PATRIP FOUNDATION

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The Liaison Office

The Liaison Office (TLO)

Strengthening Local Resilience and Integration through Improved Watershed and Irrigation System

SLR-Afg

Sirth Canal Rehabilitation Project 001

DESIGN DRAWINGS

TLO/SLR-Irrigation Project

SIRTH/KHULM SAMANGAN

SAMANGAN PROVINCE

AFGHANISTAN

April 2024

Table of Contents

Notes:

1-All dimensions are in centimeter or as specified.
2- Scale as shown under each section.
3- Contractor must adoptde signs to site conditions under the direction and with the prior approval of the Site engineer.
4-All elevations are based on the local bench marks (.....Meters above datum) as shown on the site plan.
5-The setting out of the structure and elevations must be confirmed on the site.
6-All P.C.C under foundation to have cement, sand and aggregate. ratio 1:2:4.
7- Concrete design based on a compressive strength
8-Weight of RCC per unit volume W=2400 kgf/m3
9-Sand or fine aggregate shall be free from salt, alkali, calcium sulphate or vegetable and it shall not contain more than 5 percent by weight of sample.
10-The contractor shall supply samples of cement and other construction materials when requested by the Engineer.
11-Water :- The water used for making and curing concrete shall be from a source approved by the Engineer and at the time of use shall be free from polluting matter.
12-Concrete is poured and vibrate in such a way to form a solid compact concrete.
13-The concrete is to be cured for 21 days and shuttering removed after instruction of engineer.
14- The depth of foundation and angle of wing walls is not constant it depends to the strength of soil under Foundation and site condition according to site; Site engineer can increase the depth of Foundation and can change angle and length of wing walls as per site condition.

Project Details				Activities	Name	Signature
Structure Type	Canal	Directorate of Agriculture, Irrigation and Livstock of Samangan		Surveyed by	Zaitullah Rasoolzai	
Province	Samangan	TLO-SLR-Afg		Checked by	Eng. Abdul Munir	
District	Khulm	Irrigation Department		Designed by	Zaitullah Rasoolzai	
Village	Sirth	Project Name	Sirth Canal Rehabilitation	Verified by	Eng.Mahmood Sadiqi	
Page No	001	Scale	As Shown	Approved by	Samangan, PAIL Dep	

GENERAL SPECIFICATIONS

1- The stone for stone masonry and grouted stone pitching should be good quality and approved by engineer.

2- All Grouted stone pitching in stilling basin and foundations should be with cement sand mortar (1:5).

3- All Stone Masonry Cut-off Wall should be with cement sand mortar(1:5).

4- Bitumen should be used in all expansion and contraction joints or as specified.

5- All Plain Cement Concrete should be M15(1:2:4) or as specified

6- All tests which are needed for RCC should be done for the new source materials or after each 20 CUM delivery.

7- All backfilling of canal and cut off walls should be backfill from existing excavated materials as per site engineer instruction.

8- The compaction tests should be done during the backfilling on the culverts should be not less than 95% of Maximum Dry Density.

9- All the tests should be done by an organization which is accepted by the client if any test be required from the client.

10- Provide expansion joint for stone masonry wall after ezch18m.

11- Stone for Gabion should be good quality.

12- Stone size for Gabion shall range between 20 cm -30 cm.

13- Gabion should be fabricated using galvanized Standard Wire Gauge (SWG).

14- Principal wires along the gabion edges(salvage wire) should be strong.

15- Tensile strength of gabion wire should be 38-50 kg/mm2.

16- Galvanized gabion wire used for mesh should have 3 mm diameter.

17- Galvanized gabion wire for edges should have 4mm diameter.

18- Mesh size for gabion basket 6cmx8cm and for mattress 8cmx11cm and should follow the Macaffere Standard

19- All P.C.C under footings should be of M15 (1:2:4) or as specified

20- The Reinforced Cement Concrete (RCC) design is based on a compressive strength of fc =250 kg/cm2 or as specified

21- Weight per unit volume of RCC concrete W=2400 kgf/m3

22- Sand or fine aggregate shall be free from salt,alkali,calcium sulphate or vegetable and it shall not contain more than 5 percent by weight of total sample.

23- Aggregate:- Coarse aggregate shall consist of crushed gravel with the max. size of 20mm.

24- The Max slump should be between 5-10 cm.

25- To increase the workability of the concrete, the chemical admixture (Super plasticizer) can be added.

26- The water used for making and curing of concrete shall be from a source approved by the Engineer and at the time of use shall be free from polluting matter.

27- Concrete is poured and vibrate in such a way to form a solid compact concrete.

28- The concrete is to be cured for 14 days or acoording to the engineer instruction.

29- During the cold wether concreting should be stopped or the contractor has to consider the cold weather condition concreting procedures.

30- All shuttering should be from plywood or steel type.

31- Shuttering can be removed after :

Side of beams,walls,columns	16-24 hours
Forms from beneath the slabs(spaning up to 6m)	14 days
Forms from beneath the slabs(spaning above 6m)	21days

32- Steel bar overlap should not be less than 48 Ø bar

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Page No	002	Scale	As Shown	Approved by	Samangan, PAIL Dep	

LEGEND:-

- Center Line
- Direction of flow
- Stone Masonry
- Villages houses
- Brick Masonry
- P.C.C Block
- Gabion
- Gabion Section
- Wash/River Bed Material
- Geotextile Mattress
- Plain Cement Concrete
- Reinforced Cement Concrete
- Bank Protection
- Compacted Soil
- Hill
- H.F.L / M.W.L
- Elevation of the point is 070 m
- Elevation of the point (070m) in Plan view
- Traverse Station
- Bench Mark
- Lined Slope
- Earthen Slope
- Ground Level
- Stone Pitching/Rip Rap

ABBREVIATION:-

Av	AVERAGE
BM	BENCH MARK
W	WIDTH
C/C	CENTER TO CENTER
DW	DEPTH OF WATER
DWG	DRAWING
DIA , ø	DIAMETER
D.W.L	DESIGN WATER LEVEL
D/S	DOWNSTREAM
EL.	ELEVATION
F.B	FREE BOARD
HFL	HIGH FLOOD LEVEL
HT.	HEIGHT
H.G.L	HYDRAULIC GRADE LINE
KM , km	KILOMETERE
M ,m	METRE
Chkd	CHECKED
Apprd	APPROVED
M .W .L	MAXIMUM WATER LEVEL
MIN	MINIMUM
No(s)	NUMBER(S)
N.G.L	NATURAL GROUND LEVEL
P.C.C	PLAIN CEMENT CONCRETE
R.C.C	REINFORCED CEMENT CONCRETE
ST	STATION
THK	THICKNESS
TYP	TYPICAL
HFL	HIGH FLOOD LEVEL
U/S	UPSTREAM
YRS	YEARS
Q	DESIGN DISCHARGE
W.L	WATER LEVEL
NTS	NOT TO SCALE
R.B.L	RIVER BED LEVEL
D	DEPTH

NORTH DIRECTION

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Page No	003	Scale	As Shown	Approved by	Samangan, PAIL Dep	

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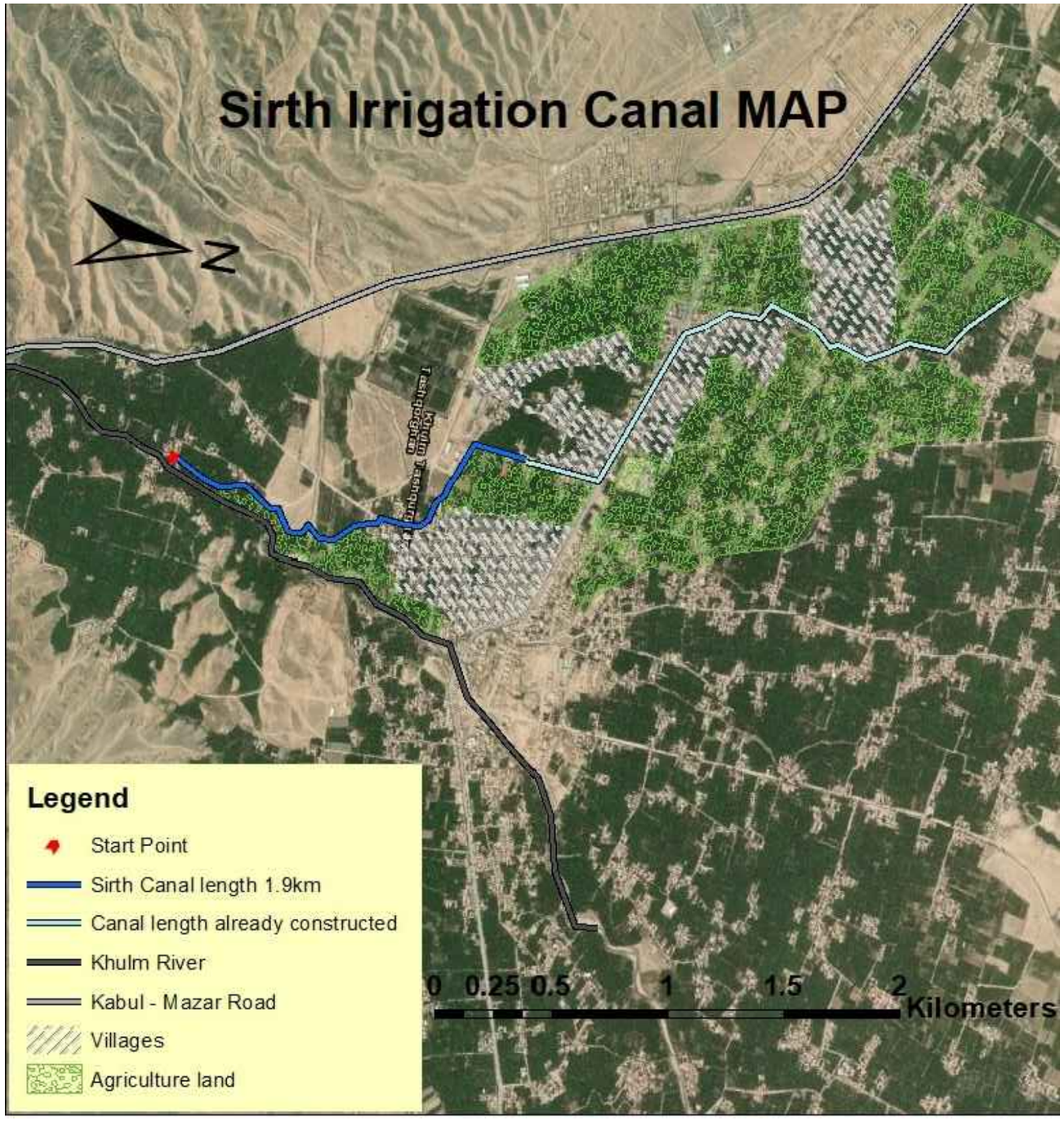

