

# BORAMA, AWDAL, SOMALILAND

## GORAYO-CAWL EARTH DAM

### DETAILED SHOP DRAWINGS

DECEMBER 2024

#### PROJECT INFORMATION

LOCATION:  
GORAYO-CAWL, AWDAL, SOMALILAND



44° 30' 0" E

VICINITY MAP  
N.T.S

#### DAM PROJECTS NO. 0011

CLIENT:



ARCHITECTURE:

#### GENERAL

G000	COVER PAGE
G100	GENERAL NOTES

#### MAPS

M100	PROJECT LOCATION
M200	GENERAL SITE TOPOGRAPHY & PROFILES

#### CIVIL

C100	GENERAL LAYOUT OF BALEY
C200	PROPOSED BALEY PLAN VIEW
C300	BALEY CROSS-SECTIONS

#### STRUCTURAL

S100	SILT-TRAP SECTION A-A
S102	GEOMEMBRANE AND SOIL EROSION CONTROL WALL
S105	CIVIL WORK LAYOUT
S107	20m <sup>3</sup> MASONRY ELEVATED TANK DESIGN
S108	ANIMAL TROUGHS (CAMEL & GOAT)
S109	GUARD ROOM DESIGN
S110	WATER POINT
S111	SOLAR SYSTEM
S112	TOILETS (W/C)
S113	FENCE

## GENERAL NOTES:

- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE STATED.
- PROJECTION: UTM-ZONE 38 N - WGS1984
- VERTICAL DATUM: MEAN SEA LEVEL ELLIPSOID: WGS1984
- DO NOT SCALE THIS DRAWING AS A BASIS FOR CONSTRUCTION. WORK FROM FIGURED DIMENSIONS AND DERIVED DIGITAL DRAWINGS ONLY FOR STAKE OUT PURPOSES.
- THIS DRAWING MUST BE READ IN COMBINATION WITH ALL OTHER DRAWINGS RELATED THE SAME SHEETS IN ANY ITEM UNIT.
- THE CONTRACTOR MUST CHECK ALL DIMENSIONS AND LEVELS BEFORE ANY CONSTRUCTION BEGINS.
- THE WORKS MUST BE IN COMPLIANCE WITH AASHTO, ASTM AND OTHER RELATED CODE REGULATION PROVISIONS.
- CONSULTANT MUST BE INFORMED ABOUT CONTRADICTIONS OF ANY KIND BEFORE CONSTRUCTION BEGINS.
- REFER TO DETAIL DRAWINGS FOR ALL DETAIL SECTIONS, AND TYPICAL DRAWINGS.

## CLEARING AND TOPSOIL MANAGEMENT:-

1. ALL WORKS SHALL BE UNDER TAKEN AS SHOWN IN THE DRAWINGS. NOTES AND SPECIFICATIONS.
  - \* REFER TO DRAWING FOR TYPICAL SECTIONS ACROSS CLEARING AREAS.
2. MINIMUM CLEARING
  - 2.1 CLEARING WIDTH SHALL BE LIMITED TO THE ABSOLUTE MINIMUM REQUIRED FOR THE ROAD WORKS.
  - 2.2 THE SUPERINTENDENT, PRIOR TO BEGINNING OF EARTHWORKS, SHALL DETERMINE AND DIRECT:
    - \* THE VEGETATION WITH THE CONSTRUCTION AREA TO BE CHIPPED AND STOCKPILED ONSITE FOR REUSE, OR CLEARED AND DISPOSED OF.
    - \* THE AREAS OF TOPSOIL THAT IS TO BE STRIPPED AND STOCKPILED UP TO THE SATISFACTION OF ENGINEER BUT NOT LIMITED TO INCLUDING ORGANIC AND LOOSE SOILS ONSITE FOR REUSE, OR DISPOSED OF TO RECOMMENDED APPROPRIATE LOCATIONS.
  - 2.3 THE EXISTING VEGETATION WITHIN THE ROAD RESERVE BUT OUTSIDE THE MINIMUM CLEARING AREAS SHALL BE RETAINED AND MARKED FOR PROTECTION. NO CLEARING OR DISTURBANCE SHALL OCCUR WITHIN THESE PROTECTED AREAS.
3. COMPLETE CLEARING.
  - \* ALL TOPSOIL SHALL BE STRIPPED TO 70mm AND DISPOSED OF AS DIRECTED BY THE SUPERINTENDENT.
  - \* ALL REDUNDANT HARDSTAND AREAS SHALL HAVE THE SURFACES REMOVED AND DISPOSED OFF SITE, AND THE SUB-BASE DEEP RIPPED TO 300mm.

