



## Water System Upgrading

**March 21, 2016**

**Nunavut Water Board**  
**P.O. Box 119**  
**Gjoa Haven, NU X0B 1L0**

**Attention: Karen Kharatyan, Ph D., P. Eng., Manager of Licensing**

**RE: Water System upgrading and SCADA control**

**Dear Mr. Karen,**

The Hamlet of Gjoa Haven is pleased to submit to Nunavut Water Board the attached file of **“as-built”** drawings for water System upgrade completed in 2015.

The Licensee has a plan for SCADA upgrading to control system in summer 2016 for the monitoring and operation of Water intake, delivery and treatment process. With this upgrading, the program will not be affected or any changes to the approved process. This maintenance is a part of the system designed and developed for the Gjoa Haven Water intake and delivery process.

We hope that Nunavut Water Board will find this report and enclosed as-built drawings in operating the Water Licence.

Best Regards,

*Shah Alam, P. Eng., E.P.*  
Municipal Planning Engineer,  
Government of Nunavut  
Community and Government Services  
Kitikmeot Region, Cambridge Bay, Nu  
Phone: 867-983-4156, fax: 867-983-4123  
E. mail: [salam@gov.nu.ca](mailto:salam@gov.nu.ca)

Enclosure: as-built drawings, Water Line upgrading

Cc: David Stockley, Senior Administrative Officer (SAO), Gjoa Haven, NU  
Baba Pedersen, Resource management Officer, AANDC

**EXECUTIVE SUMMARY:**

This Report for the Hamlet of Gjoa Haven (the Licensee) to the Nunavut Water Board (NWB) has been prepared to meet requirements of the Nunavut Water Board Licence 3BM-GJO 1318, Part E, item 4, Conditions apply to Modification and Construction to facility of Water supply. This report covers the period from 01 January to 31 December 2015.

Water intake from Swan Lake through twin intake pumps, delivered by 6 inch HDPE buried line to the treatment plant building 3 km away where it treated in pressure filters followed by chlorination before truck fill and supplied to household tank by hamlet operated water trucks.

Buried water line insulation damaged to some portion and the line suffered winter freeze up partly during last 2-3 winters. It required continued excess water releasing from the buried line outside when the storage tank is full and no truck fill outside. This damaged line was replaced with new 6 inch HDPE insulated pipe during the last summer. With this replacement, water intake and supply efficiency increased but no changes to system, structure or program.

Mechanical upgrading also done to water system during the fiscal years 2014-2015 which included:

- Replacement of intake pumps and regulating valves at intake pumphouse (IPH)
- Water recirculation pressure pumps at IPH and 2- Heat Exchanger stations.
- Replacement of boilers with higher heat supply efficiency
- Replaced shell-in-tube heat exchangers at IPH and water treatment plant (WTP)

Plan for SCADA upgrading to water system control is in summer 2016, a construction tender out for such works which may include the PLC reprogramming to provide correct information on time for water intake, flow rate, body temperature and any information helpful to secure service and facility.

Included: 'as-built' drawings for water System Upgrading by Stantec consulting Engineers



# GOVERNMENT OF NUNAVUT COMMUNITY AND GOVERNMENT SERVICES

PROJECT: WATER SUPPLY PIPELINE UPGRADES

LOCATION: GJOA HAVEN, NU

GN PROJECT NO: 14-4002

STANTEC PROJECT NO: 144902165

ISSUED FOR RECORD

## LIST OF DRAWINGS

C-101 PROJECT LOCATION PLAN

C-102 SITE PLAN

C-201 PIPELINE PLAN AND PROFILE STN 0+000 TO STN 0+720

C-202 PIPELINE PLAN AND PROFILE STN 0+720 TO STN 1+400

C-501 PIPE CONNECTION AND BERM DETAILS





The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay.

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Legend

Contractor: KUDLIK CONSTRUCTION LTD  
Construction Certification Date: December 9, 2015

[illegible]