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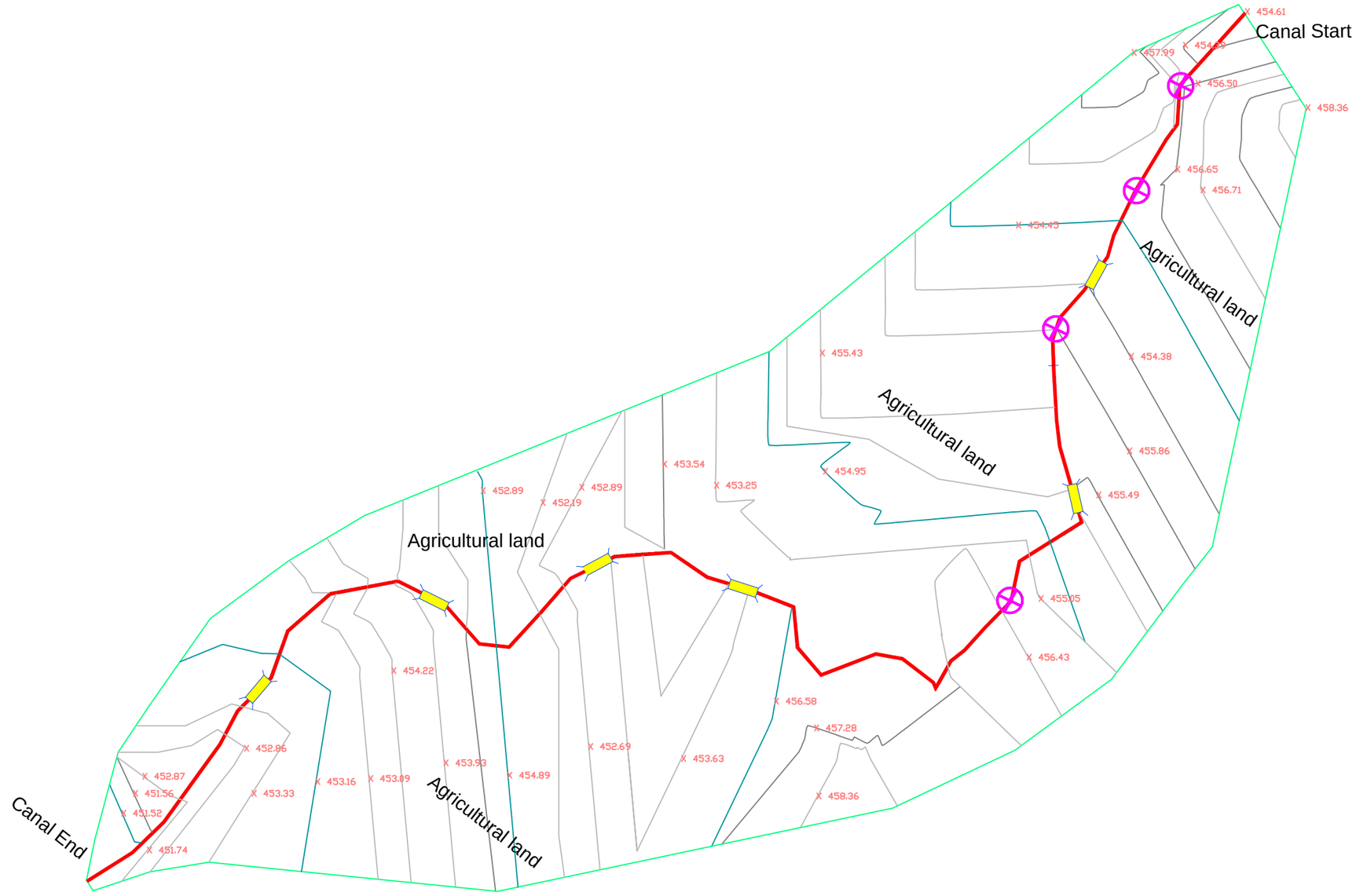
Page No	004	Scale	As Shown	Approved by	Samangan, PAIL Dep	

Sirth Canal Contour Map



Legends

- Perposed Culvert
- Purposed Canal
- Spillway and control gate
- Major contour
- Minor contour

Scale=1:5000 1cm=50m

0 0.4 0.8 1.2 1.6 2 Km

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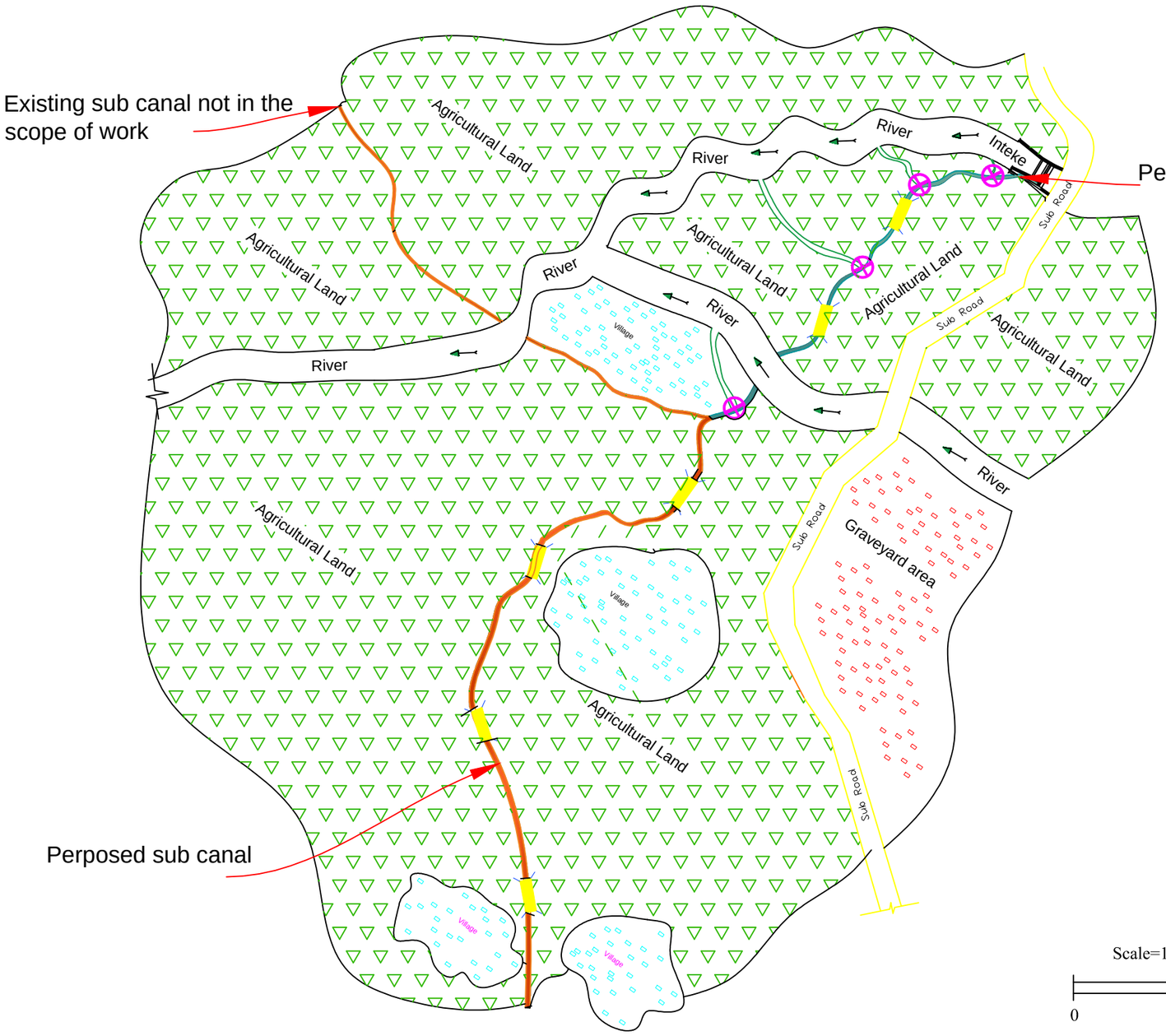
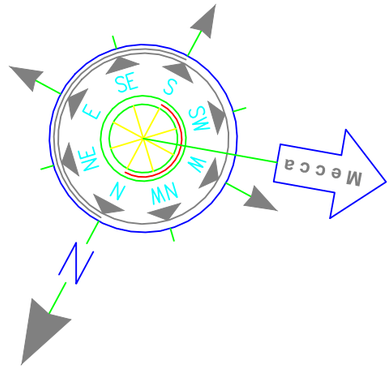
Page No	005	Scale	As Shown	Approved by	Samangan, PAIL Dep	

General Site Plan of Sirth Canal Rehabilitation Project- Samangan/Khulam





Legends

- Perposed Culvert
- Bench Mark — B.M−1
- Benefited Villages Homes
- Existed Villages Road
- Main Canal
- Sub Canal
- Spillway and control gate
- Grave in existing graveyard

