

DAILY REPORT #16 – DORIS NORTH INFRASTRUCTURE/ NORTH DAM

Prepared by:	John Kurylo/ Jeff Orr / Megan Miller	Date:	2012.01.21
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	No Yes Yes No No No Yes No
	JDS	Lloyd Jackson – Mechanical Superintendent Sven Archimowtiz – Electrical Superintendent Doug Fielding – Construction Manager Ishan Fechter – Construction Coordinator Jerry Graham – Construction Manager Kevin Whieldon – Project Coordinator Mark Valeriote – Construction Manager	No Yes Yes Yes No No Yes
Engineering Design Consultants	SRK Consulting (Canada) Inc.	John Kurylo – Site Engineer Megan Miller – Site Engineer Lawrence Borowski – Site Engineer Murry 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 Palczewki – Geologist	Yes Yes No No
Earthworks Contractor	Nuna Logistics	Bradford Watkin – QC Manager Dale Craig – Safety Don Webber – Foreman Doug Haverland – Area Superintendent Gary Sodhi – Field Engineer Georges Cornelissen – Survey Manager Jeff Roberts - Surveyor Jim Cardinal – Foreman Kevin Oakes – Project Engineer Kevin Kozdrowski – Foreman Margret Caley – Surveyor Matt McKay – Civil Supervisor Mike MacMaster – Surveyor Mike Price – Field Engineer Nick Stoneberger – Superintendent Rick Peters – Foreman Ron MacMaster – Surveyor Simon Chipper – Civil Supervisor	No No No Yes No Yes Yes Yes No No Yes Yes Yes Yes No No Yes No
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WEATHER (ROBERTS BAY)

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

Temperature/Wind Chill (°C)	6:25AM:-40.6	12PM:-40.6	5:40 PM: -40.6	12 AM:-40.6
Precipitation (mm)	Rain: None		Snow: None	
Conditions	Day Shift: Calm.		Night Shift: Calm, clear.	
Daily norms (°C)	24 hour high: -40.0		24 hour low: -40.6	

HEALTH, SAFETY AND ENVIRONMENT

- Steam made it very difficult to see on night shift.
- Megan Miller and Jennifer Sterling attended an orientation to the frozen core plant.

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

- The daily meet was attended by ADCO, ACI, Nuna [Doug Haverland, Matt McKay], ESR [Michelle Tanquay], Newmont Safety [Don Ethelston], JDS [Doug Fielding, Ishan Fechter, Mark Valeriote, Sven Archimowtiz], SRK [John Kurylo], EBA [Jeff Orr].

Topic	Status
Health and Safety and Environment	<ul style="list-style-type: none"> • ESR reminded JDS/ Nuna that there is a thermistor down at the Jetty that requires repairs. Monthly readings from this thermistor are required for regulatory requirements. Nuna electricians to look at this thermistor in the coming days. • ESR inquired is the water truck could be metered to monitor volumes. In the winter, due to freezing conditions, the water truck is unable to be metered. • A minor < 20L hydraulic sill was reported for a 330 excavator. • Some grease was noted to be tracked into to the camp. Reminders/ discussions on cleanliness around site was discussed.
North Dam	<ul style="list-style-type: none"> • SRK reminded that it is unacceptable to drive onto the unfrozen FCM that has been placed in the key trench. Freezeback must be achieved before vehicle traffic on placed material can result. • There was one incident last night where a truck drove over the outside edge of unfrozen material. The damage to this area was fortunately minimal. • No freezeback has been achieved on the lift placed on dayshift yesterday (Jan 20th). • The electricians will be going to the FCP to assist with trouble shooting recent issues.
Water Management Structures	<ul style="list-style-type: none"> • SRK to look at the alignment of the DN Diversion Berm in the field today (field traverse).
General	<ul style="list-style-type: none"> • One of the fuel trucks is down with transmission issues. • The power stack are on hold until the can be accessed and weather permits them to be installed. • Currently the camp is on permanent power. • ACI continues with the siding and plumbing at the vent raise.

