APPENDIX E
Technical Memorandums

APPENDIX E01
Airstrip Technical Memorandums

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Memo

To:	Bob Prince-Wright (Newmont/JDS) Calvin Goldschmidt (Newmont/JDS)	**Date:**	August 16, 2011
Company:	Hope Bay Mining Limited	**From:**	Megan Miller (SRK)
Copy to:	Maritz Rykaart (SRK) Seema Kang (SRK)	**Project #:**	1CH008.033
Subject:	Doris North Project		

This memo serves as an official record for issuing the following document.

1. SRK Consulting (Canada) Inc. (2011). **Design Brief: Doris North Project – Airstrip Expansion and Bypass Road**, Doris North Project, Nunavut, Canada. Technical Memo prepared for Hope Bay Mining Limited, Project Number: 1CH008.033.0204, August 16, 2011

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- Once logged into the portal site, click on "**Information for Document Control**" folder,
- The drawings are located in the **"Memo Airstrip Expansion and Bypass Road_20110816"** sub folder.

This document has also been uploaded to the Hatch iPas DM website. If anyone has problems accessing or downloading the files, please do not hesitate to contact me.

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Memo

To:	Kevin Mather	**Date:**	August 16, 2011
Company:	JDS Mining	**From:**	Megan Miller, Lowell Wade, Maritz Rykaart
Copy to:	Calvin Goldschmidt	**Project #:**	1CH008.033.0204
Subject:	Design Brief: Doris North Project - Airstrip Expansion and Bypass Road		

1 Introduction

Hope Bay Mining Limited (HBML), a wholly owned subsidiary of Newmont Mining Company is currently in the process of constructing their Doris North Project (Project) in the Kitikmeot region of Nunavut, Canada. All-weather air access is serviced through a 746 m long, 23 m wide non-instrumented airstrip. The largest planes that this airstrip accommodates are de Havilland Dash 8 and Buffalo. This airstrip also doubles as the primary access road between Roberts Bay and the Doris Camp. During periods when the aircraft are taking off or landing, vehicle access between Roberts Bay and Doris Camp is stopped.

To improve site safety and logistics, HBML plans to expand the existing airstrip to the south to an overall length of 1,795 m and expand the width to the east to 46 m. The airstrip expansion as with the existing airstrip is not located optimally with respect to prevailing wind direction, due to the topographical layout and the presence of the Doris Mesa. The expanded airstrip would be able to accommodate larger aircraft. Along with the airstrip expansion, HBML plans to construct a bypass road adjoined to the east side of the expanded airstrip but separated from the airstrip by barriers. The airstrip bypass road still will not be trafficable when planes are landing or taking off.

This memo provides design details of the airstrip expansion and bypass road, and should be read in conjunction with the attached set of engineering drawings (Attachment A).

2 Design Concept

The existing airstrip, built in 2008, has been designed in accordance with Transport Canada's Aerodrome Standards and Recommended Practices (Transport Canada 2005). The airstrip expansion is also designed in accordance with these Standards, with the exception of the maximum longitudinal slope of the airstrip which was designed to the maximum allowable slope of the design aircraft.

Existing roads at the Project have been designed in accordance with the Nunavut Mine Safety Act pertaining to mine haul roads. Although these roads are currently not classified as true mine haul roads, HBML opted to adopt these stringent design criteria. The airstrip bypass road will thus be designed to this standard.

3 Alternatives

HBML has considered alternative airstrip locations rather than expanding the existing Doris North Airstrip. The preferred locations which overcome the limitations of the existing airstrip are outside of the Project area as covered by the existing Water Licence (SRK 2008). The time required to permit these alternatives are sufficiently long that it would be beneficial to extend the existing airstrip rather than construct a new one, accepting its limitations with respect to wind direction and obstacle limitations.

An airstrip expansion suitable for a Lockheed C-130 Hercules aircraft with possibility of landing a Boeing 737 (subject to charter company approval) was recently submitted to, and approved by the Nunavut Water Board (NWB). This includes an airstrip bypass road located adjacent to the airstrip, but outside the obstacle limitation surface such that it would be trafficable during airstrip use (SRK 2011).

After review by Boeing and the charter company, HBML obtained agreement to use the airstrip as designed, with minor modifications to land the Boeing 737 - Series 200 aircraft on the expanded airstrip. It would however not be possible to construct a bypass road that would be completely outside of the obstacle limitations for this aircraft and as a result Boeing and the charter company recommended that the bypass road be attached to the expanded airstrip, effectively widening the strip.

4 System Design

4.1 Design Criteria

4.1.1 Airstrip

The airstrip is intended for private use and will support year round operations of the Project. Normal use would include routine crew changes, cargo capability and emergency medical evacuation support. The airstrip will be a non-precision approach runway in accordance with the Aerodrome Standards and Recommended Practices (Transport Canada 2005). The maximum allowable slope for the design aircraft is from Canadian North (Personal communication John Green, 2011) and recommended airstrip geometry is from First Air (2004). Visual approach procedures will be utilized.

The largest design aircraft for the expanded airstrip is the Boeing 737-200 Series with a length of 30.6 m, a wing span of 28.4 m, and a maximum take-off weight of 52,390 kg.

The design length for the airstrip expansion is 1,795 m, excluding the aprons, which is slightly less than the recommended length of 6,000 feet (1,829 m) (First Air 2004). If the North Apron length is included, the total runway length exceeds the recommended length. A summary of the design geometry of the Airstrip Expansion is provided in Table 1.

Table 1: Design Geometry of Doris North Airstrip Expansion

Design Component	Design Criteria
Aircraft	Boeing 727-200
Runway Length	1,795 m (5,889').
Runway Width	46 m (150').
Approach Type	Non-Precision Approach
Taxiway	A taxiway is used to connect the south apron to the airstrip. Minimum width of 15 m. Fillets with a minimum radius of 23 m (75') where the taxiway joins the airstrip.
Ramp/Apron	Apron located at each end of the airstrip. North apron includes small laydown area; dimensions are 87 m x 61 m. South apron dimensions are 75 m x 253 m and the south apron is accessed by a taxiway.
Slope	Maximum longitudinal slope of the runway of 2.0% up or down. Maximum longitudinal slope change of 1.5%. Vertical slope changes are joined with a minimum radius of curvature of 30,000 m. Symmetrical 1.0% crown for drainage. 3H:1V side slopes.
Waviness	The runway is designed so that no undulations occur, if undulations occur over time they should be filled in during regular maintenance.
Obstacle Clearance Requirements	No buildings, cargo or other obstructions shall be within 75 m of the runway centerline. Beyond that, any object must be below the obstacle limitation surface which rises with a slope of 7H:1V (14.3%), to an outer surface 45 m above the runway reference point. The outer surface of the obstacle limitation surface extends 4,000 m from the centerline of the runway 360º. The crest off all roads must be 4.3 m below the obstacle limitation surface to be trafficable during take-off/landing.
End Clearance Requirements	At the end of each runway there is a 60 m of level surface beyond which the end clearance surface of the airstrip rises with a slope of 50H:1V (2.5%) to a distance of 3,000 m. The end clearance surface diverges from the 150 m clearance area centered on the airstrip centerline by 15% on either side.

