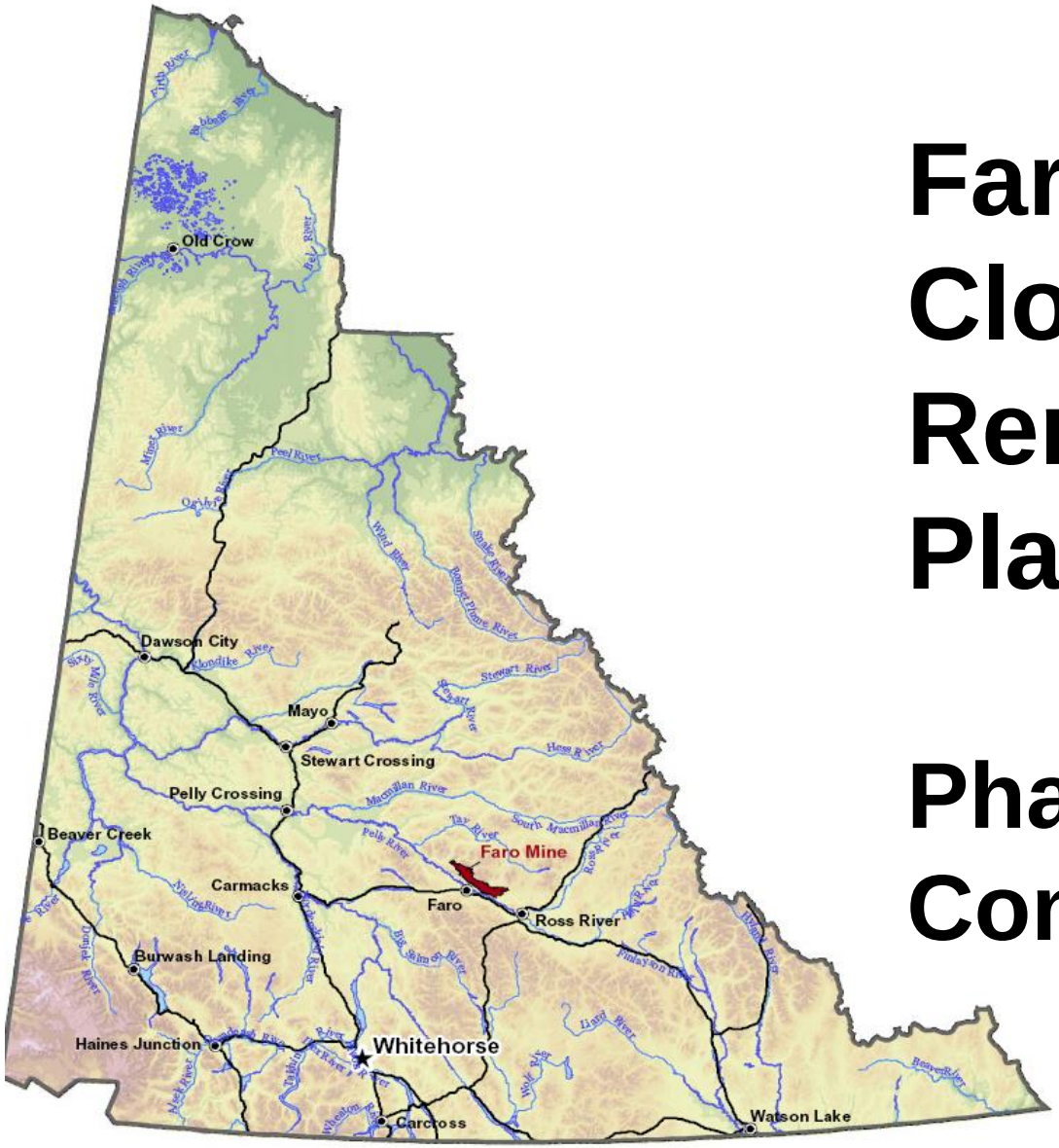

Faro Mine Closure and Remediation Planning

Phase 1 Consultation

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Progress To-Date

Completed technical studies

Prepared Example Closure Alternatives

Government, Stakeholders, and Public Consultation

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What does a closure and remediation plan need to achieve?

It needs to:

1. Protect human health and safety
2. Protect and to the extent practicable restore the environment, including land, air, water, fish and wildlife
3. Return mine site to an acceptable state of use, that reflects pre-mine land use where possible
4. Maximize local and Yukon socio-economic benefits
5. Manage long term site risk in a cost effective manner

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Consultation Overview

PHASE 1: Range of Alternatives

Information – Details - Feedback

PHASE 2: Preferred Alternative

Details - Feedback

PHASE 3: Closure & Remediation Plan

Information

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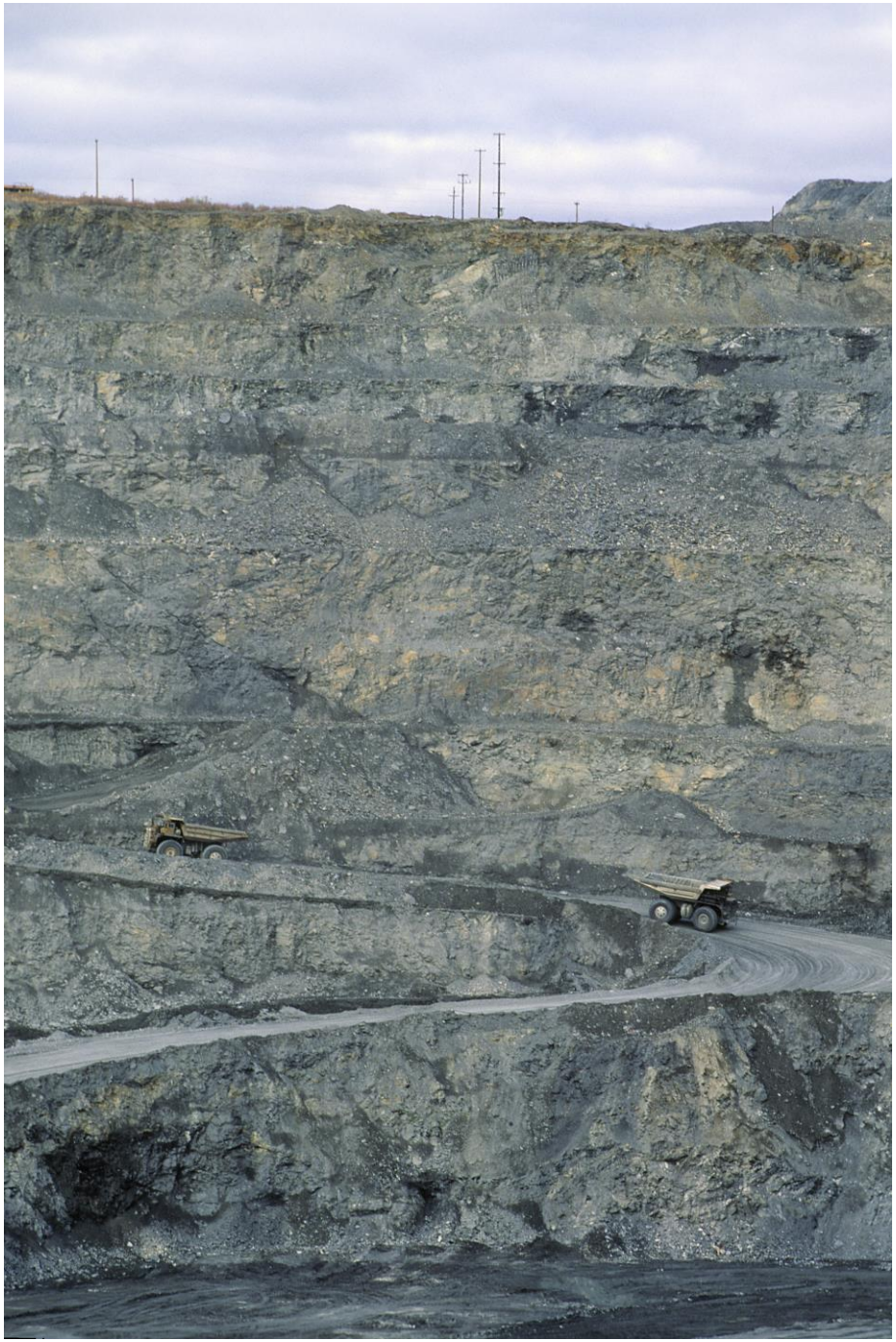

Questions or comments on the process?

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Example Alternatives for Closure & Reclamation

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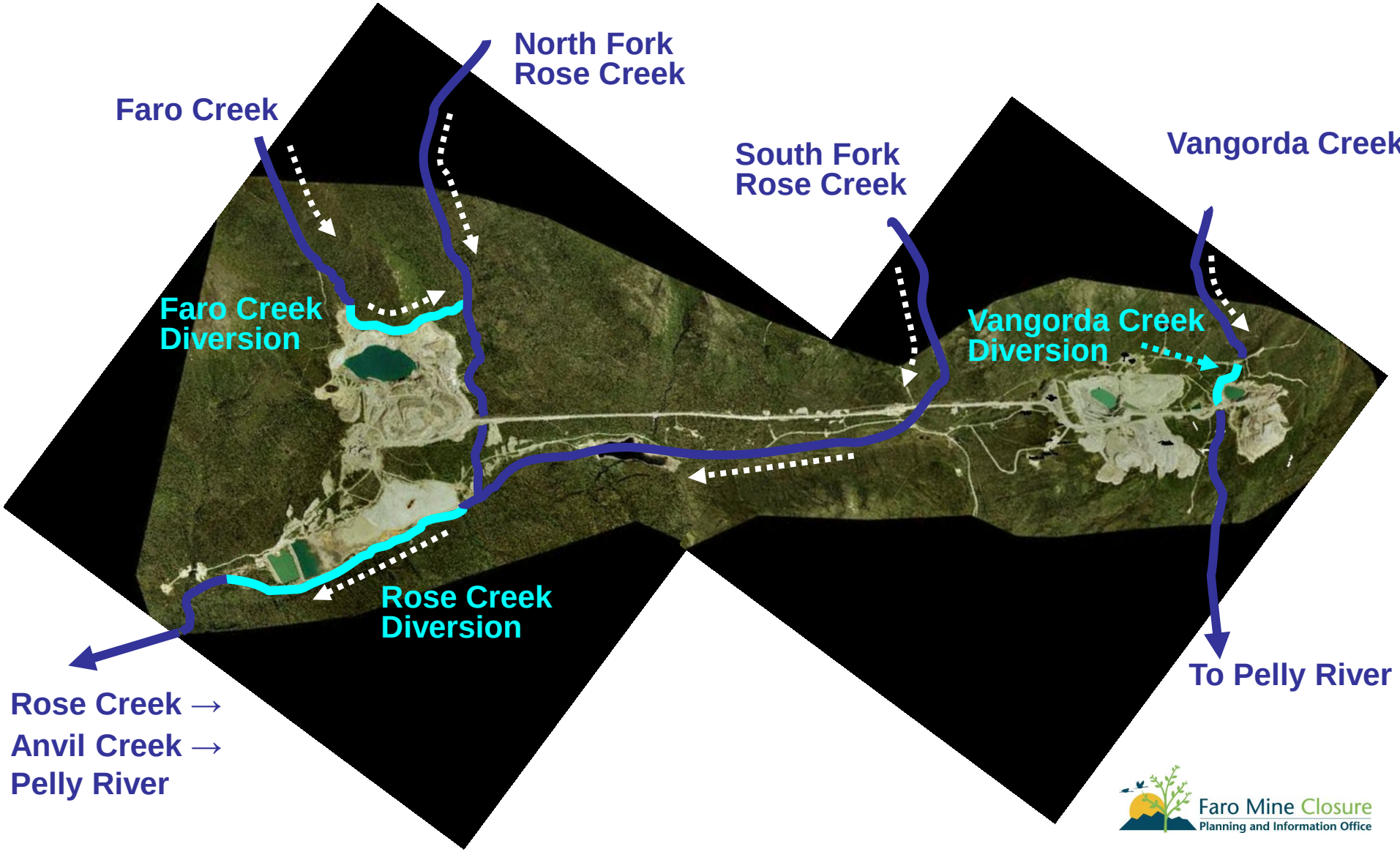
Faro Mine Complex Overview