SURVEY:

Required	• As-built survey of FCM placed on 2012/01/21
Data Received	• AB 120120 ND EXCAVATION TO FROZEN CORE

Outstanding	•
Upcoming	<ul style="list-style-type: none"> • Survey of frozen core surface after cleaning/ scraping activities at N. Dam (on going). • Survey of FCM after placement (on going).

NORTH DAM/FROZEN CORE PLANT PAD:

Frozen Core Plant

Dayshift

- Dry runs were started at the FCP around 9:30 am. Nuna electricians were present to assist with trouble shooting issues.
 - The belt feeder motor was found to be constantly operating above the 'trip' setting. 'Trip' setting were adjusted by the electricians.
 - The motor of the belt from the hopper to the FCP plant was found to be overloading (in part due to the frozen lump) and slipping. The ~ 10 degree drop in temperature over the past week has been worsening the frequency of the belt slipping.
 - Modifications were made and the belt was de-iced to assist with correcting the issues with the belt feeder.
- The FCP started up for FCM production around 12:45pm.
 - After the first ~ ½ load of saturated frozen core material was sent down to the dam the plant had to be shut down to readdress issues. Frozen core material which had piled up on the grizzly bard of the hopper were removed.
- Around 13:30 the major FCP issues had been resolved and the plant resumed FCM production.
 - The temperature of the FCM on dayshift was around 20-22°C.

Nightshift

- The frozen core plant was started up at 1:30 am and ran until ~ 6 am.
 - At start up the material coming out of the heating-mixing drum was at 37°C. This material cooled to 27°C during operation.
 - The plant ran well.

Dam Shell

- No significant activity.

Key Trench

Dayshift

- SRK and JDS had discussions about the North Dam construction in the am.
 - SRK inquired as to how the survey/settlement monuments/monitoring points were planned to be installed. At this time it is planned to build the entire dam then afterwards come back and excavate out the areas from the settlement monuments, install then and then backfill the locations. The monuments are not planned to be installed as construction progress upwards as it is expected that this will lower the chances that the monument will be damaged by equipment.
 - A discussion on leaving offsets from areas where further cleaning is required, rather than cleaning an entire area before placement, was discussed. In general is areas are available to have FCM placed then they are planned to be placed on and areas where additional cleaning is required will be revisited.
 - Placing the thermistor cables in trenches excavated in to the dam shell, rather than housed in steel cables was discussed. Potential benefits related to decreased frost jacking and better ease of repair were discussed. JDS indicated that finer crush/ dry FCM could be placed around the cables for protection and then covered with transition material and ROQ as needed. This item is to be further discussed in the coming weeks.
- Nuna supervisor made a radio announcement to operators and foreman about unfrozen FCM placed

in the key trench being off limit for vehicle traffic until freezeback.

- The 345 excavators (equipped with toothed bucket) were used during dayshift to assist with removal of additional frozen 5/8" clear material.
 - Most cleaning resulted between ~ 1+10 and 1+90.
 - The 330 excavator remains down.
- Figure 3 presents a preliminary as-built review completed to better assess the progress of the key trench cover material removal from +30 to 1+75 and 0+68 to 0+40.
- Nuna survey picked up an as-built of material placed on Jan 20th.
- Survey marked out the IFC design crest in addition to the core limits, at the current elevation, on the downstream portion of the key trench.
- 5/8" removal/ cleaning on the base of the key trench from ~ 0+40 to 1+70 were inspected. The key trench from 0+60 to 1+40 had 5/8" adequately removed from it before placement. The slopes on the upstream still require additional 5/8" material clearing before placement progresses to these areas.
- The Bobcat with brush cleaned from 0+70 to 1+40 was cleaned on day shift.
- At the end of dayshift additional snow and debris cleaning from 1+20 to 1+40 was required before night shift placement.
- FCM was placed from 0+70 to ~1+20 on dayshift.
- Core material placement went well on dayshift today. The issues with the feed stock at the plant seemed to be getting better. Nuna spent considerable time removing frozen lumps from the stockpile.

