Appendix 17

Design Brief: Doris North Project, Roberts Bay Expanded Laydown Pads (SRK, August 2011)

srk consulting

SRK Vancouver
Suite 2200 - 1066 West Hastings Street
Vancouver, BC V6E 3X2

T: +1.604.681.4196
F: +1.604.687.5532

vancouver@srk.com
www.srk.com

Memo

To:	Chris Hanks, Christine Kowbel	**Date:**	August 5, 2011
Company:	Hope Bay Mining Limited	**From:**	John Kurylo, Megan Miller, Maritz Rykaart
Copy to:	Lea-Marie Bowes-Lyon	**Project #:**	1CH008.049
Subject:	Design Brief: Doris North Project, Roberts Bay Expanded Laydown Pads		

1 Introduction

Hope Bay Mining Limited (HBML), a wholly owned subsidiary of Newmont Mining Company (NMC) is currently in the process of constructing their Doris North Project (Project) in the Kitikmeot region of Nunavut, Canada.

HBML requires more general laydown and staging areas at Roberts Bay to facilitate safer and more efficient annual sealift operations. The proposed new laydown areas, referred from herein as the Roberts Bay Laydown Pad Expansions would be within the current Commercial Lease boundaries of the Project.

The Roberts Bay Laydown Pad Expansions would consist of expanding existing infrastructure roads and pads at Roberts Bay in three areas (to the southwest, southeast and to the west of the main laydown area). Due to the terrain conditions, and to ensure maximum functionality, the proposed new pads will be constructed as tiered rock fill pads directly on the tundra. The pads will be graded and aligned to facilitate proper water management.

This memo provides complete details of the pad design, and should be read in conjunction with the attached engineering drawings (Attachment A).

2 Design Concept

The Roberts Bay Laydown Pad Expansions are made up of three pads in the Roberts Bay area, designated as the Southwest, Southeast and West Laydown Expansion. The width of each tier shall be maintained at a minimum of 25m to ensure functionality. Maximum fill thickness was limited to ~5m, while minimum fill thickness was maintained at 1m to ensure thermal protection of the permafrost foundation.

Access to the various tiers will be gained from the Primary Road for the Southwest and Southeast Laydown Expansions and will be gained from the Beach Laydown Area (south of the Roberts Bay Jetty) for the West Laydown Expansion.

3 Expansion Alternatives

HBML considered a number of alternative configurations before selecting the proposed laydown expansion areas. The topographical layout of the site, the proximity to the ocean and fish bearing waters essentially limits viable options to those presented.

4 System Design

4.1 Design Criteria

The design criteria for the rock fill pads are as follows:

- Maximize the useable laydown and staging space.
- Width of each of the pad tied shall be a minimum of 25m.
- Ramp grades shall not exceed 10%.
- Ramps shall have a minimum width of 8m and turning radius of 12m.
- Each tier shall be constructed with a general drainage gradient of 0.5%.
- A minimum 0.85m thick Run-of-Quarry (ROQ) fill base overlain by a 0.15m surfacing material shall be constructed.
- Maximum pad side slope gradient shall be 1.5H:1V where fill thickness is less than 2.0m and 2H:1V where the fill thickness exceeds 2.0m.
- Maintain a minimum fill thickness of 1.0m on the tundra for thermal insulation of permafrost.
- Wherever practical, maintain a maximum pad fill thickness of 5m.
- Ensure a minimum setback of 30m from any water bodies.
- Manage surface water run-off so areas of ponding are not created along the edges of the pads, and water is shed from the surface of the pads.
- Where fill thickness is greater than 3m, safety barricades will be provided.

The Southwest and Southeast Laydown Pad Expansions have three tiers at elevations 24, 19 and 16m on either side of the existing Primary Road. The West Laydown Pad Expansion is a single tier at elevation 4m.

4.2 Survey Data

The design of the Roberts Bay Laydown Pad Expansions were based on 2010 as-built information received from Nuna Logistics and a topographic contour set provided by HBML, based on 2007 aerial photography. Contour intervals shown are typically 1m.

