Pad I – Waste Rock & Ore Stockpiles

- Is DETOX tailings being stored on Waste Rock Pile?
- OK as long as it is tracked

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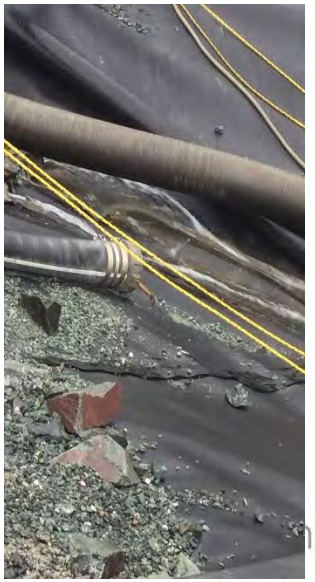
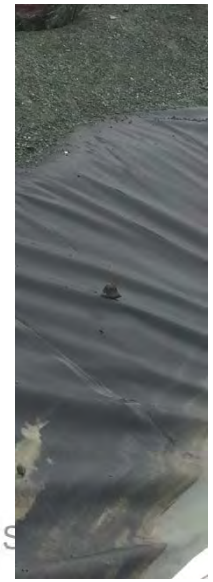
Pollution Control Pond

- Need to infill to large ponds with overburden soils; this is carry over recommendation from 2017
- Will reduce risk of larger sinkholes developing and prolong life of facility – now is best time to do it

Sedimentation Pond

- Should do general cleanup of all rocks and gravel on liner slopes
- Fix the excavation on the south-west corner





Sump #1

- Flows appear to be bypassing the sump
- Need to confirm based on water quality sampling whether the bypassed water exceeds discharge quality
- Need to consider options to direct flow to the sump, or capture water elsewhere

Sump #2

- Automatic float switches appear to have been removed, so is pump now operated manually?
- Need to prevent permanent ponding around the sump

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Reagent Pad

- Over steepened slope on north
- Exposed liner on south

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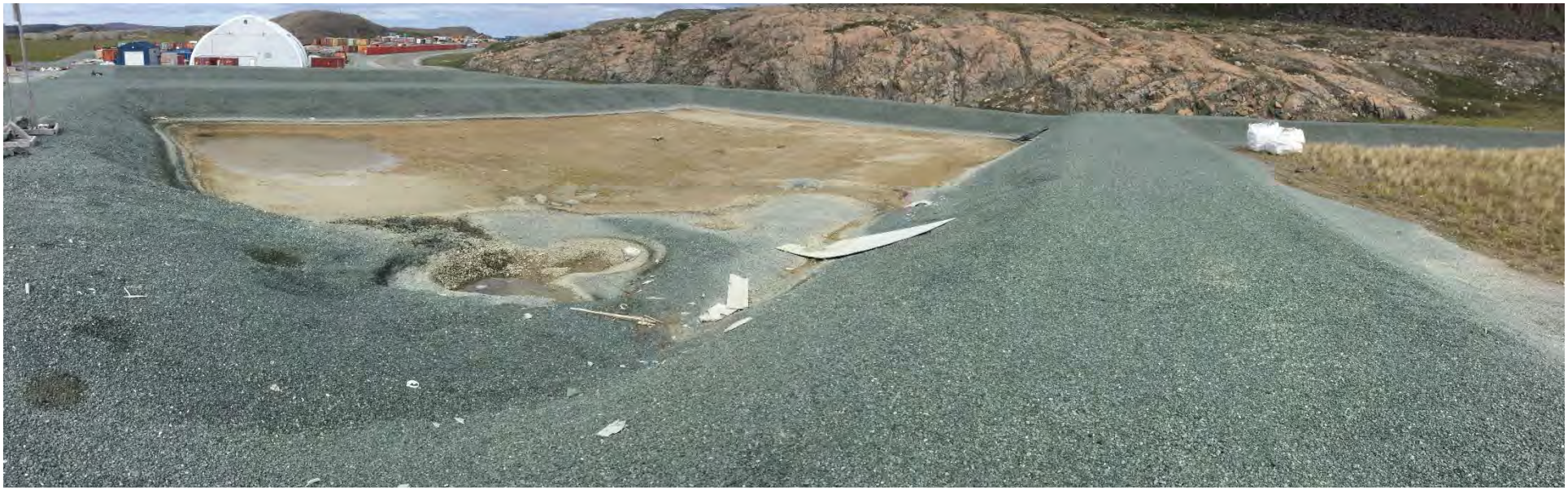
Vent Raise

