

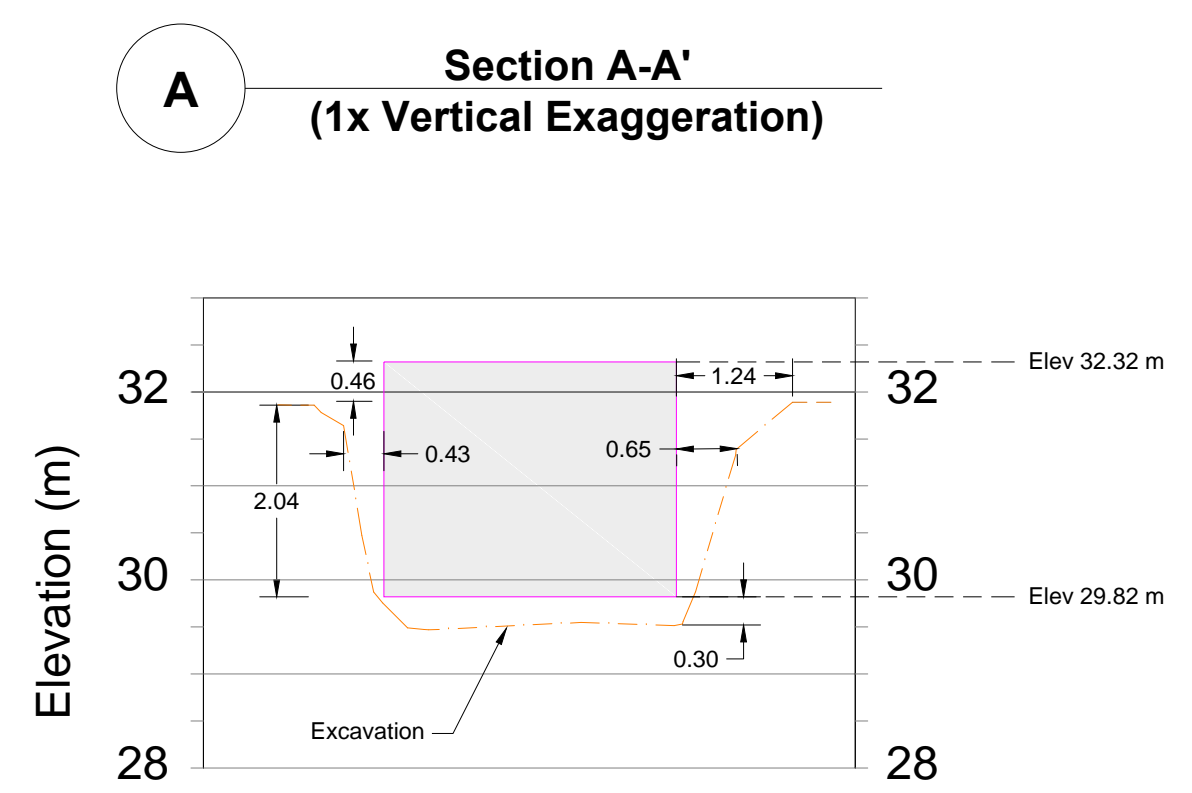
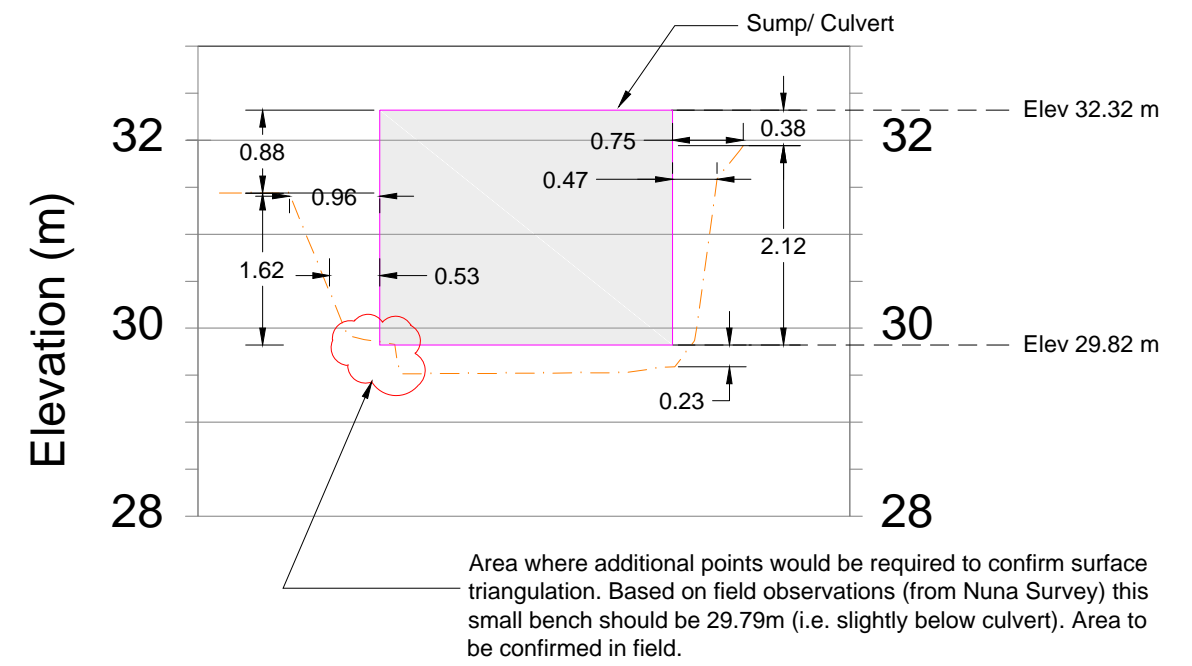
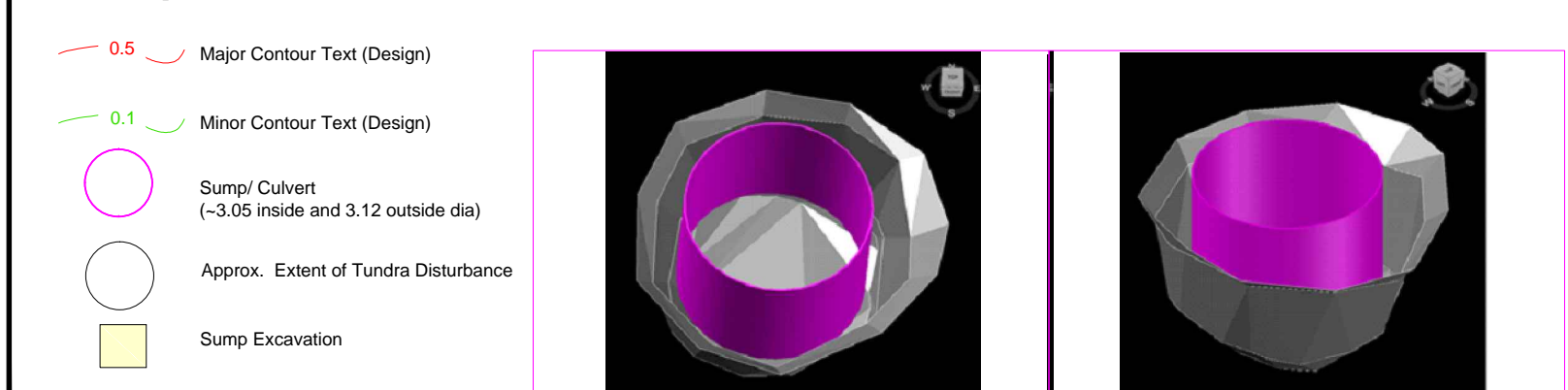
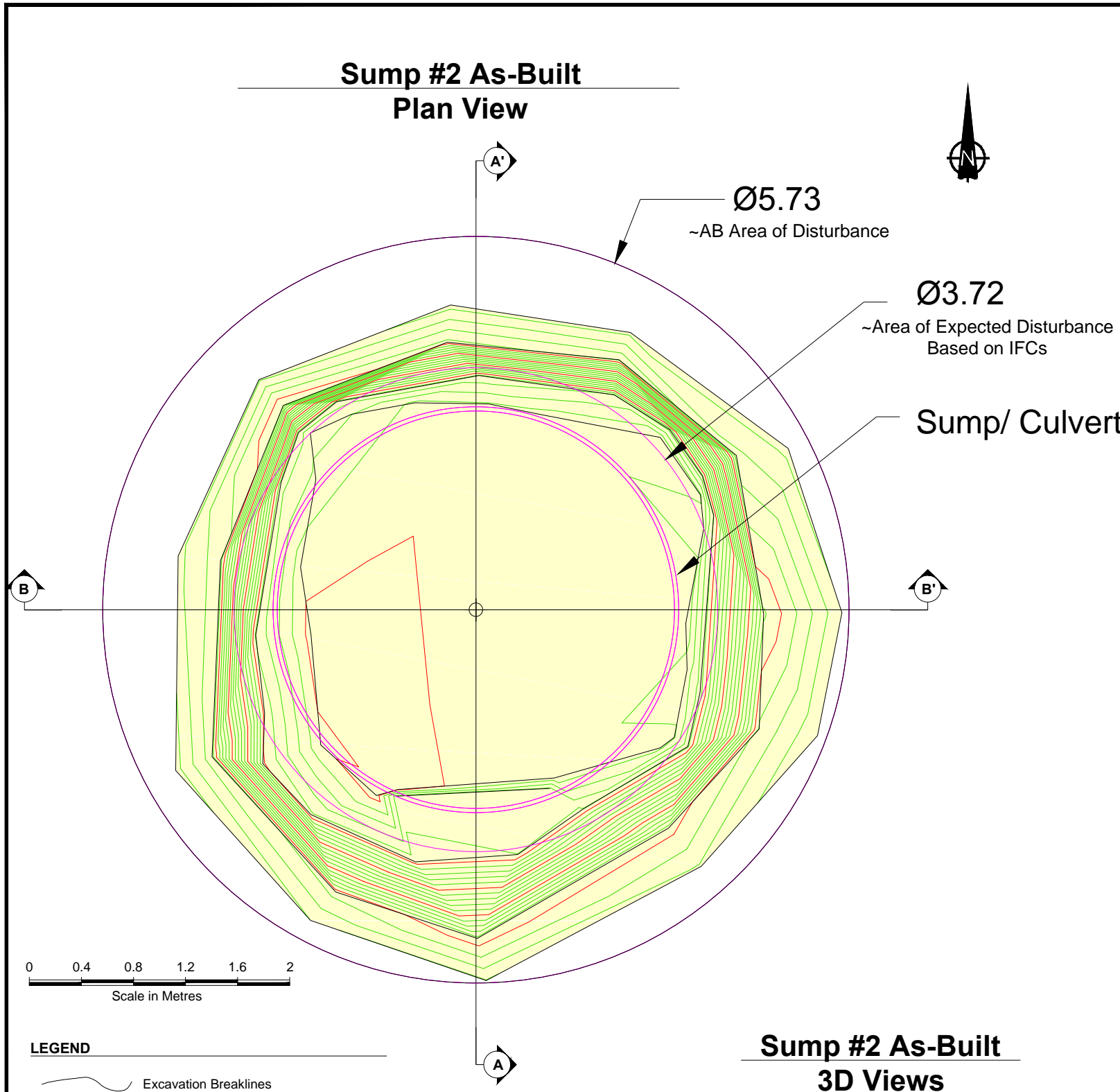
Memo

