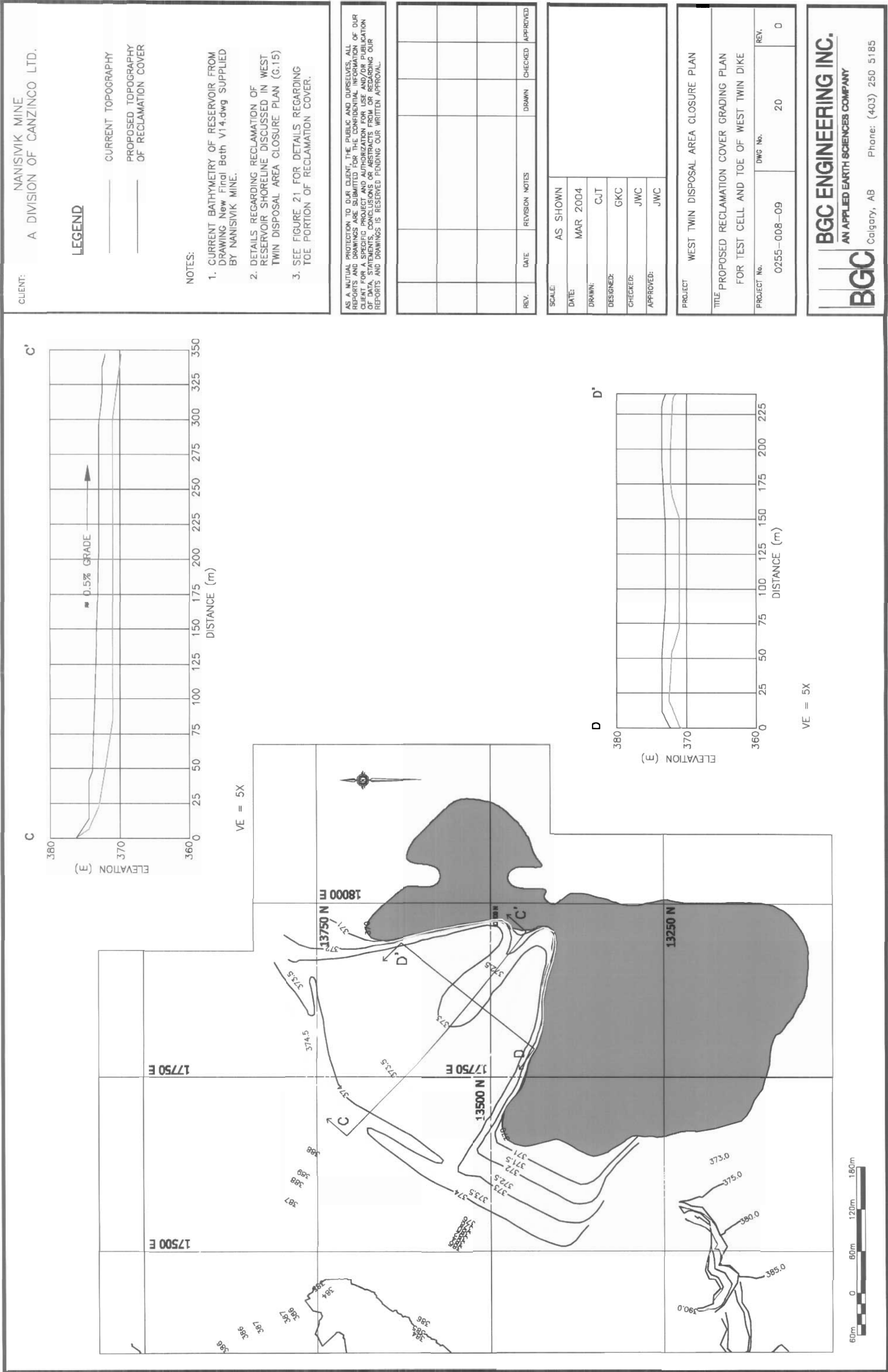
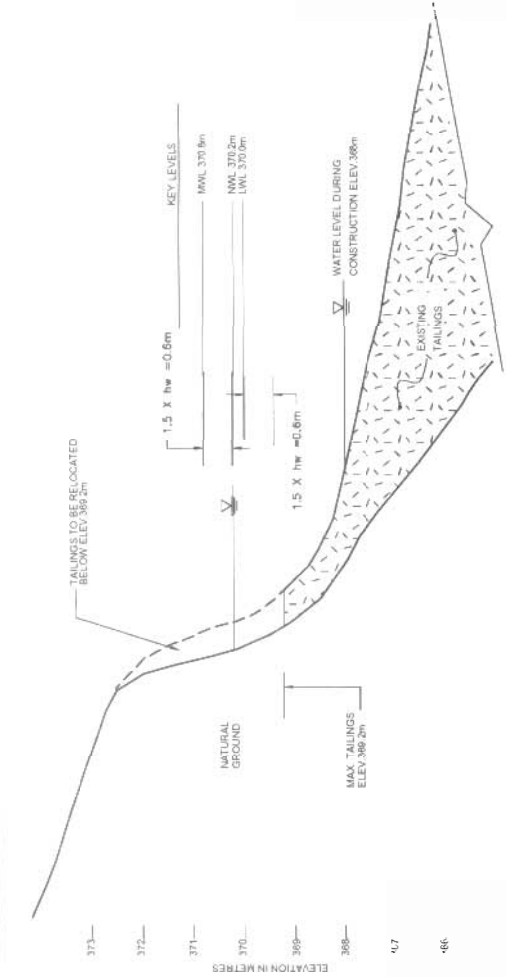
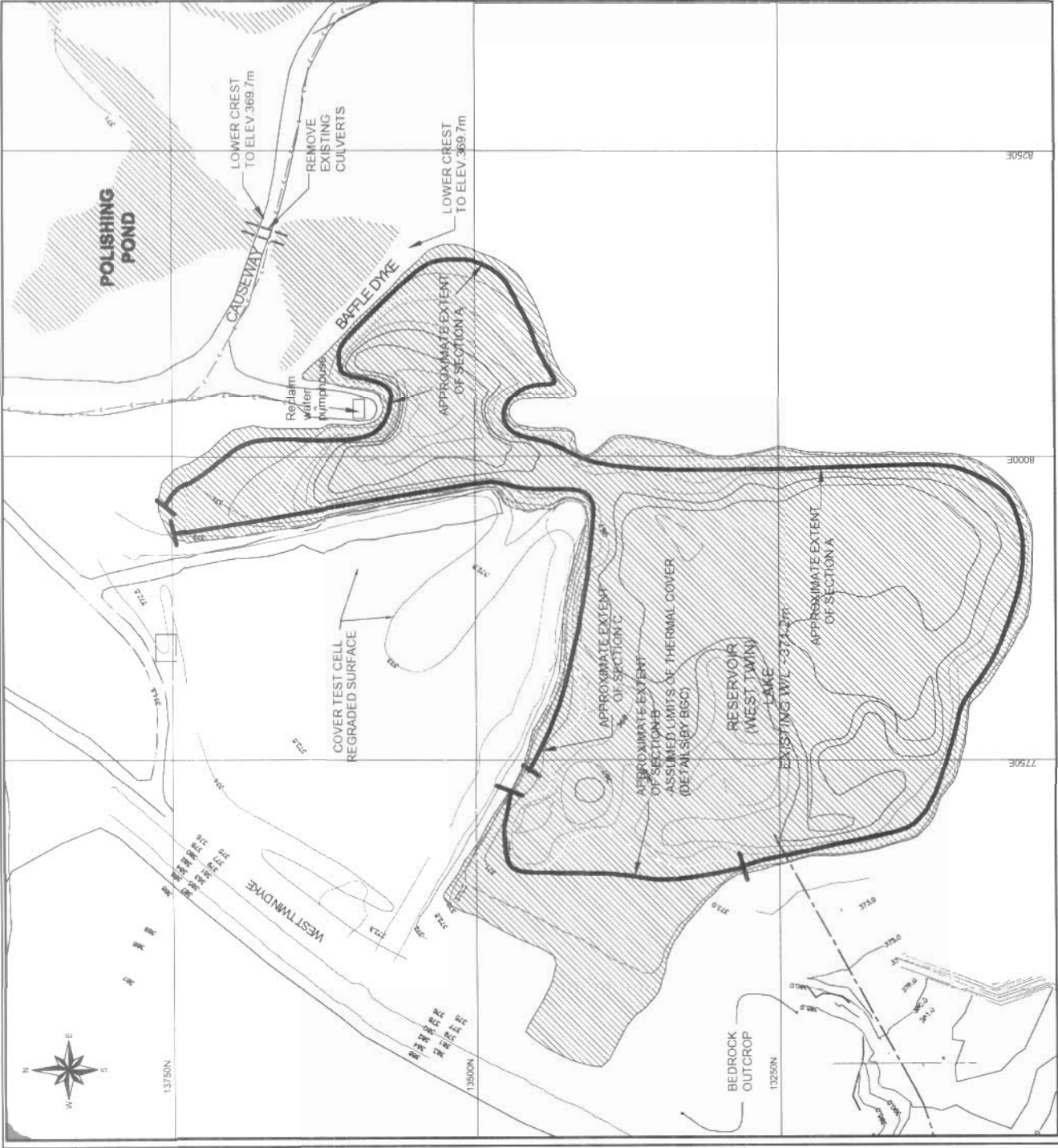
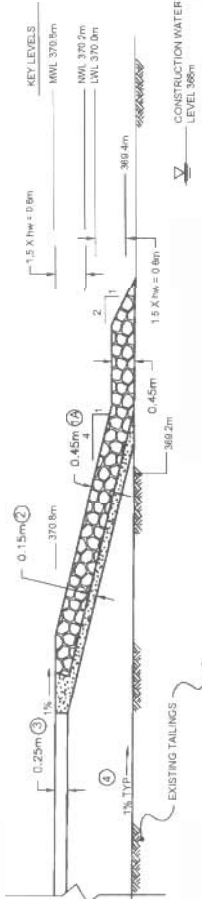