- Rockfall hazard
- At minimum post warning signs
- If space permits consider constructing catch berm

Landfarm

- Be careful when excavating to not dig deeper than the design invert; it can compromise the liner



Airstrip & De-Icing Apron

- West shoulder has series of tension cracks; keep monitoring
- Consider backfilling the large pond at the north airstrip light island with overburden; fill to proud of surface and compact
- De-icing apron needs to be properly compacted
- De-icing apron grading towards sump does not seem right; confirm and fix

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Roberts Bay Observations

Laydown areas, jetty, fuel tank farms, overburden dump, sedimentation control berm

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Jetty

- Consider additional Riprap at the jetty head

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Rob Bay 5ML Tank Farm

- Cut exposed liner
- Fill in void space behind liner
- Compact berms and slopes

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Rob Bay 20ML Tank Farm

- Monitor falling rocks carefully, especially above bladders
- Some fill sloughing occurring on south berm due to equipment traffic on berm
- Over-steepened north slope due to erosion need to be reconstructed (including compaction)

TIA Observations

North Dam, South Dam, tailings deposition, TIA shoreline, emergency dump ponds, water balance

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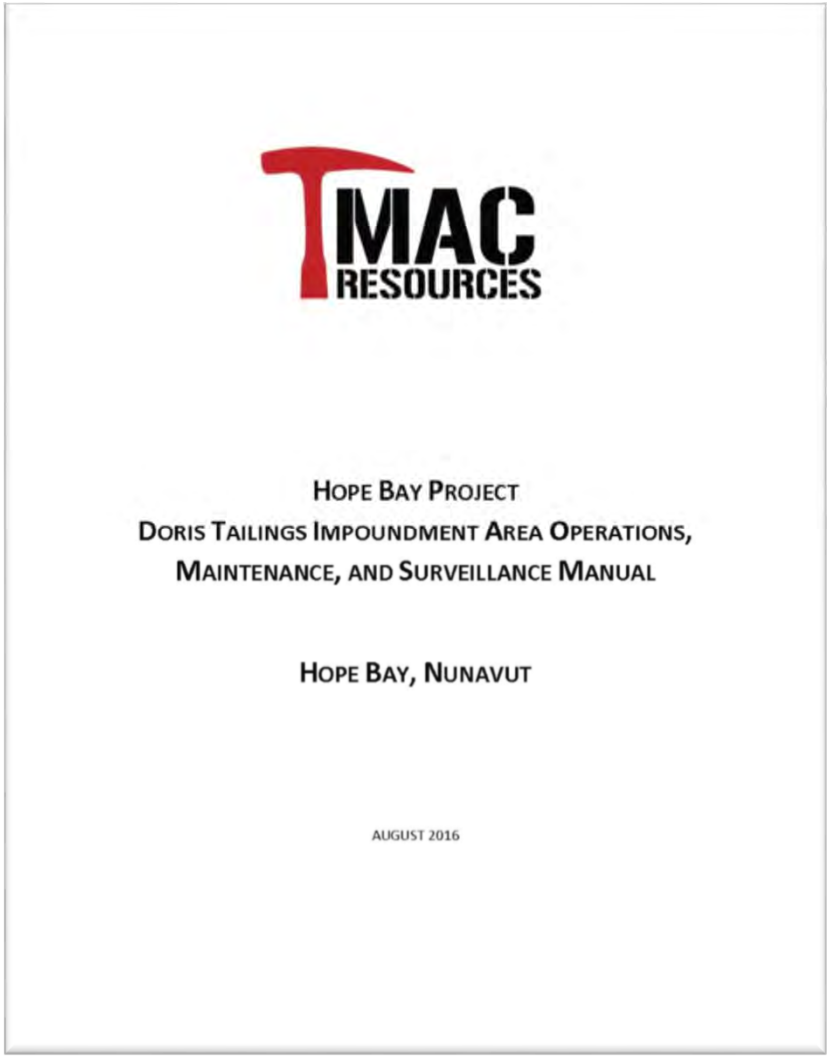
Doris TIA OMS

