



Improving Tailings Dewatering with ATA[®] for Paddocked Buttress Formation: A Pilot Study

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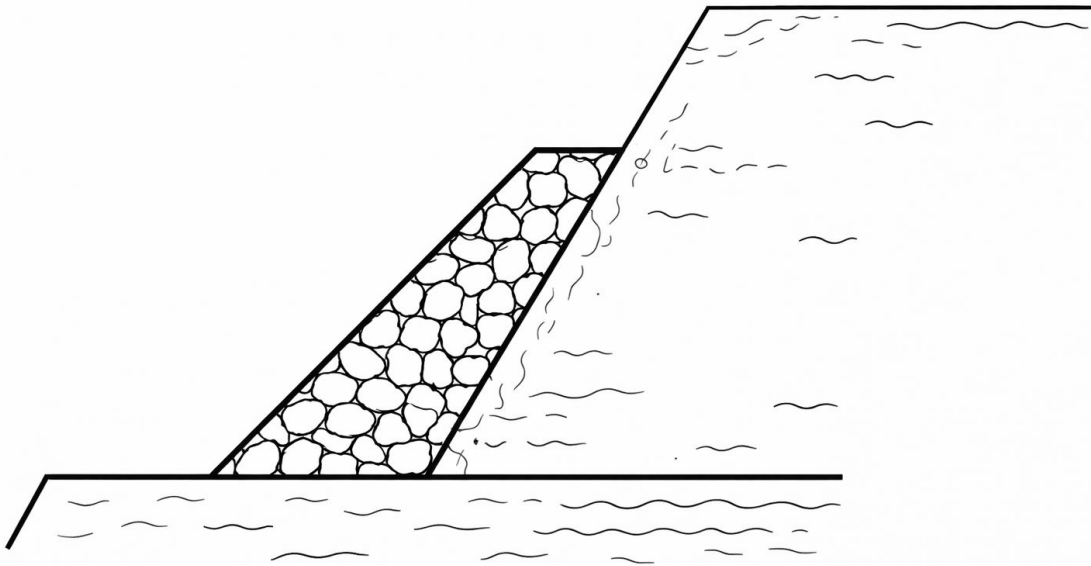
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SAIMM Tailings 2026



Introduction & Background



**Conventional Rock
Buttress**

- Paddocked buttressing is used to improve structural integrity of TSF
- Waste rock is conventionally used to build paddocked buttresses
- Site is situated in an area where limited waste rock is available
- Tailings is currently used to construct the buttresses
- Slow rate of rise due to extended periods of drying to reach trafficability

Objective

Clean TeQ Water and Stitchwise approached site to conduct a study using ATA[®] to:

- Increase rate of rise
- Create stable, high permeable buttresses

Compare ATA[®] buttressing with the conventional buttressing method

- PSD homogeneity
- Permeability
- Moisture content
- Trafficability
- Turbidity



What is ATA[®]?

Activation: agglomerating fine particles

Tethering: depositing a monolayer on coarse particles

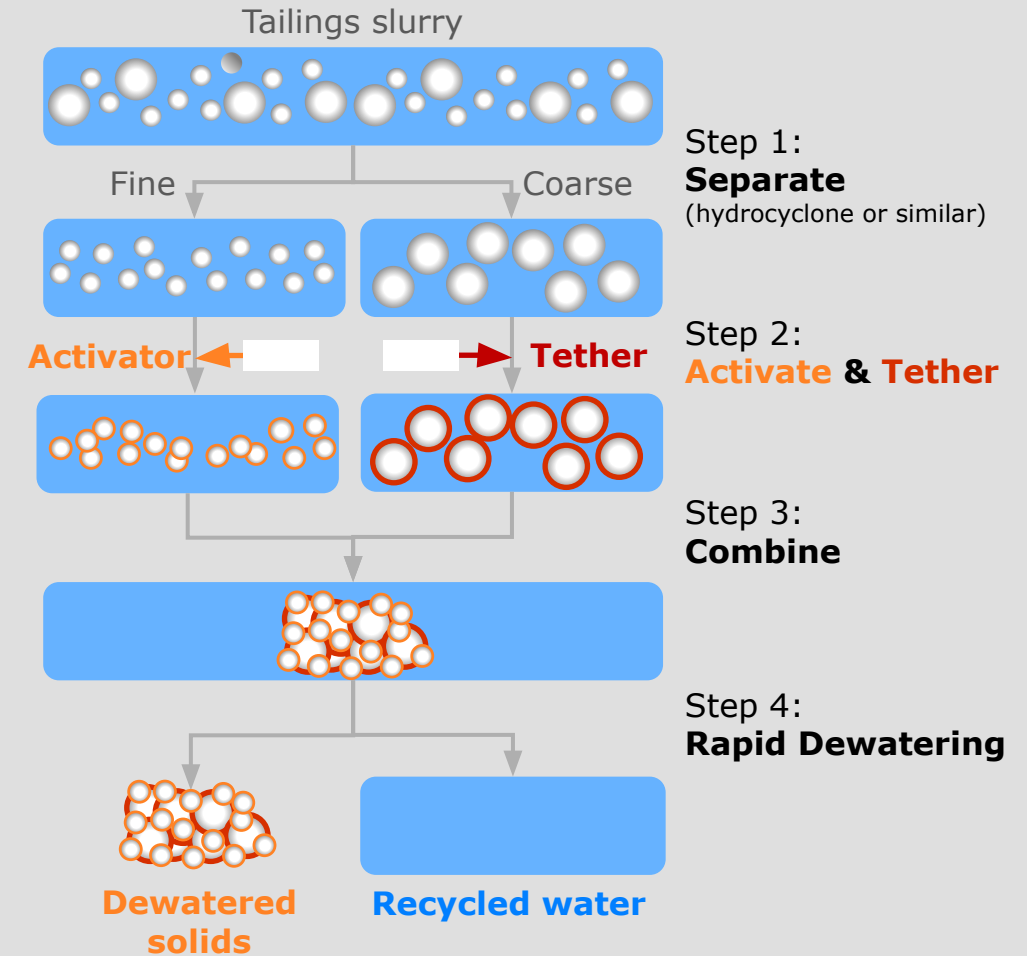
Anchoring: activated fines attach to the coarse particles, creating rapidly settling material