4.3 Foundation Conditions

Comprehensive geotechnical investigations have been carried out at the Doris North Site (SRK 2009). This information confirms that the area lies within the zone of continuous permafrost, with the permafrost being up to 550m deep. Permafrost temperatures at the surface are about -8ºC and the active layer is generally less than 1m thick. Laboratory and in-situ tests on disturbed and undisturbed samples indicate that the overburden soils are predominantly comprised of marine silts and clays, and the pore-water in these soils have high salinity, depressing the freezing point to -2ºC. The ice-rich overburden soils are typically between 5 and 20m deep, before encountering competent bedrock, predominantly basalt. Bedrock is frequently exposed, rising columnar 5 to 100m above the surrounding landscape.

Thermal modeling was completed to determine how much fill would be required over the tundra to ensure the permafrost would be preserved for the infrastructure construction (SRK 2006). In the case of the Roberts Bay Laydown Pads, the minimum fill thickness would be 1m; however due to the tiered nature of the pads, actual fill thickness in most cases exceeds this value.

5 Construction Methodology

The Roberts Bay Laydown Pad Expansions will be constructed using conventional load-haul-dump-place techniques. Geochemically acceptable rock (either ROQ or waste rock) will be used. The waste rock would originate from the Doris North portal and quarried rock from any of the approved rock quarries forming part of the Project.

Complete material quantities for constructing the Roberts Bay Laydown Pad Expansions are presented on the attached drawing RB-LE-01, rev. A.

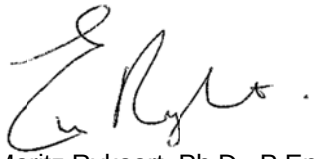
Regards,

SRK Consulting (Canada) Inc.

John Kurylo, E.I.T.
Staff Consultant

Megan Miller, E.I.T.
Staff Consultant

Reviewed By:



Maritz Rykaart, Ph.D., P.Eng.
Principal

6 References

SRK Consulting (Canada) Inc., 2009. Hope Bay Gold Project: Stage 2 Overburden Characterization Report, Prepared for Hope Bay Mining Limited, Project Number: 1CH008.002, September, 2009.

SRK Consulting (Canada) Inc., 2006. Doris North Project – Thermal modeling to support design thickness for granular pads. Technical Memorandum, Prepared for Miramar Hope Bay Limited, Project Number: 1CM014.008, August 20, 2006.

Attachment A
Engineering Drawings for the Roberts Bay Laydown Expansions

Engineering Drawings for the Roberts Bay Laydown Expansions, Doris North Project, Nunavut, Canada Water License Amendment

ACTIVE DRAWING STATUS

SRK DWG NUMBER	DRAWING TITLE	REV.	DATE	STATUS
RB-LE-00	Engineering Drawings for the Roberts Bay Laydown Expansions	A	Jun. 13, 2011	Issued for Discussion
RB-LE-01	Roberts Bay Laydown Expansions General Arrangement	A	Jun. 13, 2011	Issued for Discussion
RB-LE-02	Roberts Bay Laydown Expansions Sections (1 of 2)	A	Jun. 13, 2011	Issued for Discussion
RB-LE-03	Roberts Bay Laydown Expansions Sections (2 of 2)	A	Jun. 13, 2011	Issued for Discussion

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PROJECT NO: 1CH008.049
ISSUED FOR DISCUSSION
Revision A
June 13, 2011
RB-LE-00