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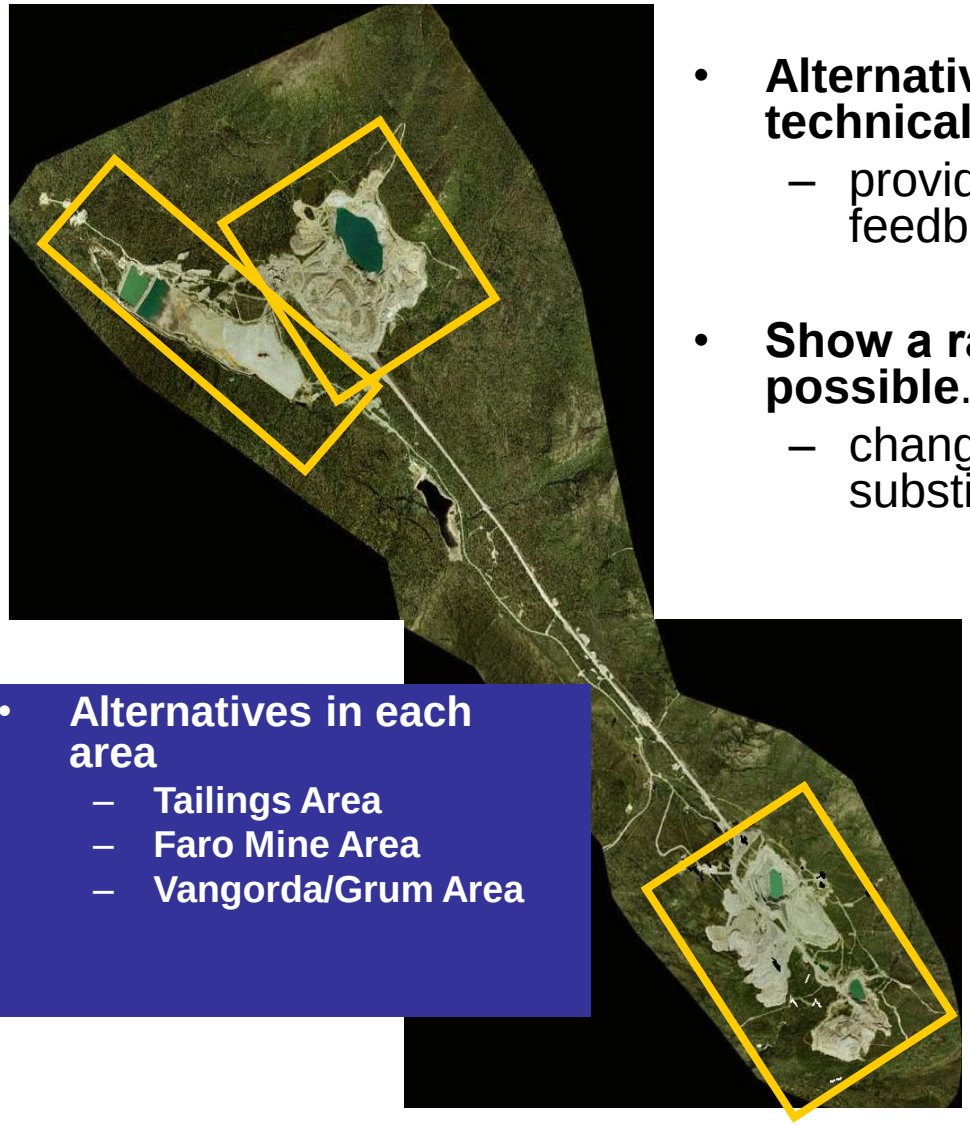
Faro Site Overview

Vangorda/Grum Site Overview

Example Alternatives



- **Alternatives created from technical studies**
  - provide focus for community feedback
- **Show a range of what's possible**.
  - changes, combinations and substitutions are still possible

- **Alternatives in each area**
  - **Tailings Area**
  - **Faro Mine Area**
  - **Vangorda/Grum Area**

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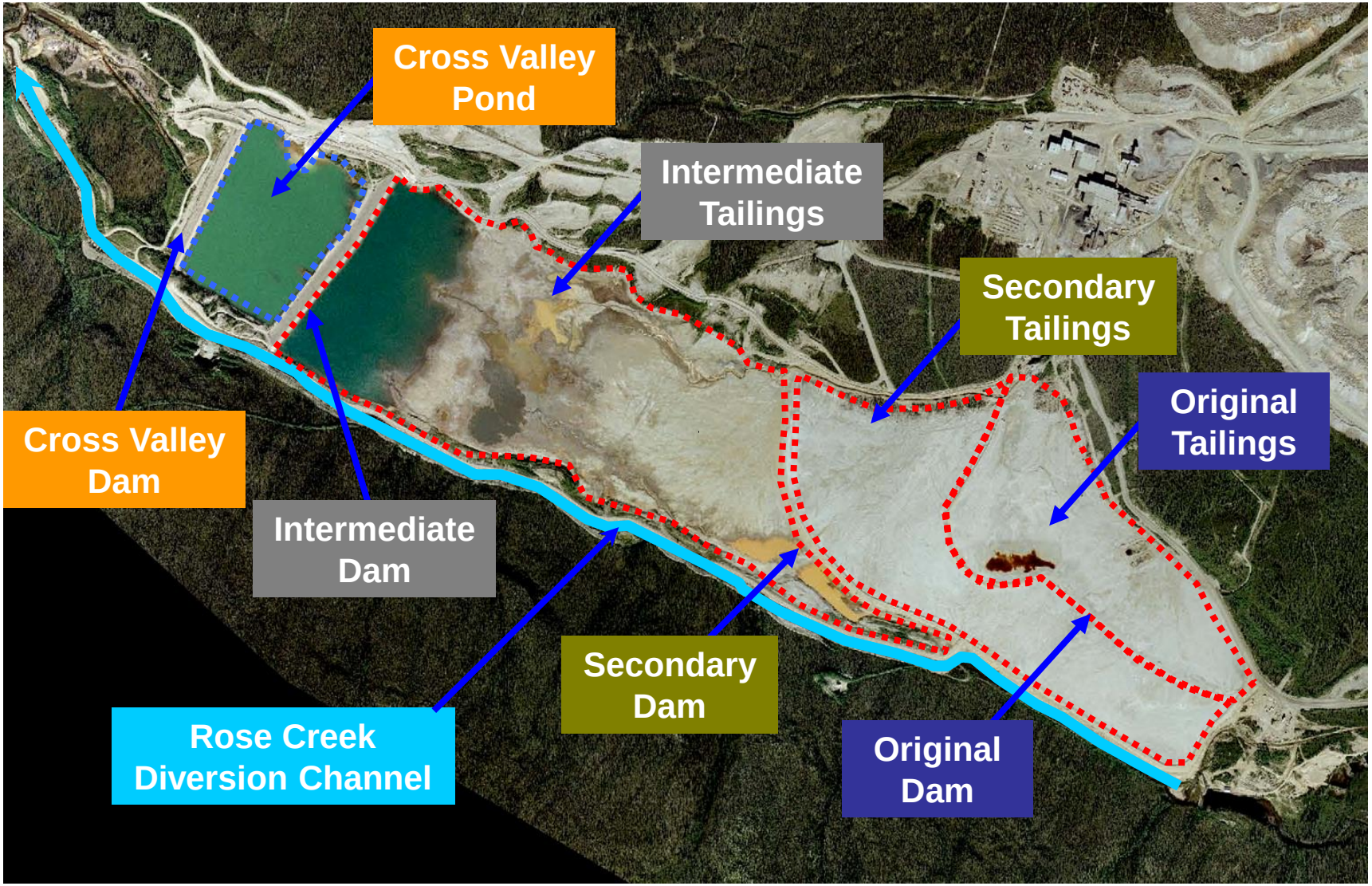
Tailings

- Ground up rock – looks like sand
- Issues:
  - Contamination of water
  - Human and animal contact
  - Floods
  - Earthquakes
  - Dust

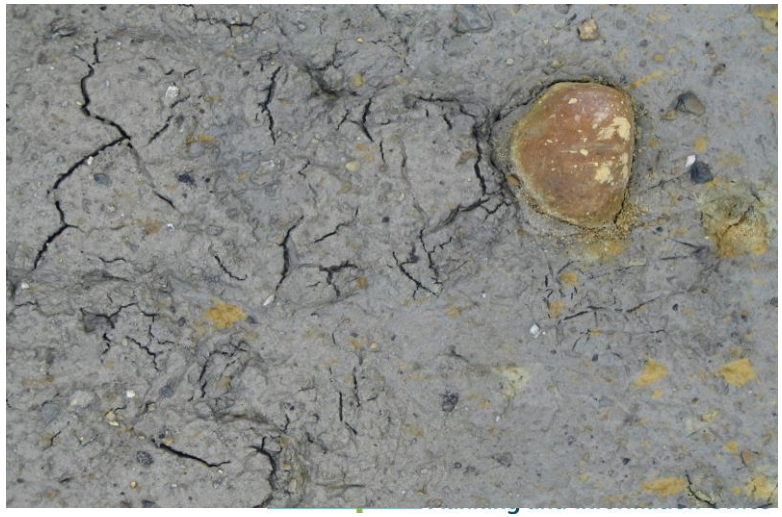
Tailings Area Components



Tailings Area Groundwater

Addressing the Tailings Issues

1. Move the Tailings
2. Leave the Tailings
3. Move Some and Leave Some.



1. Move the Tailings

- Move tailings to Faro Pit
- Clean up the valley and the water in the valley

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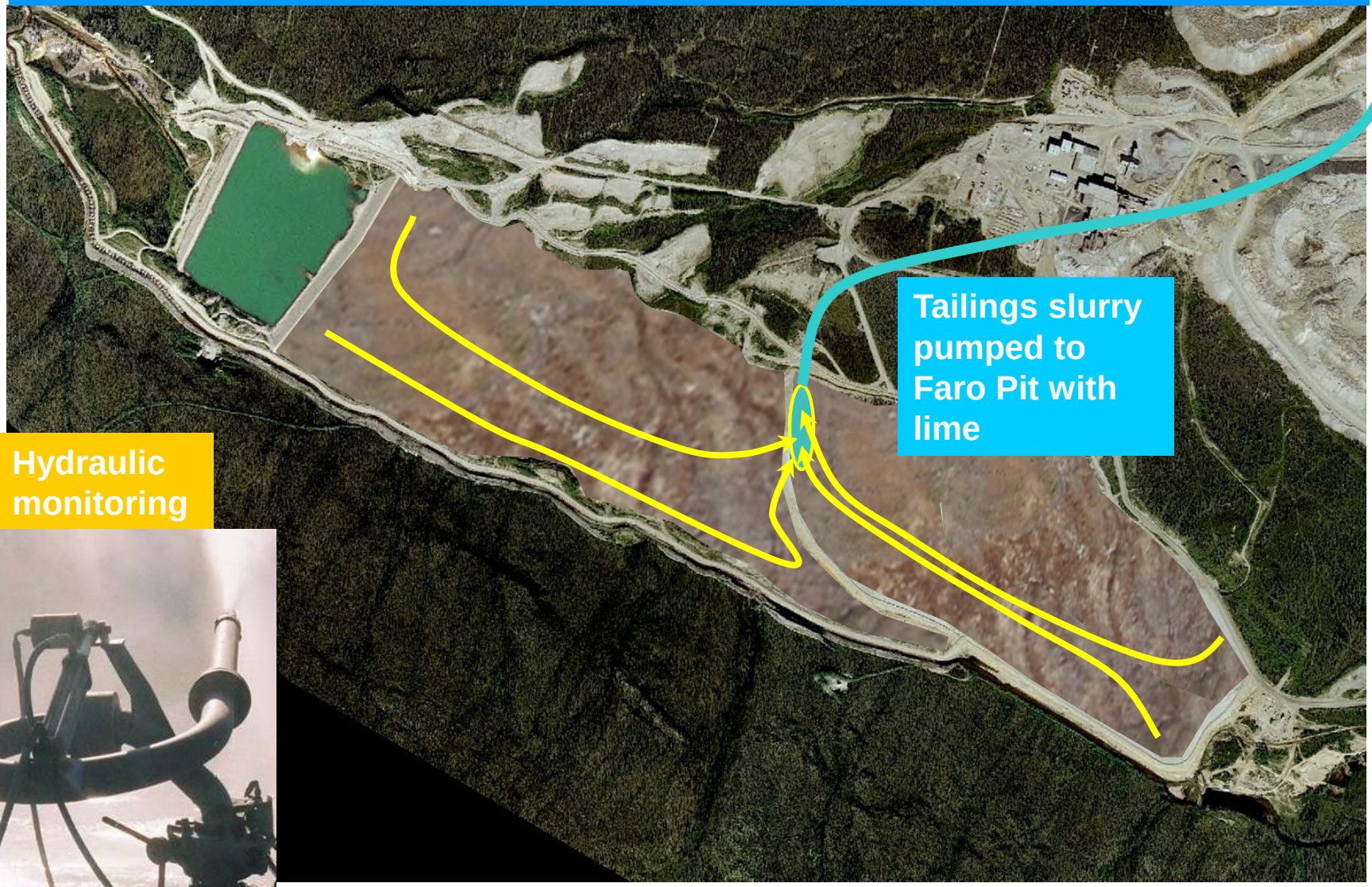
Move Tailings to Faro Pit



