SASKATCHEWAN RESEARCH COUNCIL

GUNNAR TAILINGS REMEDIATION DESIGN

DRAWING INDEX

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963/1-003	GUNNAR CONFIRMED AND POTENTIAL BORROW SOURCES
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963/1-013	GUNNAR MAIN TAILINGS AREA GROUND WATER ELEVATION

LOCALITY PLAN

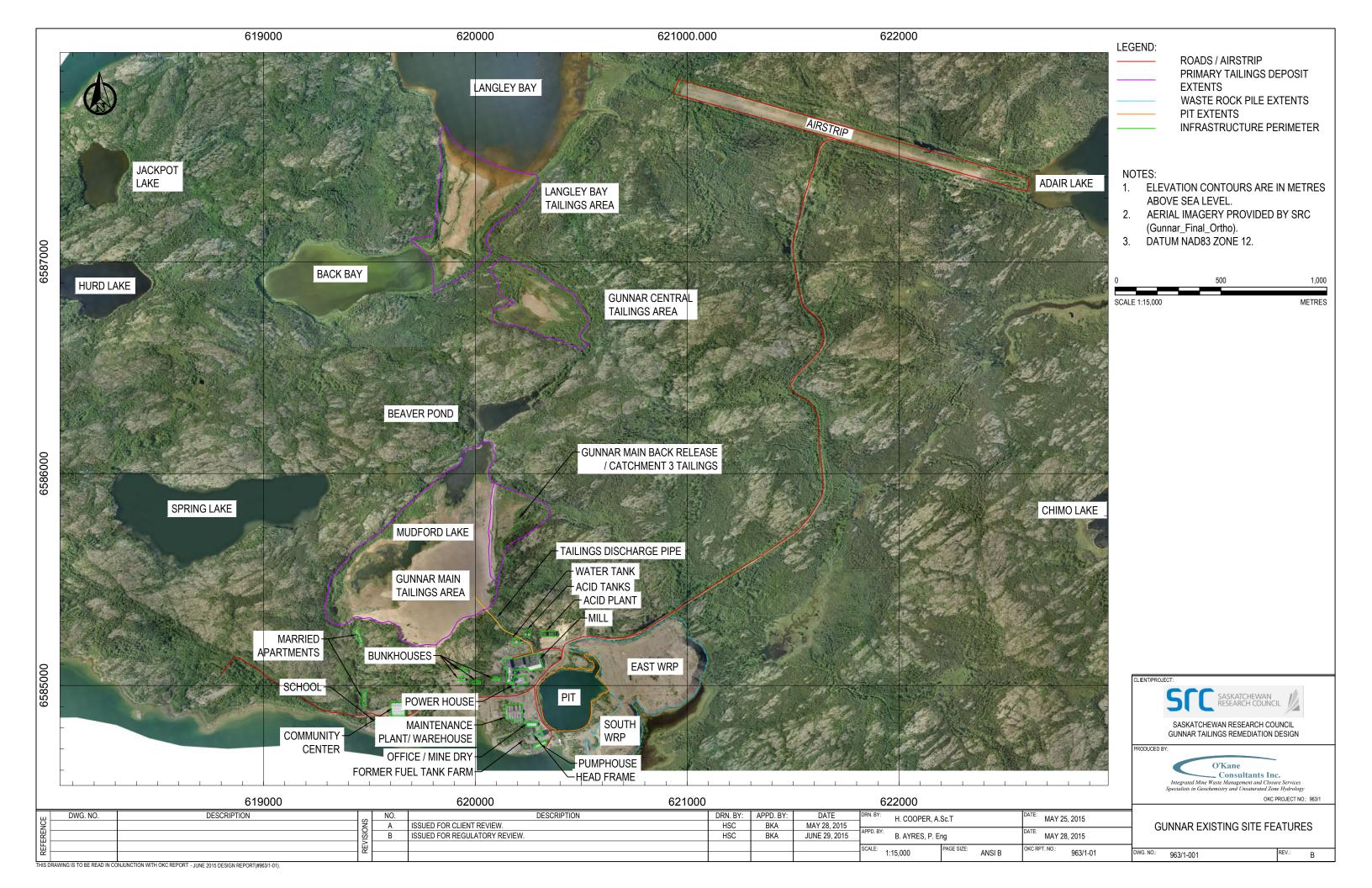


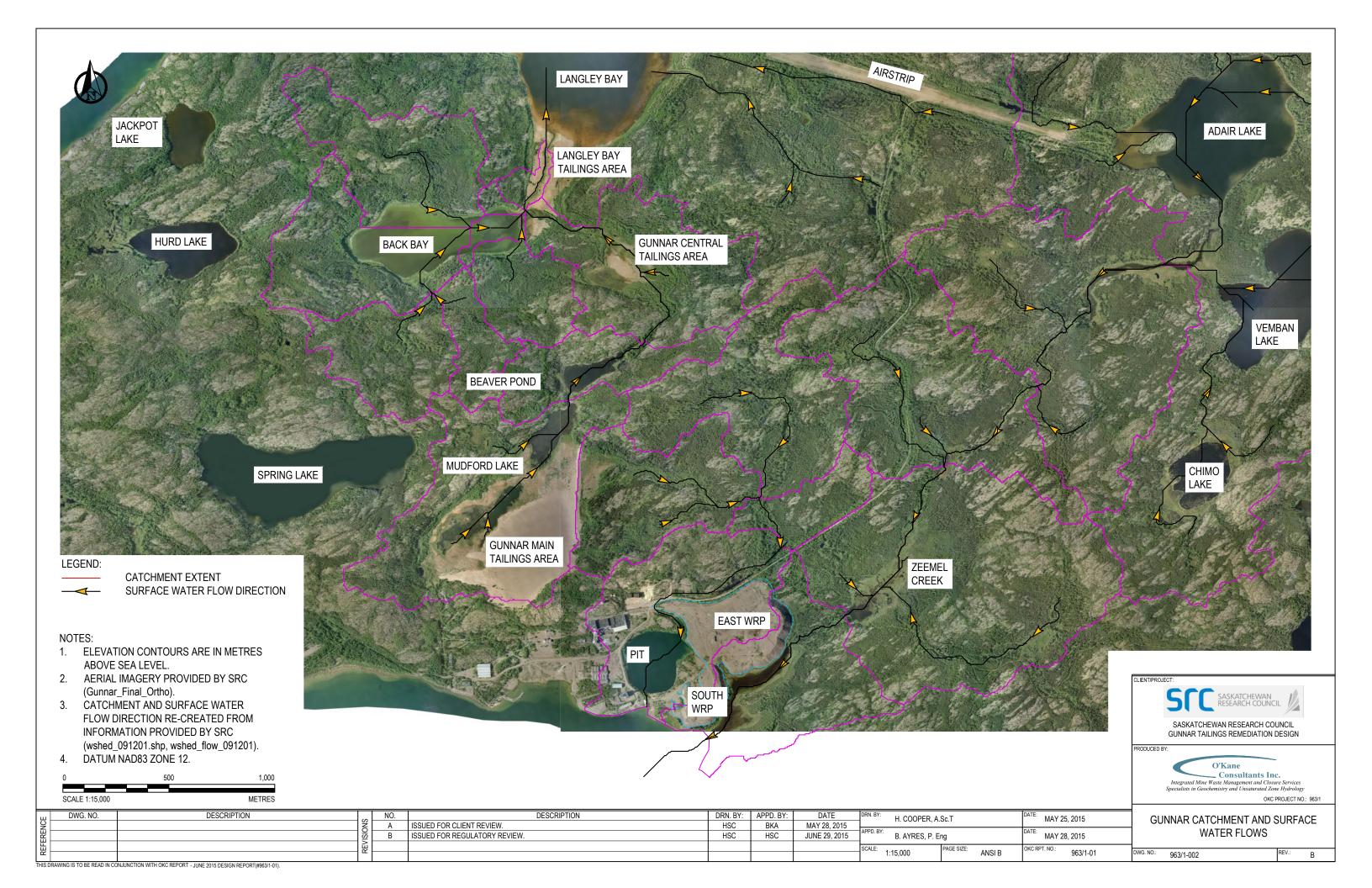
PREPARED BY:

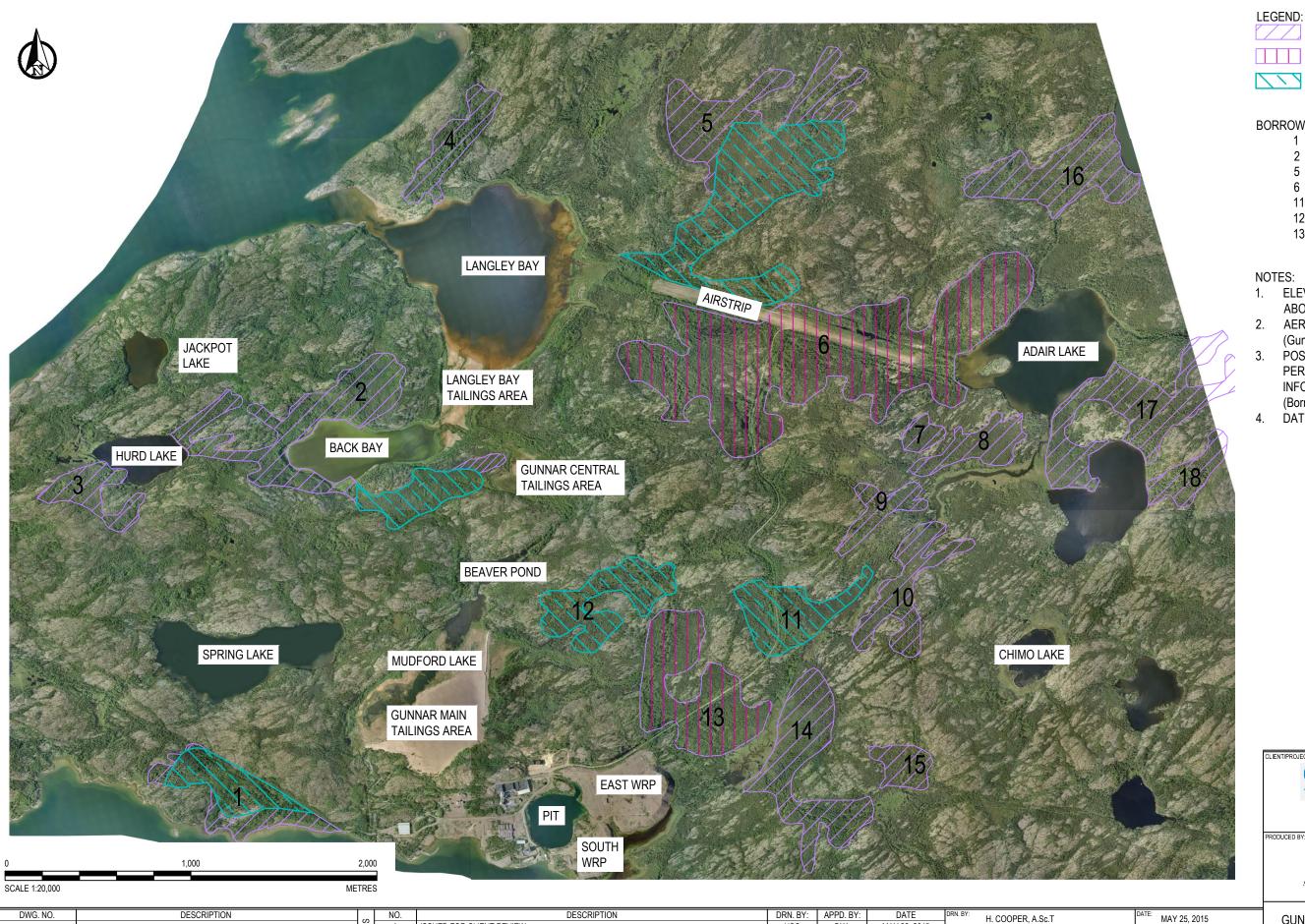


PREPARED FOR:









MAY 28, 2015

JUNE 29, 2015

B. AYRES, P. Eng

1:20,000

PAGE SIZE:

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ISSUED FOR CLIENT REVIEW.

ISSUED FOR REGULATORY REVIEW AND ADDITIONAL INFORMATION.

POSSIBLE BORROW SOURCE

CONFIRMED BORROW SOURCE

TO BE CONFIRMED BORROW SOURCE

BORROW SOURCE	AREA
1	1.2 ha
2	1.1 ha
5	4.3 ha
6	10.4 ha
11	1.6 ha
12	1.7 ha
13	2.9 ha

NOTES:

- **ELEVATION CONTOURS ARE IN METRES** ABOVE SEA LEVEL.
- 2. AERIAL IMAGERY PROVIDED BY SRC (Gunnar_Final_Ortho).
- POSSIBLE BORROW SOURCE PERIMETERS CREATED FROM INFORMATION PROVIDED BY SRC (BorrowSources.shp, BorrowArea6.shp).
- DATUM NAD83 ZONE 12.

