ALBERNI-CLAYOQUOT REGIONAL DISTRICT
Parks Linear Asset Assessment & Mapping
Evergreen Park

July 29, 2025

Prepared for:

Alberni-Clayoquot Regional District
3008 Fifth Avenue
Port Alberni, BC
V9Y 2E3

Attention: Amy Mayo, Asset Management & Grants Coordinator

Prepared by:

Herold Engineering Limited
Unit 7, 1920 Lyche Road
Ucluelet, BC
V0R 3A0

PARKS LINEAR ASSET ASSESSMENT & MAPPING

EVERGREEN PARK, PORT ALBERNI, BC

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Submittal Date: July 29, 2025

Herold Project No.: 6516-001

Prepared by:

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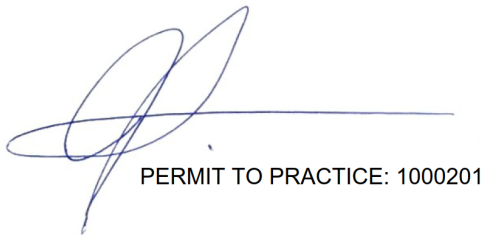
Reviewed by:



Jeff Duncan, P. Eng.
Associate

EXECUTIVE SUMMARY

The scope of the assignment includes an assessment of one bridge structure within the Evergreen Park boundary, and subsequent assessment report. The report includes detailed descriptions of the bridge construction, findings of the assessment, recommended repairs/upgrades, risk analysis and Class D cost estimates for the recommended repairs and full replace of the structure(s) in kind.

The assessment was conducted on November 5, 2024. The purpose of the assessment was to document the overall physical condition of the bridges via visual and tactile on-site assessment.

The structure is an aluminum truss span that was recently installed at the site. The span is decked with timber decking and rests on a concrete abutment. The banks below the abutments are guarded with armor stone.

The structure is appropriately designed for trail usage by pedestrians and equine traffic. It may be possible that the bridge will be utilized by all-terrain vehicles and other off-road vehicles. The bridge is a good candidate for load rating in future.

The structure is laterally braced, indicating some seismic lateral performance.

The bridge is generally in serviceable condition and appears to be relatively new. Items noted during the assessment are as follows:

- Welded connection on verticals cracked and incomplete
- Decking is slippery and has some debris build-up.

Some minor remedial work is recommended as follows:

- Repair and completion of existing welded connections
- Clean surfaces of bridge deck and substructure
- Install non-slip surface on the deck boards (e.g.: roofing shingles or profiled metal strips)

The repairs noted in this report are to Class D standard, in 2025 Canadian dollars. For the immediate repairs, the estimated total cost rounded to the nearest thousand dollars is $5,000.00. Costs associated with replacement of the bridge in kind, and rounded to the nearest thousand dollars, are estimated at $106,000.00. Refer to Section 6.0 for detailed cost estimates.

Table of Contents

1.0 INTRODUCTION

Location: Evergreen Park, Port Alberni, BC

Assessment by: Shannon Summersides, P. Eng. (Herold Engineering Ltd.)
Blair Forsyth (Herold Engineering Ltd.)

Date: November 5, 2024

1.1 Purpose of Assignment

The assessment was conducted to identify members either requiring repairs or showing signs of deterioration. The assessment results, detailed in the following report, will provide information regarding maintenance, repair, replacement and health and safety on a ten-year forecasted period, allowing for a prioritized repair and maintenance program to be implemented. Other items noticed during the assessment will be reported only in terms of general overall condition.

All repair/replacement recommendations will be accompanied by a Class D cost estimate, as well as a Class D level estimate of costs associated with complete replacement. These estimates are intended to inform maintenance and upgrade budgeting for the ACRD.

Where applicable, recommendations will be made for additional structural assessment in the form of seismic review and/or structural load rating. These recommendations are intended to inform budgeting strategies for future work as required.

1.2 Scope of Work

Herold Engineering travelled to Evergreen Park and walked the trail to find one aluminum truss bridge structure.

The structure was assessed from ground level and from the structure deck. The assessment included visual and tactile assessment of the accessible components.