**PERMIT TO PRACTICE**  
STANTEC ARCHITECTURE LTD.

Signature: [Signature]  
Date: 16 March 2016

**PERMIT NUMBER: P 800**  
NT/NU Association of Professional  
Engineers and Geoscientists



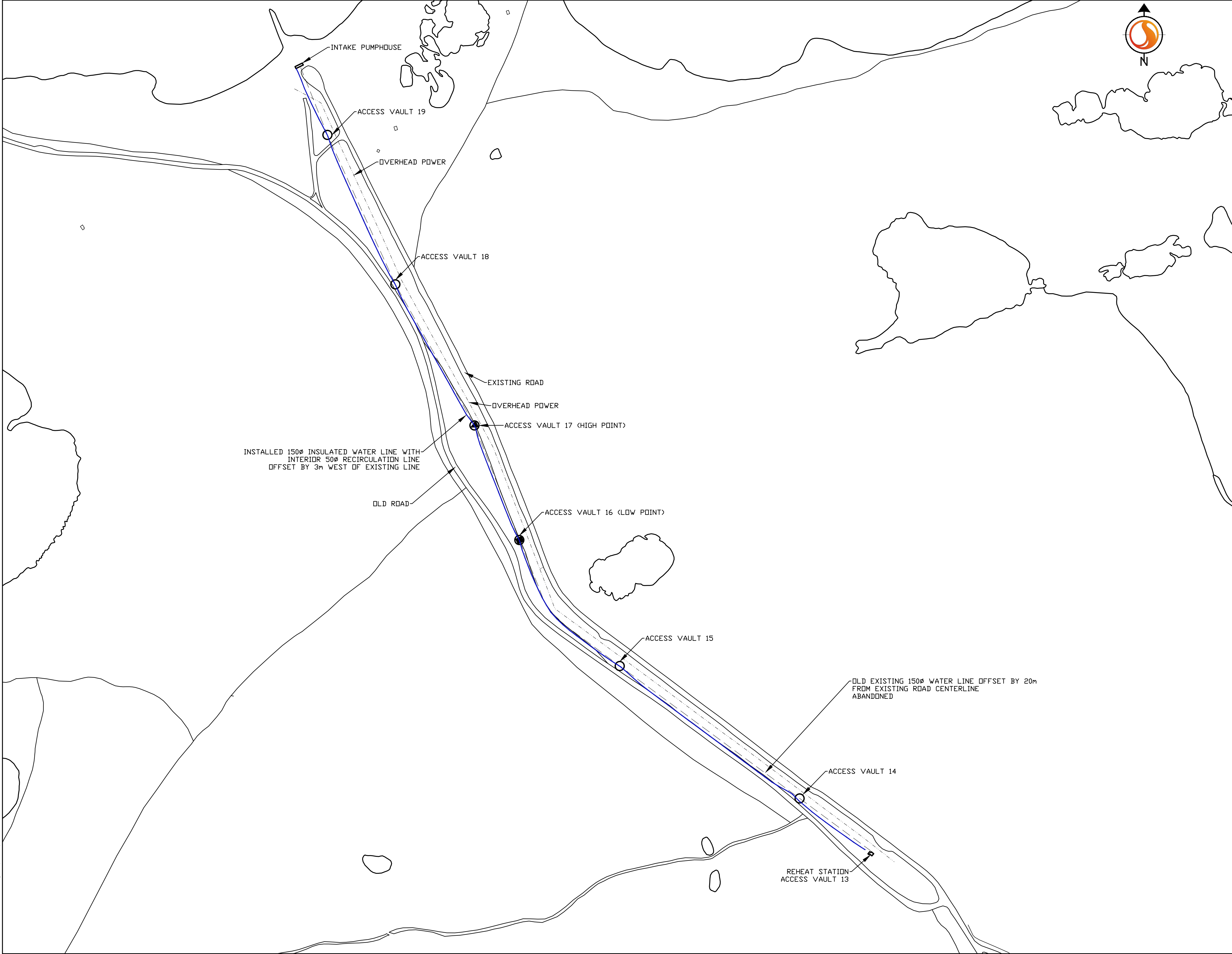
GJOA HAVEN WATER SUPPLY  
PIPELINE UPGRADES  
GJOA HAVEN, NU





## PROJECT LOCATION PLAN

Revision

A/0



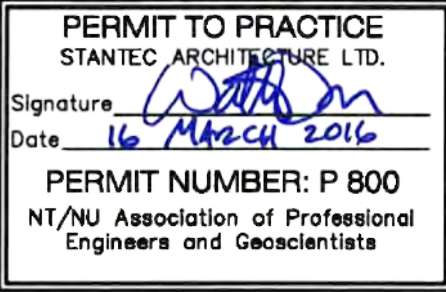


- Legend
-  ACCESS VAULT
  -  HIGH POINT (AIR VENTS)
  -  LOW POINT (DRAIN)
  -  INSTALLED 150Ø INSULATED WATER LINE WITH INTERIOR 50Ø RECIRCULATION LINE

**PLAN OF RECORD DRAWING**

Contractor: KUDLIK CONSTRUCTION LTD  
Construction Certification Date: December 9, 2015

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| ISSUED FOR RECORD                | KK   | WO    | 16.03.17 |
| ISSUED FOR TENDER                | AK   | WO    | 15.02.28 |
| ISSUED FOR 75% REVIEW            | AK   | WO    | 14.12.12 |
| Issued                           | By   | Appd. | YY.MM.DD |
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| File Name: 0216SC-102 RECORD.DWG | Dwn. | Chkd. | Dsgn.    |
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GJOA HAVEN WATER SUPPLY  
PIPELINE UPGRADES  
GJOA HAVEN, NU

Title  
SITE PLAN

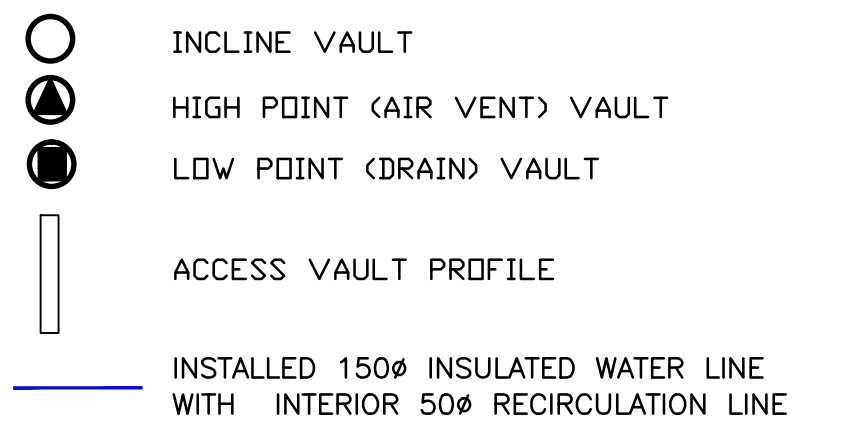
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| Drawing No.<br>C-102     | Sheet<br>2 of 5 | Revision<br>A/0 |



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Legend



**PLAN OF RECORD DRAWING**  
 Contractor: KUDLIK CONSTRUCTION LTD  
 Construction Certification Date: December 9, 2015

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| 021-65C-201_RECORD.DWG |      |       | YY.MM. <b>D</b> |