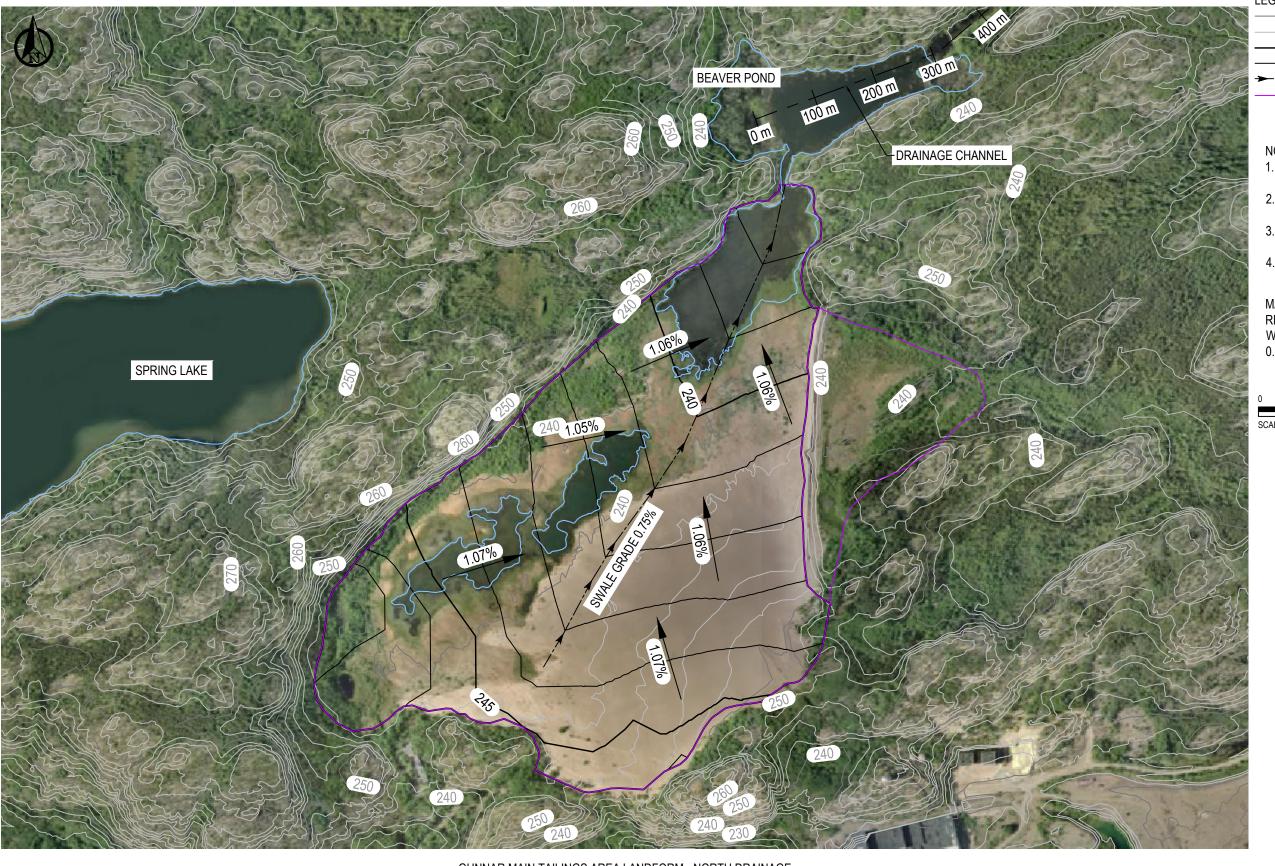
SASKATCHEWAN RESEARCH COUNCIL SASKATCHEWAN RESEARCH COUNCIL GUNNAR TAILINGS REMEDIATION DESIGN

O'Kane Consultants Inc.
Integrated Mine Waste Management and Closure Services
Specialists in Geochemistry and Unsaturated Zone Hydrology OKC PROJECT NO.: 963/1

MAY 28, 2015 963/1-01 DWG. NO.: 963/1-003

NNAR CONFIRMED AND POTEN	ITIA
BORROW SOURCES	

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OKC REPORT - JUNE 2015 DESIGN REPORT (#963/1-01).



GUNNAR MAIN TAILINGS AREA LANDFORM - NORTH DRAINAGE 1:6,000

DESCRIPTION DESCRIPTION DWG. NO. DRN. BY: APPD. BY: DATE H. COOPER, A.Sc.T MAY 25, 2015 ISSUED FOR CLIENT REVIEW. MAY 28, 2015 HSC BKA B. AYRES, P. Eng ISSUED FOR REGULATORY REVIEW. HSC BKA JUNE 29, 2015 MAY 28, 2015 3CALE: 1:6,000 PAGE SIZE: ANSI B 963/1-01 NG IS TO BE READ IN CONJUNCTION WITH OKC REPORT - JUNE 2015 DESIGN REPORT (#963/1-01).

LEGEND: EXISTING MA.

EXISTING MAJOR CONTOUR (10 m)
EXISTING MINOR CONTOUR (2 m)
DESIGN MAJOR CONTOUR (5 m)
DESIGN MINOR CONTOUR (1 m)
SWALE © / FLOW DIRECTION
TAILINGS EXTENTS (est.)

NOTES:

- 1. ELEVATION CONTOURS ARE IN METRES ABOVE SEA LEVEL.
- 2. AERIAL IMAGERY PROVIDED BY SRC (Gunnar_Final_Ortho).
- 3. EXISTING TOPOGRAPHY PROVIDED BY SRC (Gunnar_Contours_dwg_Polyline.shp).
- 4. DATUM NAD83 ZONE 12.

MATERIAL QUANTITIES (est.):