Scale=1:5000 1cm=50m

0 0.4 0.8 1.2 1.6 2 Km

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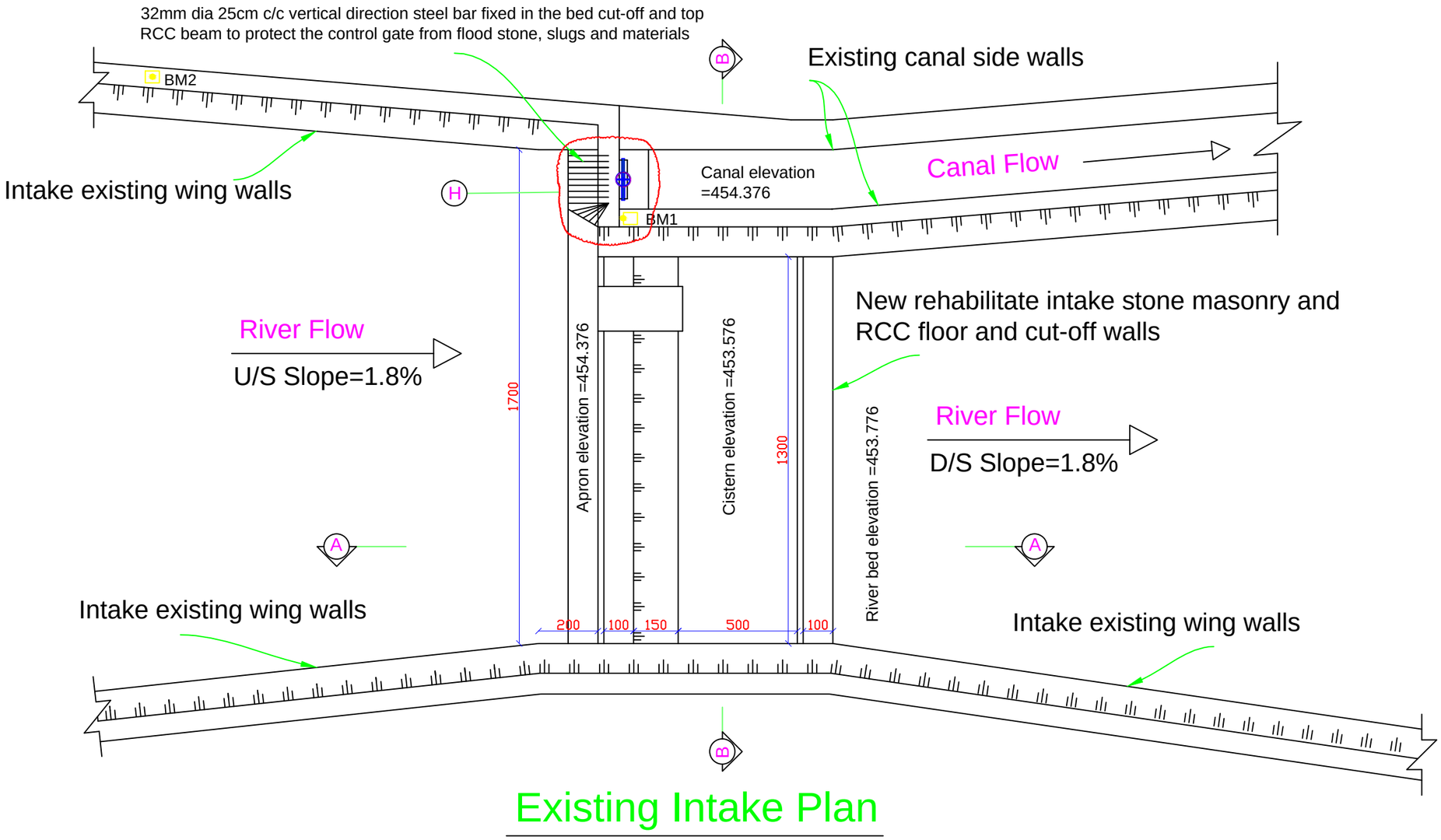
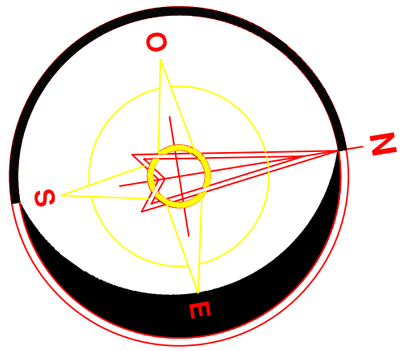


Existing Intake Plan

BM1:
Latitude: 36.681362
Longitude: 67.6931224
Elevation: 456.760

BM2:
Latitude: 36.681190
Longitude: 67.6928928
Elevation: 457.991



Note:The dimensions of the new rehabilitate intake floor and cut-off walls are ajusted acoording to the needs and site condition

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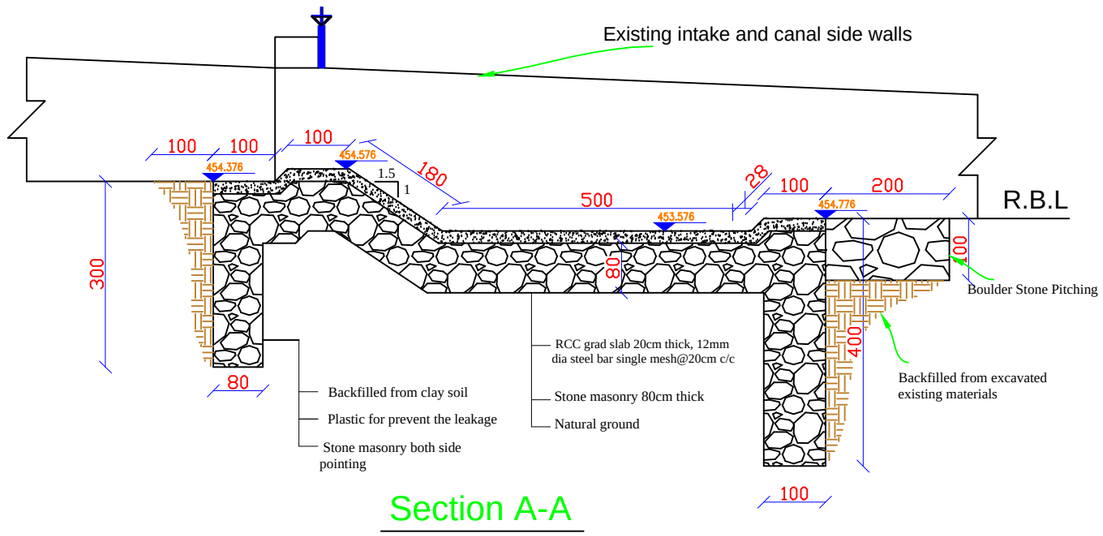
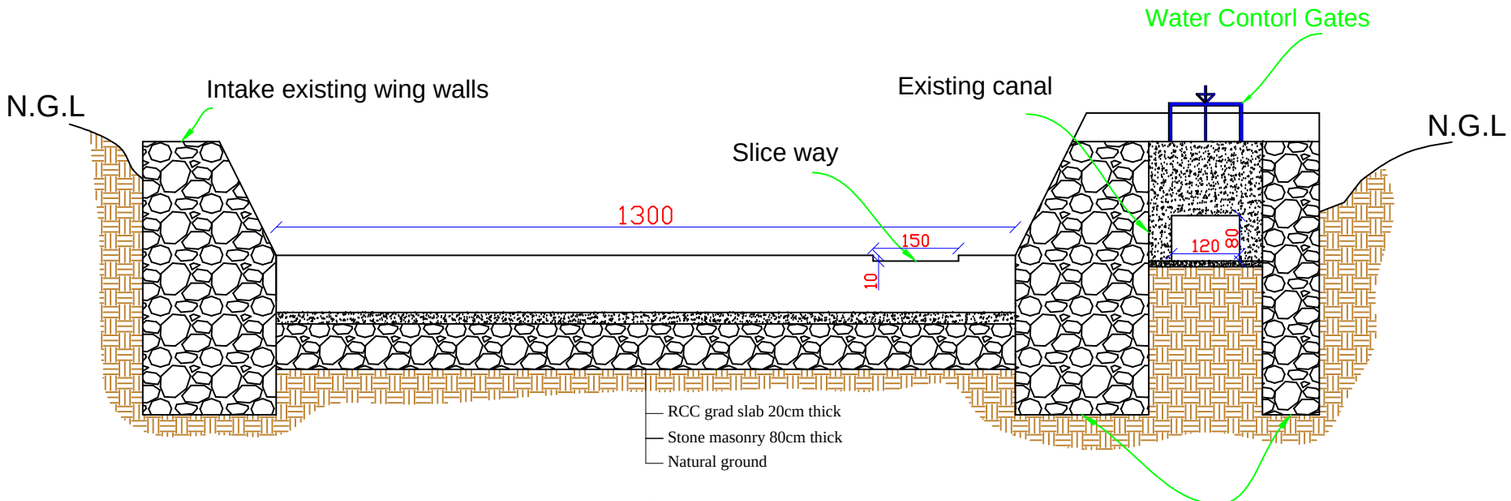


Section A-A



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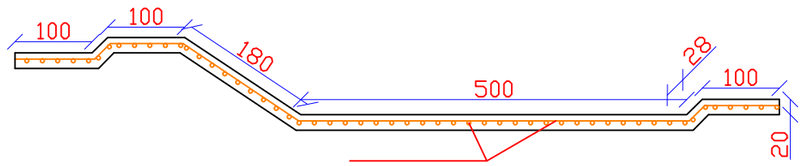

Single mesh Ø12@20cm c/c both directions

Intake RCC grad slab rebar details

Note:The dimensions of the new rehabilitate intake floor and cut-off walls are ajusted acoording to the needs and site condition.
If the excavation of cut-off walls reached the level of hard cutting, do not stop the excavation, therefor permission must be obtained from the design engneer.

Intake RCC grad Slab Rebar Scheduale				
Sr/N	No	Dia of bar (mm)	Total Lenght of bar (cm)	Shape of bar
1	65	12mm	1056	
2	5	12mm	1720	
3	47	12mm	1320	
3	25	12mm	110	