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 Signature [Signature]  
 Date 16 March 2016  
**PERMIT NUMBER: P 800**  
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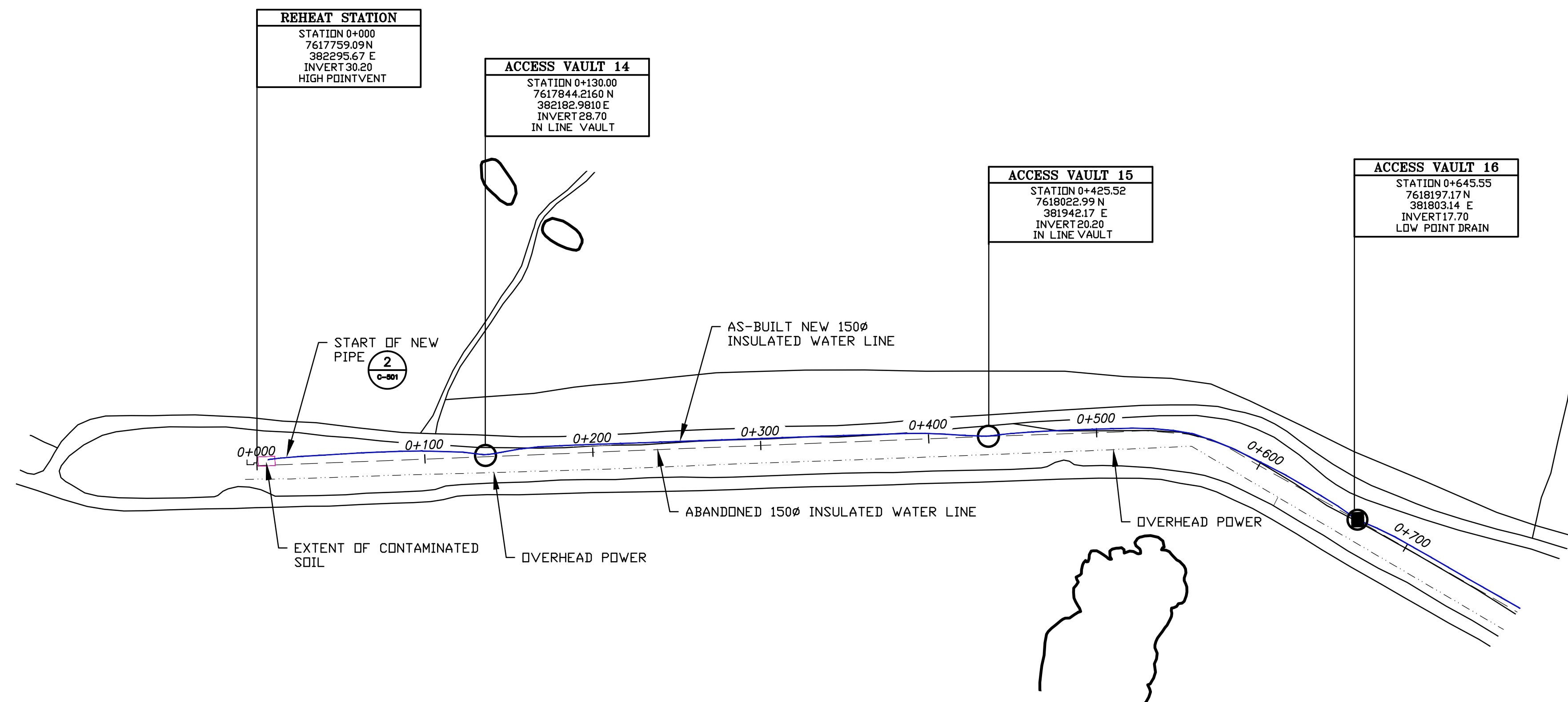
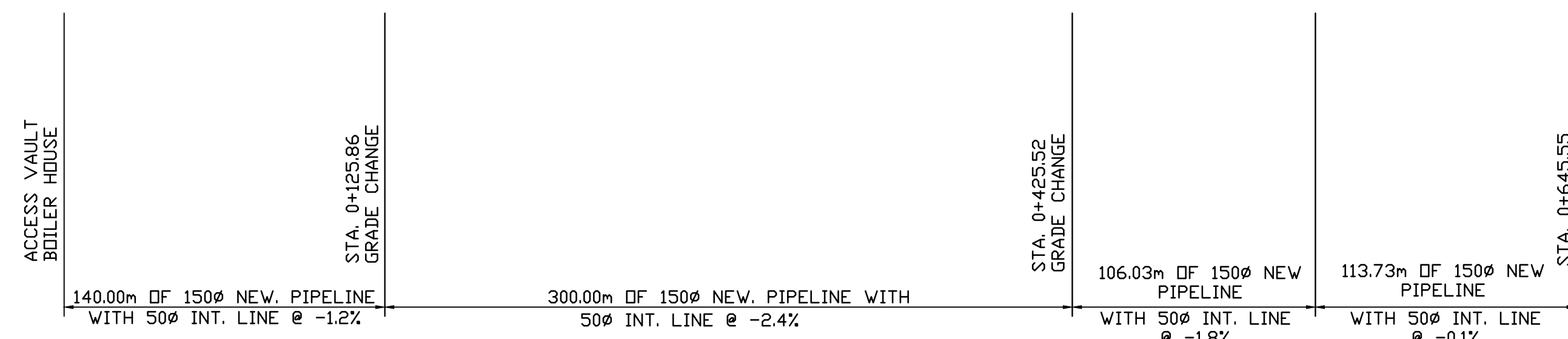
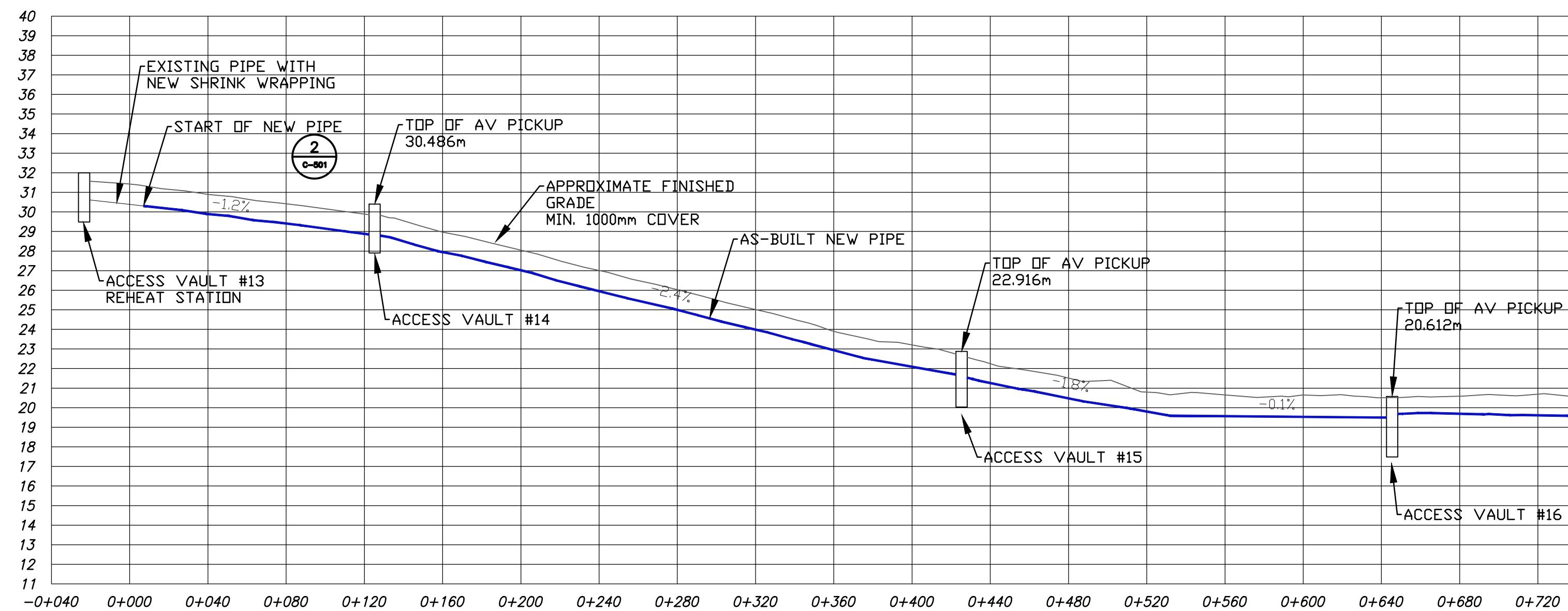