Hydraulic monitoring

Clean Up the Valley

1. Use trucks and excavators to clean up contaminated material left behind

2. Collect and treat water until valley is clean (10 to 20 years)

3. Cut through dams and the diversion and return Rose Creek to the valley

2. Leave Tailings in Place

- Make sure dams and diversions can handle floods and earthquakes
- Collect and treat water
- Prevent dust and human/animal contact with tailings by:
  a. Covering tailings OR
  b. Building fence around tailings and controlling dust

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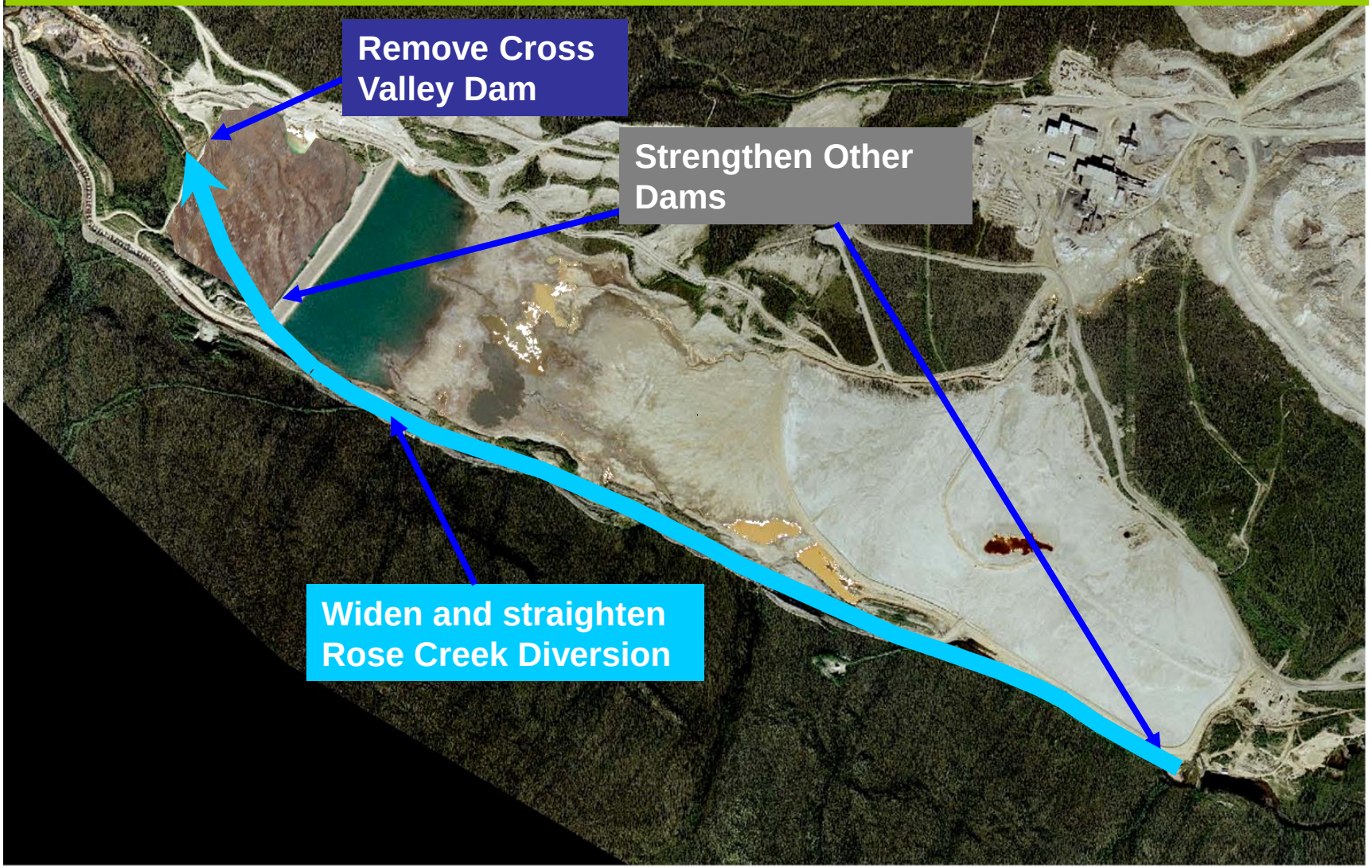
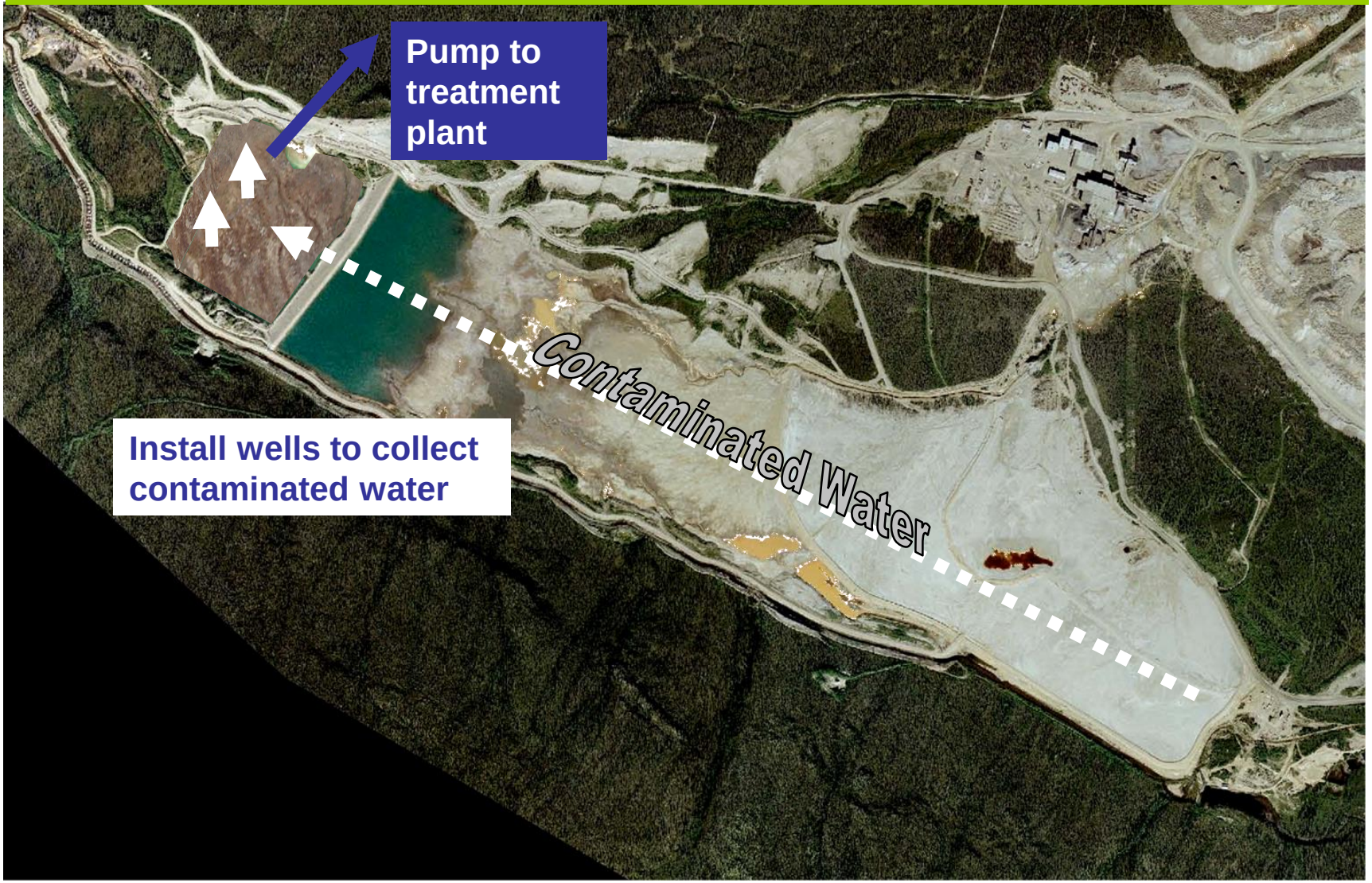
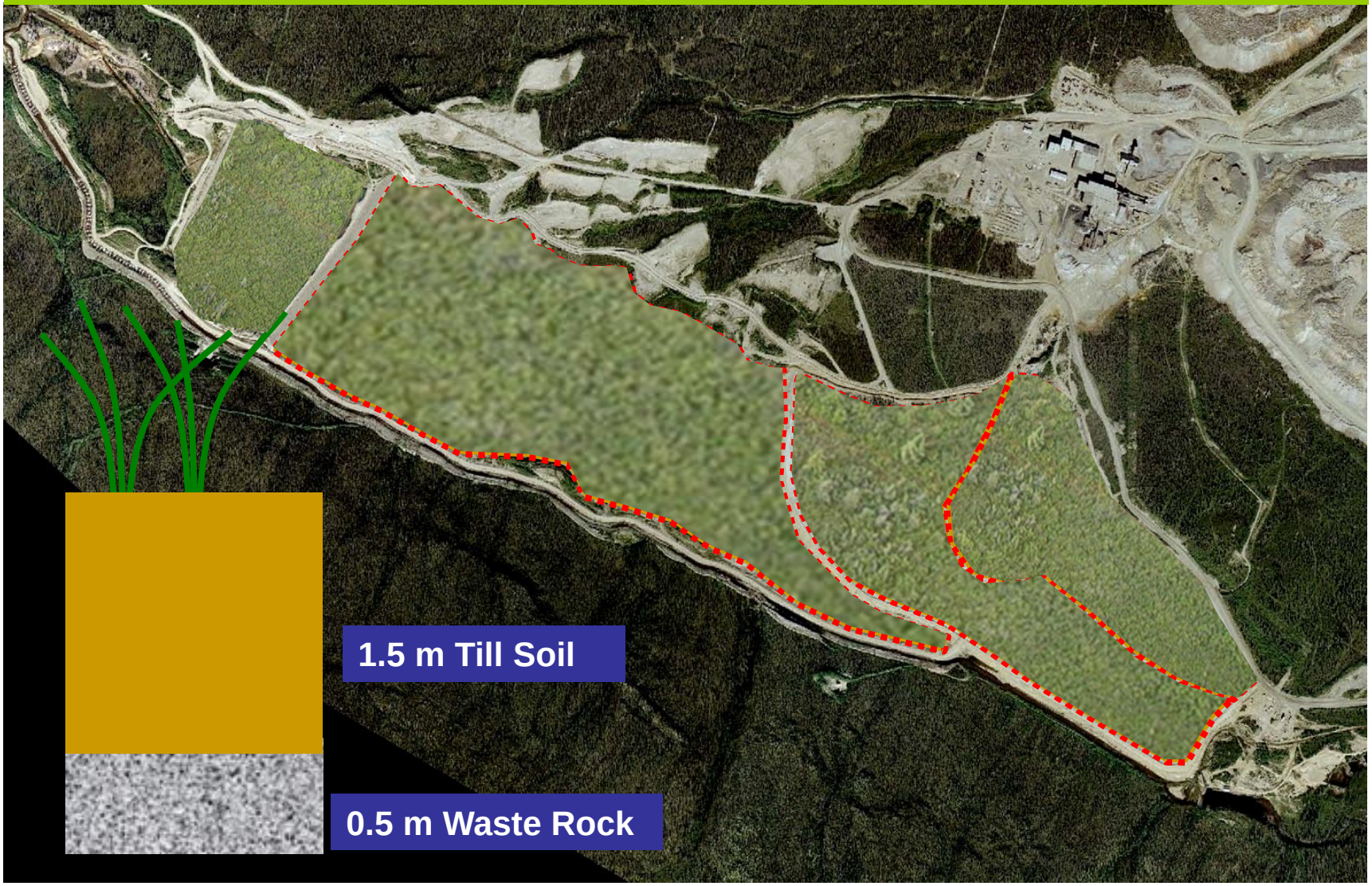
Floods and Earthquakes



