

Main Canal Structure Maintenance:



Stats:

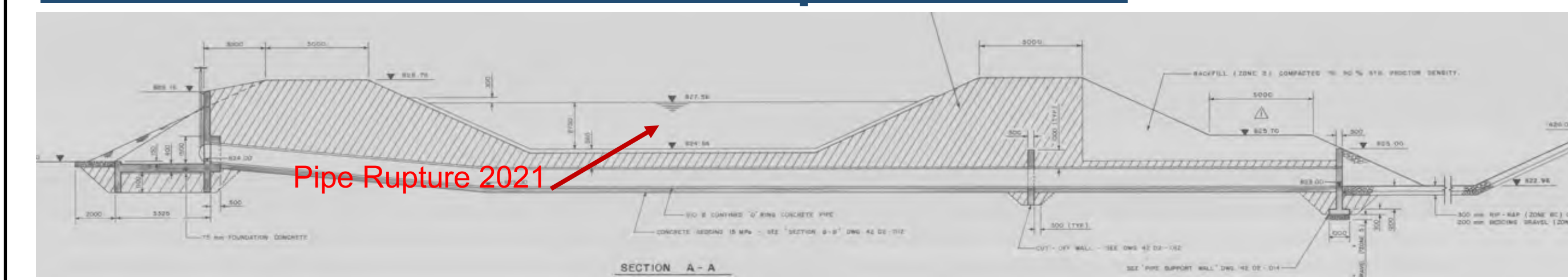
- 6 Main Canal Drop Structures
- Constructed in 1953
- Total Cost of Replacement \$21 Million (\$3.5 M each)**



Outcomes:

- Structure conditions improved from "Poor" to "Good"
- Structure Life extended by 25-30 years
- Contractor: Volker Stevin Highways Ltd.
- ~\$400,000 to \$750,000 annually to rehabilitate each structure**

Main Canal Underdrain Replacement:



Stats:

- 42" Reinforced concrete pipe cross drain installed in 1987
- Failure was noted 1 week prior to 2021 startup
- Total Cost of Replacement \$500,000**

Outcomes:

- Replaced with 42" HDPE Pipe
- Design Life 50 years
- Contractor: Dennis Dirtworx Ltd.

