



UNITED NATIONS DEVELOPMENT PROGRAMME

**FEASIBILITY ASSESSMENT AND DESIGN
FOR THE UPGRADE OF IRRIGATION NETWORKS
IN NORTH LEBANON AND THE BEKAA**

**Quobayyat
IRRIGATION CANALS**

Tender Drawings

January 2017

LIST OF DRAWINGS

- Drawing 01 : GENERAL LAYOUT
- Drawing 02 : CANALS B & C LAYOUTS AND PROFILES
- Drawing 03 : LINE A LAYOUT
- Drawing 04 : LINE A LONGITUDINAL PROFILE
- Drawing 05 : LINE F LAYOUT
- Drawing 06 : LINE F LONGITUDINAL PROFILE
- Drawing 07 : CROSS SECTIONS 7 DETAILS

GENERAL NOTES

1. Particular Specifications

The present General Notes and the specifications shown on the present set of drawings are to be considered as Particular Specifications and prevail over the General Specifications.

2. Construction Drawings

The present set of drawings is for tendering purpose only and therefore is not suitable for construction. It is the Contractor's responsibility to prepare his own construction drawings and shop drawings and submit for the approval of the Engineer.

3. Topographical Survey

The general layout (drawing 01) shows the actual location of the channels on the ground, which is not necessarily within the cadastral boundaries of a public domain and may well go through private properties. Moreover, the Longitudinal Profiles are given for information only and are not suitable for construction in particular as regards to the levels shown. It is the Contractor's responsibility to carry out his own surveying and to approach the relevant Cadastral Authorities in order to get the layout of the public domains and make sure that the concrete canals shall NOT be constructed through private properties, unless otherwise instructed by the engineer

It is also the Contractor's responsibility to take his own level measurements and to establish his own Longitudinal Profiles. The proposed layouts and Longitudinal Profiles shall be submitted for the approval of the Engineer prior to any construction work.

4. Dimensions and Levels

Unless otherwise explicitly mentioned on the drawings, all dimensions are in cm. and all levels are "meters above sea level" (masl).

5. Concrete Specifications

Reinforced concrete for ground slab and walls shall be Class 45 Dosage 400 kg/m³.
Lean concrete shall be Class 45, Dosage 250 kg/m³

6. Reinforcement Steel

High Adherence steel (HA) limit of elasticity : 4 000 Kg/cm²
Mild steel : Limit of elasticity : 2 400 Kg/cm²

