

EL. 112.28
TOP OF PROPOSED DAM WALL

EL. 111.33
MAX. WATER ELEVATION ±
(TOP OF PROPOSED SPILLWAY)

EL. 110.28
TOP OF EXISTING DAM WALL

EXISTING TEMPERATURE
STEEL 15M @ 300 O.C. VERT.
15M @ 300 O.C. HORZ.

1500
1995
ADDITION

EL. 109.33
MAX. WATER ELEVATION ±
(TOP OF EXIST. SPILLWAY)

EL. 108.78m
TOP OF DAM WALL - 1985

EL. 107.88m
TOP OF ORIGINAL DAM WALL

900
1985
ADDITION

EXISTING TEMPERATURE STEEL
15M @ 200 O.C. VERT.
15M @ 300 O.C. HORZ.

EXISTING 15M DWLS. X
1050 LG. MATCHING VERT.
REINF. EMBEDDED 450 INTO
EXIST. CONC.

EXISTING 35M @ 300
O.C., E.W.

EXISTING 15M DWLS. X 750
LG. DRILLED AND GROUTED
INTO CONC. @ 500 O.C.

FUTURE EXTENSION

GROUT FILL AS REQUIRED
FOR BEARING SEAT

NEW ROCK ANCHORING @
2600± ON CENTRE.
SEE PLAN RA1 FOR LOCATIONS

DOWNSTREAM

UPSTREAM

DOWNSTREAM

UPSTREAM

LAKE
GERALDINE

LAKE
GERALDINE

CUT POST-TENSIONING
ANCHORAGE POCKET IN
EXISTING CONCRETE AND
GROUT FILL AS REQUIRED
FOR BEARING AND FOR
INFILL OF POCKET ON
COMPLETION

NOTE:
ROCK ANCHORING TO BE
COMPLETED PRIOR TO
COMMENCEMENT OF REINFORCED
CONCRETE EXTENSION PLACEMENT

NOTE: VERTICAL ALIGNMENT
TO BE CONFIRMED WITH
SURVEY EQUIPMENT PRIOR TO
ROCK ANCHOR PLACEMENT.
DEVIATIONS FROM
ACCEPTABLE RANGE TO BE
REPORTED TO ENGINEER
BEFORE PLACEMENT OF ROCK
ANCHORS. FINAL ANCHOR
ALIGNMENT TO BE RECORDED
ON RECORD DRAWINGS.

EXISTING ROCK ANCHORS.
SEE DRAWING RA1 FOR
SPACING

TYPE RA-B
NEW ROCK ANCHORS TO BE DESIGNED FOR
SERVICE LOAD FOR SHEAR OF 358 kN/m.
SEE GENERAL NOTES OPTION - 4.0m
LONG, 46mm Ø, GRADE 835/1030 MPa
ANCHORS, 2m INTO ROCK OR APPROVED
EQUAL.

NEW ROCK ANCHORING @ 2600± ON CENTRE.
SEE PLAN RA1 FOR LOCATIONS

HATCHING INDICATES STAGED GROUTING
PROCEDURE. SEE NOTES ON DWG. RA2
FOR PROCEDURE FOR ROCK ANCHOR
INSTALLATION

ROCK ELEVATION VARIES.
REFER TO SITE PLAN FOR
EXACT ELEVATIONS AND TO
DETERMINE HEIGHT OF DAM.

TYPE RA-A
NEW ROCK ANCHORS TO BE DESIGNED FOR
SERVICE LOAD OF 403 kN/m. OPTION - 17m
LONG, 46mm Ø, GRADE 835/1030 MPa
ANCHORS, 9.5m INTO ROCK OR APPROVED EQUAL

THE FOLLOWING PROCEDURE SHALL BE USED FOR ALL ROCK ANCHORS.

1. PRE-TENSION ANCHOR TO ACHIEVE SERVICE LOAD OF 403 kN PER METRE LENGTH OF DAM.
2. GROUT ANCHOR IN ROCK ONLY AND ALLOW TO SET.
3. RELIEVE PRE-TENSION LOAD AT TOP END OF ANCHOR.
4. GROUT BALANCE OF LENGTH OF ANCHOR IN CONCRETE DAM.