To:	File	Date:	March 12, 2012
Company:	Hope Bay Mining Limited	From:	Lowell Wade (SRK) Maritz Rykaart (SRK)
Copy to:	Silkie Wong (SRK)	Project #:	1CH008.058.0300.50
Subject:	Doris North Project – Sump #2 Remediation		

The as-built excavation for Sump #2 is shown in Figure 1. The excavation will result in an annulus of greater than 300 mm as specified on the Issued For Construction (IFC) drawing DN-DMC-046 [HB+D-CIV-CIV-OND-0153] Rev 01. SRK considered various remediation methods including additional modifications to the sump and lid design. Ground remediation measures were discounted because of the risk of isolating the sump from collecting ground and surface water inflows. Structural modifications to the sump and lid were discounted as this would require significant re-engineering and fabrication time and would not prove to be beneficial. For example, increasing the diameter of the sump lid to 5.73 m, to cover the area of disturbance, would require significant structural modifications to be self-supporting. As well, this lid would still not provide adequate shade to approximately 50% of the disturbed original ground from low angled solar radiation.

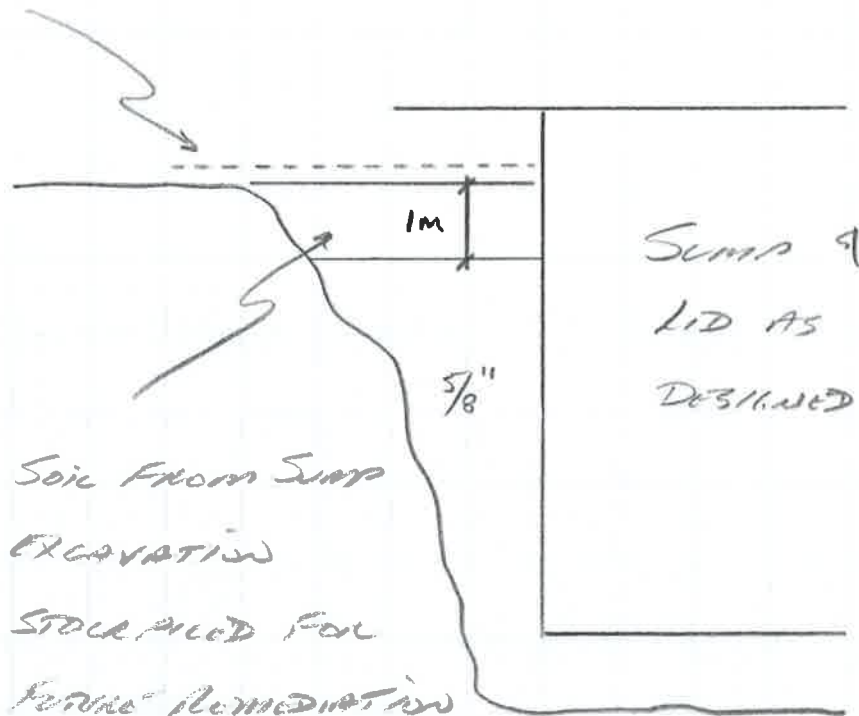
The preferred solution is to install the sump as originally planned. Back-fill around the sump with 5/8" clear material up to 1 m below the original ground surface. The top 1m is to be backfilled with the original soil excavated and stockpiled from the sump excavation. No compaction of backfill materials is required. The disturbed ground around the sump is to be then covered with coconut matting. The Sump is to be monitored throughout the year as permafrost degradation is expected. The permafrost degradation will not affect the function of the sump to capture surface and ground water flows. Before freeze-up, any permafrost degradation is to be backfilled with the stockpiled soil and recovered with coconut matting.

Figures



		Doris North Project		
		Sump #2 Excavation Preliminary As-Built Review		
SRK JOB NO.: 1CH008.058	HOPE BAY MINING LIMITED	DATE: 2012/02/07	APPROVED: JBK/ LW	FIGURE: 1
FILE NAME: HB_DNSump#2_ABReivew_20120107.dwg				

COCONUT MARTIN,



NOT TO SCALE

FIGURE 2.

Memo

To:	File	Date:	March 12, 2012
Company:	Hope Bay Mining Limited	From:	Lowell Wade (SRK) Maritz Rykaart (SRK)
Copy to:	Silkie Wong (SRK)	Project #:	1CH008.058.0300.50
Subject:	Doris North Project – Secondary Road Buttress		

In 2010 a slope failure along the Secondary Road occurred during construction activities during the summer season. A mitigation design was developed and an Issued For Construction (IFC) drawing TL-RDS-16 [HB+T-CIV-CIV-OND-0060] Rev 01 was issued (Figure 1). The design of the buttress follows the permafrost thermal protection criteria with 1 m minimum fill thickness. A two tiered buttress was designed to conserve fill quantities. It has been discussed with SRK if the buttress is required. If the Doris North Project were to go to completion the prudent decision would be to construct the buttress as the Secondary Road would be a frequently travelled road by heavy equipment. Since the project is going into Care and Maintenance, the Secondary Road will only be occasionally travelled by light vehicles. This being the case, should Hope Bay Mining Limited (HBML) decide not to construct the buttress a series of visual monitoring points should be installed within the footprint of the slope failure and regular ongoing monitoring should be conducted. SRK would be happy to provide recommendations for the visual monitoring points, if HBML wishes.

Figure 1

Engineering Drawings for the Doris North Secondary Road, Doris North Project, Nunavut, Canada

ACTIVE DRAWING STATUS

DWG NUMBER	NEWMONT DWG NUMBER	DRAWING TITLE	REVISION	DATE	STATUS	OLD/REPLACED REVISIONS		
TL-RDS-00	HB+T-CIV-CIV-OND-0001	Engineering Drawings for the Doris North Secondary Road	6	Dec. 9, 2011	Issued for Construction	Rev. 5, Dec. 1, 2011	Rev. 4, Nov.22, 2011	Rev. 3, Nov. 9, 2011
TL-RDS-01	HB+T-CIV-CIV-OND-0002	General Arrangement of Secondary Road	1	Nov. 9, 2011	Revised Road Alignment	Rev. 0, June 2, 2010	Rev. A, Feb. 22, 2010	
TL-RDS-02	HB+T-CIV-CIV-OND-0003	Secondary Road from Doris North Camp to Doris Creek Bridge	2	Sept 24, 2010	Additional Turnouts	Rev. 1, Sept 17, 2010	Rev. 0, June 2, 2010	Rev. A, Feb. 22, 2010
TL-RDS-03	HB+T-CIV-CIV-OND-0004	Main Vent Raise Pad, Secondary Vent Raise Pad and Access Road	1	Sept 17, 2010	Updated Topography	Rev. 0, June 2, 2010	Rev. A, Feb. 22, 2010	
TL-RDS-04	HB+T-CIV-CIV-OND-0005	Secondary Road from Doris Creek Bridge to South Dam 0+000 to 0+950	2	Nov. 9, 2011	Revised Road Alignment	Rev. 1, Sept 24, 2010	Rev. 0, June 2, 2010	Rev. A, Feb. 22, 2010
TL-RDS-05	HB+T-CIV-CIV-OND-0006	Secondary Road from Doris Creek Bridge to South Dam 0+950 to 1+900	1	Nov. 9, 2011	Revised Road Alignment	Rev. 0, June 2, 2010	Rev. A, Feb. 22, 2010	
TL-RDS-06	HB+T-CIV-CIV-OND-0007	Secondary Road from Doris Creek Bridge to South Dam 1+900 to 2+850	1	Nov. 9, 2011	Revised Road Alignment	Rev. 0, June 2, 2010	Rev. A, Feb. 22, 2010	
TL-RDS-07	HB+T-CIV-CIV-OND-0008	Secondary Road from Doris Creek Bridge to South Dam 2+850 to 3+750	1	Nov. 9, 2011	Revised Road Alignment	Rev. 0, June 2, 2010	Rev. A, Feb. 22, 2010	
TL-RDS-08	HB+T-CIV-CIV-OND-0009	Secondary Road Details	0	June 2, 2010	Issued for Construction	Rev. A, Feb. 22, 2010		
TL-RDS-09	HB+T-CIV-CIV-OND-0010	Secondary Road from Doris Creek Bridge to South Dam 3+750 to 4+623	1	Nov. 9, 2011	Revised Road Alignment	Rev. 0, June 2, 2010	Rev. A, Feb. 22, 2010	
TL-RDS-10	HB+T-CIV-CIV-OND-0011	Quarry 3 Access Road	2	Nov. 22, 2011	Added Overburden Storage	Rev. 1, Nov. 9, 2011	Rev. 0, June 2, 2010	Rev. A, Feb. 22, 2010
TL-RDS-11	HB+T-CIV-CIV-OND-0012	Material Specifications	3	Nov. 9, 2011	Updated Stake Out Points	Rev. 2, Oct. 6, 2010	Rev. 1, Sept 24, 2010	Rev. 0, June 2, 2010
TL-RDS-12	HB+T-CIV-CIV-OND-0013	Doris Creek Bridge Plan View	2	Oct. 6, 2010	Bridge Adjusted to New Survey	Rev. 1, Sept 24, 2010	Rev. 0, July 26, 2010	Rev. A, May 21, 2010
TL-RDS-13	HB+T-CIV-CIV-OND-0014	Doris Creek Bridge Sections and Details	2	Oct. 6, 2010	Bridge Adjusted to New Survey	Rev. 1, Sept 24, 2010	Rev. 0, July 26, 2010	Rev. A, May 21, 2010
TL-RDS-14	HB+T-CIV-CIV-OND-0015	Typical Thermistor Installation Layout and Design	1	Oct. 6, 2010	Bridge Adjusted to New Survey	Rev. 0, July 26, 2010	Rev. A, May 21, 2010	
TL-RDS-15	HB+T-CIV-CIV-OND-0054	Tail Lake Access Road	0	Nov. 9, 2011	Issued for Construction			
TL-RDS-16	HB+T-CIV-CIV-OND-0060	Secondary Road Buttress	0	Dec. 9, 2011	Issued for Construction	Rev. A, Dec. 1, 2011		

HOPE BAY MINING LTD.