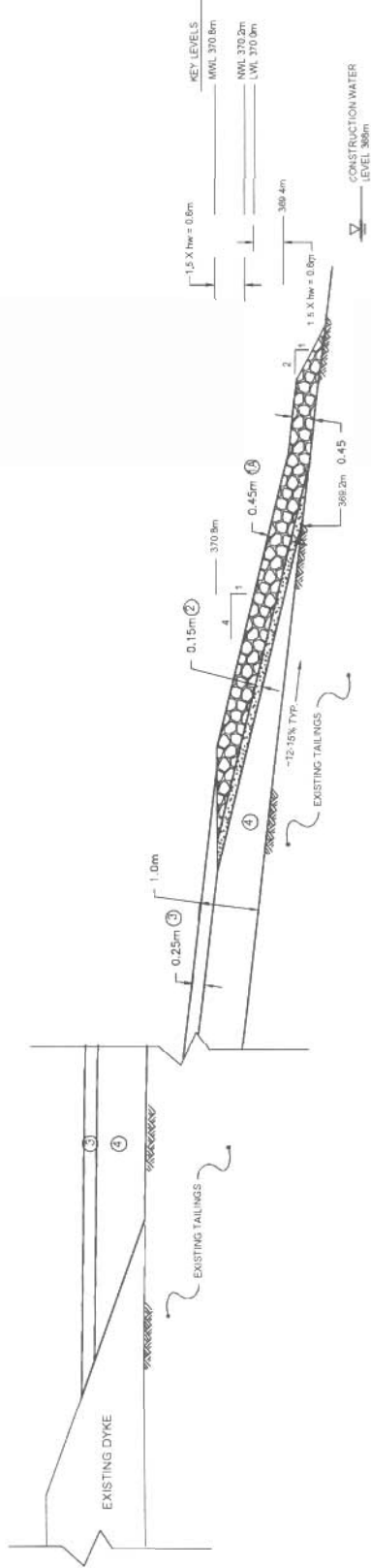
SECTION A
TAILINGS RELOCATION AT NATURAL SHORELINE

HORIZONTAL 1 : 750
VERTICAL 1 : 75



SECTION B
EROSION PROTECTION AT TOE OF WEST TWIN DYKE

SCALE
1.5 METRES



SECTION C
EROSION PROTECTION AT TOE OF TEST CELL DYKE

SCALE
1.5 METRES

LEGEND

- LOW WATER LEVEL (m) DURING DROUGHT CONDITIONS
NORMAL WATER LEVEL (m)
MAXIMUM WATER LEVEL (m)
DESIGN WAVE HEIGHT (m)
MEAN PARTICLE DIAMETER (BY MASS)

CONSTRUCTION MATERIALS

- ① RIP RAP - D 50 SIZE = 200mm MIN
② BEDDING - D 50 SIZE = 100mm MIN
③ ARMOUR - SAND AND GRAVEL
④ COVER MATERIAL - SHALE

SUGGESTED CONSTRUCTION SEQUENCE

1. LOWER WATER LEVEL TO ELEV. 369m.
2. PLACE COVER ON TAILINGS THAT WILL NOT BE RELOCATED BELOW WATER COVER AND PLACE EROSION PROTECTION ON COVER AS SHOWN.
3. RELOCATE TAILINGS TO BELOW ELEV. 369.2m
4. REMOVE CAUSEWAY EMBANKMENT CULVERTS
5. LOWER CAUSEWAY CREST
6. LOWER BAFFLE DYKE CREST.