7. Reinforcement bars Cover

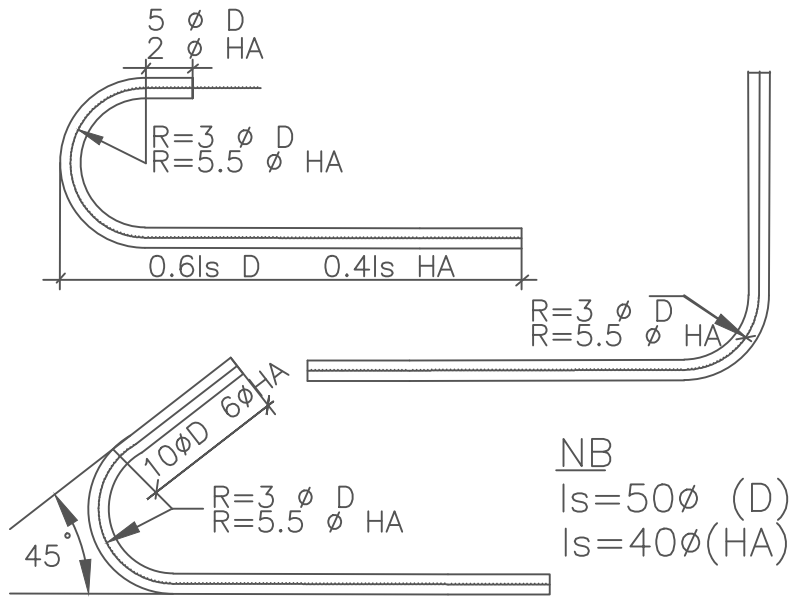
Min 5 cm

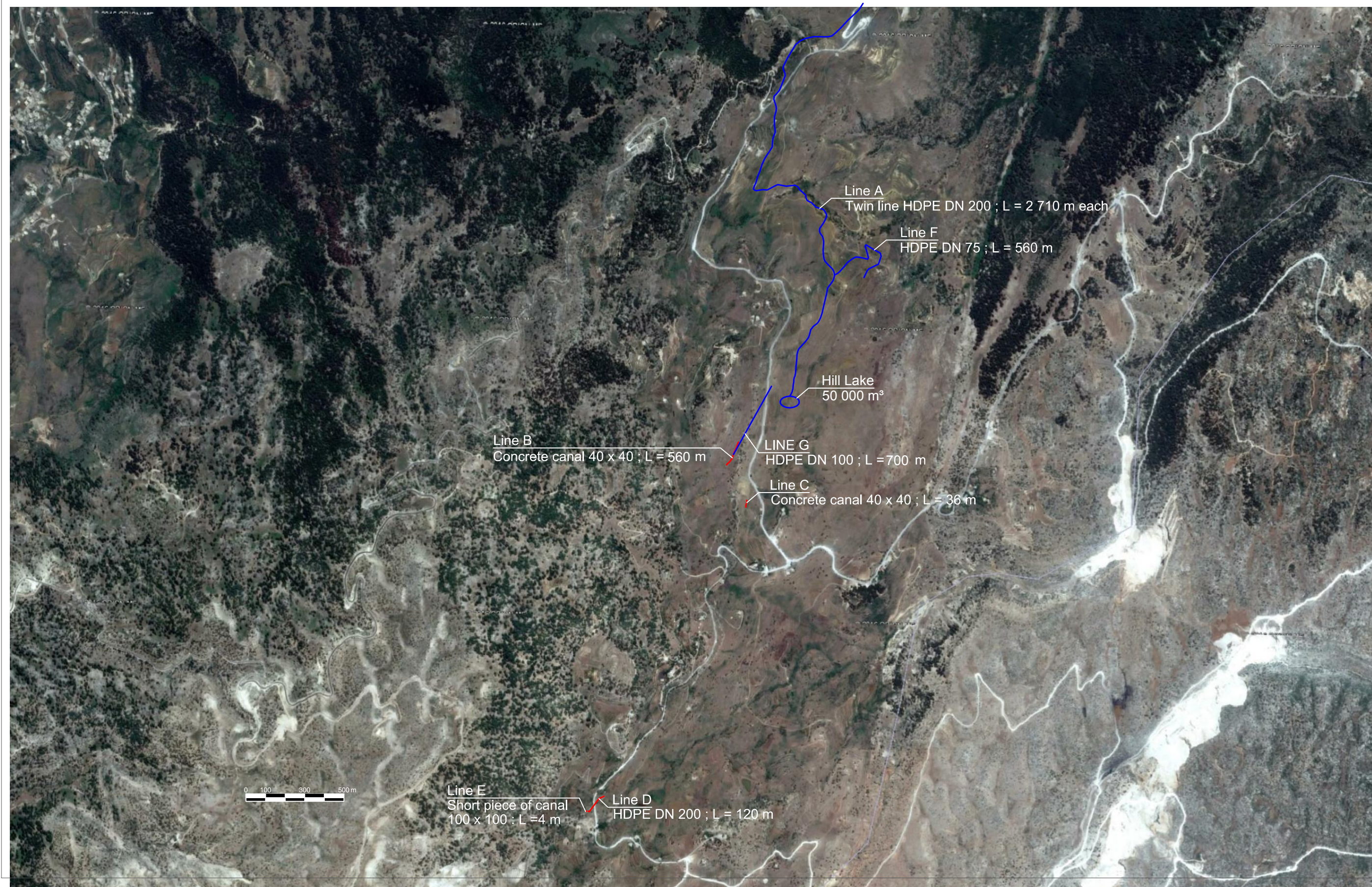
8. Reinforcement bars overlapping

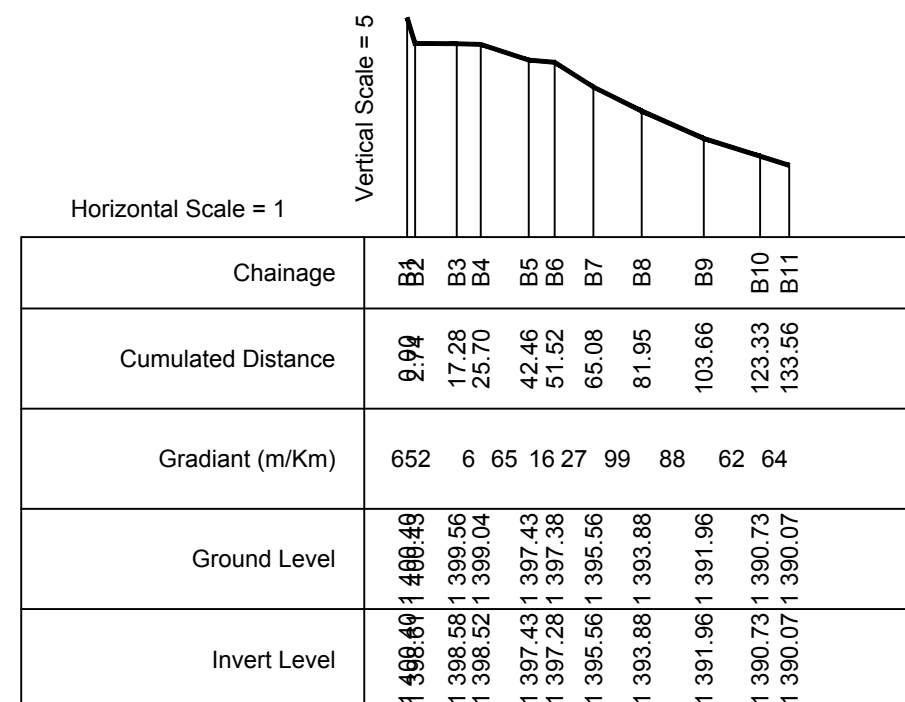