PROJECT NO: 1CH008.033
ISSUED FOR CONSTRUCTION
Revision 6,
December 9, 2011
TL-RDS-00 / HB+T-CIV-CIV-OND-0001

Memo

To:	Calvin Goldschmidt (Newmont/JDS)	Date:	March 20, 2012
Company:	Hope Bay Mining Limited	From:	Lowell Wade (SRK) Maritz Rykaart (SRK)
Copy to:	Silkie Wong (SRK)	Project #:	1CH008.058.0300.50
Subject:	Doris North Project – North Dam Slope Indicator Instrumentation		

Slope indicator instrumentation is required to be installed within the downstream face of the North Dam as shown in drawings DN-ND-30 (HB+T-CIV-CIV-OND-0061), Issued for Construction, Rev 0 and DN-ND-31 (HB+T-CIV-CIV-OND-0062), Issued for Construction, Rev 1.

SRK recommends the Slope Indicator Instrumentation, from Durham Geo Slope Indicator, be installed in the North Dam (Table 1). Selected pages from Durham Geo Slope Indicator's 2011 Catalogue are provided in Attachment 1. Should the Contractor prefer another supplier, the equivalent instrumentation, meeting these specifications, is required and to be verified by the engineer.

The slope indicator instrumentation is to be installed in boreholes which are to be backfilled with Slurry Material as specified in Section 11.2.1 of Technical Specifications, Earthworks and Geotechnical Engineering, Hope Bay Project, Nunavut, Canada, Revision G – Issue for Construction.

Table 1. Slope Indicator Instrumentation for the North Dam

Description	Part Number	Quantity	Comment
Shear Wire Casing 85 mm (3.34") diameter 10' (3.05 m) Sections	51160310	35 Sections (total) ¹	Quantity includes 3 sections as spares ²
Casing Anchor 85 mm (3.34") diameter	51104385	7 Anchors (total)	Quantity includes 1 anchor as a spare ²
Anchor + Grout Valve 85 mm (3.34") diameter	51104485	7 Anchors + Grout Valve (total)	This part is optional depending on Contractors method of installation Quantity includes 1 spare ²
Digitilt Inclinometer Probe Metric-Unit Probe	50302510	1 Inclinometer Probe	
Control Cable 30 m Control Cable Complete	50601030	1 Complete Control Cable (30 m in length)	
Control Cable Metric Cable, Custom Length	50601010	20 m	Order either the 30 m Complete Control Cable or Custom Control Cable and Connectors

Connector for Readout	50301800	1 Connector	Order either the 30 m Complete Control Cable or Custom Control Cable and Connectors
Connector for Probe	50303100	1 Connector	Order either the 30 m Complete Control Cable or Custom Control Cable and Connectors
Pulley Assembly Large	51104606	1 Assembly	
Dummy Probe Metric Wheel Base	50304810	1 Dummy Probe	
Dummy Probe Reel & Line for Dummy Probe	50304900	1 Reel with 60 m (200') of nylon line	
Slip-Ring Reel 200 m (650') Capacity	50503100	1 Reel for Control Cable	
Digitilt DataMate II Readout	50310900	1 Readout	
DMM for Windows	50310970	1 DataMate Manager Program	
DigiPro Inclinometer Software for Windows 3 User License	50310000	1 DigiPro Software Package	

Notes:

1. These quantities were determined based on the neat lines of the IFC drawings included with this Memo. The Contractor should determine the quantities required based on the as-built survey of for the North Dam.
2. Recommended number of spares. Contractor may choose alternate quantity.

Attachment 1
Selected Pages from Durham Geo Slope Indicator
2011 Catalogue

Inclinometer Casing



Inclinometer Casing

Inclinometer casing is a special purpose, grooved pipe used in inclinometer installations. It is typically installed in boreholes, but can also be embedded in fills, cast into concrete, or attached to structures.

Inclinometer casing provides access for the inclinometer probe, allowing it to obtain subsurface measurements. Grooves inside the casing control the orientation of the probe and provide a surface from which repeatable tilt measurements can be obtained.

Choosing Inclinometer Casing

Although Slope Indicator casing is competitively priced, price should never be the deciding factor in choosing inclinometer casing. The cost of casing is quite small relative to the cost of mobilizing a drill rig, and very small relative to the cost of a failed installation.

This page summarizes the most important factors to consider when choosing casing.

Casing Diameter

Casing is designed to deform with movement of the adjacent ground or structure. The useful life of the casing ends when continued movement of the ground pinches or shears the casing, preventing passage of the inclinometer probe. Larger diameter casing generally provides longer life.

85mm (3.34") Casing is suitable for landslides and long term monitoring. It is also appropriate for monitoring multiple shear zones or very narrow shear zones, and it is required for the horizontal Digitilt inclinometer probe.

70mm (2.75") Casing is suitable for construction projects. It can also be used for slope stability monitoring when only a moderate degree of deformation is anticipated.

48mm (1.9") Casing is suitable for applications where small deformations are distributed over broad zones. It is generally not installed in soils.

Casing Grooves

Measurement accuracy is directly influenced by the quality of casing grooves. Slope Indicator optimizes casing grooves for the wheels of the Digitilt inclinometer probe, providing a flat surface for the wheels and also the extra width needed when the probe must pass through cross-axis curvature. Groove spiral is also tightly controlled.

Casing Strength

In borehole installations, the annular space around the casing is usually backfilled with grout. The grouting process can generate pressure high enough to cause the casing to collapse. In deep installations, the pressure of grout must be controlled by stage grouting, but in other cases, the casing must be strong enough to withstand the normal pressure of grouting. Slope Indicator uses thick-walled pipe and carefully controls the depth of the grooves.

Sealable Couplings

If casing joints are not adequately sealed, grout can force its way into the casing and later prevent the probe from reaching its intended depth.

Slope Indicator offers several types of couplings and casings, all of which can be sealed easily and consistently. Our newest designs feature O-ring seals, and our older designs feature tight-fitting surfaces that are fused together with solvent cement.

Assembly

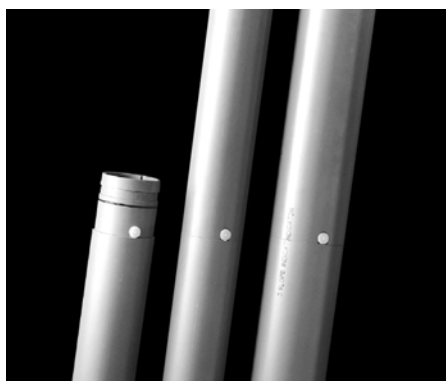
Inclinometer casing should be easy to assemble, even with an untrained crew. Slope Indicator's QC casing, which snaps together, is the current leader in quick and easy assembly. Other types of casing are assembled with shear wires or with solvent cement.

Casing Materials

Slope Indicator uses only ABS plastic for its casing for several reasons. ABS plastic retains its shape and flexibility over a wider range of temperatures than PVC plastic. ABS plastic is much easier to handle and seal than fiberglass casing. Finally, ABS plastic is suitable for long term contact with all types of soils, grouts, and ground water, unlike aluminum casing, which is no longer recommended for any application.

Installation Information

Visit the technical support section at www.slopeindicator.com to find recommended grout mixes, ways to counter casing buoyancy, and notes on other installation issues.



QC CASING

QC (Quick Connect) casing features snap-together convenience and strong, flush joints.

Grooves: Grooves are machine broached for excellent control of width, chamfer, depth, straightness, and spiral.

Sealing: O-ring seals prevent entry of grout.

Coupling: Built-in couplings snap together to make a flush joint. Unique locking mechanism engages full inner circumference of casing, providing much stronger joints than other snap-type casings.

Assembly: Press casing sections together until joint snaps closed. The resulting joint is strong, flush, and grout-proof. Solvent cement, rivets, or tape are not required. O-ring lubricant is applied at factory. Extra O-rings and lubricant are supplied with each box of casing.

Best for: General use.

QC Casing 85mm • 3.34"

Casing OD: 85 mm, 3.34 inches.

Casing ID: 73 mm, 2.87 inches.

Collapse Rating: 12.4 bar, 180 psi.

Load Rating: 635 kg, 1400 lb.

Temp rating: -29 to 88 °C, -20 to 190 °F.

Spiral: $\leq 0.33^\circ$ per 3m or 10' section.

QC Casing 70mm • 2.75"

Casing OD: 70 mm, 2.75 inches.

Casing ID: 59 mm, 2.32 inches.

Collapse Rating: 16.5 bar, 240 psi.

Load Rating: 635 kg, 1400 lb.

Temp rating: -29 to 88 °C, -20 to 190 °F.

Spiral: $\leq 0.33^\circ$ per 3m or 10' section.



STANDARD CASING

Slope Indicator's traditional inclinometer casing features high-strength, flush joints and is available in three diameters.

Grooves: Grooves are machine broached for excellent control of width, chamfer, depth, straightness, and spiral.

Sealing: Solvent cement and tape.

Coupling: Precision molded couplings have interference fit for high-strength bonding. Small diameter version has integral couplings.

Assembly: Casing and couplings are glued together with ABS solvent cement, riveted, and wrapped with tape.

Best for: General use. The extra-strong joints are helpful in very deep boreholes and oversize boreholes in which casing is not well supported.

Standard Casing 85mm • 3.34"

Coupling OD: 89 mm, 3.51 inches.

Casing OD: 85 mm, 3.34 inches.

Casing ID: 73 mm, 2.87 inches.

Collapse Rating: 10.6 bar, 155 psi.

Load Rating: 320 kg, 700 lb.

Temp rating: -29 to 88 °C, -20 to 190 °F.

Spiral: $\leq 0.33^\circ$ per 3m or 10' section.

Standard Casing 70mm • 2.75"

Coupling OD: 70 mm, 2.75 inches.

Casing OD: 70 mm, 2.75 inches.

Casing ID: 59 mm, 2.32 inches.

Collapse Rating: 15 bar, 220 psi.

Load Rating: 320 kg, 700 lb.

Temp rating: -29 to 88 °C, -20 to 190 °F.

Spiral: $\leq 0.33^\circ$ per 3m or 10' section.

Standard Casing 48mm • 1.9"

Casing OD: 48 mm, 1.9 inches.