**GJOA HAVEN WATER SUPPLY  
PIPELINE UPGRADES**

GJOA HAVEN, NU

Title  
PIPELINE PLAN AND PROFILE  
STN 0+000 to 0+720

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| Project No.<br>144902165 | Scale<br>1:2000 |                 |
| Drawing No.<br>C-201     | Sheet<br>3 of 5 | Revision<br>A/0 |











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|  | INCLINE VAULT               |
|  | HIGH POINT (AIR VENT) VAULT |
|  | LOW POINT (DRAIN) VAULT     |
|  | ACCESS VAULT PROFILE        |

— INSTALLED 150ø INSULATED WATER LINE  
WITH INTERIOR 50ø RECIRCULATION LINE

Contractor: KUDLIK CONSTRUCTION LTD  
Construction Certification Date: December 9, 2015

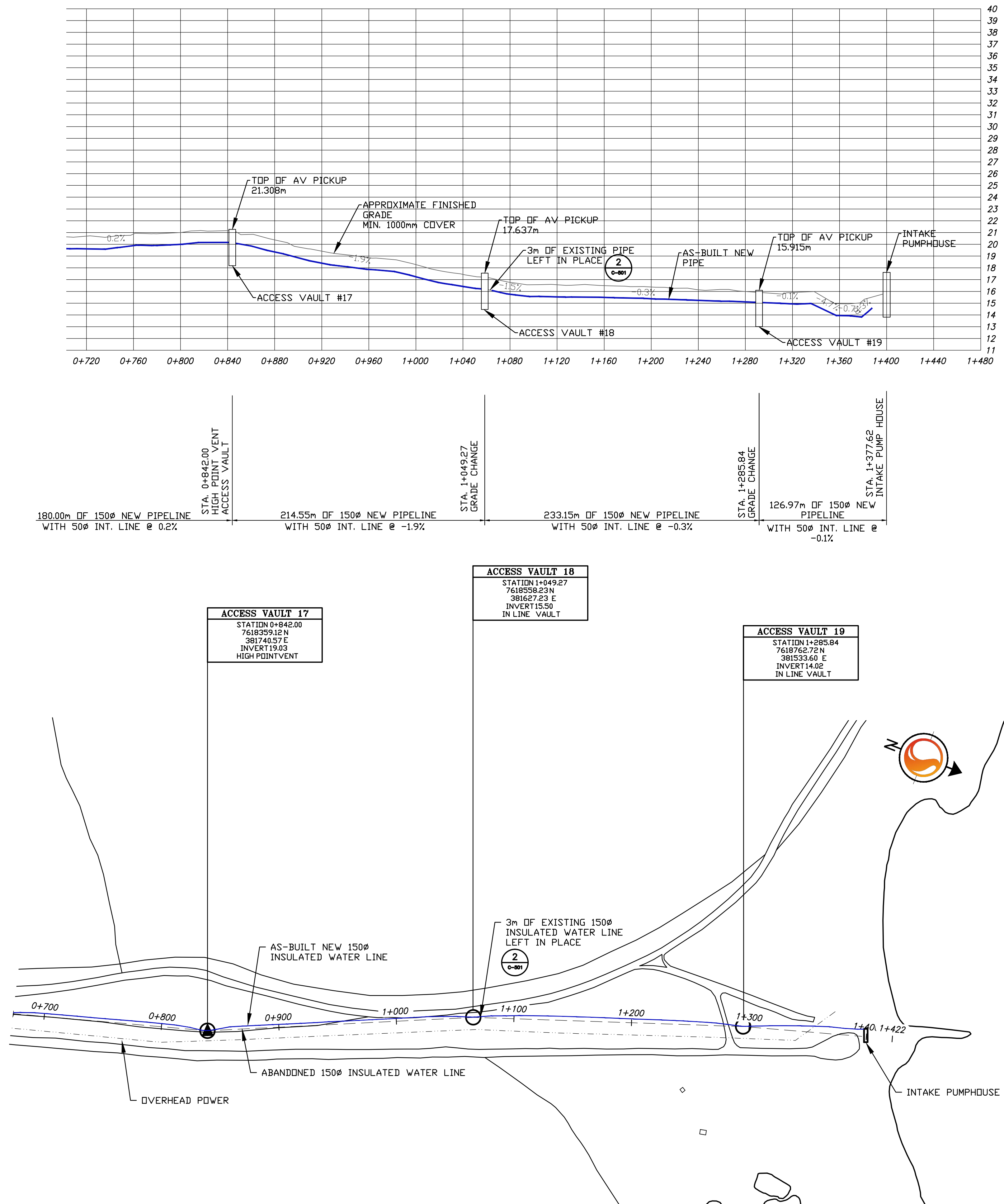
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| ISSUED FOR RECORD                | KK   | WO    | 16.03.17 |
| ISSUED FOR TENDER                | AK   | WO    | 15.02.28 |
| ISSUED FOR 75% REVIEW            | AK   | WO    | 14.12.17 |
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| File Name: 02145C-202 RECORD.DWG | Dwn. | Chkd. | Dsgn.    |
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Signature: [Signature]  
Date: 16 March 2016  
**PERMIT NUMBER: P 800**  
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Title  
PIPELINE PLAN AND PROFILE  
STN 0+720 to 1+400

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| Project No.<br>144902165 | Scale<br>1:2000 |                 |
| Drawing No.<br>C-202     | Sheet<br>4 of 5 | Revision<br>A/0 |



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Consultants

Legend

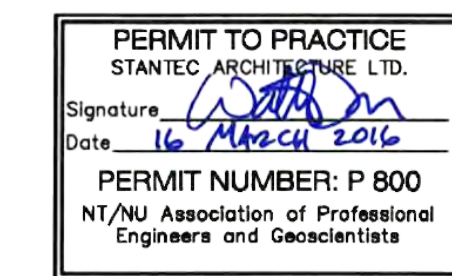
Notes

PLAN OF RECORD DRAWING

Contractor: KUDLIK CONSTRUCTION LTD  
Construction Certification Date: December 9, 2015

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| ISSUED FOR 75% REVIEW | AK                    | WO    | 14.12.12 |
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Permit-Seal