NOTES:

1. LIMITS OF APPLICABILITY OF SECTIONS ARE APPROXIMATE ONLY AND ARE SUBJECT TO CONFIRMATION IN THE FIELD BY THE OWNER'S REPRESENTATIVE
2. CONTRACTOR SHALL PREVENT DISCHARGE OF WATER DURING CONSTRUCTION
3. DIVERSION CHANNEL, DIVERSION DAM AND ROCKFILL CAUSEWAY (FOR POTABLE WATER PIPELINE) INFERRED FROM KILBORN DWG. 13-13-7 REV. 1 DATED JAN. 1977 (AS-BUILT).
4. DETAILS REGARDING THE CONSTRUCTION OF THE OUTLET CONTROL EMBANKMENT WERE NOT AVAILABLE AT TIME OF DRAWING PREPARATION.

REFERENCES

BASEMAPPING WAS PROVIDED BY BGC IN DIGITAL FORMAT. FILENAME: 0255-008-09-001 Figure 07.mxd, DATED 12/22/2003. BGC'S BASEMAPPING COMPLETION LISTS THE FOLLOWING SOURCES:

- A. RESERVOIR AND TEST CELL BATHYMETRY DERIVED FROM DRAWING New Final Bath V14.dwg SUPPLIED BY BGC
B. SURFACE CELL, WEST TWIN OUTLET AND PROPOSED SPILLWAY AREA TOPOGRAPHY DERIVED FROM SURVEY CONDUCTED BY SUB-ARCTIC SURVEYS LTD. SEPTEMBER, 2003
C. BOREHOLE LOCATIONS ARE APPROXIMATE.

TEST CELL REGRADED SURFACE PROVIDED BY BGC IN DIGITAL FORMAT. FILENAME: GARTNER FIGURE 27.DWG. DATED 2/10/2004.



Golder Associates Ltd.
Mississauga, Ontario, Canada

BREAKWATER RESOURCES
NANISIVIK MINE
A DIVISION OF CANZINCO LTD.

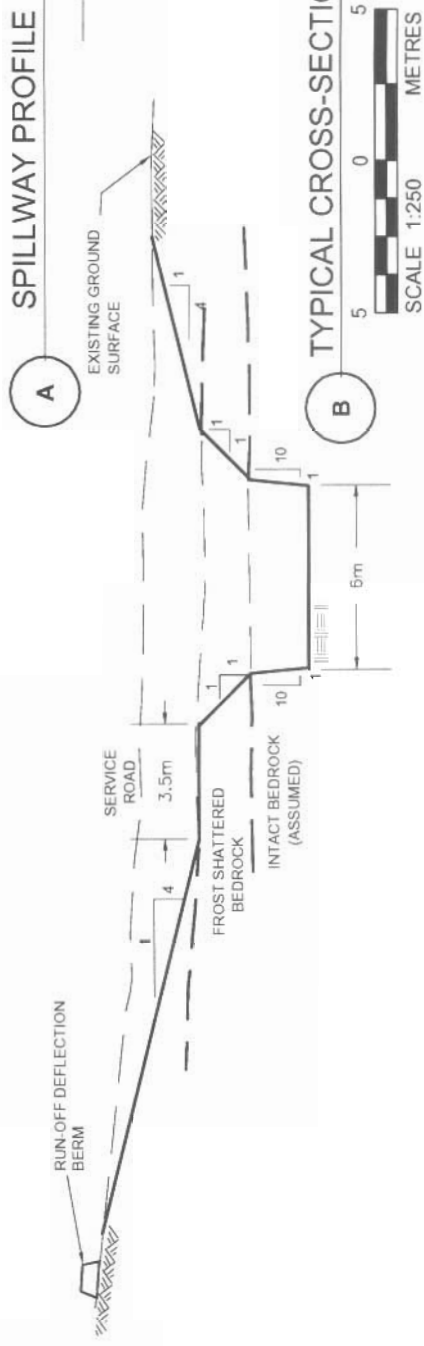
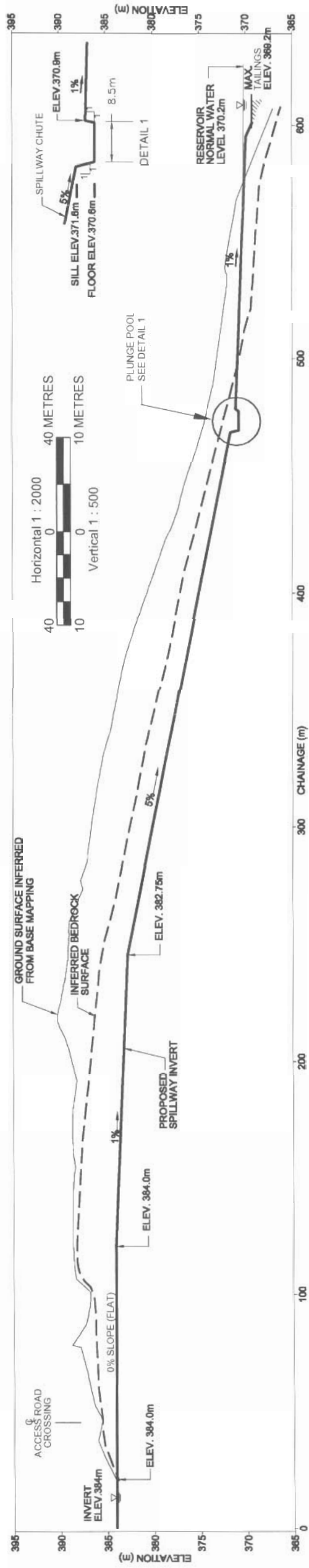
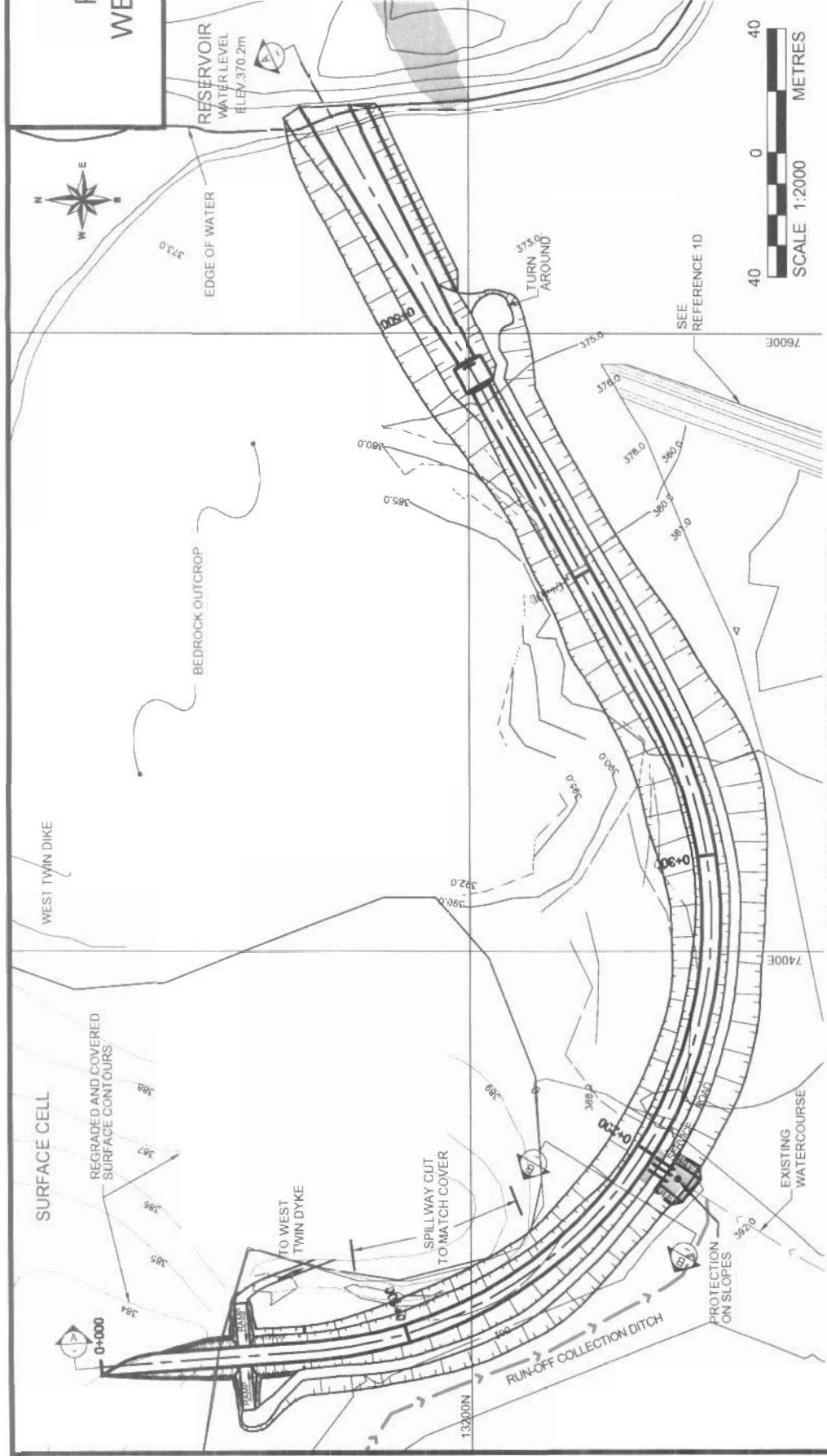
RESERVOIR SHORELINE
EROSION PROTECTION
WEST TWIN DISPOSAL
AREA CLOSURE PLAN