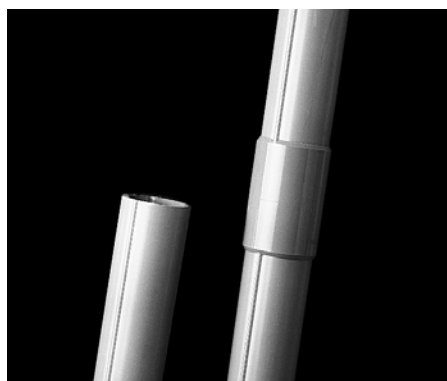
Casing ID: 38 mm, 1.5 inches.

Collapse Rating: 24 bar, 350 psi.

Load Rating: 320 kg, 700 lb.

Temp rating: -29 to 88 °C, -20 to 190 °F.

Spiral: $\leq 0.33^\circ$ per 3m or 10' section.



EPIC CASING

EPIC casing is an economical casing that can be cut and coupled at any point along its length.

Grooves: Grooves are formed during extrusion and are less precise than broached grooves.

Sealing: Solvent cement, mastic, and tape.

Coupling: Oversize couplings make very strong joints.

Assembly: Casing and couplings are glued together with ABS solvent cement. The joint must then be sealed with mastic and tape.

Best for: General use. Some care must be taken to seal the coupling.

EPIC Casing 70mm • 2.75" Only

Coupling OD: 78 mm, 3.07 inches.

Casing OD: 70 mm, 2.75 inches.

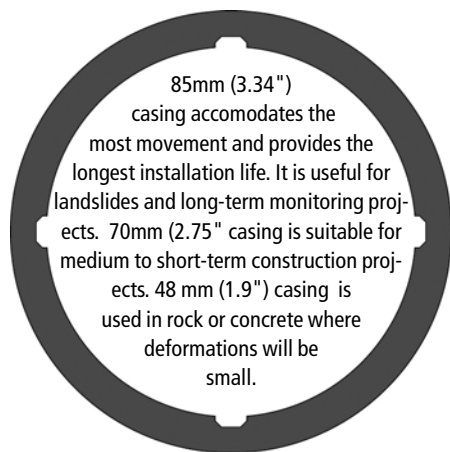
Casing ID: 60 mm, 2.32 inches.

Collapse Rating: 15 bar, 220 psi.

Load Rating: 320 kg, 700 lb.

Temp rating: -29 to 88 °C, -20 to 190 °F.

Spiral: $\leq 0.5^\circ$ per 3m or 10' section.





CPI CASING

CPI casing features quick assembly and disassembly and is available in 3 diameters.

Grooves: Grooves are machine broached for excellent control of width, chamfer, depth, straightness, and spiral.

Sealing: O-ring seals prevent entry of grout.

Coupling: Oversize couplings and shear wires make high strength joint.

Assembly: Apply grease to O-rings, press coupling onto casing, and insert shear wire.

Best for: Cold weather assembly or temporary installations that involve repeated disassembly.

CPI Casing 85mm · 3.34"

Coupling OD: 94 mm, 3.7 inches.

Casing OD: 85 mm, 3.34 inches.

Casing ID: 73 mm, 2.87 inches.

Collapse Rating: 11 bar, 155 psi.

Load Rating: 635 kg, 1400 lb.

Temp rating: -29 to 88 °C, -20 to 190 °F.

Spiral: $\leq 0.33^\circ$ per 3m or 10' section.

CPI Casing 70mm · 2.75"

Coupling OD: 76 mm, 3 inches.

Casing OD: 70 mm, 2.75 inches.

Casing ID: 59 mm, 2.32 inches.

Collapse Rating: 15 bar, 220 psi.

Load Rating: 400 kg, 900 lb.

Temp rating: -29 to 88 °C, -20 to 190 °F.

Spiral: $\leq 0.33^\circ$ per 3m or 10' section.

CPI Casing, 48mm · 1.9"

Coupling OD: 54 mm, 2.12 inches.

Casing OD: 48 mm, 1.9 inches.

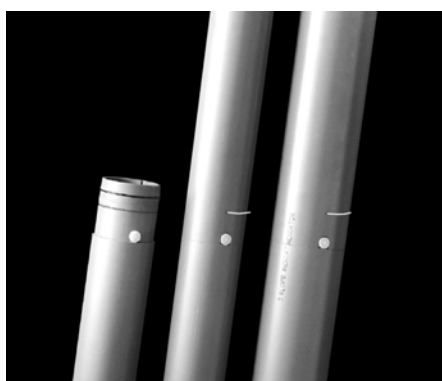
Casing ID: 38 mm, 1.5 inches.

Collapse Rating: 24 bar, 350 psi.

Load Rating: 320 kg, 900 lb.

Temp rating: -29 to 88 °C, -20 to 190 °F.

Spiral: $\leq 0.33^\circ$ per 3 m or 10' section.



SHEAR-WIRE CASING

Shear-Wire casing features flush joints that can be assembled easily in cold weather.

Grooves: Grooves are machine broached for excellent control of width, chamfer, depth, straightness, and spiral.

Sealing: O-ring seals prevent entry of grout.

Coupling: Built-in couplings lock together with removable nylon shear wire to make flush joint.

Assembly: Press casing sections together, then insert shear wire. The result is a flush, grout-proof joint. Solvent cement, rivets, and tape are not required. O-ring lubricant is applied at the factory. Extra O-rings, lubricant, and shear wires are supplied with each box of casing.

Best for: Easy assembly in weather that is too cold for solvent cement or snap-together joints. Generally used in water-filled boreholes.

Shear Wire Casing 85mm · 3.34"

Casing OD: 85 mm, 3.34 inches.

Casing ID: 73 mm, 2.87 inches.

Collapse Rating: 12.4 bar, 180 psi.

Load Rating: 225 kg, 500 lb.

Temp rating: -29 to 88 °C, -20 to 190 °F.

Spiral: $\leq 0.33^\circ$ per 3m or 10' section.

Shear Wire Casing 70mm · 2.75"

Casing OD: 70 mm, 2.75 inches.

Casing ID: 59 mm, 2.32 inches.

Collapse Rating: 16.5 bar, 240 psi.

Load Rating: 225 kg, 500 lb.

Temp rating: -29 to 88 °C, -20 to 190 °F.

Spiral: $\leq 0.33^\circ$ per 3m or 10' section.



GROUT VALVES

Grout valves allow placement of grout backfill in boreholes that cannot accommodate an external grout pipe. The one-way valve is installed in the bottom section of casing. A grout pipe is lowered through the casing to mate with the grout valve and deliver the grout.

TELESCOPING SECTIONS

Optional telescoping sections accommodate 150 mm (6 inches) of compression or extension. Fully extended, each telescoping section adds 0.76 m (2.5 feet) of length to the casing.

CASING ANCHORS

In its fluid state, grout exerts an uplift force that can push even water-filled casing out of the borehole. Holding the casing down from the top has unfortunate side-effects: the casing goes into compression and snakes from side to side in the borehole. Thus casing curvature is present from the start, and slight variations in the positioning of the probe are more likely to produce reading errors..

The casing anchor, installed in place of the bottom cap, provides a convenient way to counter casing buoyancy and reduces casing curvature, since the casing self-centers in the borehole. The anchor has spring loaded arms that are activated when a pin is pulled. Anchors are available for 70 mm and 85 mm casing.



QC CASING 85MM · 3.34"

Casing Section, 10' (3.05 m)	51150310
Casing Section, 5' (1.52 m)	51150311
Section, Telescoping	51150320
Cap, Bottom	51150330
Cap, Bottom, Heavy Duty	51100520
Grout Valve, Gasket Type	51100830
Cap, Top	51100500
Cap, Locking	51100550
Splice Kit, Male	51150350
Splice Kit, Female	51150351

QC CASING 70mm · 2.75"

Casing Section, 10' (3.05 m)	51150210
Casing Section, 5' (1.52 m)	51150211
Section, Telescoping	51150220
Cap, Bottom	51150230
Cap, Bottom, Heavy Duty	51101520
Grout Valve, Gasket Type	51100820
Cap, Top	51101500
Cap, Locking	51101550
Splice Kit, Male	51150250
Splice Kit, Female	51150251

STANDARD CASING 85mm · 3.34"

Casing Section, 10' (3.05 m)	51100100
Casing Section, 5' (1.52 m)	51100105
Telescoping Section	51106400
Coupling	51100200
Cap, Bottom, Heavy Duty	51100520
Grout Valve, Gasket Type	51100830
Cap	51100500
Cap, Locking	51100550
Pop Rivet AD44H	51103301

STANDARD CASING 70mm · 2.75"

Casing Section, 10' (3.05 m)	51101100
Casing Section, 5' (1.52 m)	51101105
Telescoping Section	51107400
Coupling	51101200
Cap, Bottom, Heavy Duty	51101520
Grout Valve, Gasket Type	51100820
Cap	51101500
Locking Cap with Padlock	51101550
Pop Rivet AD42H	51003303

STANDARD CASING 48mm · 1.9"

Casing Section, 5' (1.52 m)	51102305
Cap	51102500
Locking Cap with Padlock	51102550
Grout Valve, Gasket Type	51104000

EPIC CASING 70mm · 2.75"

Casing Section, 10' (3.05 m)	51111100
Coupling	51111200
Telescoping Coupling	51111400
Cap, Bottom, Heavy Duty	51101520
Grout Valve, Gasket Type	51100820
Cap	51111500
Locking Cap with Padlock	51101550
Pop Rivet AD46H	51003310
Lubricant for Telescoping Coupling	57504000

CPI CASING 85mm · 3.34"

Casing Section, 10' (3.05 m)	57500100
Casing Section, 5' (1.52 m)	57500105
Telescoping Section	57506400
Coupling with 2 Shear Wires	57500200
Cap with Shear Wire	57500500
Cap, Bottom, Heavy Duty	51100520
Grout Valve, Gasket Type	51100830
Cap, Top	51100500
Spare Nylon Shear Wire	57500700
O-Ring Lubricant	57504000

CPI CASING 70mm · 2.75"

Casing Section, 10' (3.05 m)	57501100
Casing Section, 5' (1.52 m)	57501105
Telescoping Section	57507400
Coupling with 2 Shear Wires	57501200
Cap with Shear Wire	57501500
Cap, Bottom, Heavy Duty	51101520
Grout Valve, Gasket Type	51100820
Cap, Top	51101500
Spare Nylon Shear Wire	57501700
O-Ring Lubricant	57504000

CPI CASING 48mm · 1.9"

Casing Section, 5' (1.52 m)	57502105
Coupling with 2 Shear Wires	57502200
Cap with Shear Wire	57502500
Grout Valve, Gasket Type	57503700
Cap, Top	51102500
Spare Nylon Shear Wire	57502700
O-Ring Lubricant	57504000

SHEAR WIRE CASING 85mm · 3.34"

10' (3.05 m) Casing Section	51160310
5' (1.52 m) Casing Section	51160311
Section, Telescoping	51160320
Cap, Bottom	51160330
Cap, Bottom, Heavy Duty	51100520
Grout Valve, Gasket Type	51100830
Cap, Top	51100500
Cap, Locking	51100550

SHEAR WIRE CASING 70mm · 2.75"

Casing Section, 10' (3.05 m)	51160210
Casing Section, 5' (1.52 m)	51160211
Section, Telescoping	51160220
Cap, Bottom	51160230
Cap, Bottom, Heavy Duty	51101520
Grout Valve, Gasket Type	51100820
Cap, Top	51101500
Cap, Locking	51101550

CASING ANCHORS

Casing Anchor, 85 mm (3.34")	51104385
Casing Anchor, 70 mm (2.75")	51104370
Anchor + Grout Valve, 85mm(3.34")	51104485
Anchor + Grout Valve, 70mm(2.75")	51104470

INSTALLATION ACCESSORIES

Mastic Sealing Tape	51003800
Vinyl Tape	51003900
Duct Tape	51004000
ABS Solvent Cement, 1/2 pint	51103401
ABS Solvent Cement, 1 pint	51103402
Pop Rivet Gun	50100202
Casing Clamp	50100200

Digitilt Inclinometer Probe



Advantages

Proven Performance: Digitilt inclinometer probes have earned a world-wide reputation for durability, high precision, and rapid response.