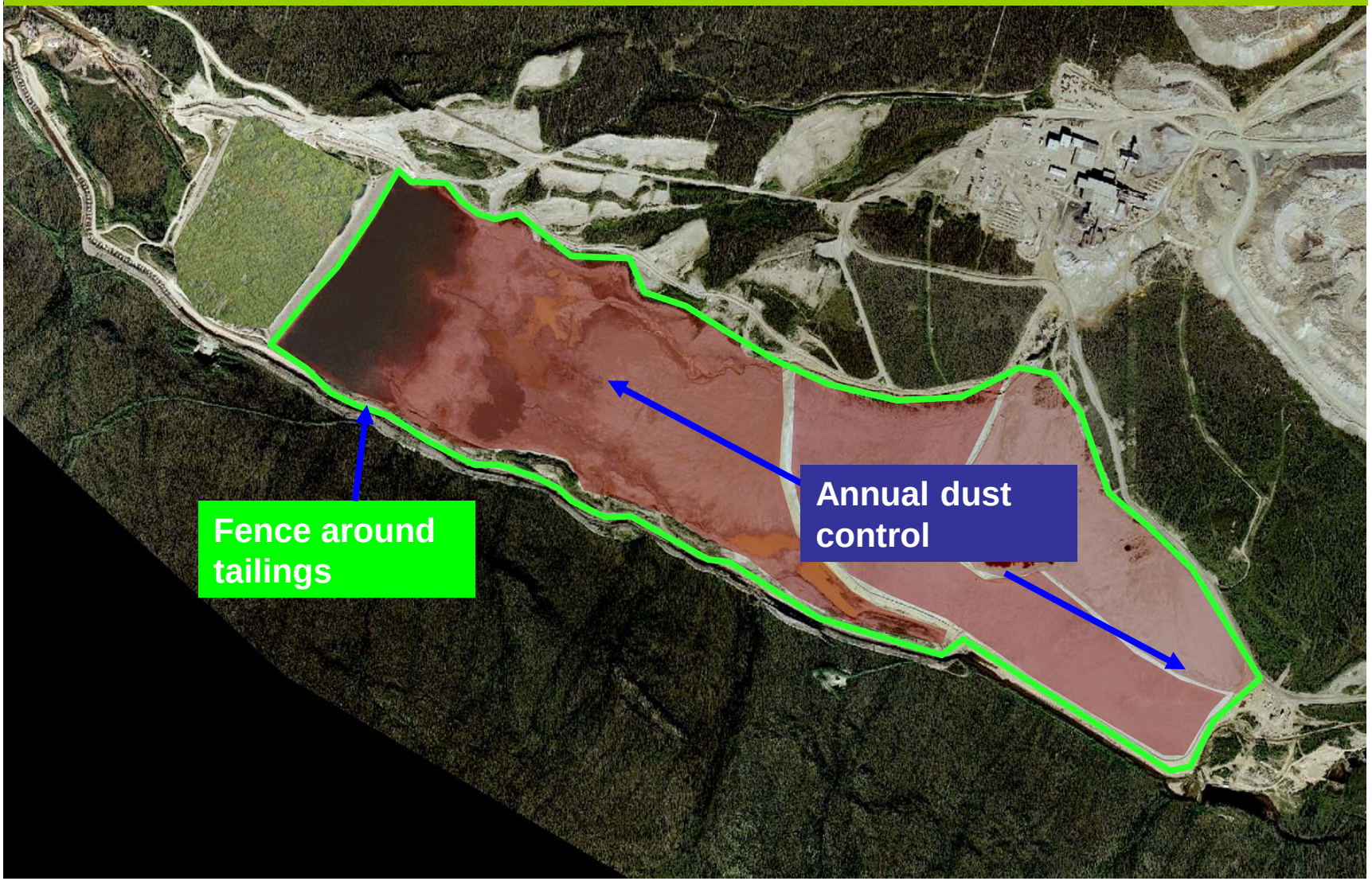
Collect and Treat Water



2a. Dust and Contact
Tailings Cover



2b. Dust and Contact
Fence and Dust Control



3. Move Some Tailings and Leave Some in Place

- **Why?**
  - Avoids most costly part of Rose Creek Diversion upgrade
- **How?**
  - Using same methods as for other alternatives – hydraulic monitoring, covers, dam and diversion upgrading, ongoing water collection and treatment.

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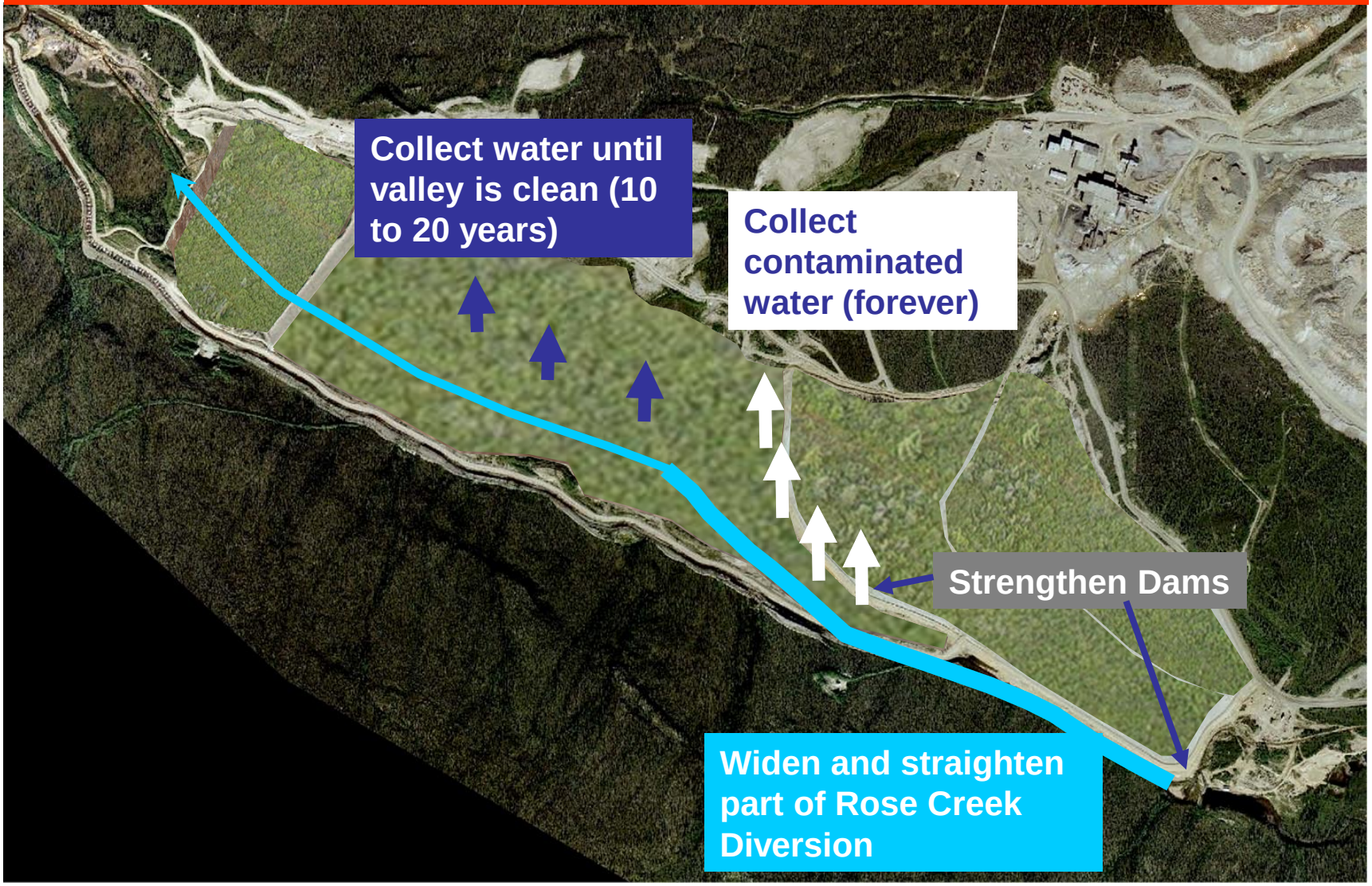
Move Some Tailings and Leave Some in Place



How do the alternatives deal with the issues?

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	Move Tailings	Leave Tailings with Cover	Leave Tailings with Fence	Combination Move/Leave
Contaminated Water	10 to 20 years collection	Collection forever	Collection forever	Collection forever

	Move Tailings	Leave Tailings with Cover	Leave Tailings with Fence	Combination Move/Leave
Contaminated Water	10 to 20 years collection	Collection forever	Collection forever	Collection forever
Contact	No tailings	Cover	Fence	Cover (less)

	Move Tailings	Leave Tailings with Cover	Leave Tailings with Fence	Combination Move/Leave
Contaminated Water	10 to 20 years collection	Collection forever	Collection forever	Collection forever
Contact	No tailings	Cover	Fence	Cover (less)
Floods	No Diversion	Upgraded Diversion	Upgraded Diversion	Shorter upgraded Diversion

	Move Tailings	Leave Tailings with Cover	Leave Tailings with Fence	Combination Move/Leave
Contaminated Water	10 to 20 years collection	Collection forever	Collection forever	Collection forever
Contact	No tailings	Cover	Fence	Cover (less)
Floods	No Diversion	Upgraded Diversion	Upgraded Diversion	Shorter upgraded Diversion
Earthquakes	No Dams	Strengthen Dams	Strengthen Dams	Strengthen Dams

	Move Tailings	Leave Tailings with Cover	Leave Tailings with Fence	Combination Move/Leave
Contaminated Water	10 to 20 years collection	Collection forever	Collection forever	Collection forever
Contact	No tailings	Cover	Fence	Cover (less)
Floods	No Diversion	Upgraded Diversion	Upgraded Diversion	Shorter upgraded Diversion
Earthquakes	No Dams	Strengthen Dams	Strengthen Dams	Strengthen Dams
Dust	No Tailings	Cover	Annual control	Cover

Activities after Closure

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	Move Tailings	Leave Tailings with Cover	Leave Tailings with Fence	Combination Move/Leave
Water Collection and Treatment	10 to 20 years	Forever	Forever	Forever

	Move Tailings	Leave Tailings with Cover	Leave Tailings with Fence	Combination Move/Leave
Water Collection and Treatment	10 to 20 years	Forever	Forever	Forever
Maintenance (Diversion)	No Diversion	Long Diversion	Long Diversion	Short Diversion

