

## DAILY REPORT #10 – DORIS NORTH INFRASTRUCTURE/ NORTH DAM

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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 No No No No Yes Yes
	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	Yes Yes No Yes Yes No No
Engineering Design Consultants	SRK Consulting (Canada) Inc.	John Kurylo – Site Engineer Megan Miller – Site Engineer Lawrence Borowski – Site Engineer Murry McGregor – Site Engineer Lowell Wade – Senior Engineer	Yes No No No No
	EBA Engineering Consultants Ltd.	Jeff Orr – Project Manager Jennifer Stirling – Geologist John Jaramillo – Eng. Technologist Thomas Bradshaw – Junior Engineer	Yes No 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	Yes No No No Yes No Yes No Yes Yes No No Yes No Yes Yes Yes Yes
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**WEATHER (ROBERTS BAY)**

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

Temperature/Wind Chill (°C)	6AM:-29.2/-46.6	12PM:-30.2/-48.3	6 PM :	12 AM:
Precipitation (mm)	<b>Rain:</b> None		<b>Snow:</b> None	
Conditions	<b>Day Shift:</b> Cloudy, strong wind		<b>Night Shift:</b> Partly cloudy, moderate wind	
Daily norms (°C)	24 hour high: -28.1		24 hour low: -30.4	

**HEALTH, SAFETY AND ENVIRONMENT**

- No incidents were reported
- A construction operations and hazard assessment meeting was held by Nuna at the North Dam to go over operation procedures and things to watch when placing frozen core.

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

- The daily meet was attended by ADCO, ACI, Williams Wireless, Nuna [Nick Stoneberger, Kevin Oakes, Bradford Watkin, Gary Sodhi], ESR [Michelle Tanquay], Newmont Safety [Stirling Kelly], JDS [Jerry Graham, Ishan Fechter, Sven Archimowtiz], SRK [John Kurylo], EBA [Jeff Orr].

Topic	Status
Health and Safety and Environment	<ul style="list-style-type: none"> <li>• Additional lighting (light plant) is required at the Vent Raise.</li> <li>• Not much snow has been noted this year. Clean snow is being cleaned from various areas for use in the snow access roads and pads around the Doris North Camp area.</li> <li>• ESR has requested a record for the grader, as well as various site generators use (i.e. hours used in 2011).</li> </ul>
North Dam	<ul style="list-style-type: none"> <li>• Nuna continues at the North Dam to remove 5/8" clear cover over the key trench. Additional cleaning of the key trench is planned for today (on the NE and SW sides).</li> <li>• The central portion of the key trench is near the frozen core grade. An as-built survey is expected to be picked up by Nuna survey today (as required by SRK). SRK will review the survey data before approval to proceed is granted.</li> <li>• After cleaning activities a wet run and placement of a few loads is planned for/ in the N Dam key trench.</li> <li>• Nuna commented that only day shift is planning to place frozen core until Thursday January 19<sup>th</sup> (after which time a day and night shift will be available to place frozen core). Core is planned to be placed on days and cleaning is expected to result on nights.</li> </ul>
Water Management Structures	<ul style="list-style-type: none"> <li>• Snow pads continue to be constructed around Sump 1 and 2 (these are near completion).</li> <li>• Westarc is planned to mobilize to site on January 19<sup>th</sup>.</li> <li>• ESR inquired about the design for the lids for the Doris North Camp Sumps. An IFC design has been issued for the sump lids. Nuna to provide drawings to ESR to compliment Nuna operational work plan for the sumps.</li> <li>• In the coming week the sump prefabrication is expected to start in the shop (dates to be revisited at a later time).</li> <li>• Williams Wireless to work with Nuna to relocate existing cables around the Doris North Diversion Berm area.</li> <li>• The snow road around the Doris North Diversion Berm was planned to start being constructed today.</li> </ul>

General	<ul style="list-style-type: none"> <li>The wash cart at the Vent Raise is down.</li> <li>The grading of the hill by the vent raise pad has been requested (Nuna to follow up with).</li> <li>Nuna and JDS discussed communications for personnel performing electrical work around site. Nuna and JDS to further discuss.</li> </ul>
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**SURVEY:**