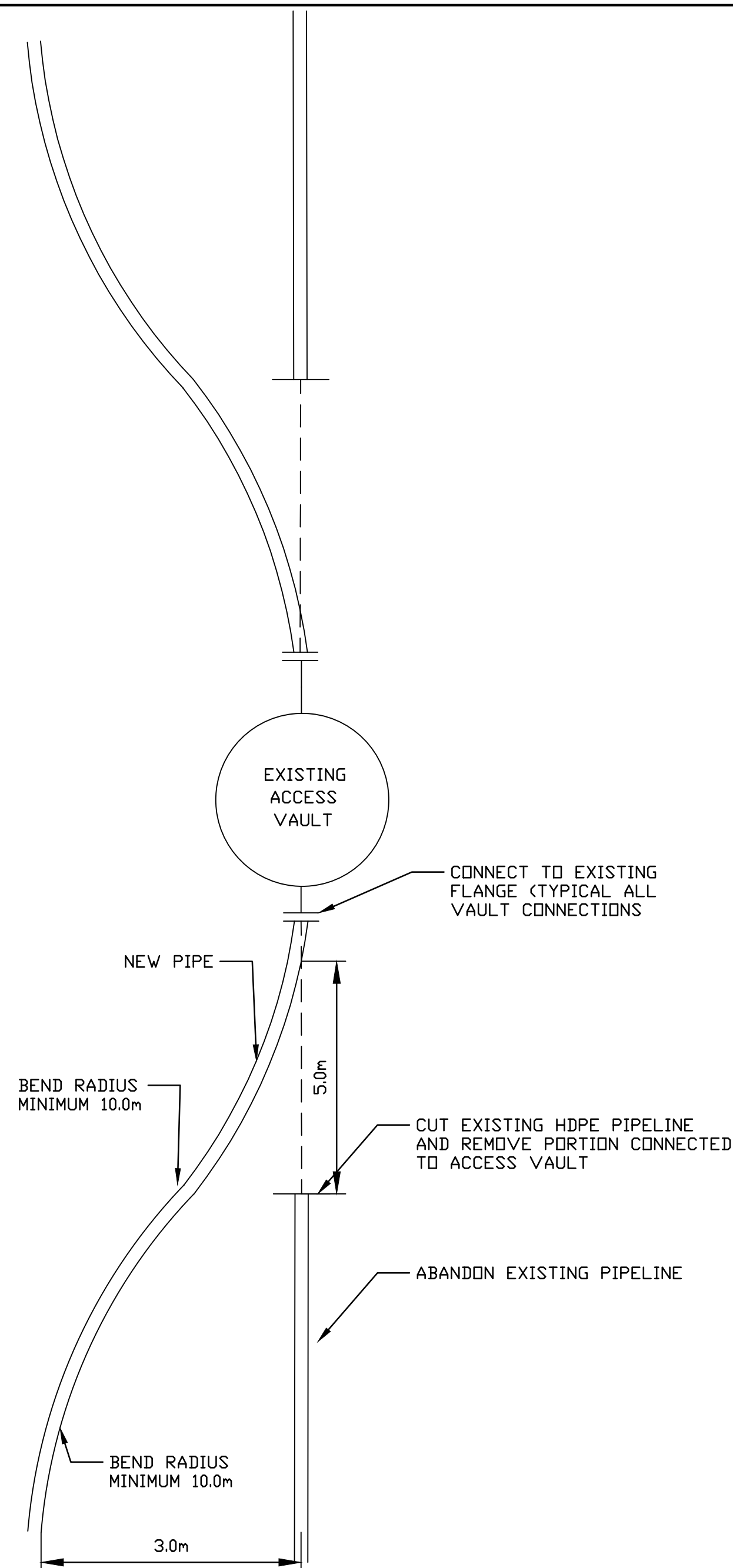


Client/Project

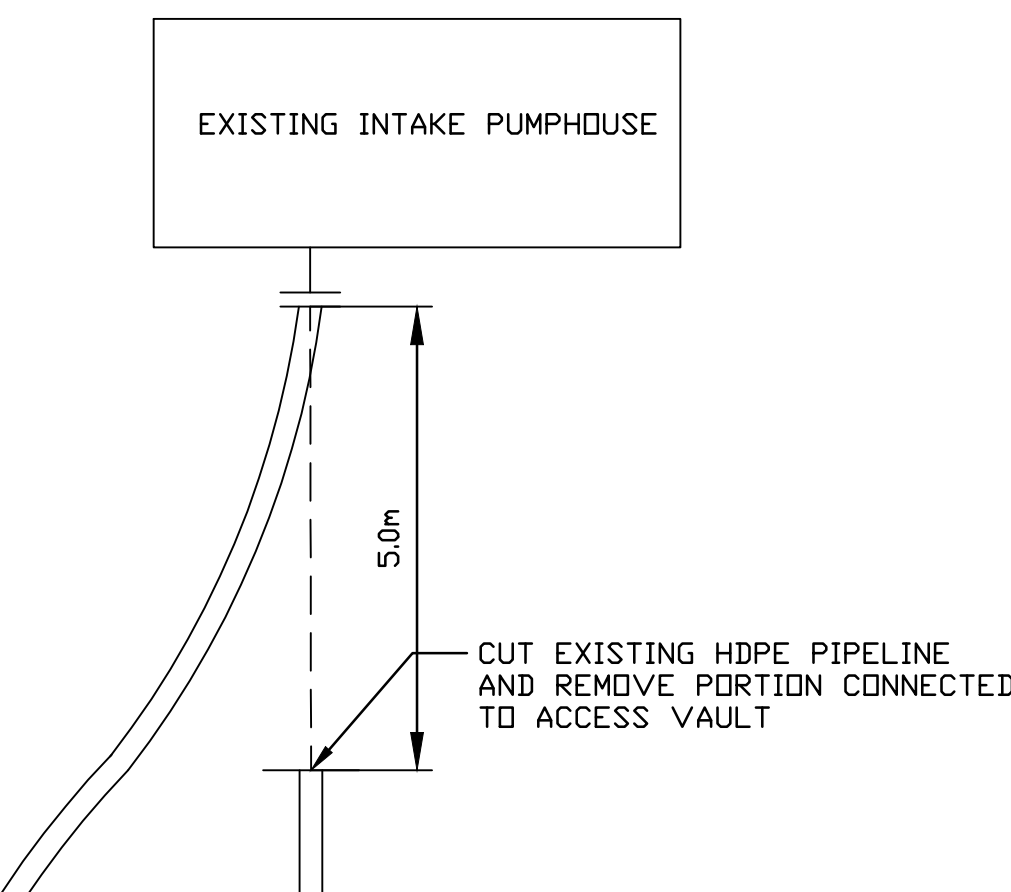
  
**GJOA HAVEN WATER SUPPLY  
PIPELINE UPGRADES**  
GJOA HAVEN, NU

Title  
PIPELINE CONNECTION AND BERM DETAILS