	Move Tailings	Leave Tailings with Cover	Leave Tailings with Fence	Combination Move/Leave
Water Collection and Treatment	10 to 20 years	Forever	Forever	Forever
Maintenance (Diversion)	No Diversion	Long Diversion	Long Diversion	Short Diversion
Maintenance (Covers and Dams)	No covers or dams	200 ha Cover and 2 Dams	Fence and 2 Dams	80 ha Cover and 1 Dam

	Move Tailings	Leave Tailings with Cover	Leave Tailings with Fence	Combination Move/Leave
Water Collection and Treatment	10 to 20 years	Forever	Forever	Forever
Maintenance (Diversion)	No Diversion	Long Diversion	Long Diversion	Short Diversion
Maintenance (Covers and Dams)	No covers or dams	200 ha Cover and 2 Dams	Fence and 2 Dams	80 ha Cover and 1 Dam
Annual Activities	Monitoring – water quality, vegetation	Monitoring – water quality, covers, dams, vegetation	Annual Dust Control Monitoring – water quality, covers, dams, vegetation	Monitoring – water quality, covers, dams, vegetation

Faro Mine Area

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Faro Mine Area

- A large pit surrounded by waste rock

- Issues:
  - Contamination of water
  - Human and animal contact
  - Floods
  - Earthquakes

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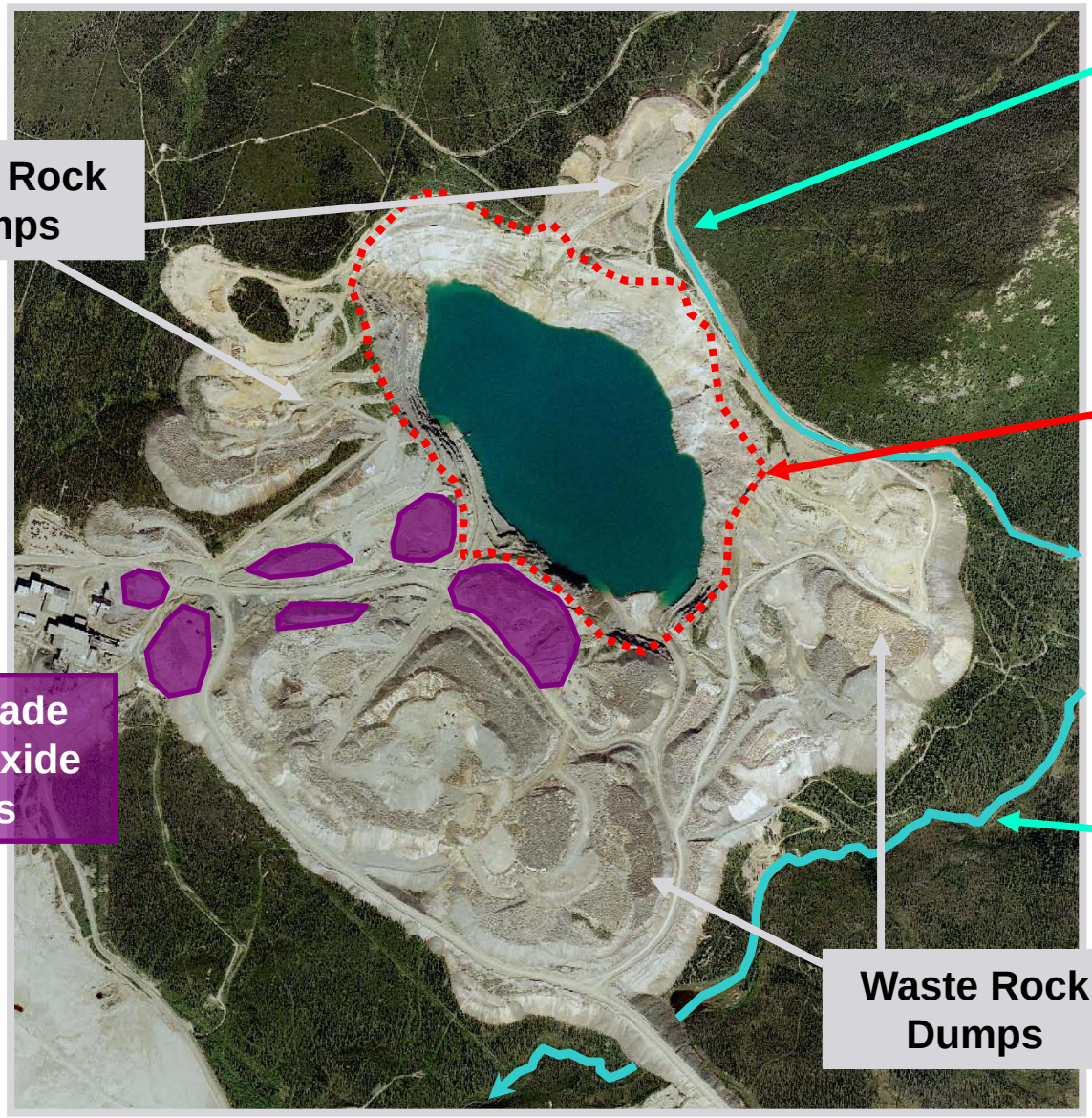
Faro Mine Area Components



Addressing the Faro Mine Area Issues

Divert Faro Creek ***into*** Faro Pit

OR

Divert Faro Creek ***around*** Faro Pit

AND

Moving towards Biological Water Treatment

AND/OR

Water Treatment in a Treatment Plant

AND

Cover and/or Move Waste Rock

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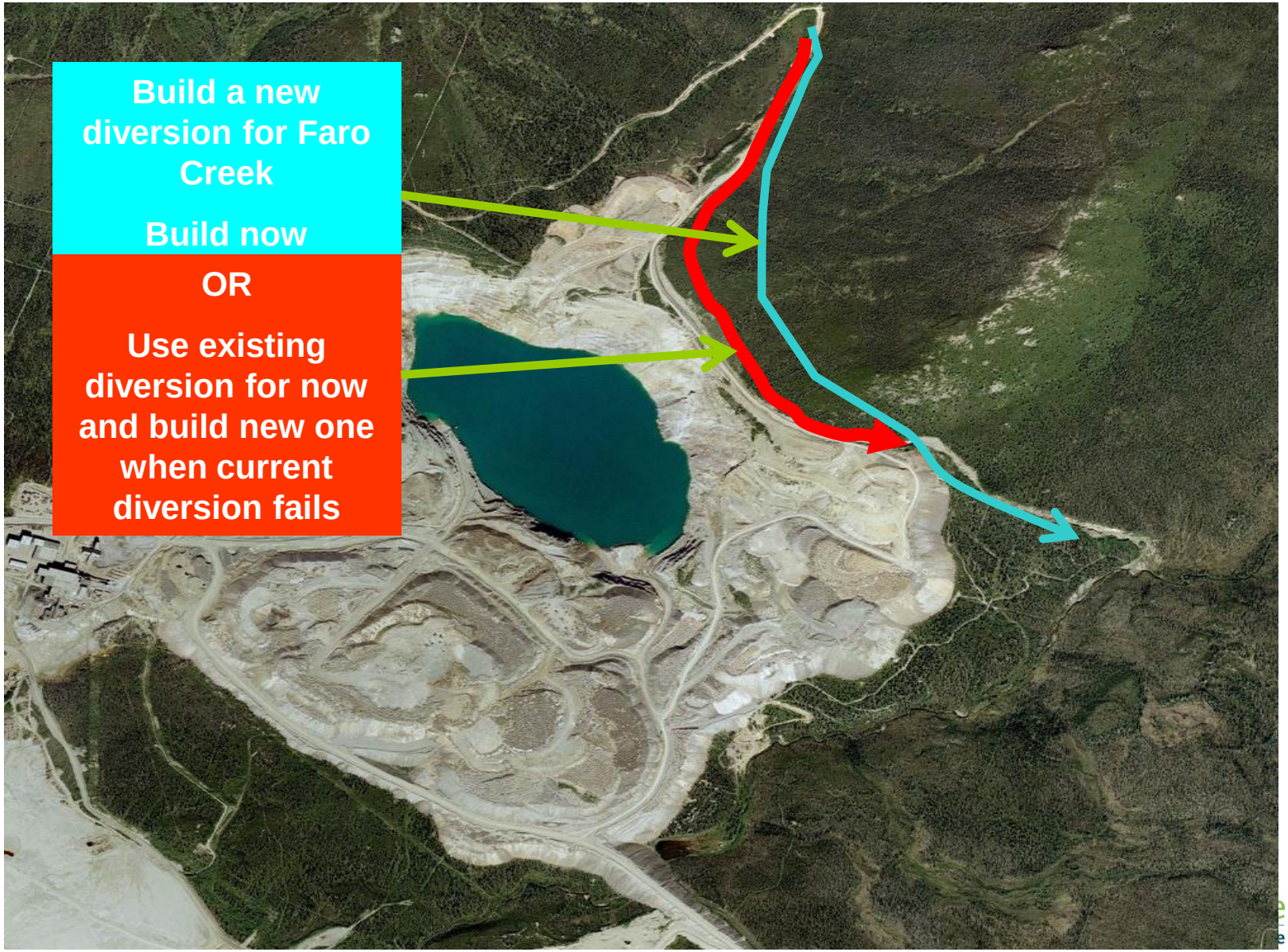
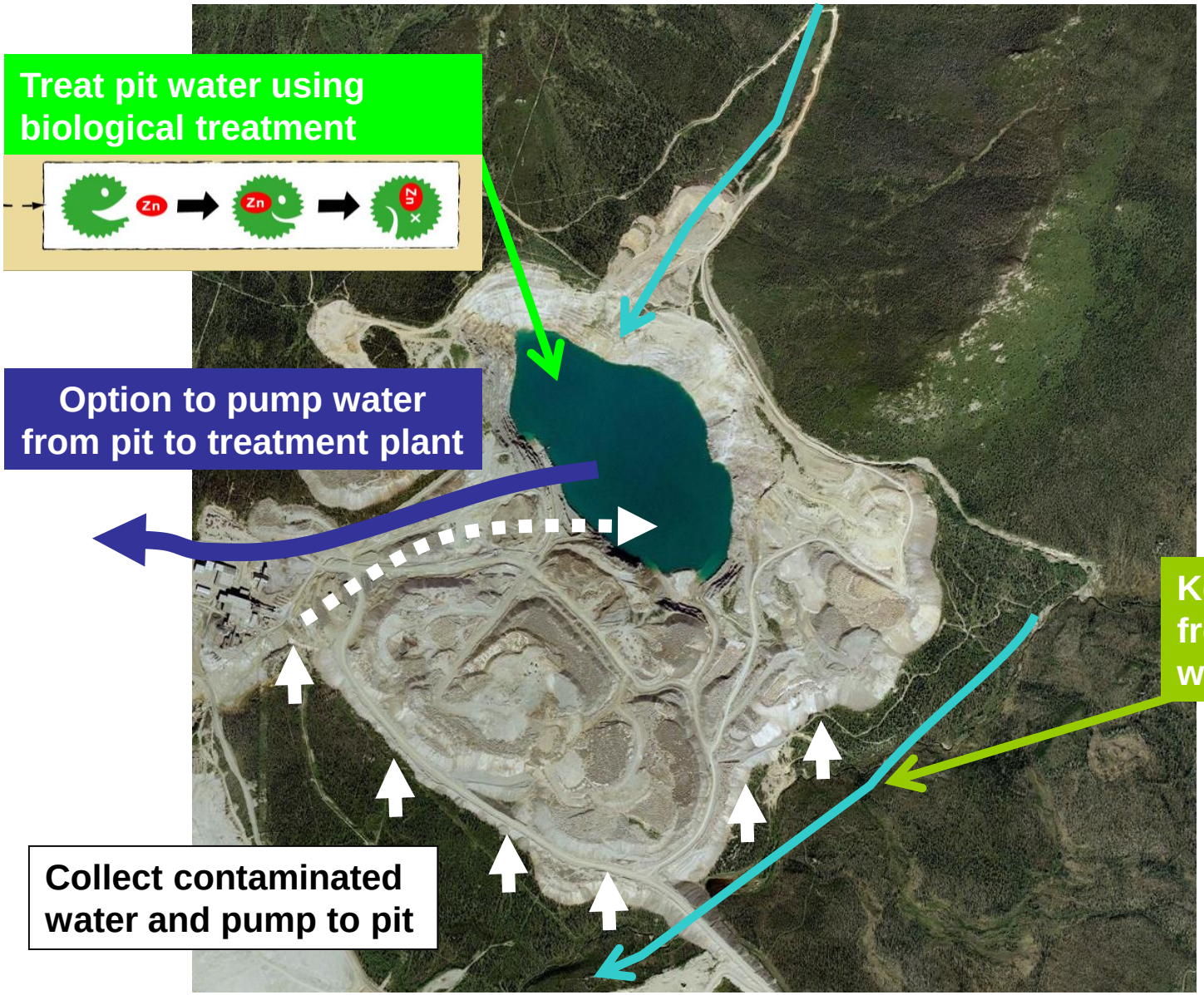
Divert Faro Creek **into** Faro Pit