Herold Engineering generated and populated a structural checklist for each bridge which includes:

- General dimensions (length and width),
- Structural component sizes and lengths,
- Assessment of the existing condition of the elements based on an owner approved rating scale.

Herold Engineering generated the following report which includes the following:

- Remediation recommendations
- Risk analysis
- Residual life estimates
- Class D cost estimate of the repair recommendations
- Class D cost estimate for full replacement of the structure
- General comments on suitability for seismic loads
- General suitability for load rating

1.3 Reference Material

- Canadian Highway Bridge Design Code CAN/CSA S6-19.
- ACRD Risk Management Policy
- ACRD Risk Framework Matrix

1.4 Methodology

The infrastructure was reviewed by Herold Engineering Limited (Herold Engineering) from the ground, as well as from the deck of the structures. The assessment included detailed visual and tactile assessment of one aluminum truss bridge structure located within Evergreen Park. The structural elements that were assessed are as follows:

- Aluminum trusses and associated connections
- Timber decking
- Concrete abutments

The condition assessment and residual life estimates were based on previous experience, as well as the reference material noted in Section 1.3.

All recommendations related to health and safety are provided based upon our experience with structures similar in form and function.

Comments on seismic aspects of the structure are in general terms only. Should Herold Engineering locate structure(s) with higher seismic risk, a detailed desktop analysis of the structure seismic response will be recommended.

Load rating analysis is considered outside the scope of the assessments; however, structures considered light duty for the intended use will be recommended for a future load rating desktop study.

Class D cost estimates are based on current industry rates for mobilization/demobilization and material costs for supply and installation, as well as historical data from similar projects. All costs are high level and considered appropriate for budget projections only. Construction costs can be challenging to estimate in the current economic climate, and it is to be noted that prices may change often and can differ significantly based on many fluctuating variables (material costs, mobilization costs, etc). Should the ACRD postpone work for more than six months, it is recommended an updated estimate be generated to reflect current construction costs.

A risk analysis was conducted for the infrastructure, using a modified version of the Alberni-Clayoquot Regional District (ACRD) risk framework (provided to Herold Engineering). The risk framework has been generated to evaluate the level of risk of noted deterioration/damage allowing for prioritization of future repairs and their implications on structure use and life safety. All documents were provided by The ACRD and are referenced in Section 1.3 above.

The following appendices can be found following this report:

APPENDIX A	-	Site Photographs
APPENDIX B	-	Damage Table
APPENDIX C	-	Bridge Checklists
APPENDIX D	-	Aerial Map

1.5 Reference System

Evergreen Park trail is accessed from Fayette Road, located in Beaver Creek immediately northwest of Port Alberni. The park is a green space and trail system used for recreation and equestrian pursuits. The bridge is located on the Evergreen Trail north of Plested Road and spans Plested Creek.

Refer to the following trail map identifying the bridge location.