4.1.2 Bypass Road

The purpose of the bypass road is to reduce vehicle traffic on the airstrip surface thereby decreasing the maintenance requirements and increasing site safety. The bypass road surface will be separated from the airstrip running surface with frangible barriers in accordance with Section 4.2.4.4 of Aerodrome Standards and Recommended Practices (Transport Canada 2005). The bypass road cannot be utilized when planes are landing or taking-off.

The primary design vehicle for the bypass road is a Super B-Train. To allow duel lane traffic of this vehicle, the minimum crest road width will need to be 8 m. Where the road shoulder exceeds 3 m above ground, the road will be widened by 1 m and a frangible barrier will be erected. Larger vehicles and equipment will occasionally need to travel between Roberts Bay and the Doris Area. These vehicles would either use the bypass road as a single lane road with proper traffic controls, or alternately use the actual airstrip surface.

The bypass road will have 3H:1V side slopes as it is joined to the surface of the airstrip.

4.2 Survey Data

The design of the airstrip expansion and bypass road was based on topographical contour maps produced from 2008 aerial photography supplied by HBML, in combination with topographic surveys provided by Nuna Logistics. Original ground topography under the existing airstrip was approximated as the 2008 flyover contours included the existing airstrip and historic ground surveys of the area were unavailable.

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 550 m deep. Permafrost temperature at the surface is about -8ºC and the active layer is generally less than 1 m thick. Laboratory and in-situ tests on disturbed and undisturbed samples indicate that the overburden soils are predominantly comprised of ice rich marine silts and clays. The saline pore water typically depresses the freezing point to -2ºC. The ice-rich overburden soils are typically between 5 and 20 m deep, before encountering competent bedrock, predominantly basalt. Bedrock is frequently exposed, rising columnar 5 to 100 m above the surrounding landscape.

4.4 Airstrip and Bypass Road Design

Thermal modeling was completed to determine how much fill would be required over the tundra to ensure the permafrost would be preserved for infrastructure construction such as the airstrip expansion and bypass road (SRK 2006). Based on this assessment, the airstrip expansion will have a minimum fill thickness of 2 m, as it is considered an important structure. The airstrip bypass road is not considered a critical structure therefore the bypass road will have a minimum fill thickness of 1.0 m, however as the bypass road is to be an extension of the east side of the airstrip; therefore the fill thicknesses will match the airstrip Details are presented in Attachment A.

The airstrip and bypass road will be constructed from Run of Quarry (ROQ) material obtained from local approved and permitted rock quarries. This material will be placed in lift thicknesses that do not exceed 1.0 m and compacted to a density equivalent to a California Bearing ratio (CBR) value of at least 30, using a site specific compaction specification. The airstrip and bypass road surface includes a transition layer of 150 mm thick 1¼ inch crush and a surfacing layer of 150 mm thick ¾ inch crush.

Ponding water along the edges of the existing airstrip has been a problem since the original airstrip was completed. To reduce the ponding water along the edges of the airstrip a 0.9 m diameter 68x13 mm corrugated steel culvert will be installed through the airstrip at the lowest point. The culvert will have a minimum wall thickness of 1.6 mm and be bedded with a minimum 0.3 m layer of ¾ inch crush on all sides. There is little natural gradient to allow free-drainage of this culvert so an active monitoring protocol would have to be put in place to ensure its functional use. The culvert must be equipped with a steam pipe to facilitate thaw when needed using a steam truck.

4.5 Airstrip Profile

The longitudinal profile of the airstrip expansion can be seen in Attachment A. From the edge of the north apron to station 0+165 the airstrip expansion has no longitudinal slope. From station 0+165 to station 0+315 there is a transition curve with a radius of 30,000 m; south of station 0+315 the airstrip slopes at 0.5% towards the North. The airstrip between station 1+238 and the south end of the airstrip (station 1+856) slopes towards the north at 2.0%. A vertical curve with a radius of 30,000 m connects these slopes.

The 2.0% slope on the airstrip profile exceeds the maximum slope of 1.5% specified in Aerodrome Standards and Recommended Practices (Transport Canada 2005). The 2.0% slope used is the maximum allowable slope of the design aircraft (Personal communication John Green, Canadian North). Aerodrome Standards and Recommended Practices were utilized for all other design aspects such as distance between changes in slope, maximum changes in slope and minimum radius of curvature between slopes.

4.6 South Apron and Taxiway

The South Apron is a 74 m by 253 m pad founded on bedrock located on the south side of the airstrip. The pad is cut into the bedrock with a cut slope in rock of 0.17H:1V. The bedrock surface of the pad is to be sloped at a maximum of 1.0% for drainage. The blasted bedrock surface of the pad is to be covered with 0.15 m of surfacing material.

A 15 m wide taxiway combined with an 8 m wide roadway connects the south apron to the airstrip. The taxiway has a maximum longitudinal slope of 1.2%. A 0.6 m corrugated steel culvert is specified to be installed through the taxiway to prevent ponding of water on the south side of the taxiway.

4.7 Obstacle Limitation Surface

The expanded airstrip is considered a Non-Precision Approach airstrip, rather than a Non-Instrumented airstrip as originally submitted to the NWB (SRK 2011). This resulted in the obstacle limitation surface being widened in accordance with Aerodrome Standards (Transport Canada 2005), as described in Table 1 and illustrated in Attachment A. The aerodrome reference point from which the location of the outer surface is based was taken as, 39.3 m, the centerline elevation of the airstrip.

The height of objects on both the South Apron of the airstrip and the Upper Reagent Pad will be restricted by the obstacle limitation surface. As well, ground elevations in several areas surrounding the airstrip have been determined to be above the obstacle limitation surface, as illustrated in Attachment A. To meet the requirements of the aerodrome standards, these areas will have to be lowered to below the obstacle limitation surface or a site specific aeronautical study need be conducted by the aircraft operator to confirm suitability.

4.8 Construction Methodology

The airstrip expansion and bypass road will be constructed using Run-of-Quarry and crush material sourced from geochemically suitable rock quarries associated with the Project. Complete material quantities associated with construction are included in Attachment A.

5 References

First Air, 2004. Private Airport Standards. November 1, 2004.

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.

