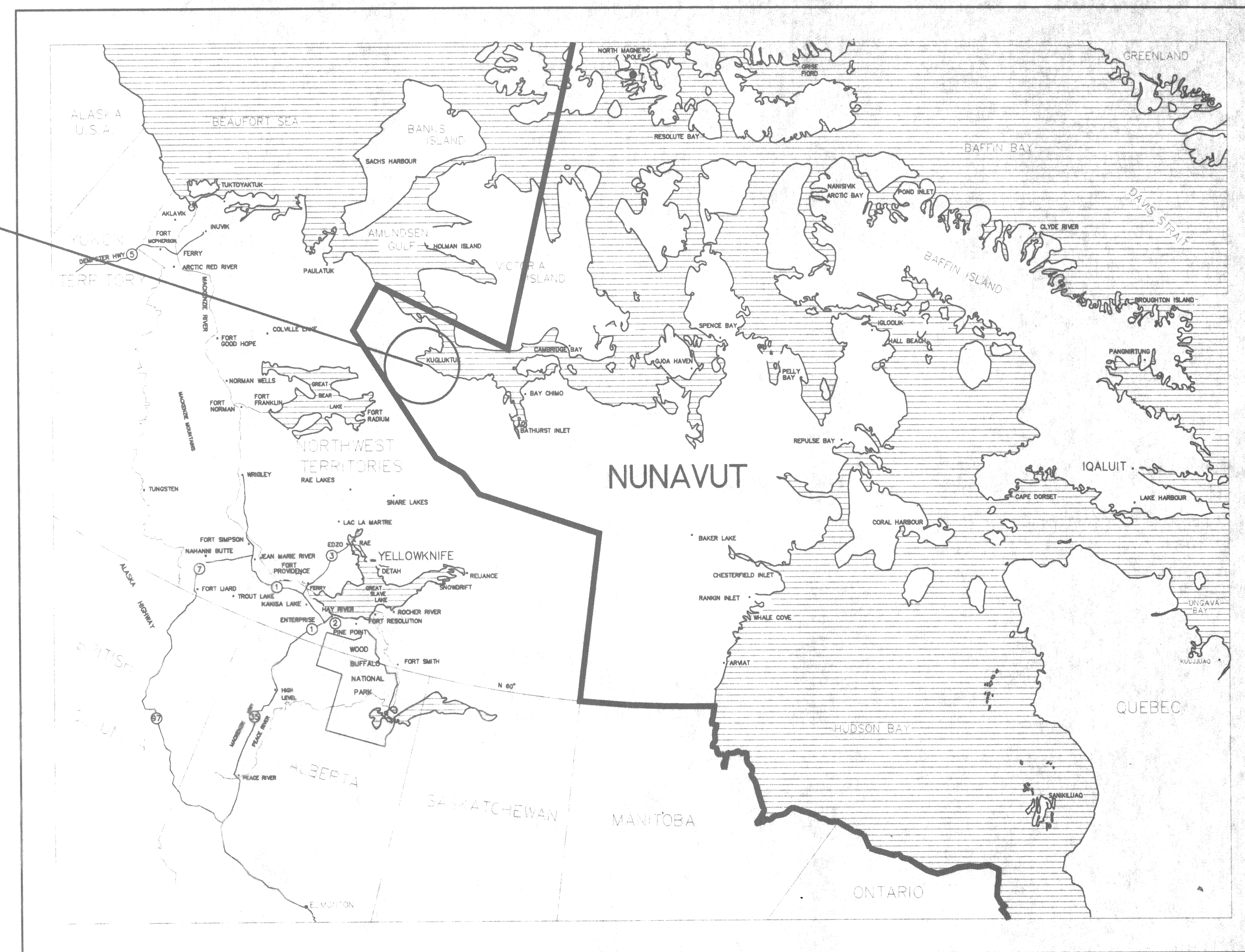




KUGLUKTUK



KUGLUKTUK, NUNAVUT REALIGN WATER SUPPLY LINE WATER SUPPLY SYTSTEM FINAL TENDER DRAWINGS

MAY, 2002

FSC **FERGUSON SIMEK CLARK**
ENGINEERS AND ARCHITECTS
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Tel. (867) 979-0555
WEB PAGE <http://www.fsc.ca>

LIST OF DRAWINGS

CIVIL

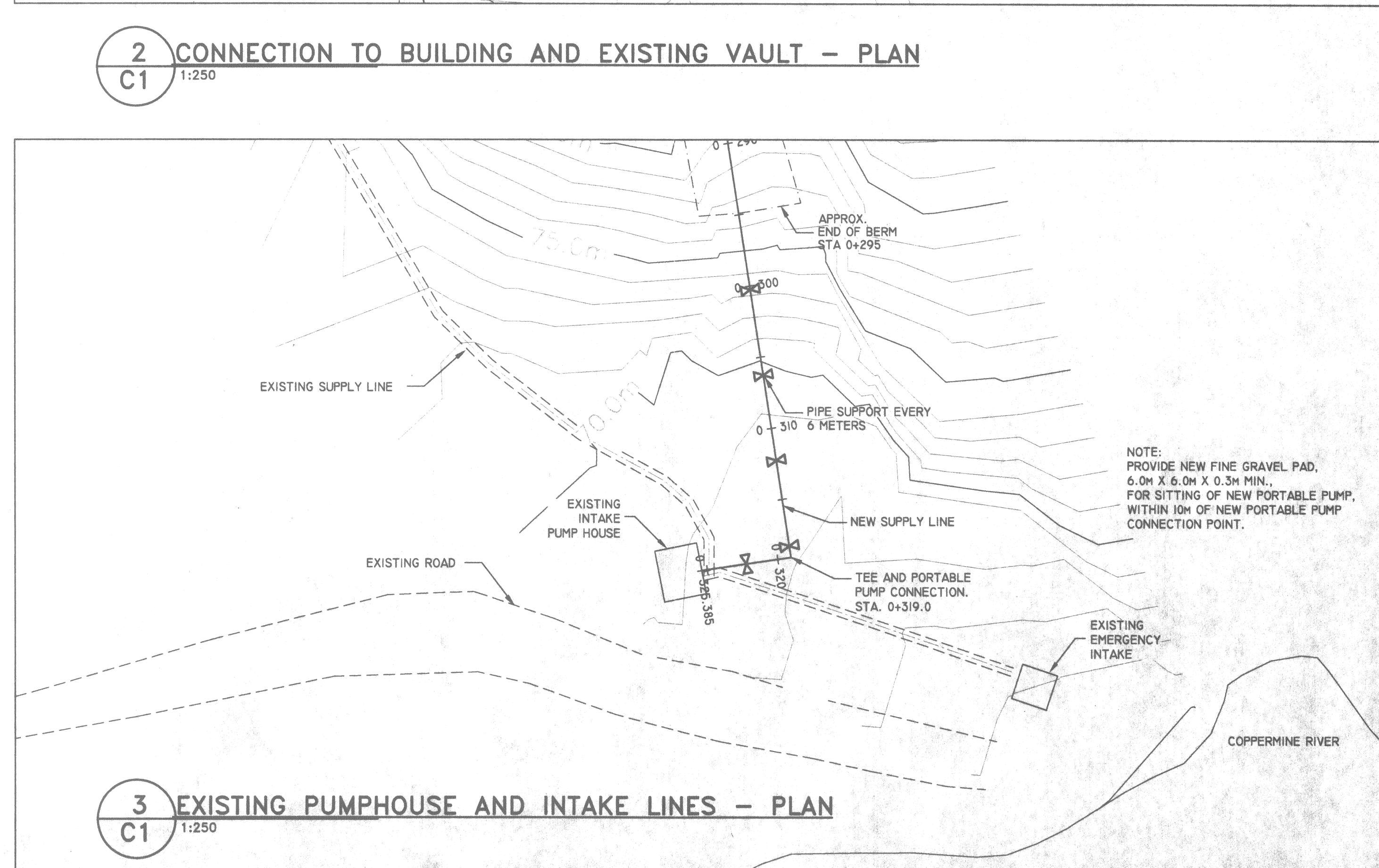
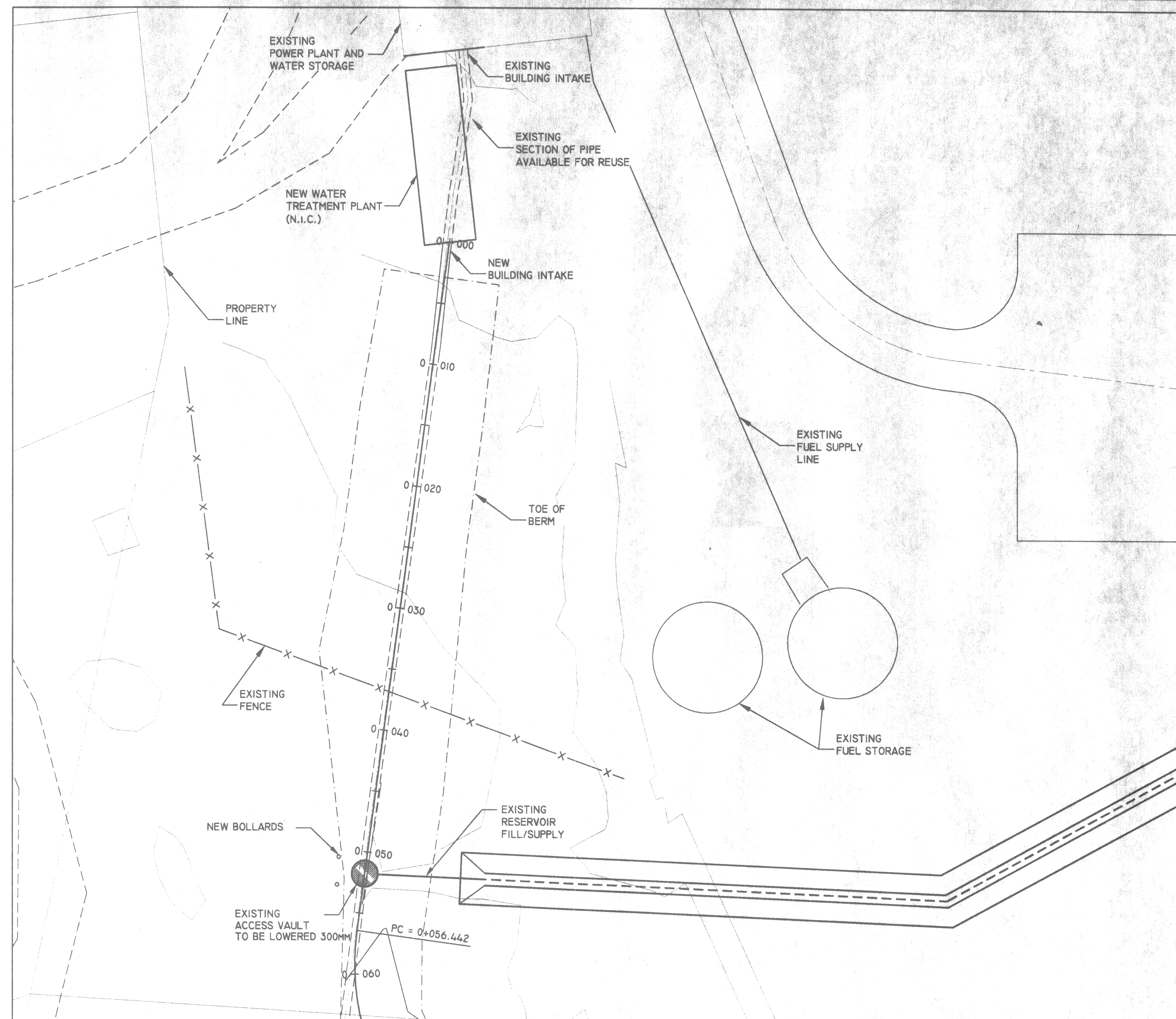
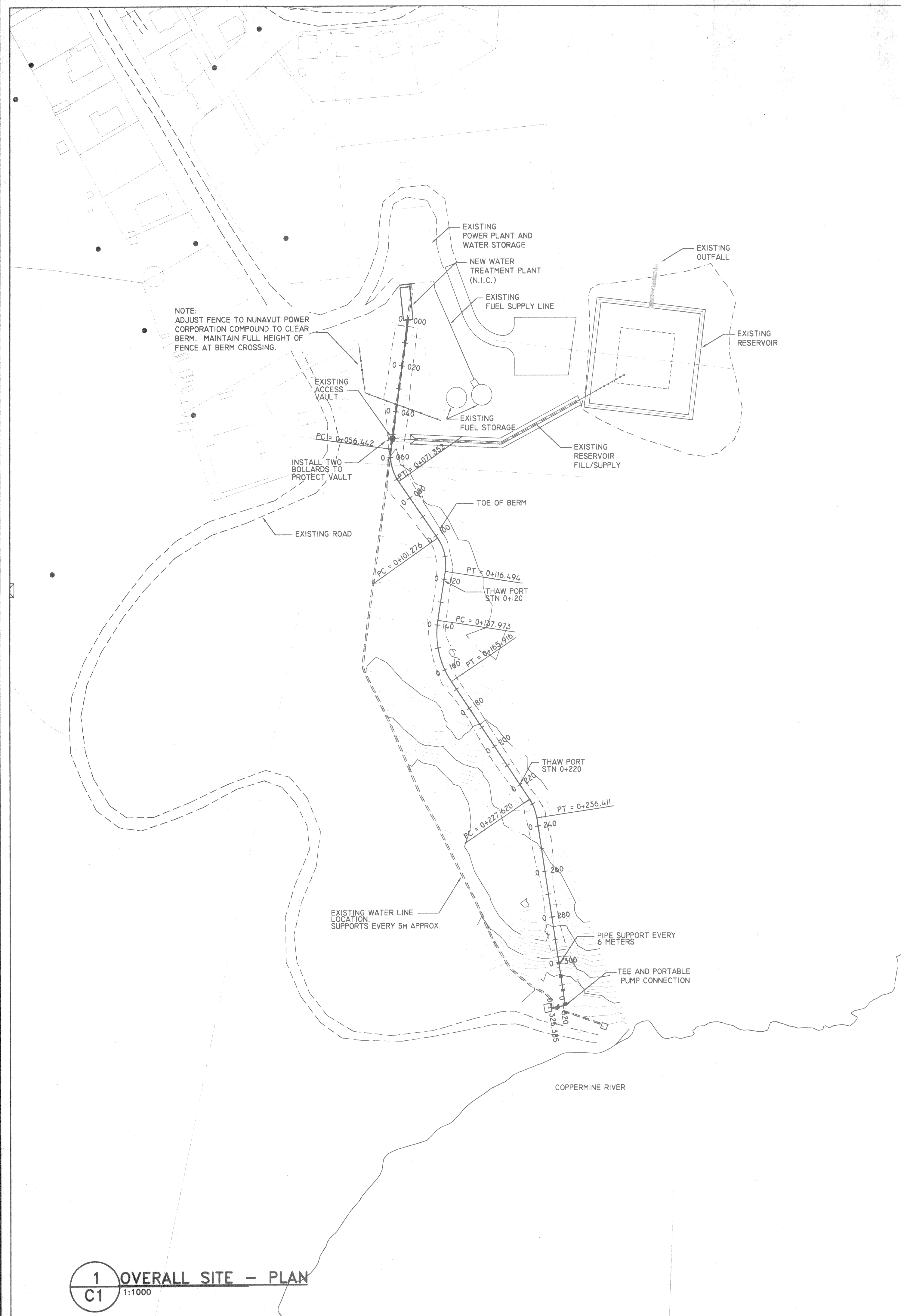
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|--|----|
| 1. PROPOSED ALIGNMENT LAYOUT AND SITE PLAN | C1 |
| 2. WATER SUPPLY LINE ALIGNMENT CHANGE | C2 |
| 3. DETAILS - ONE | C3 |
| 4. DETAILS - TWO | C4 |
| 5. ACCESS VAULT DETAILS | C5 |