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- 4-ALL STRUCTURAL ELEMENTS SHOULD BE COORDINATED WITH STRUCTURAL DRAWINGS.
- 5-ALL MECHANICAL AND ELECTRICAL ELEMENTS AND REQUIREMENTS SHOULD BE COORDINATED WITH ELECTRO MECHANICAL DRAWINGS .
- 6-ALL DIMENSIONS ARE SHOWN HEREIN REFER TO MASONRY NOT TO FINISHING LEVELS.
- 7-All pipes inside the wall should be fully covered with concrete to avoid any damage

PROJECT NAME:  
GORAYO-CAWL EARTH DAM FEASIBILITY STUDY

DRAWING TITLE:  
GENERAL NOTES

DESIGNED BY:

DRAWN BY:

ENGR. AHMED FARHAN FARAH

APPROVED BY:  
ENGR. AHMED JAMAL BARRE

DATE:  
12/12/2024

CLIENT:



DESIGN/DRAWN:

NASRI CONSULTANCY FIRM

BLOCK 5, BROTHERS BUILDING, 2ND FLOOR, SHEIKH OSMAN, BORAMA, LIBYAN ARABIC REPUBLIC

DESCRIPTION:	BY:	DATE:
Gorayo-Cawl Hafir Dam	ENGR. AFF	12/12/2024

PROJECT NO:	SCALE:	SHEET SIZE:
N.C.F - PR# 0011	1:50	A1

DRAWING NO:	SHEET NO:
G100	1

REVISION:
1

METERS



**GENERAL NOTES**

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- 7-All pipes inside the wall should be fully covered with concrete to avoid any damage

PROJECT NAME:  
GORAYO-CAWL EARTH DAM FEASIBILITY STUDY

DRAWING TITLE:  
PROJECT LOCATION

DESIGNED BY:  
DRAWN BY:  
ENGR. AHMED FARHAN FARAH

APPROVED BY:  
ENGR. AHMED JAMAC BARRE  
DATE:  
12/12/2024

CLIENT:



**ADRA**

DESIGN/DRAWN:  
**NASRI CONSULTANCY FIRM**  
BLOCK 5, BROTHERS BUILDING, 2ND FLOOR, SHEIKH OSMAN, BORAMA, AWDAL, SOMALILAND