ATA[®] Material

ATA[®] rapidly separates tailings into high strength solids & clarified water

STITCHWISE
SUPPORT. SUSTAIN. SUCCEED



ATA[®] Treated Material

STITCHWISE
SUPPORT. SUSTAIN. SUCCEED

CLEANTEQ
METAL RECOVERY

**ATA[®] treated material
structure**



**ATA[®] treated material
settling**



ATA[®] treated material

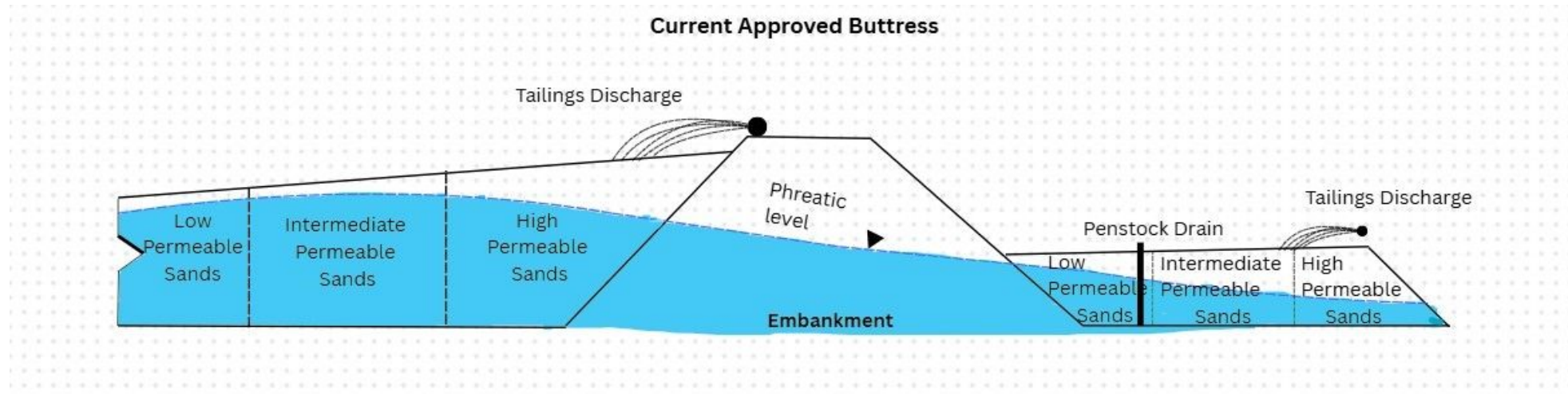
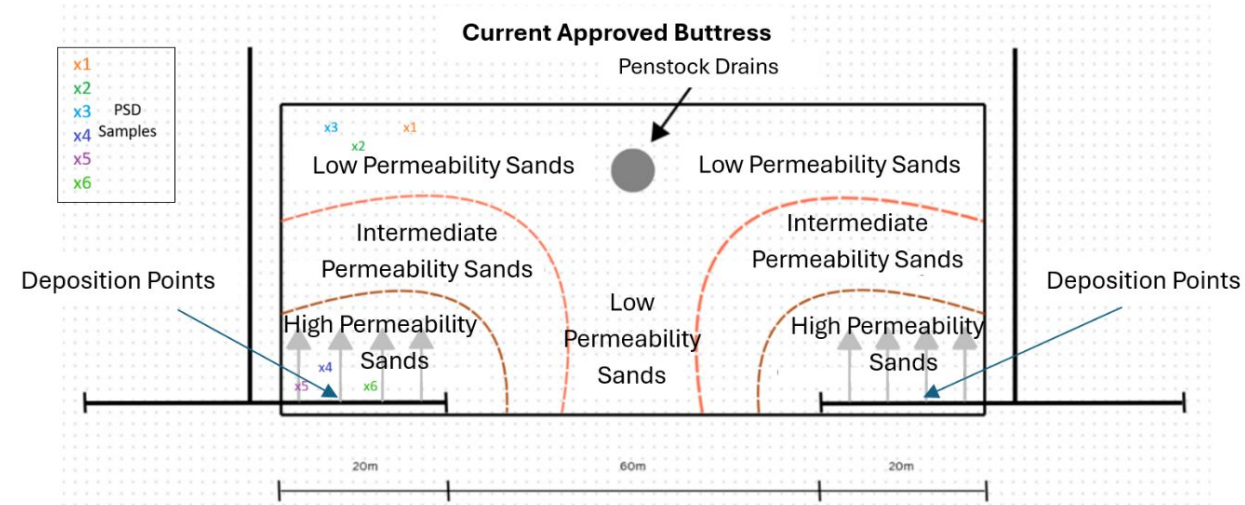