ELECTRICAL

- | | |
|--|----|
| 6. ELECTRICAL SITE PLAN | E1 |
| 7. ELECTRICAL SITE PLAN AND HEAT TRACE DETAILS | E2 |

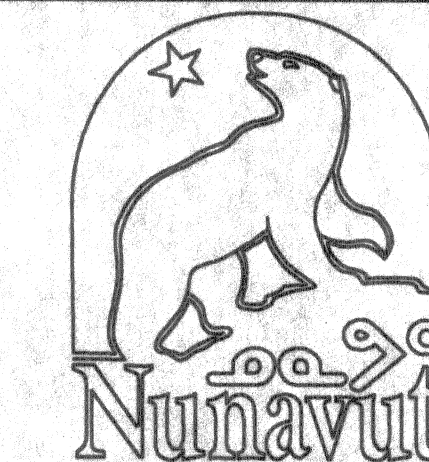
TENDER SET
No. _____

F.S.C. PROJECT NO: 97-0170
BILLING GROUP NO: 052



NOTE:
1. ELEVATIONS SHOWN ARE DERIVED FROM ASSUMED 100.00 ELEVATION ON SURVEY MONUMENT # 5018703 FOUND NEAR TRUCKFILL STATION.
2. CONTOURS AT 1.0 METRE INTERVAL.

5	ISSUED FOR FINAL TENDER	MAY 2002	
4	ISSUED FOR RE-TENDER REVIEW	FEB 2002	
3	RE-ISSUED FOR TENDER	MARCH 2001	
2	ISSUED FOR TENDER	JULY 2000	
1	60% REVIEW	JULY 2000	14
0	CONCEPTUAL	JUNE 2000	
NO	REVISION	DATE	BY APP'D

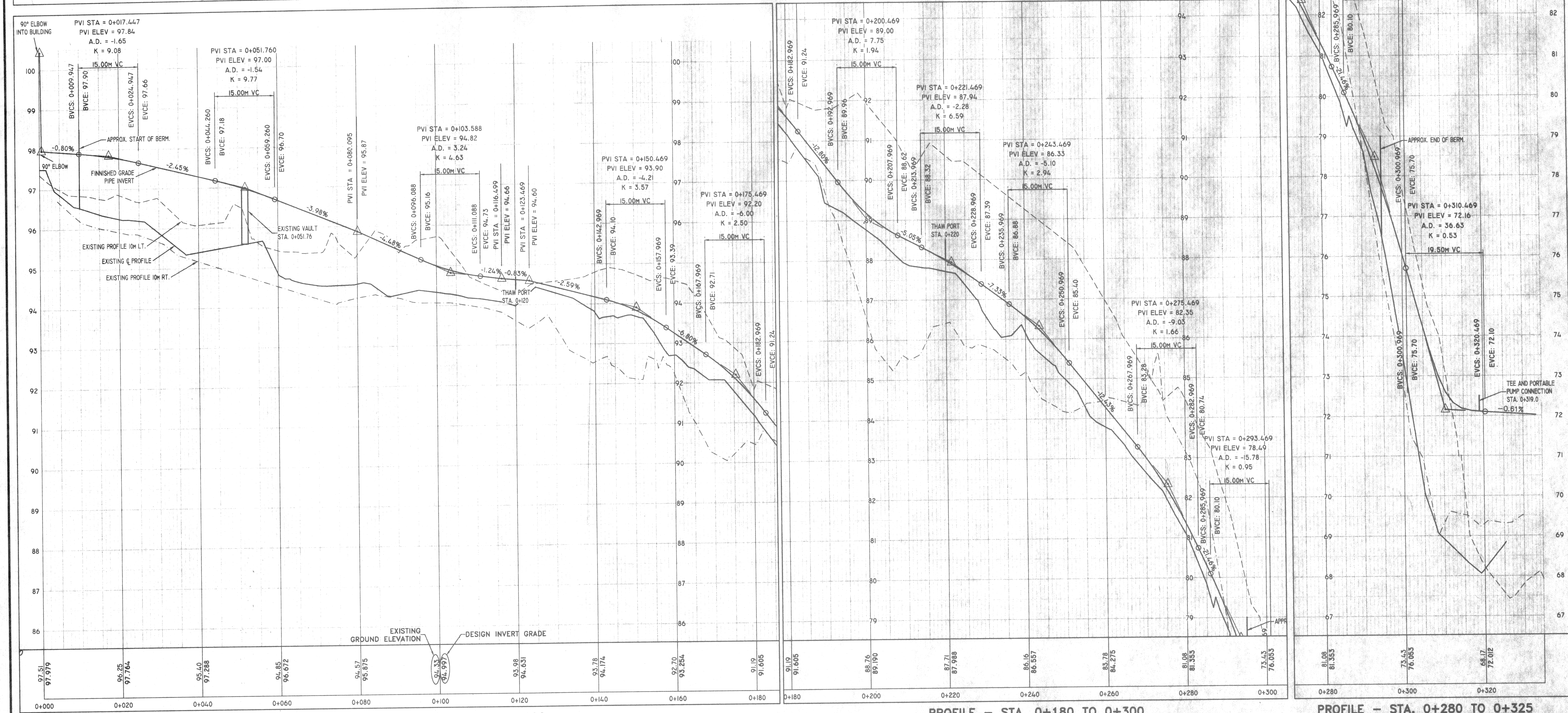
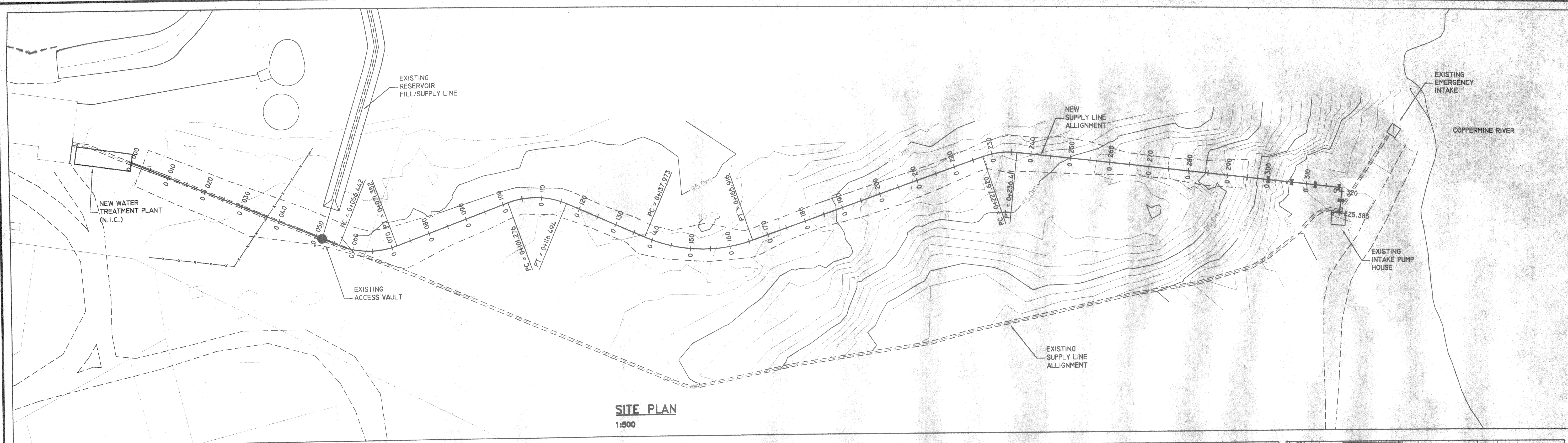


JOB TITLE
REALIGN WATER SUPPLY LINE WATER SUPPLY SYSTEM

KUGLUKTUK, NT.

DRAWING TITLE
PROPOSED ALIGNMENT LAYOUT AND SITE PLAN

DESIGNED BY W.O.	SCALE AS SHOWN
DRAWN BY K.K./W.M./R.W.	DATE MAY 31, 2002
CHECKED BY W.O./K.H.	CLIENT PROJECT NO.
F.S.E. FILE NO. C1C2.DWG	F.S.C. JOB NO. 97-0170
SHEET	DRAWING NO.



NOTE:
1. ELEVATIONS SHOWN ARE DERIVED FROM ASSUMED 100.00 ELEVATION ON SURVEY MONUMENT # 5018703 FOUND NEAR TRUCKFILL STATION.
2. CONTOURS AT 1.0 METRE INTERVAL.