PROJECT: 03-1118-048 FILE: 031118048\21.DWG

DATE: MARCH, 2004

CAD: TDR ENG: DGR





SPILLWAY PROFILE

TYPICAL CROSS-SECTION

DRAWING REFERENCES

1. BASEMAPPING WAS PROVIDED BY BGC IN DIGITAL FORMAT. FILENAME 0255-008-09 001 Figure_07_alt.dwg DATED 12/22/2003. BGC'S BASEMAPPING COMPILATION LISTS THE FOLLOWING SOURCES:

- A. RESERVOIR AND TEST CELL BATHYMETRY DERIVED FROM DRAWING New Final Bath V14.dwg SUPPLIED BY NML
B. SURFACE CELL, WEST TWIN OUTLET AND PROPOSED SPILLWAY AREA TOPOGRAPHY DERIVED FROM SURVEY CONDUCTED BY SUB-ARCTIC SURVEYS LTD. SEPTEMBER, 2003.
C. BOREHOLE LOCATIONS ARE APPROXIMATE.
D. TOPOGRAPHY OF THE SPILLWAY AREA WAS DERIVED BY BGC USING ADDITIONAL DATA SUPPLIED BY NANISIVIK MINE.
E. GRADING PLAN FOR SURFACE CELL PROVIDED BY BGC IN DIGITAL FORMAT. FILENAME Grading Plan_Surface_Cell.dwg dated 1/21/2004.

2. FINAL GRADING PLAN FOR SURFACE CELL PROVIDED BY BGC IN DIGITAL FORMAT. FILENAME Grading Plan Surface Cell.dwg dated 1/21/2004.