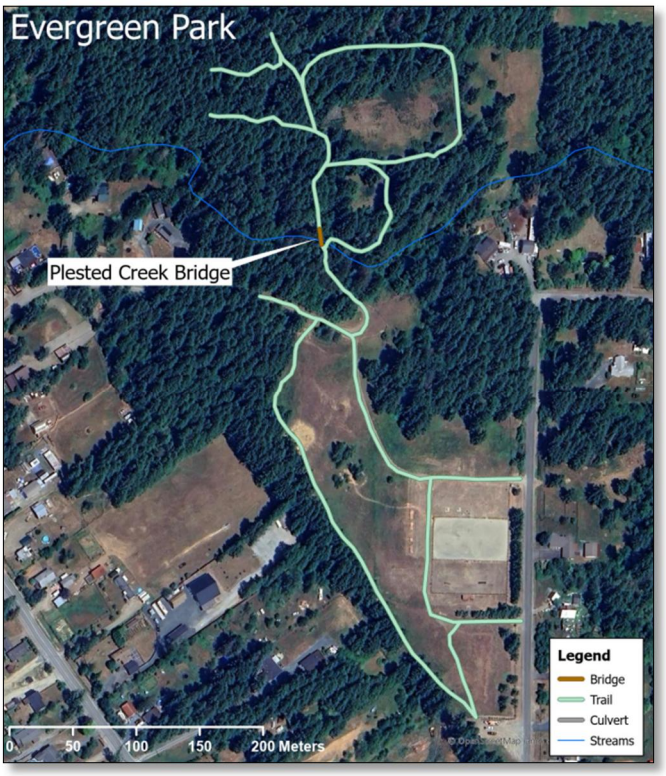


Figure 1: Evergreen Park Map

1.6 Rating Scale and Risk Rating

The following is an explanation of the assessment rating scale used in Sections 2 through 5 as it relates to the estimated time before the next required repair of a specific item.

Very Good (VG)	-	Element is in serviceable condition with no notable deterioration. No repairs are required.
Good (G)	-	Element has minor amounts of superficial deterioration with no noted overstressing or structural damage.
Fair (F)	-	Element has moderate amounts of damage which may increase rates of deterioration long term. No noted overstressing is observed. Repairs to prolong service life may be applicable.
Poor (P)	-	Element has significant amounts of damage or deterioration. No overstressing is observed. The element is nearing the end of its service life.
Very Poor (VP)	-	Element is no longer in serviceable condition with significant amounts of damage or loss of structural capacity. Immediate repair or replacement is likely required.

For timber elements exposed to moisture such as the deck boards on the bridge, the

assessment rating scale corresponds to an estimated remaining service life as follows:

Very Good (VG)	-	10 years
Good (G)	-	6 to 10 years
Fair (F)	-	3 to 6 years.
Poor (P)	-	1 to 3 years
Very Poor (VP)	-	0 years

The assessment rating scale correlates to the risk rating based on the structural consequences associated with element deterioration and/or failure. The consequence rating scale is as follows:

Negligible (N)	-	Element failure has no effect on structural capacity, nor usage/performance (e.g.: coating failures)
Minor (M)	-	Element failure results in no effect on structural capacity and has a minor effect on usage/performance (e.g.: damage to guarding, signage etc.)
Moderate (Mod)	-	Element failure leads to local failure only. This can impact usage (e.g.: settlement of abutments, listing of the structure, loose decking)
Significant (S)	-	Element failure probably does not lead to total collapse due to continuity and/or multiple load paths. Other main structural members in the system may become overloaded due to the failure. This includes main load carrying members (e.g.: girder in a multi-girder system)
Collapse (C)	-	Element failure leads to total collapse of the structure. This includes failure of main members with no benefit from continuity or multiple-load paths (e.g.: simply supported girder in a two-girder system)

The assessment and consequence rating scales are combined to create a risk rating matrix as follows:

		Assessment Rating				
		VG	G	F	P	VP
Consequence Rating	N	1	2	3	4	5
	M	2	4	6	8	10
	Mod	3	6	9	12	15
	S	4	8	12	16	20
	C	5	10	15	20	25

Refer to Appendix B for damage table risk rating for individual items.

2.0 DESCRIPTION AND GEOMETRY

The bridge is a single span structure comprised of an aluminum truss span with timber decking. The bridge is supported by concrete abutments on either side of the stream channel. The banks are armored with large diameter rock.

The component sizes are as follows:

Timber Decking	-	76mm x 150mm
Aluminum Truss:		

Top Chord	-	HSS 102mm x 102mm
Bottom Chord	-	HSS 102mm x 102mm
End Verticals	-	HSS 102mm x 102mm
Intermediate Verticals	-	HSS 52mm x 52mm
Diagonals	-	HSS 76mm x 76mm
Rails	-	Plate 102mm x 6mm

3.0 ASSESSMENT RESULTS

The bridge is in good serviceable condition. The aluminum truss spans, decking and abutments appear to be relatively new construction. The soffit elevation is well above the water level elevation and the abutments are armored by rock to mitigate scour. The bridge handrails are an acceptable height for equestrian use.