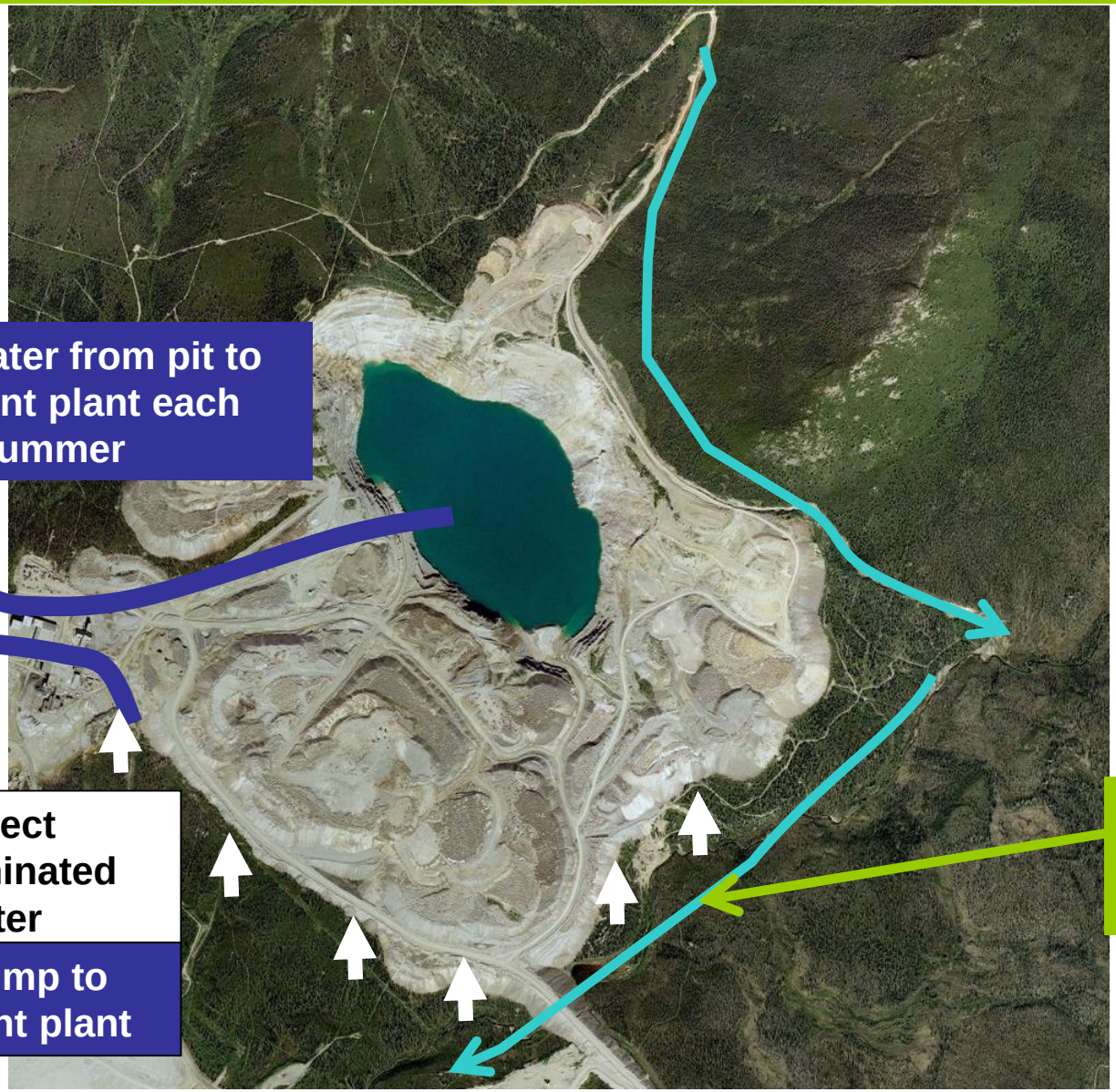
Divert Faro Creek **around** pit



Moving Towards Biological Water Treatment



Water Treatment in a Treatment Plant



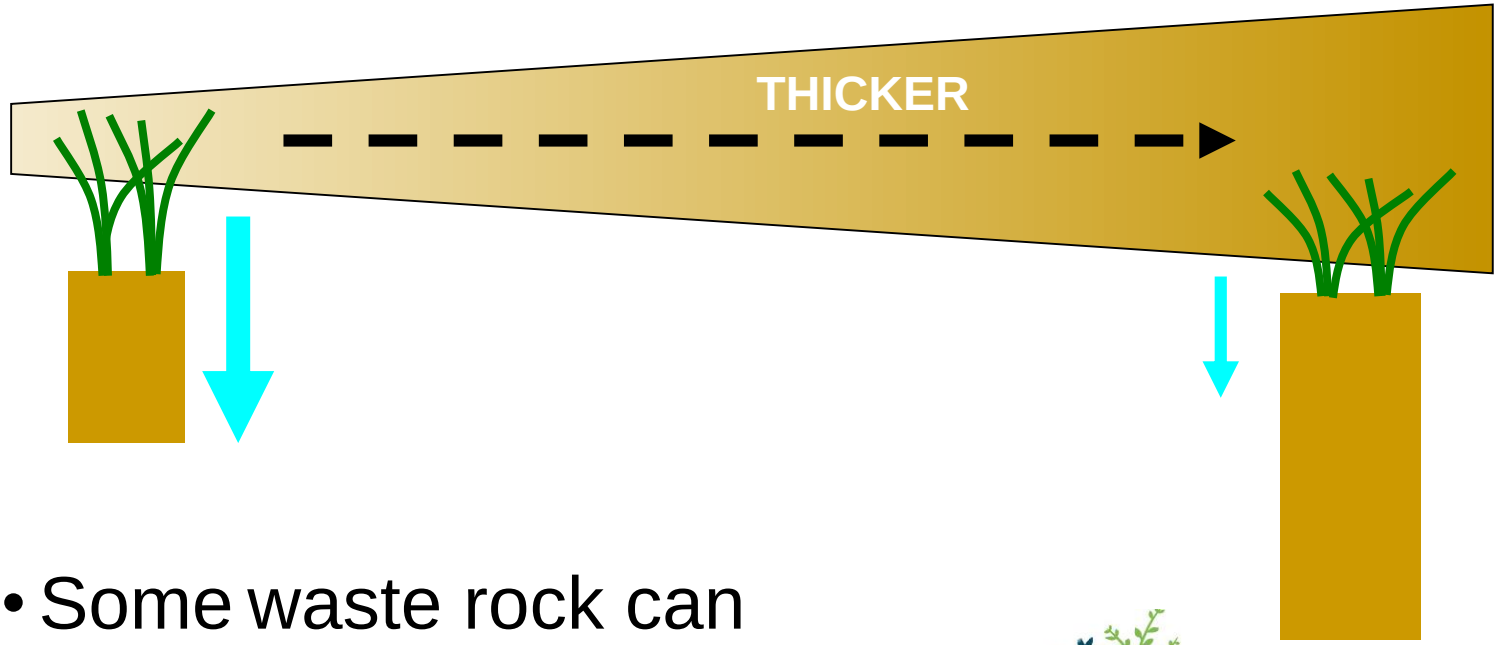
Pump water from pit to treatment plant each summer

Collect contaminated water and pump to treatment plant

Keep creek away from contaminated water by lining it

Cover and/or move waste rock

- Different types of waste rock covers can be used.
  - All covers will prevent human/animal contact
  - Water penetration will vary



- Some waste rock can be moved

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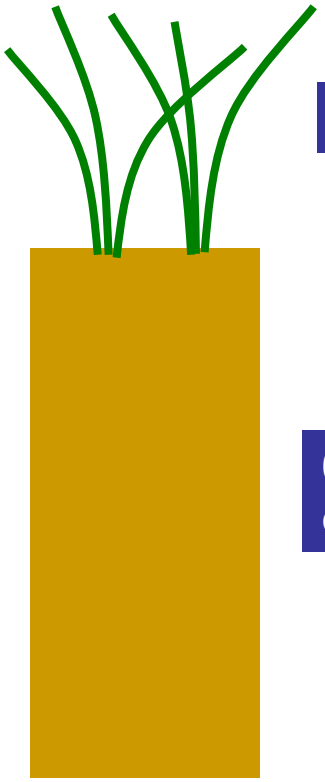
Waste Rock Covers