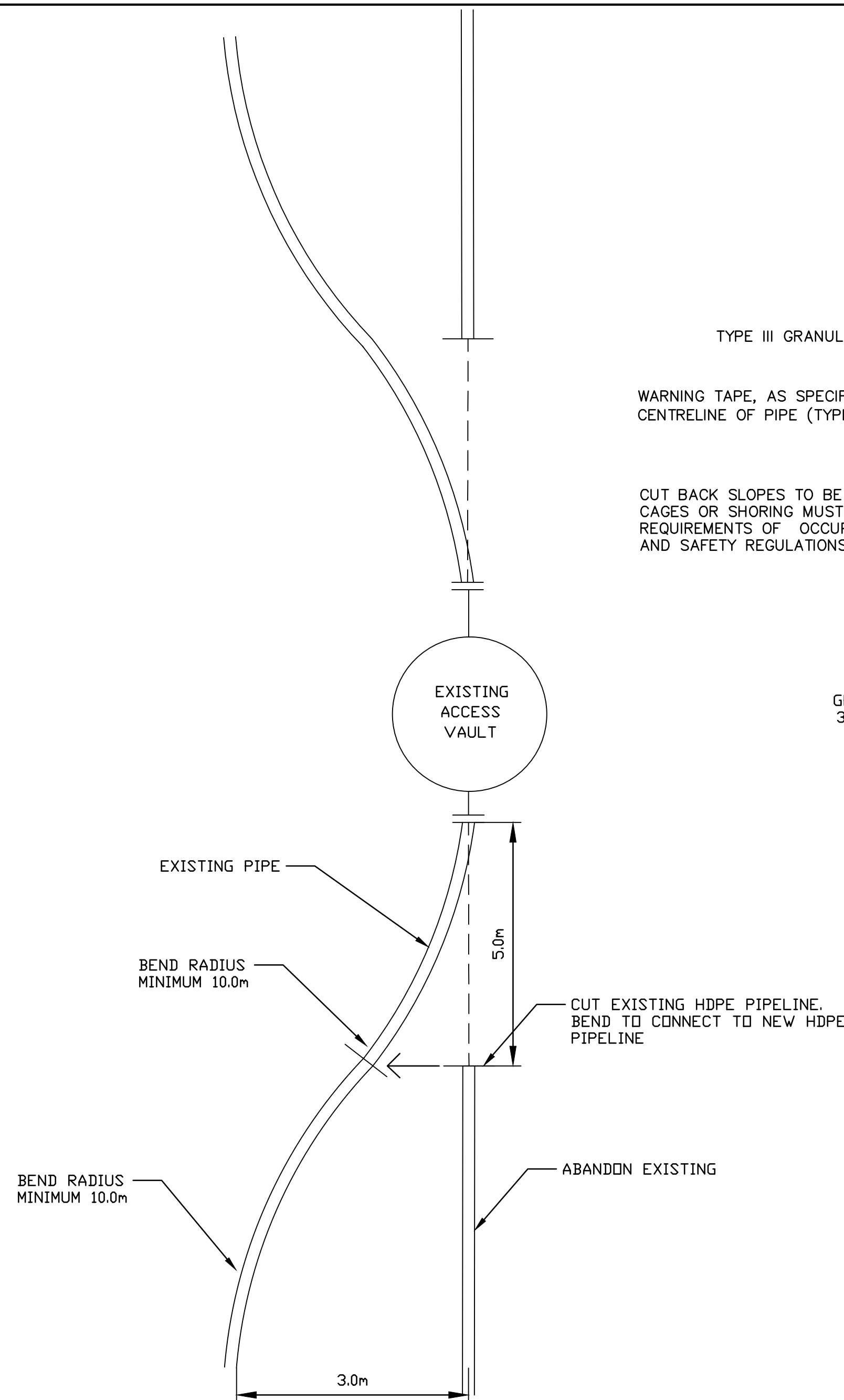
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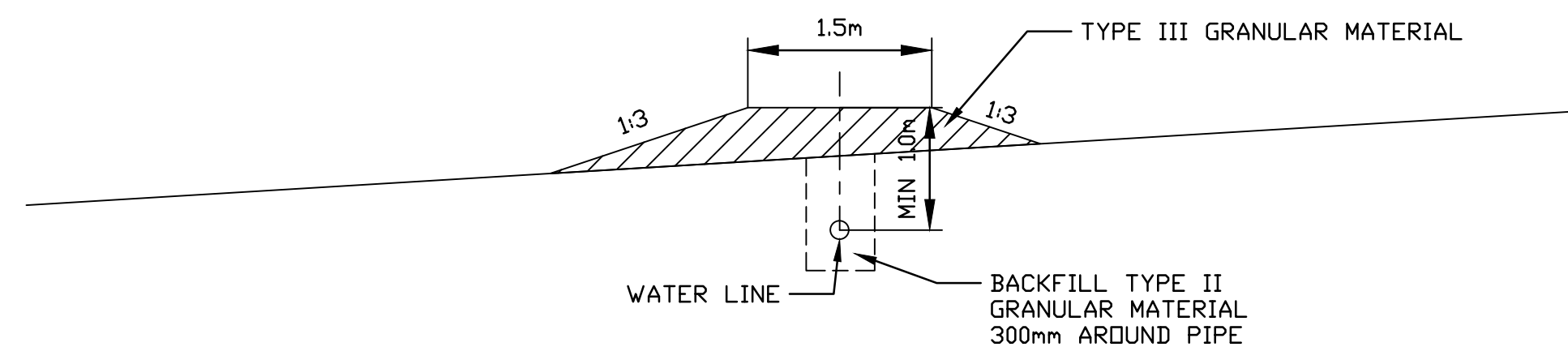
1 CONNECTION TO EXISTING ACCESS VAULT OPTION 1  
C-501 NTS  
NOTE: USED ON ALL CONNECTIONS UNLESS OTHERWISE NOTED