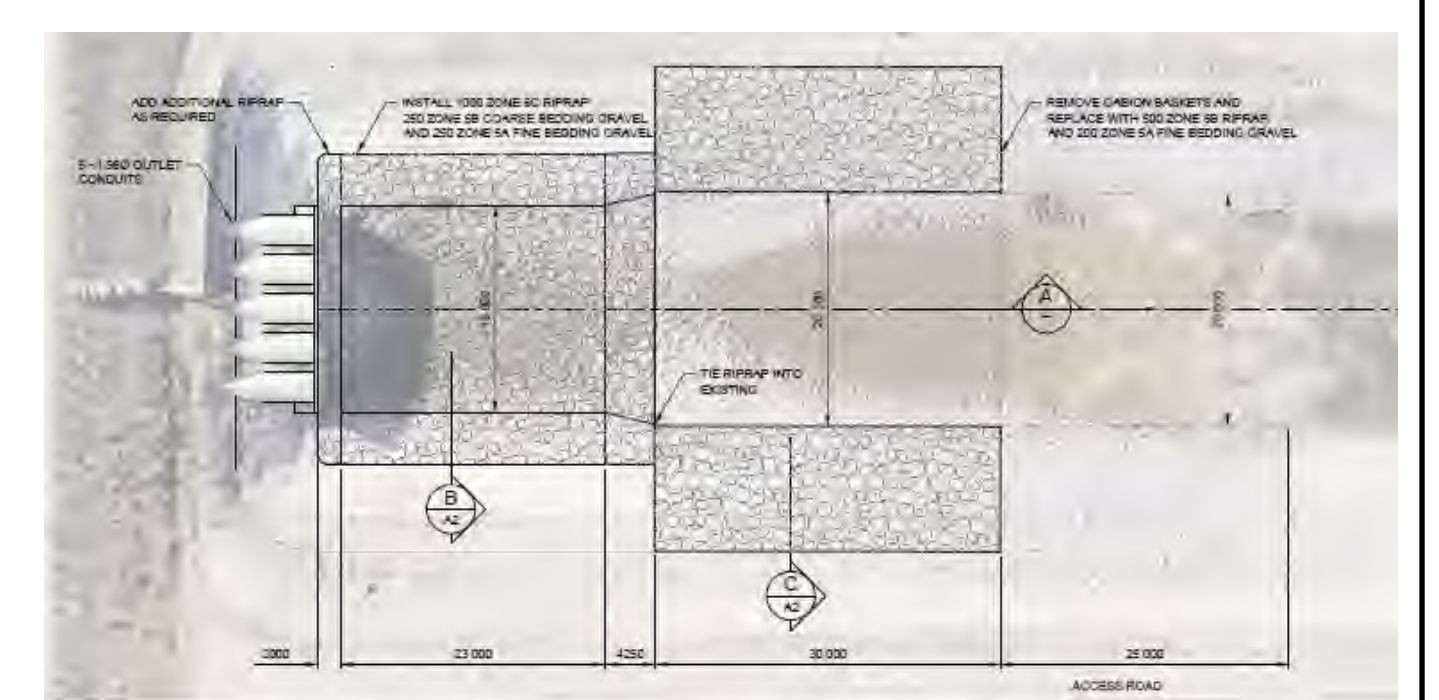


Stafford Reservoir Outlet Basin Rehabilitation:



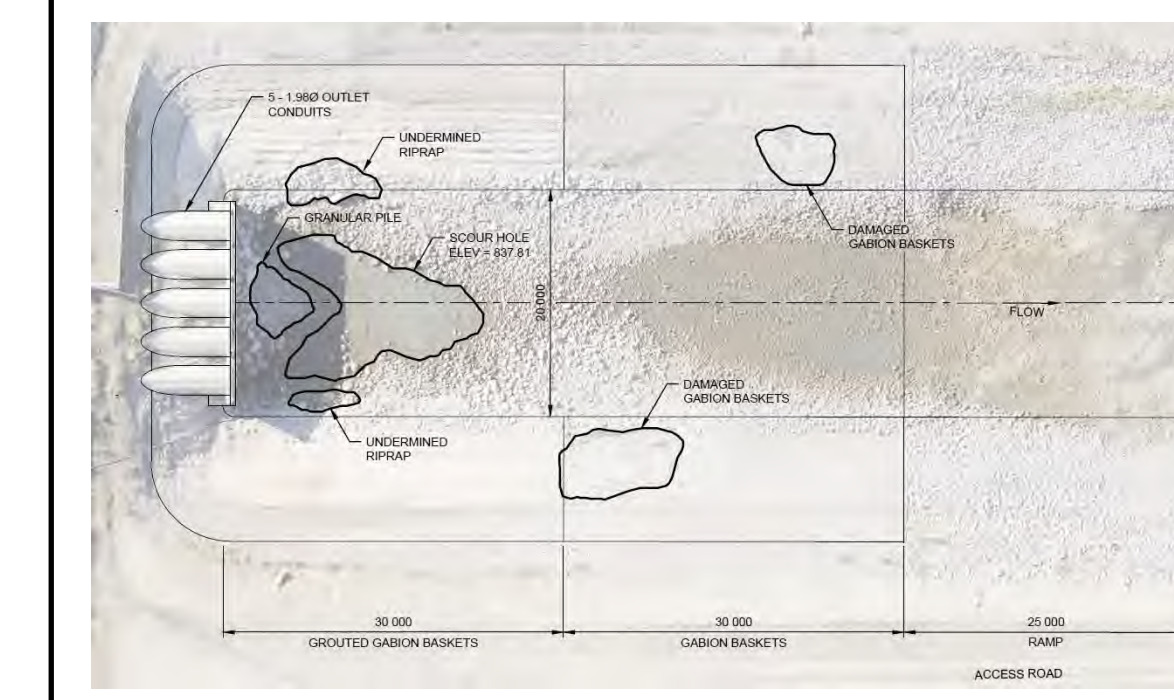
Stats:

- Riprap Basin constructed in 1986 with Stafford Reservoir Development
- Gabion Mattress riprap was selected for cost-savings
- Movement of riprap and deterioration of gabions
- Total Cost of Replacement \$400,000**



Outcomes:

- 900 mm riprap from the Crowsnest Pass hauled to site
- Design Life: 50 years
- Contractor: TBD
- Rehabilitation of outlet basin underway in 2025
- ~\$350,000**



Raymond Chute - Service Life Assessment:



Concrete Coring Program



Geotechnical Stability Analysis

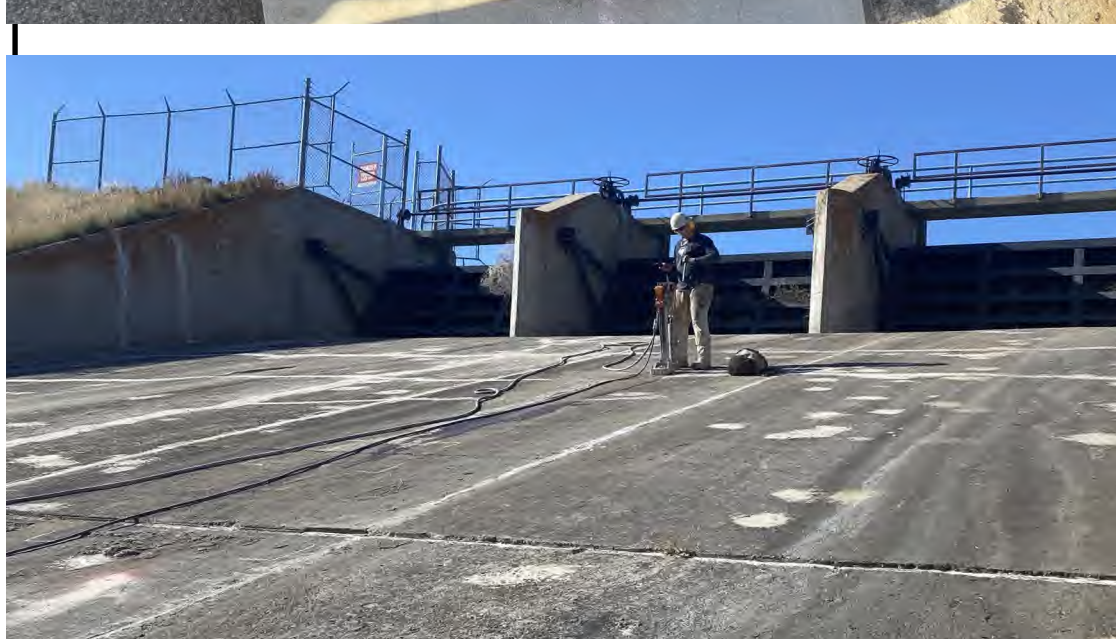
Stats:

- 1952-54 PFRA Construction
- 17 m wide x 175 m long
- Cost of Replacement: **\$18.2 - \$21.6 Million**
- Service Life Assessment Cost: **~\$190,000**

Outcomes:

- Overall "Fair" Condition
- Service Life of 15-20 years with **\$150,000** Maintenance and Monitoring Plan
- *Assumes no slope movement

Murray Chute Service Life Assessment:



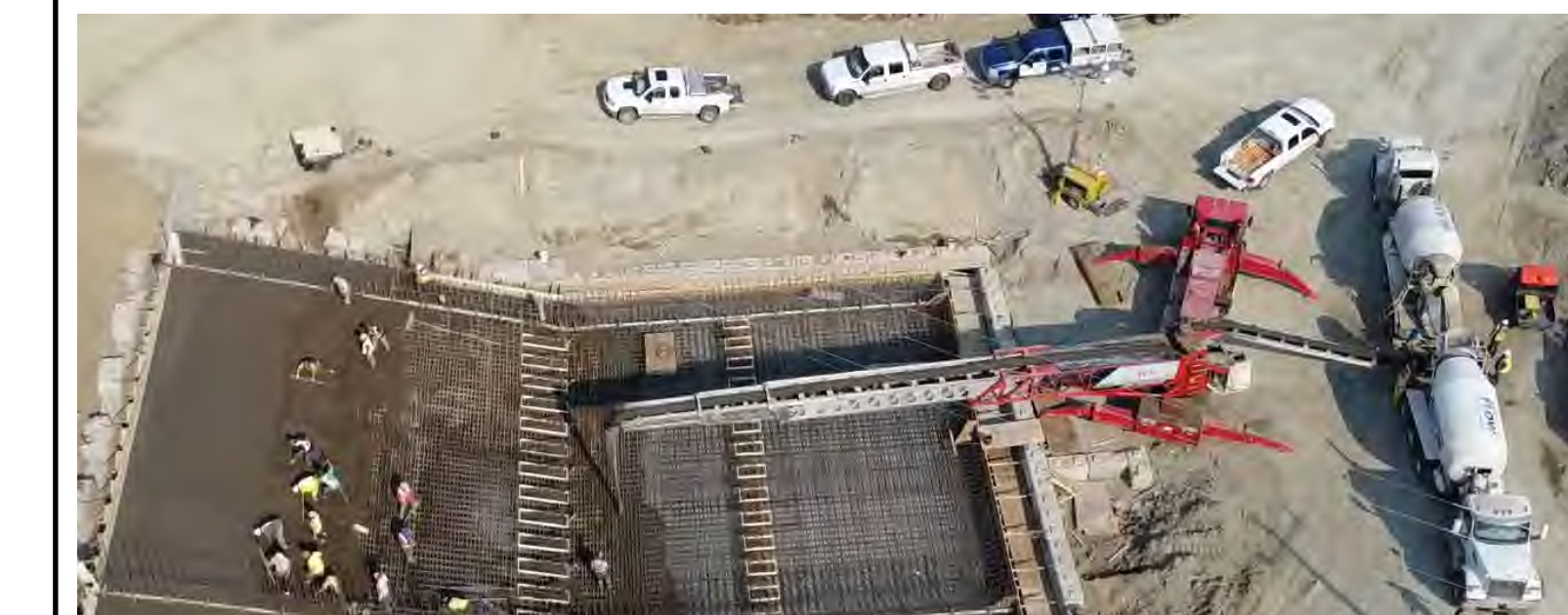
Stats:

- 1953 PFRA Construction
- 4 Bay concrete chute with a capacity of 225 m³/s
- Maintains Murray Reservoir Level during flooding
- Considered to be in "fair to poor" condition

Outcomes:

- Investigation conducted by MPE in October 2024
- To be determined
- Cost of Replacement: \$4-5 Million**

Sauder Chute Replacement :



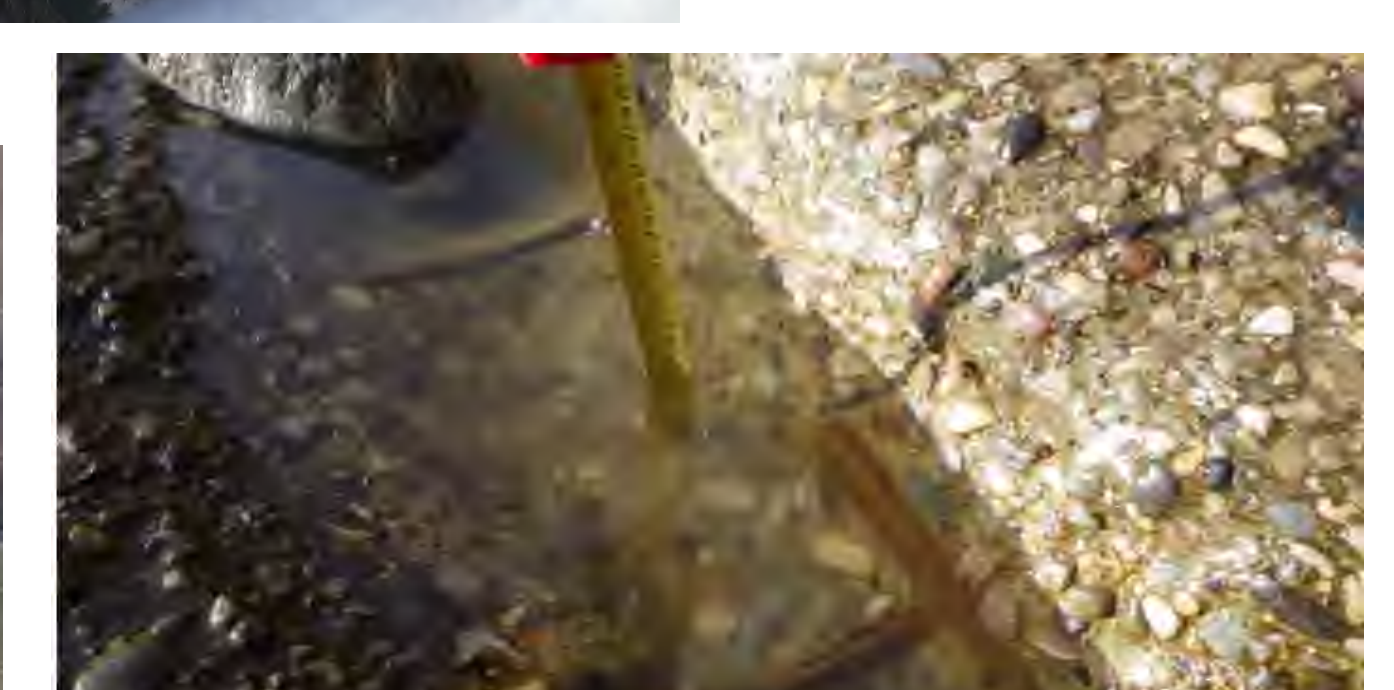
- Constructed in 2021/22 to replace the 1954 PFRA structure
- A stabilization berm was added to Sauder Dam addressing a dam stability issue
- Structure capacity increased by 2.5x to 75 m³/s
- Structure estimated Design Life: 100 years
- Total project cost: \$13 Million**