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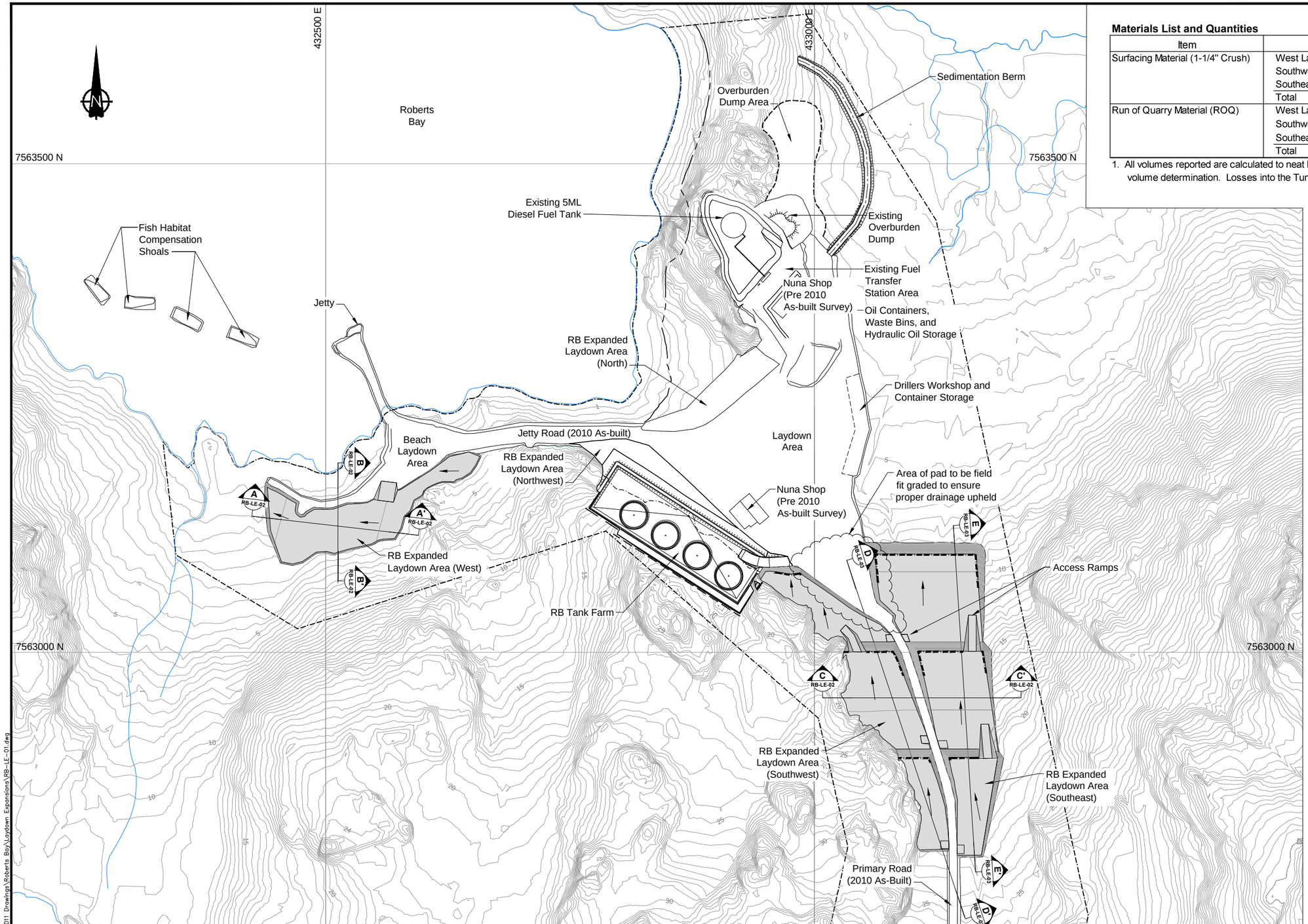

Materials List and Quantities

Item	Quantity/Area/Volume		Description[1]
Surfacing Material (1-1/4" Crush)	West Laydown Area	1,830 m³	Volumes derived from Gemcom (Gems 6.3)
	Southwest Laydown Area	2,770 m³	
	Southeast Laydown Area	1,220 m³	
	Total	5,820 m³	
Run of Quarry Material (ROQ)	West Laydown Area	39,350 m³	Volumes derived from Gemcom (Gems 6.3)
	Southwest Laydown Area	66,440 m³	
	Southeast Laydown Area	13,210 m³	
	Total	119,000 m³	

1. All volumes reported are calculated to neat lines. No bulking/shrinking factor have been utilized in the volume determination. Losses into the Tundra are not accounted for.