DESCRIPTION:	BY:	DATE:
Gorayo-Cawl Hafir Dam	ENGR. AFF	12/12/2024

PROJECT NO:  
N.C.F - PR# 0011  
SCALE:  
1:50  
SHEET SIZE:  
A1

DRAWING NO:  
M100  
SHEET NO:  
1

REVISION:  
1

METERS



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305400.000

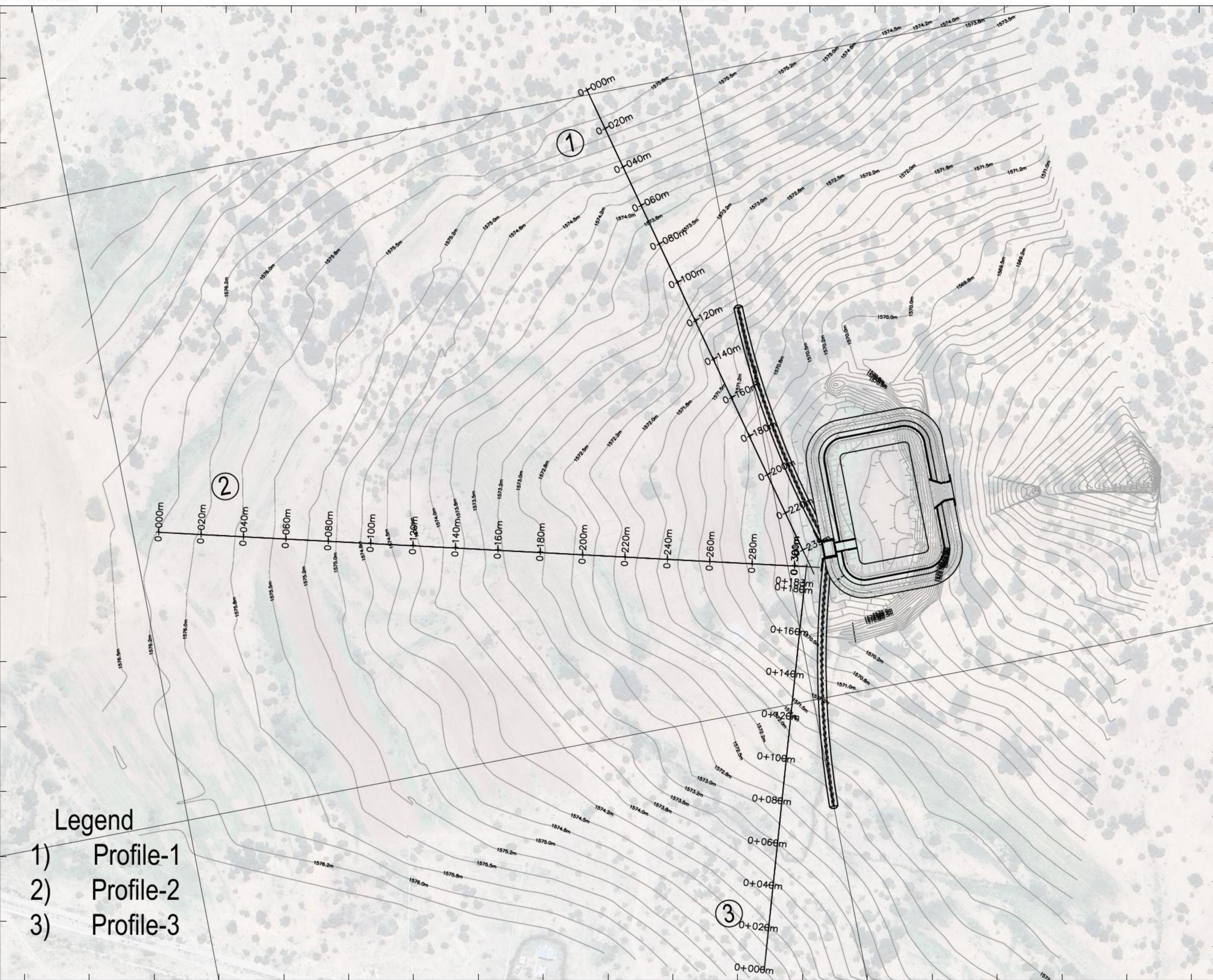
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305100.000

305400.000



Legend

- 1) Profile-1
- 2) Profile-2
- 3) Profile-3

GENERAL NOTES

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PROJECT NAME:  
GORAYO-CAWL EARTH DAM FEASIBILITY STUDY

DRAWING TITLE:  
TOPOGRAPHIC SURVEY

DESIGNED BY:  
ENGR. AHMED FARHAN FARAH

APPROVED BY:  
ENGR. ISMAEL YASIN WARSAME

DATE:  
12/12/2024

CLIENT:



DESIGN/DRAWN:  
NASRI CONSULTANCY FIRM  
BLOCK 5, BROTHERS BUILDING, 2ND FLOOR, SHEIKH OSMAN, BORAMA, AWDAL, SOMALILAND

DESCRIPTION:	BY:	DATE:
Gorayo-Cawl Hafir Dam	ENGR. AFF	12/12/2024

PROJECT NO:  
N.C.F - PR# 0011

SCALE:  
1:50

SHEET SIZE:  
A1

DRAWING NO:  
M200

SHEET NO:  
2

REVISION:  
1



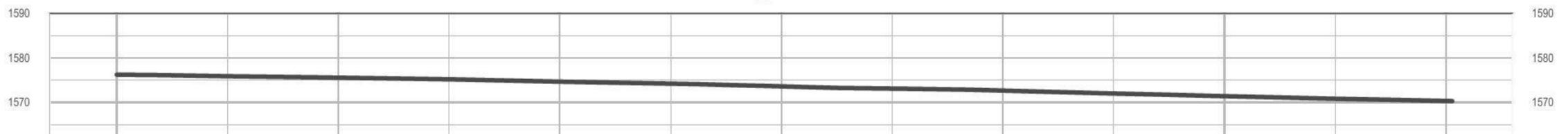
METERS

Profile View of Alignment-01  
 V Scale : 1000  
 H Scale : 1000  
 Exaggeration : 1



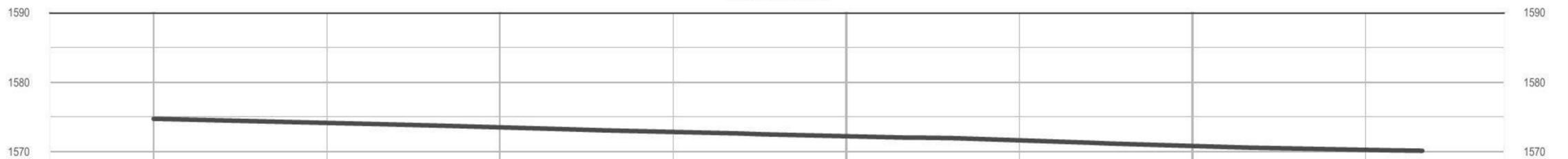
Chainage (m)	-0+025	0+000	0+025	0+050	0+075	0+100	0+125	0+150	0+175	0+200	0+225	0+250
Existing Levels		1576.0	1575.5	1574.5	1573.6	1573.1	1572.0	1571.5	1570.8	1570.5	1570.3	

Profile View of Alignment-02  
 V Scale : 1000  
 H Scale : 1000  
 Exaggeration : 1



Chainage (m)	-0+015	0+000	0+025	0+050	0+075	0+100	0+125	0+150	0+175	0+200	0+225	0+250	0+275	0+300	0+315
Existing Levels		1576.2	1575.9	1575.6	1575.2	1574.7	1574.2	1573.6	1573.1	1572.6	1572.0	1571.4	1570.8	1570.3	

Profile View of Alignment-03  
 V Scale : 1000  
 H Scale : 1000  
 Exaggeration : 1



Chainage (m)	-0+015	0+000	0+025	0+050	0+075	0+100	0+125	0+150	0+175	0+195
Existing Levels		1574.7	1574.2	1573.5	1572.9	1572.2	1571.6	1570.8	1570.3	

GENERAL NOTES

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- 6-ALL DIMENSIONS ARE SHOWN HEREIN REFER TO MASONRY NOT TO FINISHING LEVELS.
- 7-All pipes inside the wall should be fully covered with concrete to avoid any damage

PROJECT NAME:  
 GORAYO-CAWL EARTH DAM FEASIBILITY STUDY

DRAWING TITLE:  
 TOPOGRAPHIC SURVEY PROFILES

DESIGNED BY:

DRAWN BY:

ENGR. AHMED FARHAN FARAH

APPROVED BY:

ENGR. ISMAEL YASIN WARSAME

DATE:

12/12/2024

CLIENT:



DESIGN/DRAWN:

NASRI CONSULTANCY FIRM

BLOCK 5, BROTHERS BUILDING, 2ND FLOOR, SHEIKH OSMAN, BORAMA, AWDAL, SOMALILAND

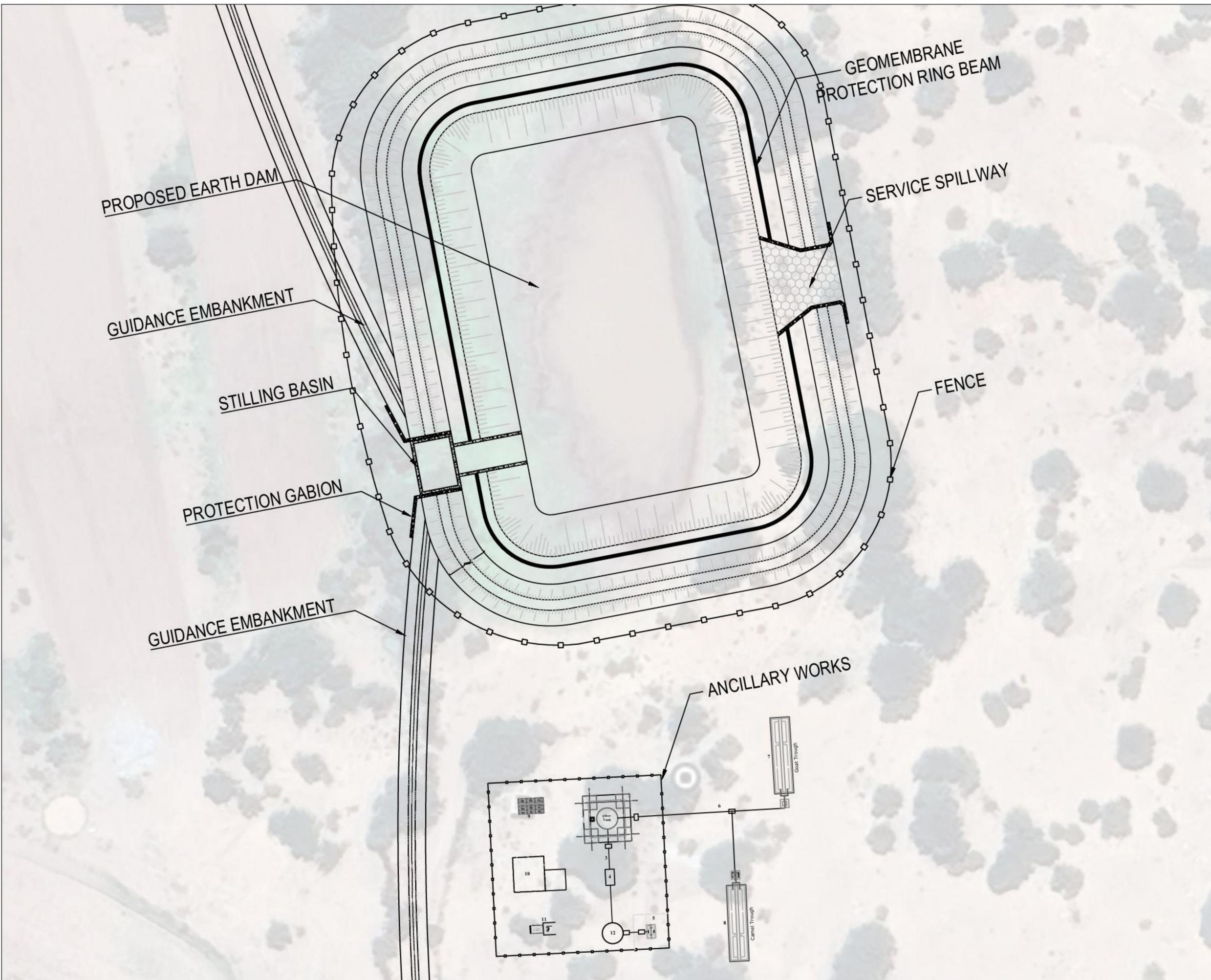
DESCRIPTION:	BY:	DATE:
Gorayo-Cawl Hafir Dam	ENGR. AFF	12/12/2024

PROJECT NO: N.C.F - PR# 0011	SCALE: 1:50	SHEET SIZE: A1
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DRAWING NO: M200	SHEET NO: 3
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REVISION: 1	
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METERS	
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PROJECT NAME:  
GORAYO-CAWL EARTH DAM FEASIBILITY STUDY