Minor deficiencies are in some of the aluminum truss welded connections as follows:

- Intermediate verticals not sufficiently welded to diagonals
- Minor cracking and imperfections in welded connections
- Decking is slippery with moisture
- Some vegetation and debris noted along the edges of the truss and on the deck boards

Plan bracing was observed between the truss bays. This bracing provides resistance to lateral loads such as wind or seismic demands to the structure.

4.0 RECOMMENDATIONS

Based on the overall condition, the following remedial items are recommended:

- Repair welded connections at diagonal elements,
- Ongoing monitoring of damages in welds,
- Clean structure of debris.

It was noted that ATV and other recreational vehicles are using the park area and could potentially access the structure. This bridge is a good candidate for load rating, inclusive or pedestrian loading, to ensure the structure is adequate to accommodate these types of design loads.

The bridge has elements for lateral resistance (plan bracing), and the abutments appear to be well constructed. The lateral resisting systems are typical for a structure of this form and function. The bridge is not intended as a lifeline bridge and therefore does not require further seismic evaluation. In a significant seismic event, the abutments may shift; however, this is a common, and generally accepted, risk for this type of structure.

5.0 RESIDUAL LIFE ESTIMATES

The residual life estimates are based on the rating scale defined in Section 1.6 above. These estimates represent the worst-case members inspected in any member group. For this reason, the overall condition of the member group is not necessarily reflected by the following residual life estimates.

See Appendix B to determine which members the residual life estimate applies to.

Deck Boards	6-10 years (based on the overall condition of the elements)

The aluminum truss elements are outside the scope of the residual life estimates as defined by the reference material in Section 1.3. However, the truss spans appear to be a new installation, and despite some minor repairs to the existing welded connections, the overall estimated residual life is likely between 25 and 35 years with regular assessment and maintenance.

The abutments appear to be and are well armored from scour during higher water levels. Based on the overall condition and construction of the abutments, the remaining service life is between 25 and 35 years with regular assessment and maintenance.

6.0 COST ESTIMATES

The repairs noted in this report are estimated to Class D standard, in 2025 Canadian dollars. They are based on historical data, current industry rates, as well as our experience with projects of this nature.

The following cost estimate assumes that a construction crew has mobilized one time for general maintenance and repairs. It is to be noted that construction costs fluctuate significantly in the current economic climate. It is recommended that if repairs are delayed more than six months, a revised estimate be generated.

Table 6.1 Cost Estimate for Recommended Repairs

ITEM	LOCATION	RECOMMENDATION	COST ($)
Mobilization/Demobilization			$2,000.00
Welded Connections	At base of intermediate verticals	Provide continuous welded connection at base of intermediate verticals	$1,500.00
Bridge Deck	General	Clean off debris	$300.00

Subtotal ($)	$3,800.00
Contingency (20%)	$760.00
TOTAL ($)	$4,560.00

Table 6.2 Cost Estimate for Full Replacement
(NOTE: l.s. = lump sum, l.m. = lineal meter, m^2 = square meter)

ITEM	SIZE	UNITS	QUANTITY	UNIT RATE	COST ($)
Mobilization/Demobilization					$20,000.00
Deck Boards	76mm x 150mm	l.m.	122	$150	$18,300.00
Aluminum Truss	1.75m x 12.192m	l.m.	12.192m	$150	$40,000.00
CIP Concrete Abutments	Varies	each	1	$200	$10,000.00

Subtotal ($)	$88,300.00
Contingency (20%)	$17,660.00
TOTAL ($)	$105,960.00

Appendix A
Site Photographs

#7 1920 Lyche Road, Ucluelet BC, V0R 3A0
mail@heroldengineering.com

Photograph 1: Evergreen Park Bridge, note: general arrangement looking north

Photograph 2: Aluminum Elements, note: structural aluminum grade 6061-T6

Photograph 3: Vertical Truss Element, note: incomplete weld at bottom connection

Photograph 4: Aluminum plate rails and vertical top connection, note: imperfections in welds