Repeatable Tracking: To ensure consistent tracking in all types of casing, the probe is equipped with robust wheel carriages, sealed wheel bearings, and specially designed wheels.

Extended Installation Life: The compact size of the Digitilt probe allows it to pass through small radius curves, extending the useful life of the installation beyond that provided by other inclinometer probes.

Computerized Testing: Each probe undergoes thorough testing on a computerized calibration table.

Reliable Control Cable: Digitilt control cable is durable and easy to handle, stays flexible in cold weather, resists chemicals and abrasion, and provides excellent dimensional stability. Flexible rubber depth marks are permanently vulcanized to the cable jacket. The marks cannot loosen and have no rigid edges that can damage the cable jacket and conductors.

Consistent Depth Control: The pulley assembly, a recommended accessory, helps the operator achieve uniform depth control. The one-way action of its cable clamp ensures consistent positioning of the probe.

Complete Solutions: Slope Indicator's inclinometer system includes high-quality casing, vertical and horizontal traversing probes, vertical and horizontal in-place sensors, recording readouts, graphing software, and specialized accessories.

Applications

Digitilt® inclinometers are used to monitor subsurface movements of earth in landslide areas and deep excavations. They are also used to monitor deformations in structures such as dams and embankments.

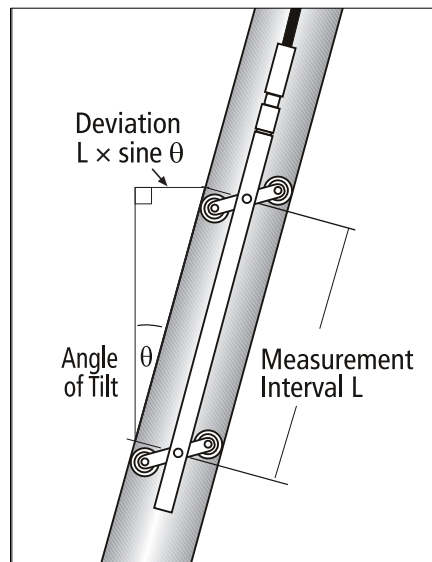
Operation

Inclinometer casing is typically installed in a vertical borehole that passes through suspected zones of movement into stable ground. The Digitilt inclinometer probe, control cable, pulley assembly, and readout are used to survey the casing. The first survey establishes the initial profile of the casing. Subsequent surveys reveal changes in the profile if ground movement occurs.

During a survey, the probe is drawn upwards from the bottom of the casing to the top, halted in its travel at 0.5 m or 2' intervals for tilt readings. The inclination of the probe body is measured by two force-balanced, servo-accelerometers. One accelerometer measures tilt in the plane of the inclinometer wheels, which track the longitudinal grooves of the casing. The other accelerometer measures tilt in the plane perpendicular to the wheels.

Inclination measurements are converted to lateral deviations, as shown in the drawing below. Changes in deviation, determined by comparing current and initial surveys, indicate ground movement.

Plotting changes in deviation yields a high resolution displacement profile. Displacement profiles are useful for determining the magnitude, depth, direction, and rate of ground movement.



DIGITILT INCLINOMETER PROBE

Metric-Unit Probe50302510
English-Unit Probe50302500

Digitilt inclinometer probe includes a carrying case and instruction manual. Control cable, pulley, and readout are not included.

METRIC PROBE SPECIFICATIONS

Wheel base: 500 mm.

Range: $\pm 53^\circ$ from vertical.

Resolution: 0.02 mm per 500 mm.

Repeatability: $\pm 0.01\%$ FS.

Calibration: 14 point calibration with NIST traceable calibration device.

Temperature Rating: -20 to +50 °C.

Dimensions: 25.4 x 653 mm. Control cable connector adds 92 mm to length of probe.

Weight: 1.8 kg.

Material: Stainless steel.

ENGLISH PROBE SPECIFICATIONS

Wheel base: 24".

Range: $\pm 35^\circ$ from vertical.

Resolution: 0.0012 inch per 24 inches.

Repeatability: $\pm 0.01\%$ FS.

Calibration: 14 point calibration with NIST traceable calibration device.

Temperature Rating: -4 to +122 °F.

Dimensions: 1 x 30". Control cable connector adds 3.75" to length of probe.

Weight: 4 lb.

Material: Stainless steel.

ACCURACY SPECIFICATIONS

Metric Systems: ± 0.25 mm per reading and ± 6 mm per 50 readings.

English Systems: ± 0.01 inch per reading and ± 0.3 inch per 50 readings.

These system accuracy specifications were derived empirically from the analysis of a large number of surveys and include both random and systematic errors introduced by casing, probe, cable, readout, and operator. Casing was installed within 3 degrees of vertical, and operators followed recommended reading practices.

When corrections for systematic error are made, the remaining error is random. It accumulates with the square root of the number of readings. Thus the best precision obtainable with a metric system is approximately ± 1.4 mm per fifty readings, and the best precision of an English unit system is approximately ± 0.05 inch per fifty readings.

CONTROL CABLE

30m Control Cable, Complete . . . 50601030

50m Control Cable, Complete . . . 50601050

100m Control Cable, Complete . . 50601100

100 ft Control Cable, Complete . . 50601002

150 ft Control Cable, Complete . . 50601003

300 ft Control Cable, Complete . . 50601004

Metric Cable, Custom Length . . . 50601010

English Cable, Custom Length . . . 50601000

Connector for Readout 50301800

Connector for Probe 50303100

Control cables listed as complete are standard lengths of cable and include connectors. If you order a custom length cable, you must also order connectors.

Control cable is supplied with no splices or surface defects and has a rated strength of 480 lb and a working strength of 120 lb.

Metric cable is graduated with yellow 0.5-meter marks and red 1-meter marks. English cable is graduated with yellow 2-foot marks and red 10-foot marks.

Cable has a steel core wire to control stretching, a torsion braid to counter cable torque, a binder layer to eliminate slipping of cable jacket relative to the steel core, and depth marks that are vulcanized onto the cable jacket. The Neoprene cable jacket resists chemicals and abrasions and is flexible in cold temperatures.



PULLEY ASSEMBLY

Small Pulley 51104604

Large Pulley 51104606

Pulley assembly clamps onto top of casing to help operator control depth of probe. Cable clamp serves as reference for depth marks. Removable pulley wheel facilitates insertion of probe into casing.

Use small pulley with 48 or 70 mm (1.9 or 2.75") casing. Use large pulley with 70 or 85mm (2.75 or 3.34") casing.

READOUTS

Digitilt DataMate50310900

The Digitilt DataMate is a recording readout. The Digitilt 09 is a manual readout. See separate data sheets for details.

DUMMY PROBE

Metric Wheel Base50304810

English Wheel Base50304800

Reel & Line for Dummy Probe . . . 50304900

Dummy probe is used to test for casing continuity, groove continuity, and obstructions or severe distortions of casing that could hinder retrieval of Digitilt probe and control cable. Dummy probe is stainless steel and has dimensions and wheels identical to those of Digitilt probe.

Reel with 60 m (200') of nylon line is used to lower and retrieve dummy probe.



SLIP-RING REEL

200 m (650') capacity50503100

300 m (1150') capacity50503300

Slip-ring cable reel allows the readout to remain connected while the reel is operated. Includes jumper cable to connect reel to readout.

STORAGE REEL

30m (100') capacity50502030

50 m (164') capacity50502050

100 m (360') capacity50502110

Sturdy storage reel with large diameter hub keeps cable neat when not in use.

Digitilt DataMate II



Simple to operate, the compact Digitilt DataMate runs 16 hours on one charge, stores up to 320 surveys, and transfers data to a PC for processing.

The Digitilt DataMate II

The DataMate records data from inclinometer probes, tiltmeters, and spiral sensors. It stores up to 320 complete inclinometer surveys and can power a Digitilt inclinometer probe for 16 hours.

The DataMate II is compatible with the original DataMate but features updated electronics for faster operation, a USB port, and increased storage capacity.

The DataMate is designed for hard use in difficult environments. The case is sealed against humidity, and the bright, backlit display is visible under all lighting conditions. Connector sockets are located on the face panel, away from contact with mud, water, or snow.

Recording Surveys

The Digitilt DataMate keeps a list of inclinometer installations in its memory. To begin a survey, the operator selects an installation from the list.

The DataMate then displays the starting depth for that installation, and the operator positions the probe at that depth.

The display shows the depth, the A-axis reading, and the B-axis reading. When both readings are stable and ready to record, the DataMate displays a graphic "ready" signal, and the operator uses the hand switch or the keypad to record the readings.

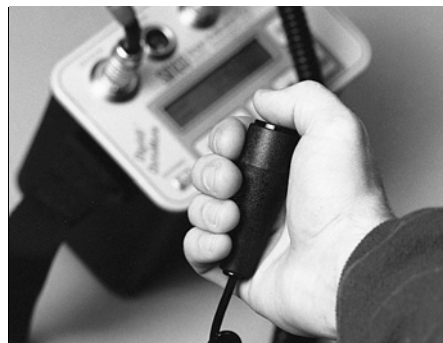
The DataMate beeps to confirm that the readings were recorded and then displays the next depth. The operator raises the probe to this depth, waits for the ready signal, and then records the readings, repeating these steps until the probe reaches the top of the casing. The DataMate then prompts the operator to rotate the probe 180 degrees and begin the second pass through the casing.

