

DAILY REPORT #77 – DORIS NORTH INFRASTRUCTURE/ NORTH DAM

Prepared by:	John Kurylo Megan Miller	Date:	2012.03.22
Reviewed by:		Project #:	1CH008.058.0320
Role	Company	Personnel – Position	On Site
Client	Hope Bay Mining Limited (HBML)	Angela Holzapfel – ESR Compliance Manager David Vokey – ESR Coordinator Don Ethelston – HSLP Advisor Dean Wold - Safety Jill Turk – ESR Coordinator Katsky Venter – ESR Manger Michelle Tanquay – ESR Site Manager Stirling Kelly – HSLP Advisor	Out No Yes No Yes In No No
	JDS	Lloyd Jackson – Mechanical Superintendent Doug Fielding – Construction Manager Ishan Fechter – Construction Coordinator Jerry Graham – Construction Manager Kevin Whieldon – Project Coordinator Mark Valeriot – Construction Manager Calvin Goldschmidt – Construction Coordinator	No Yes Out No No Yes In
Engineering Design Consultants	SRK Consulting (Canada) Inc.	John Kurylo – Site Engineer Megan Miller – Site Engineer Lawrence Borowski – Site Engineer Murray McGregor – Site Engineer Iozsef Miskolczi – Site Engineer	Yes Yes No No No
	EBA Engineering Consultants Ltd.	Jeff Orr – Project Manager Jennifer Stirling – Geologist Thomas Bradshaw – Junior Engineer Ernest Palczewski – Geologist	No Out In Yes
Earthworks Contractor	Nuna Logistics	Doug Haverland – Area Superintendent Gary Sodhi – Field Engineer Georges Cornelissen – Survey Manager Jeff Roberts - Surveyor Jim Cardinal – Foreman Jordan Gunter – Foreman (Dayshift) Kevin Oakes – Project Engineer Kevin Kozdrowski – Foreman (Night shift) Kyle Kuntz – Project Engineer Margaret Caley – Surveyor Matt McKay – Civil Supervisor Mike MacMaster – Surveyor Mike Price – Field Engineer Nick Stoneberger – Superintendent Rick Peter – Foreman Ron MacMaster – Surveyor Simon Chipper – Civil Supervisor	Out No Yes Out Yes Yes In Out No Yes No In Yes In No No Yes
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WEATHER (ROBERTS BAY)

(<http://www.wunderground.com/weatherstation/WXDailyHistory.asp?ID=INUNAVUT3>)

Temperature/Wind Chill (°C)	6AM:-25.9/-29	12PM:-23.6/-28	6PM:-22.2/-26	12AM:-23.6/-27
Precipitation (mm)	Rain: None		Snow: None	
Conditions	Dayshift: Sunny, Clear, cold wind.		Nightshift: Clear, light breeze.	
Daily Norms (°C)	24 hour high: -26		24 hour low: -26.5	

HEALTH, SAFETY & ENVIRONMENT

- Megan Miller and Ernest Palczewski attended Nuna's daily toolbox meeting.
- John Kurylo and Thomas Bradshaw attended the nightly toolbox meeting.
- A red fox was spotted crossing the Float Plane Dock Access road near the pump house.

COMMENTS, CORRESPONDENCE AND ACTIVITIES**DAILY MEETING WITH NUNA AND HBML TEAM:**

The daily meeting was attended by Newmont [Don Ethelston, Jill Turk], JDS [Doug Fielding, Mark Valeriot]; Nuna [Doug Haverland,] and SRK [Megan Miller, John Kurylo].

Topic	Status
Safety and Environment	<ul style="list-style-type: none"> • Safety had no issues. • ESR asked about the packer spill from the other night; the fluid spilled was hydraulic oil.
North Dam	<ul style="list-style-type: none"> • Yesterday a few panels of GCL were placed on the dayshift and general cleanup. • SRK reported that there were issues with the plant during the night shift and the placed material was very wet. They ran out of FCM during nightshift and had to stop placement. • SRK stated that the upper horizontal thermistor cable at station 0+85 [ND-HTS-085-33.5] is not working (all beads).
Water Management Structures	<ul style="list-style-type: none"> • Nuna plans on keeping Layfield until the area of the diversion berm with liner covered in snow is cleaned up in case patching is needed.
General	<ul style="list-style-type: none"> • ESR asked when the Jetty thermistor would be installed. The Jetty thermistor will be installed when equipment becomes available. • Drilling will continue at Quarry 2. • Everyone was reminded that zoom-boom and man-lift logbooks must be kept up to date.