RE-CONTOURED TAILINGS - 266,000 m³
WORKING PLATFORM FILL - 620,000 m³
0.5 m SOIL COVER - 235,000 m³

0 200 400 SCALE 1:6.000 METRES

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SASKATCHEWAN RESEARCH COUNCIL GUNNAR TAILINGS REMEDIATION DESIGN

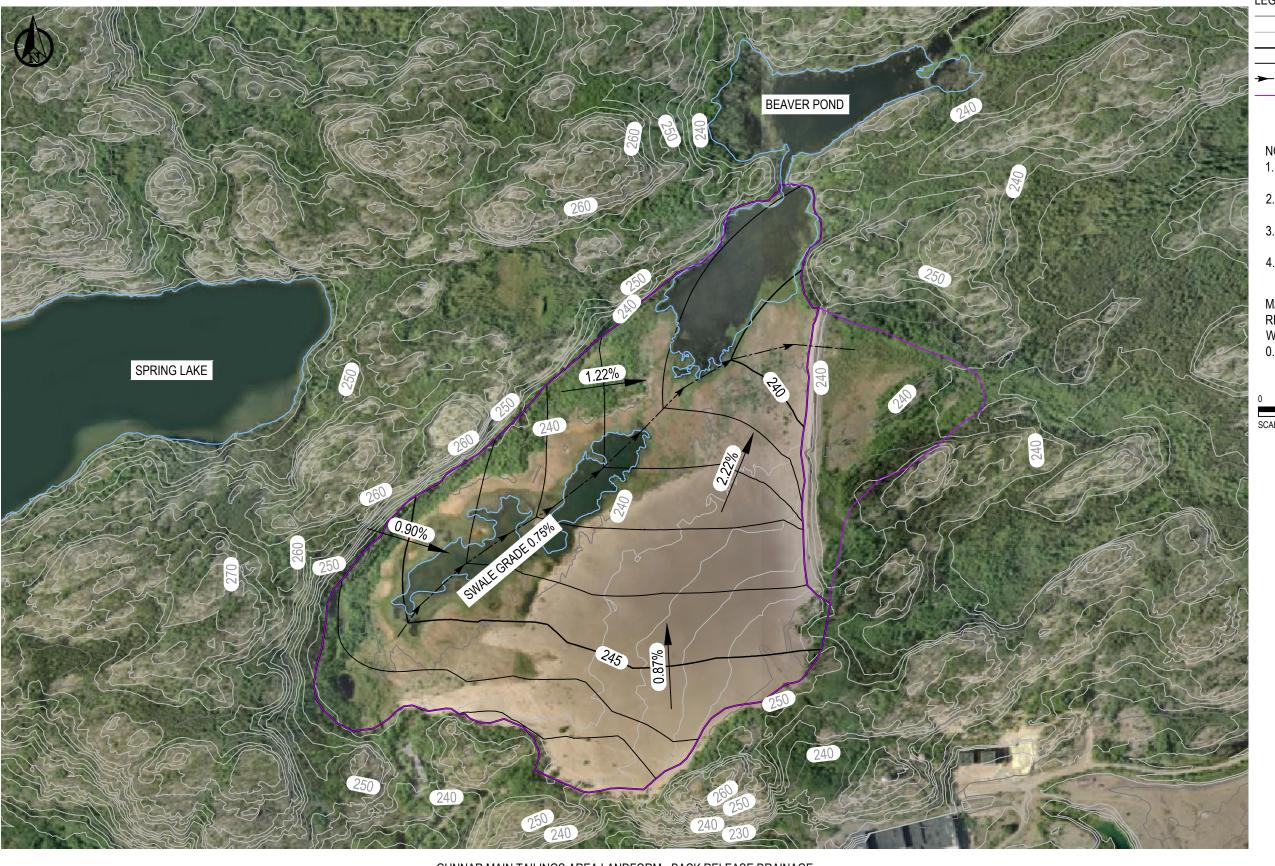
PRODUCED BY:

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Specialists in Geochemistry and Unsaturated Zone Hydrology

OKC PROJECT NO.:

GUNNAR MAIN TAILINGS AREA LANDFORM - OPTION 1

O:: 963/1-004 REV.:



GUNNAR MAIN TAILINGS AREA LANDFORM - BACK RELEASE DRAINAGE 1:6,000

DWG. NO. DESCRIPTION DESCRIPTION DRN. BY: APPD. BY: DATE H. COOPER, A.Sc.T MAY 26, 2015 ISSUED FOR CLIENT REVIEW. MAY 28, 2015 HSC BKA B. AYRES, P. Eng ISSUED FOR REGULATORY REVIEW. HSC BKA JUNE 29, 2015 MAY 28, 2015 PAGE SIZE: 1:6,000 ANSI B 963/1-01

LEGEND:

EXISTING MAJOR CONTOUR (10 m) EXISTING MINOR CONTOUR (2 m) DESIGN MAJOR CONTOUR (5 m) DESIGN MINOR CONTOUR (1 m) SWALE & / FLOW DIRECTION TAILINGS EXTENTS (est.)

NOTES:

- **ELEVATION CONTOURS ARE IN METRES** ABOVE SEA LEVEL.
- 2. AERIAL IMAGERY PROVIDED BY SRC (Gunnar_Final_Ortho).
- EXISTING TOPOGRAPHY PROVIDED BY SRC (Gunnar_Contours_dwg_Polyline.shp).
- 4. DATUM NAD83 ZONE 12.

MATERIAL QUANTITIES (est.):

RE-CONTOURED TAILINGS - 165,000 m³ WORKING PLATFORM FILL - 980,000 m³ 0.5 m SOIL COVER - 235,000 m³

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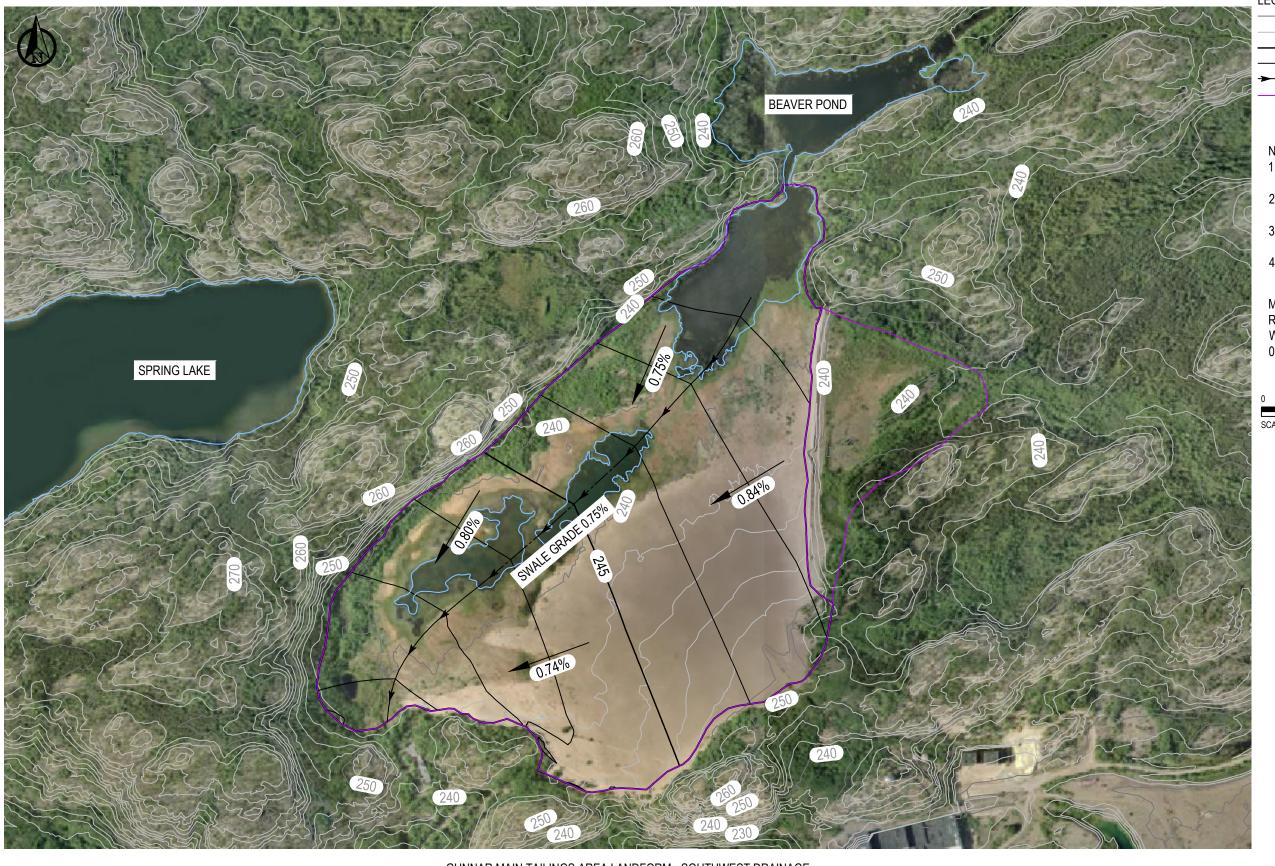
SASKATCHEWAN RESEARCH COUNCIL GUNNAR TAILINGS REMEDIATION DESIGN