Nightshift

- At the beginning of the night shift pickup tracks were noted across the fresh FCM placed on the dayshift, prior to freeze back (FCM temp 9.3°C). Cracks along the edges of the tracks and ruts were apparent. The FCM affected by the tracks was removed with the CAT 345 excavator using a toothed bucket. A small portion of the material did not appear damaged by the tracks and was not removed. Photos are included below.
- Delineators were placed on the edges of the unfrozen back FCM to clearly identify where driving is not allowed.
- The key trench floor was cleaned and approved for placement from Sta. ~1+10 to 1+40. The bobcat with the brush was used to clean the trench.
- FCM was placed on the floor of the key trench from ~Sta. 1+07 to 1+40.
 - Moisture content of this material was on the high side and the moisture content on the plant was turned down several times during placement.
 - Additional passes with the 10 T compactor were required to meet the compaction specifications.
 - Single bead thermistor number 38 was installed on the upstream side of the placed material near sta. 1+20. The multi-meter was too cold to take a reading directly after placement.
- A progress figure showing today's the approximate extent of today's placement is provided as Figure 1 and 2.

Field Geotechnical Testing, Laboratory and Sampling

- Single bead #37 and #38 were installed and read. A summary of the single bead thermistor status and measurements are provided below.

SINGLE BEAD THERMISTOR STATUS

Installed Today			Active			Destroyed / Abandoned		
ID	Station	US/DS/Center	ID	Station	US/DS/Center	ID	Station	US/DS/Center
SB37	0+95	Center				SB36	0+92	D/S
SB38	1+20	US				SB59	0+90	D/S
						SB54	0+90	U/S

RECENT SINGLE BEAD MEASUREMENTS

Single Bead No.	Temperature (°C)						Date Installed
	21-Jan 9:30	21-Jan 17:30	21-Jan 21:00	22-Jan 02:10	22-Jan 03:45	22-Jan 05:40	
59	-26.8						17-Jan
54	-7.1						20-Jan
37		16.5	9.3	2.3	1.4	0.5	21-Jan
38						10.1	21-Jan

- A summary of the material testing progress for 2012/01/21 is presented in the tables below.

PARTICLE SIZE DISTRIBUTION SUMMARY

Collected	Processed	Completed
HB-FCP-CORE-PSD5-QA-20120121		HB-FCP-CORE-PSD3-QA-20120118 HB-FCP-CORE-PSD4-QA-20120120

MOISTURE CONTENT SUMMARY

Collected	Processed	Completed
HB-FCP-CORE-MC8-QA-20120121 HB-FCP-CORE-MC9-QA-20120121 HB-FCP-CORE-MC10-QA-20120121 HB-FCP-CORE-MC11-QA-20120121		HB-FCP-CORE-MC7-QA-20120120

COMPACTION TESTING SUMMARY

Number of Tests	Material	Tested By	Shift	Notes
8	Core	JO	Day	All Passed
4	Core	JS	Night	All Passed

- Compaction and saturation results from the nuclear densometer were acceptable. Night shift compaction results were near the lower limit of the spec (i.e. close to 90% standard proctor).

DORIS NORTH CAMP:

- The snow road around the DN Diversion Berm was constructed around the E extents of the DN Diversion Berm footprint.
- SRK held discussions with JDS about the DN Diversion Berm.
 - JDS expressed concerns that if the alignment was largely in bedrock that increased drilling and blasting, and associated costs would increase. SRK indicated that they would complete an additional field reconnaissance to assist with determining if increased drilling and blasting would be expected at this time.
 - JDS inquired if the key trench design would change if the base of the key trench was found to be deeper than the design lines (after ripping or drill and blast). JDS inquired if crush could be used under the liner to bring the base of the key trench up to the IFC lines if this resulted.
 - SRK indicated that bentonite is to be used under the liner as outlined in the IFC. Crush is not suitable under the liner as it has the potential to create a seepage path under the liner.
 - The IFC drawings outline the minimum depth of liner embedment into the permafrost. Grades above the IFC design lines would not be acceptable however it is expected, pending as-built review, that minor downwards deviations from the IFC design lines would be tolerable.
- SRK and JDS did a field traverse of the DN Diversion Berm alignment. The main focus of the field

recon was to investigate the areas where bedrock intersected the DN Diversion Berm key trench alignment. Bedrock was only observed in two locations.