SURVEY:

Required	<ul style="list-style-type: none"> • FCM placed March 21, 2012 • GCL placed March 22, 2012 • To date as-builts of Doris Diversion Berm (ROQ, underliner crush, liner, overliner crush) • Recent multi-bead cable string pickups and crush cover over cables.
Data Received	<ul style="list-style-type: none"> • Cross section of the dam • Survey of GCL panels placed to March 21, 2012 • Preliminary surface / sections for Overliner (over GCL) material placed on March 22nd.
Outstanding	
Upcoming	<ul style="list-style-type: none"> • Diversion Berm material as placed • Dam material (ongoing)

NORTH DAM/FROZEN CORE PLANT PAD:**Multi-bead Thermistors:**

- Readings were taken of all multi-bead thermistors.
- The Nuna electrician replaced the connector on the thermistor string labeled ND-HTS-175-33.5 (which is really ND-VTS-175-KT as the ends were swapped when spliced). All 11 beads on this thermistor are working.
- A silver marker was used to label the two swapped thermistor cables. Photos of this are below.

Frozen Core Plant:*Dayshift*

- Labourers shoveled material from around the hopper feed belt.
- FCM and over GCL mixed material was hauled to the frozen core plant pad from Quarry 2.

Nightshift

- The FCP started Overliner material production around 20:00.
 - Staring temperatures were around +30C and the water dial was started at 48.0.
 - The angle / control for the burner (typically used to assist with heating the material and drum) was not turned on at the beginning of the placement. Some issues with controlling the temperature were had on nightshift at the plant. Temperatures were not easy to regulate and kept climbing. The door to the FCP drum was tied open to assist with lowering the temperatures. Temperatures were climbing up past +33C then after the door adjustment were around +31C.
 - At 20:30 the water was turned down on the dial to 47.4.
 - At 20:45 the water was further turned down to 46.4 on the pump dial.
 - At 21:00 the water pump was further turned down to 45.8 on the dial.
 - At 23:00 the water was further lowered to 44.8 on the dial
 - At 23:20 the water was again lowered to 43.8.
 - At 23:50 the water was lowered down to 40.7. Additional adjustments to try and reduce the material temperatures were made at this time.
 - At ~23:45 lowered the water again to 39.3 on the water pump dial. This setting was kept for the remainder of the pour / placement.
 - Around 1:45 am the plant shut down.
- As outlined above issues controlling / regulating the amount of water in the material around optimum (proctor) moisture content were experience. The plant was more sensitive then it has been noted to be in the past. As time went on the material appeared to be getting wetter although the water inputs were being continually reduced. Around midnight the variability in the plant operation was worked out.
- 22 loads of Overliner material were sent down to the dam and 1 load was sent to reject. In total 128 loader buckets were loaded into the hopper.

Dam Shell:*Dayshift*

- Some transition material was placed on the downstream side of the core from approximately station 1+00 to 0+30. This material was not compacted.
- Crush bedding material was placed around the thermistor splices at station 1+75, once it was confirmed that all thermistors were working.

Nightshift

- Some Transition material was placed on the downstream side of the core from approximately station 1+20 to 1+80 after the Overliner placement was compelted. This material was not compacted on this shift.
 - SRK held a discussion in the field with the Nuna foreman that it was preferred if Transition was not placed over the Oveliner material that is only one lift above the GCL grade. Ideally this Overliner material would be allowed to harden up (i.e. before

freezeback but after a crust has formed) before Transition material is placed over an area.

- It was suggested that the area from ~ 1+95 on the N end to ~ 1+60 be focused on for Transition material placement as this material has had ample time to freeze/ at least partially freeze.
- Additional discussions expected to result on this in the coming days.
- A few loads of Transition material were end dumped on the top of the core at the North end. It is expected that dayshift tomorrow will place additional Transition and spread these few piles of material.