5	ISSUED FOR FINAL TENDER	MAY 2002
4	ISSUED FOR RE-TENDER REVIEW	FEB 2002
3	RE-ISSUED FOR TENDER	MARCH 2001
2	ISSUED FOR TENDER	JULY 2000
1	60% REVIEW	JULY 14 2000
0	CONCEPTUAL	JUNE 2000

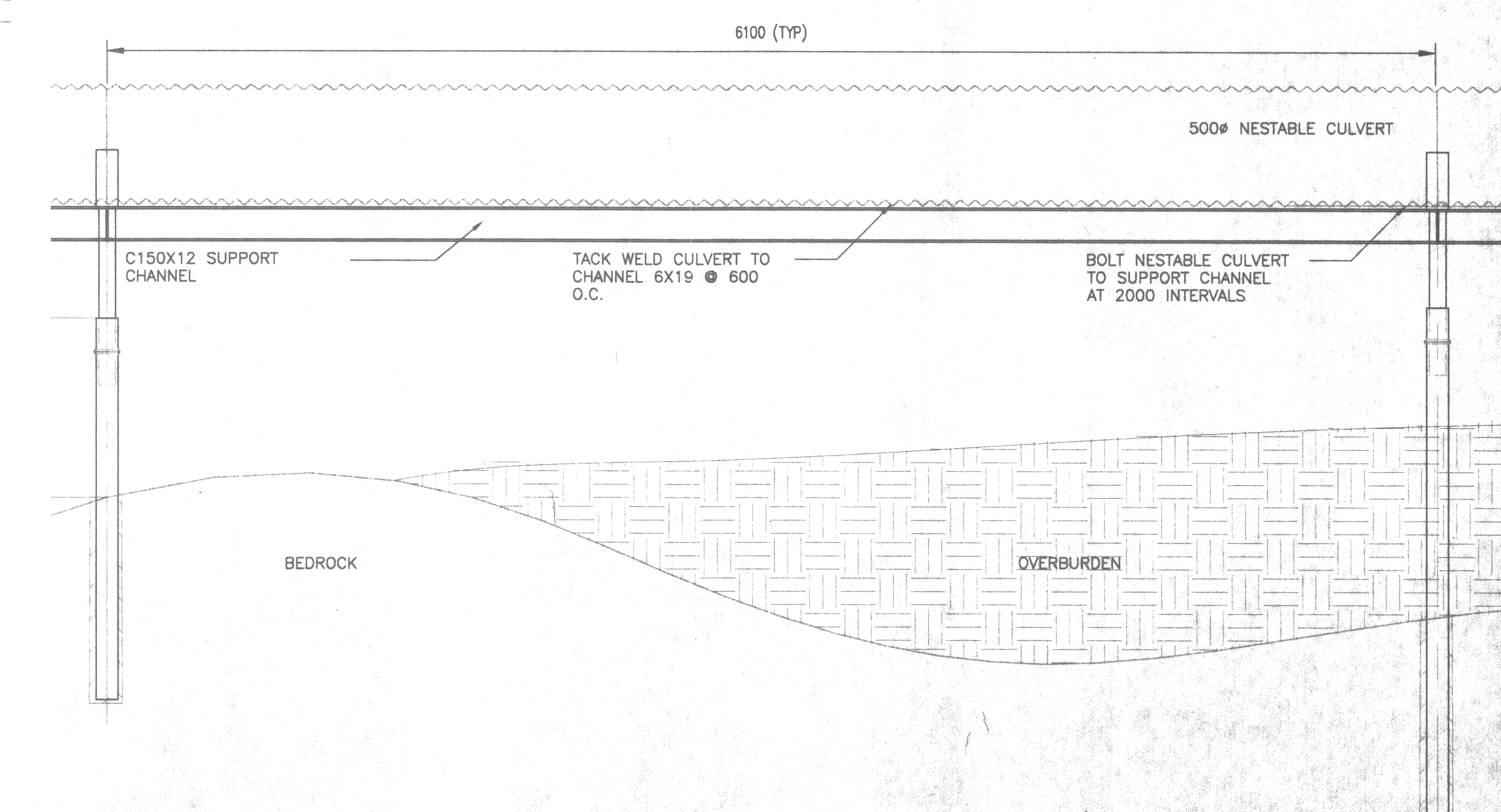
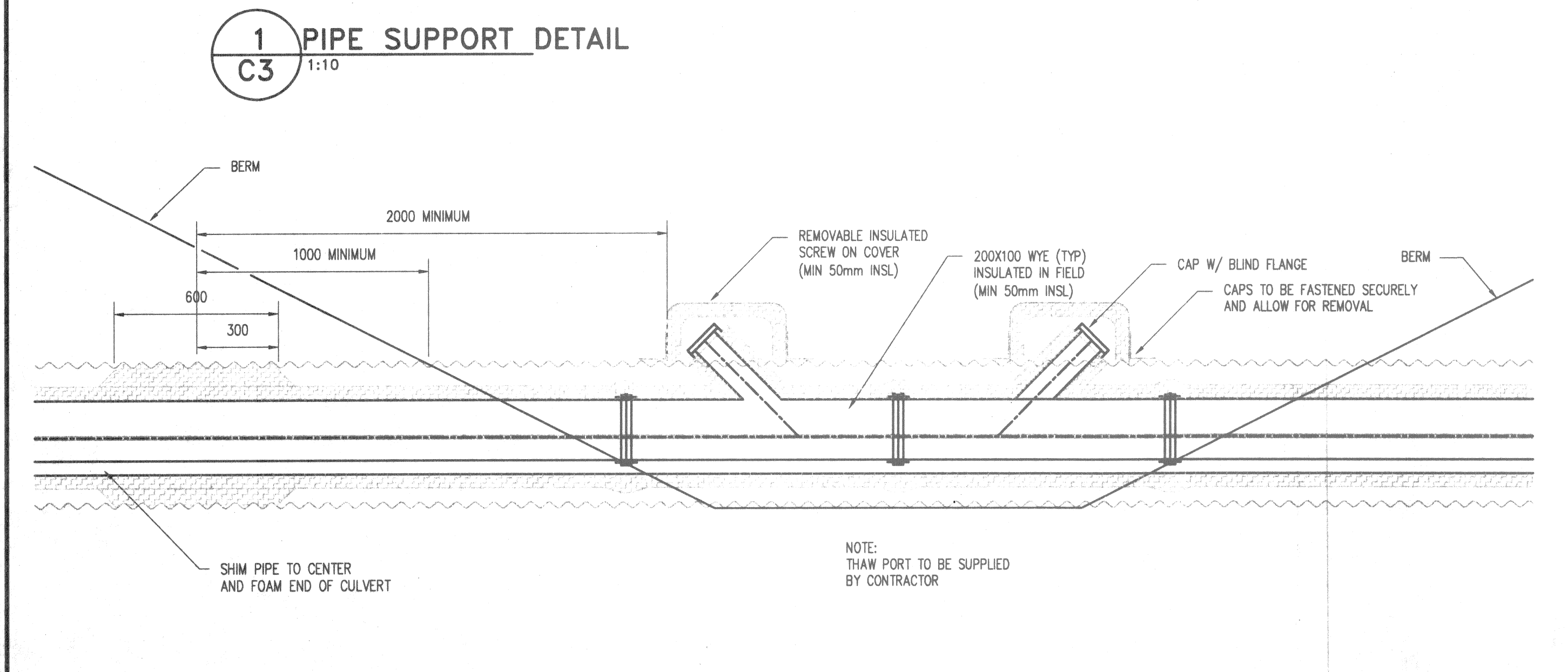
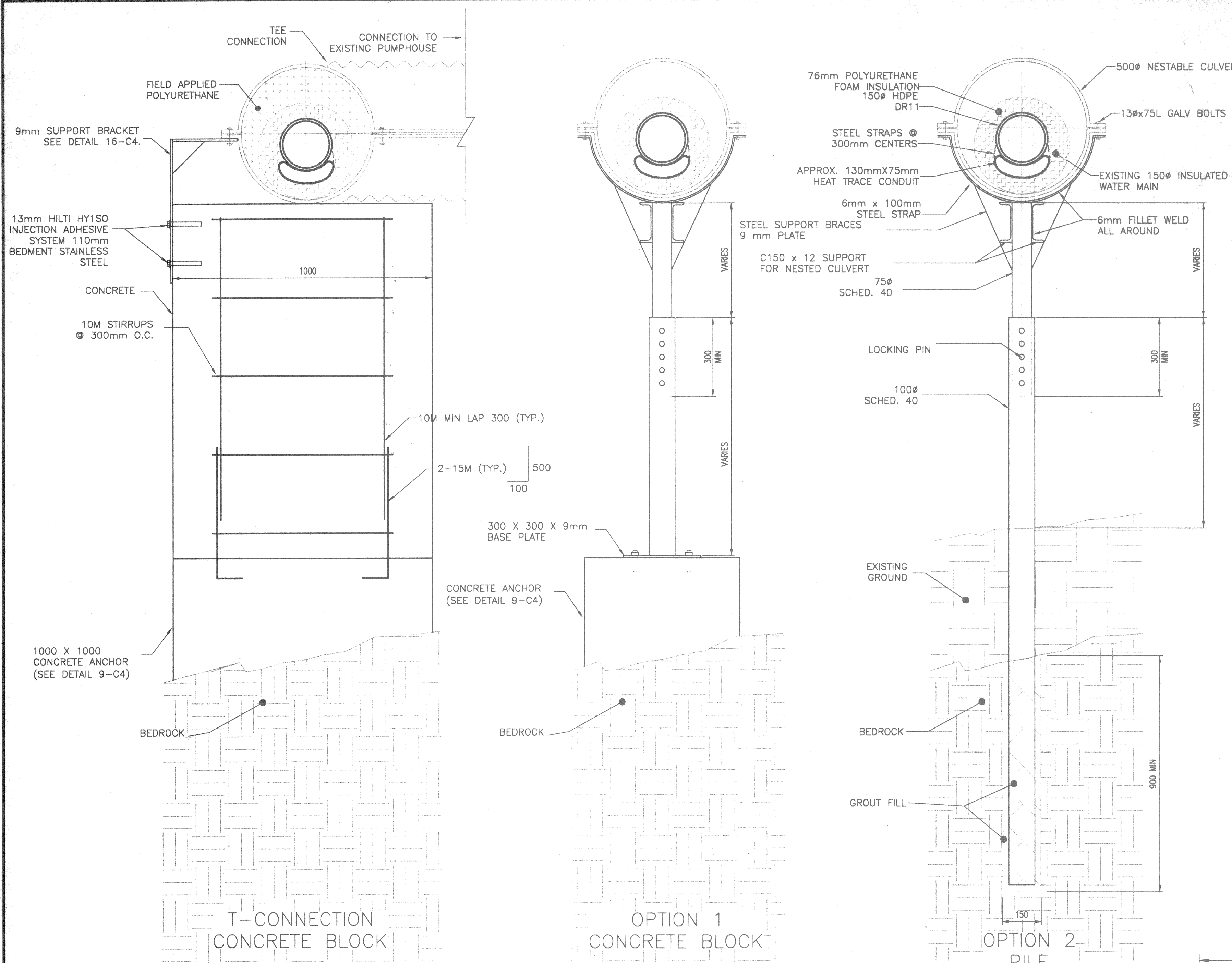


REALIGN WATER SUPPLY LINE WATER SUPPLY SYSTEM

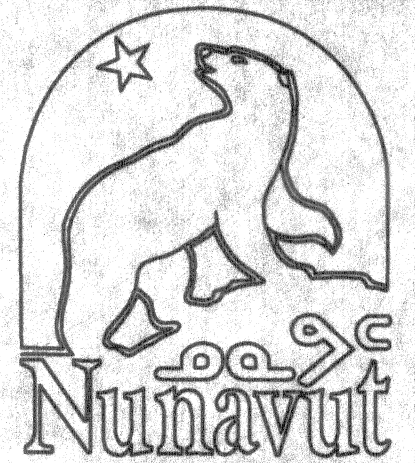
KUGLUKTUK, NT.

PROPOSED ALIGNMENT PLAN / PROFILE

DESIGNED BY W.O.	SCALE h=1:500/v=1:50
DRAWN BY K.K./W.M./R.W.	DATE MAY 31, 2002
CHECKED BY W.O./K.H.	CLIENT PROJECT NO.
F.S.C. FILE NO. C1C2.DWG	F.S.C. JOB NO. 97-0170
SHEET	DRAWING NO.



5	ISSUED FOR FINAL TENDER	MAY 2002	
4	ISSUED FOR RE-TENDER REVIEW	FEB 2002	
3	RE-ISSUED FOR TENDER	MARCH 2001	
2	ISSUED FOR TENDER	JULY 2000	
1	60% REVIEW	JULY 2000	14
0	CONCEPTUAL	JUNE 2000	
NO	REVISION	DATE	BY / APP'D

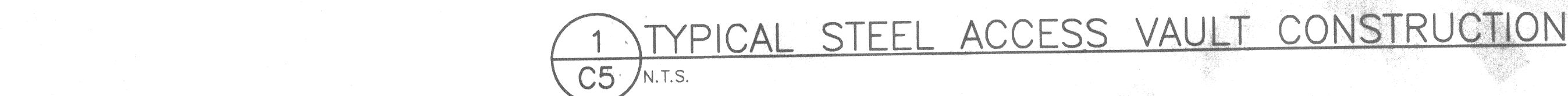


JOB TITLE
REALIGN WATER SUPPLY LINE WATER SUPPLY SYSTEM

KUGLUKTUK NT.