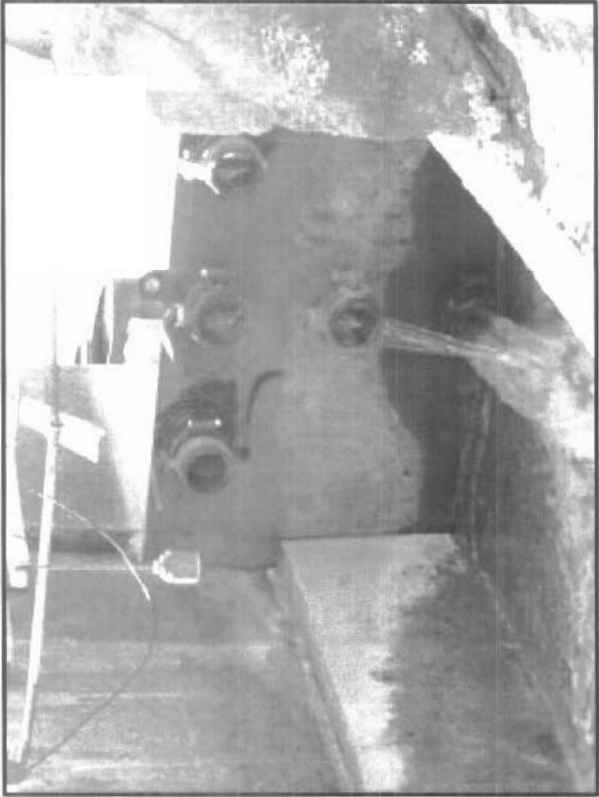
DATE: MARCH, 2004

CAD: TDR

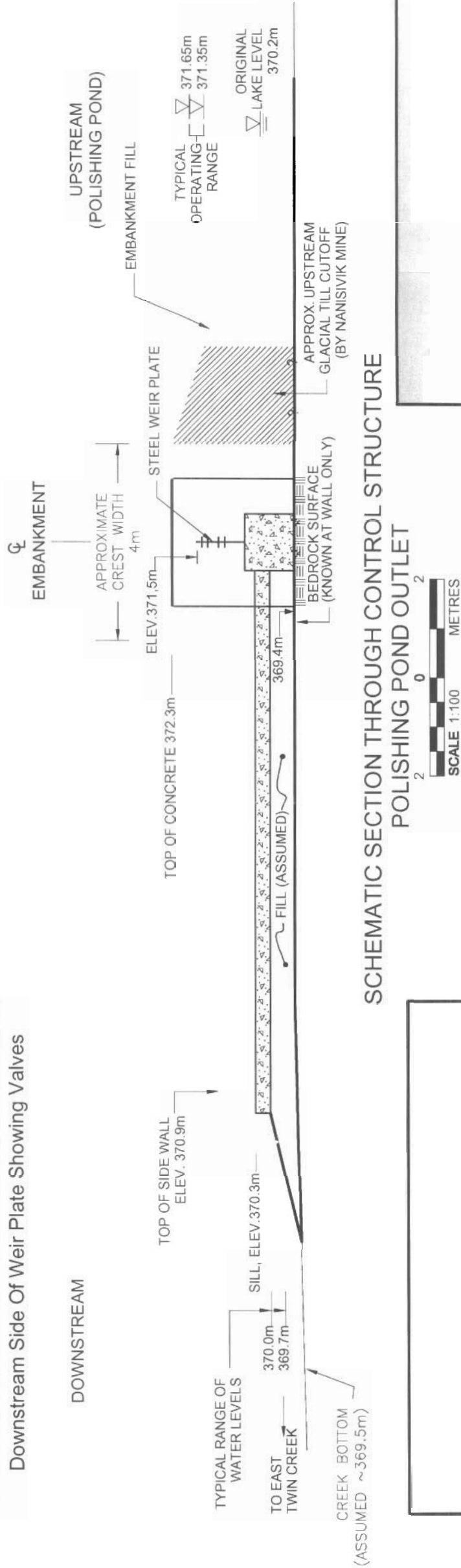
PROJECT: 03-1118-049

CHK: DGR

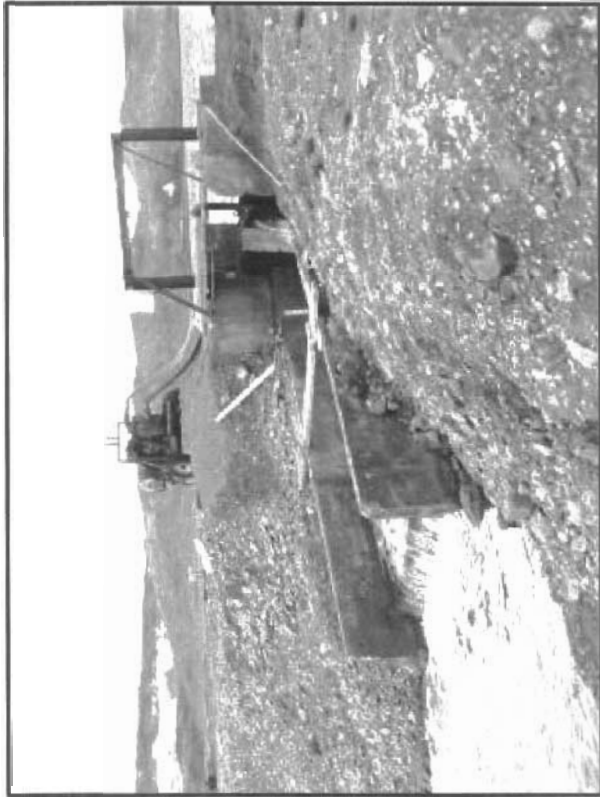




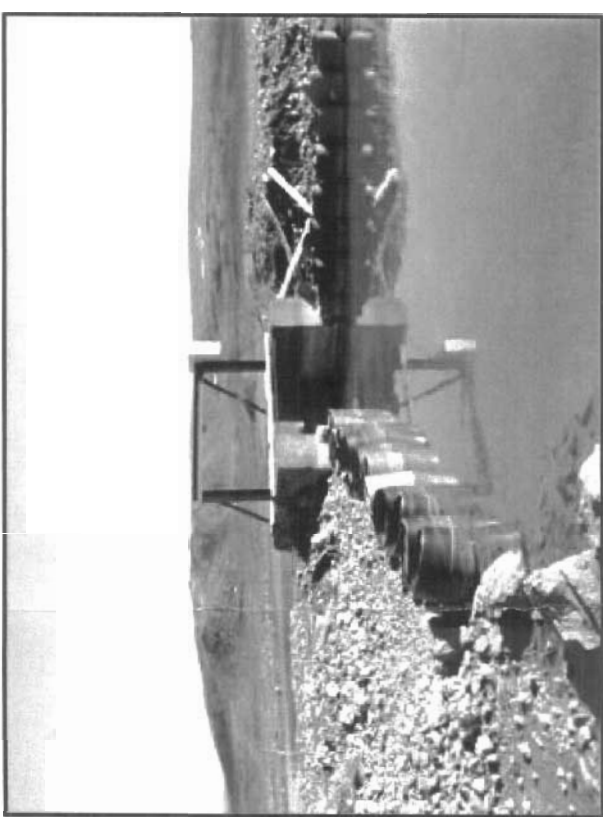
Downstream Side Of Weir Plate Showing Valves