On-site Piloting Work

Conventional Buttressing

Theoretical settling profile:

- 21 t/h diverted from main flow into the paddock
- Deposited through manifolds at the back of the paddock, flow towards the TSF wall towards penstock drain



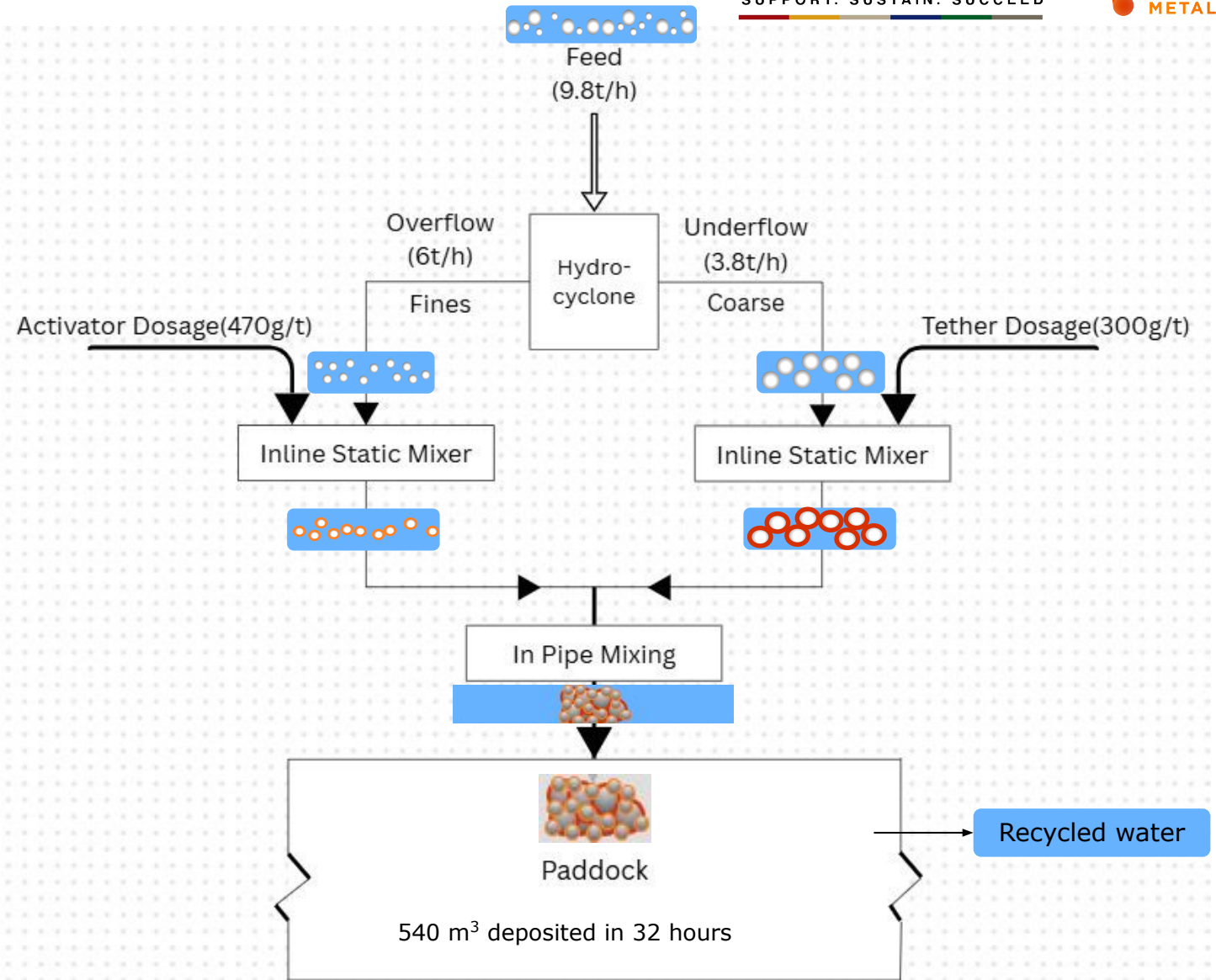
ATA[®] Pilot Plant

STITCHWISE
SUPPORT. SUSTAIN. SUCCEED

CLEANTEQ
METAL RECOVERY

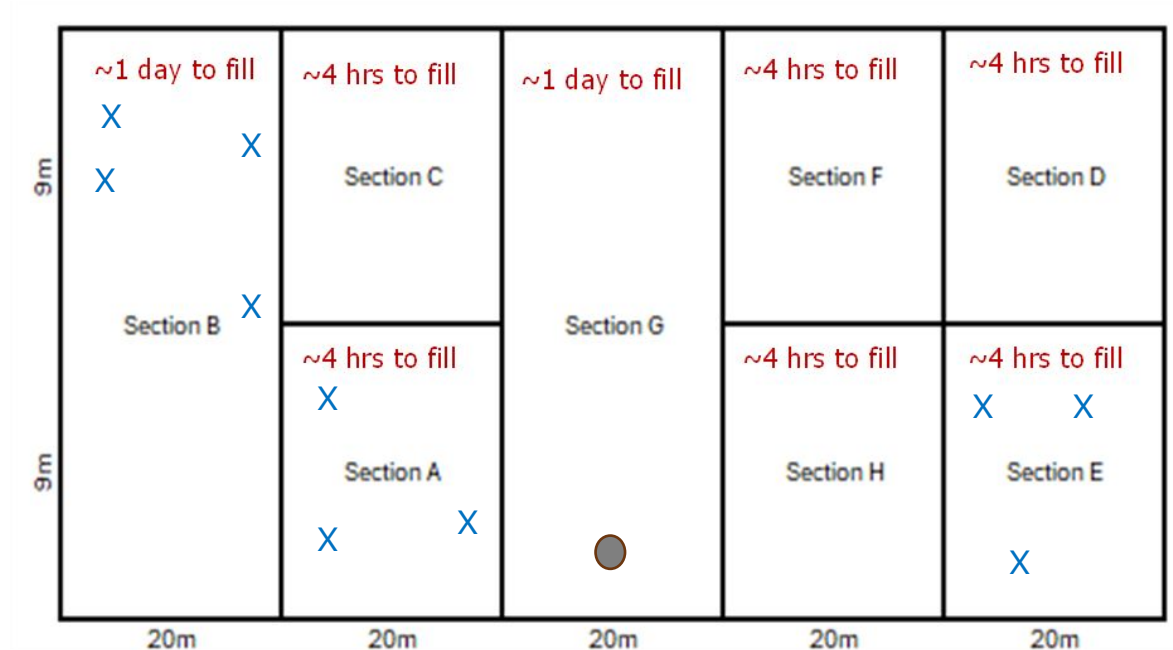
Sample Characteristics

Feed RD	1.3-1.45
Feed p80	100µm
Overflow p80	90µm
Underflow p80	112µm
Water recovered	~400m ³