DRAWING TITLE
DETAILS - ONE

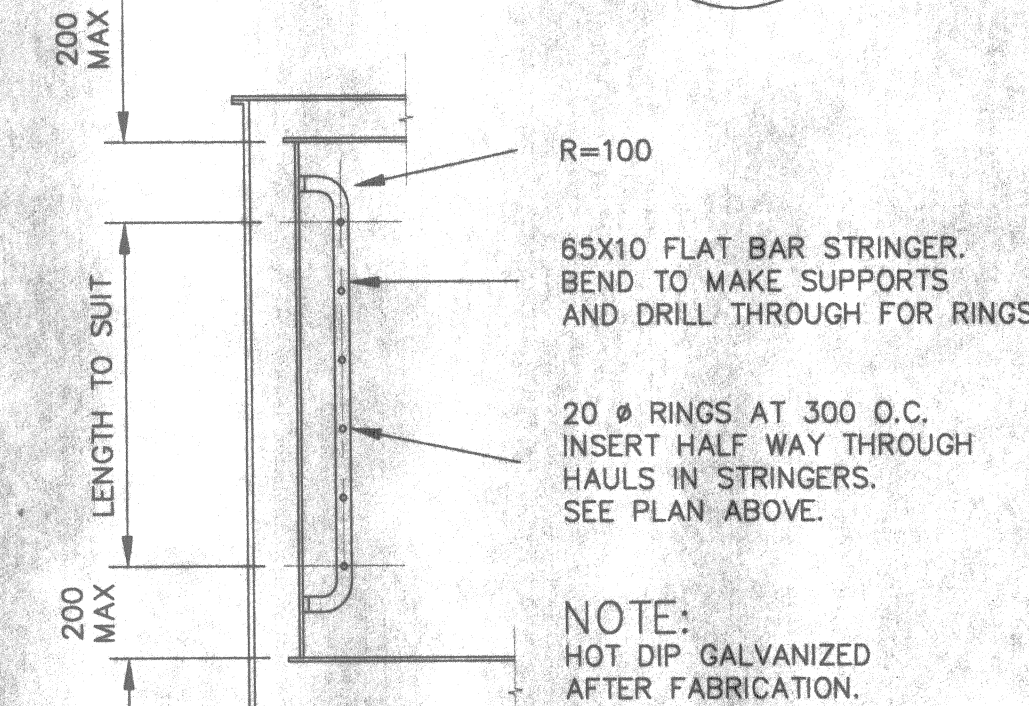
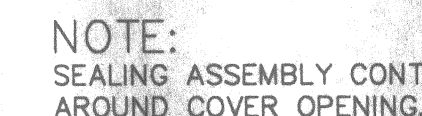
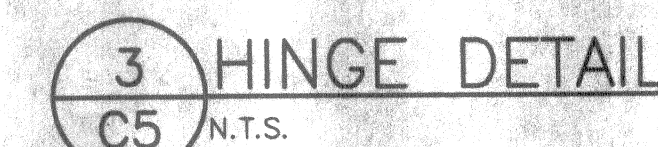
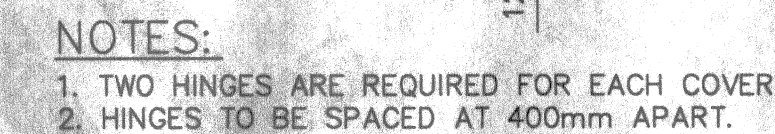
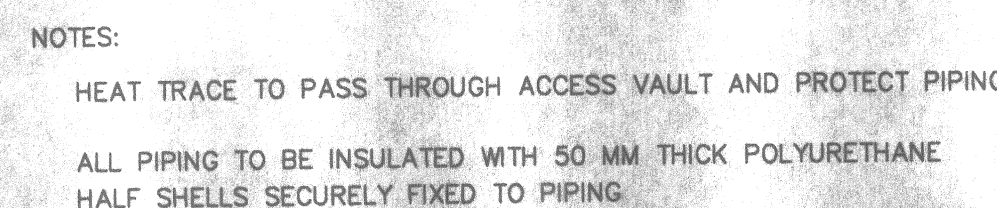
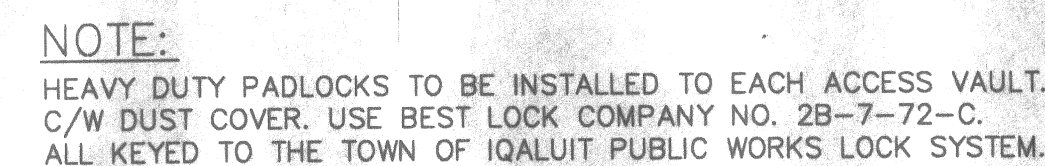
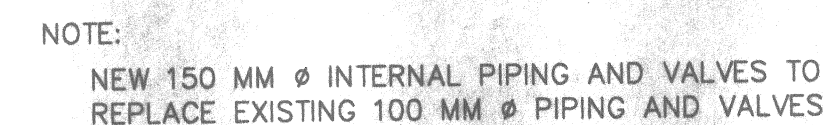
DESIGNED BY WO	SCALE AS SHOWN
DRAWN BY K/K/RW	DATE MAY 31, 2002
CHECKED BY WO	CLIENT PROJECT NO.
F.S.C. FILE NO. C3C4.DWG	F.S.C. JOB NO. 97-0170
SHEET 3	DRAWING NO. C-3



- 1) 12 mm $\varnothing$ Galvanized steel bolts, nuts and washers @ 210 mm equal spacing.
- 2) Hasp assembly.
- 3) 50 mm x 60 mm x 12 mm steel hinge base plate welded to access vault top.
- 4) 19 mm x 38 mm 35 Durometer soft natural rubber strip (reversible) gasket to achieve airtight & waterproof seal all around.
- 5) Lifting eye 12 mm $\varnothing$ Steel dia. Steel x 40 mm inside loop.
- 6) Polyurethane sheet insulation, 240 kPa cut to size.
- 7) 20 mm thick high density polyethylene.
- 8) Lifting lugs – two per access vault. 150 mm x 75 mm x 12 mm thk. with 38 mm $\varnothing$ lifting eye, c/w 200 x 200 x 12 steel reinforcing plate curved to radius, continuously welded.
- 9) 65 mm $\varnothing$ Threaded steel half nipple conduit sleeve (for extension cord or sump pump discharge) in appropriate location, c/w threaded galv. Steel caps.
- 10) Sprayed polyurethane insulation, 240 kPa.
- 11) Ladder. Length as required. 450 mm wide made from 65 mm x 12 mm flat bar verticals & supports with 20 mm dia. Rungs. Welded construction throughout. All edges to be ground smooth. Galvanize after fabrication. Fasten with studs welded to inner wall.
- 12) 38 mm thk Styrofoam, 4 pcs, outer edge to match item 21: – DOW Chemical HI 60 410 kPa compressive strength.
- 13) Filler piece. 10 mm thick Styrofoam insulation DOW Chemical HI 60.
- 14) 38 m thick x 2438 x 2438 Styrofoam insulation DOW Chemical HI 60.
- 15) Polyurethane sheet insulation cut to size, 240 kPa.
- 16) 10 mm thick x 2438 x 2438 square steel base plate.
- 17) 6 mm thick steel plate access vault construction.
- 18) ASA 125# cast iron (ductile) metal backup flange, cadmium plated nuts, bolts & washers, and stub end gasket.
- 19) Hot dipped galvanized steel piping.

- 20) Utilidor splice to match existing utilidor dimensions and insulation type. Splice to be bolted to existing utilidor and access vault.
- 21) 200 mm $\varnothing$ /150 mm $\varnothing$ welded steel slip-on flange.
- 22) 100 mm $\varnothing$ Flexible pipe with welded steel slip-on flanges: BSF-400-FLG
- 23) 100 mm $\varnothing$ Lug type butterfly valve complete with operator, suitable for mating to Victaulic flange(s) where applicable.
- 24) 100 mm $\varnothing$ IPS Victaulic style 07 Zero-flex coupling.
- 25) 100 mm $\varnothing$ Sched. 80 spool piece, Victaulic grooved at one end, 1034 kPa slip-on flange on other.
- 26) 100 x 100 x 100 mm $\varnothing$ Victaulic malleable iron tee.

- 1) Construct access vaults from 6 mm steel plate with continuous (fully) welded construction. Fabricate completely prior to epoxy coating. Welding & fabrication to CSA W59-1977 & W47-1-1973.
- 2) All steel to be CASA Q40-21 /Type 260W, or ASTM A36-62T.
- 3) All piping inside the access vaults is to be prefabricated to the limits shown on the typical section and as shown on the plans. Provide pipe entry spool pieces, ladder mounting studs & all other access vault hardware, etc., as required, pre-welded in place prior to sandblasting and epoxy coating.
- 4) All prefabricated steel parts of access vault (except top plate, hatch and ladder) including pipe entry spool pieces, shall be sandblasted and epoxy coated inside and outside.
- 5) Top plate, hatch, hinges & ladder, shall be hot dipped galvanized to CASA G164 minimum 610 g/m2.
- 6) All nuts, bolts, washers, screw etc., hot dipped or cadmium plated.
- 7) Flange insulation kits and styrofoam access vault base insulation supplied as part of access vaults.
- 8) All dimensions are in millimetres (mm) unless otherwise noted.



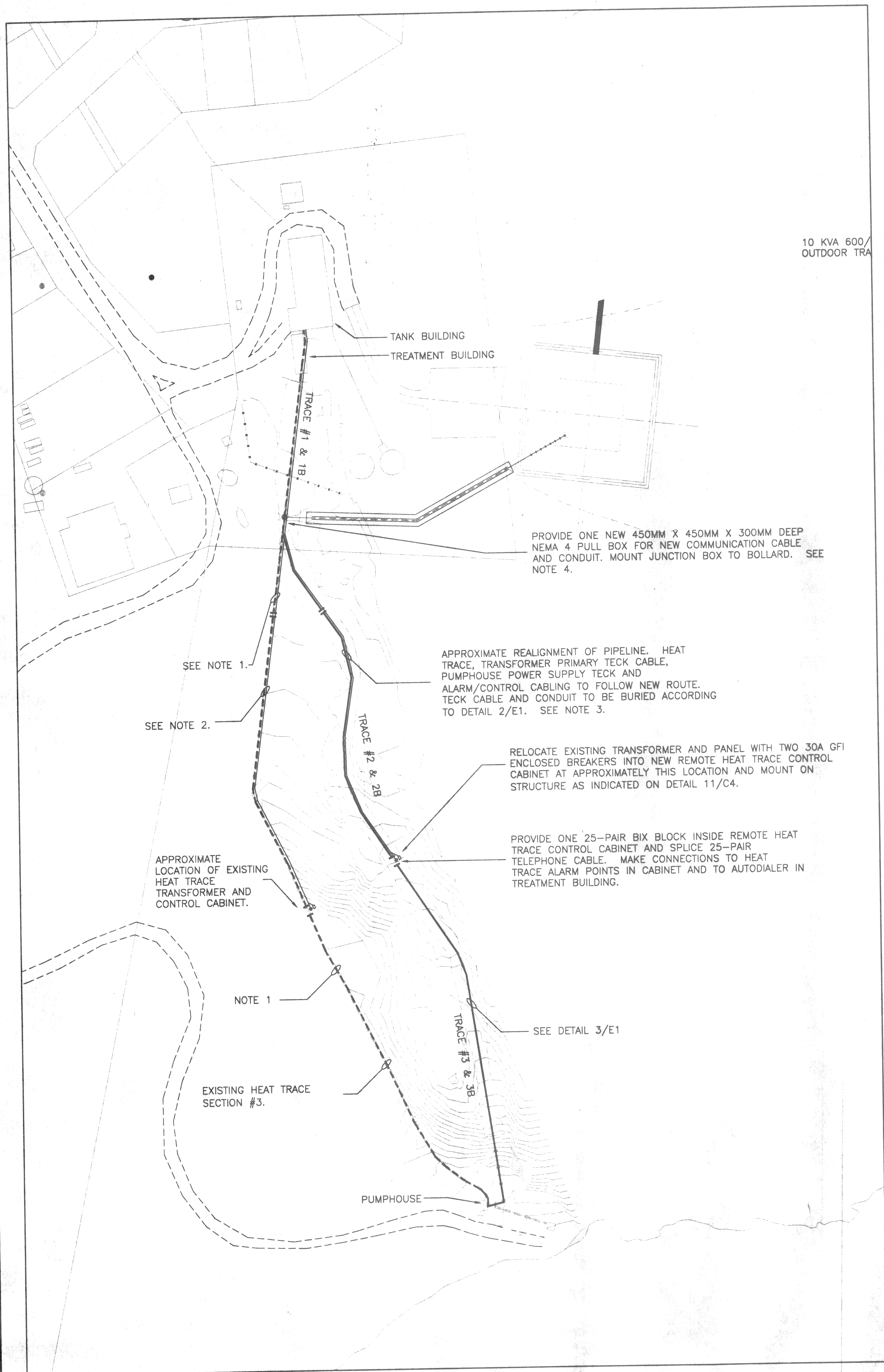
GOVERNMENT OF NUNAVUT
Public Works Telecommunications and
Technical Services
Government of Nunavut (Kitikmeot Region)
P.O. Bag 200, Cambridge Bay, NT X0E 0C0