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District	Khulm			Irrigation Department	Checked by	Eng. Abdul Munir	
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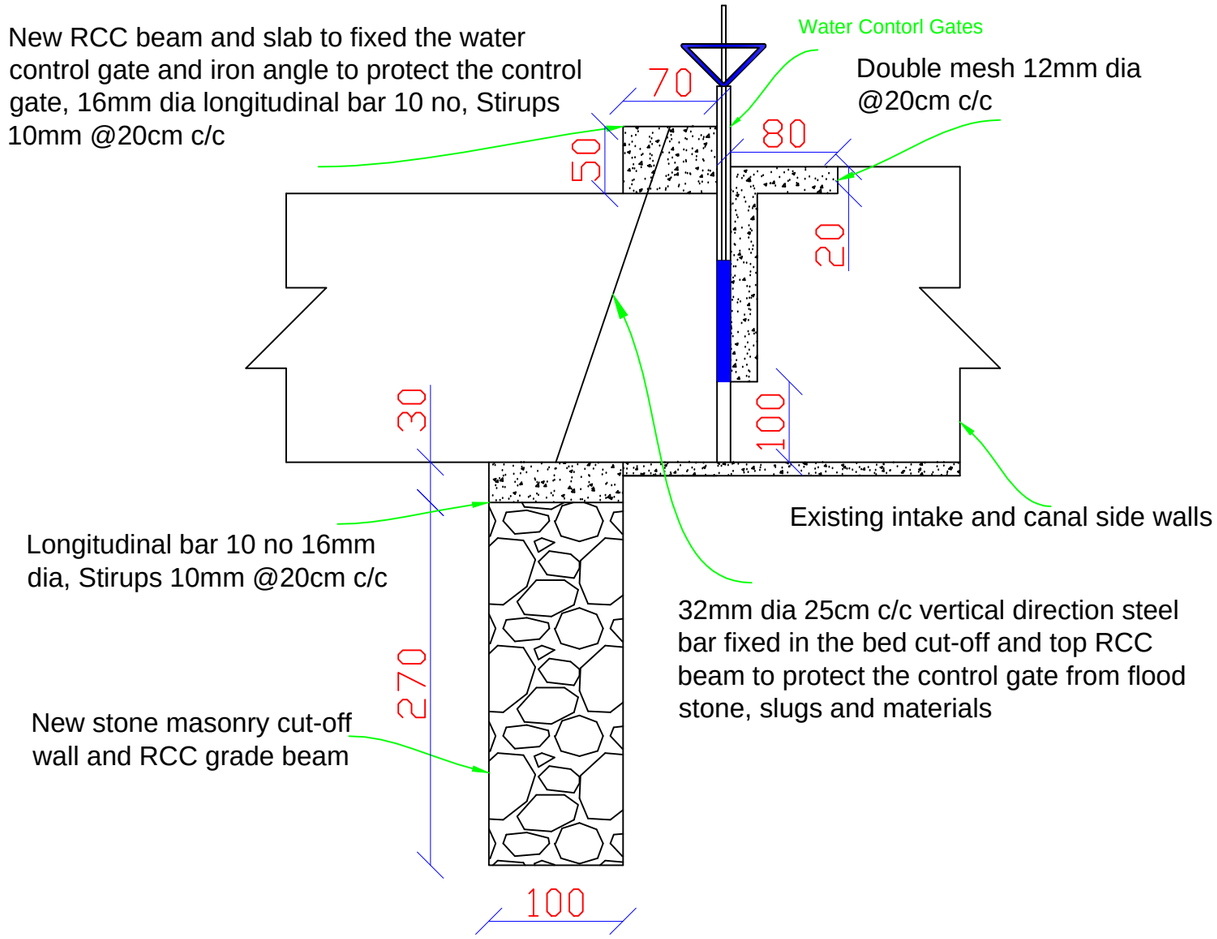
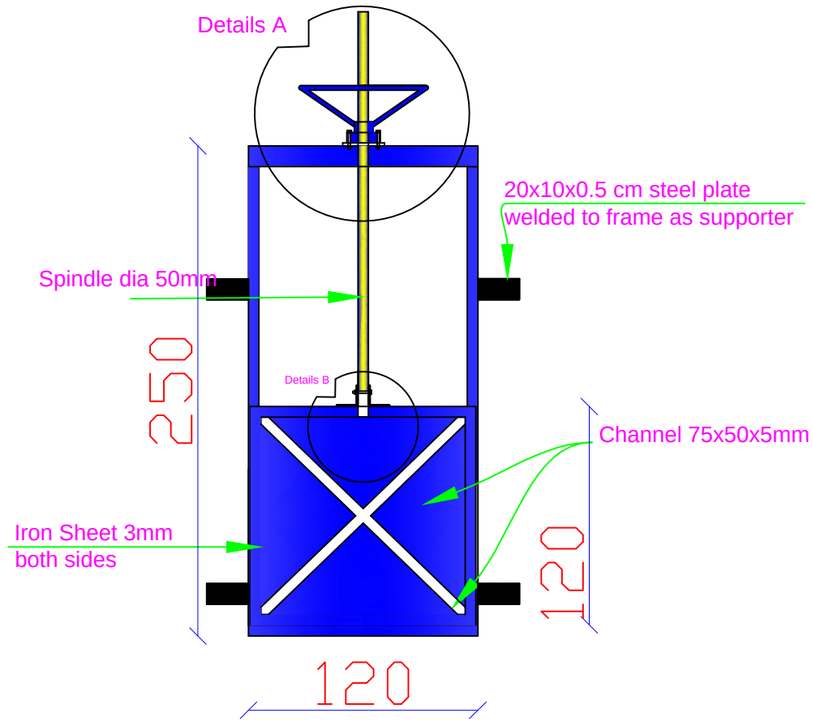
Page No	008	Scale	As Shown		Verified by	Eng.Mahmood Sadiqi	
					Approved by	Samangan, PAIL Dep	



Details of H

14 Intake Control Gate details



Note:The controle gate and steel bar should be fixed in the top and grade beams acoording to the needs and site condition.

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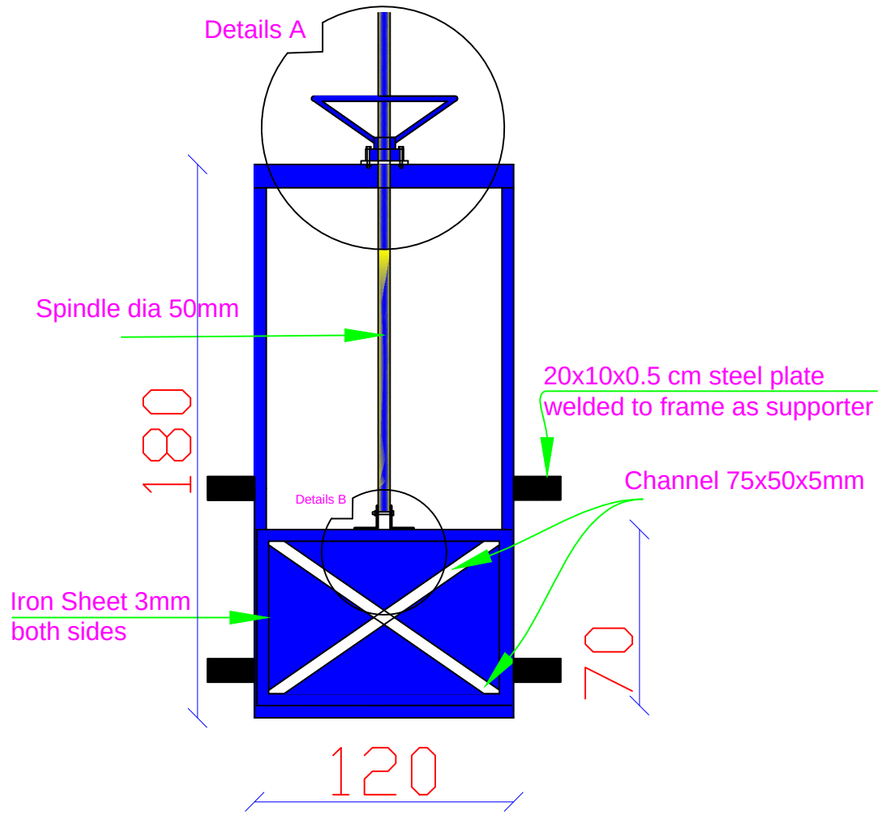
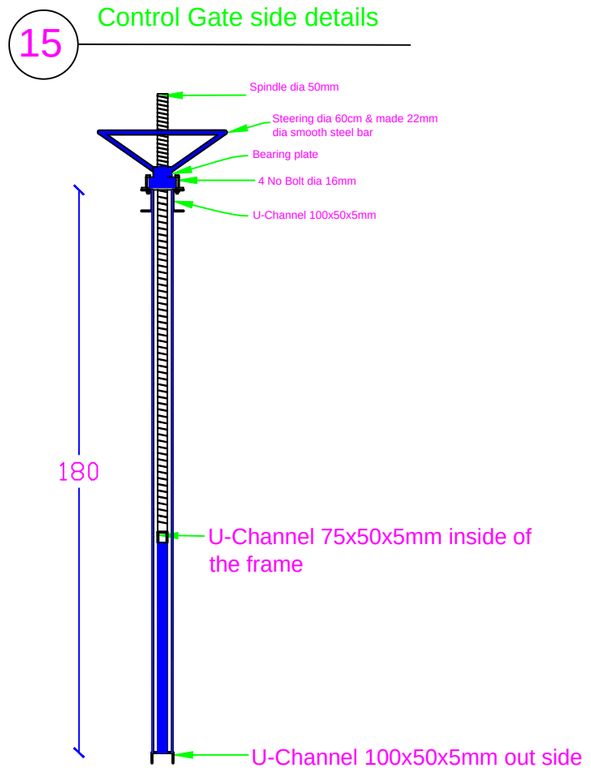
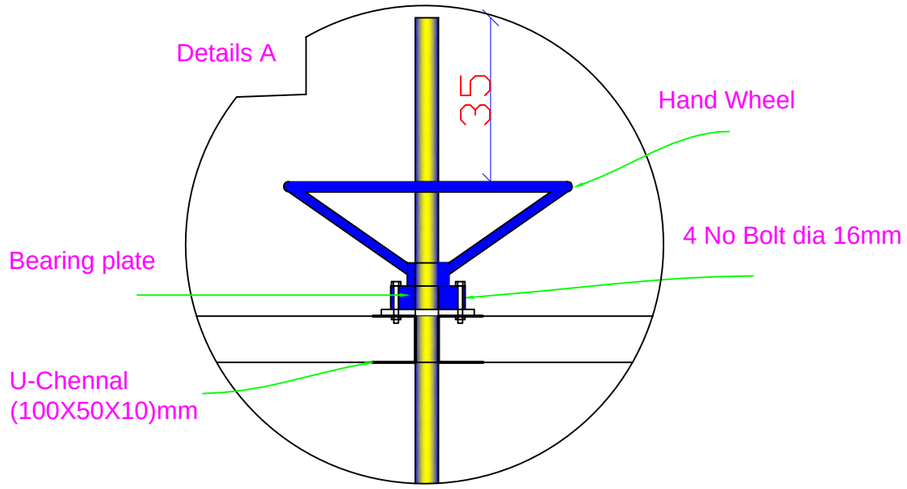
Page No	009	Scale	As Shown	Approved by	Samangan, PAIL Dep	