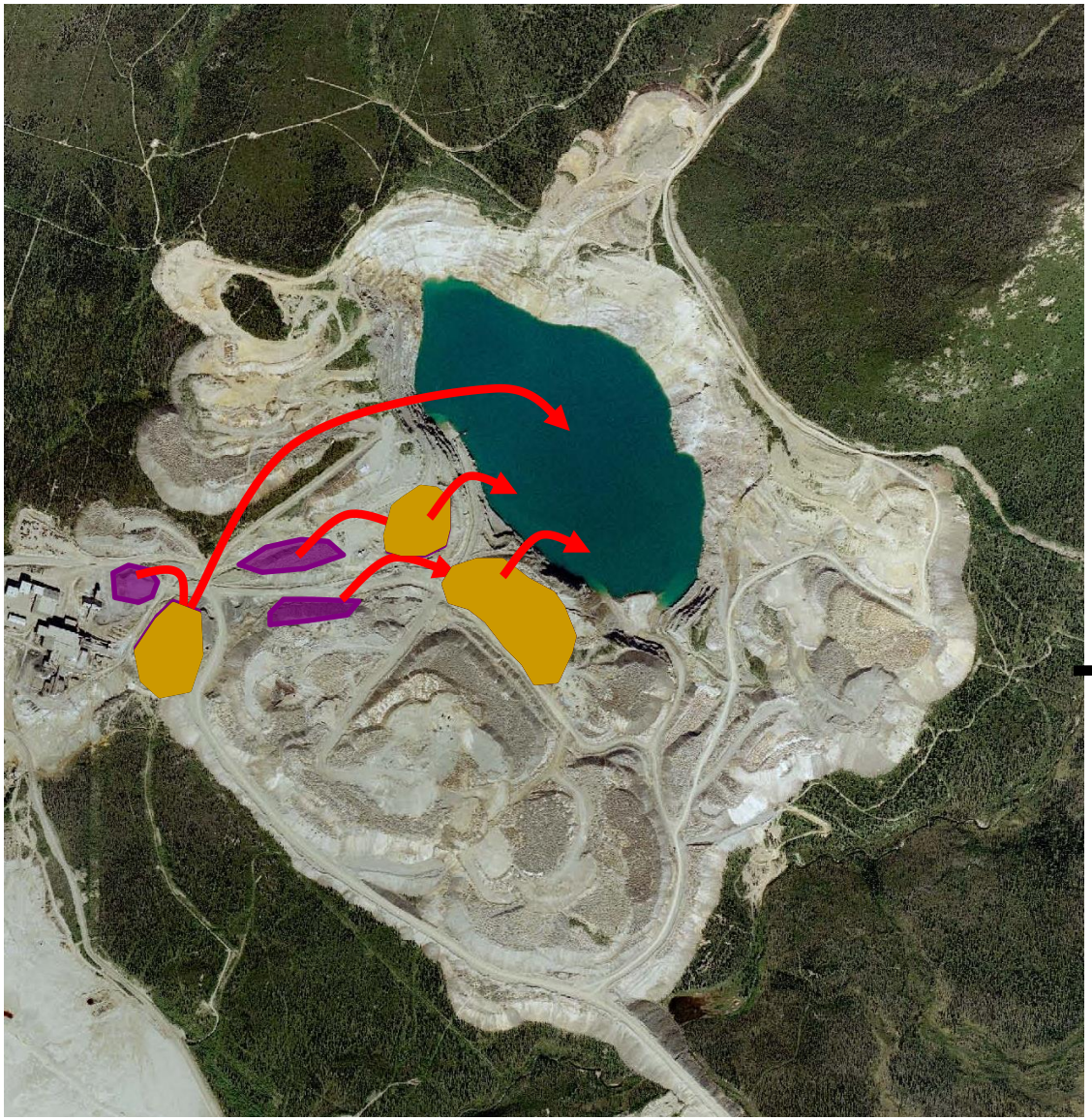
Reslope waste rock and cover with till



Re-vegetate

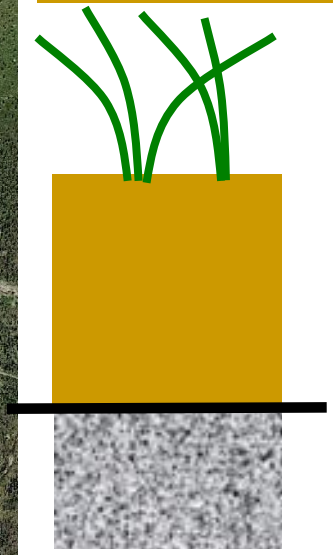
0.5m to 2.5m of till

Low Grade Ore & Oxide Fines



Move oxide fines into larger piles

Cover larger piles with plastic and till



Re-vegetate

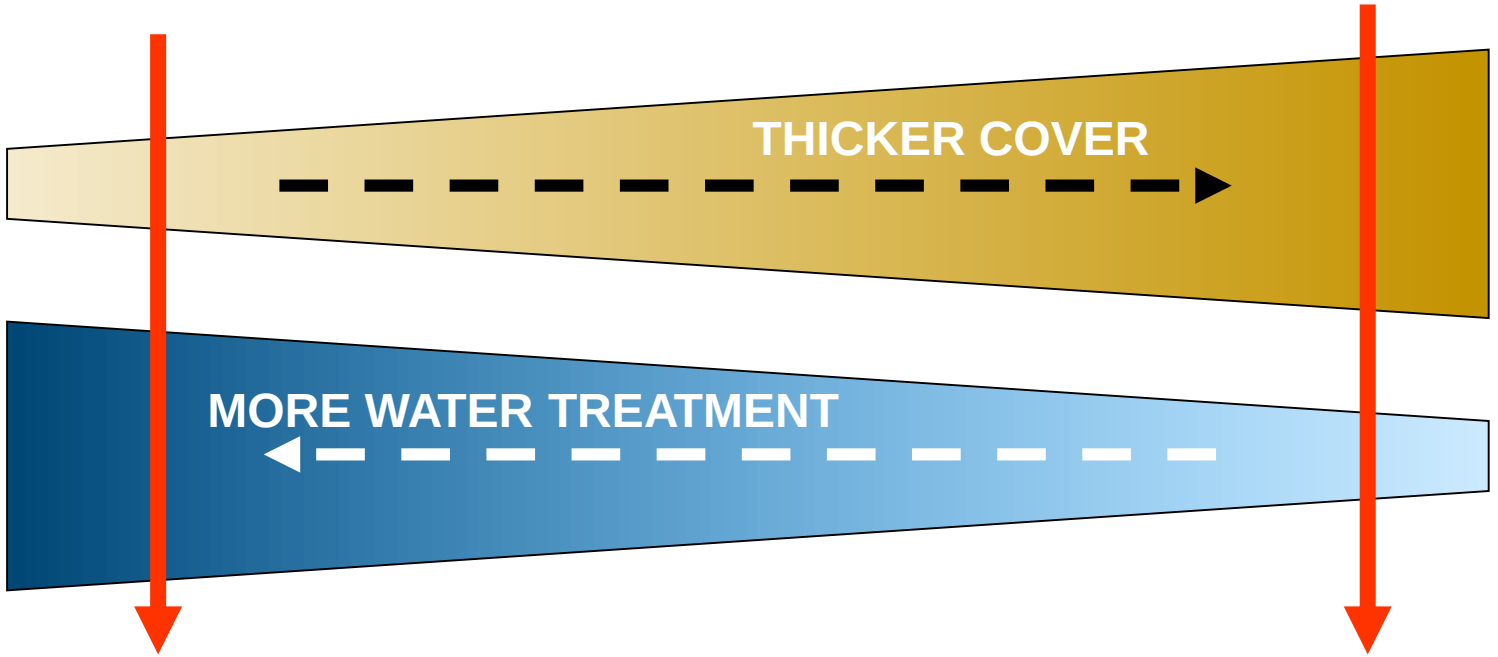
1.0 m Till Soil

Plastic

Oxide fines

Or – mix with lime and move to pit

What difference does a cover make?



Thin Cover = More Water Treatment

Thick Cover = Less Water Treatment

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How do the alternatives deal with the issues?

Example Alternatives →	**Divert into Pit**	**Divert Around Pit (Upgrade Diversion)**	**Current Diversion with Thin Covers**	**Divert Around Pit with Better Covers**
Contaminated Water	1.Collection Forever	1.Collection forever	1.Collection forever	1.Collection forever
	2.Moving to Biological Treatment	2.Treatment Plant	2.Treatment Plant (Bigger)	2.Moving to Biological Treatment

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How do the alternatives deal with the issues?

Example Alternatives →	**Divert into Pit**	**Divert Around Pit (Upgrade Diversion)**	**Current Diversion with Thin Covers**	**Divert Around Pit with Better Covers**
Contaminated Water	1.Collection Forever	1.Collection forever	1.Collection forever	1.Collection forever
	2.Moving to Biological Treatment	2.Treatment Plant	2.Treatment Plant (Bigger)	2.Moving to Biological Treatment
Contact	Range of Cover and Moving Options			

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How do the alternatives deal with the issues?

Example Alternatives →	**Divert into Pit**	**Divert Around Pit (Upgrade Diversion)**	**Current Diversion with Thin Covers**	**Divert Around Pit with Better Covers**
Contaminated Water	1.Collection Forever	1.Collection forever	1.Collection forever	1.Collection forever
	2.Moving to Biological Treatment	2.Treatment Plant	2.Treatment Plant (Bigger)	2.Moving to Biological Treatment
Contact	Range of Cover and Moving Options			
Floods and Earthquakes	No Diversion	Upgraded Diversion	Fix as Needed	Upgraded Diversion
	Maintain Storage Space in Pit			

Activities after Closure

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Planning and Information Office

Example Alternatives →	**Divert into Pit**	**Divert Around Pit (Upgrade Diversion)**	**Current Diversion with Thin Covers**	**Divert Around Pit with Better Covers**
Water Collection and Treatment	Forever	Forever	Forever	Forever

Example Alternatives →	**Divert into Pit**	**Divert Around Pit (Upgrade Diversion)**	**Current Diversion with Thin Covers**	**Divert Around Pit with Better Covers**
Water Collection and Treatment	Forever	Forever	Forever	Forever
Maintenance (Diversion)	No Diversion	Maintain Forever	Maintain Forever	Maintain Forever

Example Alternatives →	**Divert into Pit**	**Divert Around Pit (Upgrade Diversion)**	**Current Diversion with Thin Covers**	**Divert Around Pit with Better Covers**
Water Collection and Treatment	Forever	Forever	Forever	Forever
Maintenance (Diversion)	No Diversion	Maintain Forever	Maintain Forever	Maintain Forever
Maintenance (Covers and Dam)	Covers and Dam	Covers	Covers	Covers

Example Alternatives →	**Divert into Pit**	**Divert Around Pit (Upgrade Diversion)**	**Current Diversion with Thin Covers**	**Divert Around Pit with Better Covers**
Water Collection and Treatment	Forever	Forever	Forever	Forever
Maintenance (Diversion)	No Diversion	Maintain Forever	Maintain Forever	Maintain Forever
Maintenance (Covers and Dam)	Covers and Dam	Covers	Covers	Covers
Annual Activities	Monitoring – water quality, covers, vegetation, dam	Monitoring – water quality, covers, vegetation, diversion	Monitoring – water quality, covers, vegetation, diversion	Monitoring – water quality, covers, vegetation, diversion

Vangorda/Grum Mine Area

- Two large pits surrounded by waste rock

- Issues:
  - Contamination of water
  - Human & animal contact
  - Floods
  - Earthquakes

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Vangorda/Grum Area

Addressing the Vangorda/Grum Mine Area Issues

1. ***Move*** Vangorda Waste into Vangorda Pit

WITH

Biological Treatment in Grum Pit

OR

2. ***Leave*** Vangorda Waste in Place

WITH

Biological Treatment (Grum Pit) **and** Water Treatment in a Treatment Plant

AND

Cover and/or Move Waste Rock

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1. Move Vangorda Waste into Vangorda Pit

- Put Vangorda waste rock into pit
- Divert Vangorda Creek over filled pit
- Cover the Grum waste rock
- Collect water and treat using biological treatment

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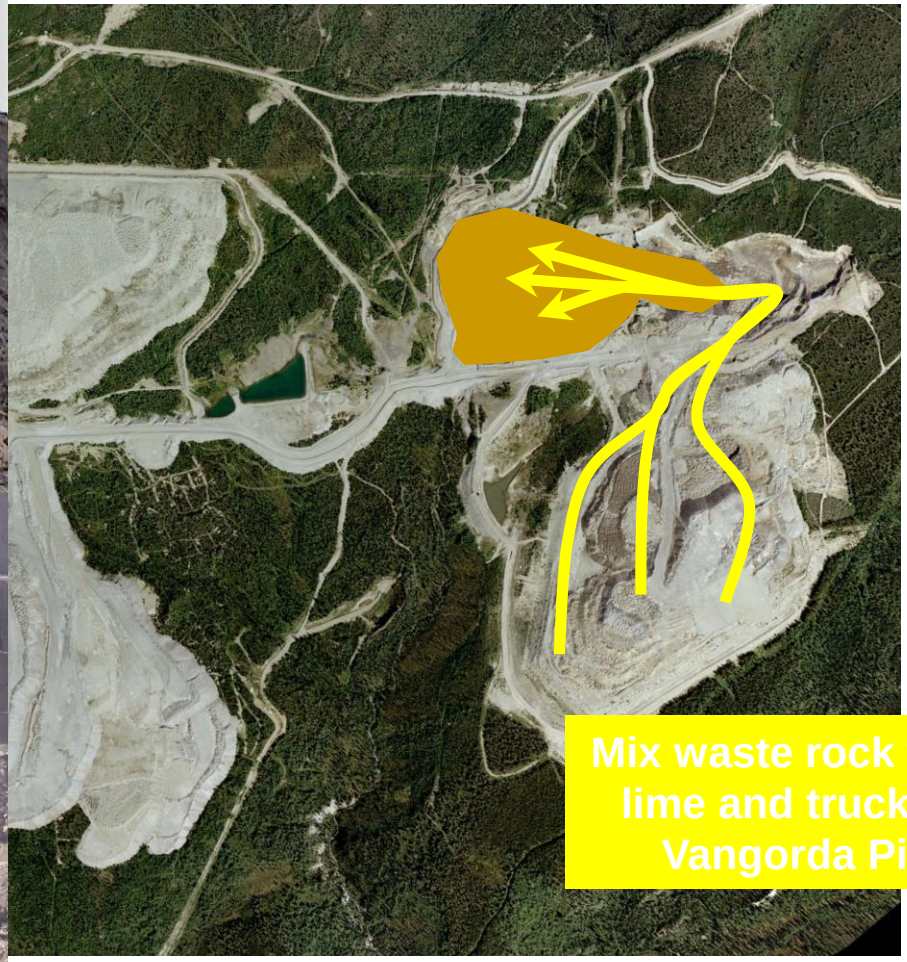
Put Vangorda waste rock into pit

