

2023 DIKE INSPECTION CHECKLIST

Dike No. (From database*; formerly "Dike GPS No.): 277	Dike Name (From database*): Salmo River Dike
Diking Authority: Village of Salmo	Local Authority under EPA: Village of Salmo
Water Course: Erie Creek	Dike Section: Entire Dike
Date Inspected: October 25, 2023	Signed: 

* Flood Protection Works Database:

https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/integrated-flood-hazard-mgmt/dikes_listed_by_ownerauthority.pdf

A. Is the contact person information correct in the Flood Protection Database*?

Yes

No

If no, please provide details below:

Contact Person: Ange Qualizza, CAO, Village of Salmo Phone & Fax Numbers in Database are correct.

B. Are all of the information for your dike(s) correct in the Flood Protection Database*?

Yes

No

If no, please provide details below (if necessary, attached database sheets with mark-up):

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C. Has the person inspecting the dike reviewed the "Flood Protection Works Inspection Guide", or is familiar with its contents?

Yes

No

If not, please refer to "Flood Protection Works Inspection Guide" (2000) for a detailed guide to dike inspection and reporting:

http://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/integrated-flood-hazard-mgmt/fld_prot_insp_gd.pdf

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D. Has the dike crest elevation been surveyed within the last 10 years?

Yes

No

If yes, when was the last survey (year)? _____

It is highly recommend that the Diking Authority survey the dike crest at least once every 10 years, to identify potential dike settlement and/or low spots that are not easily identified by visual inspection

E. Was the dike notably damaged in a high flow event this year?

Yes

No

Did the dike damage result in imminent threat of flooding?

Yes

No

If yes to any of the 2 questions above, please briefly describe the damage (location and damage description)

The 2022 dike inspection report identified Location 5 (Station 0+825) as poorly armoured with local erosion. The local erosion has continued resulting in further loss of material and armouring. The dike slope is further over steepened.

Please describe the actions that were taken to address the damage. If no actions were taken yet, what is the plan?

No Action taken yet. This location will become a priority for repair in 2024 ahead of the previous inspection report priority (location 4) noted below.

This next part of the checklist is organized into 5 sections, as follows:

1. Access
2. Dike crest, slope, and fill
3. Bank and erosion protection
4. Appurtenant works
5. Vegetation management

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	YES	NO***	N/A
<ul style="list-style-type: none"> • Settlement, slumping, sink holes (dike fill and/or slope) 	√		
<p>Location(s): Loc. 1 – STA 0+230 Loc. 3 – STA 0+470</p> <p>Summary of Issues: Loc. 1 – Localized settlement of dike crest Loc. 3 – Localized settlement (low point) behind 1003 – 1005 Ninth St</p> <p>Maintenance Recommendations: Dike crest should be surveyed to confirm elevations meet flood design level. Restore dike elevation where required as per Rip Rap Design and Construction Guidelines, BC Ministry of Environment, Lands, and Parks, March 2000. During periods of anticipated high water support sandbagging efforts as required</p> <p>When will Recommendations be Completed: Unknown</p>			
<ul style="list-style-type: none"> • Slope instability (slides, sloughs, toe or slope bulges) 	√		
<p>Location(s): Loc. 4 – STA 0+690</p> <p>Summary of Issues: (5) Lock Blocks have slumped and are partially exposed at the crest of the dike and the dike wall is over steep (approximately ¾H:1V slope) at this location.</p> <p>Maintenance Recommendations: The lock blocks should be excavated to locations east and west of the exposed blocks. The alignment of the lock blocks should be reset to the center of the top of the dike and the slope restored to a 2H:1V slope along with installation of geotextile and additional rip rap.</p> <p>When will Recommendations be Completed: This work should be prioritized for the construction season of 2023, budget allowing.</p>			

** When referring specific locations, please use either:

- Major landmarks (roads, intersections, bridges, etc.), DO NOT use local property names
- GPS coordinates (where possible)
- Chainages from the O&M manual drawings

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<ul style="list-style-type: none"> • Seepage, piping, boils 	YES	NO***	N/A
		√	
Location(s): Summary of Issues: No deficiencies observed during field visit Maintenance Recommendations: When will Recommendations be Completed:			
<ul style="list-style-type: none"> • Animal Damage (rodents/beavers, animal burrows, cattle...etc., on crest and/or slope) 	YES	NO***	N/A
		√	
Location(s): Summary of Issues: No deficiencies observed during field visit Maintenance Recommendations: When will Recommendations be Completed:			
<ul style="list-style-type: none"> • Significant flood levels, loss of freeboard (overtopping or flood reaching within 0.6 m below the crest in the last 12 months) 	YES	NO***	N/A
		√	
Location(s): Summary of Issues: No deficiencies observed during field visit Maintenance Recommendations: When will Recommendations be Completed:			

√ Attached photos or sketch with corresponding reference in the checklist (e.g., photo 1...etc) for deficiencies observed– Section 2

3. BANK/EROSION PROTECTION

Any serious issues observed of the following?

	YES	NO***	N/A
<ul style="list-style-type: none"> • Bank Protection loss or displacement (steep slopes, beaching, scarping, weathering) 	√		
Location(s): Loc. 2 – STA 0+410 Loc. 5 - STA 0+825 Loc. 7 – STA 0+950 – STA 1+165 Summary of Issues: Location 2 is poorly armoured, over steep and shows signs of localized erosion. Locations 5 is poorly armoured and shows signs of localized erosion. Erosion notably increased since 2022 inspection report. Location 14 is a length of the dike that has not been properly armoured.			

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Maintenance Recommendations: Location 2 should be monitored and prioritized for repair during the next 1-3 year window of dike maintenance.

Location 5 should be prioritized for repair during the next 1 year window of dike maintenance.