SRK Consulting (Canada) Inc. 2008. Hope Bay Project: Stage 2 Design Criteria and Options Analysis for All-Weather Airstrip – Interm Draft Discussion Document. Memo Prepared for: Hope Bay Mining Limited. Project Number: 1CH008.011. December 23, 2008.

SRK Consulting (Canada) Inc. 2010. Geochemical Characterization and Recommendations for Quarry 5, Doris North, Hope Bay Project. Memo Prepared for: Hope Bay Mining Limited. Project Number: 1CH008.029.3600. June 8, 2010.

SRK Consulting (Canada) Inc. 2011. Engineering Drawings for the Doris North Airstrip Expansion & Bypass Road, Doris North Project, Nunavut Canada, Revision C. Issued for Review, March 7, 2011.

Transport Canada, 2005. Aerodrome Standards and Recommended Practices. Air Navigation System Requirements Branch. 4th Edition, March 1, 1993, revised March, 2005. Document TP 312E.

Regards

SRK Consulting (Canada) Inc.

Megan Miller, E.I.T.
Staff Consultant

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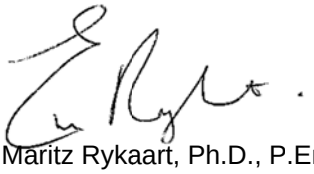
Reviewed By:



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

Attachments

Attachment A: Drawings

Engineering Drawings for the Doris North Airstrip Expansion & Bypass Road Doris North Project, Nunavut, Canada

ACTIVE DRAWING STATUS

SRK DWG NUMBER	NEWMONT DWG NUMBER	DRAWING TITLE	REVISION	DATE	STATUS	OLD/REPLACED REVISIONS		
DN-AE-00	HB+A-CIV-CIV-AGG-0001	Engineering Drawings for the Doris North Airstrip Expansion and Bypass Road	D	July 26, 2011	Issued for Review	Rev. C, Mar. 7, 2011	Rev. B, Oct. 7, 2010	Rev. A, Sep. 27, 2010
DN-AE-01	HB+A-CIV-CIV-AGG-0002	General Arrangement	D	July 26, 2011	Issued for Review	Rev. C, Mar. 7, 2011	Rev. B, Oct. 7, 2010	Rev. A, Sep. 27, 2010
DN-AE-02	HB+A-CIV-CIV-AGG-0003	Airstrip Expansion - Plan and Centerline Profile	C	July 26, 2011	Issued for Review	Rev. C, Mar. 7, 2011	Rev. A, Sep. 27, 2010	
DN-AE-03	HB+A-CIV-CIV-AGG-0004	Airstrip Expansion - Sections	C	July 26, 2011	Issued for Review	Rev. C, Mar. 7, 2011	Rev. A, Sep. 27, 2010	
DN-AE-04	HB+A-CIV-CIV-AGG-0005	Airstrip Bypass Road - Plan and Centreline Profile (Sta. 0+000 to Sta. 1+000)			Discontinued	Rev. B, Mar. 7, 2011	Rev. A, Sep. 27, 2010	
DN-AE-05	HB+A-CIV-CIV-AGG-0011	Airstrip Bypass Road - Plan and Centreline Profile (Sta. 1+000 to Sta. 2+000)			Discontinued	Rev. A, Mar. 7, 2011		
DN-AE-06	HB+A-CIV-CIV-AGG-0012	Airstrip Bypass Road - Plan and Centreline Profile (Sta. 2+000 to Sta. 2+837)			Discontinued	Rev. A, Mar. 7, 2011		
DN-AE-07	HB+A-CIV-CIV-AGG-0006	Airstrip Bypass Road - Sections			Discontinued	Rev. B, Mar. 7, 2011	Rev. A, Sep. 27, 2010	
DN-AE-08	HB+A-CIV-CIV-AGG-0007	Cut Development Plan			Discontinued	Rev. C, Mar. 7, 2011	Rev. A, Sep. 27, 2010	
DN-AE-09	HB+A-CIV-CIV-AGG-0007	Material Specifications			Discontinued			
DN-AE-10	HB+A-CIV-CIV-AGG-0008	Quarry 5 Development Plan			Discontinued			
DN-AE-11	HB+A-CIV-CIV-AGG-0009	Quarry 5 Development Plan			Discontinued			
DN-AE-12	HB+A-CIV-CIV-AGG-0010	Material Specifications			Discontinued			
DN-AE-13	HB+A-CIV-CIV-AGG-0013	Airstrip Expansion - South Apron Plan & Sections	A	July 26, 2011	Issued for Review			
DN-AE-14	HB+A-CIV-CIV-AGG-0014	Airstrip Expansion - Obstacle Limitation Surface Constraints	A	July 26, 2011	Issued for Review			

HOPE BAY MINING LTD.

