

Memo

To:	Bob Prince-Wright (Newmont/JDS) Calvin Goldschmidt (Newmont/JDS)	Date:	August 4, 2011
Company:	Hope Bay Mining Limited	From:	Lowell Wade (SRK)
Copy to:	Maritz Rykaart (SRK) Seema Kang (SRK)	Project #:	1CH008.033
Subject:	Doris North Project		

This memo serves as an official record for issuing the following document.

1. SRK Consulting (Canada) Inc. (2011). **Robert's Bay Tank Farm Slope Remediation**, Doris North Project, Nunavut, Canada. Technical Memo prepared for Hope Bay Mining Limited, Project Number 1CH008.033.0201, August 3, 2011

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- Once logged into the portal site, click on "**Information for Document Control**" folder,
- The drawings are located in the "**Memo Robert's Bay Tank Farm Slope Remediation 20110804**" sub folder.

This document has also been uploaded to the Hatch iPas DM website. If anyone has problems accessing or downloading the files, please do not hesitate to contact me.

Memo

To:	Maritz Rykaart and Lowell Wade	Date:	August 03, 2011
Company:	SRK Consulting	From:	Anton Bloem
Copy to:	file	Project #:	1CH008.033.0201
Subject:	Robert's Bay Tank Farm Slope Remediation		

The Roberts Bay Fuel Tank Farm ("RBTF") excavation has been completed to the point of construction of the containment pad and the partial completion of tanks #4, #3, and #2 – as at the time of a slope-stability remediation visit on the 25th by BM and AB, and on the 28th of July 2011 by AB. This follows on from the preliminary visits and mapping done during June (refer to memo dated 20110615 by Ross Greenwood) on the RBTF at Newmont's Hope Bay Gold Project.

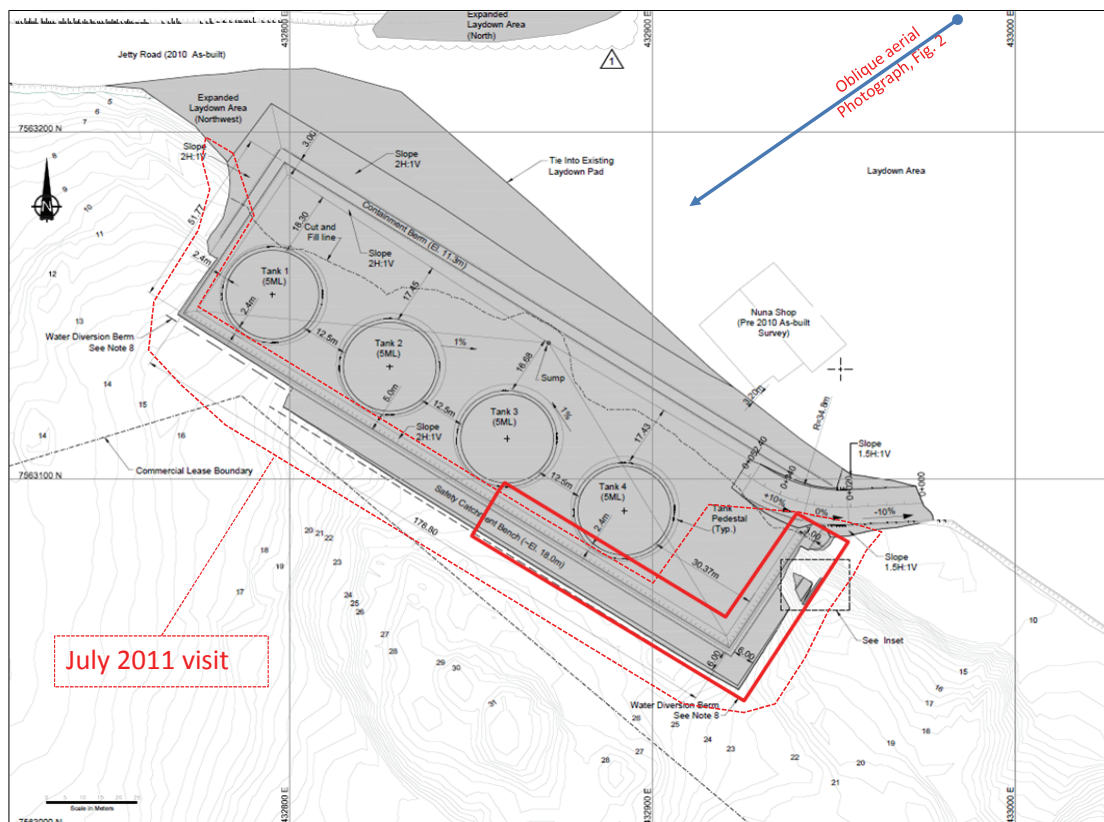


Figure 1: Roberts Bay Tank Farm showing inspected area and approximate viewing direction for photograph displayed in Figure 2.