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GUNNAR MAIN TAILINGS AREA LANDFORM - OPTION 2

963/1-005

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GUNNAR MAIN TAILINGS AREA LANDFORM - SOUTHWEST DRAINAGE 1:6,000

DWG. NO. DESCRIPTION DESCRIPTION DRN. BY: APPD. BY: DATE H. COOPER, A.Sc.T MAY 26, 2015 ISSUED FOR CLIENT REVIEW. MAY 28, 2015 HSC BKA B. AYRES, P. Eng ISSUED FOR REGULATORY REVIEW. HSC BKA JUNE 29, 2015 MAY 28, 2015 PAGE SIZE: 1:6,000 ANSI B 963/1-01

LEGEND:

EXISTING MAJOR CONTOUR (10 m) EXISTING MINOR CONTOUR (2 m) DESIGN MAJOR CONTOUR (5 m) DESIGN MINOR CONTOUR (1 m) SWALE & / FLOW DIRECTION TAILINGS EXTENTS (est.)

NOTES:

- **ELEVATION CONTOURS ARE IN METRES** ABOVE SEA LEVEL.
- 2. AERIAL IMAGERY PROVIDED BY SRC (Gunnar_Final_Ortho).
- EXISTING TOPOGRAPHY PROVIDED BY SRC (Gunnar_Contours_dwg_Polyline.shp).
- 4. DATUM NAD83 ZONE 12.

MATERIAL QUANTITIES (est.): RE-CONTOURED TAILINGS - 75,000 m³ WORKING PLATFORM FILL - 1,810,000 m³ - 235,000 m³

0.5 m SOIL COVER



SASKATCHEWAN RESEARCH COUNCIL GUNNAR TAILINGS REMEDIATION DESIGN

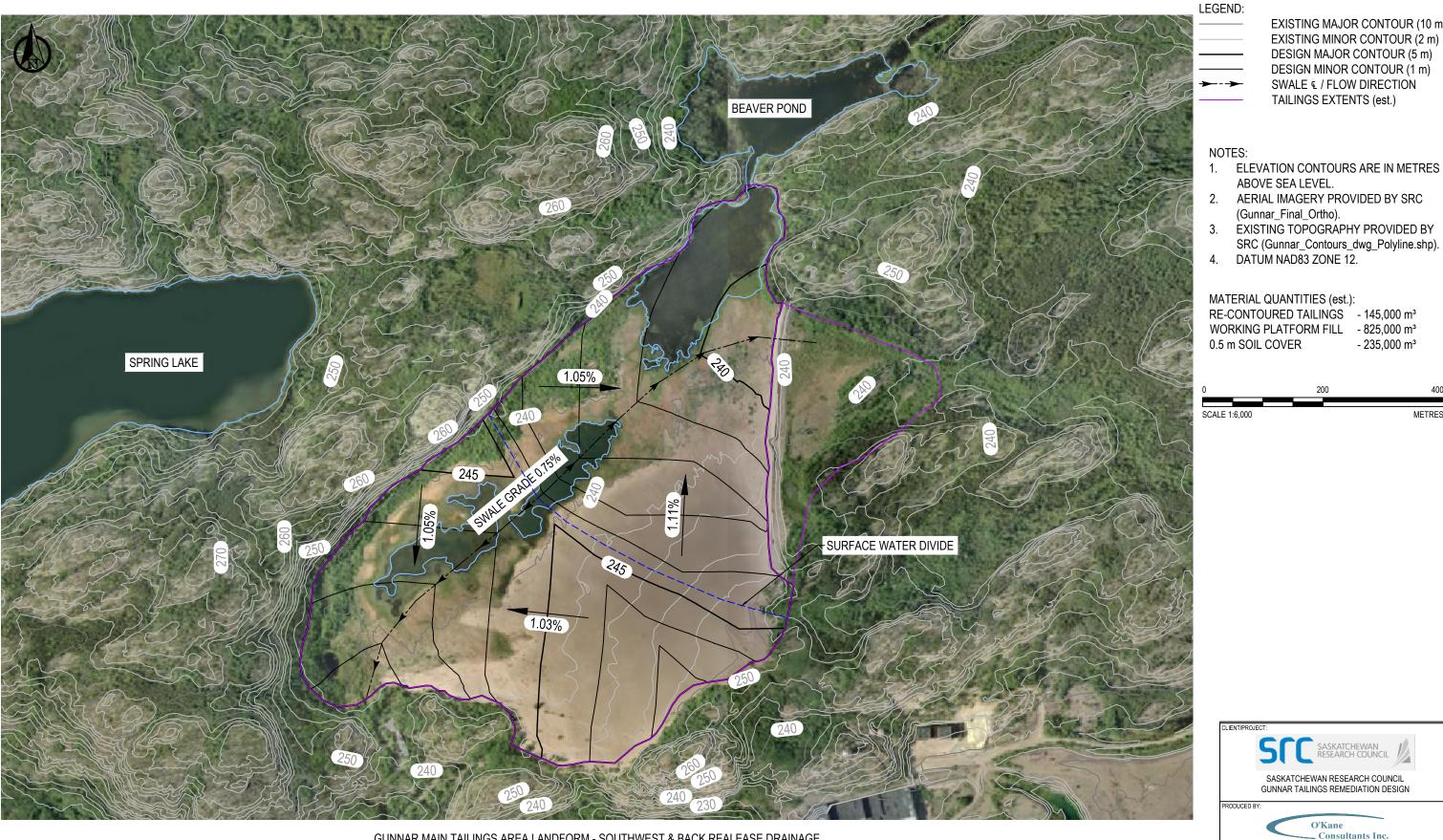
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GUNNAR MAIN TAILINGS AREA

LANDFORM - OPTION 3

963/1-006

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GUNNAR MAIN TAILINGS AREA LANDFORM - SOUTHWEST & BACK REALEASE DRAINAGE 1:6,000

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GUNNAR MAIN TAILINGS AREA LANDFORM - OPTION 4

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SASKATCHEWAN RESEARCH COUNCIL GUNNAR TAILINGS REMEDIATION DESIGN

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Specialists in Geochemistry and Unsaturated Zone Hydrology

EXISTING MAJOR CONTOUR (10 m) EXISTING MINOR CONTOUR (2 m) DESIGN MAJOR CONTOUR (5 m) DESIGN MINOR CONTOUR (1 m) SWALE & / FLOW DIRECTION TAILINGS EXTENTS (est.)