LEGEND

- New Infrastructure
- Commercial lease boundary
- 30m shoreline setback
- Safety Berm (See Detail 1 on Dwg RB-LE-02)
- Pad Grading Direction (at 0.5%)

NOTES

1. The designs are based on the contour information shown on these drawings. It is however the Contractor's responsibility to confirm that the contours are a fair reflection of the ground levels in the vicinity of the works, and to advise the Construction Manager and Engineer of any differences.
2. The co-ordinate system is UTM NAD 83, Zone 13.
3. All dimensions are in metric units, unless specifically mentioned.
4. All drawings are scaled appropriately for D-Size construction drawings. Scales may not be correct if these drawings are reproduced and presented in any other size format.
5. The Engineer will provide the Construction Manager and Contractor with digital design files for setting out the works. The Engineer will instruct the Contractor to survey random spot checks to confirm whether the works have been set out correct.
6. Construction shall be in accordance with the following Technical Specifications: Earthworks and Geotechnical Engineering, Hope Bay project, Nunavut, Canada, Revision G -Issue for Construction.
7. Notes in this drawing apply to all other active drawings.

DRAWING NO.	DRAWING TITLE	DRAWING NO.	DRAWING TITLE
REFERENCE DRAWINGS			

NO.	DESCRIPTION	CHK'D	APP'D	DATE
A	Issued for Discussion	JBK	EMR	13Jun11
REVISIONS				

This drawing is uncontrolled when printed unless stamped and signed with original ink and recorded on a Distribution Register.

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DESIGN:	DRAWN:	REVIEWED:
JBK	NV	LW
CHECKED:	APPROVED:	DATE:
JBK	EMR	June 13, 2011

FILE NAME: RB-LE-01.dwg

NEWMONT NORTH AMERICA

HOPE BAY MINING LTD.

SRK JOB NO.: 1CH008.049

Doris North Project

DRAWING TITLE:

Roberts Bay Laydown Expansions
General Arrangement

NEWMONT DRAWING NO.

SRK DWG NO.:	SHEET	REVISION NO.
RB-LE-01	2 OF 4	A

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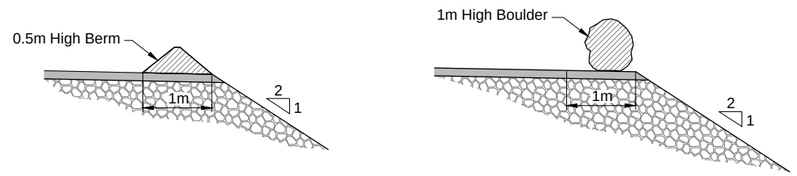
LEGEND

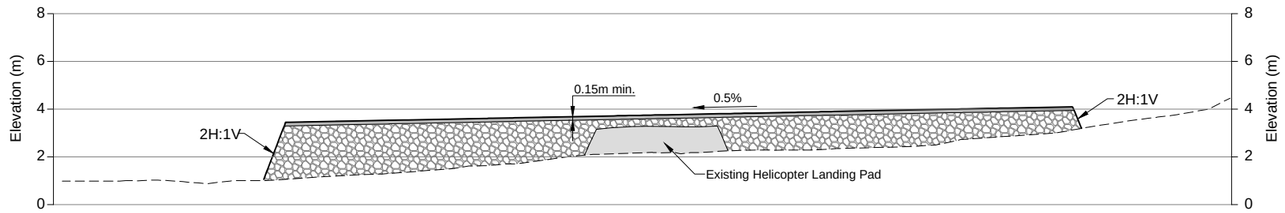
- Original Ground
- Surfacing Material
- Run of Quarry Material
- Existing Roberts Bay Infrastructure