Figure 2: Oblique aerial view of RBTF, looking south-eastward (in mid-July)

Observations

The excavation was visited on two separate occasions. The use of engineering field-notes from previous visits, as well as the tank farm design drawings and in-person briefings by Nuna and SRK personnel, provided guidance on the scope of this work:

- The mid-slope berm was inaccessible for the full extent of the excavation – the benches were inspected from above and below the overall slope;
- The south-east wall appears stable with no instability forming joint-sets (or combinations thereof) dipping towards the tanks;
- One of the dominant joint-sets (J_2 , $40/060^\circ \pm 15/020^\circ$) dips towards the tanks from the south-west wall, and may contribute to future planar failures on a bench scale if un-mitigated;
- In areas where the crests are intact, loose material will be ice-jacked and will likely become mobile within the next few seasons of freeze-thaw. This will stabilize over time;
- J_2 forms the crest angle (and the full bench-face angle in some areas) for a large part of both the lower and upper benches;
- There are three areas of concern on the upper bench crest, all involving rock blocks bounded on their lower surfaces by J_2 , as illustrated in Figure 2;
- An area of concern on the lower bench, between tanks #3 and #2, involves a partially disturbed rock block bound by opened joints;
- There is evidence of a high-angle wedge failure that occurred behind tank#2. It extends the full height of the wall;
- The tank#2 wedge-failure destroyed the continuity of the mid-slope berm, and essentially isolates the southern two-thirds of the berm from road access in the west, and;
- The north-western third of the slope is relatively low and stable, having already broken on the dominant joint-sets.

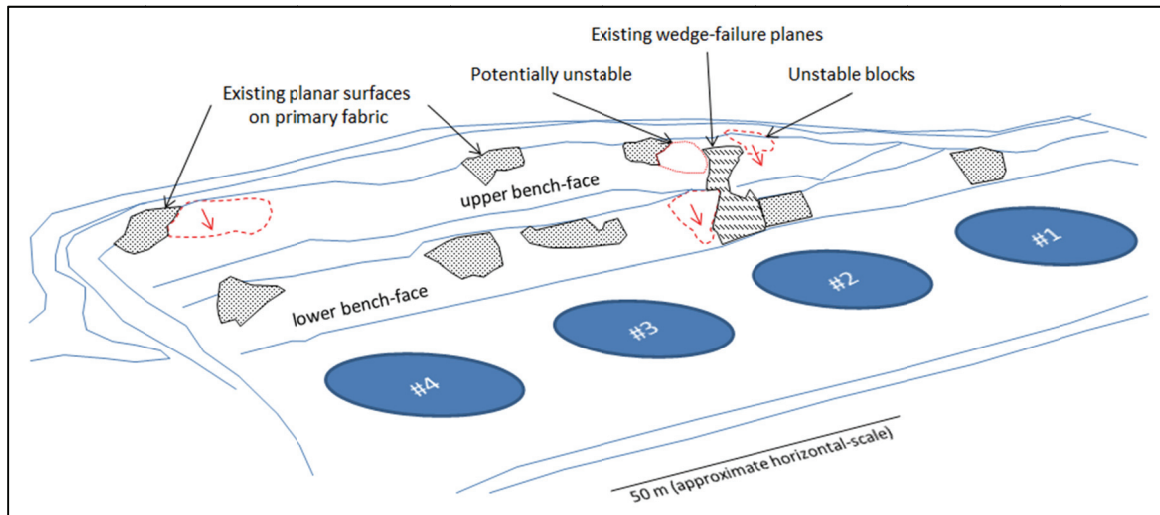


Figure 3: Main slope features (20110728) with blocks identified for remediation.

- There is evidence of a high-angle wedge failure that has already occurred behind tank#2. It extends the full height of the wall;
- The tank#2 wedge-failure destroyed the continuity of the mid-slope berm, and essentially isolates the southern two-thirds of the berm from road access in the west, and;
- The north-western third of the slope is relatively low and stable, having already broken on the dominant joints.