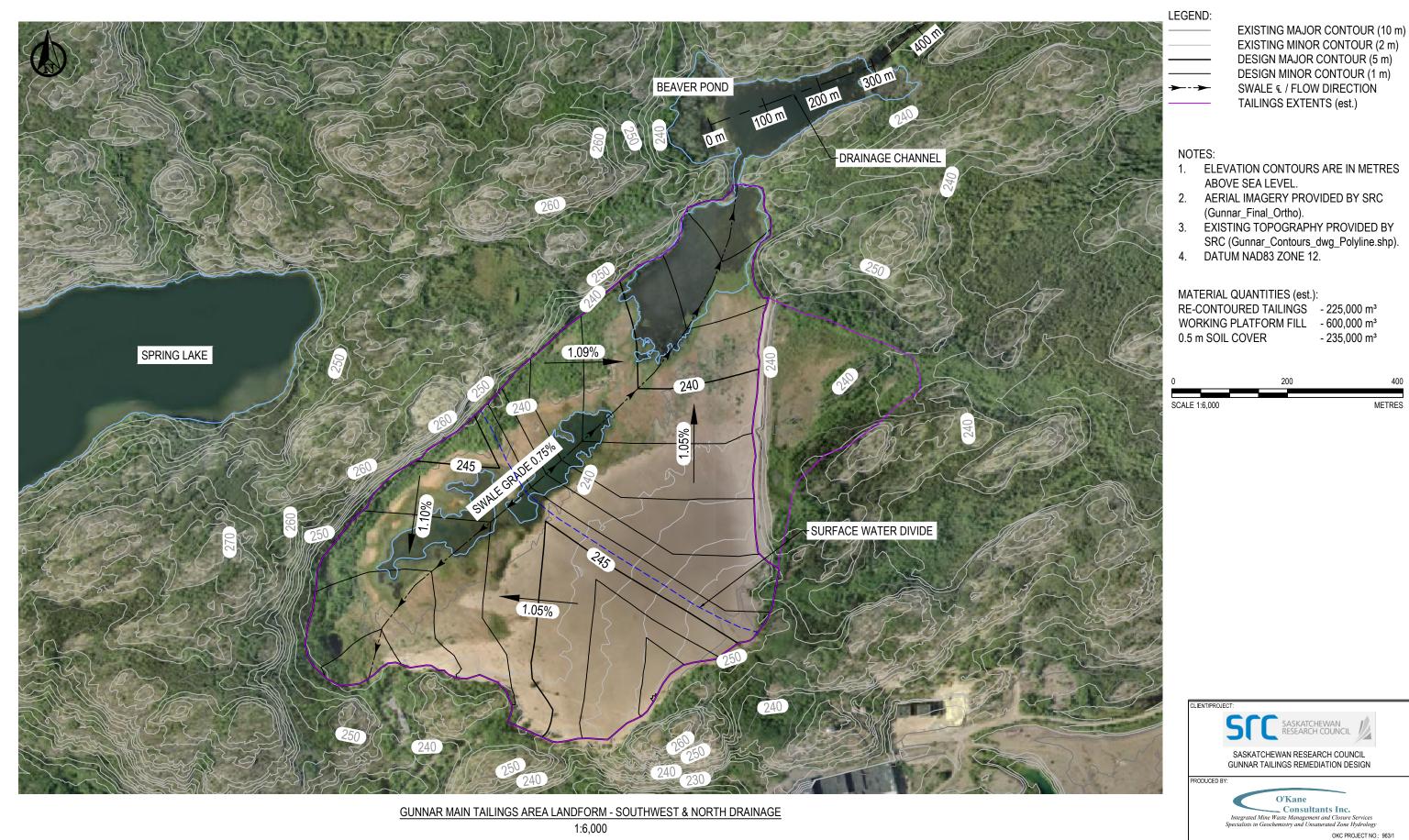
ABOVE SEA LEVEL.

(Gunnar_Final_Ortho).

SRC (Gunnar_Contours_dwg_Polyline.shp).

- 235,000 m³

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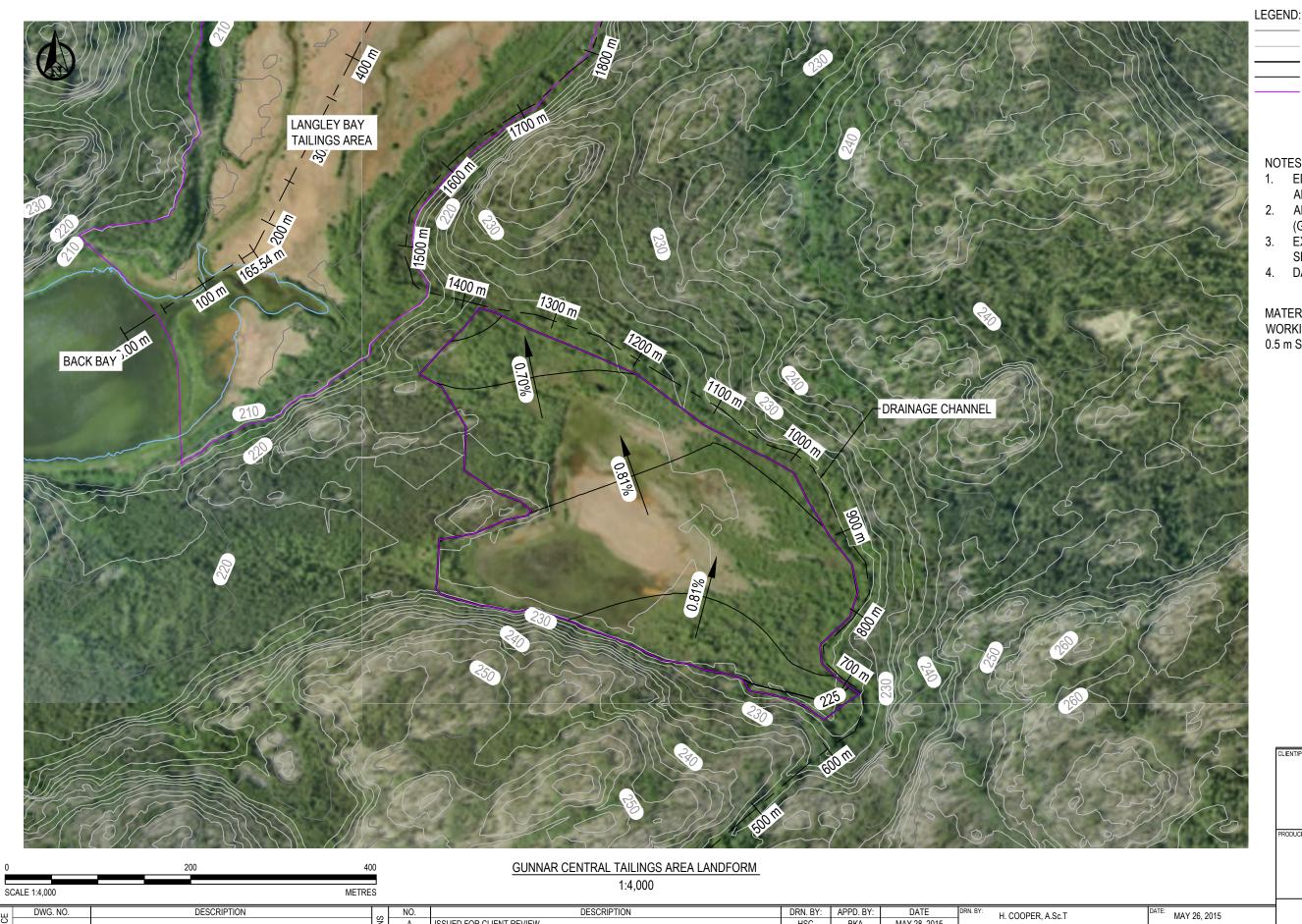