JOB TITLE
KUGLUKTUK
WATER SUPPLY
IMPROVEMENTS

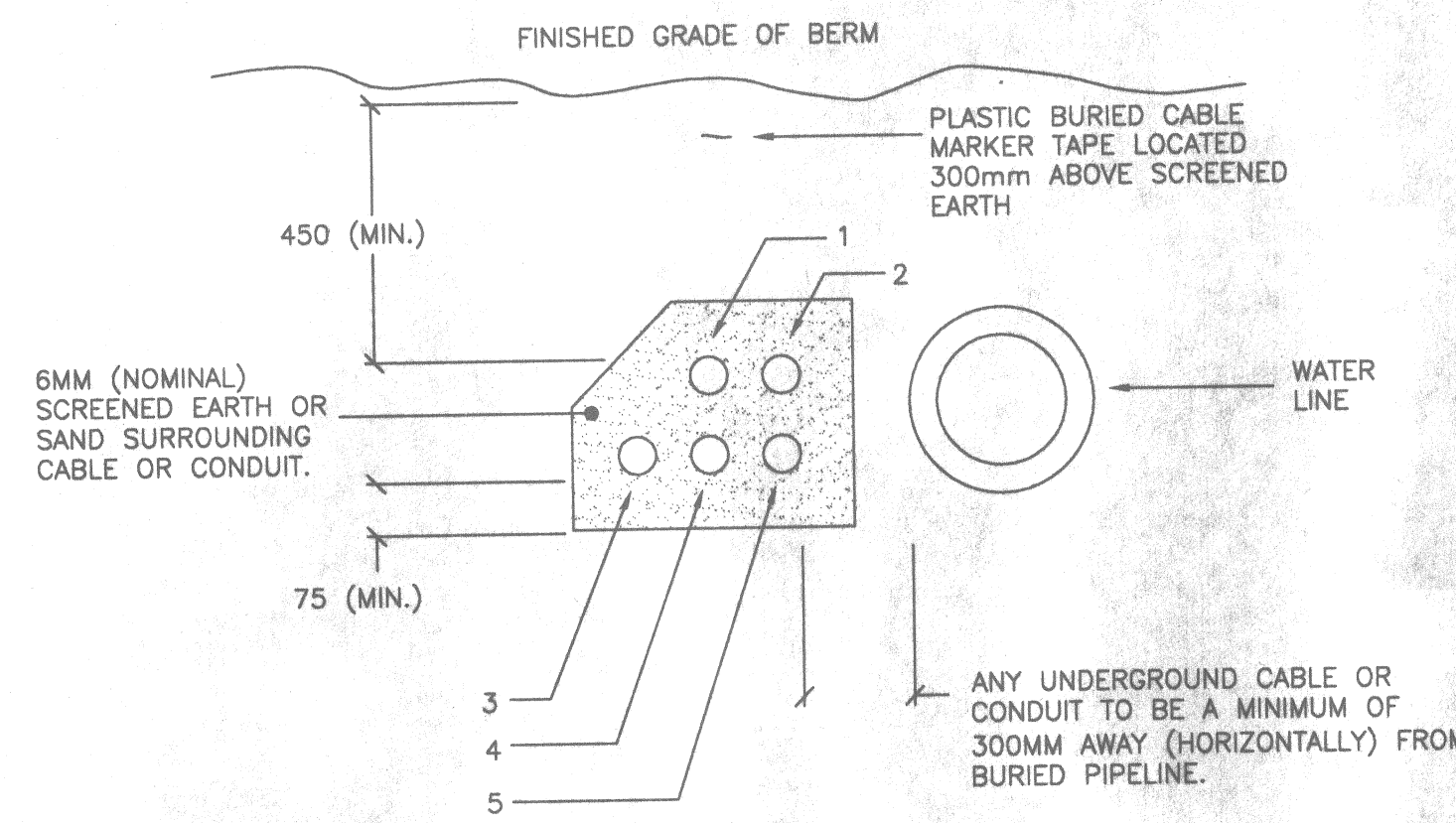
KUGLUKTUK, NT

ACCESS VAULT DETAILS

DESIGNED BY K.H.	SCALE AS SHOWN
DRAWN BY D.K.	DATE APRIL 26/99
CHECKED BY K.H.	CLIENT PROJECT NO. 6-602C
F.S.C. FILE NO. C-7.dwg	F.S.C. JOB NO. 97-0170
SHEET 5 of 7	DRAWING NO. C-5

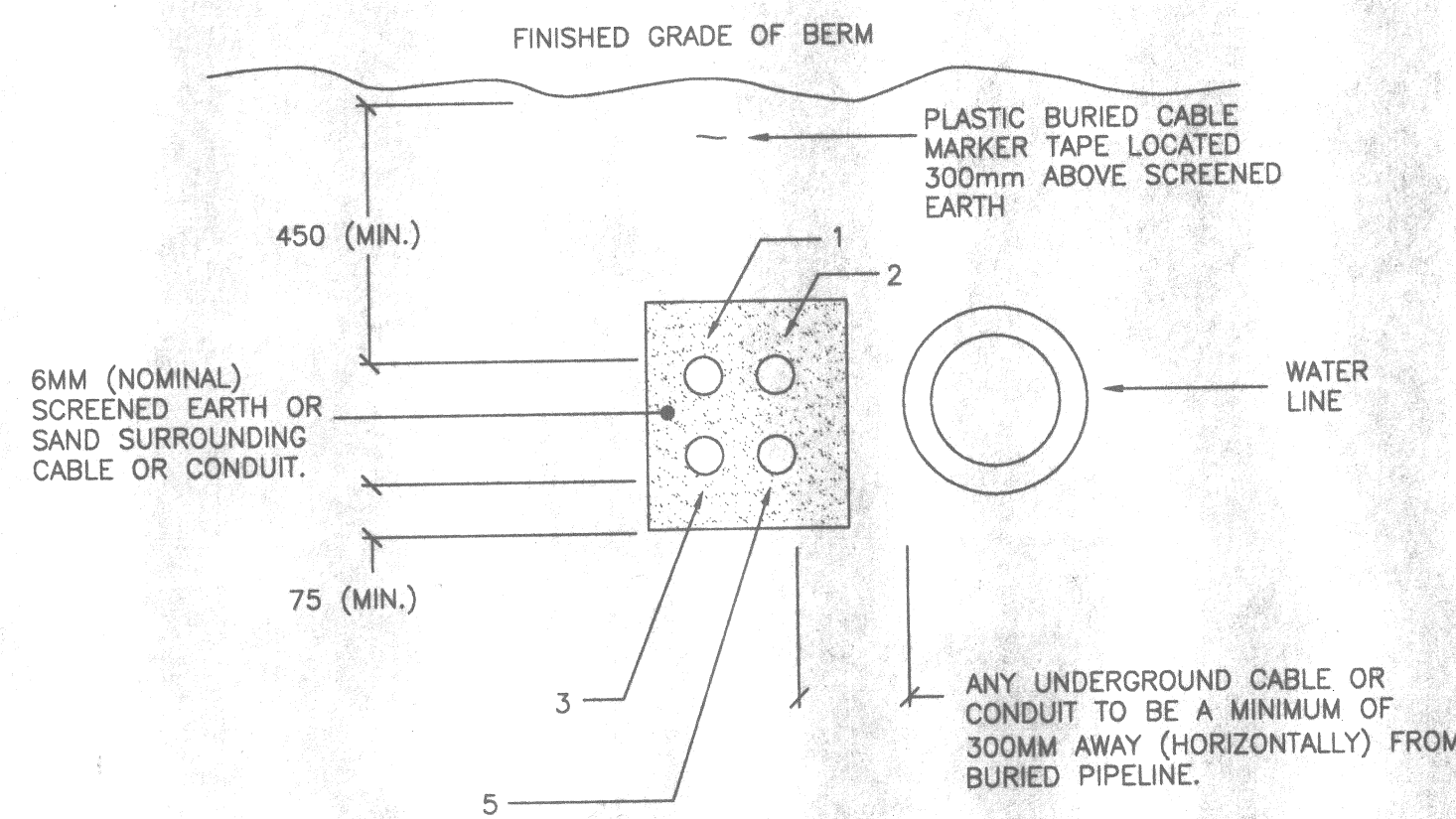


1 ELECTRICAL SITE PLAN
SCALE 1:1000



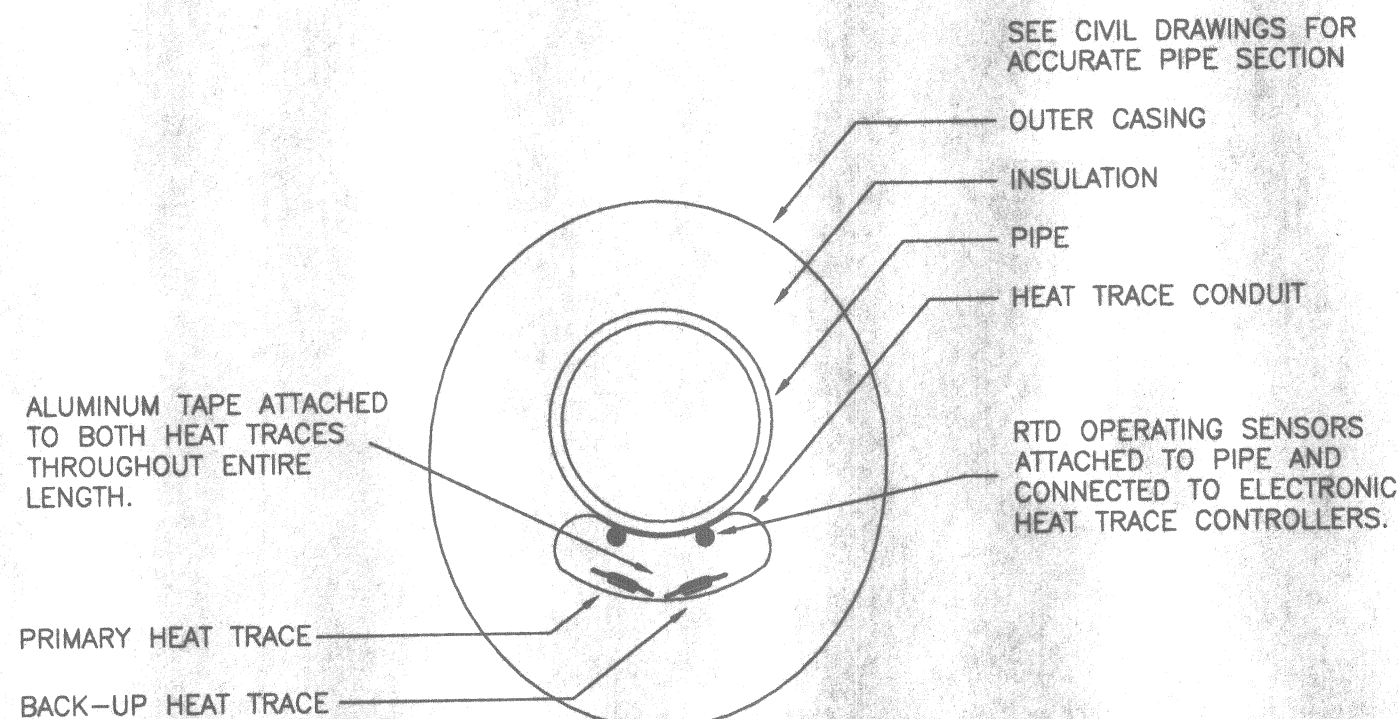
- CABLE REFERENCES:**
1. NEW 20C#14 TECK FOR ALARM & CONTROL.
 2. NEW 20C#14 TECK FOR ALARM & CONTROL.
 3. NEW 25 PAIR TELEPHONE CABLE IN 53MM SCHED 40 PVC CONDUIT FOR TELEPHONE & AUTODIALER POINTS.
 4. NEW 3C#6 TECK CABLE FOR HEAT TRACE TRANSFORMER.
 5. NEW 4C#3 TECK CABLE FOR PUMPHOUSE POWER SUPPLY.