- Operations Maintenance and Surveillance (OMS) Manual
- Conforms to industry standard Mining Association of Canada (MAC) guidelines
- Includes
  - Governance
  - Reference documents
  - Roles and responsibilities
  - Facility overview
  - Operations
  - Maintenance
  - Surveillance
- A substantive update/rewrite is required



Monitoring SOP

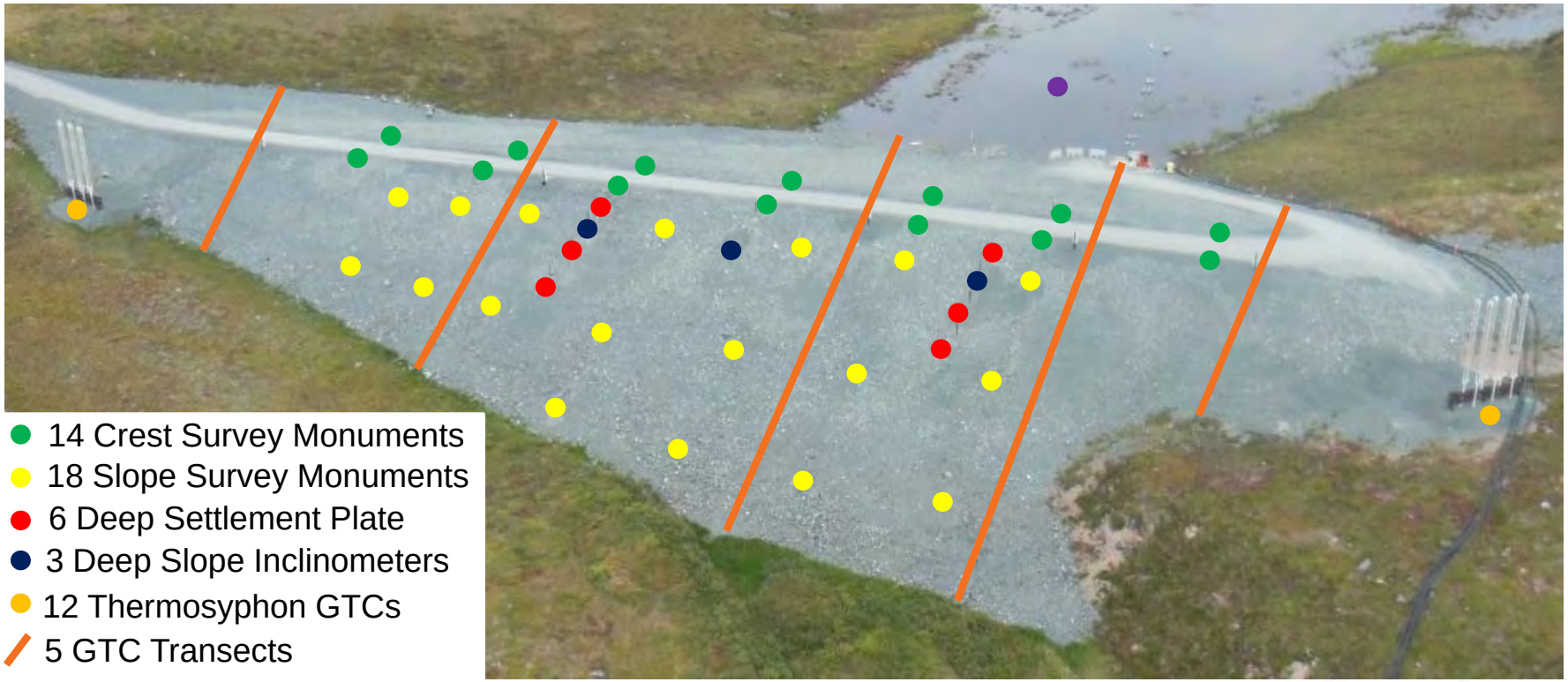
- North Dam Monitoring Standard Operating Procedures (SOP)
- Current version only covers North Dam
- Updated version being prepared that will cover South Dam as Well
- Outlines monitoring requirements, responsibilities, frequencies and procedures

Monitoring Requirements

- TMAC responsibility needs clarity:
  - Environment?
  - Mill?
  - Projects?
  - Mine?
  - Site Services?