Min 40 cm

9. Bars Bending

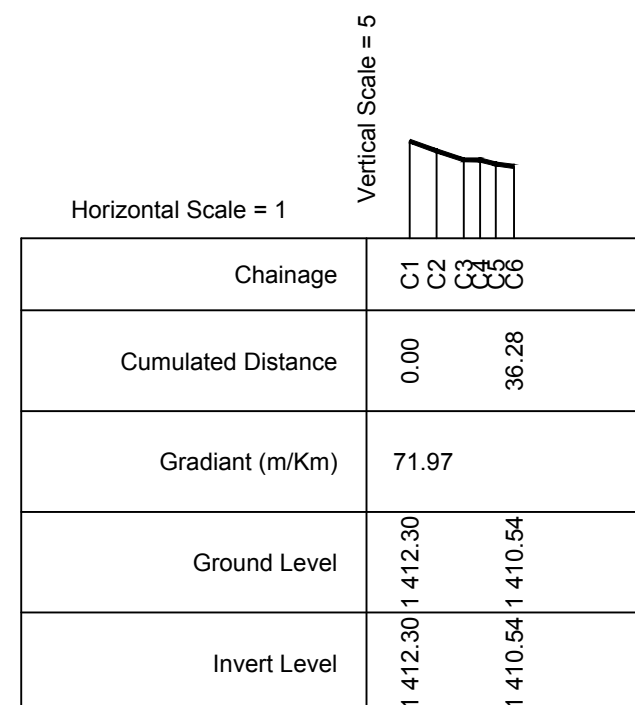
- Ø > 12 mm : Mechanically
 - Ø ≤ 12 mm Manually accepted
- Unbending is not allowed