2 CONDUIT BURIAL DETAIL
N.T.S.



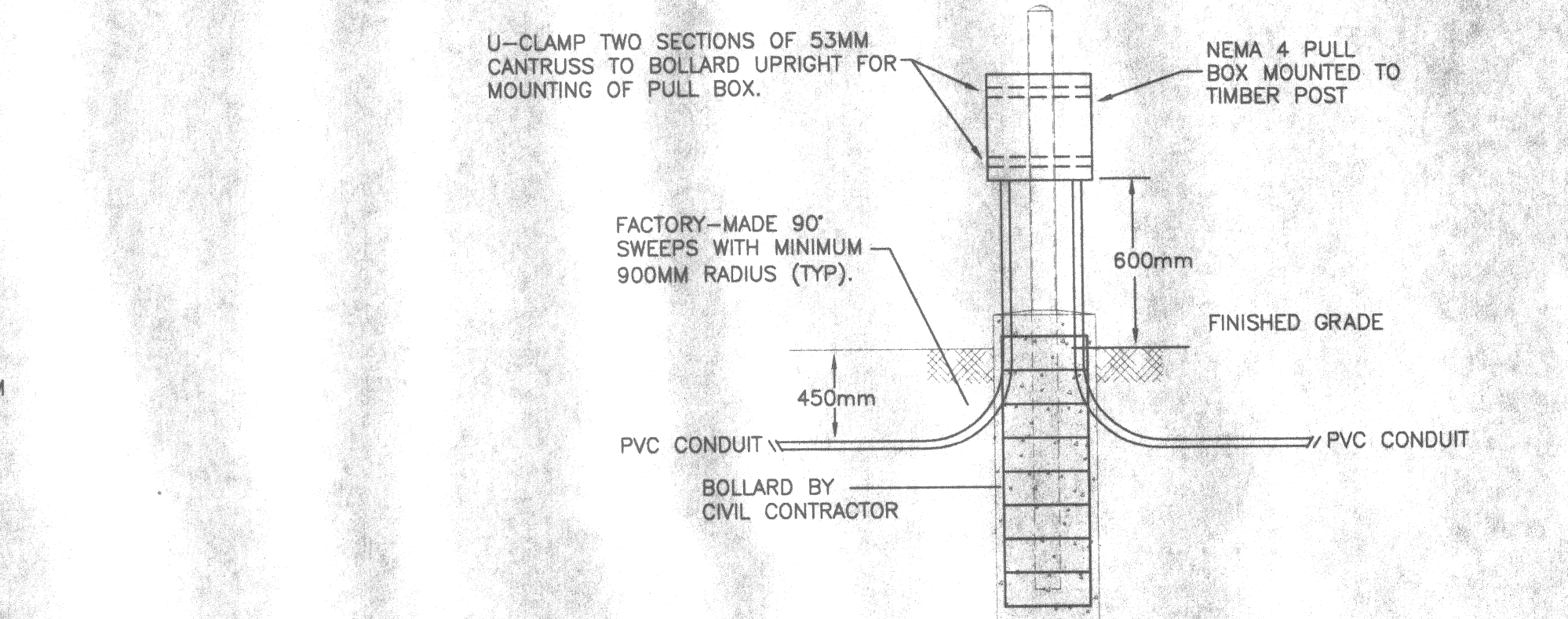
- CABLE REFERENCES:**
1. NEW 20C#14 TECK FOR ALARM & CONTROL.
 2. NEW 20C#14 TECK FOR ALARM & CONTROL.
 3. NEW 25 PAIR TELEPHONE CABLE IN 53MM SCHED 40 PVC CONDUIT FOR TELEPHONE & AUTODIALER POINTS.
 4. NOT PRESENT AT THIS POINT - TERMINATED AT TRANSFORMER ABOVE.
 5. NEW 4C#3 TECK CABLE FOR PUMPHOUSE POWER SUPPLY.

3 CONDUIT BURIAL DETAIL
N.T.S.

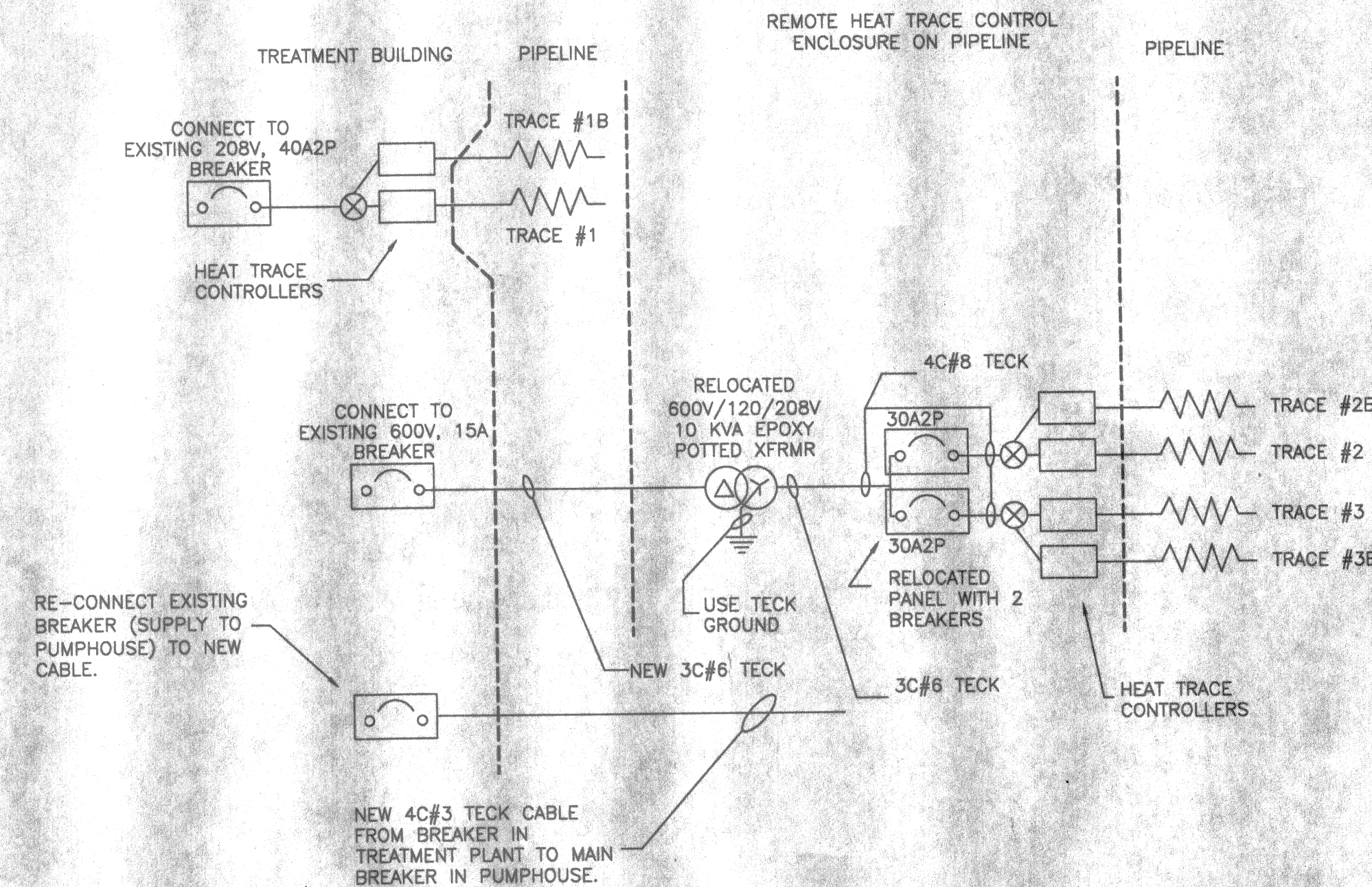


- NOTES:**
1. HEAT TRACE TO BE RUN THROUGHOUT ENTIRE PIPE LENGTH WITHOUT GAPS FROM PUMPHOUSE TO TANK BUILDING.
 2. CONTRACTOR TO CONFIRM ALL DIMENSIONS AND LOCATIONS ON SITE AND REPORT ANY DISCREPANCIES.
 3. EACH SECTION OF HEAT TRACE TO HAVE TWO RTD TYPE SENSORS CONNECTED TO ELECTRONIC CONTROLLER.

5 HEAT TRACE INSTALLATION
N.T.S.



4 COMMUNICATION BOX MOUNTING DETAIL
N.T.S.



6 SINGLELINE DISTRIBUTION MODIFICATIONS
N.T.S.

- NOTES:**
1. REMOVE ALL EXISTING POWER TECK CABLES, CONTROL CABLES, COMMUNICATIONS WIRING, CONDUIT AND HEAT TRACE ROUTED BETWEEN PUMPHOUSE AND TREATMENT PLANT. SITE INFORMATION INDICATES ONE RUN OF 3C#6 TECK CABLE, TWO RUNS OF 20C#14 TECK, ONE RUN OF MULTI-CONDUCTOR TELEPHONE CABLE IN 27MM PVC CONDUIT, ONE RUN OF 4C#3 TECK AND ONE RUN OF SELF-REGULATING HEAT TRACE. THE 3C#6 TECK IS ROUTED ONLY FROM THE TREATMENT BUILDING TO THE HEAT TRACE CONTROL CABINET.
 2. PROVIDE NEW 25-PAIR TELEPHONE CABLE IN 53MM RIGID PVC CONDUIT BETWEEN TANK/TREATMENT BUILDING AND PUMPHOUSE TO MEET ALL EXISTING COMMUNICATION FUNCTIONS. CONDUIT TO BE ROUTED ADJACENT TO PIPELINE, BURIED ACCORDING TO DETAILS 2/E1 AND 3/E1. ALL PVC CONDUIT TO BE CLEANED, PRIMED AND GLUED ACCORDING TO MANUFACTURER'S REQUIREMENTS. GLUING JOINTS ONLY IS NOT ACCEPTABLE.
 3. PROVIDE NEW HEAT TRACE, POWER TECK CABLING, CONTROL TECK CABLING AND COMMUNICATION CONDUIT/CABLING AS INDICATED:
 1. NEW 3C#6 TECK CABLE FROM EXISTING BREAKER IN TREATMENT BUILDING TO RELOCATED TRANSFORMER PRIMARY IN NEW REMOTE HEAT TRACE CONTROL CABINET. CABLE TO BE CONTINUOUS LENGTH, UNSPLICED.
 2. NEW 4C#3 TECK CABLE FROM EXISTING BREAKER IN TREATMENT BUILDING TO EXISTING PUMPHOUSE SERVICE. CABLE TO BE CONTINUOUS LENGTH, UNSPLICED.
 3. TWO RUNS OF 20C#14 TECK CABLE FROM CONTROL TERMINATION POINT IN TREATMENT BUILDING TO PUMPHOUSE CONTROL TERMINATION POINT. CONTROL CABLES ARE TO BE SPLICED ONLY ON TERMINAL STRIPS IN REMOTE HEAT TRACE CONTROL CABINET.
 4. ONE RUN OF 53MM SCHEDULE 40 PVC PIPE WITH 25 PAIR TELEPHONE CABLE. PVC TO RISE ONLY AT PULL BOX LOCATIONS SHOWN AND AT REMOTE HEAT TRACE CONTROL CABINET. TELEPHONE CABLE TO BE SPLICED ONLY AT REMOTE HEAT TRACE CONTROL CABINET.
 5. FOR EACH SECTION OF WATER PIPE INDICATED (3 SECTIONS), PROVIDE TWO RUNS OF HEAT TRACE AS SPECIFIED - ONE PRIMARY AND ONE BACK-UP. POWER SUPPLY FOR BOTTOM TWO SECTIONS OF HEAT TRACE TO BE FROM REMOTE HEAT TRACE CONTROL CABINET.
 4. JUNCTION BOX TO BE PROVIDED FOR INTERMEDIATE PULL AND ACCESS POINT FOR COMMUNICATION CABLE. MOUNT BOX AND INSTALL CONDUIT AS INDICATED ON DETAIL 4/E1.
 5. NEW REMOTE HEAT TRACE CONTROL CABINET TO CONTAIN RELOCATED TRANSFORMER, PANEL WITH 2X30A GFI BREAKERS PLUS NEW 50-POSITION CONTROL TERMINAL STRIPS, HEAT TRACE CONTROLLERS, 25-PAIR TELEPHONE BIX BLOCK, TRANSFER SWITCHES/CONTRACTORS FOR HEAT TRACE. TO BE DETAILED BY ADDENDUM.

THIS DESIGN HAS BEEN BASED ON INFORMATION PROVIDED TO FSC BY OTHERS. SITE INFORMATION PERTAINING TO EXISTING CABLING INSTALLED ALONG PIPELINE HAS BEEN PROVIDED BY OTHERS AS SUCH THIS DESIGNER IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS INFORMATION. ANY DISCREPANCIES BETWEEN WHAT IS INDICATED ON THESE DRAWINGS AND WHAT IS OBSERVED ON SITE BY THE CONTRACTOR ARE TO BE REPORTED TO THE ENGINEER AT THE EARLIEST OPPORTUNITY.