Element	Item	Method	Responsibility	Frequency
Thermal	Ground Temperature Cables	Dataloggers[3]	TMAC	Daily readings, monthly downloads
	Thermosyphons Status Thermistors	Dataloggers[3]	TMAC	Daily readings, monthly downloads
Deformation	Downstream Deep Settlement	Manual	TMAC	Monthly, May to November[1]
	Downstream Surface Settlement	Manual	TMAC	
	Crest Settlement	Manual	TMAC	
	Depression	Manual	TMAC	
	Inclinometers	Manual	TMAC	
Water Balance	Water Level	Datalogger Station[4][5]	TMAC	Daily readings (online portal)
	Water Level	Manual	TMAC	Minimum of once per year, when Reclaim pond is not frozen
	Seepage	Manual	TMAC	Weekly when seepage is observed
Visual	Walkover Survey	Manual	TMAC	Weekly (below FSL[2]) Daily (at or above FSL)
	Geotechnical Inspection	Manual	Engineer of Record	Annually
			Independent Engineer	7-year cycle
Maintenance				
North Dam Thermal Datalogger	Datalogger[3] Primary Batteries	Manually recharge	TMAC	Annually
	Datalogger[3] Backup Batteries	Manually replace	TMAC	5-year cycle
	Datalogger[3] Recalibration	Manual	TMAC	5-year cycle
	Desiccant Packs	Manually replace	TMAC	As required
Water Level Datalogger Station (TIA-2)	Datalogger Transmission Subscription[4]	Online	TMAC	Annually
	Physical Datalogger Station[4][5][6]	Manually recalibrate or replace	TMAC	As required

North Dam Instrumentation



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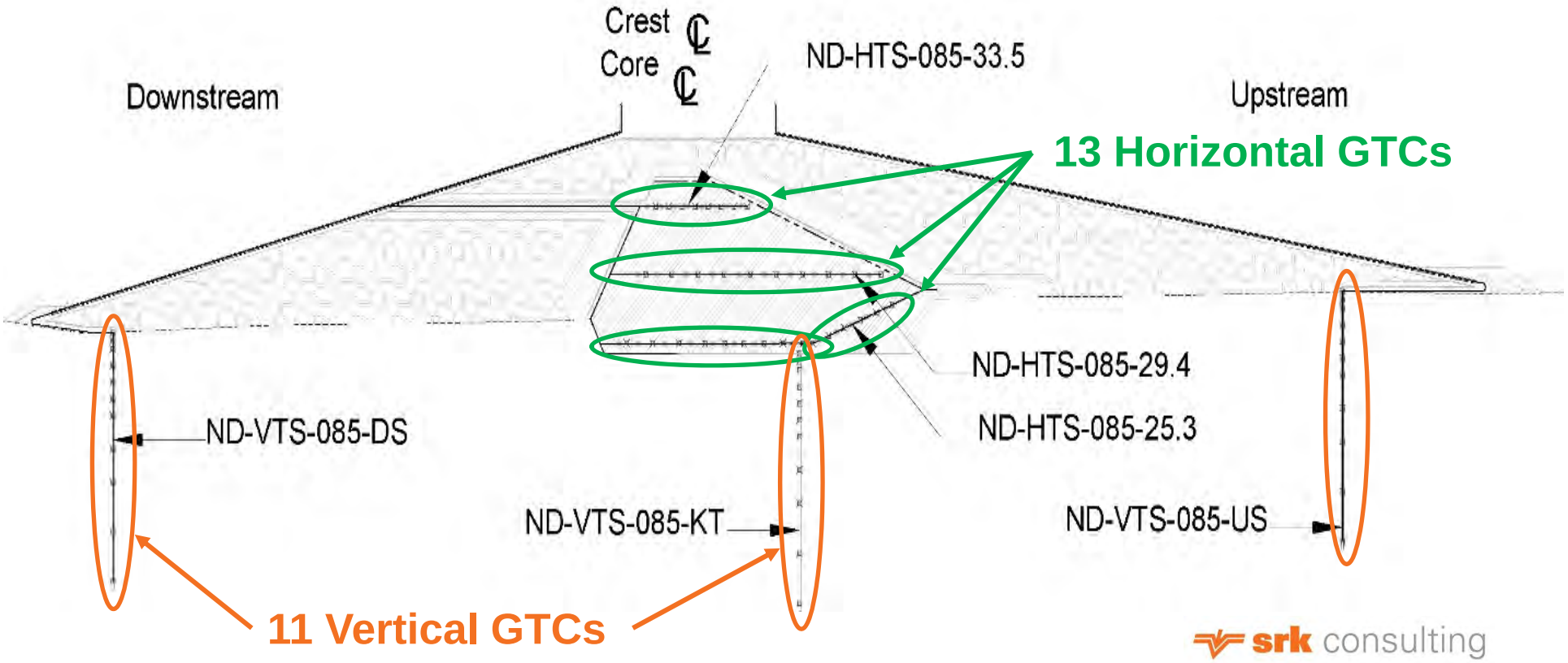
North Dam Instrumentation (cont.)