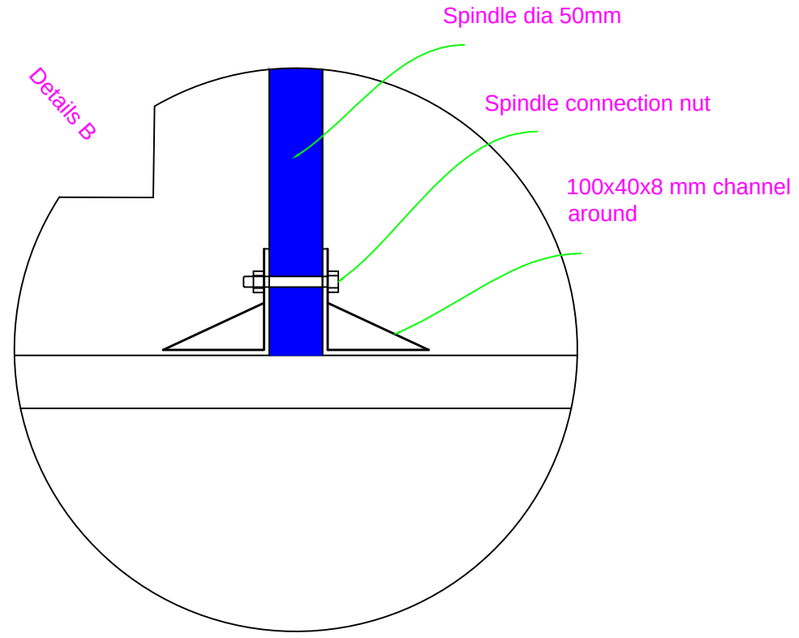
13 Spillway Control Gate details



15 Control Gate side details







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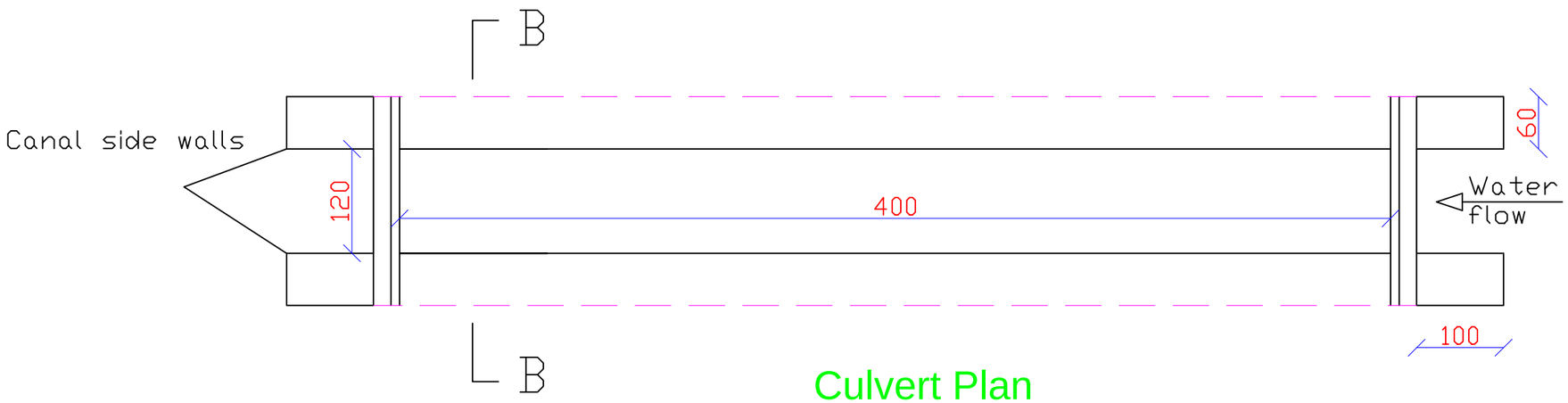
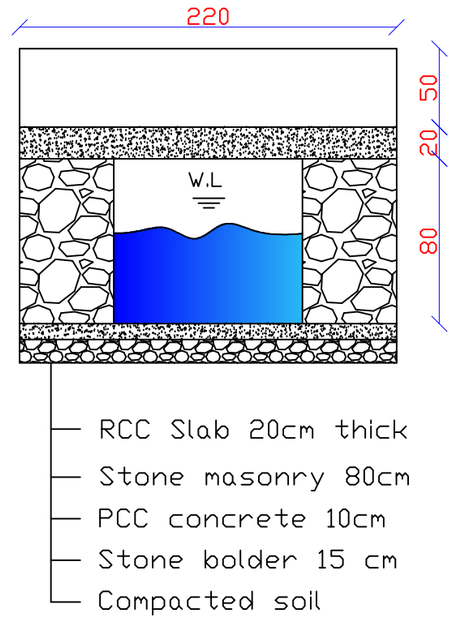


Culvert Plan

The length of culvert is not constant site engineer can to change
the length of culvert and wing walls according to site condition



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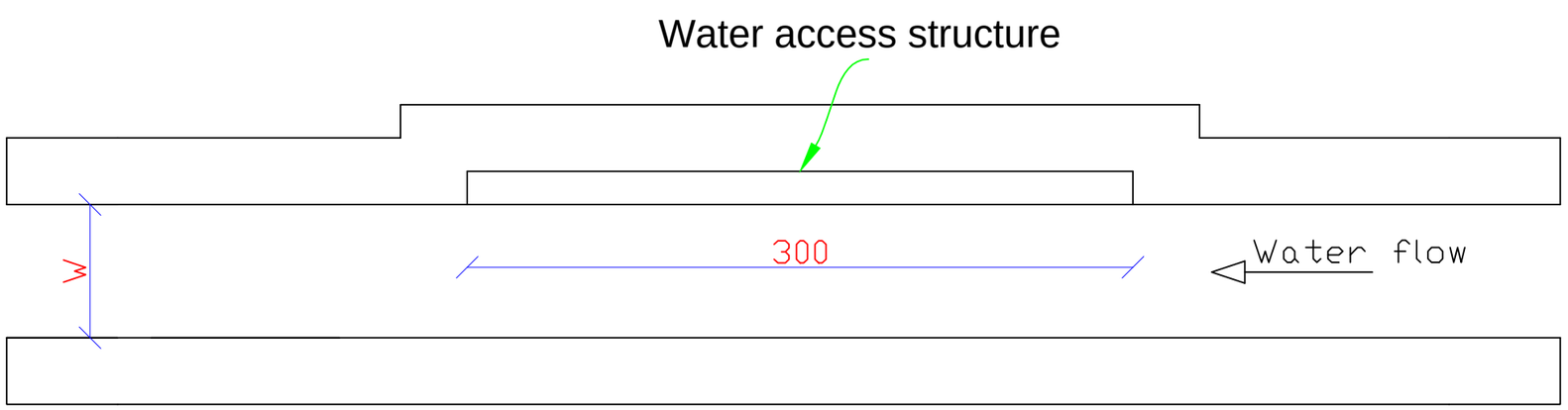

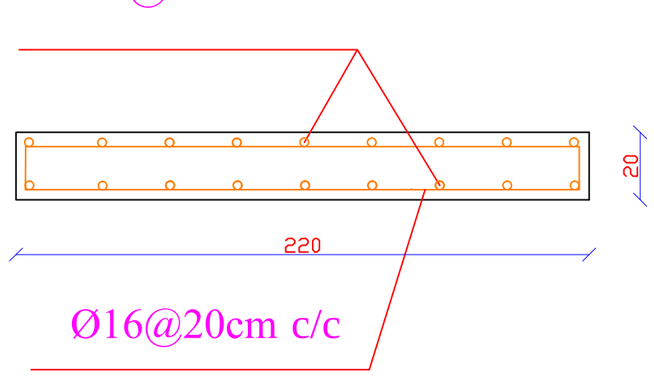

RCC Slab details

Water access structure

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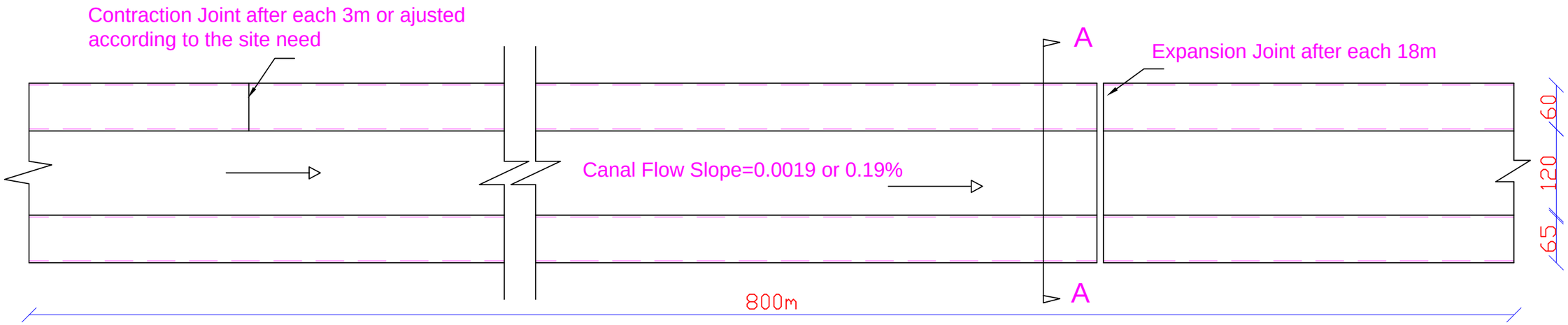
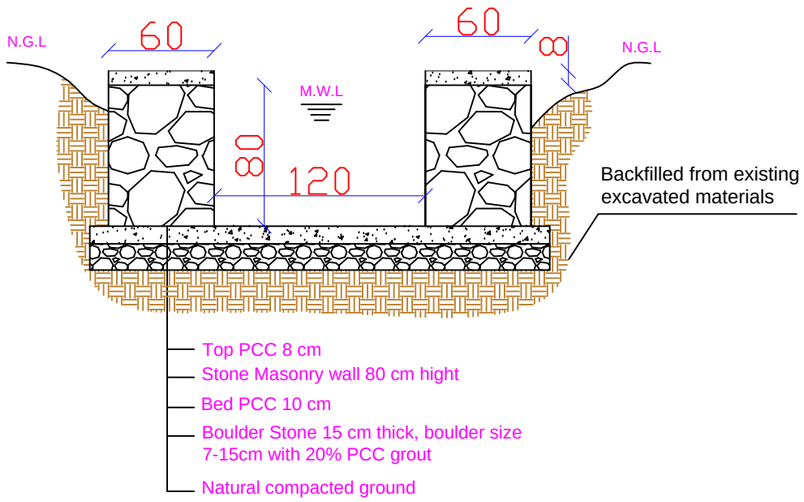
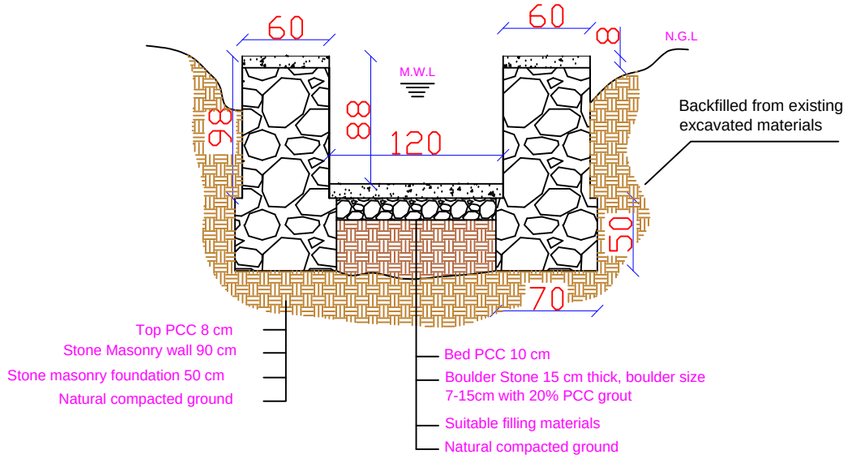