5	ISSUED FOR FINAL TENDER	MAY 2002
NO	REVISION	DATE BY APPD

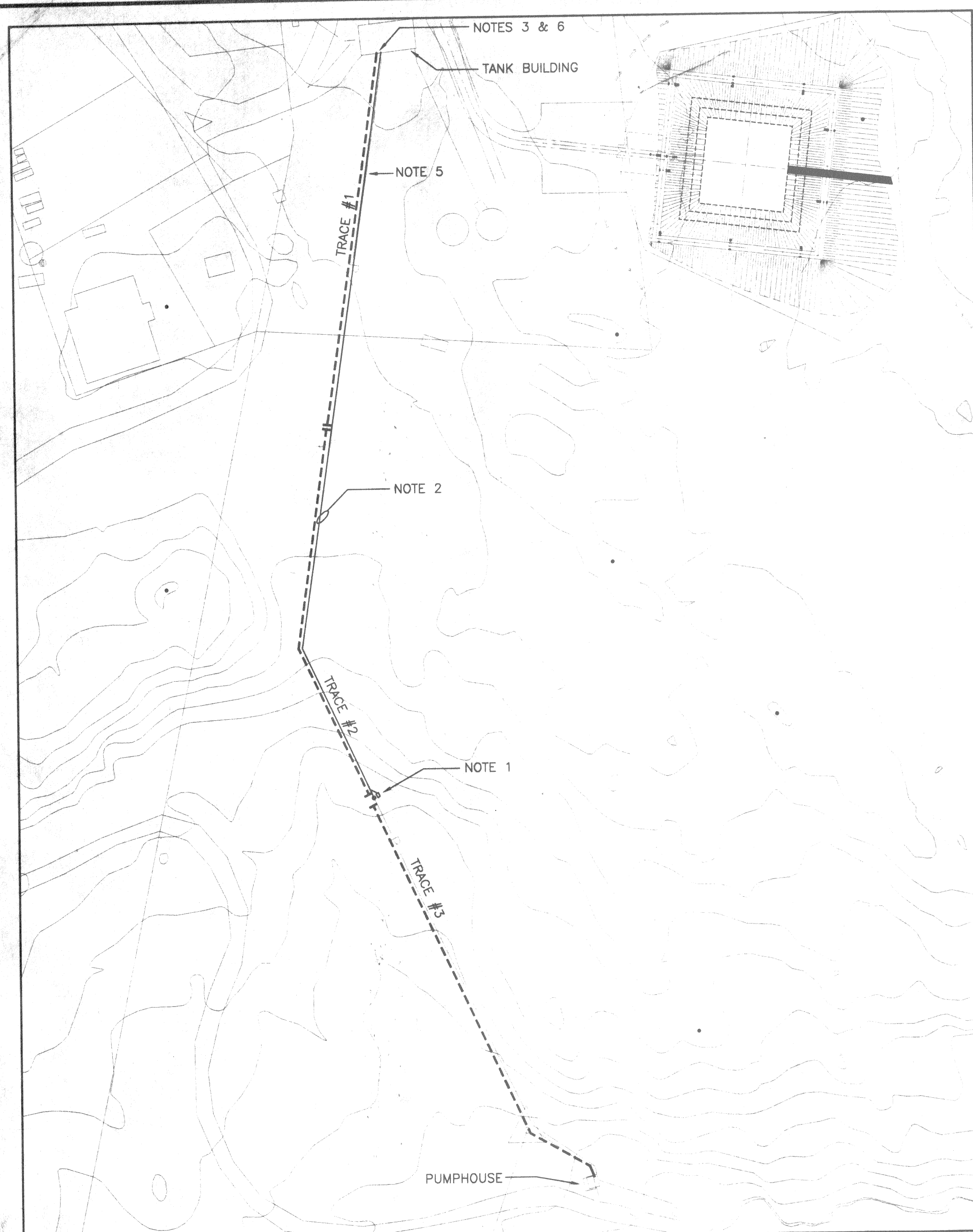


REALIGN WATER SUPPLY LINE WATER SUPPLY SYSTEM

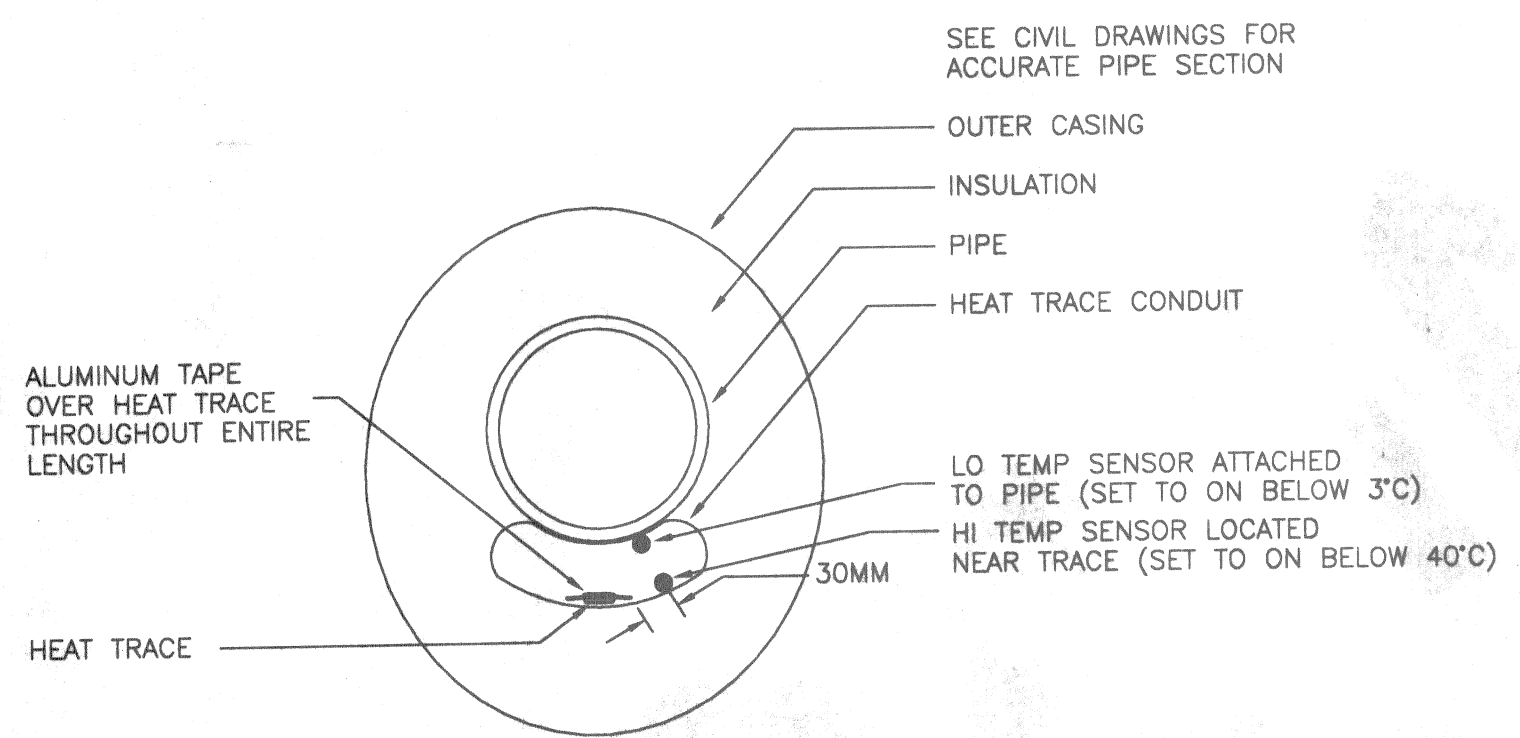
KUGLUKTUK NT.

ELECTRICAL SITE PLAN

DESIGNED BY RDS	SCALE AS SHOWN
DRAWN BY RDS	DATE MAY/02
CHECKED BY NJB	CLIENT PROJECT NO.
F.S.C. FILE NO. ESP70170	F.S.C. JOB NO. 97-0170
SHEET 6	DRAWING NO. E-1

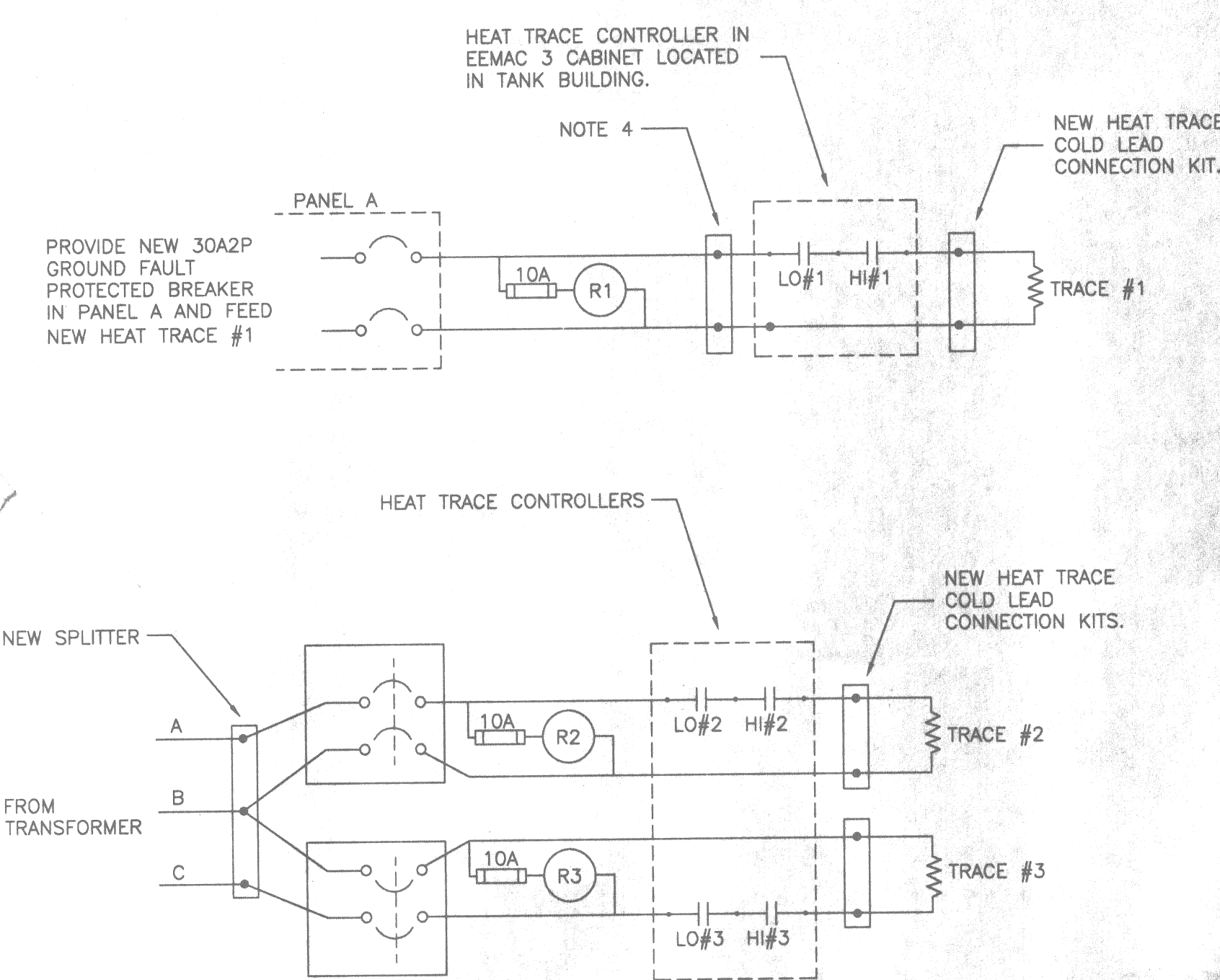


1 ELECTRICAL SITE PLAN
E1 SCALE: 1:1000

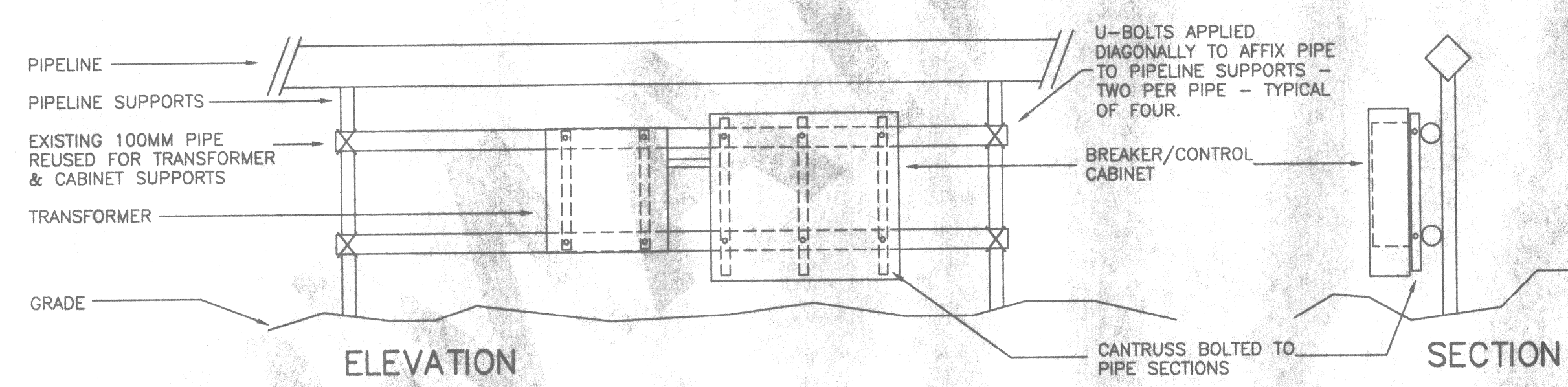


- NOTES:
- HEAT TRACE TO BE RUN THROUGHOUT ENTIRE PIPE LENGTH WITHOUT GAPS FROM PUMPHOUSE TO TANK BUILDING.
 - CONTRACTOR TO CONFIRM ALL DIMENSIONS AND LOCATIONS ON SITE AND REPORT ANY DISCREPANCIES.
 - EACH SECTION OF HEAT TRACE TO HAVE TWO CONTROLLERS WITH SENSING BULBS LOCATED AS INDICATED ABOVE.