- See Figure 4 for more details field notes and photos.
- At this time the DN Diversion Berm is expected to have exposed tundra for the majority of the alignment.
- A test strip to better assess the rip -ability of the original ground along the DN Diversion Berm is planned for the coming weeks.

Westarc is now on site to start the drilling at the Doris North Sump locations (1 and 2).

- Nuna watered the DN sump snow pads.

GENERAL:

- The pickup assigned to SRK remains down, SRK has borrowed a truck in the meantime.
- The generator used for coring is also down. The mechanic on site currently working on repairing it.
- The recent cold weather is causing numerous problems with equipment and vehicles on site.

PHOTOS:



Photo 1: ~ NE view down key trench of cleaning activities. Note the excavation cleaning the DS slope around station 1+50.



Photo 2: ~ WSW view down key trench towards Jan 21st placement. Photo taken from ~ station 1+50.



Photo 3: ~ View of frozen lumps that have been pushed of grizzly bars as FCP hopper.



Photo 4: ~ View of FCM at FCP chute. Note this photo was taken at a time when a higher frequency of frozen lumps was being noted in the FCM. Less lumps were noted in later loads and on night shift.



Photo 5 (bottom center): ~ Close up example of unsaturated frozen lumps observed in the FCM. A higher frequency of lumps was noted on dayshift placement however, night shift appears to have minimal lump frequency. Typically a slightly lower lump frequency was observed at the dam as FCM sits warm and heaped in the trucks before being dumped.



Photo 6: ~IT loader placing FCM into hopper at FCP.



Photo 7: Progress photo of the North Dam construction from Photo Point 1; taken in the pm, ~ SE view.



Photo 8: Progress photo of the North Dam construction from Photo Point 2; taken in the am, ~ WNW view.



Photo 9: ~ ESE view down key trench. Note the 345 excavator and bobcat cleaning the central key trench area in preparation for the afternoon placement.



Photo 12: View from ~Sta 1+40 towards the central area of the key trench. Note that 5/8” material removal from 0+60 to 1+40 was approved today for placement

Photo 13 (center right): ~ ~NE view of downstream edge of key trench around Sta 1+10. Note that the stakes denote the surveyed IFC design crest and the line marks the required limits of the downstream key trench slope below original ground (i.e. downstream 0.5H:1V slope.



Photo 10: ~E view of vibrator compactor static rolling saturated FCM around station 0+85.



Photo 11: ~ENE view of FCM placement and inspection at the at central key trench area.



Photo 14: ~ WNW view of FCM placement at the end of dayshift.



Photo 15: Pickup tracks across the fresh (not frozen back) FCM placed during the dayshift.



Photo 16: CAT 345 excavator removing damaged frozen core from pickup truck tracks.