EXISTING CONCRETE GRAVITY SECTION
OF THE DAM
SCALE 1 : 25

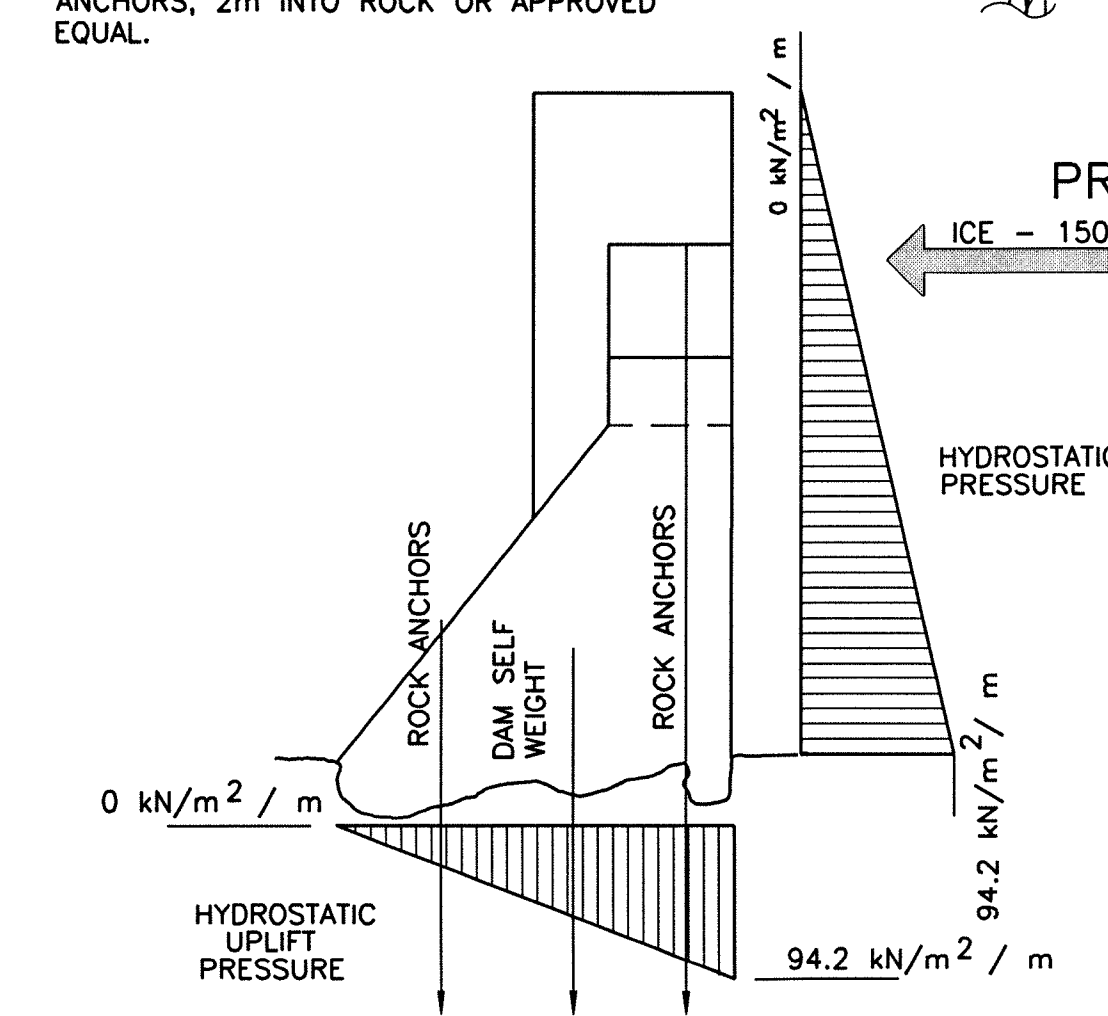
NOTE:
"ORIGINAL DAM AND 1985 ADDITION DIMENSIONS" REPRODUCED
FROM DRAWINGS 84-4428-1, 84-4428-2 AND 88-4428-3
DATED 3 MARCH 1986. "1995 ADDITION" DIMENSIONS REPRODUCED
FROM DRAWINGS 95-10047-1-2, 94-10047-1-3 &
94-10047-1-4 DATED 19 NOVEMBER 1996 PREPARED BY OLIVER
MANGIONE McCALLA & ASSOCIATES LTD. CONTRACTOR TO VERIFY
ACCURACY OF DIMENSIONS ON SITE AND REPORT ANY
DISCREPANCIES TO ENGINEER BEFORE PROCEEDING WITH WORK.