Key Trench/Central Core:

Dayshift

- Laborers cleaned the slope of the core material with brooms and the air compressor south of 1+20.
- The excavator removed snow from the base of the core material, near 1+00.
- The FCM placed on the crest of the core did not freeze back during the dayshift. Near the end of the dayshift this material was at 0°C.
- To allow GCL placement to start on dayshift a one-time exception was made with regard to the freeze back of the material placed at the toe of the dam. Placement of GCL over this area was allowed once it had reached 0°C, provided that no equipment ran on the material prior to regular freeze back and that the material achieved freeze back of -2°C prior to material placement over the GCL.
- Three panels of GCL were placed up to station 1+15.
- Prior to GCL placement it was requested that the area of fresh core placement near the toe of the slope be scraped to remove all sharp/jagged edges. The excavator scrapped this area but did not remove all of the rough areas prior to the start of GCL placement.
- Once the GCL was unrolled the GCL over the area at the toe of the slope was folded back as to not insulate the material which was not fully frozen back and so that the rough areas can be scraped of before the material is fully deployed.
- A few other rough/sharp areas were noted on the core in the area of placement. In these areas scraps of GCL were placed prior to GCL deployment to prevent puncture of the liner.
- A few patches were put on slightly worn looking pieces of the lower GCL.
- At one point during placement the excavator was noticed to be dragging the edge of the GCL material on the ground, while walking around. This was mentioned to the foreman.
- The CAT 330 excavator scraped/removed the last couple of meters of FCM placed on nightshift, to around 1+05. This material was removed because it was ~20cm higher than the design grade, ended in a straight face and the foreman did not feel that it could be tied in smoothly to the other at-grade core material in the small section (~10m) which remained below grade. The core material was not frozen back when this material was removed so some cracking of the thick frozen core occurred; this cracked material will have to be removed when the area is fully frozen back.

Nightshift

- Near the beginning of shift SRK went to the field and discussed recent activities at the dam and areas of interest to the Nuna foreman, which just came back to site on today's flight.
 - The area at the upstream toe of the slope around 1+25 was pointed out the Nuna foreman. It was noted that the liner could be re-draped over this area once it had been scraped down and placed over once freezeback had been achieved. Around 6:00 am freezeback was achieved in the aforementioned area.
- Some snow that was previously piled near the toe of the upstream slope by the GCL liner overlap was spread. This snow berm was placed in an attempt to limit seep water from the Overliner material reaching the last GCL panel, and thus allowing for an overlap to result without requiring hording and heating last placed GCL panel.
- Some minor cleaning activities resulted around the downstream toe from ~ 1+60 to 1+30.
- Overliner material was placed today from ~ 1+95 to 1+40
 - The majority of the overliner material was placed today from ~ 1+60 to 1+40 over the top,

- side and base of the slope.
- A third and fourth lift was place from ~ 1+60 to 1+95 to fill in this area to the top of the design key trench excavation elevation.
 - Material placed approximately near the 1+70 to 1+85 area appeared wetter than optimum for the placement of the 3rd lift in this area (see notes on FCP operation in 'Frozen Core Plant' section of this report).
 - In some areas the packer was told to stop vibratory packing as in areas the surface was being compacted a large number of times with vibration and water was being brought up through the Overliner material (coarse / more gravel rich than the current FCM being used).
 - The vibratory compactor was able to compacted the base of the slope, then once it was firmer was able to take a short run at the slope and was observed to make it all the way up the 2.5H:1V slope from the toe to crest.
 - Material was spread with a 330 excavator.
 - An offset was left from today's overliner placement and the end of the placed GCL.
 - Some bleed water was noted at the toe of the downstream slope (near the fillet area). Some of this bleed water bypassed the snow berm created. Laborers used flat shovels to remove some of the wet snow and partially frozen bleed water off the liner at the toe. See photo 13. Additional hording and heating around this area can be expected. Additional techniques to limit / control the bleed water will be investigated in the coming days. The main factors influencing the bleeding are the coarser gradation of the material (less readily holds water), the near or slightly above optimum moisture contents in the material, and the downwards slope of this area (higher elevation in the N then water travelling down through or on material down to the S).
 - After the Overliner placement was completed Nuna survey went back to the office and compiled the recent survey data for the Overliner material. Based on the Nuna models / isopach a preliminary as-built review was completed for today's Overliner placement. See Figure 3 for details.
 - It was noted that there was an ~ 100 m² area where the Overliner material grades were below the SRK design lines / limits. Typically this area was only 0.1 to 0.12m below the design lines.
 - The Nuna foreman indicated that they wanted to proceed with Transition material placement over this aforementioned area (around ~1+75 to 1+95).
 - It is expected that the as-built blasted key trench is slightly inside and below the IFC design lines in this area. This was not further examined due to time constraints and the need for a decision to be made immediately for Transition placement to proceed.
 - To allow for Transition placement to progress (and to not have to restart the plant) a one-time allowance was granted by SRK for Nuna to place dry Overliner material in this area to bring it up to the SRK design lines / limits. Note that in the aforementioned area more than 0.3m above the GCL liner was noted everywhere (based on section review). Further, it should be noted that this was the wettest and softest area where four plus lifts of Overliner material from the plant was placed. See Photo 15.
 - One load of dry Overliner material was spread over this area.