SCHEMATIC SECTION THROUGH CONTROL STRUCTURE
POLISHING POND OUTLET

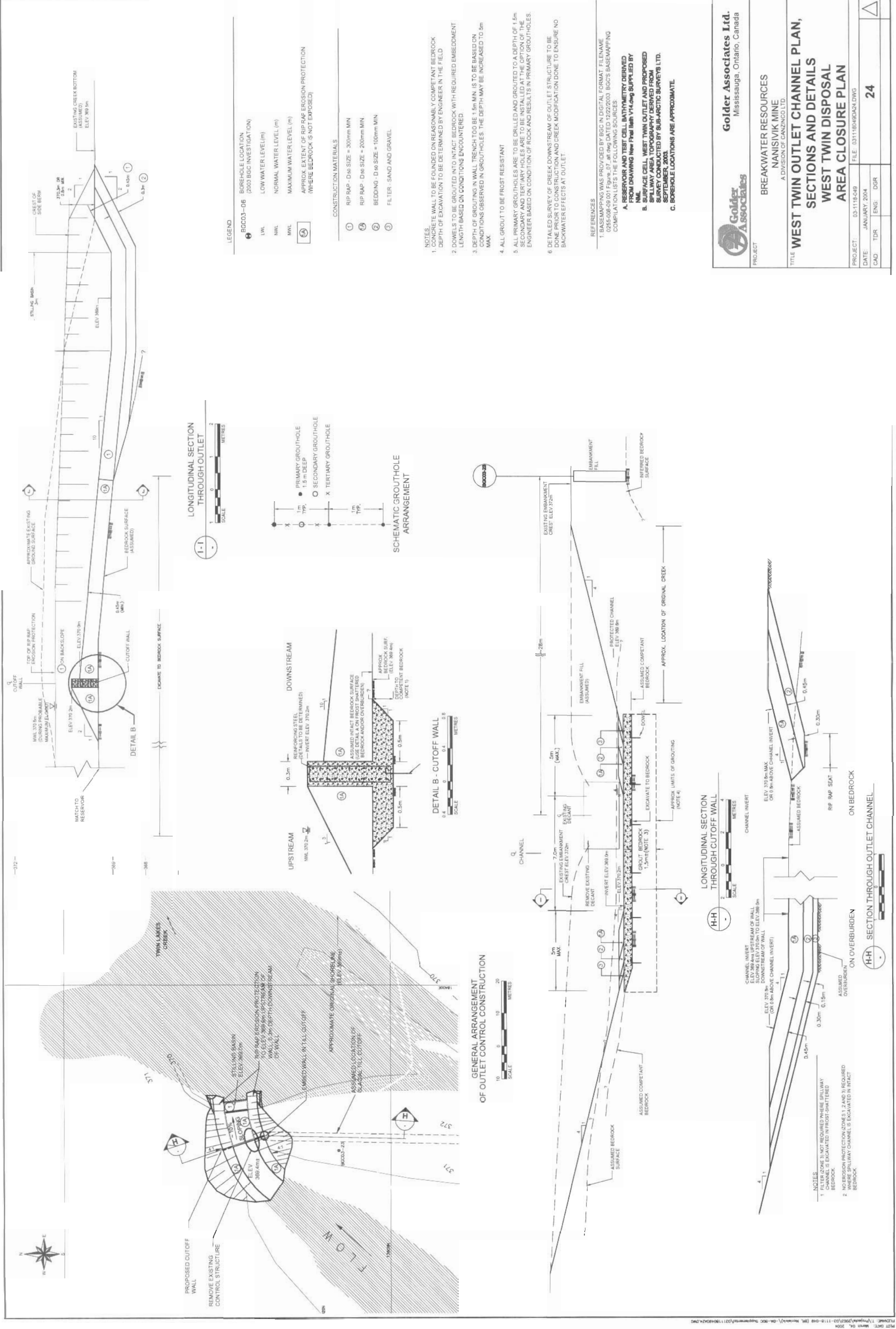


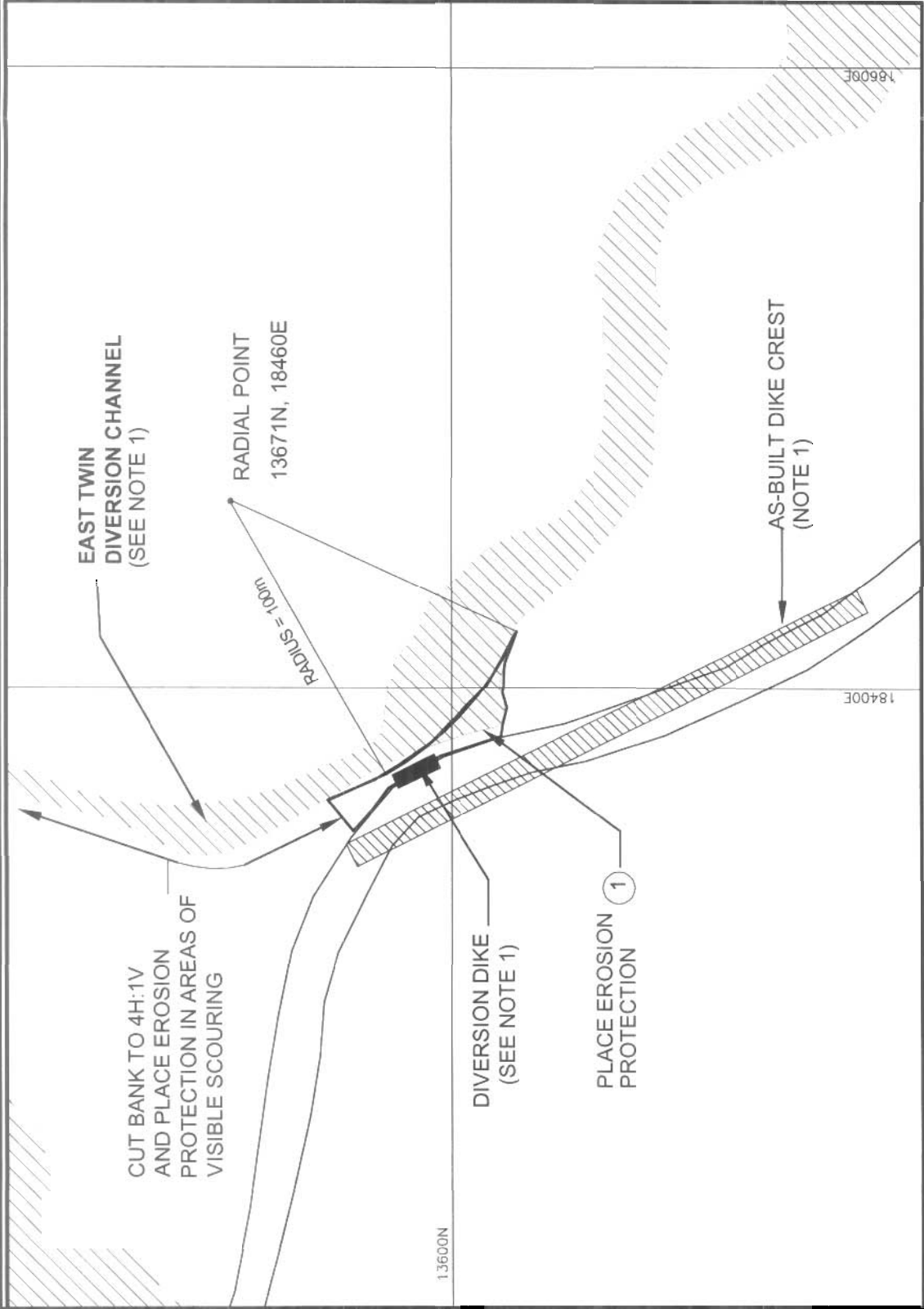
Control Structure Outfall



Upstream Side Of Control Structure

NOTE:
THIS DRAWING WAS PREPARED USING THE ORIGINAL AS-BUILT DRAWING (KILBORN 1977), NANISIVIK MINE AS-BUILT DRAWING (GLACIAL TILL CUTOFF), AND SITE OBSERVATIONS/PHOTOGRAPHS.