Canal B layout & profile

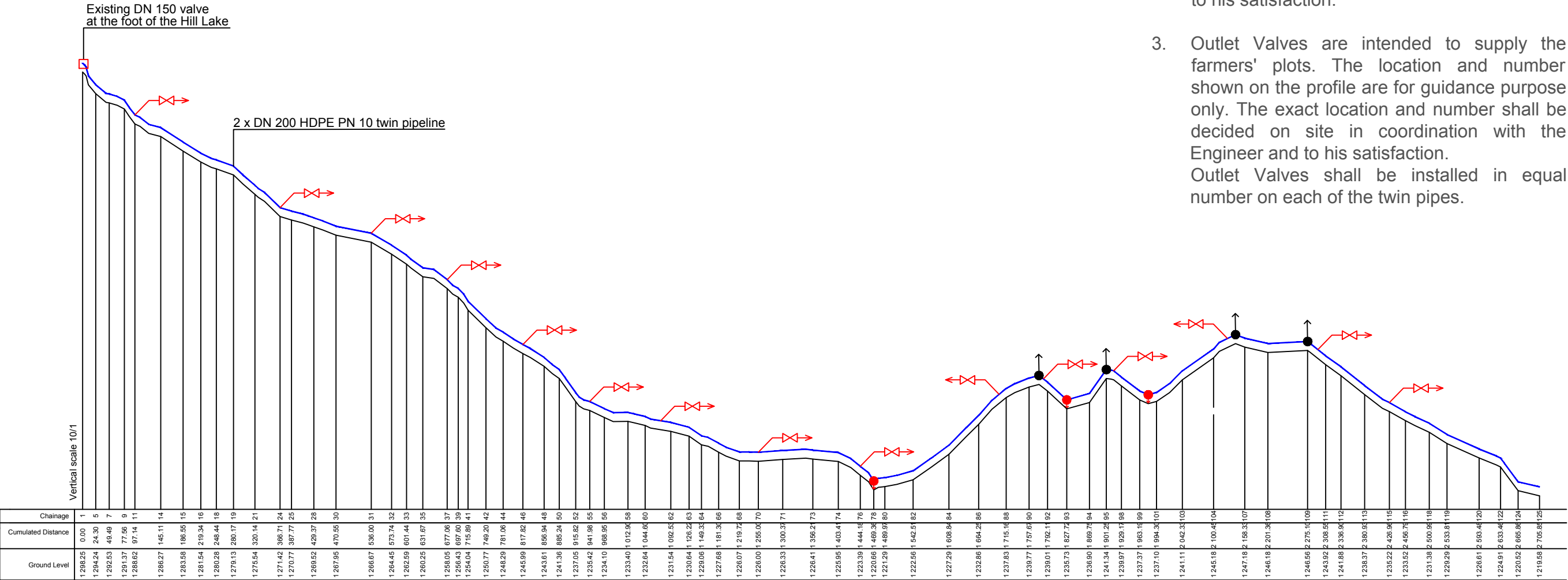
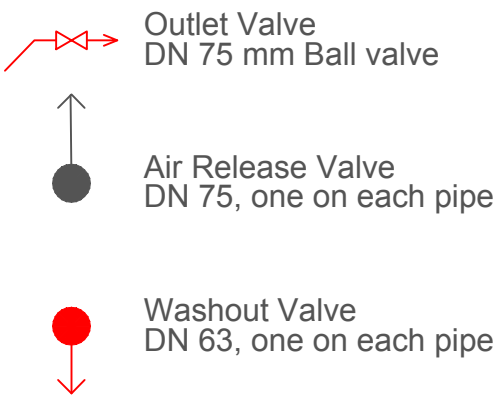