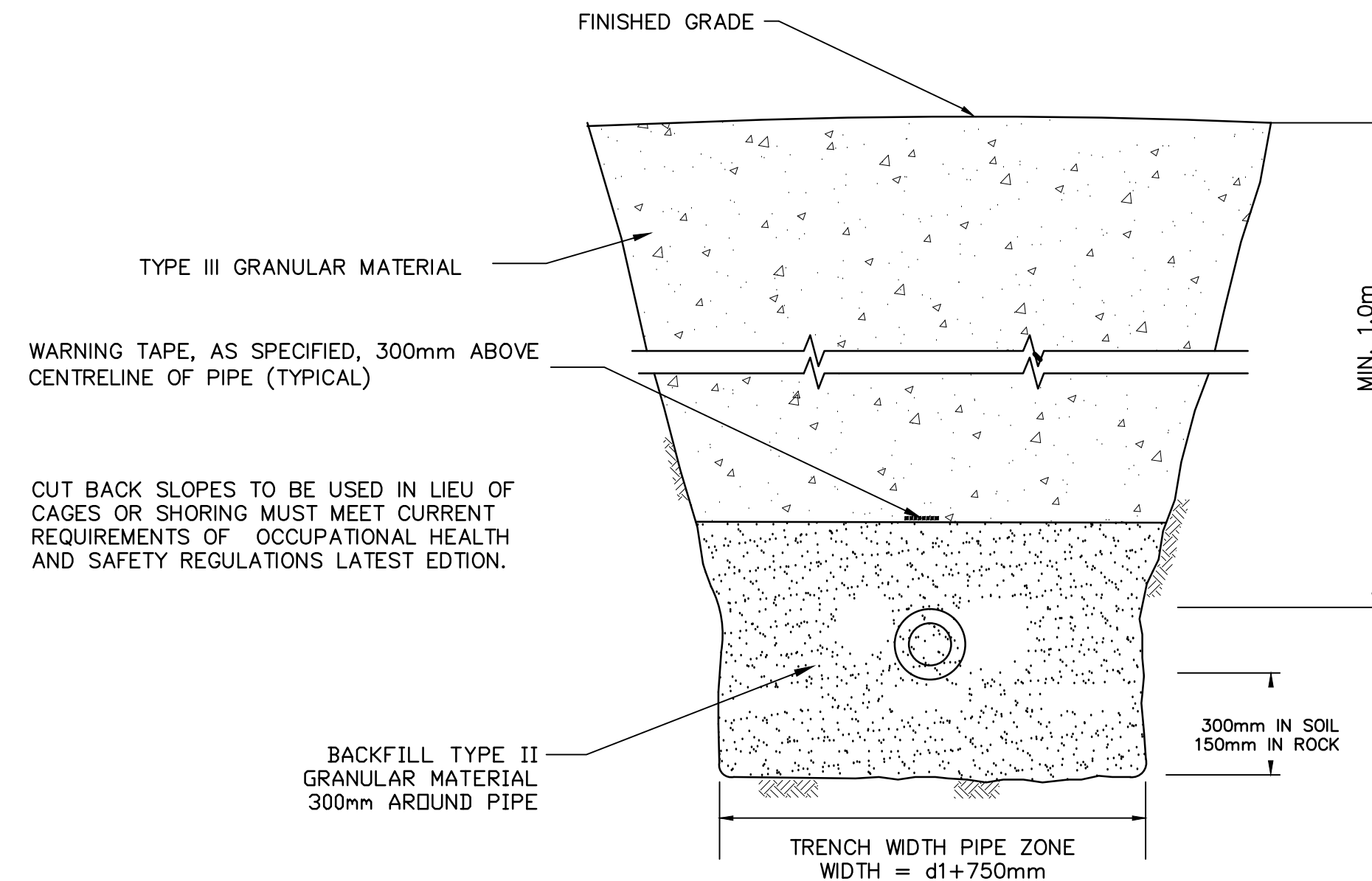
5 CONNECTION TO EXISTING INTAKE PUMPHOUSE  
C-501 1:50



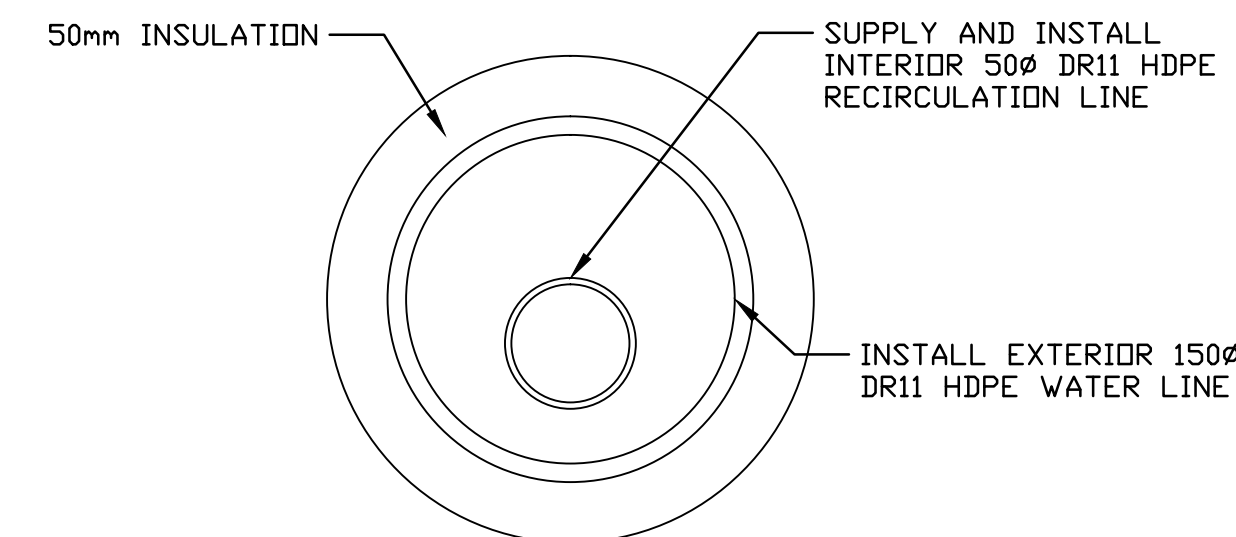
2 CONNECTION TO EXISTING ACCESS VAULT OPTION 2  
C-501 NTS  
NOTE: USED ON THE NORTH SIDE OF ACCESS VAULT 13 & 18



6 PIPELINE CROSS SECTION IN BERMED AREAS  
C-501 1:50



3 TRENCH DETAIL  
C-501 NTS



4 INSULATED WATER MAIN WITH INTERIOR RECIRCULATION LINE  
C-501 NTS