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GUNNAR MAIN TAILINGS AREA LANDFORM - OPTION 5

DWG. NO.: 963/1-008

NG IS TO BE READ IN CONJUNCTION WITH OKC REPORT - JUNE 2015 DESIGN REPORT (#963/1-01).



EXISTING MAJOR CONTOUR (10 m) EXISTING MINOR CONTOUR (2 m) DESIGN MAJOR CONTOUR (5 m) DESIGN MINOR CONTOUR (1 m) TAILINGS EXTENTS (est.)

NOTES:

- **ELEVATION CONTOURS ARE IN METRES** ABOVE SEA LEVEL.
- 2. AERIAL IMAGERY PROVIDED BY SRC (Gunnar_Final_Ortho).
- EXISTING TOPOGRAPHY PROVIDED BY SRC (Gunnar_Contours_dwg_Polyline.shp).
- 4. DATUM NAD83 ZONE 12.

MATERIAL QUANTITIES (est.): WORKING PLATFORM FILL - 110,000 m³ 0.5 m SOIL COVER - 60,000 m³



SASKATCHEWAN RESEARCH COUNCIL GUNNAR TAILINGS REMEDIATION DESIGN

963/1-009

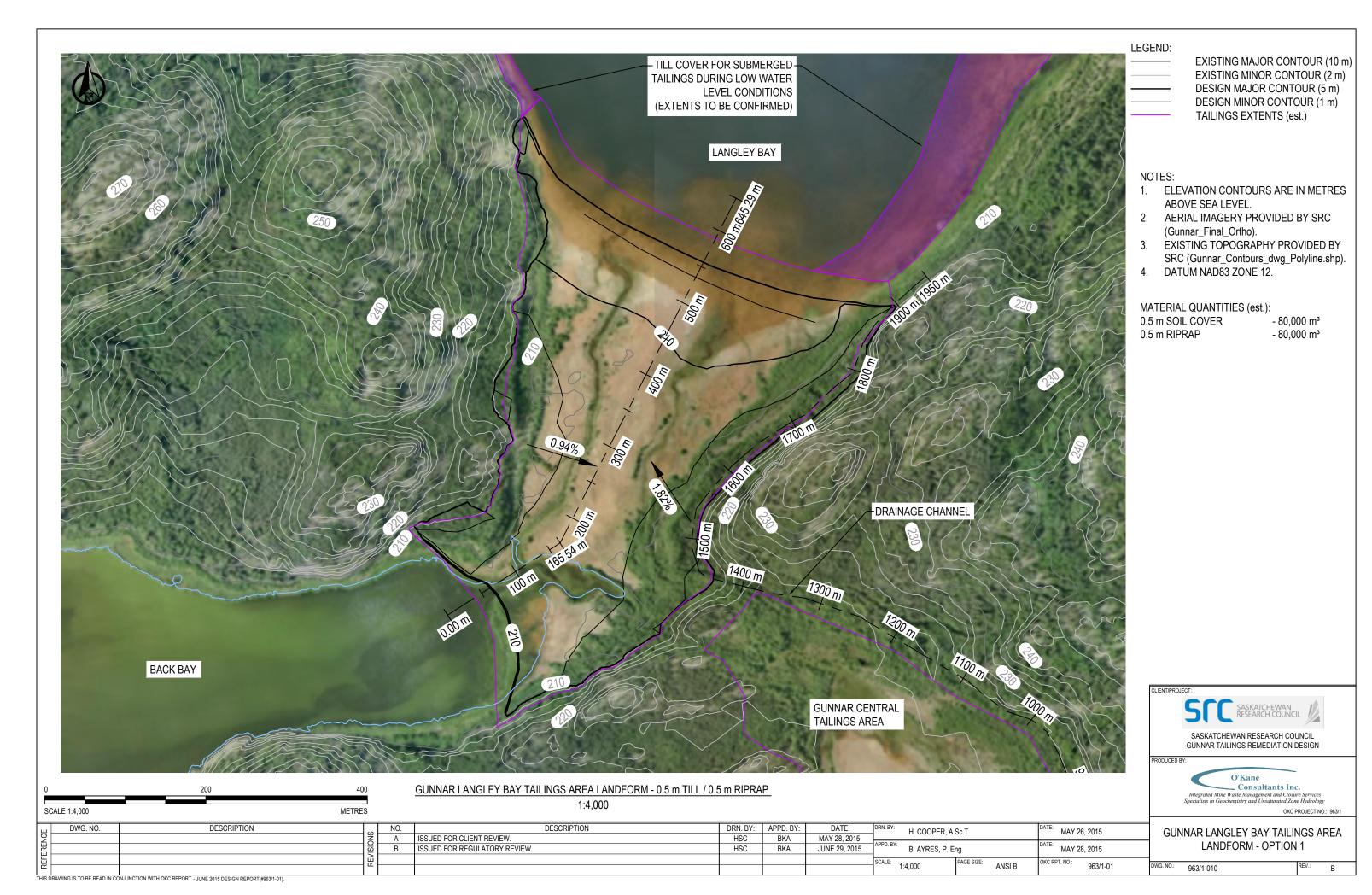
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Integrated Mine Waste Management and Closure Services
Specialists in Geochemistry and Unsaturated Zone Hydrology