<b>Requested</b>	<ul style="list-style-type: none"> <li>3D Face file of compiled point file for 2011 FCM surface.</li> </ul>
<b>Data Received</b>	<ul style="list-style-type: none"> <li>SM 120115 NORTH DAM 5-8 EXC.pdf (see fig at end of report)</li> <li>SM 120115 NORTH DAM 5-8 EXC.dwg</li> <li>AB 120115 ND FCM EXCAVATION.csv</li> <li>AB 120115 ND FCM EXCAVATION 2.csv</li> <li>SO 120113 surface cables Sump1.csv</li> <li>SO 120113 surface cables Sump1.dxf</li> </ul>
<b>Outstanding</b>	<ul style="list-style-type: none"> <li></li> </ul>
<b>Upcoming</b>	<ul style="list-style-type: none"> <li>Survey of frozen core surface after cleaning/ scraping activities at N. Dam (on going)</li> </ul>

**NORTH DAM/FROZEN CORE PLANT PAD:****Frozen Core Plant**

- A successful wet run at the FCP resulted today.
  - Before start up SRK help discussions with FCP operations and the Nuna field foreman about mixing the stockpile before loading it into the hopper to limit material segregation.
  - The drum in the plant was headed for a few minutes before the first loads of material were loaded into the hopper.
  - Calibration of the FCM (to proper saturation and temperature) was gained within ½ a truck. The first ½ truck was sent to the reject pile.
  - FCM was noted to be around 23 to 30 degrees (typically 30 degrees).
  - A few frozen lumps, approximately the size of a fist, were periodically noted in the frozen core material.
  - After the first load of FCM was produced the 'grizzly bars' of the hopper became clogged with frozen clumps of FCM material and V-belt was noted to be having issues. These items were addressed and production resumed.
  - Nuna to investigate methods to reduce the occurrence of frozen clumps being fed into the hopper.

**Dam Shell**

- Material removed from the key trench was short hauled and end dumped on the upstream side of the dam.

**Key Trench**

- Two excavators (one with a toothed bucket and one with a finishing bucket) were used during the day and night shift to remove additional frozen 5/8" clear material in the key trench.
  - The WSW area of the key trench was primarily worked on.
- Nuna survey picked up and as-built of the existing key trench excavation (from ~ chainage 0+75 to 1+10).
  - Nuna completed a preliminary isopach between the existing elevation and the elevations present at the end of the 2011 Frozen Core Material (FCM) placement. In general the isopach showed a ~ +0.04m elevation difference from the 2011 FCM as-built DEM.
  - SRK completed a complimentary isopach check between the existing surface and 2011 FCM grade.

- Preliminary as-built isopachs for the cleaned surface are presented in the figures section of this report.
- FCM and some intermixed 5/8" material was noted after scraping/ cleaning of the key trench, based on visual inspection. 5/8" material was placed when the FCM in the central portion of the key trench was still wet/not fully frozen (in 2011). It is expected that some the 5/8" material was pushed into the soft FCM when the protective thermal cover was placed for 2011 construction close out.
  - The excavator operators have noted that, although both are hard, they can feel a difference when excavating the 5/8" material versus the FCM (FCM is harder).
- Dental cleaning with compressed air and a Bobcat (equipped with brush) cleaned the excavated section of the key trench from ~ station 0+80 to 0+95. Cleaned surface was inspected and approved.
  - At SRKs requests additional points were picked up in the area where Nuna wanted to place FCM today (~0+80 to 0+95). This was done to limit data interpolations in the isopach surface caused by sparser survey pick up resolution.
- Drilled cores will be taken to confirm the integrity of the excavated key trench base, as in areas the cleared surface is still slightly above the 2011 FCM grade. The base of the key trench, when cleared to within 0.05m of the 2011 FCM grade, appears to be suitable to core placement (based on field observations).
- FCM was placed today in the key trench from ~ station 0+80 to 0+95 in the central to downstream side of the key trench.
  - Figure 1 presents a progress figure for today's FCM placement.
  - 3.5 loads of frozen core material were placed in the key trench today.
  - Material was spread with a CAT 325D excavator, then compacted.
  - The periodic frozen clumps noted in the FCP chute were not readily noted in the material being placed in the dam (expect some broke up when combined with hot FCM in truck boxes).
  - The smooth drum compactor was having some heating issues so the hard surface 'zig-zig tred' compactor was used. The smooth drum compactor is expected to be fixed in the coming days. This will assist in creating a cleaner finished FCM surface.
  - One area, around the location of the culvert sump used for close out, was not approved for placement. Additional ripping to remove frozen in steel debris is required. This area was avoided during placement.