srk consulting

PROJECT NO: 1CH008.033
ISSUED FOR REVIEW
Revision D
July 26, 2011
DN-AE-00 / HB+A-CIV-CIV-AGG-0001

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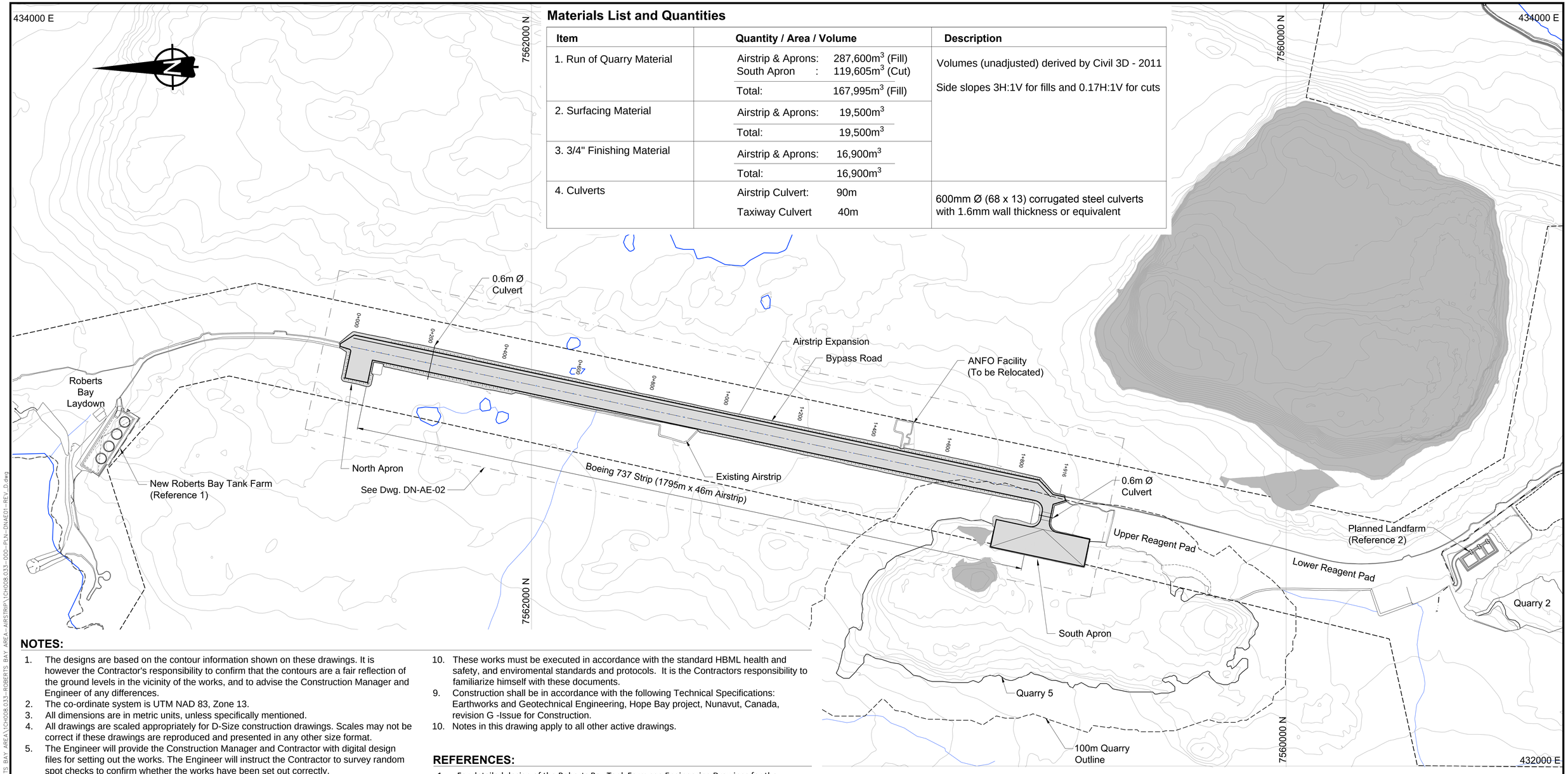
Materials List and Quantities

Item	Quantity / Area / Volume	Description
1. Run of Quarry Material	Airstrip & Aprons: 287,600m^3 (Fill) South Apron : 119,605m^3 (Cut) Total: 167,995m^3 (Fill)	Volumes (unadjusted) derived by Civil 3D - 2011 Side slopes 3H:1V for fills and 0.17H:1V for cuts
2. Surfacing Material	Airstrip & Aprons: 19,500m^3 Total: 19,500m^3	
3. 3/4" Finishing Material	Airstrip & Aprons: 16,900m^3 Total: 16,900m^3	
4. Culverts	Airstrip Culvert: 90m Taxiway Culvert 40m	600mm Ø (68 x 13) corrugated steel culverts with 1.6mm wall thickness or equivalent



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 correctly.
6. All engineering specifications for execution of the works are listed on the drawings or references to external documents are provided.
7. The Contractor and Construction Manager shall familiarize themselves with all appropriate Licences and/or Permits petaining to execution of the Works. The Engineer will not be responsible for any infringements.
8. The Contractor is to take due care that no wildlife or birds' nest are disturbed during contruction. The Construction Manager is to be immediately notified if such sites are found.
9. The Contractor will employ best practices to identify archaelogical sites, and maintain archaelogical site exclusion boundaries of 30m minimum radius from any of these works.
10. These works must be executed in accordance with the standard HBML health and safety, and enviromental standards and protocols. It is the Contractors responsibility to familiarize himself with these documents.
9. Construction shall be in accordance with the following Technical Specifications: Earthworks and Geotechnical Engineering, Hope Bay project, Nunavut, Canada, revision G -Issue for Construction.
10. Notes in this drawing apply to all other active drawings.

REFERENCES:

1. For detailed design of the Roberts Bay Tank Farm see Engineering Drawings for the Roberts Bay Fuel Tank Farm, Doris North Project, Nunavut Canada. Rev 2. June 9, 2011.
2. For detailed design of the Land Farm see Engineering Drawings for the Doris North Land Farm, Doris North Project, Nunavut Canada. July 11, 2011.

LEGEND

- Ground Surface above Obstacle Limitation Surface
- Airstrip Expansion and Bypass Road
- Existing Infrastructure
- Lease Boundary
- 0+000 Chainage
- Existing Roads and Infrastructure
- Lakes, Ponds or Permanent Water Bodies
- Streams

0 50 100 150 200 250
Scale in Metres

DRAWING NO.	DRAWING TITLE	DRAWING NO.	DRAWING TITLE

REFERENCE DRAWINGS

NO.	DESCRIPTION	CHK'D	APP'D	CLIENT	DATE
D	ISSUED FOR REVIEW	MMM	EMR		26JUL11
C	ISSUED FOR REVIEW	MK	EMR		07MAR11
B	ISSUED FOR DISCUSSION	MK	EMR		07OCT10
A	ISSUED FOR DISCUSSION	LW	EMR		27SEP10

REVISIONS

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DESIGN:	DRAWN:	REVIEWED:
MMM	BFM	EMR
CHECKED:	APPROVED:	DATE:
MJM	EMR	JULY 26, 2011

FILE NAME: 1CH008.033-000-PLN-DNAE01-REV_D.dwg

NEWMONT NORTH AMERICA

HOPE BAY MINING LTD.

SRK JOB NO.: 1CH008.033 SRK DWG NO.: DN-AE-01

Doris North Project

DRAWING TITLE:

General Arrangement

NEWMONT DRAWING NO.	SHEET	REVISION NO.
HB+A-CIV-CIV-AGG-0002	2 OF 15	D

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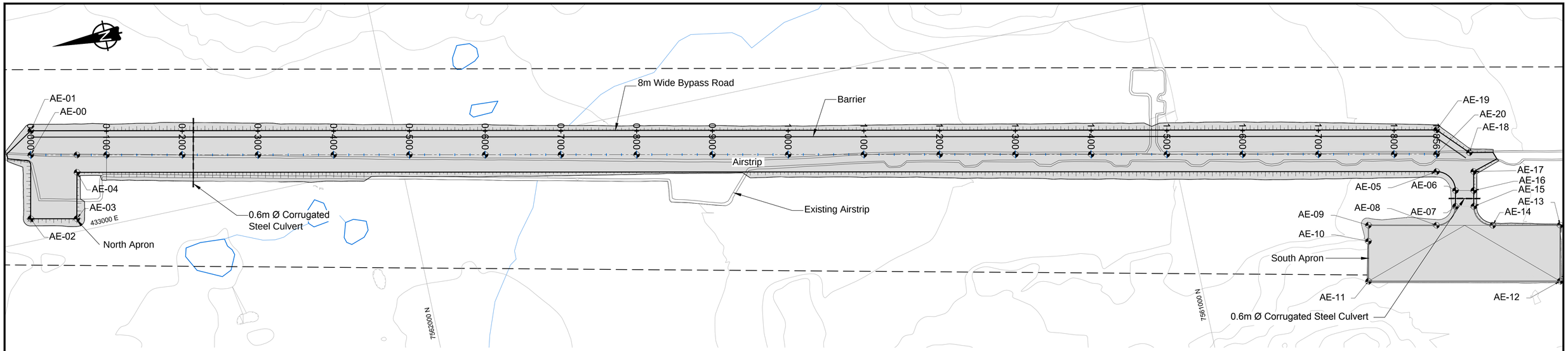
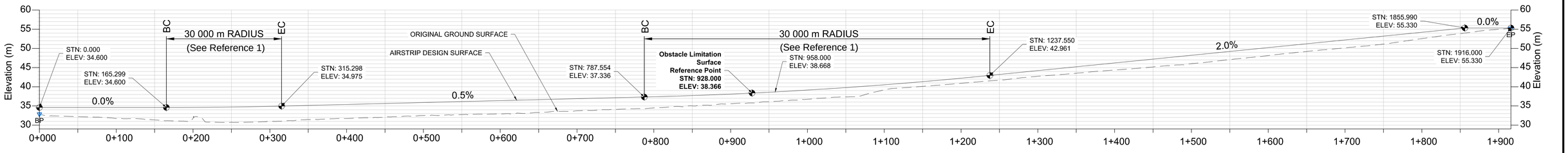


Airstrip Expansion - Plan

0 25 50 75 100 125

Horizontal Scale in Meters



AIRSTRIP STAKEOUT COORDINATE TABLE

ID	Northing	Easting	Elevation (m)
0+61	7562416.720	433099.070	34.60
0+100	7562378.568	433090.983	34.60
0+200	7562280.741	433070.247	34.62
0+300	7562182.915	433049.512	34.90
0+400	7562085.088	433028.776	35.40
0+500	7561987.262	433008.040	35.90
0+600	7561889.435	432987.304	36.40
0+700	7561791.608	432966.569	36.90
0+800	7561693.782	432945.833	37.40
0+900	7561595.955	432925.097	38.11
1+000	7561498.129	432904.362	39.15
1+100	7561400.302	432883.626	40.53
1+200	7561302.476	432862.890	42.23
1+300	7561204.649	432842.154	44.21
1+400	7561106.823	432821.419	46.21

AIRSTRIP STAKEOUT COORDINATE TABLE

ID	Northing	Easting	Elevation (m)
1+500	7561008.996	432800.683	48.21
1+600	7560911.170	432779.947	50.21
1+700	7560813.343	432759.211	52.21
1+800	7560715.517	432738.476	54.21
1+856	7560660.734	432726.864	55.33
AE-00	7562476.394	433111.719	34.60
AE-01	7562469.759	433143.023	34.60
AE-02	7562494.028	433029.367	33.76
AE-03	7562434.353	433016.721	34.60
AE-04	7562421.448	433076.563	34.60
AE-05	7560665.523	432704.368	55.10
AE-06	7560646.230	432674.723	55.10
AE-07	7560650.632	432654.190	55.10
AE-08	7560680.272	432634.917	55.40
AE-09	7560768.138	432653.742	56.10

AIRSTRIP STAKEOUT COORDINATE TABLE

ID	Northing	Easting	Elevation (m)
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AE-11	7560783.483	432581.350	56.65
AE-12	7560535.981	432528.889	56.00
AE-13	7560520.637	432601.280	56.00
AE-14	7560607.736	432619.542	55.40
AE-15	7560627.030	432649.079	55.10
AE-16	7560622.670	432669.621	55.10
AE-17	7560617.568	432694.203	55.10
AE-18	7560617.881	432719.843	55.10
AE-19	7560654.098	432758.171	55.00
AE-20	7560660.734	432726.864	55.30

Section - Airstrip Centreline

0 25 50 75 100 125

Horizontal Scale in Meters

0 5 10 15 20 25

(5X Exaggeration) Vertical Scale in Meters

REFERENCES

1. Transport Canada, 2005. Aerodrome Standards and Recommended Practices: Paragraph 3.1.2.4. Air Navigation System Requirements Branch. 4th Edition, March 1, 1993, revised March, 2005. Document TP 312E.

LEGEND

- AE-01 — Stake Out Points
- Existing Infrastructure
- Proposed Airstrip Expansion
- Lease Boundary
- 0+000 — Chainage
- Existing Roads and Infrastructure
- Lakes, Ponds or Permanent Water Bodies
- Streams

DRAWING NO.	DRAWING TITLE	DRAWING NO.	DRAWING TITLE

REFERENCE DRAWINGS

NO.	DESCRIPTION	CHK'D	APP'D	CLIENT	DATE
C	ISSUED FOR REVIEW	LW	EMR		26JUL11
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REVISIONS

PROFESSIONAL ENGINEERS STAMP

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DESIGN:	DRAWN:	REVIEWED:
MMM	BFM	EMR
CHECKED:	APPROVED:	DATE:
MJM	EMR	JULY 26, 2011

FILE NAME: 1CH008.033-000-PLN-DNAE02-REV_C.dwg

NEWMONT NORTH AMERICA

HOPE BAY MINING LIMITED

SRK JOB NO.: 1CH008 033 | SRK DWG NO.: DN-AE-02

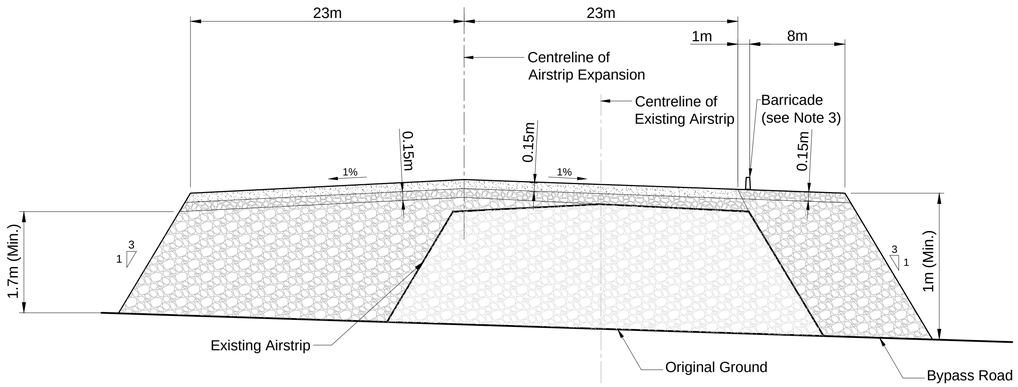
Doris North Project

DRAWING TITLE:

Airstrip Expansion
Plan and Centerline Profile

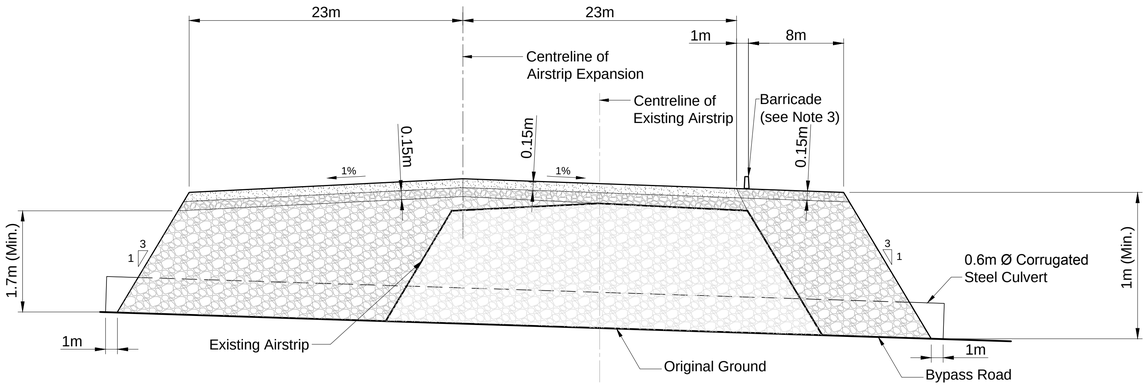
NEWMONT DRAWING NO.	SHEET	REVISION NO.
HB+A-CIV-CIV-AGG-0003	3 OF 15	C

J:\01_SITES\Hope Bay\ACAD_C3D\WORKING\DWG\CH008.033-ROBERTS BAY AREA\1CH008.033-ROBERTS BAY AREA-AIRSTRIP\CH008.033-000-PLN-DNAE02-REV_C.dwg



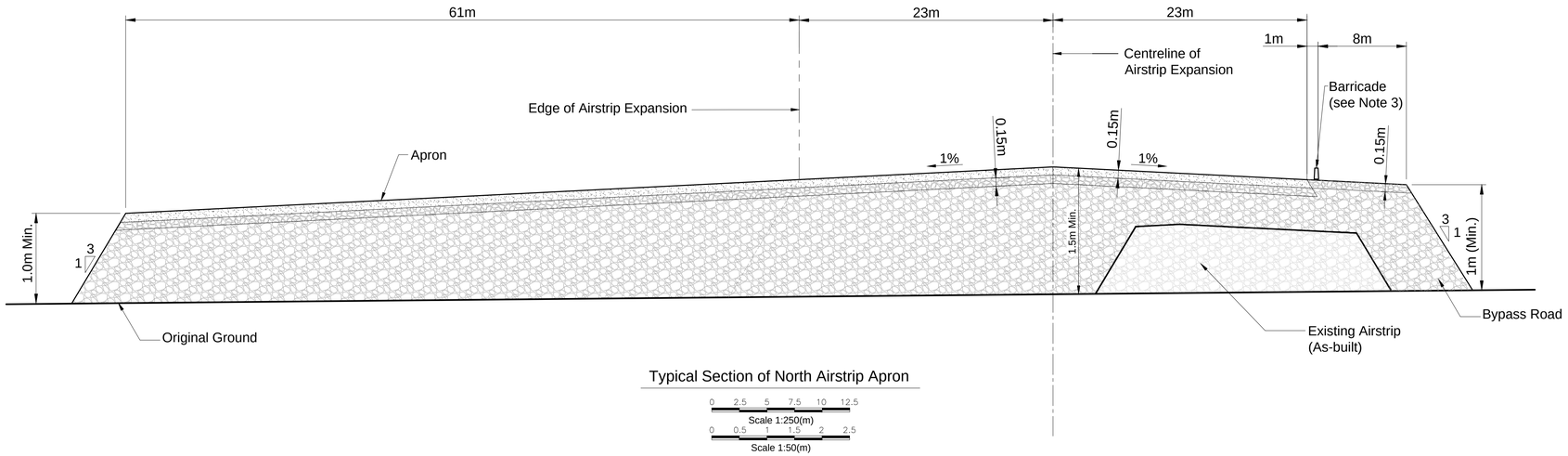
Typical Cross Section of Airstrip Expansion

0 2.5 5 7.5 10 12.5
Scale 1:250(m)
0 0.5 1 1.5 2 2.5
Scale 1:50(m)



Cross Section of Airstrip Expansion at Culvert Crossing

0 2.5 5 7.5 10 12.5
Scale 1:250(m)
0 0.5 1 1.5 2 2.5
Scale 1:50(m)



Typical Section of North Airstrip Apron

0 2.5 5 7.5 10 12.5
Scale 1:250(m)
0 0.5 1 1.5 2 2.5
Scale 1:50(m)

LEGEND

- 3/4" Finishing Material
- Surfacing Material
- Run of Quarry Material

NOTES

1. All dimensions in meters unless noted otherwise.
2. Notes in this drawing apply to all other active drawings.
3. The barriers shall be fragiable Airstrip barricades (Reference 1).

REFERENCE

1. Tranportation Canada 2005. Aerodrome Standards and Recommended Practices: Paragraph 4.2.4.4. Air Navigation System Requirements Branch. 4th Edition.

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

NO.	DESCRIPTION	CHK'D	APP'D	CLIENT	DATE
C	ISSUED FOR REVIEW	MMM	EMR		26JUL11
B	ISSUED FOR REVIEW	LW	EMR		07MAR11
A	ISSUED FOR DISCUSSION	LW	EMR		27SEP10
REVISIONS					

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MJM	EMR	JULY 26, 2011

FILE NAME: 1CH008.033-000-SEC-DNAE03-REV_C.dwg

NEWMONT NORTH AMERICA

HOPE BAY MINING LTD.

