE OF ARCHAEOLOGICAL AND HISTORIC SITES VULNERABLE TO INTERTIDAL CHANGE MAPPING

Appendix I is comprised of mapping that shows the potential for archaeological/historic sites in/close to the intertidal zone that will help project stakeholders focus their attention for mitigative actions. This is explained in greater detail in Section 5. This appendix is provided in a stand-alone pdf file.

CRD July 2020

Data gathered from the Province's Remote Access to Archaeological Data (RAAD) was used to understand potential impacts to archaeological sites. This information is not permitted to be released for public consumption. Due to potential sensitivities stemming from a history of looting and desecration that has happened with Indigenous cultural sites this information will remain private. Should report users have an interest in accessing this information to help with planning related to protecting cultural sites then the CRD can arrange to share the information in a secure manner.

APPENDIX J - DATUM CONVERSION

CGVD28 – CGVD2013 Relationship

A complicating factor of this project is the necessity of handling topographic data with two different vertical datums: Canadian Geodetic Vertical Datum 1928 (CGVD28) and Canadian Geodetic Vertical Datum 2013 (CGVD2013). A vertical datum is the benchmark against which elevations are reported. Historically, elevations were reported using the CGVD28 vertical datum. It is a tidal datum defined by the mean water level at five different tide gauges: Yarmouth and Halifax on the Atlantic Ocean, Pointe-au-Père on the St. Lawrence River, and Vancouver and Prince Rupert on the Pacific Ocean. The datum was propagated throughout the country using geodetic levelling measurements, which yielded 94,000 benchmarks for surveyors to tie into. When someone states that an elevation is at 'X' m geodetic, they are most likely referring to an elevation using the older CGVD28 datum.

However, with the advent of contemporary Global Navigation Satellite Systems (GNSS) such as GPS, a more precise system was achievable. Thus, Natural Resources Canada (NRCan) released CGVD2013 to modernize Canada's vertical reference system. CGVD2013 is defined by the equipotential surface W0=62,636,856.0 m^2s-2; the coastal mean sea level for North America. It enables measurements of elevations with respect to a consistent vertical datum everywhere across Canada using GNSS and emerging technologies.

However, problems occur when applying the change in vertical datum to existing and future datasets. The difference between CGVD2013 and CGVD28 is not a constant; it varies spatially, depending on where you are in Canada, as shown in **Figure J-1**.

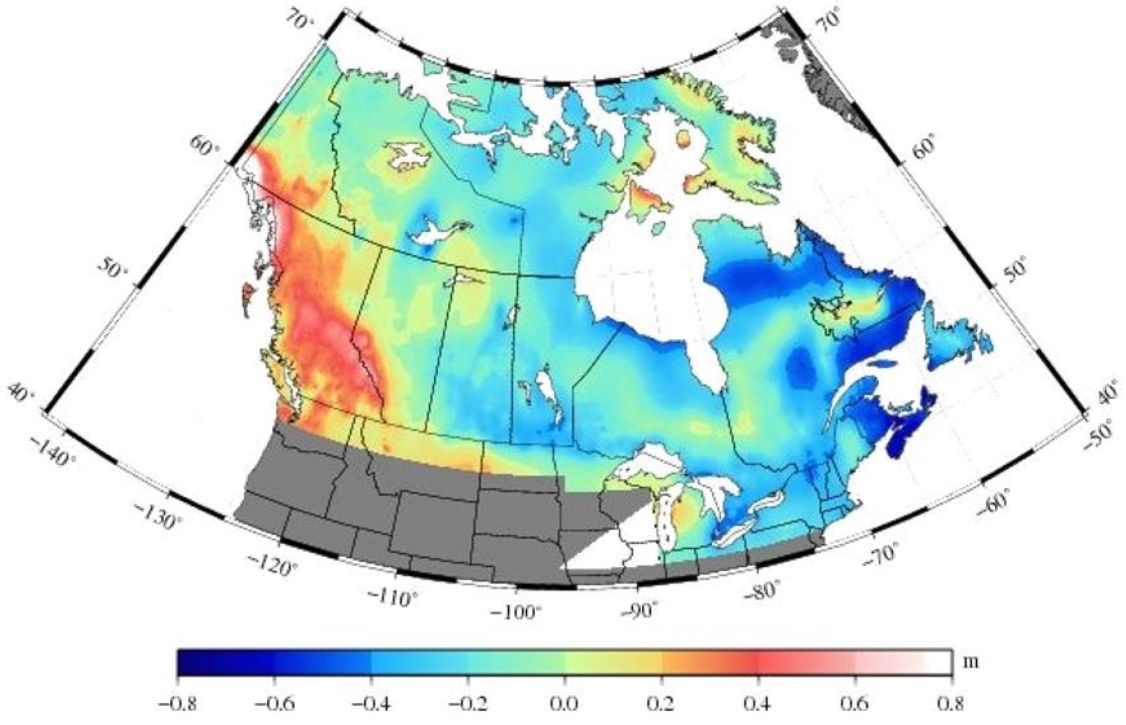

Figure J-1
Conversion between CGVD28 and CGVD2013 across Canada

\\ae.ca\data\projects\van\2019267 6\00_CoastFloodTsunami\Engineering\03.02_Conceptual_Feasibility_Master_Plan_Report\2.0 SLR Report\version 2.0\rpt_crd_task 2_slr modelling_20211020.docx