NOTES

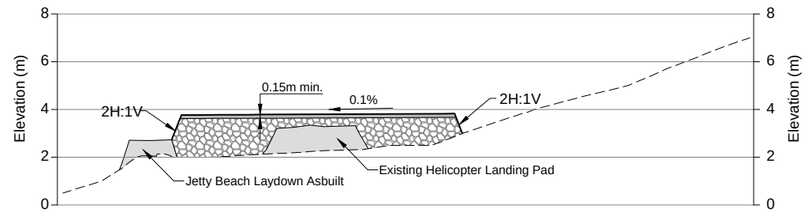
1. All dimensions in metres unless noted otherwise.
2. Where the thickness of the pads is greater than 3.0m allow for the placement of barriers.
3. The barriers are to consist of boulders larger than 1m in diameter, or a rock fill berm 0.5m high. Maximum spacing between boulders is 3.3m.
4. Notes in this drawing apply to all other active drawings.



DETAIL 1
TYPICAL BERM BARRIER OPTIONS
1 / RB-LE-03 — NTS



SECTION A - A'
A / RB-LE-01



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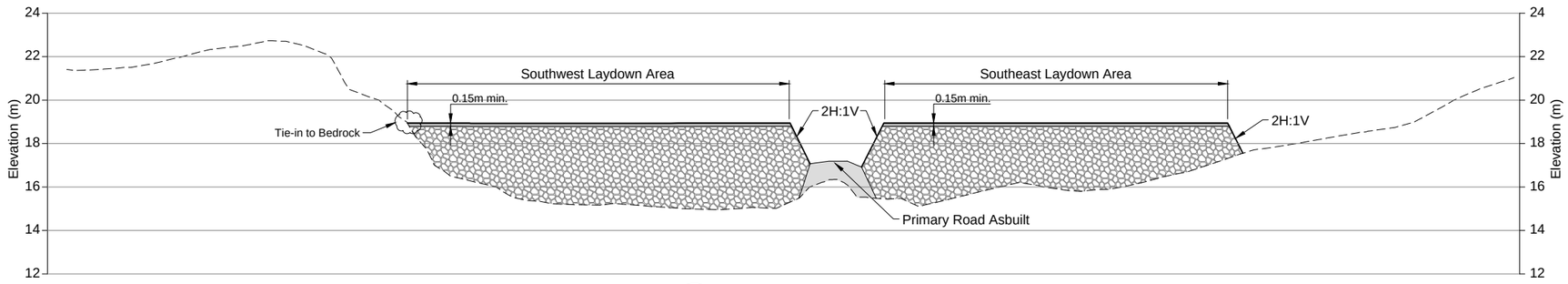
B / RB-LE-01



SECTION C - C'
C / RB-LE-01

0 5 10 15 20 25 — Scale in Metres (Horizontal)
0 1 2 3 4 5 — Scale in Metres (Vertical)
4X VERTICAL EXAGGERATION

DRAWING NO.	DRAWING TITLE	DRAWING NO.	DRAWING TITLE

REFERENCE DRAWINGS

NO.	DESCRIPTION	CHK'D	APP'D	DATE
A	Issued for Discussion	JBK	EMR	13Jun11

REVISIONS

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CHECKED:	APPROVED:	DATE:
JBK	EMR	June 13, 2011

FILE NAME: RB-LE-02_03.dwg

NEWMONT NORTH AMERICA

HOPE BAY MINING LTD.

SRK JOB NO.: 1CH008.049

Doris North Project

DRAWING TITLE:
Roberts Bay Laydown Expansions
Sections (1 of 2)