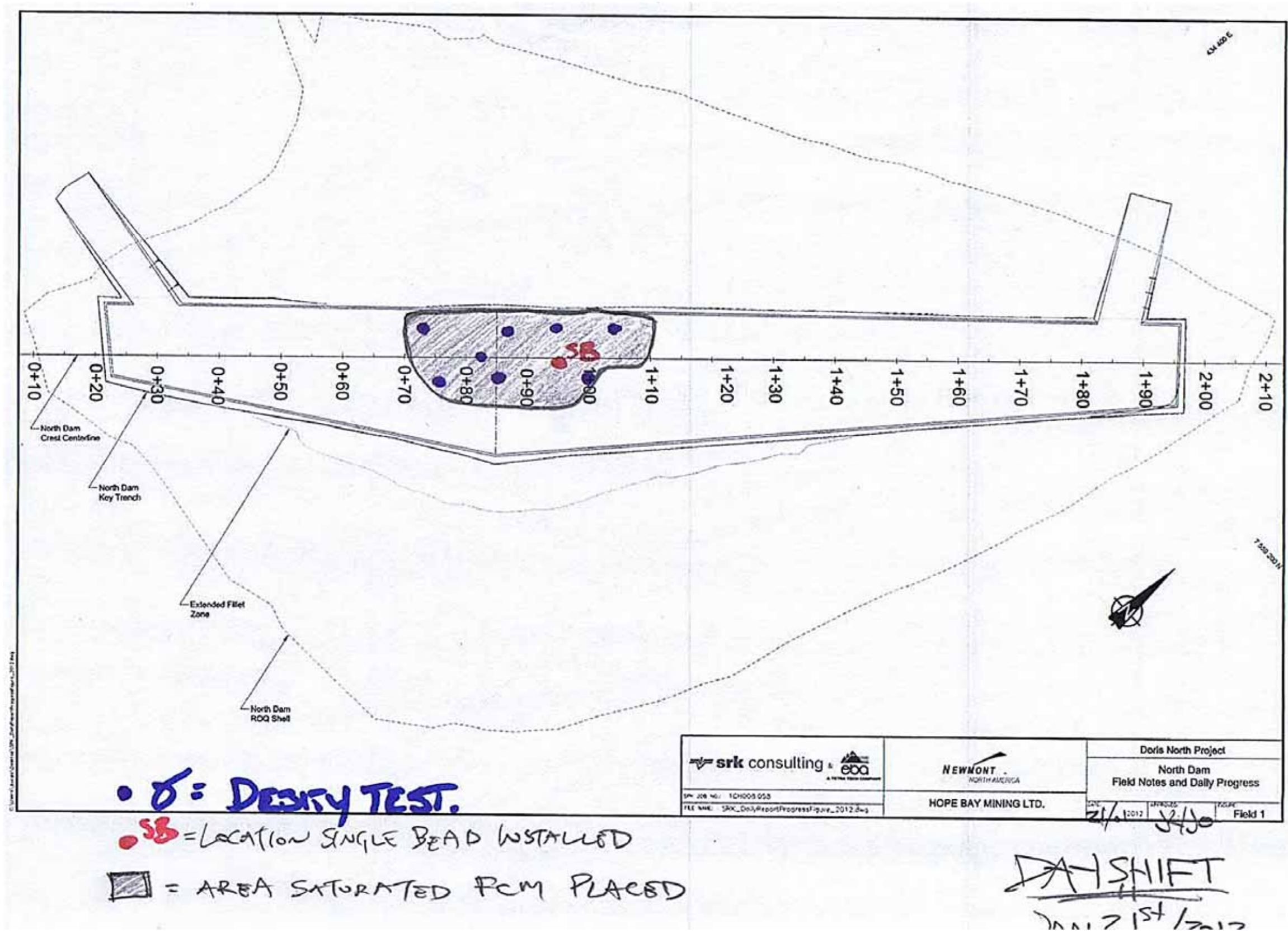


Photo 17: Edge of material being removed by CAT 345 excavator, as only the toothed bucket was available some ridges of material remain.