#### **Field Geotechnical Testing, Laboratory and Sampling**

- Some of the ground temperature cables, installed in the North Dam, were read. Today's readings are provided in the table below.

Bead No.	Ground Temperature Cable Temperature (°C)		
	ND-VTS-130-KT	ND-HTS-130-28.8	ND-VTS-085-DS
1	-13.83	-20.34	Remains Buried
2	-11.31	-20.63	-
3	-9.18	-21.68	-
4	-7.74	-21.43	-
5	-7.95	-20.66	-
6	-8.18	-17.81	-
7	-8.33	-18.55	-
8	-8.41	-19.26	-
9	-8.32	-21.50	-
10	-8.24	-23.70	-
11	-8.25		-

- Samples for moisture contents and particle size distribution testing (PSD) were taken from the FCM produced today.
- Three Nuclear Densometer compaction test were taken on placed FCM.
- Single bead #36 was installed downstream around station 0+92 at the end of FCM placement. Initial reading showed temperatures for the core around 31 degrees (around 16:45).

**DORIS NORTH CAMP:**

- The construction of snow pads around the Doris North Camp sump locations 1 and 2 continued today. Lifts of snow were spread with an excavator and sprayed with water. The snow pads are now completed.
- SRK held additional conversations with Nuna survey about the location of Sump #1. Nuna to lay out three stakes, points provided, to assist with determination of the final sump location.
- The survey files for the ground cables near the sump locations were forwarded to SRK. These files were forwarded to assist with determining a revised Sump 1 location.



PHOTOS:



**Photo 1:** ~WSW view down key trench centerline. Note excavators in background removing/ scraping down 5/8" material.



**Photo 3:** ~W view of cleaning activities around the central key trench area (i.e. WSW of station 0+85). Note that the area where placement occurred today is outlined by the light red dashed line.



**Photo 2:** View of central access ramp into the North Dam key trench. Note that the base of the ramp will be required to be pulled back at a later date as it is within the core footprint. The base of the access ramp is construction with transition material (compaction is required on this ramp).



**Photo 4:** ~SW view of excavators scratching frozen 5/8" material from the key trench base. Note that the excavator in the forefront has a finishing bucket while the excavator in the back has a toothed bucket.



**Photo 5:** ~E view of the Doris Creek Bridge and the Vent Raise Pad.





**Photo 6:** Progress photo of the North Dam construction. Photo taken from Photo Point 1, looking ~ south-east.



**Photo 7:** Progress photo of the North Dam construction. Photo taken from Photo Point 2, looking ~ north-west.





Photo 8 (above/ top left): a



Photo 9 (above/ top center): Excavator spreading the first 2012 load of frozen core in the key trench, ~ SW view.

Photo 10 (below/ center right): Excavator working to place frozen core material (~3.5 loads) in the central area of the key trench; ~ NE view.



Photo 11: (left bottom): View in the plant of Frozen Core material, at start-up.

Photo 12: (above/ center): View after V-belt slipped and hopper became clogged with non saturated frozen core clumps from the frozen stockpile.



Photo 13 (above/ bottom right): Close up view of hopper after V-belt slipped and became clogged with clumps from the frozen stockpile.