SECTION "B-B"
SCALE 1 : 25
PROPOSED CONCRETE GRAVITY SECTION
OF THE DAM
SCALE 1 : 25

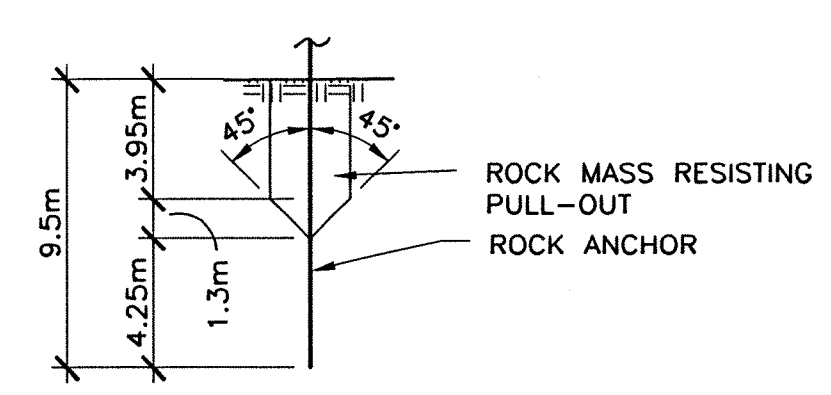
FACTORS OF SAFETY
OVERTURNING 1.5
SLIDING 2.0

WHERE $F.S. (SLIDING) = \frac{\tan 40^\circ (R_v) + \text{SHEAR CAPACITY OF ANCHORS}}{R_h}$

R_v = RESULTANT OF VERTICAL LOADS (kN) (NOT SHOWN)
 R_h = RESULTANT OF HORIZONTAL LOADS (kN) (NOT SHOWN)



FREE BODY DIAGRAM OF SERVICE LOADS



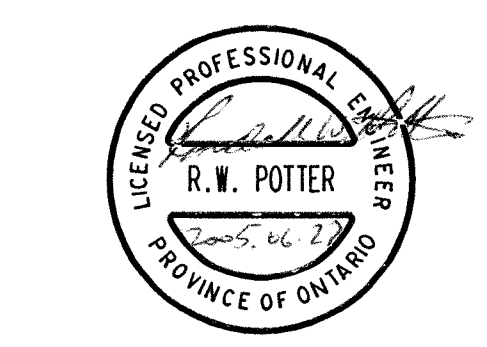
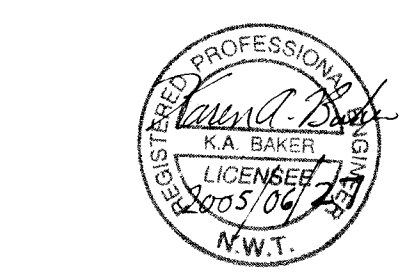
ROCK CONE MASS FOR PULLOUT BASED ON
AND INCLUDES FOR REDUCED ROCK
VOLUME FOR INTERACTION OF ANCHORS

ISSUED FOR ROCK ANCHOR
TENDER

0
16/06/05
KAB

REVISIONS

NOTES: GENERAL CONTRACTOR TO VERIFY ALL DIMENSIONS
WITH FINAL ARCHITECTURAL AND MECHANICAL DRAWINGS.
NOTIFY THE ENGINEERS OF ANY ERRORS AND / OR OMISSIONS
PRIOR TO CONSTRUCTION FOR DIRECTION.
DO NOT SCALE THIS DRAWING.



PERMIT TO PRACTICE
TROW ASSOCIATES INC.
Signature: *R.W. Potter*
Date: June 27, 2005
PERMIT NUMBER: P184
The Association of Professional Engineers,
Geologists and Geophysicists of the NWT/NU

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CITY OF IQALUIT

PROJECT
LAKE GERALDINE DAM
ROCK ANCHORS - 2005

SECTIONS AND DETAILS

Design by: K.A.B.
Drawn by: M.N.
Checked by: R.W.P.
Date: MAY 2005
Scale: AS NOTED

Project no.: OTB500017616C
Drawing no.: RA3
Revision no.: 0