CONSTRUCTION MATERIALS

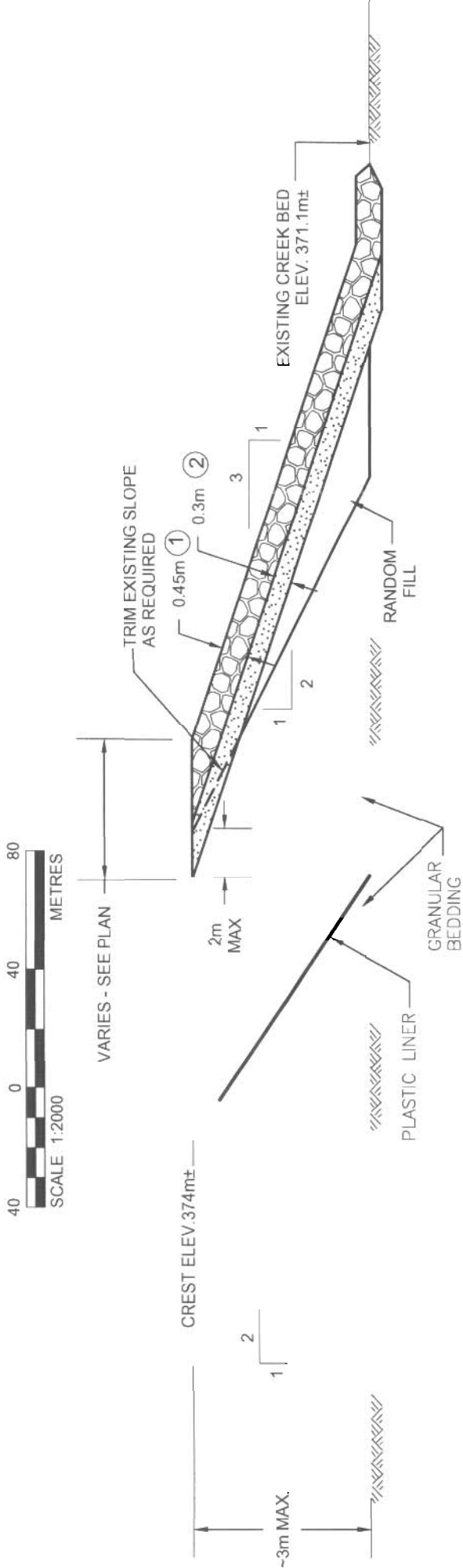
- 1 RIP RAP - D₅₀ SIZE = 300mm MIN.
- 2 BEDDING - D₅₀ SIZE = 100mm MIN.

NOTES:

1. DIVERSION DIKE AND CHANNEL INFERRED FROM KILBORN, 1977, DWG. 13-13-7, REV. 1 DATED JAN.1977, (AS-BUILT).
2. DETAILS OF PROPOSED EROSION PROTECTION TO BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION.

REFERENCE

BASEMAPPING WAS PROVIDED BY BGC IN DIGITAL FORMAT. FILENAME 0255-008-09 001 Figure_07_alt.dwg DATED 12/22/2003.



NOTE
EMBANKMENT DETAILS ARE APPROXIMATE ONLY AND WERE INFERRED FROM KILBORN DRAWING (NOTE 1) AND SITE OBSERVATIONS.



DATE: FEB.12.2004

PROJECT: 03-1118-049

CAD: TDR

CHK: DGR





17000

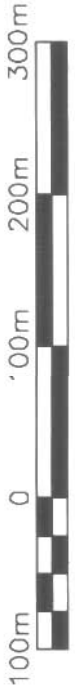
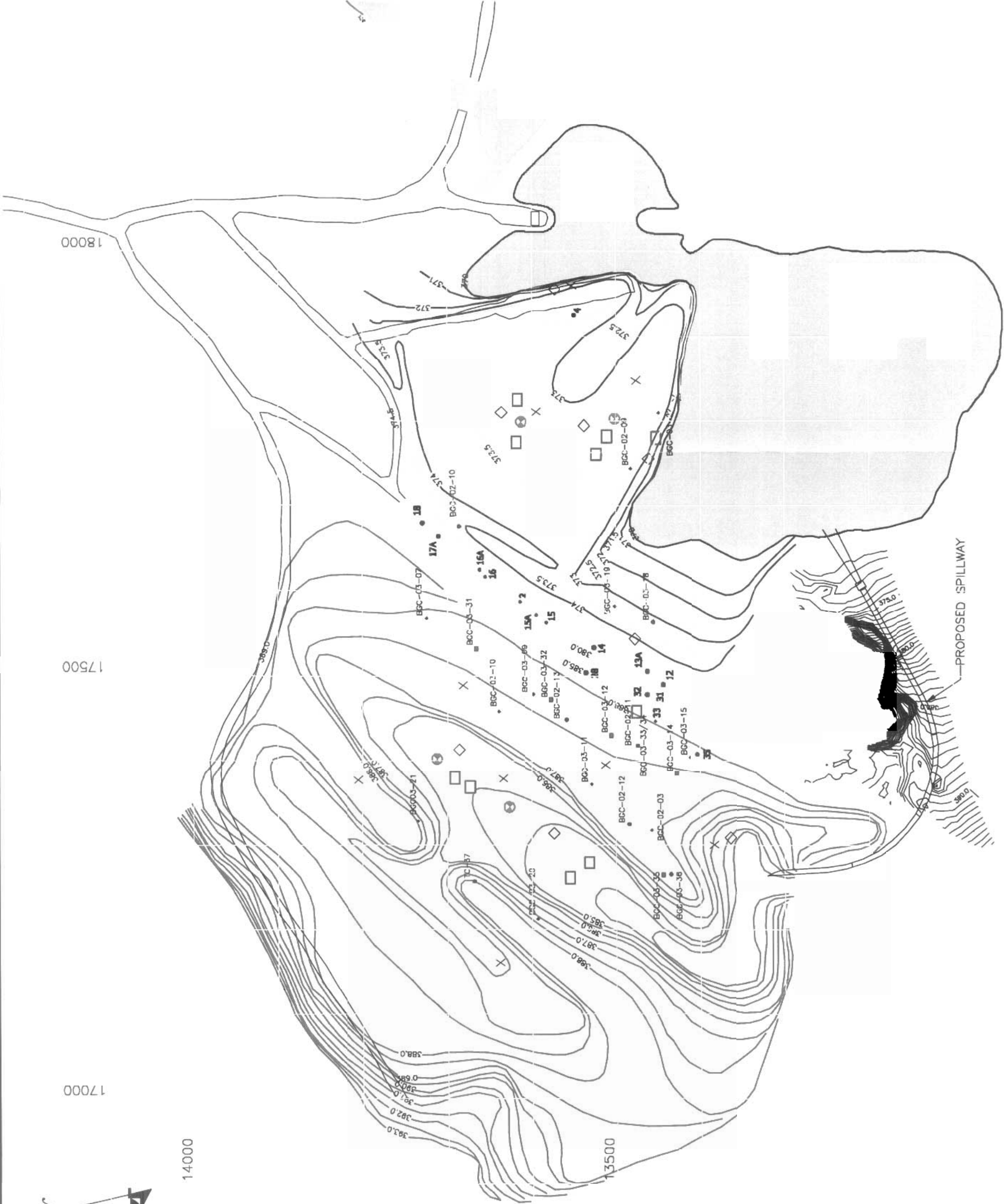
14000

13500

13000

17500

18000



CLIENT:

NANISVIK MINE
A DIVISION OF CANZINCO LTD.