Canal C layout & profile

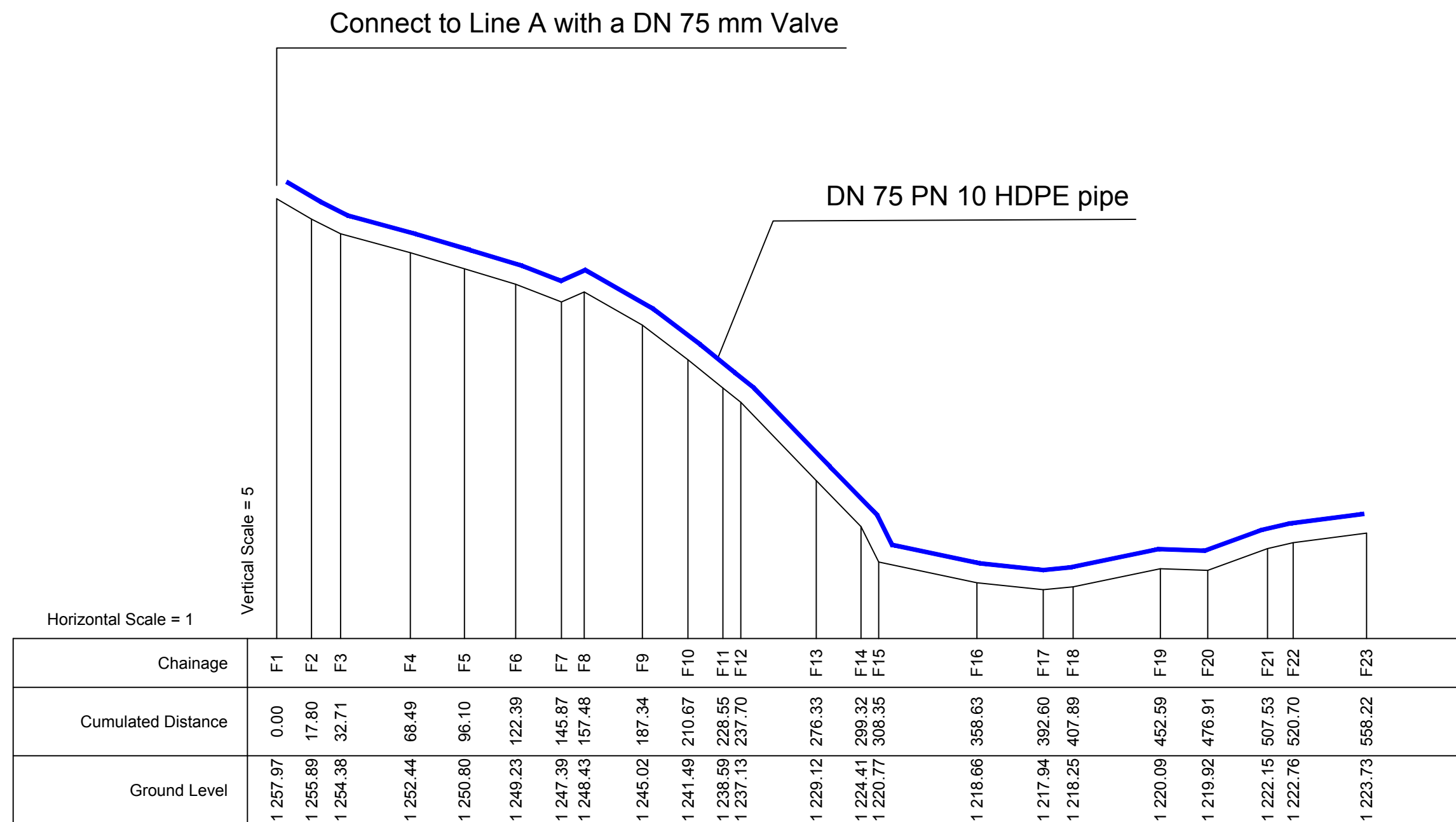


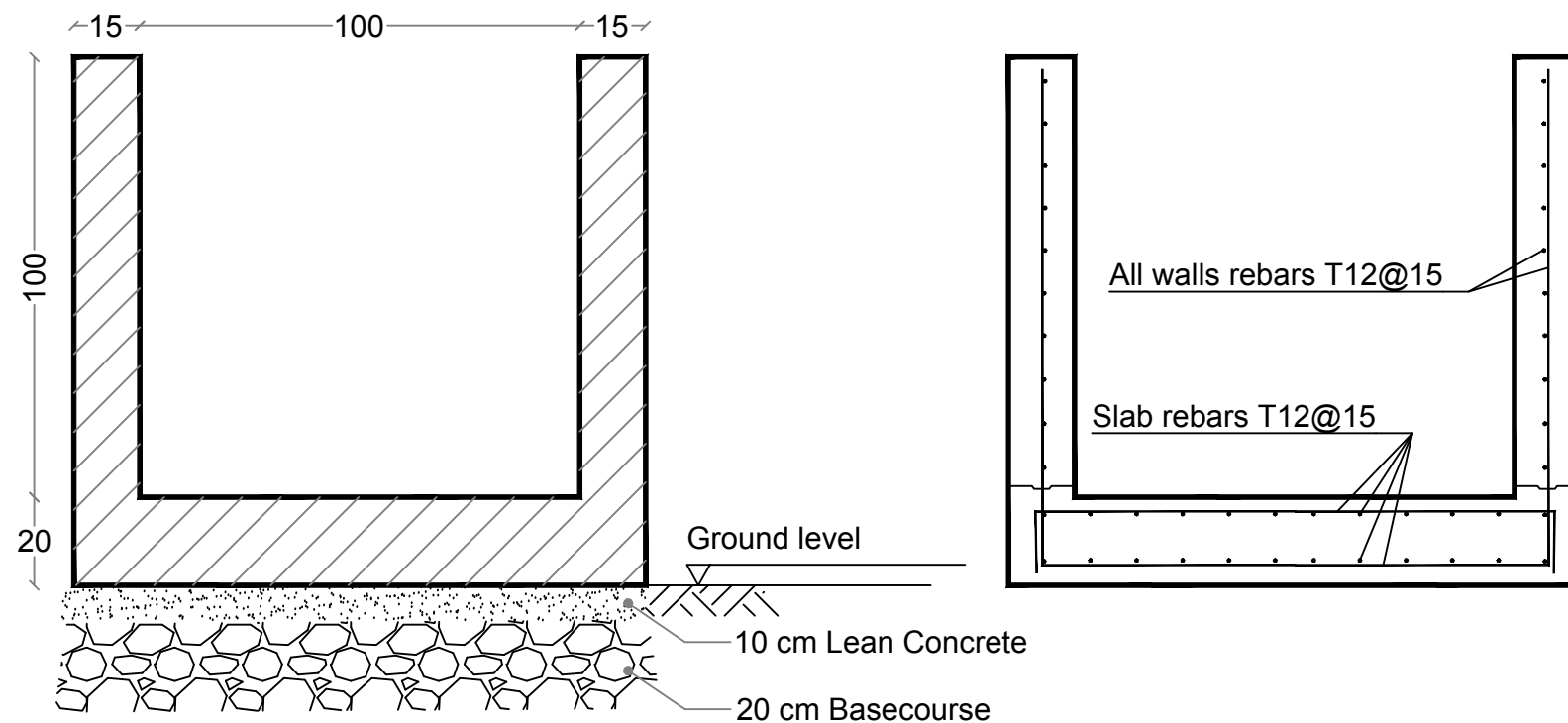
Notes

1. The present longitudinal profile is for information only. The Contractor shall establish his own profile based on actual site survey and submit it for the approval of the Engineer.
2. Air Release Valves shall be installed in high points and Washout Valves in low points on the pipeline route. The locations shown on the profile are for guidance purpose only. The exact location and number shall be in accordance with the approved longitudinal profile and in coordination of the Engineer and to his satisfaction.
3. Outlet Valves are intended to supply the farmers' plots. The location and number shown on the profile are for guidance purpose only. The exact location and number shall be decided on site in coordination with the Engineer and to his satisfaction. Outlet Valves shall be installed in equal number on each of the twin pipes.