DRAWING TITLE:  
GENERAL LAYOUT OF PROPOSED BALEY

DESIGNED BY:  
DRAWN BY:  
ENGR. AHMED FARHAN FARAH

APPROVED BY:  
ENGR. ISMAEL YASIN WARSAME  
DATE:  
12/12/2024

CLIENT:



DESIGN/DRAWN:  
**NASRI CONSULTANCY FIRM**  
BLOCK 5, BROTHERS BUILDING, 2ND FLOOR, SHEIKH OSMAN, BORAMA, AWDAL, SOMALILAND

DESCRIPTION:	BY:	DATE:
Gorayo-Cawl Hafir Dam	ENGR. AFF	12/12/2024

PROJECT NO:  
N.C.F - PR# 0011  
SCALE:  
1:50  
SHEET SIZE:  
A1

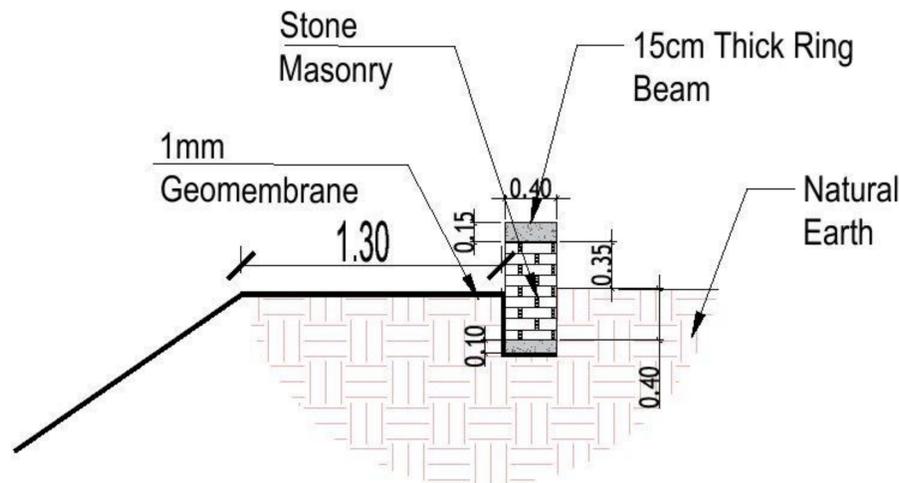
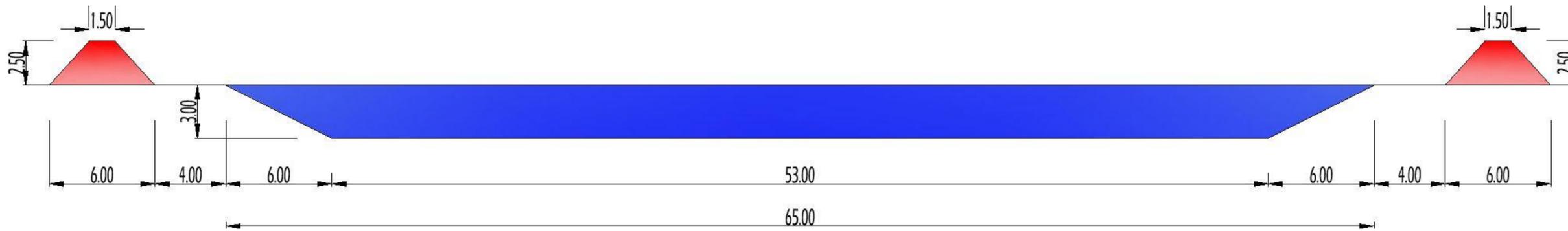
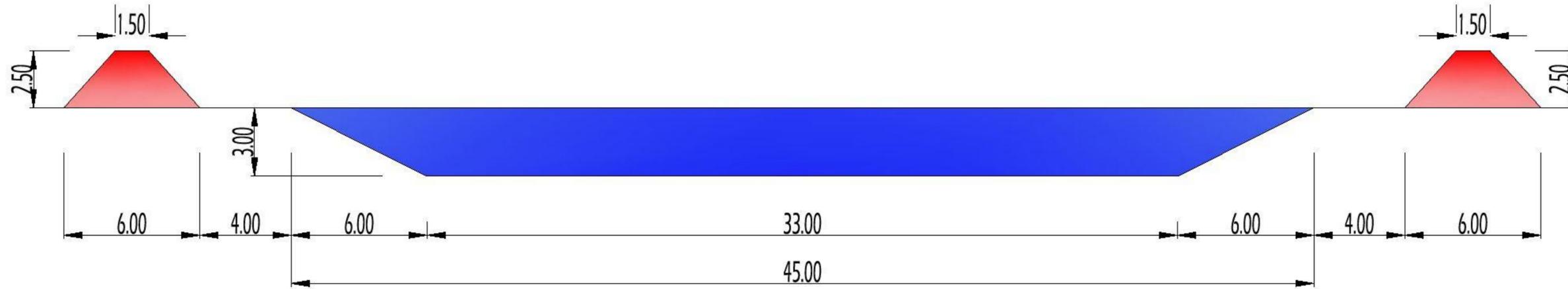
DRAWING NO:  
C100  
SHEET NO:  
4