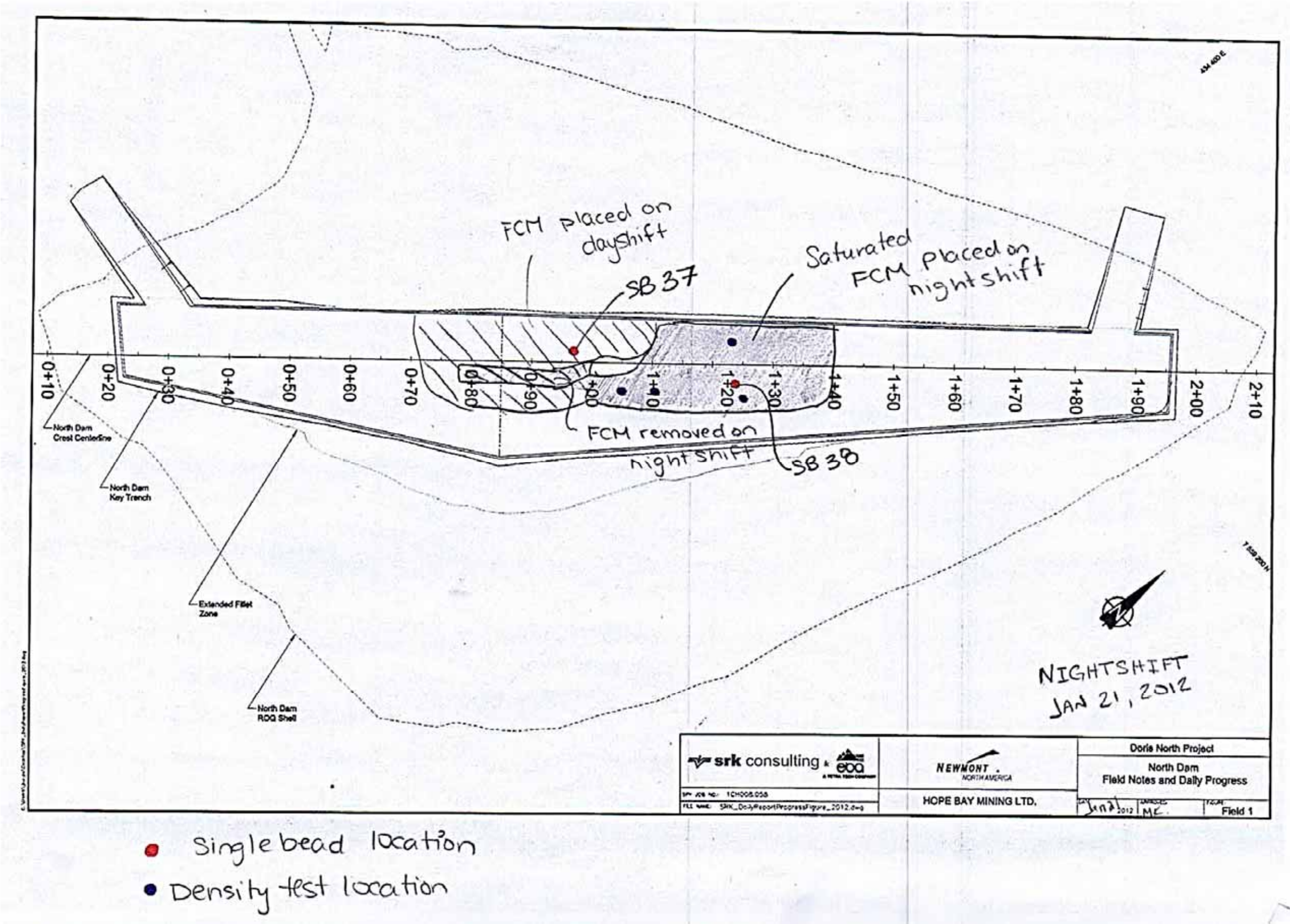


Photo 18: Material placement during the night shift. Looking north along the key trench. The delineators near the person mark the edge of the FCM placed during the day shift and the start of the material placed during the night shift.