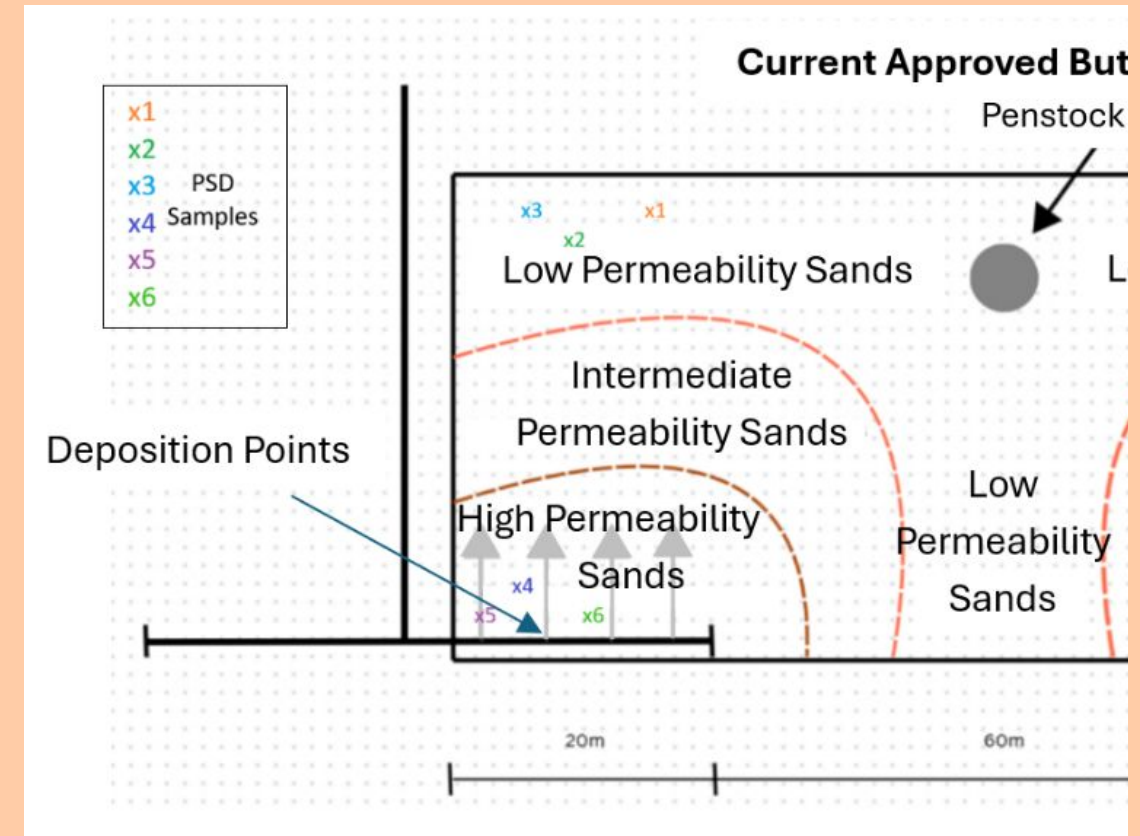


Sampling Points

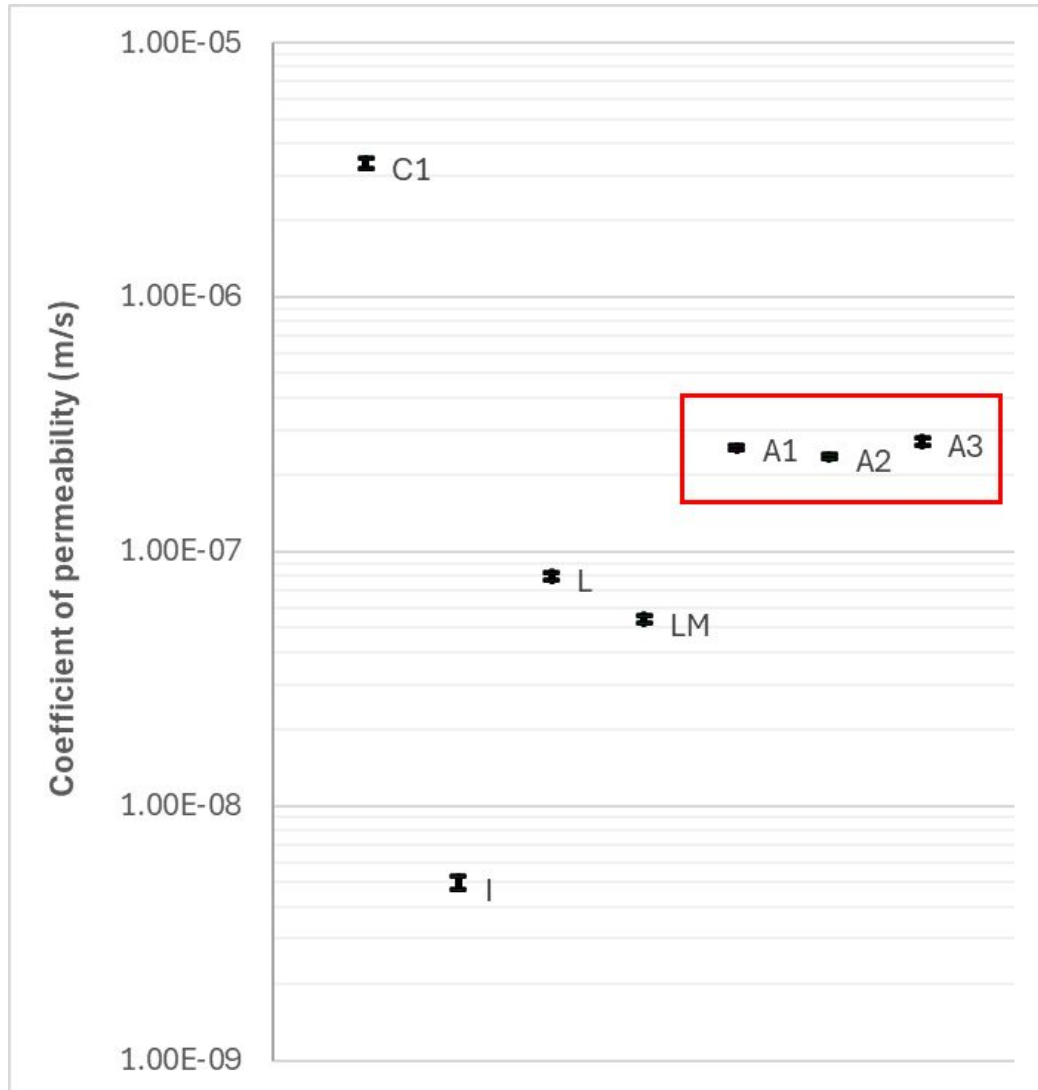
ATA[®] paddock sampling points



Conventional paddock sampling points



Permeability

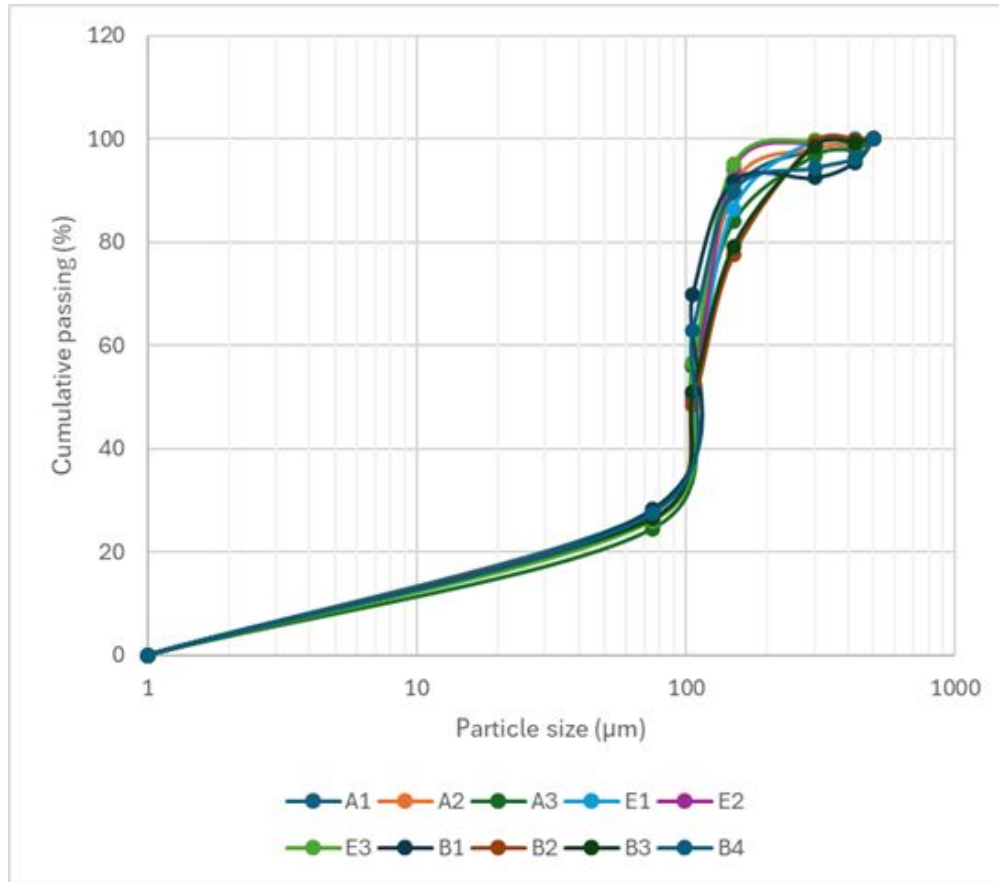