SRK JOB NO.: 1CH008 033 | SRK DWG NO.: DN-AE-03

Doris North Project

DRAWING TITLE:

Airstrip Expansion
Sections

NEWMONT DRAWING NO.	SHEET	REVISION NO.
HB+A-CIV-CIV-AGG-0004	4 OF 15	C

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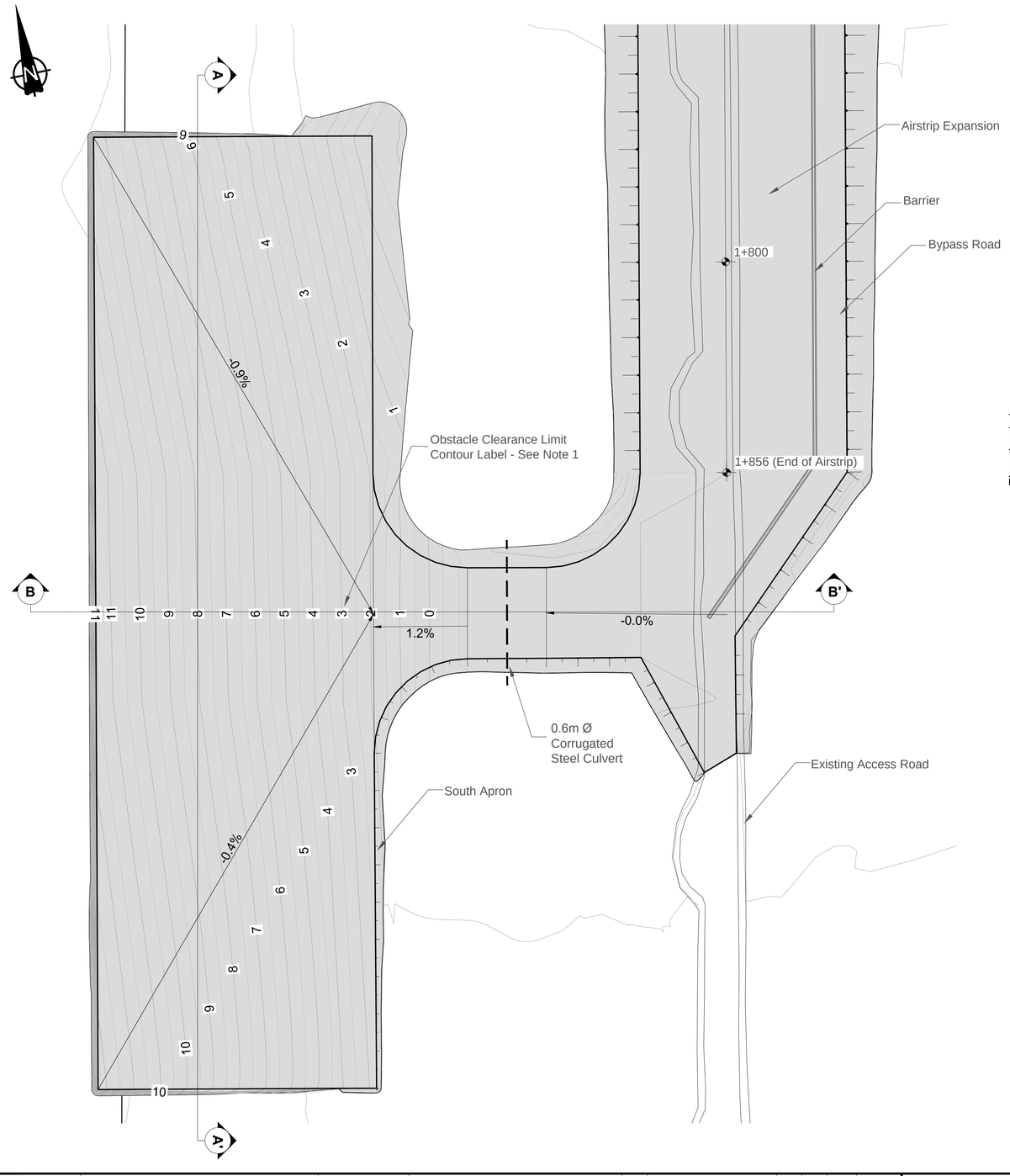


LEGEND

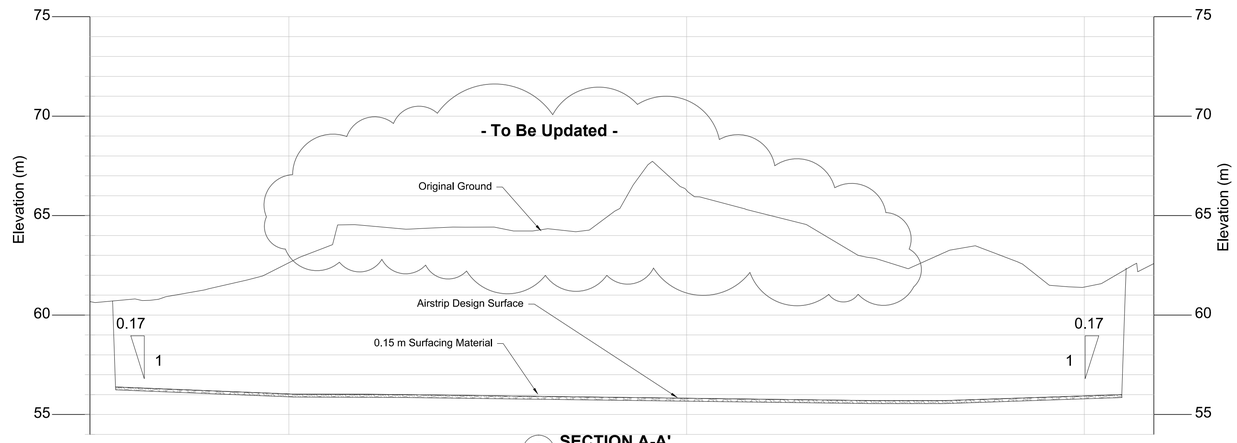
- Existing Infrastructure
- Airstrip Expansion
- Lease Boundary
- 0+000 Chainage
- Existing Roads and Infrastructure
- Lakes, Ponds or Permanent Water Bodies
- Streams

NOTES

1. Contour label shown indicates maximum height of obstruction on apron to maintain regulation Obstacle Limitation requirements.

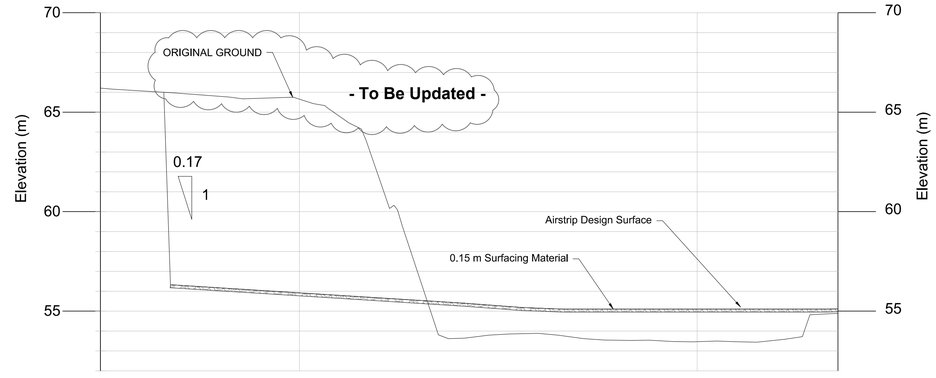
REFERENCES

1. Transport Canada, 2005. Aerodrome Standards and Recommended Practices: Chapter 4 Air Navigation System Requirements Branch. 4th Edition, March 1, 1993, revised March, 2005. Document TP 312E.