SRK DWG NO.:	SHEET	REVISION NO.
RB-LE-02	3 OF 4	A

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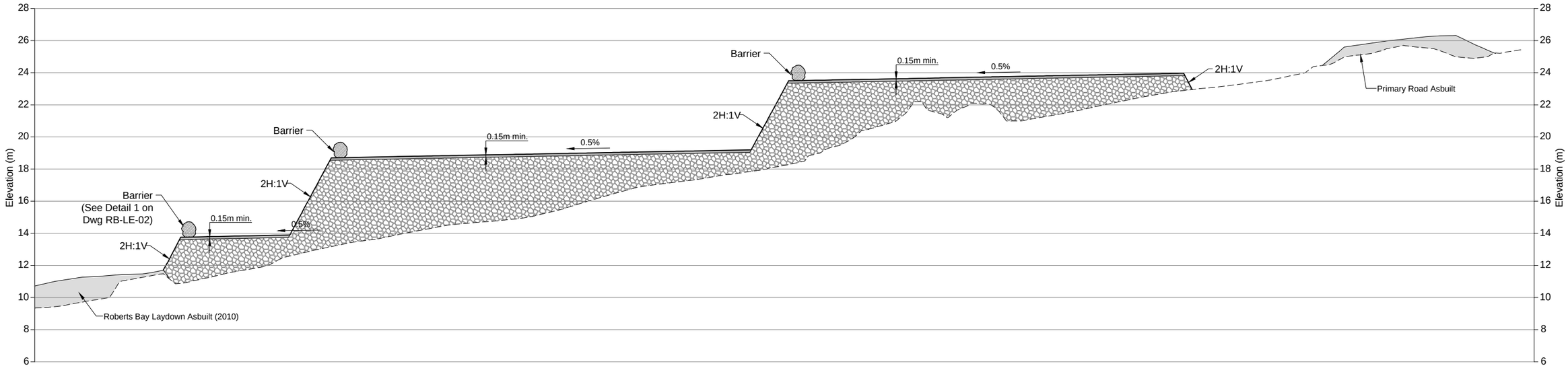
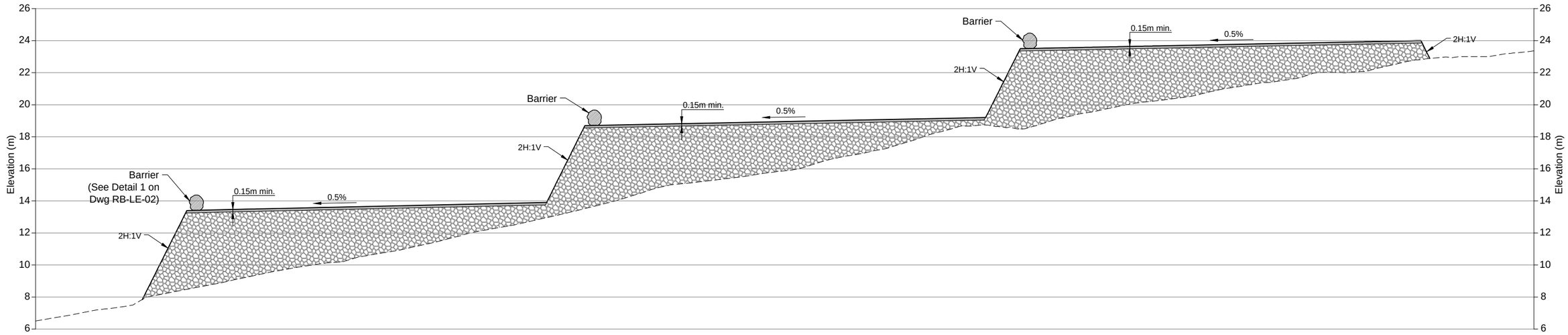


D RB-LE-01 **SECTION D - D'**



E RB-LE-01 **SECTION E - E'**

0 5 10 15 20 25 Scale in Metres (Horizontal)

0 1 2 3 4 5 Scale in Metres (Vertical)

4X VERTICAL EXAGGERATION

LEGEND

- Original Ground
- Surfacing Material
- Run of Quarry Material
- Existing Roberts Bay Infrastructure

NOTES

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JBK	EMR	June 13, 2011

FILE NAME: RB-LE-02_03.dwg

NEWMONT NORTH AMERICA

HOPE BAY MINING LTD.

SRK JOB NO.: 1CH008.049

Doris North Project

DRAWING TITLE:

Roberts Bay Laydown Expansions
Sections (2 of 2)

SRK DWG NO.:	SHEET	REVISION NO.
RB-LE-03	4 OF 4	A

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