Photograph 5: Bridge abutment, note: general arrangement

Photograph 6: Bridge bottom chord, note: accumulation of debris

Photograph 7: Bridge decking, note: expected moisture

Photograph 8: Bridge plan bracing, note: presence of lateral support

Appendix B
Damage Table

#7 1920 Lyche Road, Ucluelet BC, V0R 3A0
mail@heroldengineering.com

Table B1 Damage Table
**Note: all locations measured from zero datum at entry to the bridge*

ITEM	LOCATION	DAMAGE	CONDITION	COMMENTS	RECOMMENDATION	RISK	REMEDIAL YEAR
General							
Welded Connections	At base of intermediate verticals	-	Fair to Poor	Vertical elements are not fully welded at base. This can affect the load path of the trusses	Provide continuous welded connection at base of intermediate verticals.	16	2025/2026
Bridge Deck	General	-	Good to Fair	Debris was noted along the bottom chord of trusses and deck boards.	Clean off debris.	2	varies

Appendix C
Bridge Checklist

#7 1920 Lyche Road, Ucluelet BC, V0R 3A0
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BRIDGE ASSESSMENT REPORT

BRIDGE NAME BRIDGE **LOCATION** EVERGREEN PARK

LENGTH 12.192m **ROADWAY WIDTH** 1.55m **CLEARANCE** ±1800mm
No. SPANS 1 **SPAN TYPE** SIMPLE SPAN **MAX. SPAN** 12.192m
POSTED LOAD NONE **YEAR BUILT** 2022 **UTILITIES** NONE

ITEM	CONSTRUCTION	24												
ABUTMENTS	CIP CONCRETE	G												
DECK BOARDS	76mmx150mm TIMBER	G												
TRUSS TOP CHORD	HSS102x102 ALUMINUM	G												
TRUSS BOTTOM CHORD	HSS102x102 ALUMINUM	G												
TRUSS END VERTICALS	HSS102x102 ALUMINUM	G												
TRUSS INT. VERTICAL	HSS52x52 ALUMINUM	F–P												
TRUSS DIAGONALS	HSS76x76 ALUMINUM	G												
WEARING SURF.	NONE	G												
STREAM CHANN.	CLEAR	G												

RATING SCALE

VERY GOOD (VG) – ELEMENT IS IN SERVICEABLE CONDITION WITH NO NOTABLE DETERIORATION. NO REPAIRS ARE REQUIRED.

GOOD (G) – ELEMENT HAS MINOR AMOUNTS OF SUPERFICIAL DETERIORATION WITH NO NOTED OVERSTRESSING OR STRUCTURAL DAMAGE.

FAIR (F) – ELEMENT HAS MODERATE AMOUNTS OF DAMAGE WHICH MAY INCREASE RATES OF DETERIORATION LONG TERM. NO NOTED OVERSTRESSING IS OBSERVED. REPAIRS TO PROLONG SERVICE LIFE MAY BE APPLICABLE.

POOR (P) – ELEMENT HAS SIGNIFICANT AMOUNTS OF DAMAGE OR DETERIORATION. HOWEVER NO OVERSTRESSING IS OBSERVED. THE ELEMENT IS NEARING THE END OF SERVICE LIFE.

VERY POOR (VP) – ELEMENT IS NO LONGER IN SERVICEABLE CONDITION WITH SIGNIFICANT DAMAGE OR LOSS OF STRUCTURAL CAPACITY. IMMEDIATE REPAIR OR REPLACEMENT IS LIKELY.

REMARKS

2024 – WELDED CONNECTIONS AT THE BASE OF THE INTERMEDIATE VERTICALS ARE NOT CONTINUOUS. THIS MAY AFFECT THE LOAD PATH OF THE TRUSS STRUCTURE.
– DEBRIS WAS NOTED ON THE BOTTOM CHORD OF THE TRUSS AND DECK BOARDS.