Plan of Sirth Main Canal

Note:Total lenght of the main and sub canals are measured 1900m



Typical Section A-A



Typical Section A-A with need
of foundation

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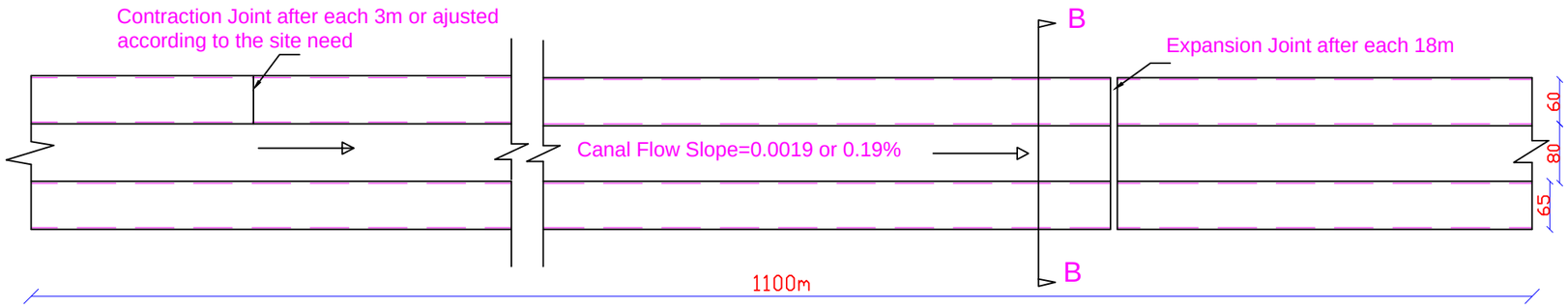
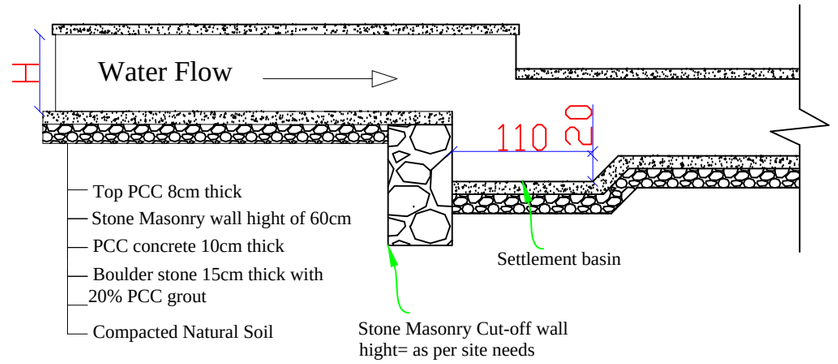
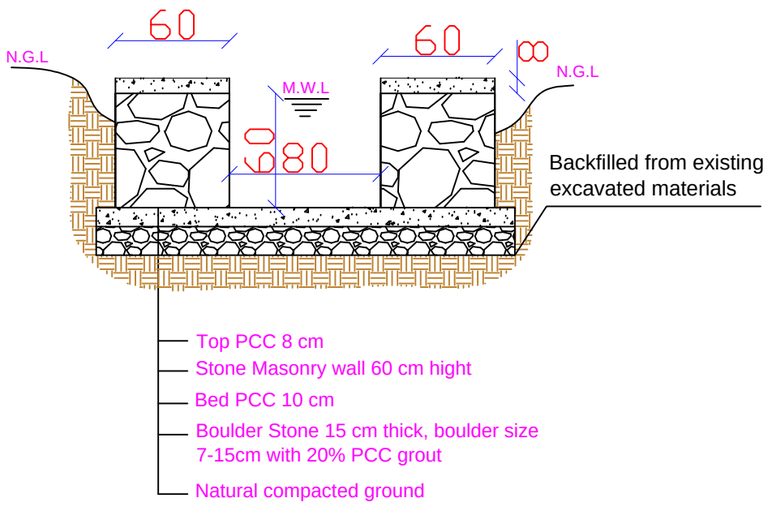
Page No	012	Scale	As Shown	Approved by	Samangan, PAIL Dep	



Plan of Sirth Sub Canal



16 Canal drop and settlement deatails



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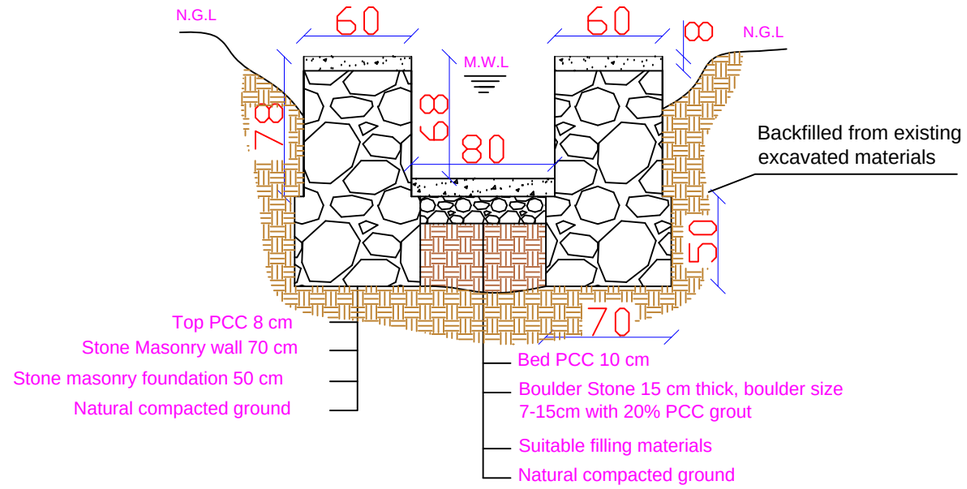

Typical Section B-B with need of foundation

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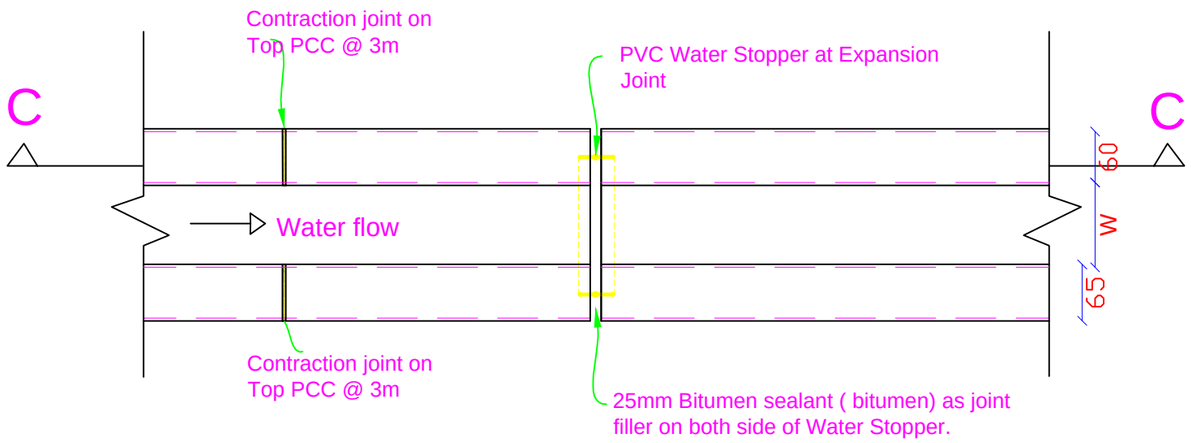
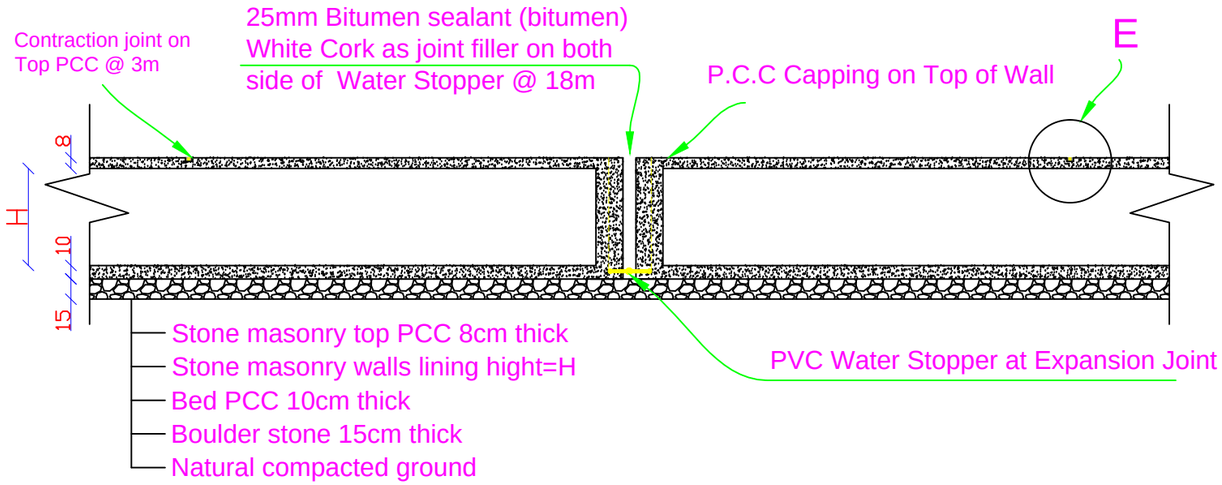
Page No	013	Scale	As Shown	Verified by	Eng.Mahmood Sadiqi	
				Approved by	Samangan, PAIL Dep	