The operator can correct a mistake at any time by simply scrolling through the data to any depth, repositioning the probe, and continuing the survey from that point.

Validating Surveys

The DataMate provides checksum statistics to help the operator validate the survey. By comparing the mean and standard deviation of checksums for the current survey with those of previous surveys, the operator can be confident that the data are good.

The DataMate provides routines to help the operator identify questionable readings, which can then be corrected by repositioning the probe. The DataMate displays "live" and recorded readings side by side for comparison, and the operator can overwrite the recorded reading with the live reading, if appropriate.



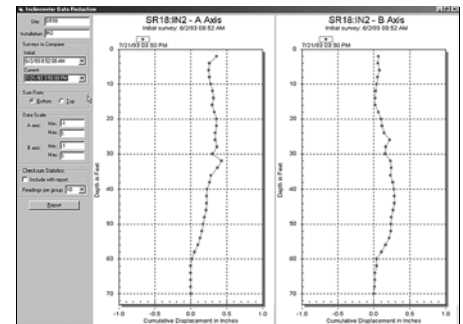
Convenient hand switch reduces fatigue and lets you keep the DataMate clear of the work area.

Retrieving Surveys

Returning to the office, the operator connects the DataMate to a PC, and then runs the DataMate Manager program. The manager program retrieves the recorded surveys and stores them in a database for easy access.

Processing Surveys

Slope Indicator inclinometer software eliminates repetitive work, ensures that calculations are performed accurately, and dramatically reduces the time required to process data.



DMM for Windows software lets you retrieve surveys and produce reports containing readings and graphics.

The DataMate Manager program is included with the DataMate. It can print reports containing inclinometer readings, checksum statistics, and simple graphs. It also provides routines for settlement correction, spiral data set expansion, and bias shift analysis.

DigiPro for Windows is an optional graphing program that provides additional types of graphs, including some diagnostic plots, and a number of sophisticated correction routines. A trial version is available for download from the Slope Indicator web site.

DIGITILT DATAMATE II READOUT

Digitilt DataMate II50310900

The Digitilt DataMate is a portable readout for Digitilt sensors. It provides depth prompts and stores readings in memory for transfer to a PC. Includes hand switch, battery charger, USB interface cable for PC, and CD with DMM for Windows and manual. Specify 100, 115, 220, or 240 volts and 50 or 60Hz for charger. DigiPro software is not included.

Sensor Compatibility: English and metric versions of vertical and horizontal Digitilt inclinometer probes, tiltmeters, and spiral sensors.

Displayed Units: Metric indicator displays readings as $25000 \times$ the sine of the angle of tilt. English indicator displays readings as $20000 \times$ the sine of the angle of tilt.

Survey Types: 2-pass survey for inclinometer probes; 4-pass survey for spiral sensors.

Memory Capacity: Stores 160 installations and up to 320 surveys (32,000 depths with 4 data values at each depth).

Maximum Survey Depth: 500m or 2000 feet.

Reading Intervals: Fixed intervals. Minimum interval is 0.5 m with metric probe or 1 foot with English-unit probes.

Menu-Selected Functions

Record: Prompts operator with starting depth. Displays A and B axis readings. Displays ready signal when readings are stable. Displays next depth after readings are recorded.

Manual Read: Allows use of DataMate when memory is full or depth display is not required.

Validate: Calculates checksum statistics.

Correct: Allows user to correct mistakes.

Compare: Calculates a single value for cumulative deviation or cumulative displacement.

Comm: For communication with PC.

Print: Outputs ASCII data to a terminal program running on a non-DOS/Windows computer.

Operating Time: 16 hours @ 20°C (68°F) of continuous power to probe. Backup battery preserves data for six months.

Temperature Rating: -20 to 50°C (-4 to 122°F).

Display: 20 x 2 backlit LCD rated for extended temperatures.

Battery: 6 volt, 6 Ah, gelled electrolyte, lead-acid battery. Recharges to 80% capacity in 16 hours using the included charger.

Case: Splashproof, non-submersible, aluminum case with plastic shell. Connectors are waterproof when capped or in use.

Dimensions: 127 x 178 x 178 mm (5 x 7 x 7").

Weight: 3 kg (6.5 lb).

DMM FOR WINDOWS

DMM for Windows50310970

The DataMate Manager program (DMM) transfers readings from Digitilt DataMate to a PC. DMM also processes, plots, and prints reports.

DMM is supplied on a Resource CD with the purchase of the Digitilt DataMate and can be downloaded free from www.slopeindicator.com.

System Requirements: Windows computer with USB port.

Data Retrieval: DMM communicates with DataMate through a USB connection.

Data Storage: Surveys retrieved from DataMate are stored in an MDB database. DMM supports drag-and-drop operations between databases and provides easy functions for editing, renaming, moving, and archiving installations and surveys. Surveys retrieved from the DataMate can also be saved as ASCII files.

Data Manipulation: DMM provides a settlement correction routine and a spiral set expansion routine. Both routines generate new surveys.

Import Capabilities: DMM imports legacy data from Slope Indicator's previous formats and from GTILT®. The program also allows manual entry of data.

Report Capabilities: DMM prints inclinometer readings with checksums, compares two surveys (typically current vs initial) to generate A and B-axis graphs of cumulative displacement. The program generates graphs of cumulative deviation. Graphs are displayed on screen and can be printed in a report. Reports can also include checksum statistics, bias-shift analysis tables, and tabular data in digi units (differences and changes).



DIGITILT 09 INDICATOR

Digitilt 09, Metric50300910

Digitilt 09, English50300900

The Digitilt 09 Indicator is a portable readout for Digitilt sensors. It displays readings, but does not record them. The user must keep track of depths and readings on a field data sheet. A battery charge is included. Please specify 100, 115, 220, or 240 volt and 50 or 60Hz.

Compatibility: Digitilt inclinometer probes, Digitilt tiltmeters, and spiral sensors.

Displayed Units: Metric indicator displays readings as $2.5 \times$ the sine of the angle of tilt. English indicator displays readings as $2 \times$ the sine of the angle of tilt.

Readings can be entered into the DMM for Windows database and graphed with DigiPro for Windows. If you chose to do this, write down readings without the displayed decimal point and enter the readings as integers.

Resolution: Metric indicator provides resolution of 1 in 25,000. English indicator provides resolution of 1 in 20,000.

Display: Large, backlit 4.5 digit LCD with heater for cold weather operation.

Battery: Rechargeable 6 volt, 6 Ah gelled electrolyte, lead-acid battery. Battery life is 12 hours with fully charged battery. LCD heater reduces operating time up to 50% when temperature is below 5°C (40°F).

Temperature Rating: -20 to 50°C (-4 to 122°F).

Dimensions: 127 x 178 x 178 mm (5 x 7 x 7").

Weight: 3.4 kg (7.5 lb).

DigiPro Inclinometer Software

Applications

DigiPro software processes and plots inclinometer data recorded by the Digitilt DataMate readout. It creates high-resolution graphs and supports advanced routines for identifying and correcting systematic error.

Productivity Features

Easy Graphing: Choose an installation, choose the type of graph that you want, and click OK. With just three clicks, your inclinometer data is reduced and plotted. Generating the same results from spreadsheets would take hours of repetitive work.

Reusable Settings: When you save a graph, DigiPro automatically stores scales labels, legends, and other settings as a "report." To process new inclinometer surveys, just click on the report. DigiPro retrieves your graph settings, automatically finds the new data, and creates an updated graph.

Uniform Style and Format: DigiPro supplies standard templates that you can customize, adding your company logo, standardizing scales, etc. These customized templates will ensure that all new reports have a uniform format and style.

Technical Features

Standard Plots: DigiPro supports all of the standard types of inclinometer plots that are used to analyze movements and deformations of soil, rock, and structures. Cumulative displacement plots show movement relative to a fixed point of origin, incremental displacement plots reveal shear planes, and time plots show acceleration or deceleration of movement.

Diagnostic Plots: To help identify and evaluate errors in the data, DigiPro provides various plots that help you check for instrument drift,

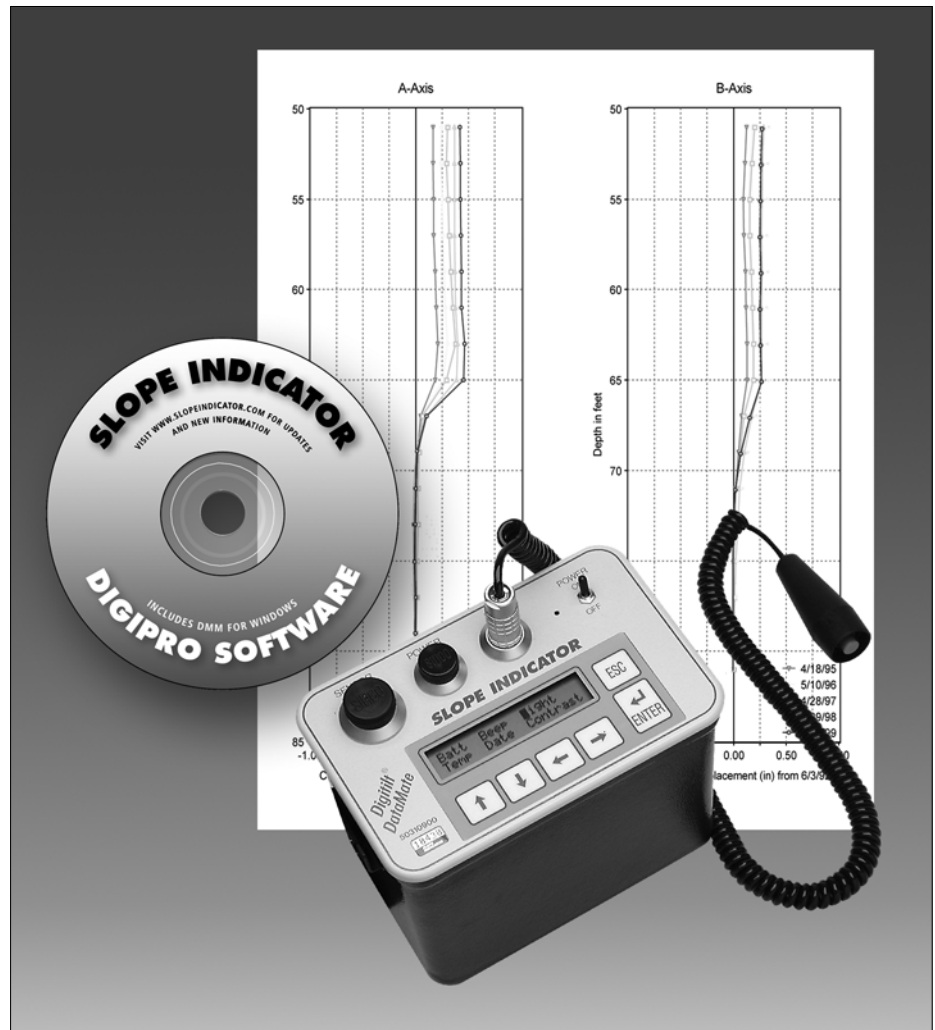
evaluate the potential for depth errors, and identify errors caused by changes in cross-axis sensitivity of the probe (tilt in the B axis influencing A-axis readings and vice versa).