HEROLD
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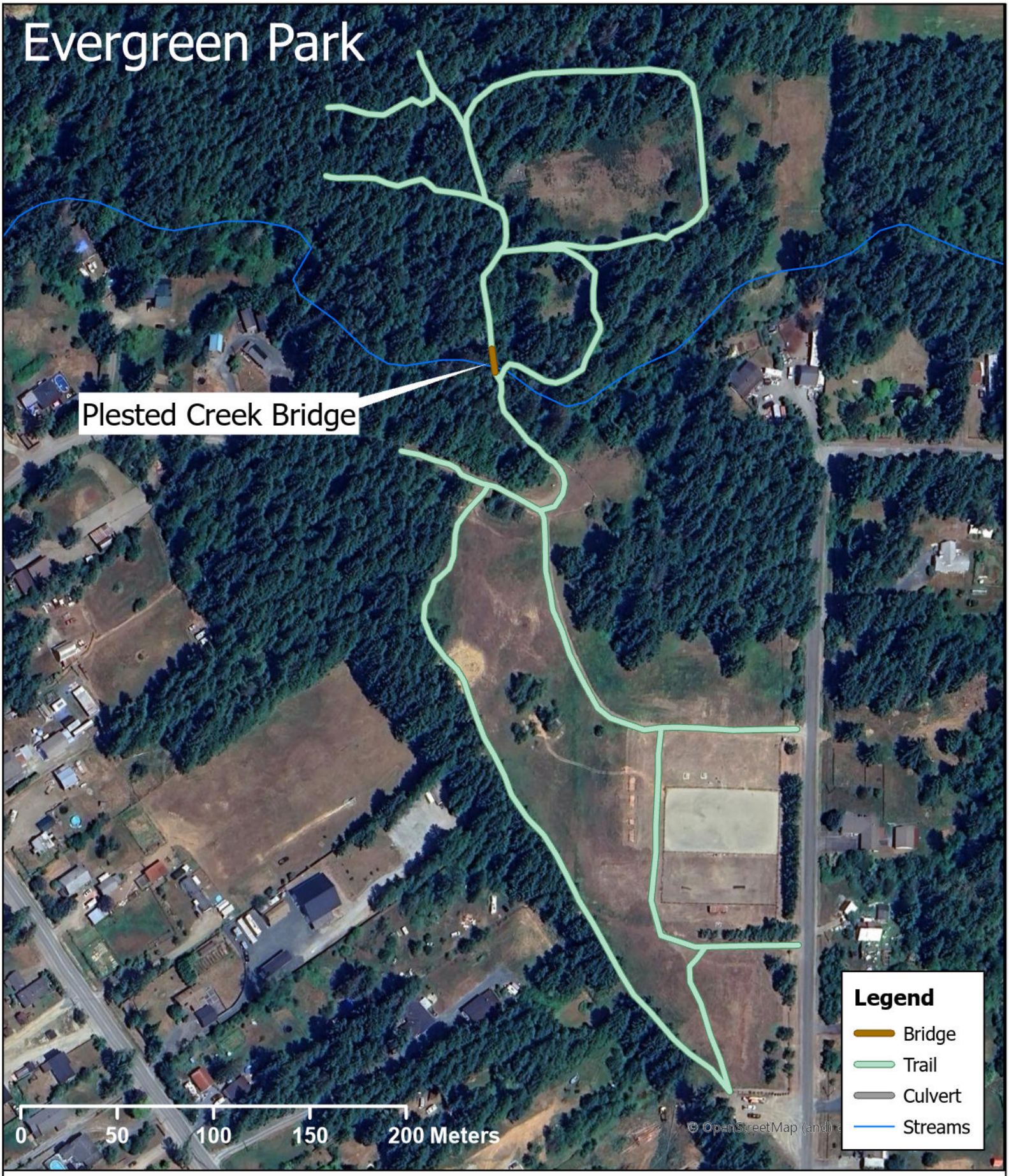
Consulting Structural Engineers

Appendix D
Aerial Map

#7 1920 Lyche Road, Ucluelet BC, V0R 3A0
mail@heroldengineering.com



LIST OF BRIDGES WITHIN EVERGREEN PARK

'Condition' & 'Risk' columns evaluate all of the bridge components and displays the worst condition value and highest risk value.

UniqueID	Name	Description	Surface	Length (m)	Width (m)	Condition	Risk
12940001	Plested Creek	Aluminum trusses, concrete abutments	Timber	12.192	1.5	Poor	16