Location 7 should be monitored during periods of high water.

When will Recommendations be Completed: Ongoing

	YES	NO***	N/A
<ul style="list-style-type: none"> • Erosion (toe scour, bed degradation, outflanking) 	√		

Location(s): Loc. 2 – STA 0+410
 Loc. 5 – STA 0+825
 Loc. 6 – STA 0+850

Summary of Issues: Location 2 is poorly armoured, over steep and shows signs of localized erosion.
 Locations 5 is poorly armoured and shows signs of localized erosion.
 Location 6 shows localized scour beneath concrete apron near highway overpass bridge.

Maintenance Recommendations: Location 2 should be monitored and prioritized for repair during the next 1-3 year window of dike maintenance.
 Location 5 should be monitored and prioritized for repair during the next 1 year window of dike maintenance.
 Location 6 should be monitored. Scour does not appear to have increased over 2022 inspection period.

When will Recommendations be Completed: Ongoing with location 5 prioritized for 2024 pending budget provisions.

	YES	NO***	N/A
<ul style="list-style-type: none"> • Changing Channel Flow Patterns (channel infilling, gravel bars, log or ice jam) 	√		

Location(s): Loc. 8 – STA 1+200

Summary of Issues: Log jam is developing on unprotected bank.

Maintenance Recommendations: Monitor. Cut log jam to +/- 4' sections and allow freshet to clear, as required.

When will Recommendations be Completed: Ongoing

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4. APPURTENANT WORKS

	YES	NO***	N/A
<ul style="list-style-type: none"> Flood Boxes/Pump stations (inlet/outlet channels, gate operation, trash racks, debris, erosion, corrosion, structure, mechanical components) 			√
Location(s): Summary of Issues: No deficiencies observed during field visit Maintenance Recommendations: When will Recommendations be Completed:			
<ul style="list-style-type: none"> Culverts/Discharge Pipes (breaks, holes, cracks, corrosion, deterioration) 	YES	NO***	N/A
		√	
Location(s): Summary of Issues: No deficiencies observed during field visit Maintenance Recommendations: When will Recommendations be Completed:			

√ Attached photos with corresponding reference in the checklist (e.g., photo 1...etc) for deficiencies observed– Section 4

5. VEGETATION MANAGEMENT

	YES	NO***	N/A
<ul style="list-style-type: none"> Vegetation hampers or prevents access? 	√		
Location(s): Loc. 2 - STA 0+410 Loc. 3 – STA 0+470 Loc. 8 – STA 1+300 – STA 1+460 Loc. 9 – STA 1+500 – 1+650 Summary of Issues: Locations above have significant vegetation that hampers access to the dike, mostly in the form of trees and landscaping in homeowners’ backyards. Maintenance Recommendations: Trees and vegetation should be removed. When will Recommendations be Completed: Ongoing			
<ul style="list-style-type: none"> Vegetation reduces visibility to dike toe on each side? 	YES	NO***	N/A
	√		
Location(s): Loc. 2 - STA 0+410 Loc. 3 - STA 0+470 Loc. 5 - STA 0+825 Loc. 7 – STA 0+950 – STA 01+165 Loc. 8 – STA 1+300 – STA 1+460 Loc. 9 – STA 1+500 – 1+650			

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<p>Summary of Issues: Locations above have trees and vegetation that reduces visibility to either/both toe(s) of the dike.</p> <p>Maintenance Recommendations: Trees and vegetation should be removed.</p> <p>When will Recommendations be Completed: Ongoing</p>			
<ul style="list-style-type: none"> • Trees in or near dike (within 2m from toe) with potential for uprooting? 	YES	NO***	N/A
√			
<p>Location(s): Loc. 2 - STA 0+410 Loc. 3 - STA 0+470 Loc. 5 – STA 0+825 Loc. 14 – STA 0+950 – STA 01+165 Loc. 15 – STA 1+300 – STA 1+460 Loc. 16 – STA 1+500 – 1+650</p> <p>Summary of Issues: Locations above have trees within 2m from dike toe.</p> <p>Maintenance Recommendations: Trees within 2m of dike toe should be removed.</p> <p>When will Recommendations be Completed: Ongoing</p>			
<ul style="list-style-type: none"> • Annual/Multi-year vegetation management plan in place? (if yes, attach management plan to the report) 	YES	NO***	N/A
		√	
<p>If not, please discuss how one will be put into place: No formal plan in place but the Village does undertake vegetation management and removal each year. The Village has expressed the intent to create a formal Vegetation Management Plan.</p>			

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Section 1: Access – Photos



Photo 1 – Loc. 9 – Unauthorized Construction



Photo 2 – Loc. 10 – Unauthorized Construction

Section 2: Dike Crest, Slope & Fill – Photos



Photo 3 – Loc. 4 – Slumping Lock Blocks



Photo 4 – Loc. 4 – Slumping Lock Blocks

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Section 3: Bank/Erosion Protection – Photos



Photo 5 – Loc. 2 – Poorly Armoured, Localized Erosion



Photo 6 – Loc. 5 – Poorly Armoured, Localized Erosion



Photo 7 – Loc. 5 – Poorly Armoured, Localized Erosion



Photo 8 – Loc. 6 – Localized Scour/Erosion



Photo 9 – Loc. 7 – Undersized Armour



Photo 10 – Loc. 8 – Developing Log Jam

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Section 4: Vegetation Management – Photos



Photo 11 – Loc. 3 – Vegetation



Photo 12 – Loc. 3 – Vegetation



Photo 13 – Loc. 5 – Vegetation



Photo 14 – Loc. 7 – Vegetation

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Photo 15 – Loc. 9 – Vegetation



Photo 16 – Loc. 10 – Vegetation

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