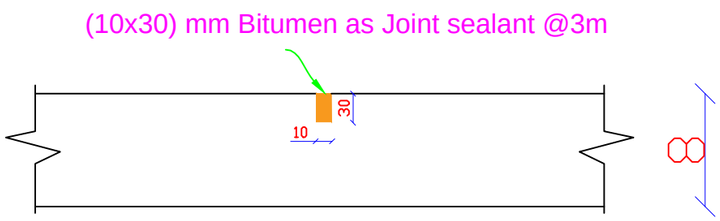
1 Plan view of Expansion Joint in Stone Masonry Lining



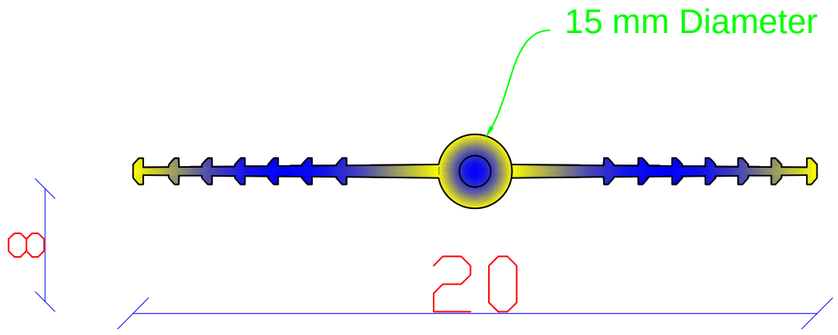
W= Width of Canal

2 Expansion Joint Details section C-C

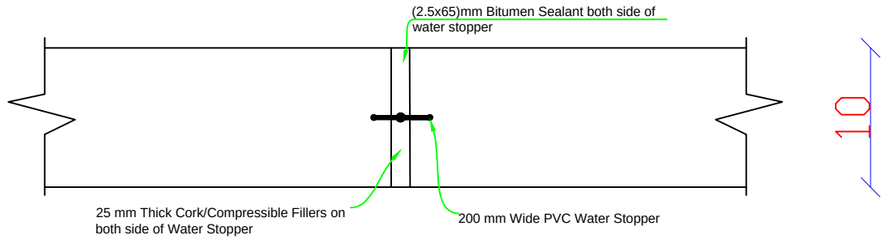




3 Details of E (contraction joints) on walls copping

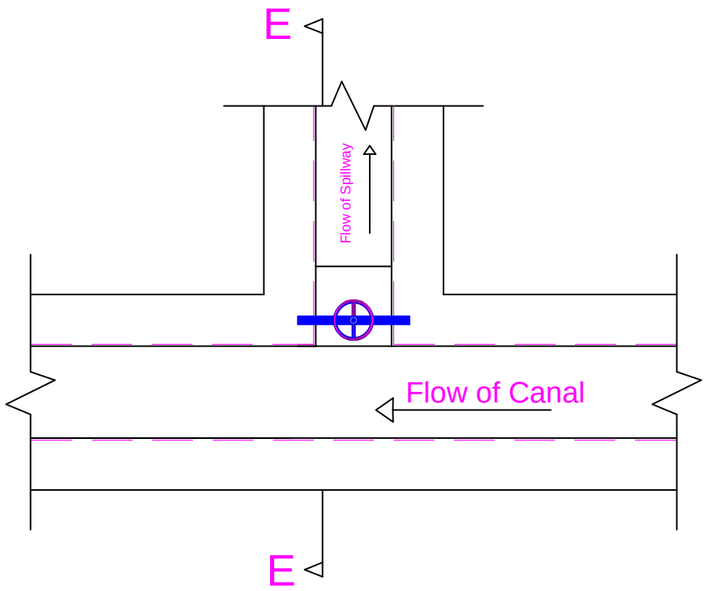


4 Water Stopper

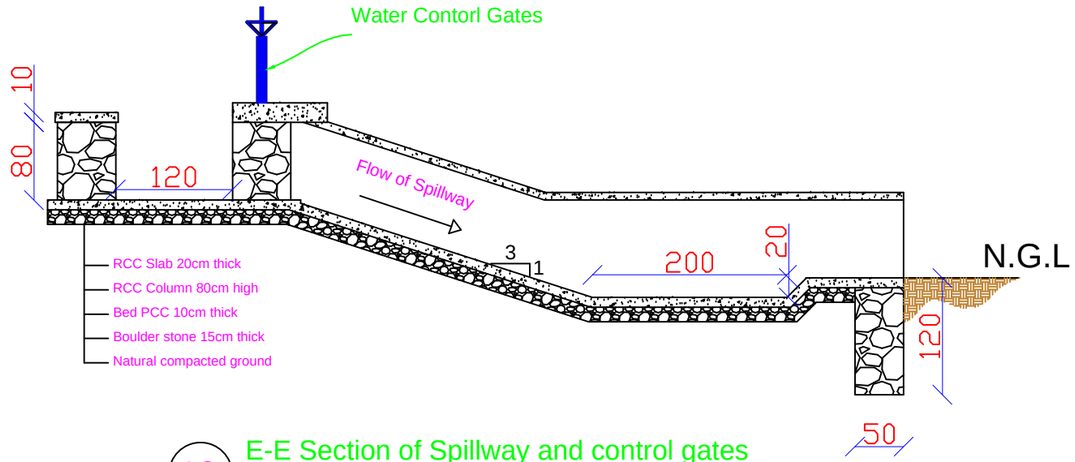


5 Section View of Expansion Joint in bed PCC

Project Details				Activities	Name	Signature
Structure Type	Canal	Directorate of Agriculture, Irrigation and Livstock of Samangan		Surveyed by	Zaitullah Rasoolzai	
Province	Samangan	TLO-SLR-Afg		Checked by	Eng. Abdul Munir	
District	Khulm	Irrigation Department		Designed by	Zaitullah Rasoolzai	
Village	Sirth	Project Name	Sirth Canal Rehabilitation	Verified by	Eng.Mahmood Sadiqi	
Page No	014	Scale	As Shown	Approved by	Samangan, PAIL Dep	

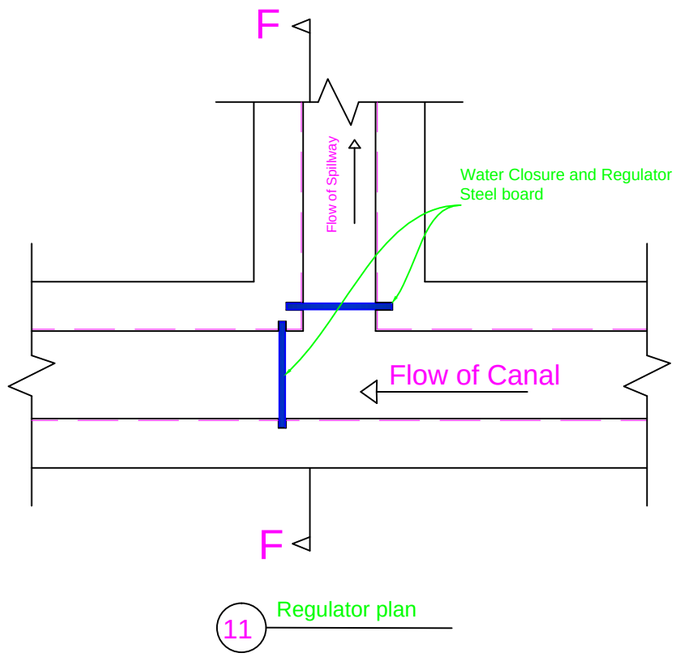


9 Main Spillway plan

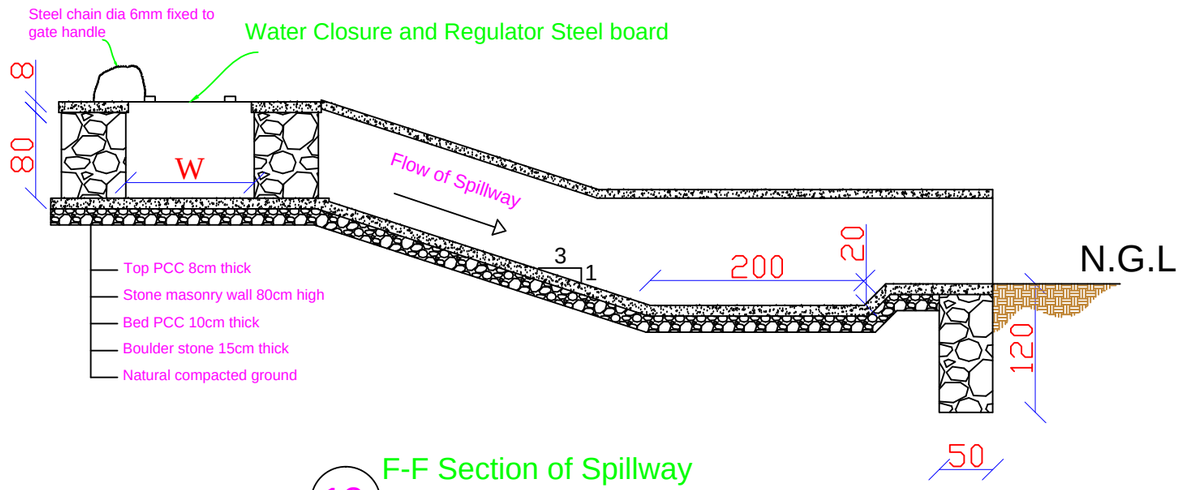


10 E-E Section of Spillway and control gates

Note:Drawing is typical for the Spillway lenght of wing walls, slope of spillway and direction of wing walls are ajusted acoording to the site needs and condition



11 Regulator plan



12 F-F Section of Spillway

Note:Drawing is typical for the Spillway lenght of wing walls, slope of spillway and direction of wing walls are ajusted acoording to the site needs and condition