Drop 13: Drop looking upstream from left canal bank. Oct. 23, 2019



Concrete deterioration on downstream vertical edge of weir on 1955 basin slab. Oct 23, 2019



Exposed rebar caused by erosion up to 100 mm deep on basin slab downstream of weir. Oct. 23, 2019

Drop 13:

Stats:

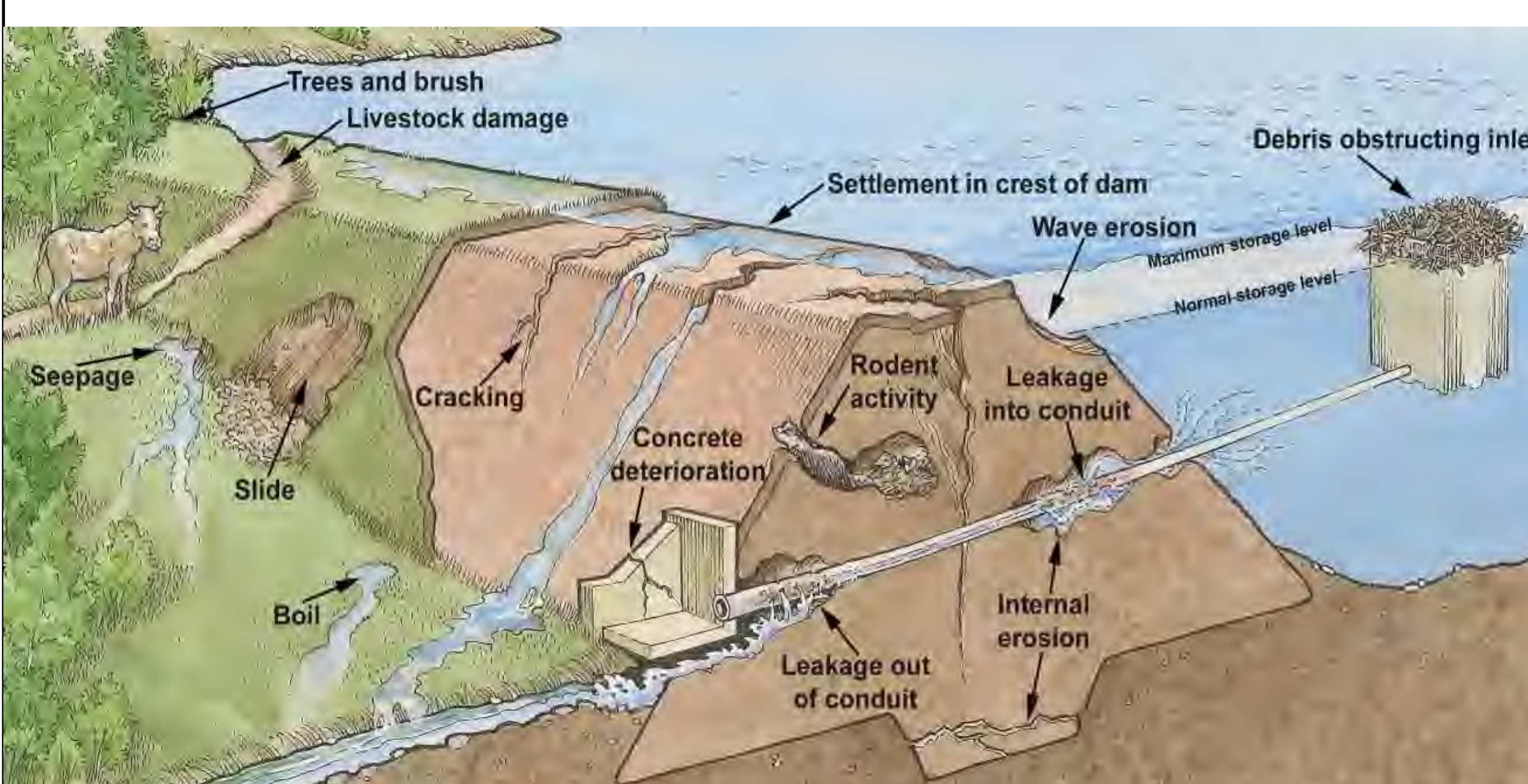
- Constructed: 1953
- Rehab: 1987
- Inspected: 2020
- Replacement cost: ~\$3 Million