Coefficient of permeability: Ability of solids to allow water to pass through

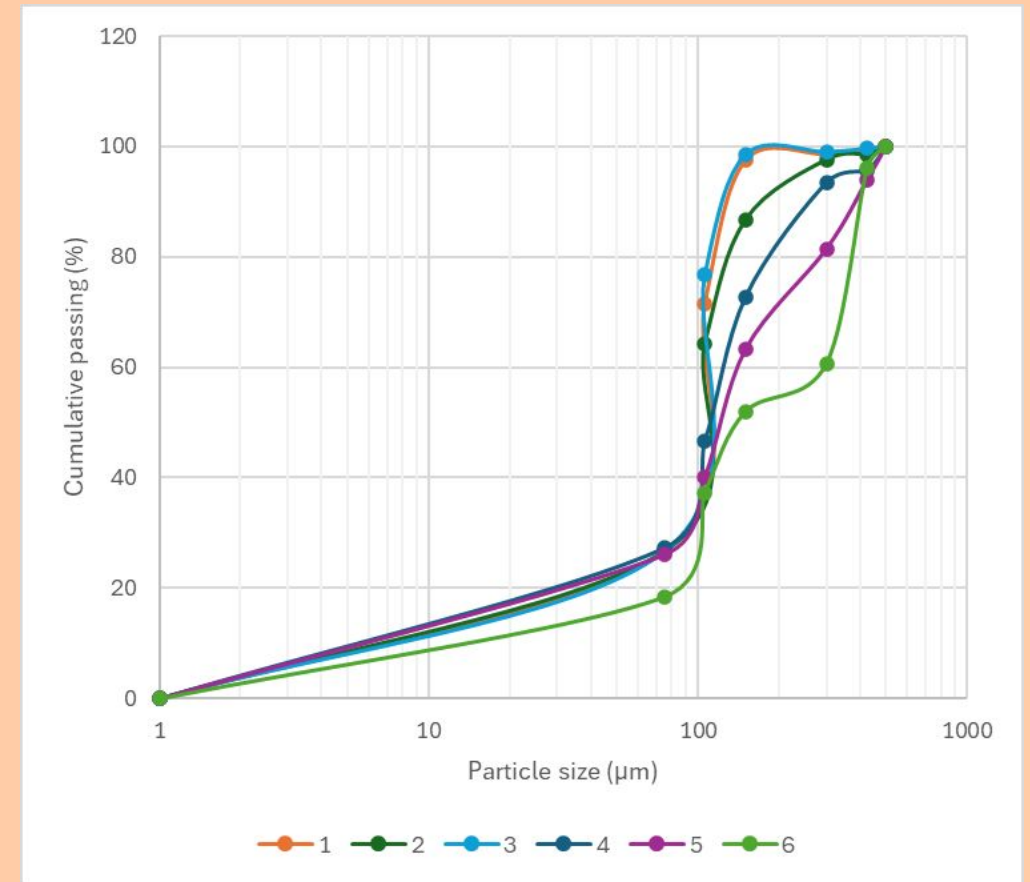
- A1-3: ATA[®] samples
- C1: Coarse, high permeability sands area in conventional buttress
- I: Intermediate area between fine and coarse material in conventional buttress
- L: Fine, low permeability area in conventional buttress
- LM: Fine, low permeability area close to the penstock drain