Advanced Corrections: DigiPro lets you correct for bias shift and changed cross-axis sensitivity. In addition, it uses spiral corrections and settlement corrections generated by DMM for Windows.

Note that correction values can be applied and removed at any time. the original data is not affected.

Automatic Conversions: DigiPro can produce metric-unit reports from English-unit data. DigiPro can also convert the depths stored with your inclinometer data to elevations.

Data Listings: When you print a report, you can choose to print a listing of the most recent data in addition to the graph. You can also print a listing of the plotted data points or export the listing to a file for use with a spreadsheet.



DIGIPRO FEATURES

Graph Types: Graph types include cumulative and incremental displacements, cumulative and incremental deviations, displacement vs time, and checksums and difference checksums. Different types of graphs can be displayed on the same page and you can specify top or bottom reference and different scales for each graph.

Reports: When you save a graph, DigiPro automatically creates a report so you can reuse scales, labels, legends, title block, and other settings. To process new surveys, you just click on the report. DigiPro automatically retrieves your settings, finds the new data and displays an updated graph.

Templates: DigiPro's graph templates provide a way for your organization to standardize the format and presentation of inclinometer reports. DigiPro's templates are preformatted graphs of various types that include title blocks with your company logo, standard scales, text, etc.

Data Listings: When you print a report, you can choose to print a listing of the most recent survey. You can also print a listing of the plotted data points.

GRAPH CONTROLS

Survey Selection: The total number of surveys (datasets) per graph is limited only by memory and legibility requirements. You can mark one survey as the initial, and you can control the number of most recent surveys that will be auto-selected for the graph. You can mark other surveys as permanently selected or permanently excluded from the graph (unmarked surveys are also excluded).

Data Units: You can choose millimeters, meters, inches, or feet for displacements and deviations. DigiPro can convert English-unit data to metric and vice versa.

Depth Units: You can choose depths or elevations and meters or feet for depth unit labels. DigiPro automatically converts units as required.

Corrections: Correction values are stored separately from data and do not affect stored data. The application of the various corrections can be toggled on and off. DigiPro supports corrections for spiralled casing and misaligned casing. Spiral correction requires a spiral dataset obtained with a spiral sensor. DigiPro supports corrections for systematic errors caused by bias shifts or changes in cross-axis sensitivity. Corrections for settlement are calculated by DMM for Windows and plotted by DigiPro as normal datasets.

Page Layout: Paper size, paper orientation, margins, graph size and placement have default settings that can be changed for individual reports. The layout of the default templates provides two graphs on the page with a title block at the bottom. You can specify A-axis or B-axis and top or bottom reference. Each report holds two graphs, and you can specify different types of graphs in the same report.

Graph Labels: Labels are supplied automatically or you can enter your own. You can change fonts and font sizes. Dataset identifiers can be toggled between date-only and date-and-time. The dataset legend can be placed in any corner of the graph.

Title Block and Logo: The title block provides two columns of four lines each to enter information about the graph. You can change fonts and font sizes for the text. You can also include your company name and logo. The logo must be a bit-map (.bmp) file

DATA COMPATIBILITY

Project Database: DigiPro works with data stored in Slope Indicator's project database format created by DMM for Windows or DMM for DOS. The DMM program can be downloaded free from Slope Indicator's website.

Legacy Data: TDMM imports legacy data from Slope Indicator's previous formats (PCSLIN, RPP, and DOS DMM) and from the GTILT program. DMM also provides a means of entering data manually.

SYSTEM REQUIREMENTS

Computer Requirements: DigiPro for Windows requires a Windows 95, 98, ME, NT4, 2000, or XP computer. The program does not run on Windows 3.x or DOS. A display resolution of 800 x 600 or higher is recommended, and a mouse or similar pointing device is required. DigiPro prints on any printer supported by Windows.

Network Information: Project databases can be stored on network file servers, but DigiPro itself must be installed on client computers (individual work stations).

Copy Protection: The program is copy protected, but a run-limited version can be installed and used immediately for 45 sessions. The user must then contact Slope Indicator by fax, phone, or e-mail to obtain an unlocking code that permits continued use of the program.

DIGIPRO PART NUMBERS

DigiPro for Windows Trial Download
DigiPro, 3-User License 50310000
DigiPro, 1-User License 50310001
DigiPro, Site License 50310002

DigiPro is distributed on the Slope Indicator Resource CD and can also be downloaded from the Slope Indicator website. When installed, the software operates in trial mode for 45 runs. After that, continued use requires purchase of a license.

Memo

To:	Calvin Goldschmidt (Newmont/JDS)	Date:	March 23, 2012
Company:	Hope Bay Mining Limited	From:	Iozsef Miskolczi (SRK) Maritz Rykaart (SRK)
Copy to:	Silkie Wong (SRK)	Project #:	1CH008.058.0200.22
Subject:	Doris North Project – North Dam Ground Temperature Data Collection System		

An automated data collection system is required to be installed at the North Dam. The system will provide continuous monitoring of the ground temperature cables installed within the dam. See Figures 1 through 4 for the conceptual layout of the system. The installation details are found on drawings DN-ND-08 (HB+T-CIV-CIV-OND-0028) Issued For Construction Rev 2, and DN-ND-16 (HB+T-CIV-CIV-OND-0036) Issued For Construction Rev 3.

SRK recommends the instrumentation manufactured by Campbell Scientific be installed at each thermistor string nest along the downstream crest of the dam, as detailed in Drawing DN-ND-08. The enclosures housing the cabling and the instrumentation must be installed on support posts as detailed in DN-ND-16, detail B.

The thermistor strings located on the upstream side of the dam (ND-VTS-060-US, ND-VTS-085-US, and ND-VTS-130-US) are required to be routed onto the downstream side. A protective casing consisting of welded sections of 152 mm (6 inches) diameter Schedule 40 steel pipe shall be installed as detailed in DN-ND-16, Typical Section B.

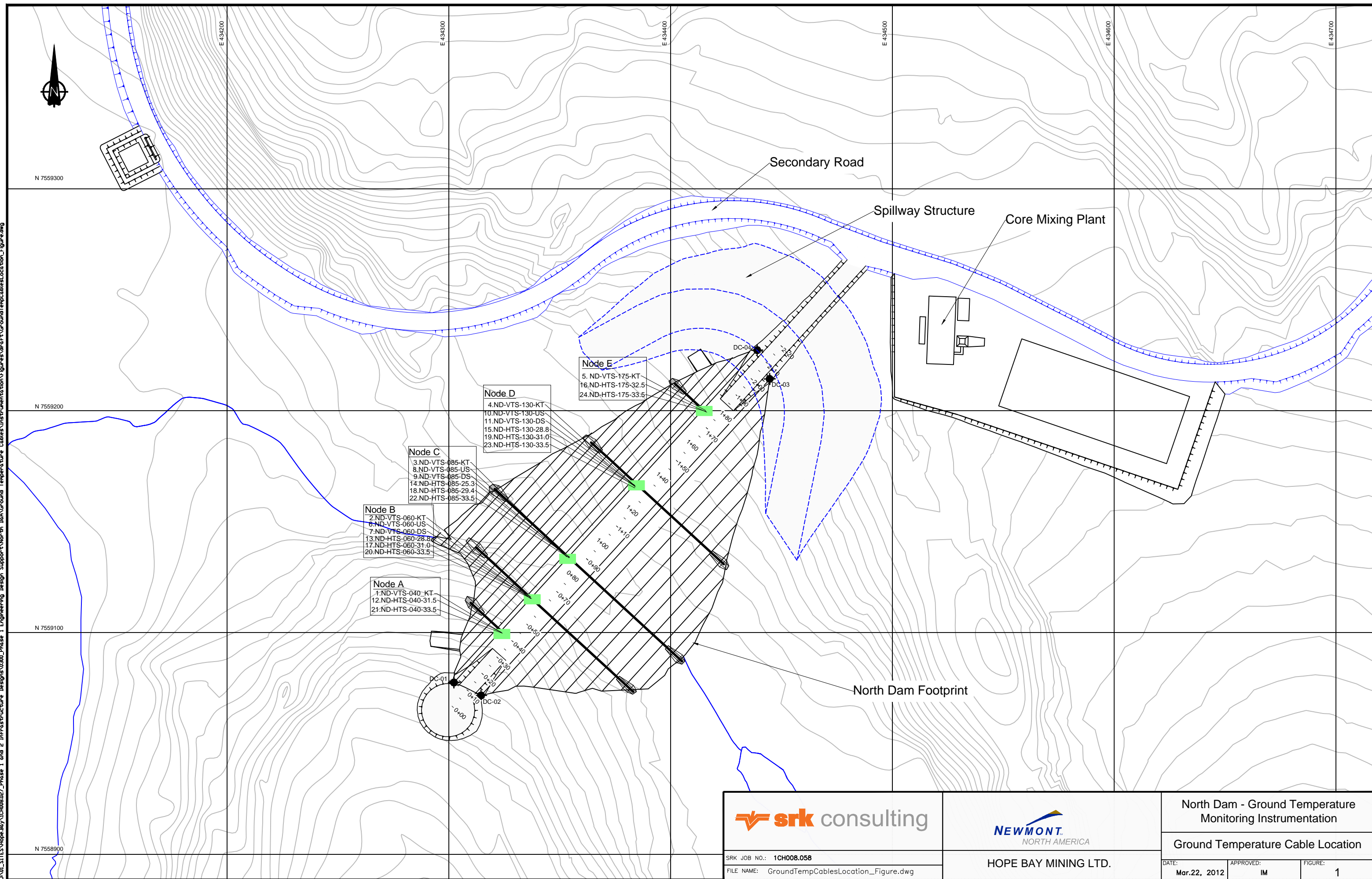
Table 1 below is a summary of the estimated cost of the instrumentation manufactured, pre-configured, and delivered to Yellowknife. See Attachment A for detailed cost estimate, and Attachment B for the supplier quotations.