A SECTION A-A'

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



B SECTION B-B'

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

DRAWING NO.	DRAWING TITLE	DRAWING NO.	DRAWING TITLE

REFERENCE DRAWINGS

NO.	DESCRIPTION	CHK'D	APP'D	CLIENT	DATE
A	ISSUED FOR REVIEW	LW	EMR		26JUL11

REVISIONS

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MJM	EMR	JULY 26, 2011

FILE NAME: 1CH008.033-000-SEC-DNAE13-REV_A.dwg

NEWMONT NORTH AMERICA

HOPE BAY MINING LIMITED

SRK JOB NO.: 1CH008.033 SRK DWG NO.: DN-AE-13

Doris North Project

DRAWING TITLE:

Airstrip Expansion
South Apron Plan & Sections

NEWMONT DRAWING NO.	SHEET	REVISION NO.
HB+A-CIV-CIV-AGG-0013	10 OF 15	A

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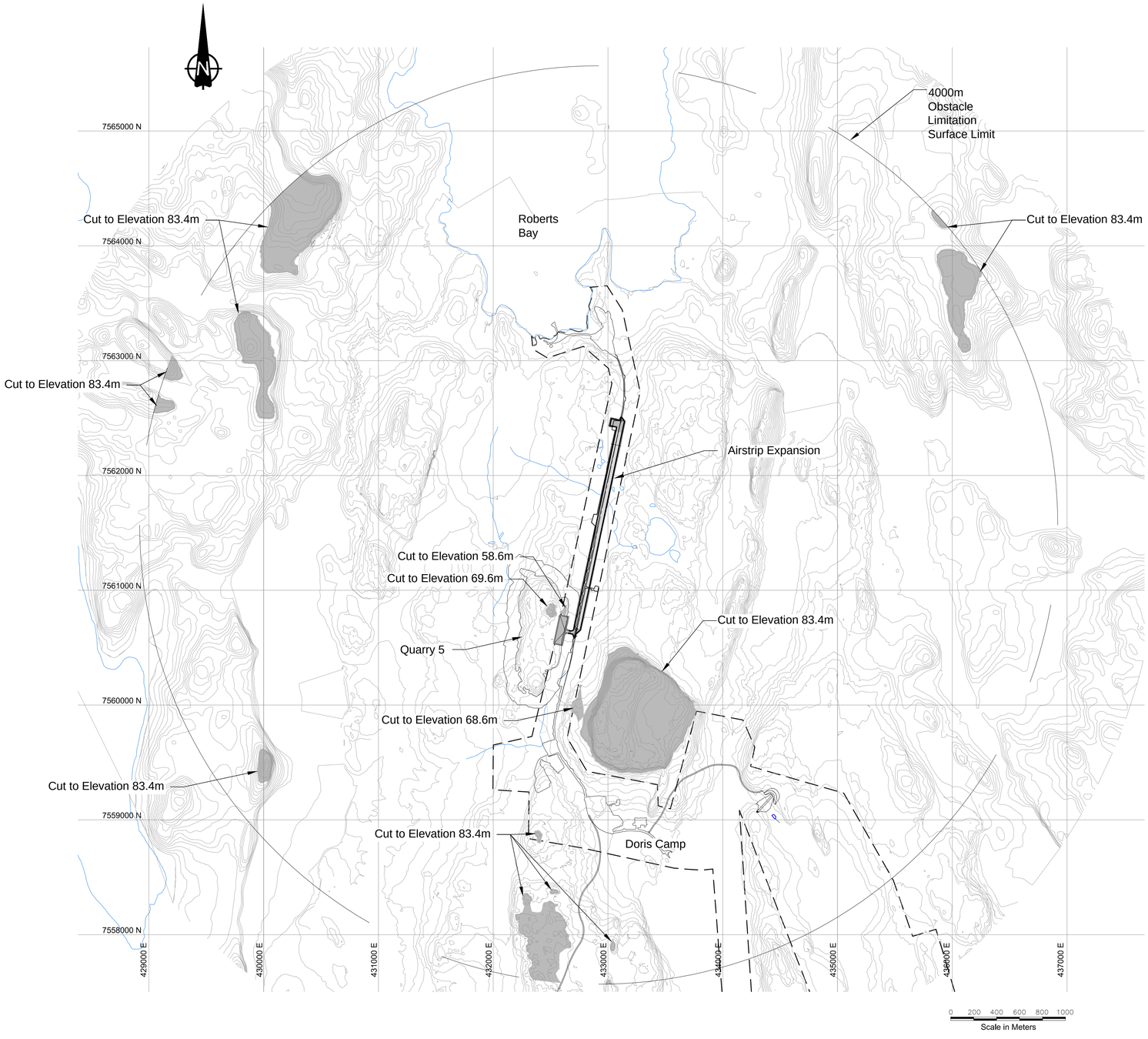

LEGEND

- Existing Infrastructure
- Ground Elevation above Obstacle Limitation Surface
- Lease Boundary
- Existing Roads and Infrastructure
- Lakes, Ponds or Permanent Water Bodies
- Streams

NOTES

1. It is the owner's responsibility to mitigate the areas which are above the obstacle limitation surface.
2. The Contractor is responsible for creating access to the works in the quarry within the limits as shown on the Drawings.
3. The Contractor shall ensure the blasted floor have natural drainage. All blasted material shall be excavated to expose intact rock surface for survey and approval by the Engineer. Additional small scale rock breaking or blasting might be required to ensure natural drainage in the intact rock foundation. Once the intact rock surface is surveyed and approved, the Contractor could backfill the floor for traffic and other purposes.
4. 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	CLIENT	DATE
A	ISSUED FOR REVIEW	LW	EMR		26JUL11

REVISIONS

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MMM	BFM	EMR
CHECKED:	APPROVED:	DATE:
MJM	EMR	JULY 26, 2011

FILE NAME: 1CH008.033-000-PLN-DNAE14-REV_A.dwg

NEWMONT NORTH AMERICA

HOPE BAY MINING LIMITED

SRK JOB NO.: 1CH008 033 SRK DWG NO.: DN-AE-14

Doris North Project

DRAWING TITLE:

Airstrip Expansion
Obstacle Limitation Surface Constraints

NEWMONT DRAWING NO.	SHEET	REVISION NO.
HB+A-CIV-CIV-AGG-0014	11 OF 15	A

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