Field Geotechnical Testing, Laboratory and Sampling:

SINGLE BEAD THERMISTOR STATUS

Installed Today			Active			Destroyed / Abandoned		
ID	Station	US/DS/Center	ID	Station	US/DS/Center	ID	Station	US/DS/Center
			SB23	0+65	CL			
			SB26	1+20	U/S			

PARTICLE SIZE DISTRIBUTION SUMMARY

Collected	Processed	Completed
HB12-FCP-CORE-PSD76-QA-20120322	HB12-FCP-CORE-PSD76-QA-20120322	HB12-FCP-CORE-PSD74-QA-20120321
		HB12-ND-CORE-PSD75-QA-20120321

MOISTURE CONTENT SUMMARY

Collected	Processed	Completed
HB12-FCP-CORE-MC377-20120322	HB12-FCP-CORE-MC379-20120322	HB12-FCP-CORE-MC377-20120322 HB12-FCP-CORE-MC378-20120322
HB12-FCP-CORE-MC378-20120322	HB12-ND-CORE-MC380-20120322	
HB12-FCP-CORE-MC379-20120322	HB12-FCP-CORE-MC381-20120322	
HB12-ND-CORE-MC380-20120322	HB12-FCP-CORE-MC382-20120322	
HB12-FCP-CORE-MC381-20120322	HB12-ND-CORE-MC383-20120322	
HB12-FCP-CORE-MC382-20120322		
HB12-ND-CORE-MC383-20120322		

DRILLED CORE

Collected	Processed	Completed
		HB12-ND-CORE-DC85-20120321 HB12-ND-CORE-DC86-20120321

COMPACTION TESTING SUMMARY

Number of Tests	Material	Tested By	Shift	Notes
0	FCM	EP	Day	No FCM Placed
2	Cover over GCL	TB	Night	Tests Acceptable

- Compaction values over 90% were achieved.

DORIS NORTH DIVERSION BERM:

- Geotextile and bentonite 'plug' were placed from station 260 to 210.
- The first lift of ROQ bringing the key trench up to original ground elevation was placed from station 300 to station 260.
- The overburden/ROQ berm slope was trimmed and the first geotextile and crush layers were placed from station 210 to the cable location (station 165).
- Brief discussions were had with the foreman regarding the location of the culvert crossing the Primary Road. From the drawings it appears as though the current culvert end location will be in the middle of the access road to the overburden dump.

DORIS SUMPS:

- No Activity.

QUARRY 2:

- One drill continues to work for 24 hrs a day (i.e. day and nightshift).

GENERAL:

- Very busy dayshift running back and forth between the diversion berm and the North Dam.
- Today was EBA nightshift crew change day, Jennifer Stirling left site and Thomas Bradshaw arrived on site.

PHOTOS:



Photo 1: Daily progress figure from photo point 1, photo looking south.



Photo 2: Daily progress figure from photo point 2, photo looking north west.



Photo 3: Daily progress figure from photo point 3, photo looking north east along dam alignment.



Photo 4: Placing on panel of GCL, skidsteer holding panel at bottom for placement.



Photo 5: Silver marker marking the corrected identification for the spliced thermistors at station 1+75.



Photo 6: End of FCM placed March 21 nightshift, the end of the placed material was scrapped and removed prior to freeze back.



Photo 7: Closer view at the end of the scraped material. As the material was not fully frozen back the surface of the FCM cracked. This cracked material will have to be removed once freeze back is achieved.