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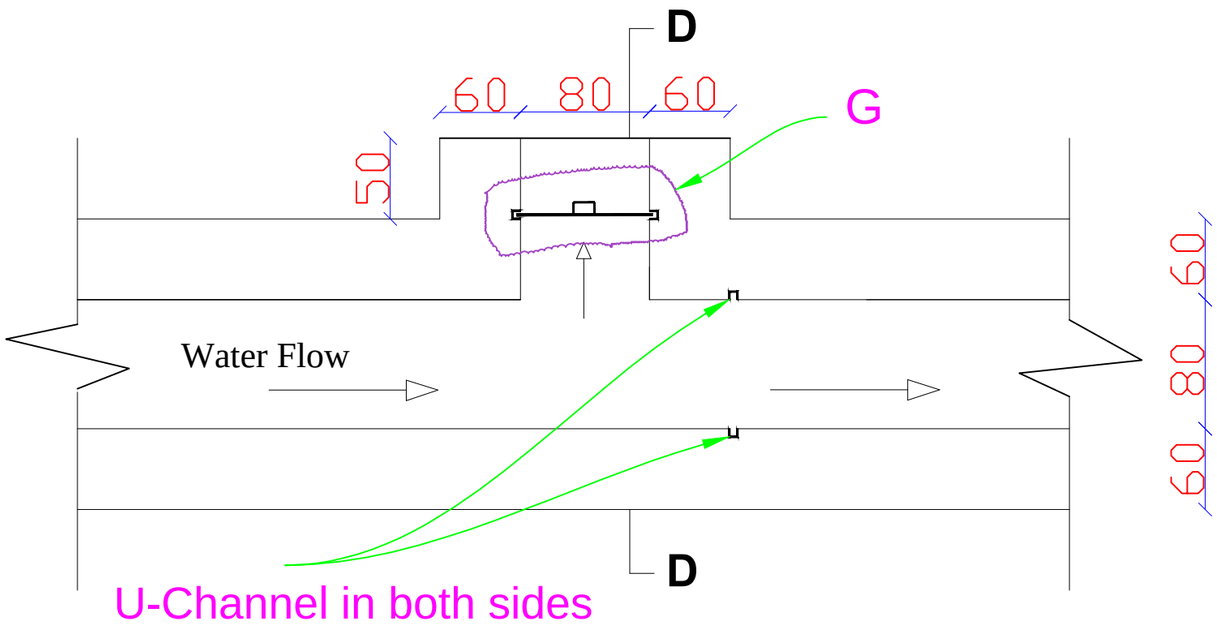
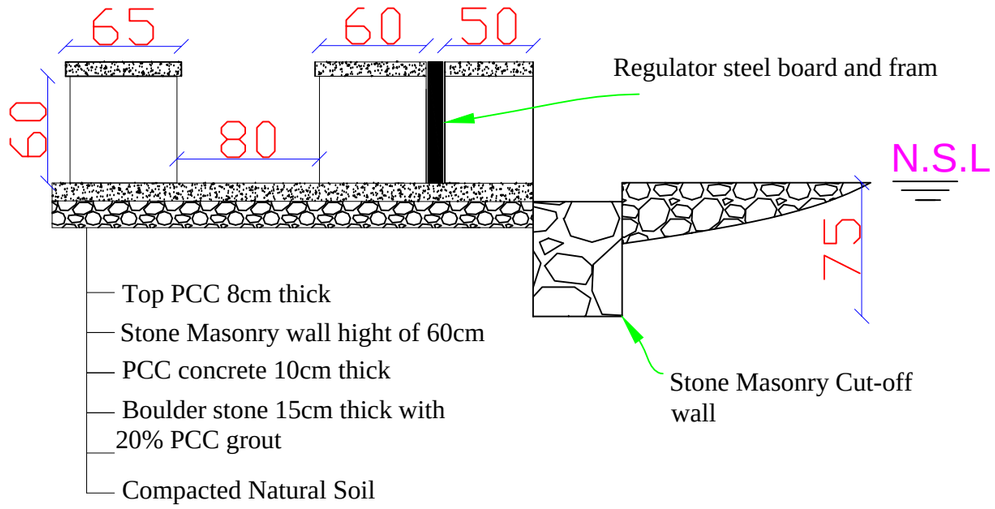
Page No	015	Scale	As Shown	Approved by	Samangan, PAIL Dep	

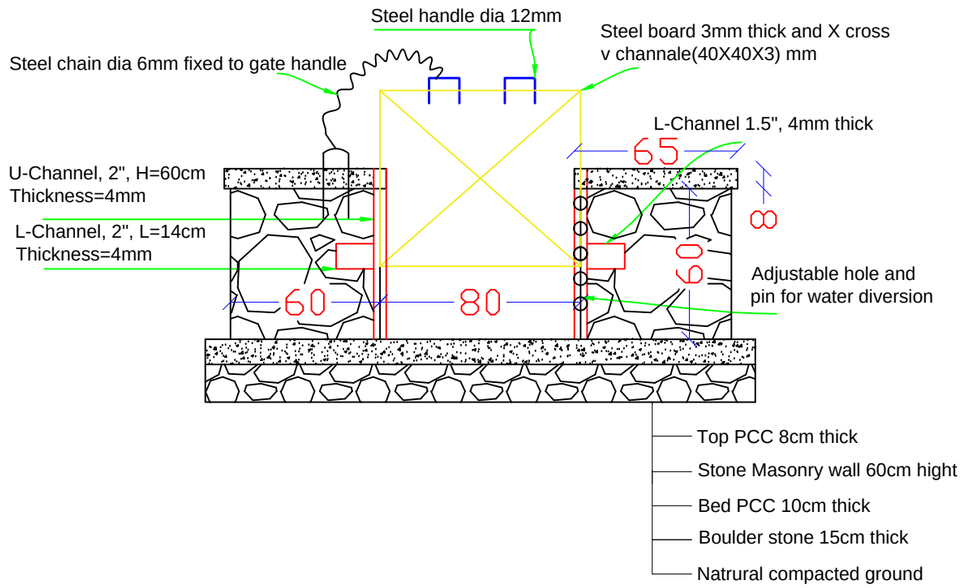


U-Channel in both sides

8 Cross Regulator(Water Divider) Plan



6 D-D: Cross Regulator(Water Divider)



7 G Details (Regulator Frame and Board)

Note:

1. Majority of the cross regulators locates in the new proposed main and sub canals, in case some of the regulators located in the raw part of the canal, so the site engineer can arrange the size and length of the regulator canals flow direction and wing walls according to site condition. in addition, the regulator walls length is adjusted according to site need.
2. All the regulators are divided by sub-regulators and the design drawing is typical for all regulators, the project site engineer can adjust its sizes according to site need.

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3.Drawing is typical for the regulator but the length function is to site condition

4. Size of manual steel gate for water regulator should be adjusted according to site requirement

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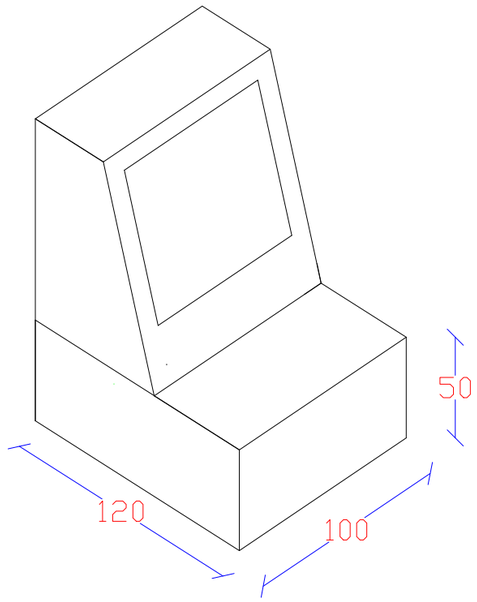
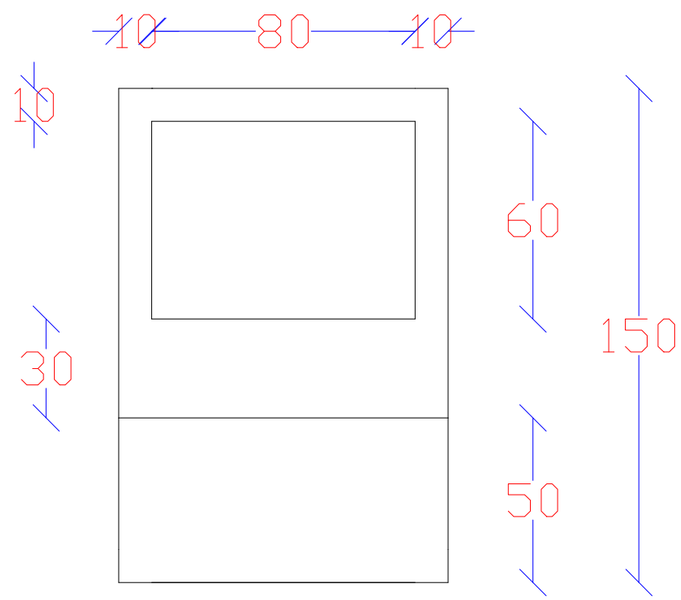
Village	Sirth	Project Name	Sirth Canal Rehabilitation	Verified by	Eng.Mahmood Sadiqi	
Page No	016	Scale	As Shown	Approved by	Samangan, PAIL Dep	

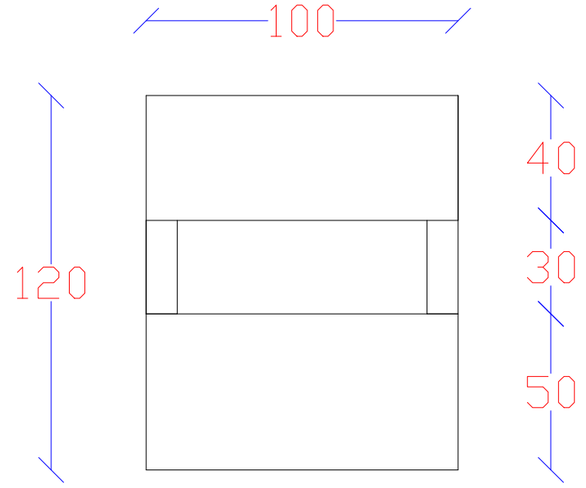
Signboard Details



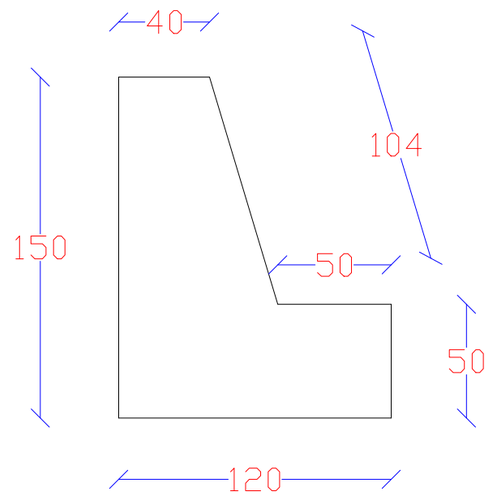
3D View



Front View



Top View



Side View

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Page No	017	Scale	As Shown	Approved by	Samangan, PAIL Dep	