PSD Homogeneity

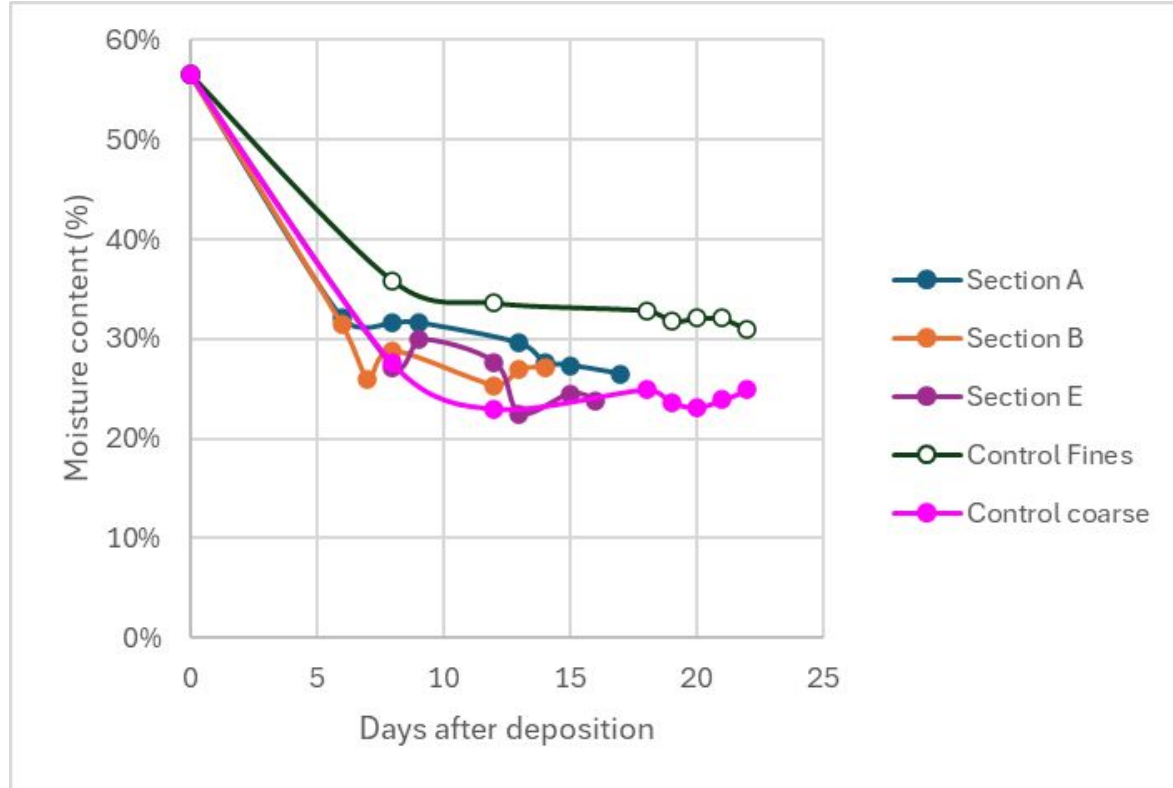
PSD's of different samples from the ATA[®] Buttress