Photo 8: Under liner crush surface at diversion berm. Photo looking east.



Photo 9: Grade staked placed for bottom bentonite layer on the floor of the key trench for the diversion berm.



Photo 10: View of vibratory packer on third Overliner lift (1st today) at the North end of the dam alignment.



Photo 11: Excavator spreading overliner material around station 1+45, ~NE view.



Photo 12: ~WSW view of Overliner material placement progress.



Photo 13: ~ N view of 330 excavator spreading Overliner material around station 1+60. Note bleed water and snow used to slow / trap some of the bleed water.



Photo 14: Packer working around station 1+55 on the 2.5HL1V upstream slope.



Photo 15: ~NNE view towards the North corner of today's overliner placement. Note that this was the area where a thin skiff of drier crush was placed.

FIGURES:

Figure 1 – North Dam Progress – Dayshift

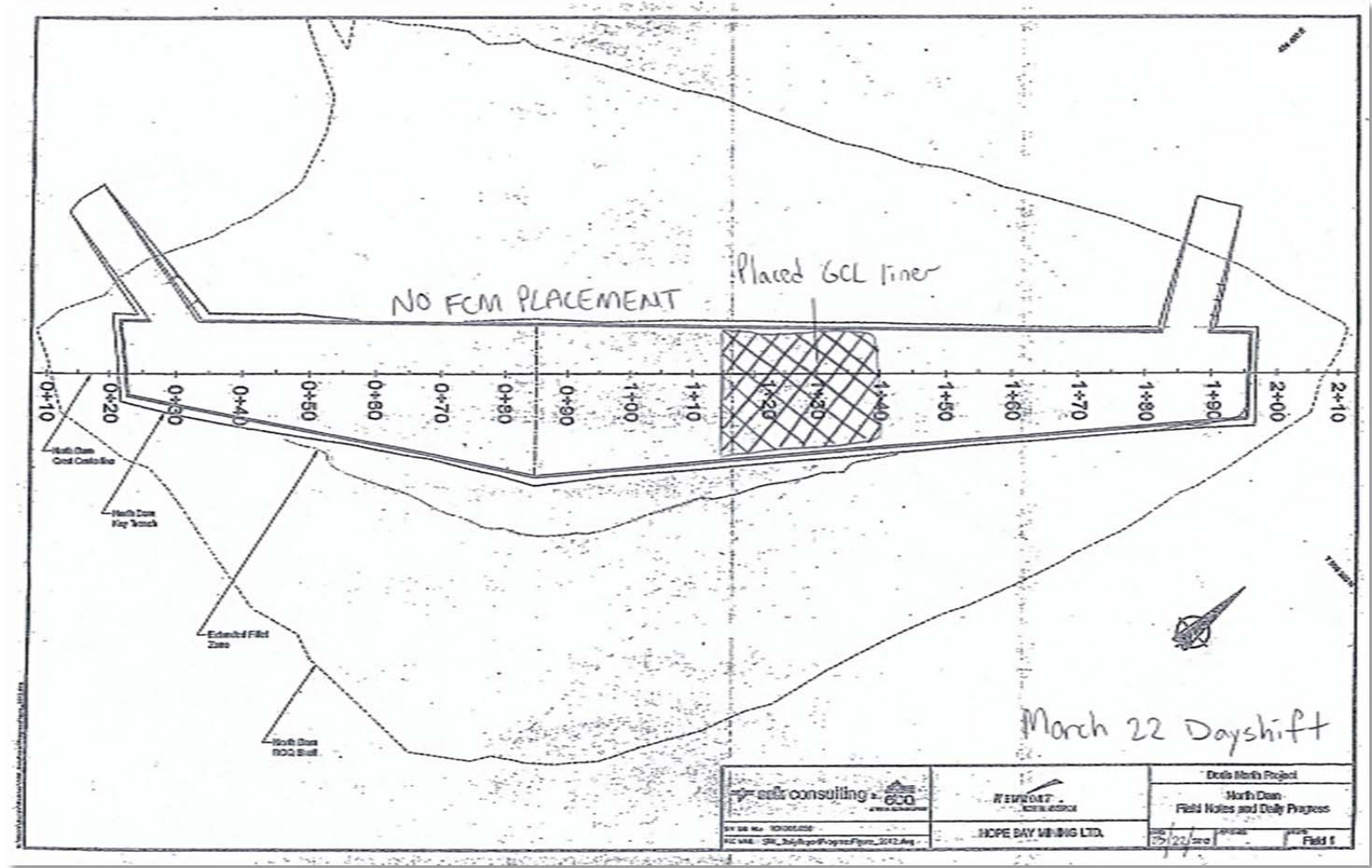


Figure 2 – North Dam Progress – Nightshift