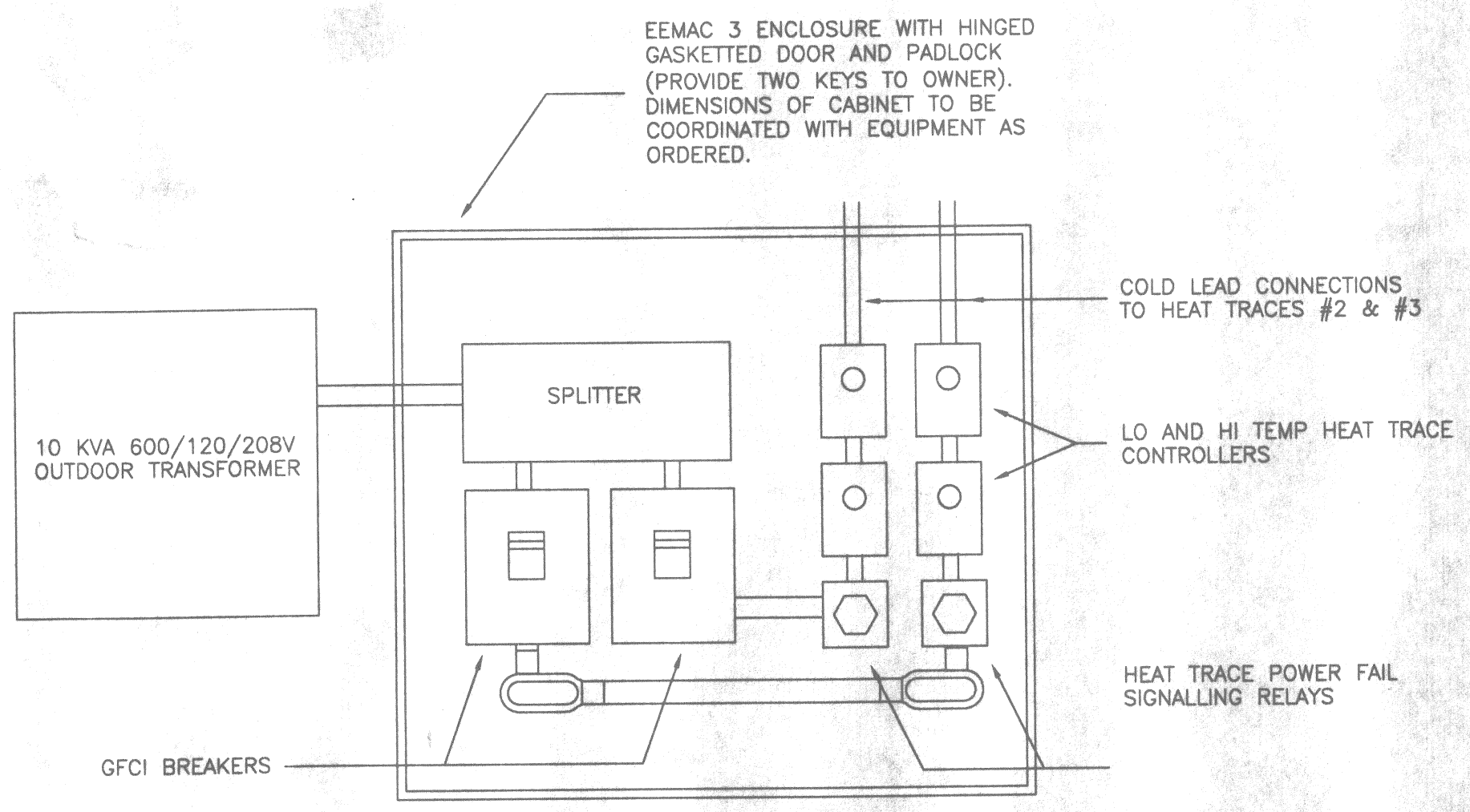
5 HEAT TRACE INSTALLATION
E1 N.T.S.



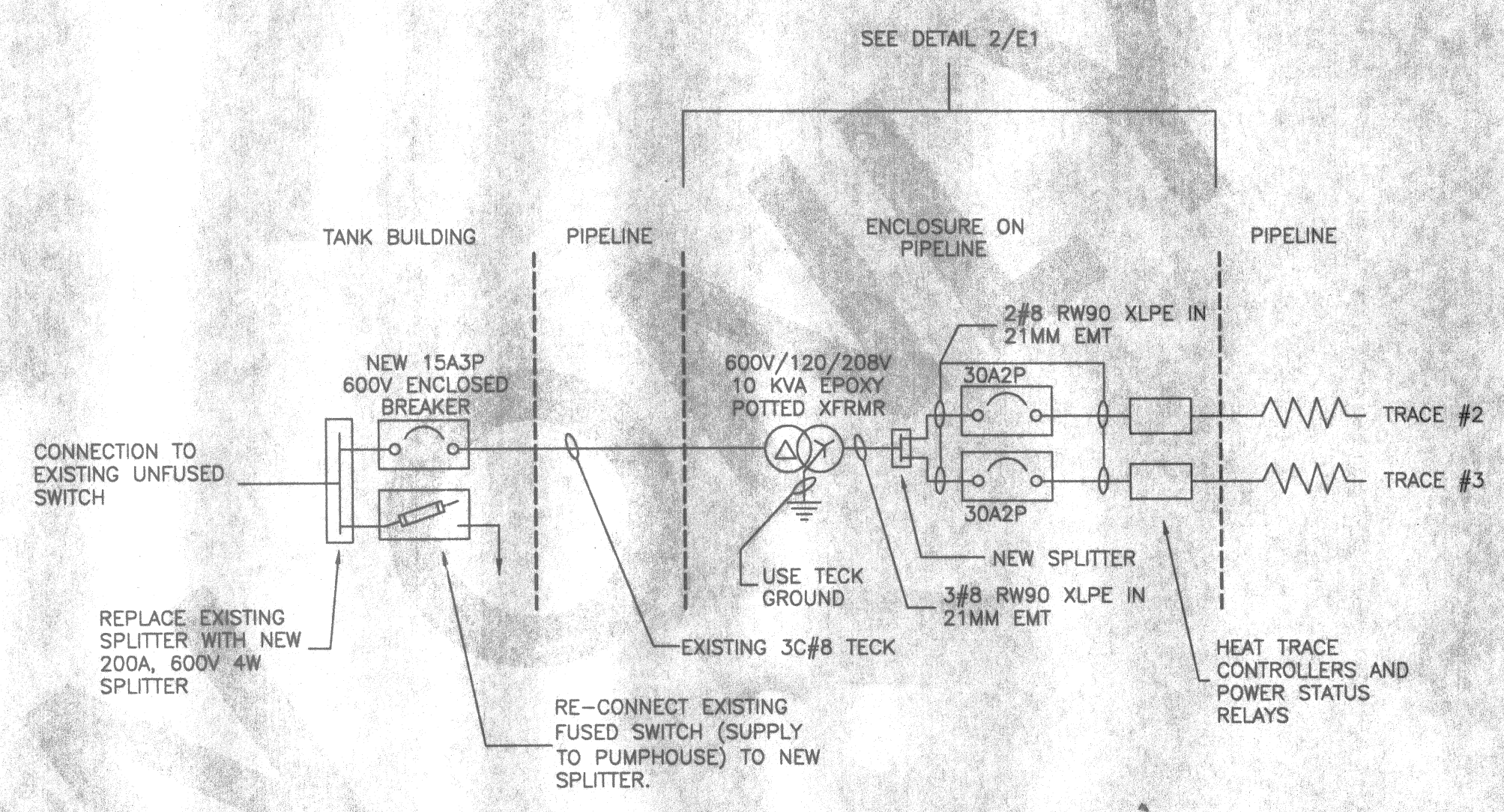
2 HEAT TRACE POWER CONNECTION SCHEMATIC
E1 N.T.S.



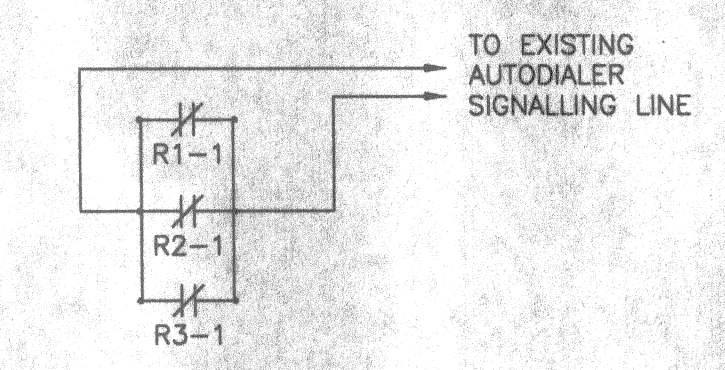
7 ENCLOSURE & TRANSFORMER MOUNTING
E1 N.T.S.



6 ENCLOSURE & TRANSFORMER ELEVATION
E1 SCALE: APPROXIMATELY 1:10



3 SINGLELINE DISTRIBUTION MODIFICATIONS
E1 N.T.S.



4 ALARM SIGNALLING
E1 N.T.S.

- NOTES:
- APPROXIMATE LOCATION OF EXISTING JUNCTION BOX FOR TERMINATION OF EXISTING TECK CABLE AND CONNECTION TO EXISTING HEAT TRACE. RE-USE EXISTING TECK CABLE AND MAKE CONNECTIONS TO NEW TRANSFORMER AS INDICATED. LOCATE NEW EEMAC 3 ENCLOSURE NEAR THIS LOCATION. ENCLOSURE TO HOUSE SPLITTER, BREAKERS, RELAYS AND HEAT TRACE CONTROLLERS WITH OUTDOOR TRANSFORMER ADJACENT.
 - EXISTING 3C#8 TECK CABLE AND AUTODIALER SIGNALLING LINE. NOTE THAT THIS INFORMATION HAS BEEN PROVIDED TO FSC BY OTHERS AND THEREFORE CANNOT BE VERIFIED BY THIS DESIGNER. NOTIFY THE ENGINEER OF ANY DISCREPANCY FOUND ON SITE.
 - NEW JUNCTION BOX AND CONDUIT WITH 3#8 RW90 XLPE IN 21MM EMT TO MAKE CONNECTION BETWEEN EXISTING TECK CABLE AND NEW 15A3P BREAKER AFTER REMOVAL OF THE EXISTING HEAT TRACE CONTROLLER.
 - NEW JUNCTION BOX AND CONDUIT WITH 2#8 RW90 XLPE IN 21MM EMT TO MAKE CONNECTION BETWEEN NEW HEAT TRACE CONTROLLER AND PANEL A AFTER REMOVAL OF THE EXISTING HEAT TRACE CONTROLLER.
 - APPROXIMATE LOCATION OF EXISTING VALVE/PIPING VAULT. ROUTE HEAT TRACE THROUGH VAULT WITH SPIRAL WRAP (2.0 PITCH) OF PIPING WHICH FORMS PART OF THE MAIN SUPPLY LINE INSIDE THE VAULT. COORDINATE INSTALLATION WITH MODIFICATIONS BEING MADE TO VAULT.
 - REMOVE EXISTING SPLITTER, HEAT TRACE CONTROLLER, AND 60A DISCONNECT FOR HEAT TRACE. LOCATE CONTROLLERS AND RELAY FOR HEAT TRACE#1, NEW SPLITTER AND NEW 15A3P-600V BREAKER ON WALL IN TANK BUILDING. PROVIDE NEW 30A2P GFI BREAKER IN EXISTING PANEL A ON SAME WALL IN TANK BUILDING.

4	FOR INFORMATION ONLY	MAY 2002
3	FOR INFORMATION ONLY	FEB 2002
2	FOR INFORMATION ONLY	MARCH 2001
1	FOR INFORMATION ONLY	JULY 2000
0	ISSUED FOR CONST.	FEB 17/00
NO	REVISION	DATE BY APP'D

JOB TITLE:
**WATER TRANSMISSION
LINE REPLACEMENT**

KUGLUKTUK,NU

DRAWING TITLE:
**ELECTRICAL
SITE PLAN
+ HEAT TRACE
DETAILS**

DESIGNED BY RDS	SCALE AS SHOWN
DRAWN BY RDS	DATE FEB/00
CHECKED BY JRH	CLIENT PROJECT NO.
F.S.C. FILE NO. E2.dwg	F.S.C. JOB NO. 970170-052
SHEET 7 OF 7	DRAWING NO. E2