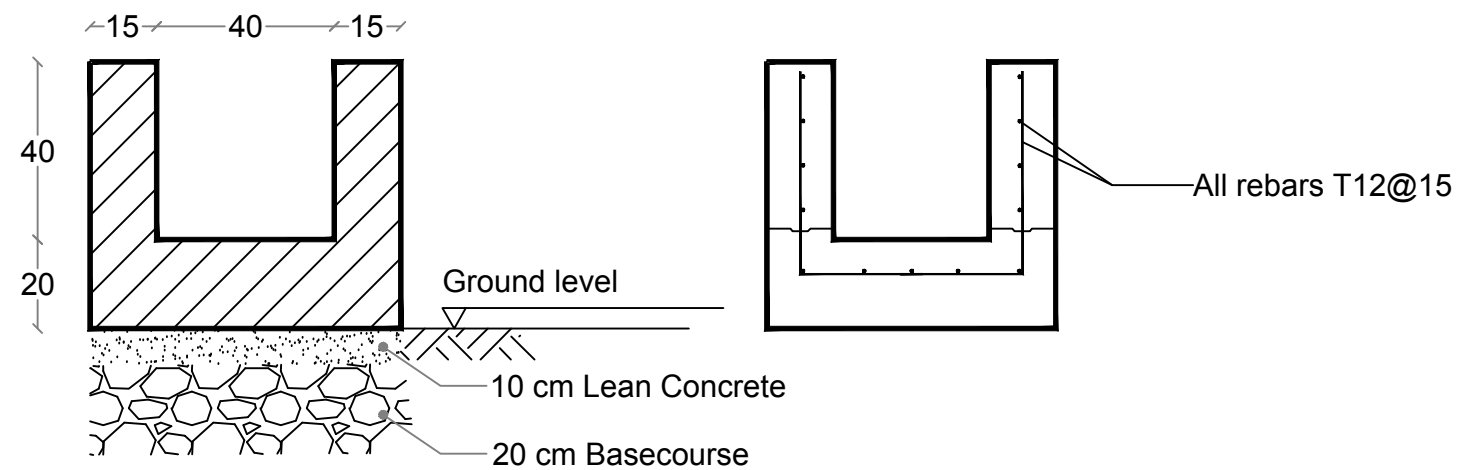




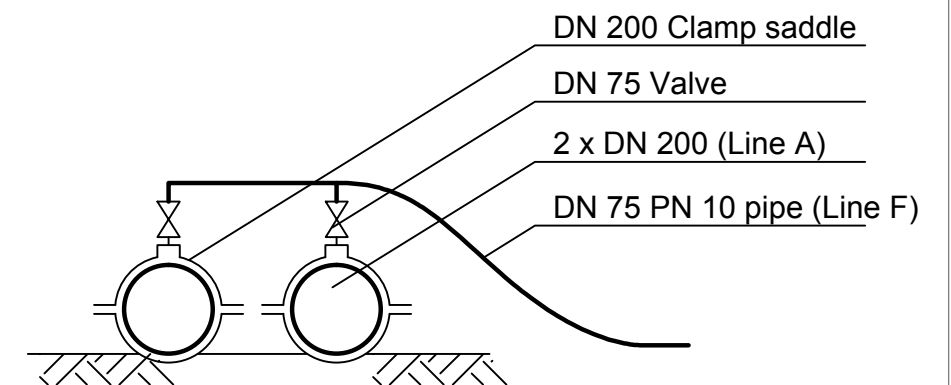




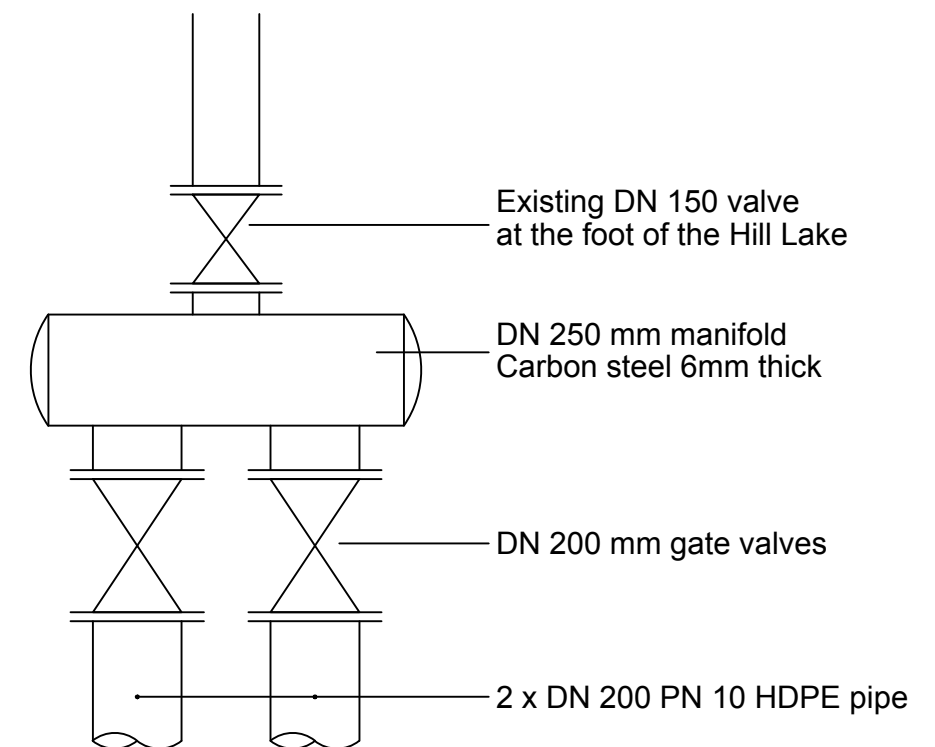
Typical Cross Section for canal E
(Total length ~ 5 m - See Drawing 01 for location)



Typical Cross Section for canals B & C



Typical connection on Line F to Line A



**Line A :
Typical head of line arrangement**