Remediation Recommendations

The following recommendations are conceptual and have been made based on the visual inspection of the accessible rock exposed in the excavation. These conceptual designs will be refined and field-fitted at the time of support installation and remediation:

- Two main options exist to stabilize the lower-bench block behind tank#2 – both of which depend on the availability of suitable equipment and trained personnel on-site, and;
- Option-A (as illustrated in Figure 4) suggests rock-bolting of the upper bench crest blocks at a spacing to be determined on-site and cable trusses across the lower-bench block.

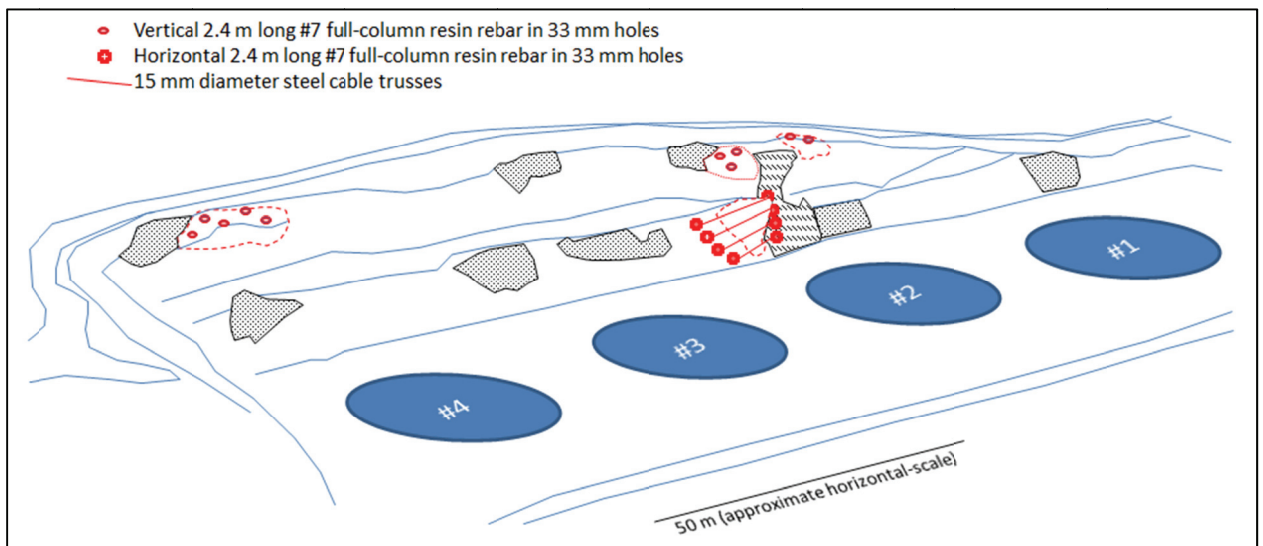


Figure 4: Option-A, primary support recommendations for unstable blocks in RBTF slopes.

- Option-B (as illustrated in Figure 5) suggests rock-bolting of the upper bench crest blocks at a spacing to be determined on-site, and cables spanning the full slope height across the bolted lower-bench block, and;
- The second option depends on access to the berm between the benches and is only suitable if safe access to this level can be achieved.