Locally, for most places in BC, CGVD2013 datum is below CGVD28 datum. For example, reporting CGVD28 elevations in CGVD2013, requires a shift of +0.40 m in Revelstoke, whereas South Vancouver Island requires a +0.13 m shift. Even at a regional scale, the difference between datums is not a constant, as evident in **Figure J-2** which shows the relative change between CGVD2013 and CGVD28 across the capital region. Therefore, it will be difficult for local governments and interested stakeholders to convert their existing reports, record drawings, and datasets to the new datum.

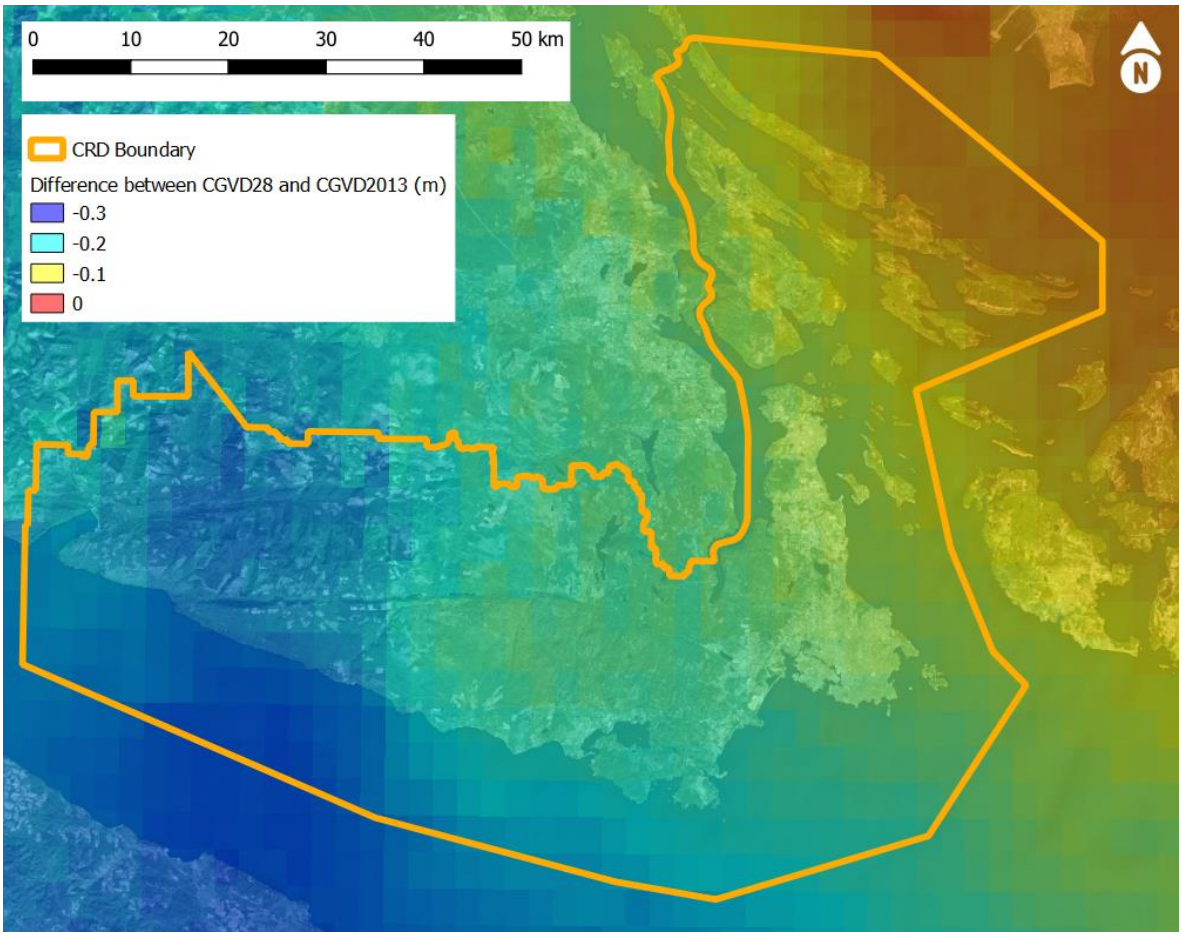

Figure J-2
Conversion between Elevations Reported in CGVD2013 to CGVD28 within the capital region