LEGEND

- EXISTING THERMOCOUPLE
- EXISTING THERMISTOR
- EXISTING VIBRATING WIRE PIEZOMETER
- ◊ PROPOSED THERMISTOR
- ◻ PROPOSED VIBRATING WIRE PIEZOMETER
- ⊗ PROPOSED MONITORING WELL
- X PROPOSED FROST GAUGE
- EXISTING CONTOUR — MAJOR
- EXISTING CONTOUR — MINOR
- PROPOSED SHALE COVER CONTOUR — MAJOR
- PROPOSED SHALE COVER CONTOUR — MINOR
- BATHYMETRIC CONTOURS

NOTE:

1. DRAWING DERIVED FROM FIGURE 3 IN
NANISVIK MINE RECLAMATION AND CLOSURE
MONITORING PLAN REPORT.

AS A MUTUAL PROTECTION TO OUR CLIENT, THE PUBLIC AND OURSELVES, ALL
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OF DATA, STATEMENTS, CONCLUSIONS OR ABSTRACTS FROM OR REGARDING OUR
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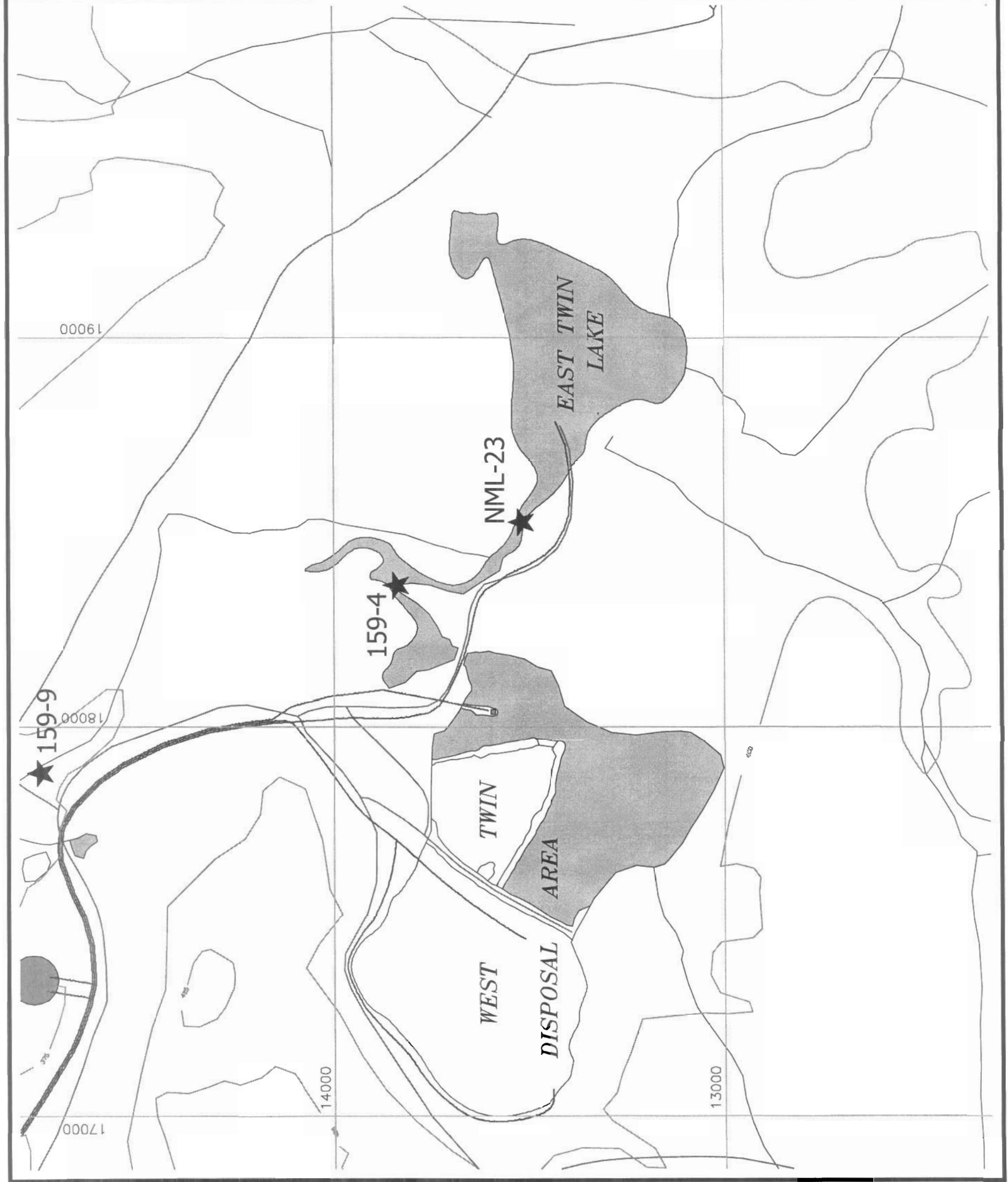
REV.	DATE	REVISION NOTES	DRAWN	CHECKED	APPROVED

SCALE:	AS SHOWN
DATE:	MAR 2004
DRAWN:	CJT
DESIGNED:	GKC
CHECKED:	JWC
APPROVED:	JWC

PROJECT			WEST TWIN DISPOSAL AREA CLOSURE PLAN		
TITLE			CLOSURE PERIOD		
			GEOTECHNICAL MONITORING INSTRUMENTATION		
PROJECT No.		DWG No.		REV.	
0255-008-09		26		0	

**BGC ENGINEERING INC.**
AN APPLIED EARTH SCIENCES COMPANY

Calgary, AB Phone: (403) 250 5185



CLIENT: NANISIVIK MINE
A DIVISION OF CANZINCO LTD.

LEGEND

- ROAD
- GROUND CONTOUR
(50 m INTERVAL)
- SHORELINE, DRAINAGE, STREAMS
- INTERMITTENT DRAINAGE
- PIPELINE
- ★ WATER SAMPLING LOCATION

NOTE:
1. DRAWING DERIVED FROM FIGURE 2 IN
NANISIVIK MINE RECLAMATION AND CLOSURE
MONITORING PLAN.

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REPORTS AND DRAWINGS IS RESERVED PENDING OUR WRITTEN APPROVAL.

REV.	DATE	REVISION NOTES	DRAWN	CHECKED	APPROVED

SCALE:	AS SHOWN
DATE:	MAR 2004
DRAWN:	CJT
DESIGNED:	GKC
CHECKED:	JWC
APPROVED:	JWC

PROJECT	WEST TWIN DISPOSAL AREA CLOSURE PLAN		
TITLE	WEST TWIN DISPOSAL AREA WATER QUALITY MONITORING STATIONS		
PROJECT No.	DWG No.	REV.	
0255-008-09	27	0	

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