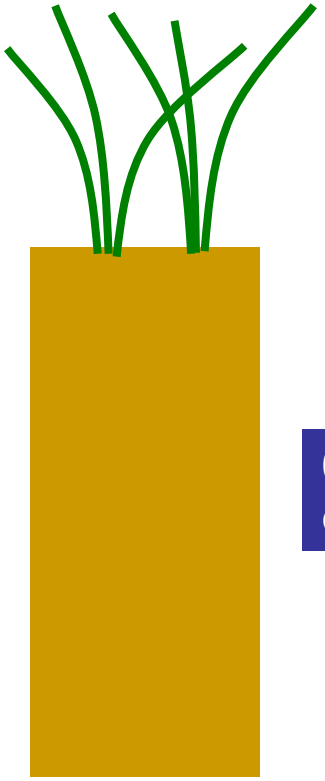


Mix waste rock with lime and truck to Vangorda Pit

Divert Vangorda Creek over filled pit

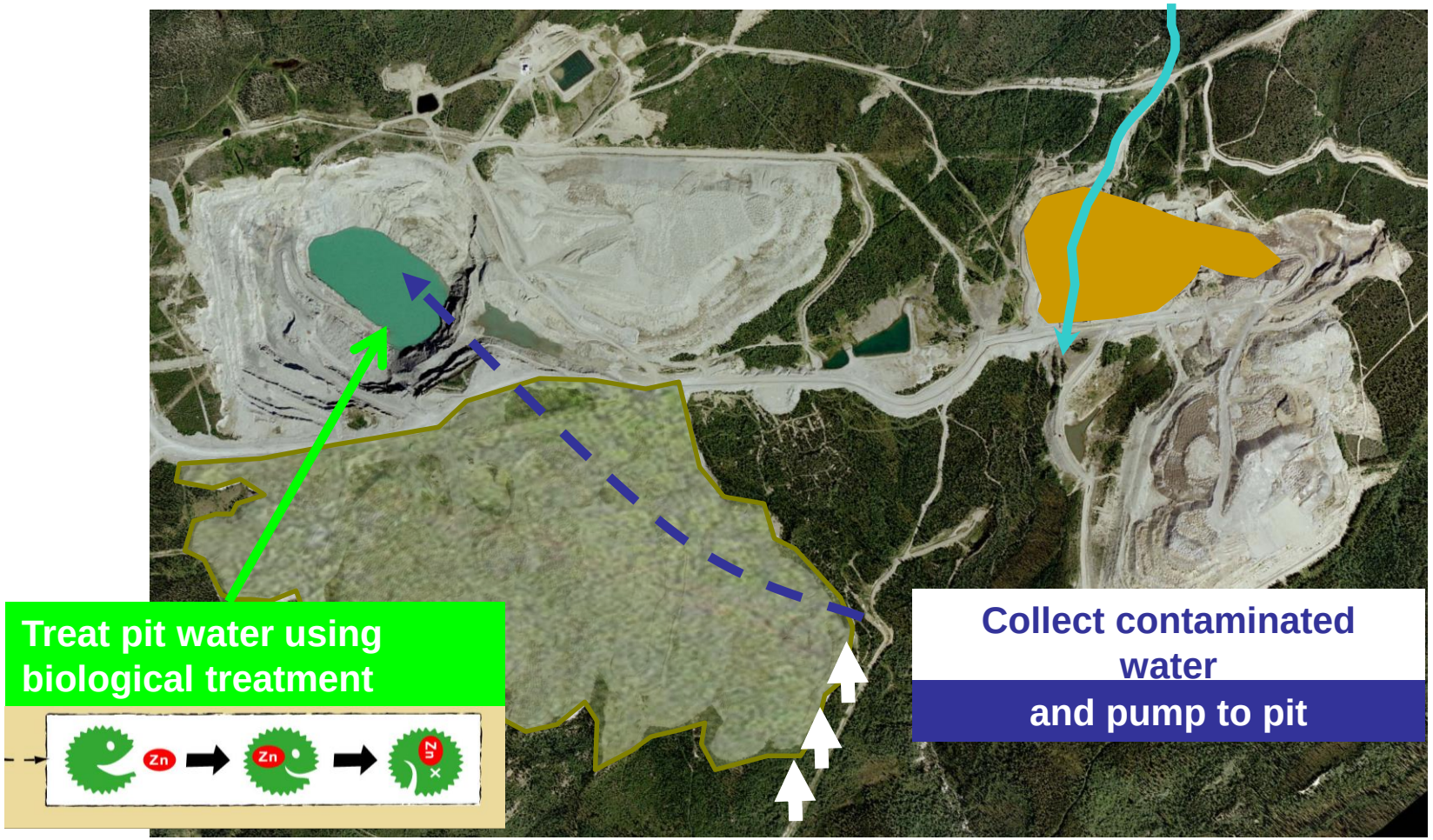
Cover Grum Waste Rock

Reslope waste rock and cover with till



0.5m to 2.5m of till

Collect and Treat Water



2. Leave Vangorda Waste in Place

- Divert Vangorda Creek around pit
- Cover Vangorda and Grum waste rock
- Collect water and treat in a treatment plant
- Treat Grum Pit water using biological treatment

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Divert Vangorda Creek Around Pit

Build a new diversion for Vangorda Creek

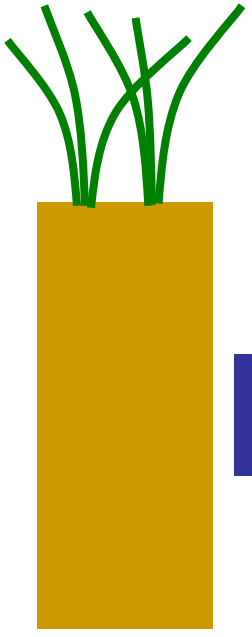
Build now

OR

Use existing diversion for now and build new one when current diversion fails

Cover Vangorda and Grum Waste Rock

Reslope waste rock and cover with till



0.5m to 2m of till

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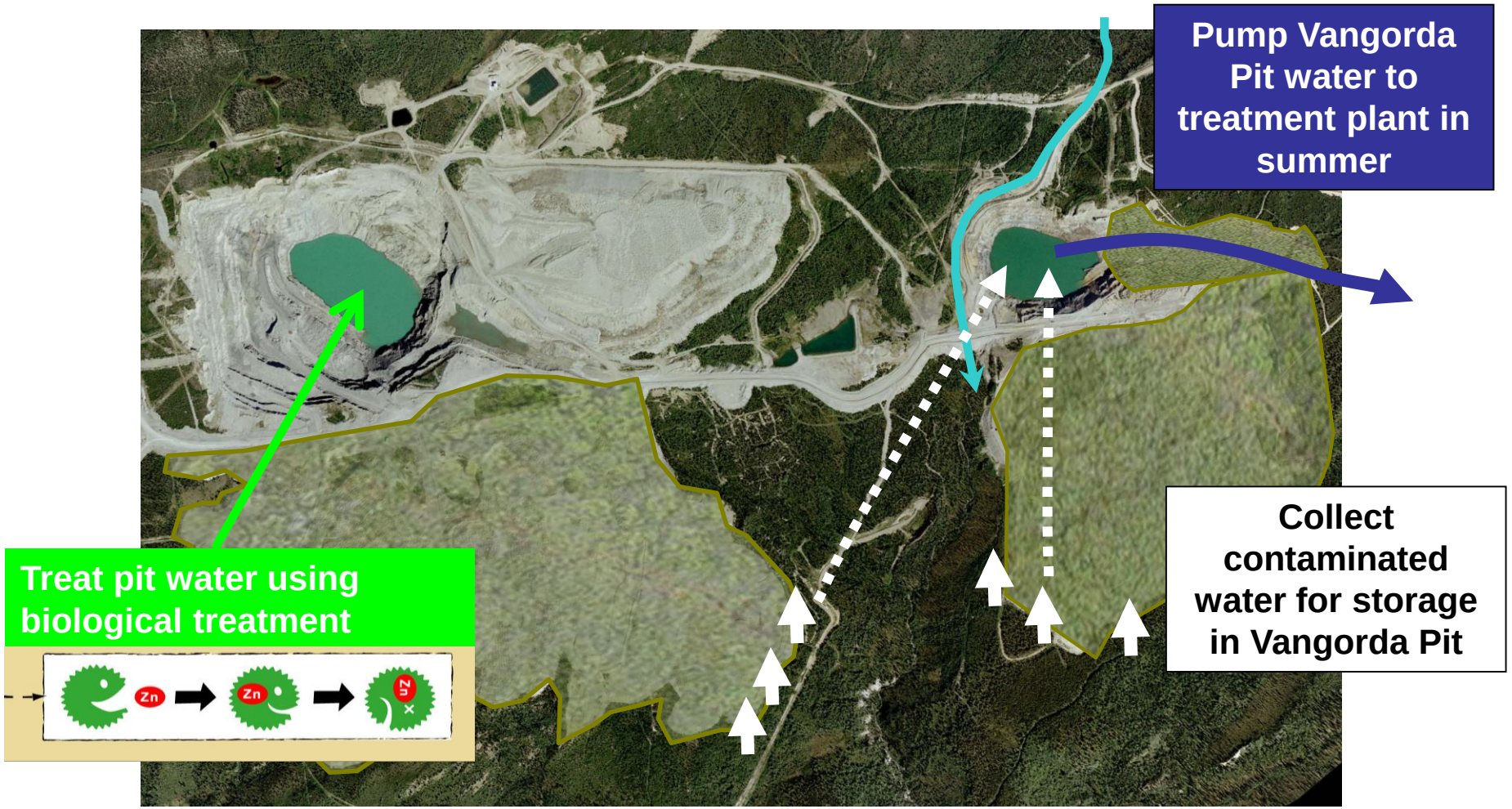
Collect and Treat Water – Treatment Plant and Biological



How do the alternatives deal with the issues?

Example Alternatives	**Move Vangorda Waste**	**Cover Vangorda Waste**
Contaminated Water	1.Collection forever	1.Collection forever
	2.Biological Treatment	2.Biological Treatment and Treatment Plant

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How do the alternatives deal with the issues?

Example Alternatives	**Move Vangorda Waste**	**Cover Vangorda Waste**
Contaminated Water	1.Collection forever	1.Collection forever
	2.Biological Treatment	2.Biological Treatment and Treatment Plant
Contact	Move Vangorda, Cover Grum	Cover Vangorda and Grum

How do the alternatives deal with the issues?

Example Alternatives	**Move Vangorda Waste**	**Cover Vangorda Waste**
Contaminated Water	1.Collection forever	1.Collection forever
	2.Biological Treatment	2.Biological Treatment and Treatment Plant
Contact	Move Vangorda, Cover Grum	Cover Vangorda and Grum
Floods and Earthquakes	Upgraded Diversion	Upgraded Diversion
		Maintain Storage Space in Vangorda Pit

Activities after closure

Example Alternatives	**Move Vangorda Waste**	**Cover Vangorda Waste**
Water Collection and Treatment	Forever	Forever

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Activities after closure

Example Alternatives	**Move Vangorda Waste**	**Cover Vangorda Waste**
Water Collection and Treatment	Forever	Forever
Maintenance	Diversion (Minor) Covers	Diversion Covers

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Activities after closure

Example Alternatives	**Move Vangorda Waste**	**Cover Vangorda Waste**
Water Collection and Treatment	Forever	Forever
Maintenance	Diversion (Minor) Covers	Diversion Covers
Annual Activities	Monitoring – water quality, vegetation, diversion	Monitoring – water quality, vegetation, diversion

Summary

- Example alternatives for each area
- Information sharing & feedback
  - A group of meetings
  - This meeting
    - Introduce alternatives
  - Future meetings
    - Provide more details
    - Facilitate feedback and comments

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END