The new GeoBC LiDAR was flown to CGVD2013, however all of the existing capital region elevation datasets are to CGVD28. For the purposes of this project, CGVD2013 was adopted as the reporting datum. Therefore, all deliverables for this project will be referenced to CGVD2013:

$$Elevation\ reported\ to\ CGVD2013 = Elevation\ reported\ to\ CGVD28\ + Site\ Specific\ Conversion$$

As demonstrated in **Figure J-2**, there is not a consistent conversion across the capital region between the datums. NRCan's conversion grid[37], which can be downloaded from their website, was used to convert elevations reported in

[37] https://webapp.geod.nrcan.gc.ca/geod/data-donnees/geoid.php

CGVD28 to CGVD2013. A quick rule of thumb number that could be used is + 0.13 m, however, refer to the site-specific conversion for more detailed analyses.

NRCan intends for both vertical reference systems to exist side-by-side in the short-medium term, to allow users to smoothly transition to the new geoid model. For site-specific work, like subdivision development or municipal structure replacement/construction, the disruption due to the new datum should be minimal, as it will only require one site-specific conversion. However, the greatest impact will be felt on projects like this one, which encompass large areas. In these cases, conversions between CGVD28 and CGVD2013 could be significantly different, depending on location. This will continue to be a problem that public bodies and private businesses must resolve in the years to come. As previously stated, this has manifested itself on this project as some background GIS information is referenced to CGVD28 (i.e. the old datum), thereby necessitating a conversion. **It is also important to note that all deliverables produced as part of this project are to be referenced to CGVD2013. Any users/readers of this report, as well as Task 3 deliverables, must ensure that they understand the difference between the old and new datum for their particular interest area. Also, for the purposes of this report, a constant +0.13m value was applied to convert CGVD28 to CGVD2013 in all areas across the capital region.**

For more information related to the CGVD28/CGVD2013 relationship, refer to the following:

Provincial Guidance
https://www2.gov.bc.ca/gov/content/data/geographic-data-services/georeferencing/vertical-reference-system

Federal Guidance
https://www.nrcan.gc.ca/height-reference-system-modernization/9054

Online Conversion Tool
https://webapp.geod.nrcan.gc.ca/geod/tools-outils/gpsh.php

HHWMT – CGVD2013

The tsunami inundation modelling was undertaken on a base water level of Higher High-Water Mean Tide (HHWMT). This means that any reported Hmax values must undergo a conversion to relate these values to CGVD2013 elevations. The relevant conversion factors are given below:

Table J-1
CGVD2013 values of common tide levels at various ports in the capital region

CGVD2013							
Port	Higher High Water		Lower Low Water		Recorded Extreme		Mean Water Level
	Mean Tide (m)	Large Tide (m)	Mean Tide (m)	Large Tide (m)	HHW (m)	LLW (m)	(m)
Port Renfrew	1.222	1.922	-0.978	-1.778	2.522	-1.978	0.122
Sooke	1.032	1.632	-0.868	-1.468	2.132	-1.968	0.132
Victoria	0.767	1.367	-0.933	-1.833	2.067	-2.233	0.167
Fulford Harbour	1.215	1.615	-1.185	-2.185	2.315	-2.585	0.215

Table J-2
Common tide levels, to chart datum, at various ports in the capital region[38]

Chart Datum (CD)							
Port	Higher High Water		Lower Low Water		Recorded Extreme		Mean Water Level
	Mean Tide (m)	Large Tide (m)	Mean Tide (m)	Large Tide (m)	HHW (m)	LLW (m)	(m)
Port Renfrew	3.0	3.7	0.8	0.0	4.3	-0.2	1.9
Sooke	2.8	3.4	0.9	0.3	3.9	-0.2	1.9
Victoria	2.5	3.1	0.8	-0.1	3.8	-0.5	1.9
Fulford Harbour	3.3	3.7	0.9	-0.1	4.4	-0.5	2.3

Example Calculation:

Higher High-Water Mean Tide @ Port Renfrew = 3 m, relative to Chart Datum (CD)
To convert tsunami results @ Port Renfrew = -1.778 m (from CHS conversion grid[39])
Thus, HHWMT @ Port Renfrew = 1.22 m CGVD2013

10 m Hmax tsunami result @ Port Renfrew relative to HHWMT become = 11.22 m CGVD2013

[38] http://charts.gc.ca/documents/publications/tables/2020_vol5.pdf
[39] Task 1 - DEM Development Report, Associated Engineering, 2020