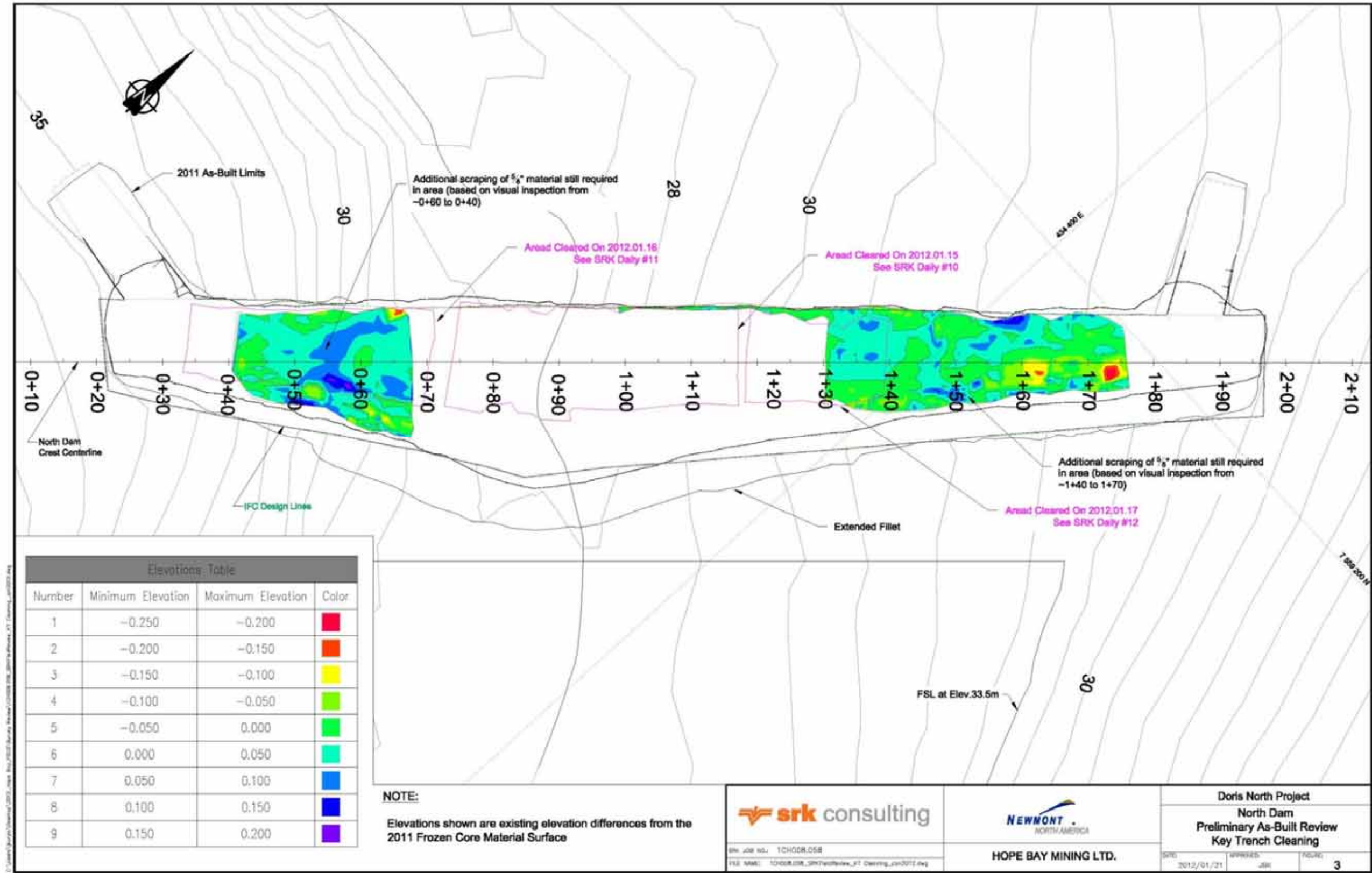
• Figure 1 - FCM Progress/ Placement – DAYSHIFT Jan 21st



• Figure 2 - FCM Progress/ Placement – NIGHTSHIFT Jan 21st



- Figure 3 - SRK Preliminary As-built review of Key Trench cleaning (5/8" material removal) completed on 2012/01/17, ~ between 1+30 to 1+75 and 0+68 to 0+40.
 - Note that the existing elevation, in relation to the 2011 FCM surface, is shown in the isopach below.



- **Figure 4 – Preliminary field notes on bedrock noted along DN Diversion Berm**
 - Note that a field traverse of the alignment was completed today to better assess the areas where bedrock outcrops can be observed.
 - Bedrock was only noted to outcrop directly in the DN Diversion Berm key trench footprint in two location. Note that a couple bedrock outcrops were observed outside but upslope of the DN Diversion Berm Alignment.