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South Dam Instrumentation

- Fixed Survey Monitoring Point
- Surficial Survey Monitoring Point
- Deep Monitoring Point
- Installed Fixed Survey Monitoring Point
- Installed Surficial Survey Monitoring Point
- Installed Deep Monitoring Point

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North Dam

- Watch tension cracks on upstream slope near shoreline
- Backfill with crush around inclinometer housing of Station 0+130 m
- Replace bottom weatherproof housing for node D

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South Dam

- Small construction completion tasks to final signoff
- Some instrumentation to be completed
- Monitoring SOP to be updated
- Watch for ponding at back of dam
- Start beach development immediately

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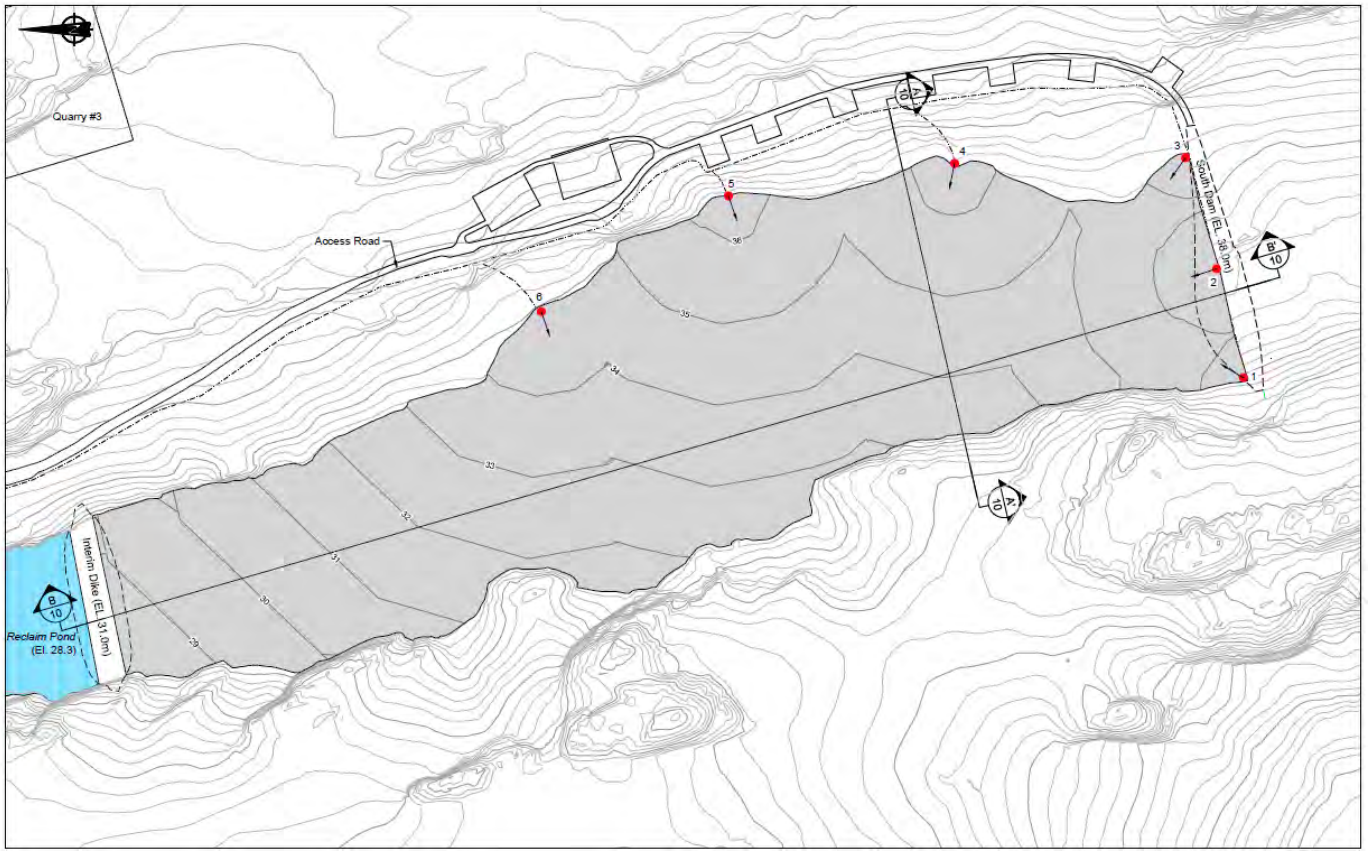
Tailings Deposition