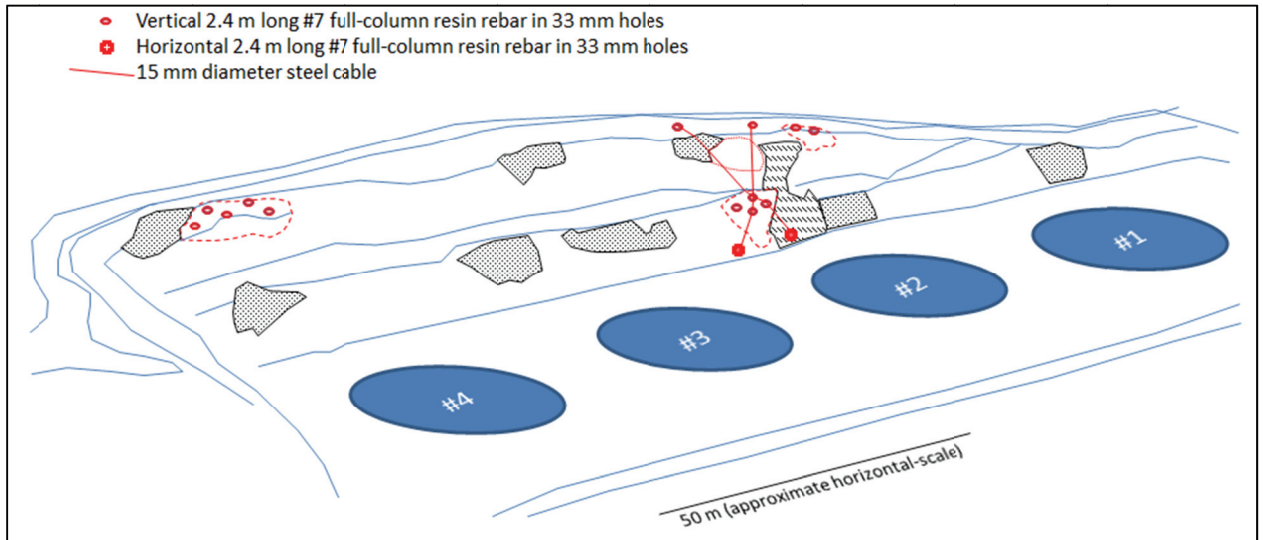


Figure 5: Option-B, primary support recommendations for unstable blocks in RBTF slopes.

- The main areas identified with risks should be contained with draped wire mesh, weighted at the toe and mid-line in the case of the tank#2 drape, and;
- Draped areas may need to be extended if further loose is found along the slopes.

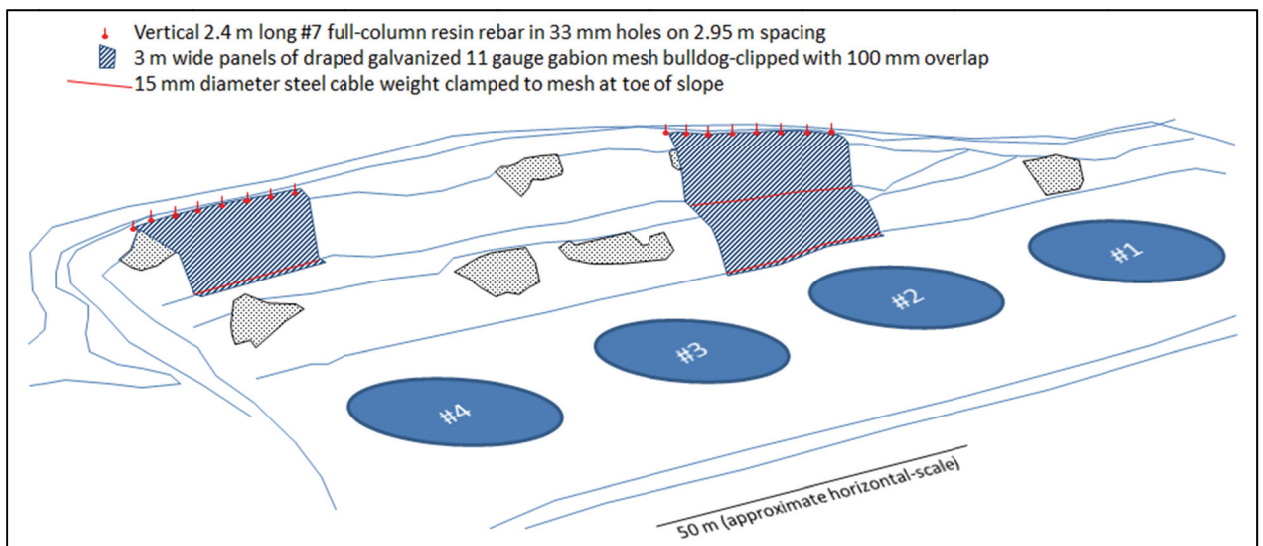


Figure 6: Containment of potential loose and fall-material on RBTF slopes.

- Final design drawings, with bolt positions annotated on photographs, with hardware specifications will be provided;
- Where possible, suitable (galvanized steel) on-site hardware will be used for remediation;

- An final on-site inspection to field-fit the design is required, at which time all bolt positions will be marked-up prior to drilling, and;
- An SRK-responsible person should oversee the remediation work, and adjust the design in the event of slope conditions changing.

Regards

SRK Consulting (Canada) Inc.

Anton Bloem
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Reviewed by:

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