PSD's of different samples from the Conventional Buttress

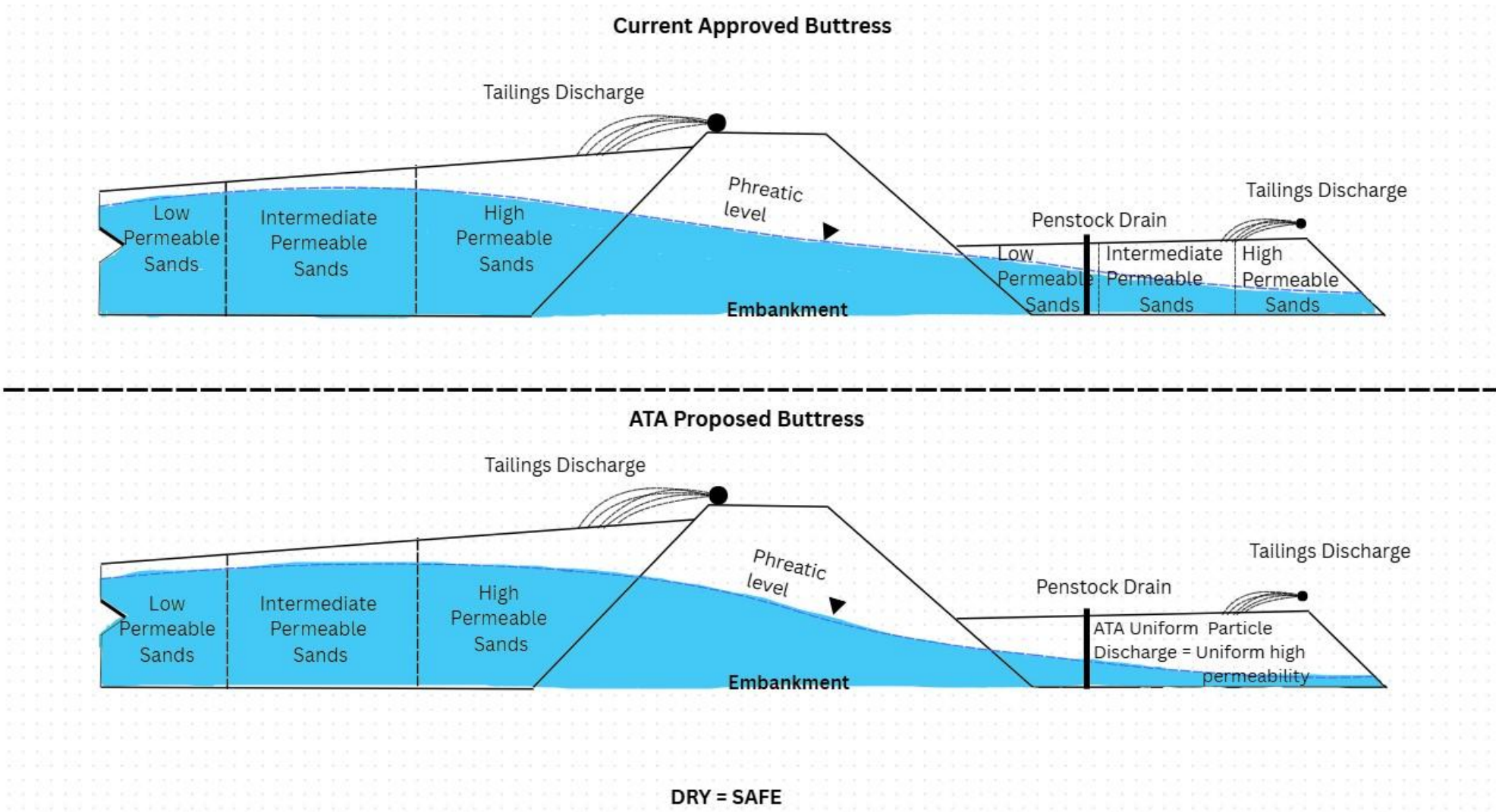


Moisture Content



**Vehicle parked on ATA[®] section E
13 days after deposition**





Turbidity

Settling time (s)	Turbidity (NTU)	
	ATA®	Conventional
30	5.23	>1000
60	5.12	>1000
120	4.06	>1000
900	Not Measured	>1000
1200	Not Measured	228

- Samples taken in 20L buckets directly from deposition points
- Samples taken from supernatant after different time intervals
- Provides an indication of settling velocity and dewatering efficiency

**ATA®
Supernatant**

**Conventional
Supernatant**



Clean TeQ Water

Conclusions

ATA[®] treated material provides:

- More homogenous and potentially more geotechnically stable buttress
- Faster settling with less segregation
- Increased permeability with uniform drainage behaviour
- Reduced phreatic line
- Faster water recovery
- Increases rate of rise and strength of trafficable buttresses



What's Next?

Project Specific:

- Feasibility of design and construction of 20 t/h plant
 - Increase rate of rise with by ~70%
 - Prolonged lifespan of TSF

ATA® technology commercial:

- Currently in the design phase of a 750 t/a full scale ATA® filtered tailings plant in Australia utilising horizontal vacuum belt filtration.



Questions?



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