- Refer to Phase 1 Design Report, or simply ask SRK
- Detailed Plan will be in the updated OMS, but current plan remain valid

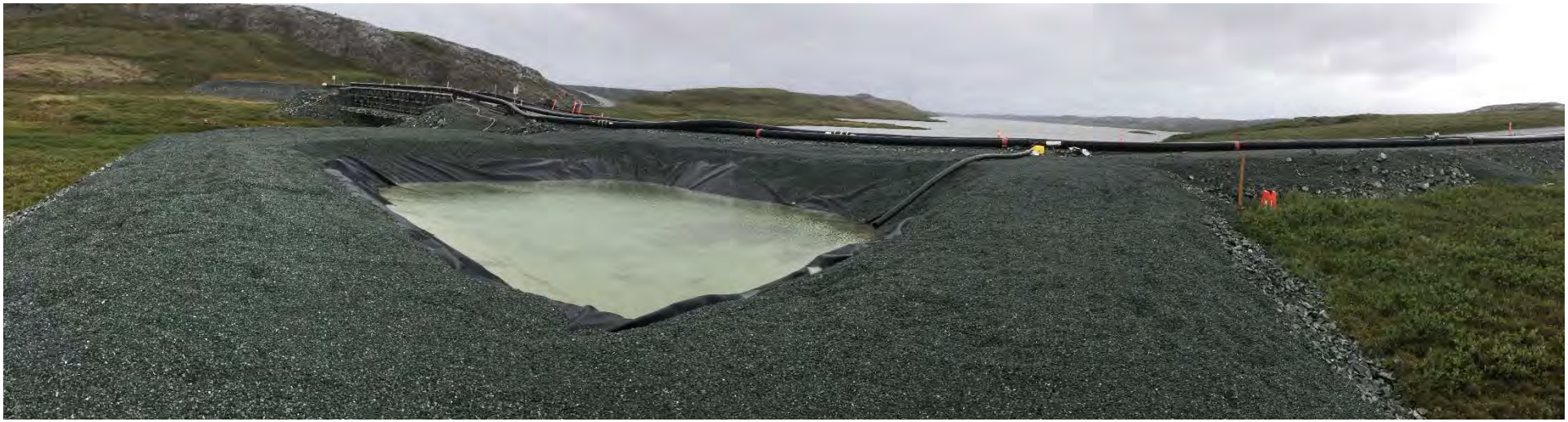
Tailings Deposition

- Develop minimum 100 m beach from South Dam asap!
- Single point discharge (3 spigot locations)
- Implement diversion protocol for low solids content tailings near Dam
- No saline water (or other non tailings water) to be discharged with tailings



Emergency Dump Ponds

- Ponds need to be kept empty
- West pond not properly constructed: (1) Not compacted, (2) Liner sloughing
- Pond will require excessive maintenance and should not be relied upon
- Undermines credibility with KIA and INAC



Tundra Hole

- Need to backfill as damage will progress
- Suggest backfill with tailings, or overburden slurry mixture
- Needs to be high solids content, preferably lower water temperature than tailings; could we use concrete mix trucks?

Water Balance

- Reminder that we need to be able to discharge to Roberts Bay by April 2019
- To achieve that:
  - We MUST have the marine outfall access road and marine outfall berm constructed in August 2018
  - We MUST have the submarine marine outfall pipeline and diffuser installed before freeze-up
  - We MUST complete and commission remaining on-land systems before April 2019

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Closing

Overall Closing Comments

- The site is in really good shape; geotechnical concerns are minimal
  - Remember the fragility of permafrost!
- Need to get more control/ownership on tailings management; SRK will assist by revisiting the OMS Manual to accommodate site requirements
- Need to continue the improvements regarding site construction QA/QC

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