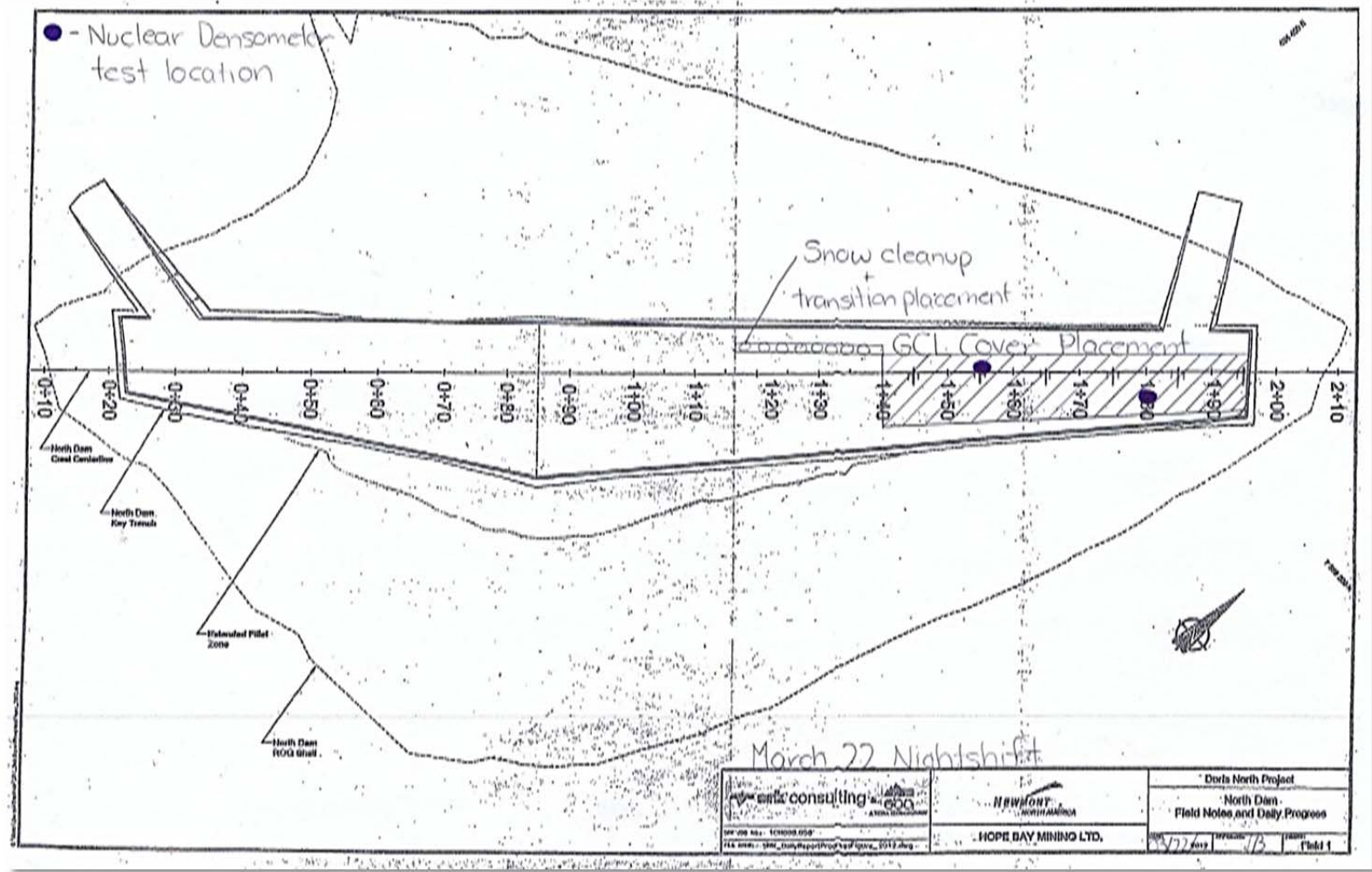
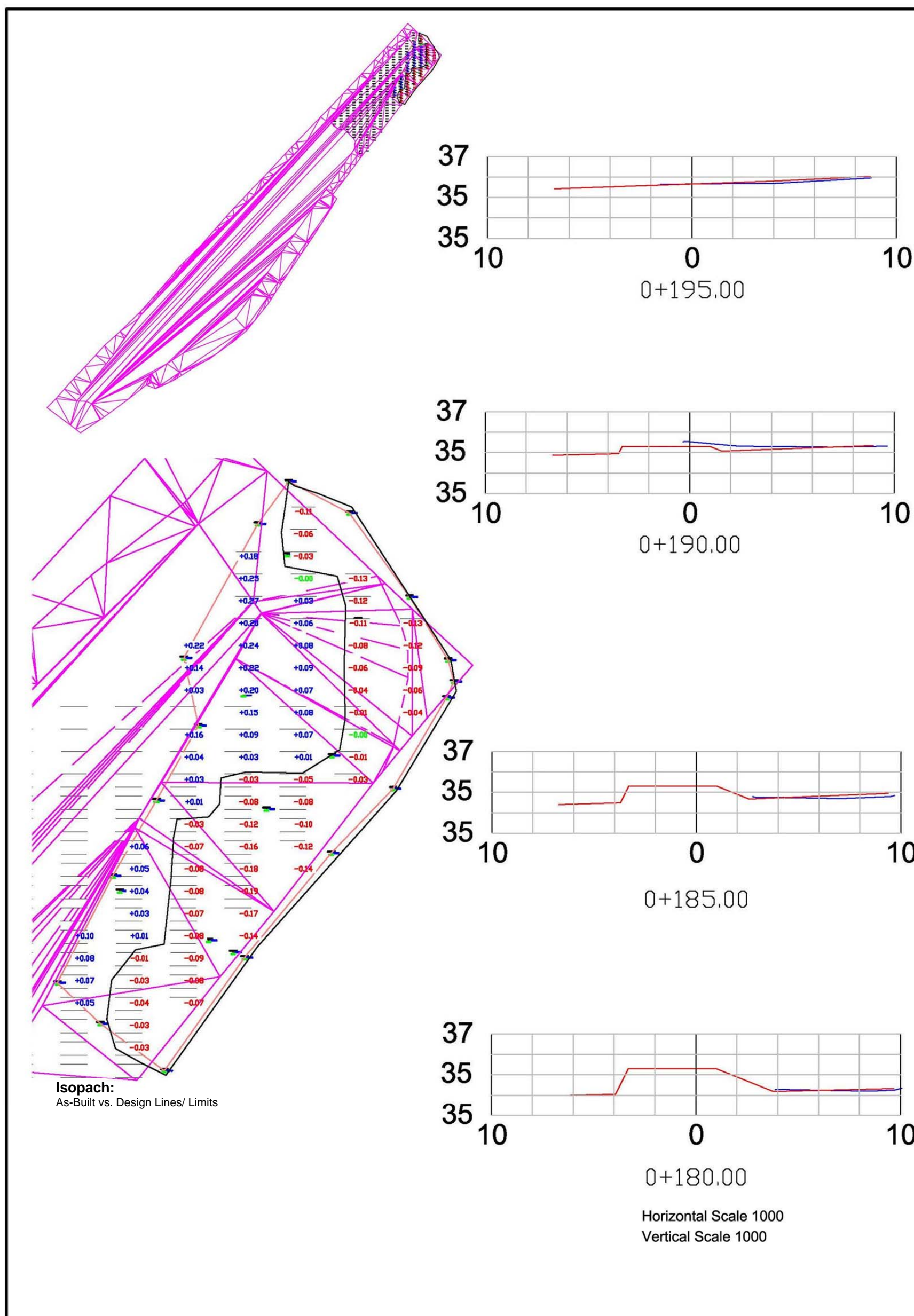


Figure 3 – Preliminary as-built model / review of Overliner material placement at N dam end (model provided by Nuna Survey)



Note: In the sections the red lines show the SRK design lines / limits and the blue lines show the preliminary as-built data review surface. Note that additional Overliner material has now been placed in this area and thus would now raise the elevation of the blue line.