Table 1: Cost Estimate Summary

Task	Description	Task Cost (Rounded)
100	Project Management	\$ 2,410
200	Engineering Design and Procurement	\$ 47,205
300	Installation and Commissioning	\$ 13,347
400	As-built Reporting	\$ 11,306
Total		\$ 74,268

Figures

J:\01_SITES\Hope Bay\1CH008.058_Phase 1 and 2 Infrastructure Design_Support\North Dam\Ground Temperature Cables\Instrumentation\Figures\draft\GroundTempCablesLocation_Figure.dwg



srk consulting

SRK JOB NO.: 1CH008.058
FILE NAME: GroundTempCablesLocation_Figure.dwg

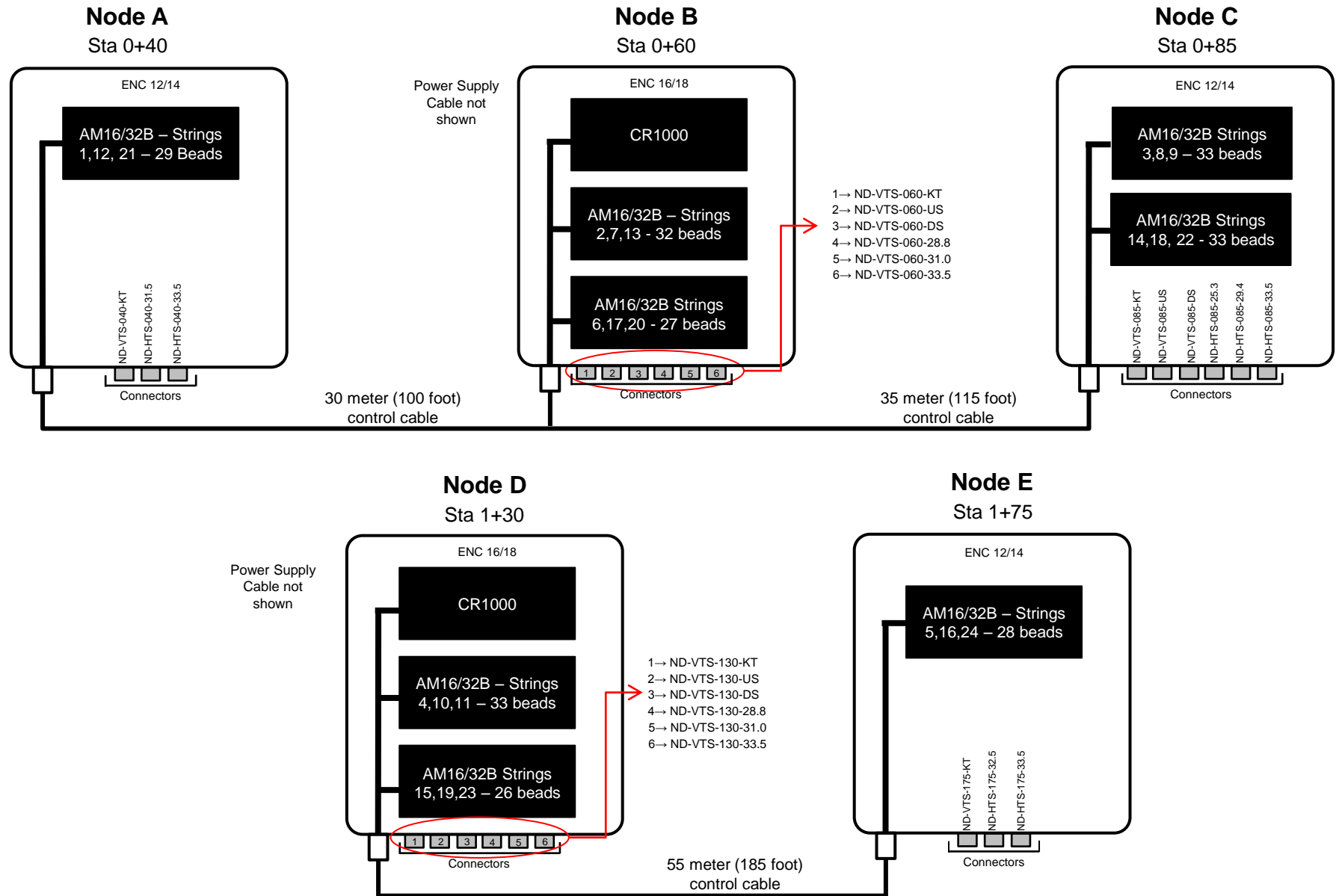
NEWMONT
NORTH AMERICA

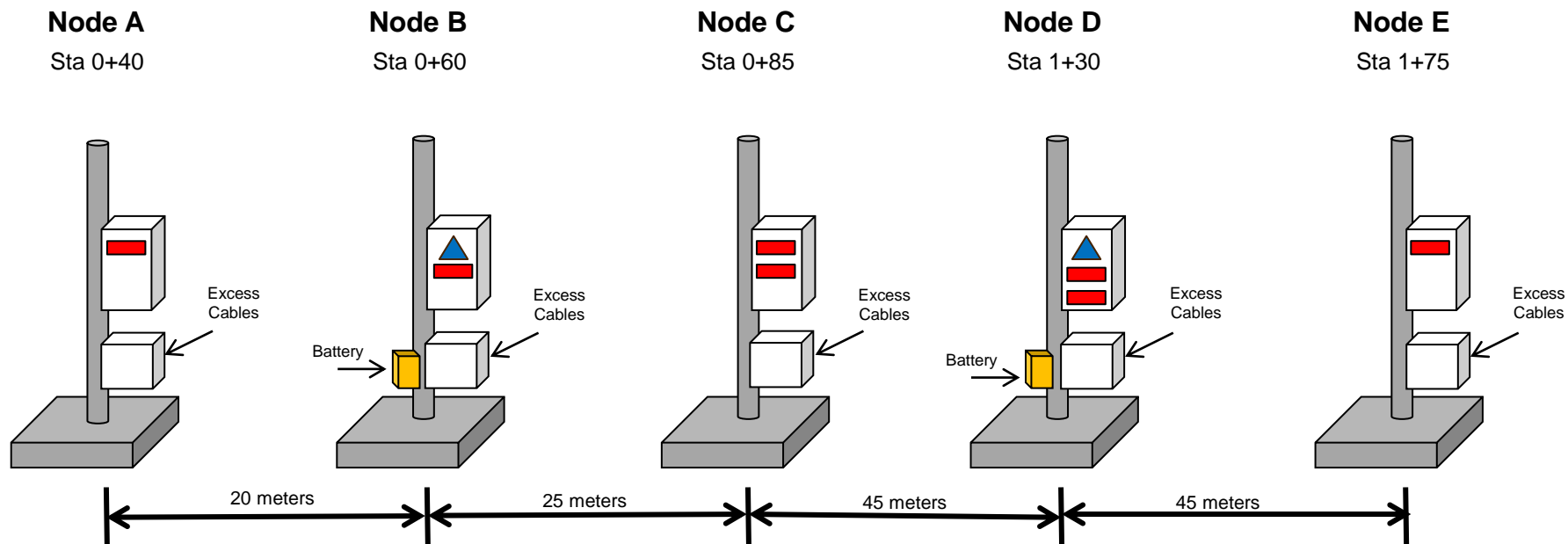
HOPE BAY MINING LTD.

North Dam - Ground Temperature Monitoring Instrumentation


Ground Temperature Cable Location


DATE: Mar.22, 2012	APPROVED: IM	FIGURE: 1
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Legend

 AM 16/32 Multiplexer

 CR1000 Datalogger



Job No: 1CH008.058.200

Filename: Figs 2-3_Nodes_1CH008.058_20120323.ppt



HOPE BAY MINING LTD.

North Dam – Ground Temperature
Monitoring Instrumentation

Conceptual Layout of Data
Acquisition System

Date:
March 2012

Approved:
IM

Figure: **3**

Memo

To:	Calvin Goldschmidt	Date:	March 28, 2012
Company:	JDS Engineering	From:	Maritz Rykaart
Copy to:	Mike Smith, Hope Bay Mining Ltd.	Project #:	1CH008.058
Subject:	RE: Pollution Control Pond and Sedimentation Control Pond – Significant Deficiencies		

As indicated on our As-built drawings for the pollution control and sedimentation ponds we would like to point out two significant deficiencies and their implications:

- A portion of the liner along the north slope of the sedimentation control pond was not anchored due to the presence of the reverse osmosis treatment plant (Dwg. DN-DMC-041, Rev. AB dated March 20, 2012). It was understood that the plant temporarily located at that spot and that when it was relocated the liner would be anchored as per the IFC drawings. At the time of production of the as-built drawings this remedial works had not been carried out. There is a risk that the liner could slip in this location resulting in reduced pond capacity. The extent of the reduced capacity cannot be estimated since the extent of possible damage is uncertain. SRK would recommend that this repair be carried out.
- The north-west wing wall of the pollution control pond key trench could not be excavated to the required design grade due to the proximity of the waste rock pile and associated safety, cost and timing concerns (Dwg. DN-DMC-033, Rev. AB dated March 20, 2012). The result of this decision is that the full supply level (FSL) of this pond is reduced from 35.3m (capacity of 4,223 m³) to 35.0m (capacity 2,992 m³). No specific remedial measures are recommended; however the revised FSL needs to be recognized in site water management plans.

Memo

To:	Calvin Goldschmidt	Date:	May 11, 2012
Company:	JDS Engineering	From:	Lowell Wade, Anton Bloem, Maritz Rykaart
Copy to:	Brad Skeeles, Hope Bay Mining Ltd	Project #:	1CH008.058.0200.16
Subject:	Doris North Project – Roberts Bay Fuel Tank Farm High Wall Remediation		

The rock high wall behind the Roberts Bay Fuel Tank Farm was inspected upon completion of construction activities 2011. A series of Engineering Drawings for the Rock/Ground Support were then Issued for Construction in November of 2011 and the work was completed later that month. Weather conditions under which the work was completed was not favorable for the remediation activities. An inspection of the remediation work was conducted in early December. At that time, SRK recommended two additional cable trusses would be required to bring the remediation work up to an acceptable level of safety for the Fuel Tanks to contain diesel and for people to work in the vicinity of Tank #2 (Attachment 1). To date this work has not been carried out.

As the project is now under Care and Maintenance, SRK understands the Fuel Tanks will remain empty and people will not be present in the area on a frequent basis. As such, the current status of the high wall remediation work is acceptable, provided appropriate signage denoting the hazard is put in place. The upper two additional cable-trusses (using four rock bolts) would be required to bring the construction in-line with the remediation design should the status of the Hope Bay Project change.