Outcomes:

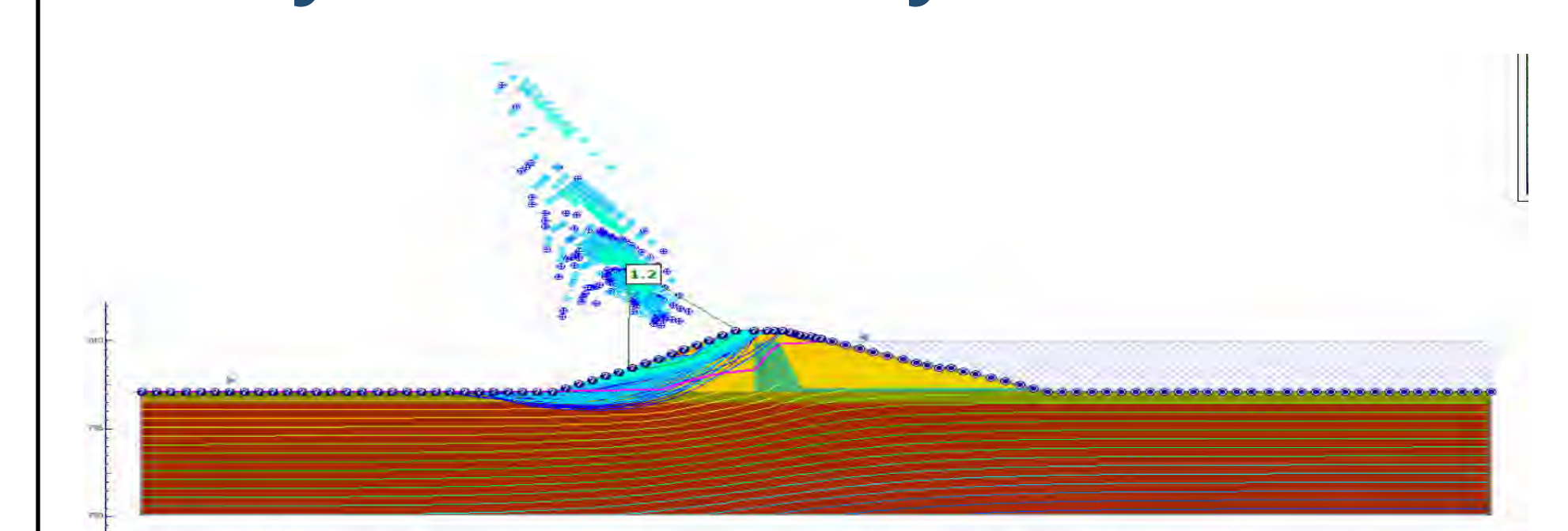
- Roughly **\$400,000 to \$600,000** of concrete maintenance required

The SMRID owns 21 earthen dams that are regulated by the Province

- Stricter regulations were introduced in 2018 to ensure improved public safety
- Improved emphasis on Emergency Preparedness and Surveillance is required of the District
- Roughly **\$500,000/year** is needed to bring the District into compliance with new directive within the next 5 years (not including construction/maintenance)



Grassy Dam Stability Assessment:



- Constructed in 1951-1952 by the PFRA without any modifications to the dam
- The 2024 Dam Safety Review identified the downstream slope has a factor of safety of 1.2; should be at minimum, 1.5
- Potentially a dam stability issue
- Drilling investigation planned for 2025 to evaluate stability of the dam ~\$150,000
- Resulting rehabilitation could range **up to \$2-3 Million**



Erosion and movement along Toe

Dirty water along Toe near Dam centre

Downstream slope: uneven surface