FIGURES:

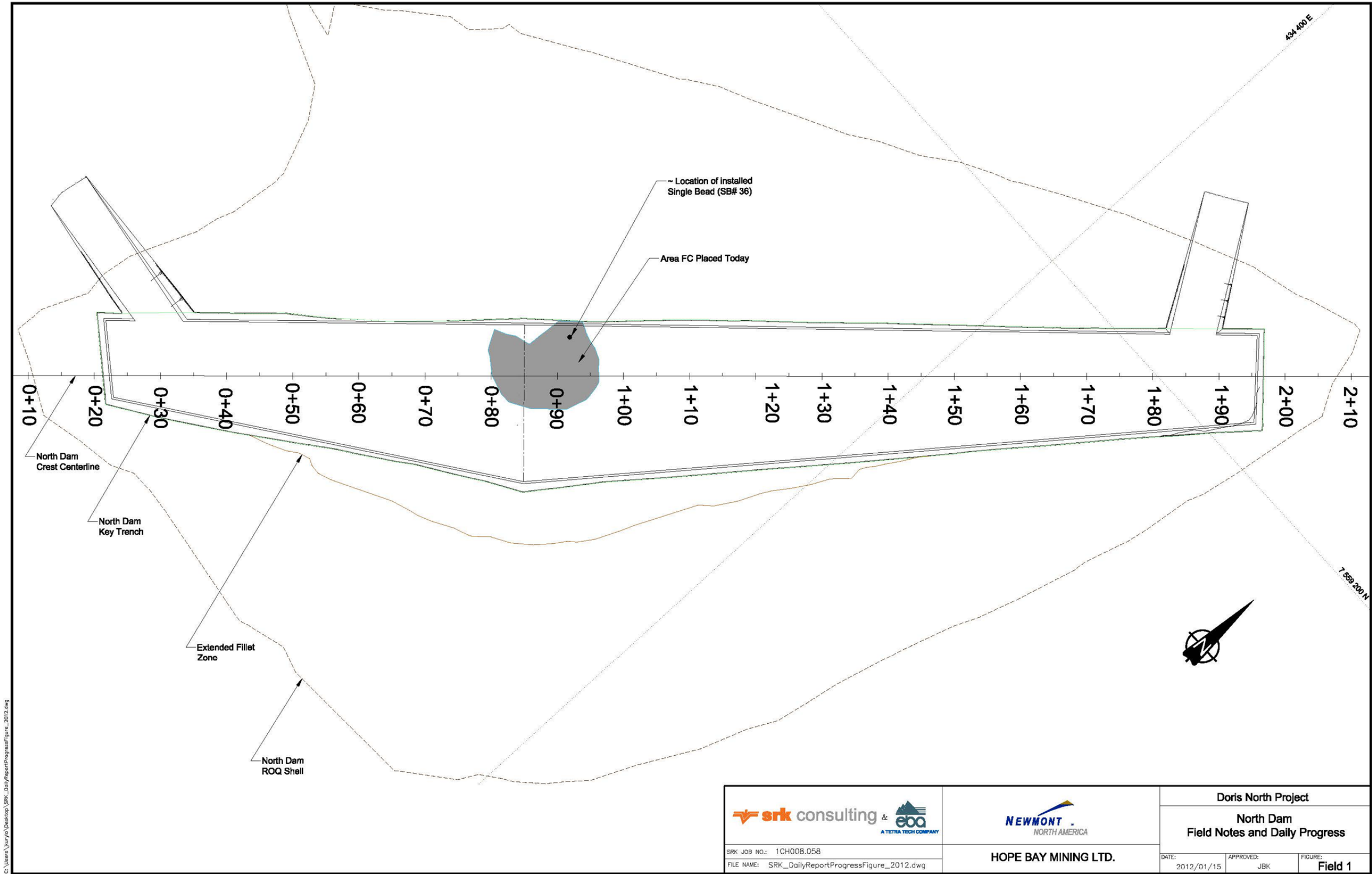


Figure - SRK Preliminary As-Built Review of Key Trench Cleaning

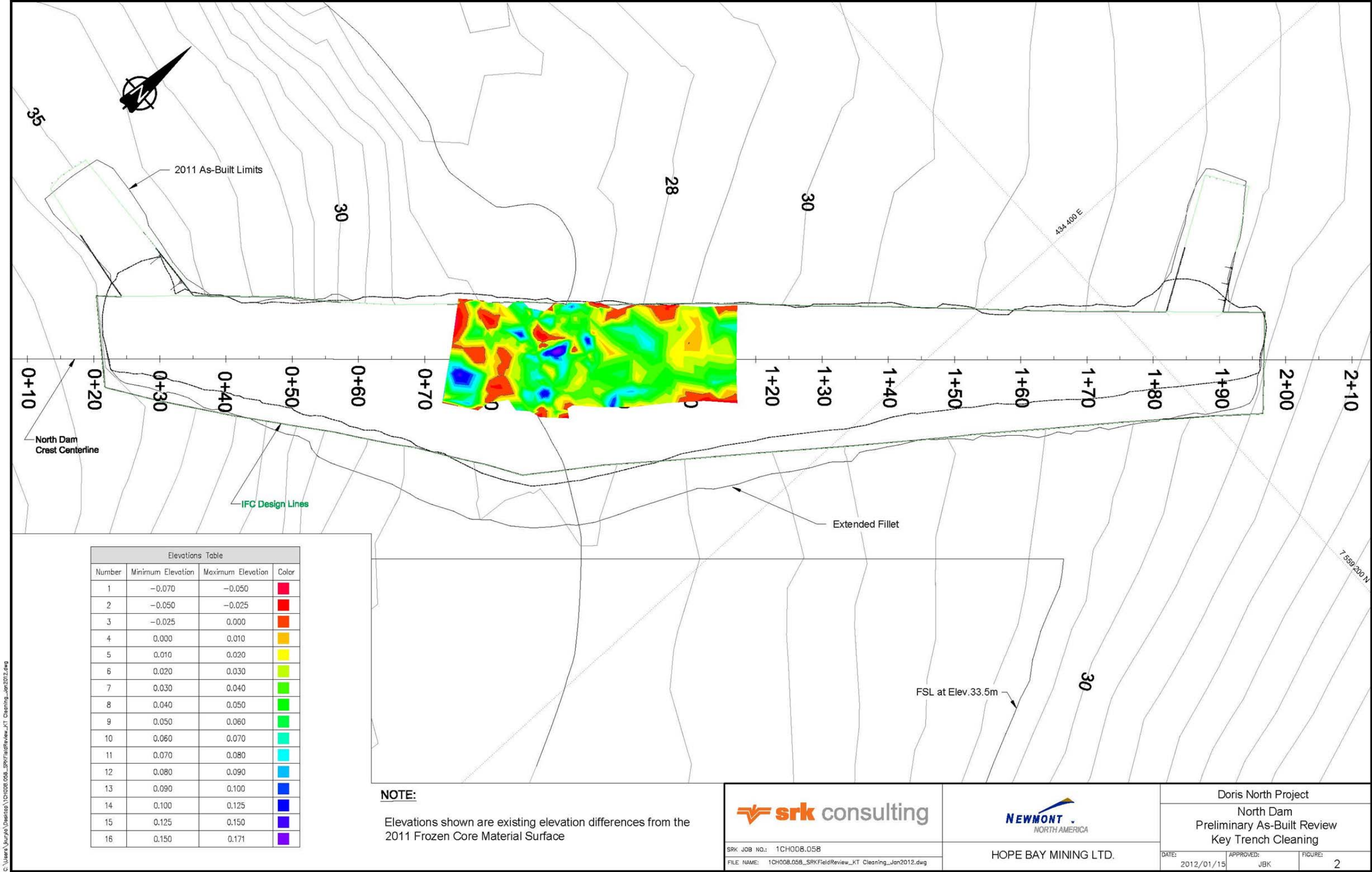




Figure - Nuna As-Built Review of Cover Material Excavation (i.e. Key Trench Cleaning)  
- Note that the isopach points show the elevation difference from the 2011 Frozen Core Elevation data (+ for above grade, - for cut /below)