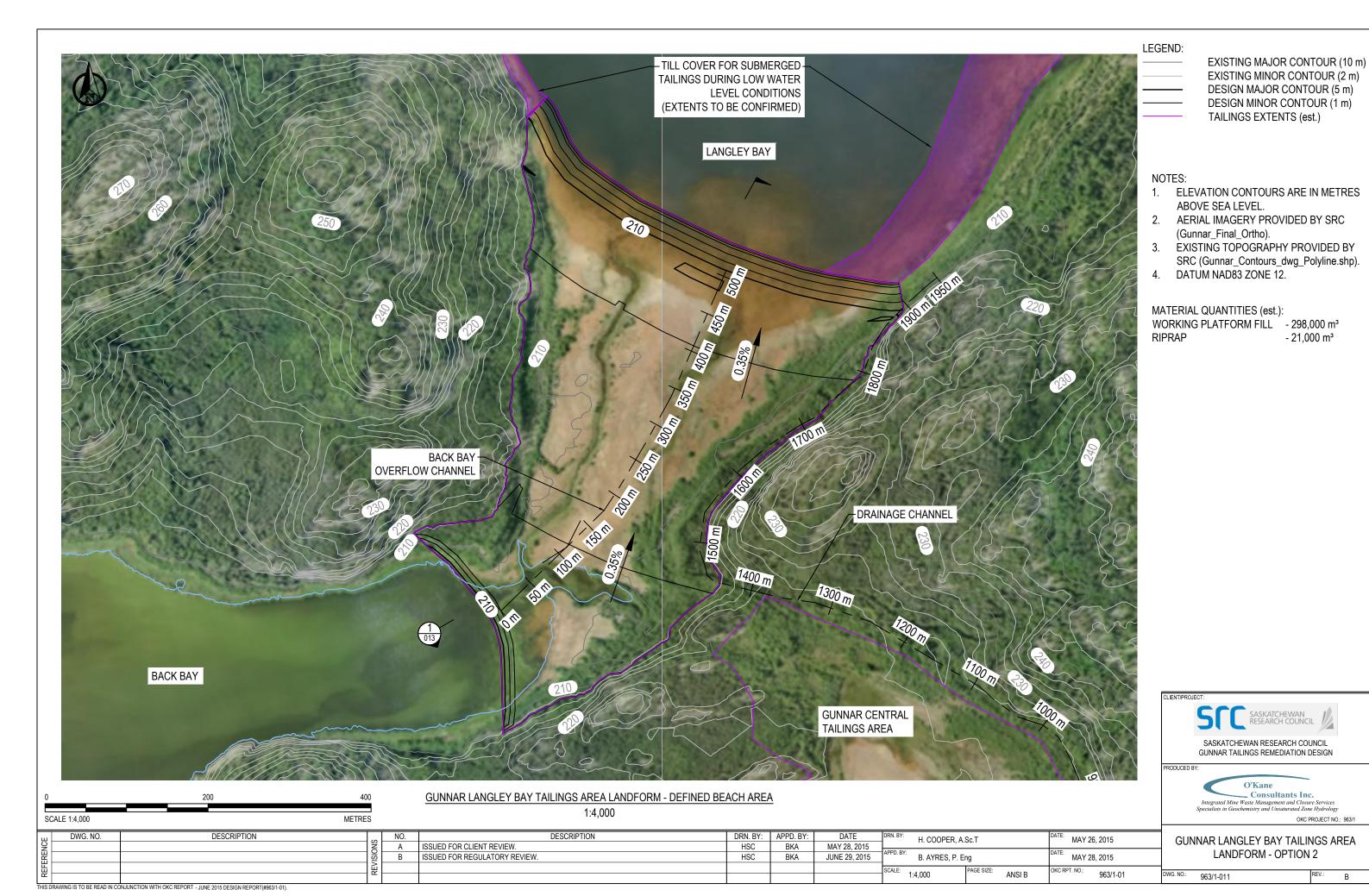
GUNNAR CENTRAL TAILINGS AREA

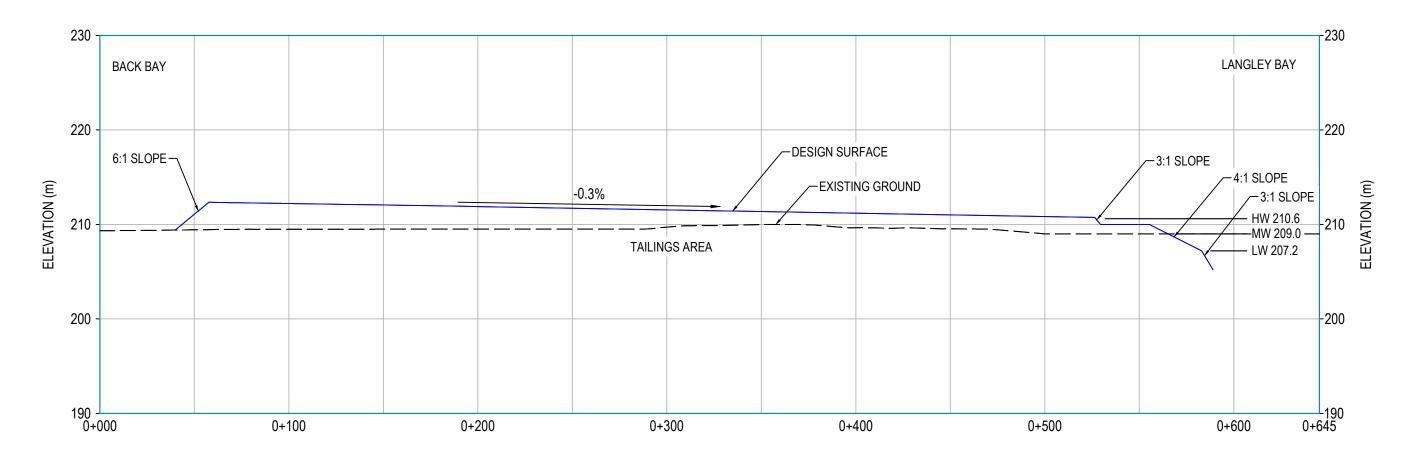
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ING IS TO BE READ IN CONJUNCTION WITH OKC REPORT - JUNE 2015 DESIGN REPORT (#963/1-01).

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GUNNAR LANGLEY BAY TAILINGS AREA LANDFORM - DEFINED BEACH AREA 1:2,000 (5V : 1H)



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