REVISION:  
1

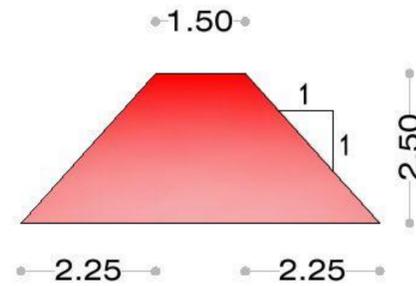
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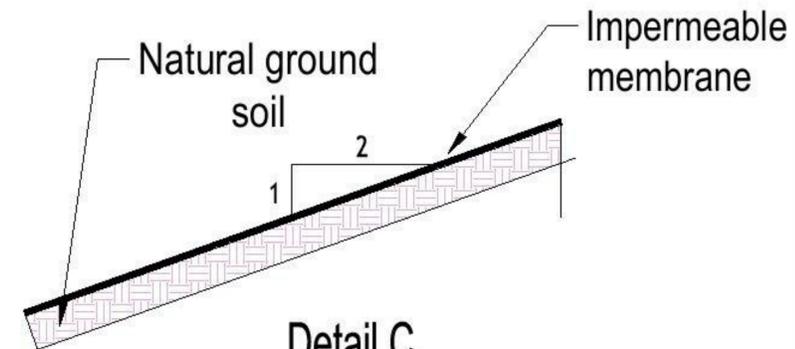




Detail-A



Detail B



Detail C

GENERAL NOTES

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- 7-All pipes inside the wall should be fully covered with concrete to avoid any damage.

PROJECT NAME:  
GORAYO-CAWL EARTH DAM FEASIBILITY STUDY

DRAWING TITLE:  
PROPOSED BAILEY DIMENSIONS & IMPORTANT DETAILS - A,B & C

DESIGNED BY:

DRAWN BY:  
ENGR. AHMED FARHAN FARAH

APPROVED BY:  
ENGR. ISMAEL YASIN WARSAME

DATE:  
12/12/2024

CLIENT:



DESIGN/DRAWN:

NASRI CONSULTANCY FIRM  
BLOCK 5, BROTHERS BUILDING, 2ND FLOOR, SHEIKH OSMAN, BORAMA, AWDAL, SOMALILAND

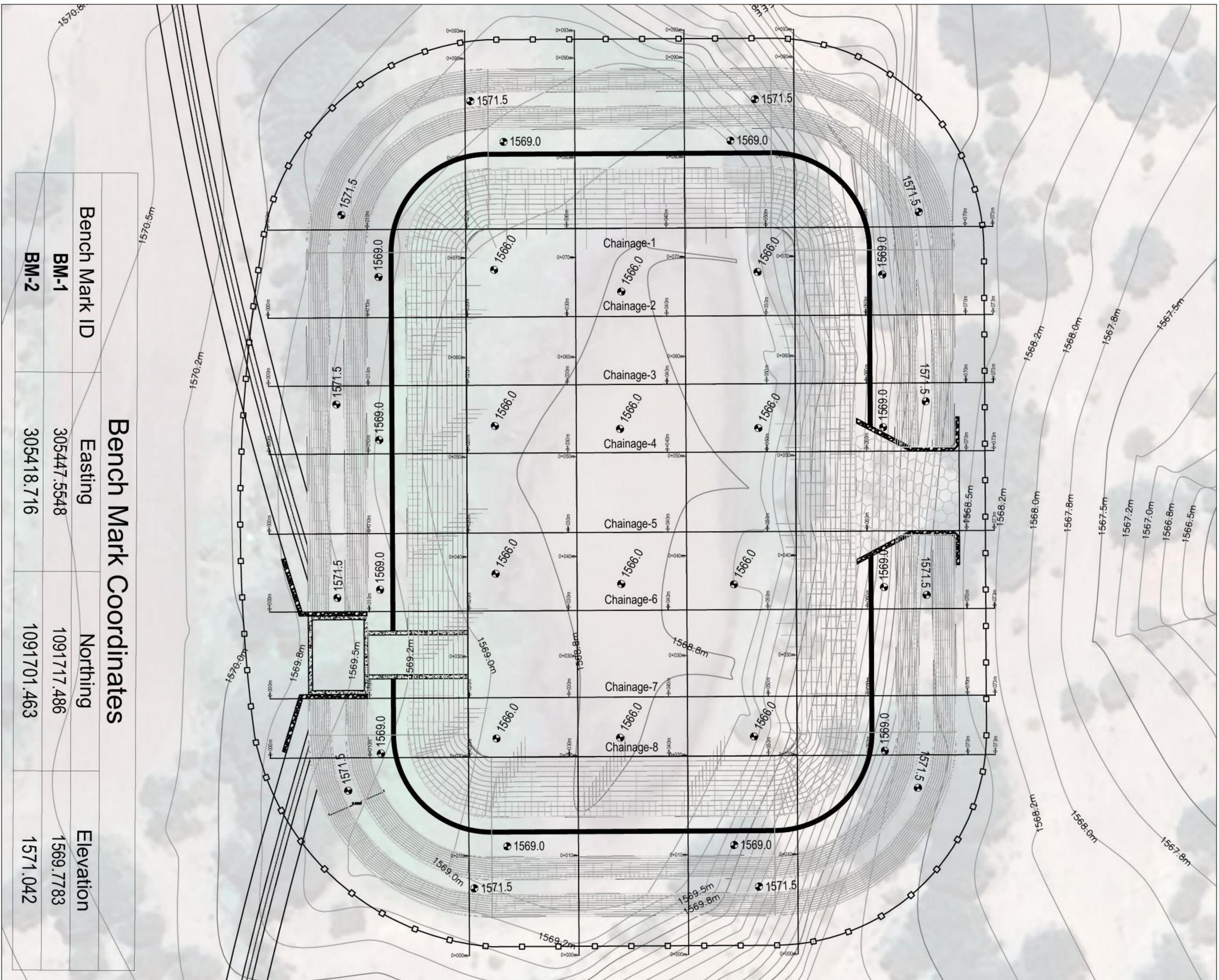
DESCRIPTION:	BY:	DATE:
Gorayo-Cawl Hafir Dam	ENGR. AFF	12/12/2024

PROJECT NO:	SCALE:	SHEET SIZE:
N.C.F - PR# 0011	1:50	A1

DRAWING NO:	SHEET NO:
C200	6

REVISION:
1

METERS



Bench Mark Coordinates			
Bench Mark ID	Easting	Northing	Elevation
BM-1	305447.5548	1091717.486	1569.7783
BM-2	305418.716	1091701.463	1571.042

- GENERAL NOTES**
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PROJECT NAME:  
GORAYO-CAWL EARTH DAM FEASIBILITY STUDY

DRAWING TITLE:  
PROPOSED BAILEY PLAN VIEW

DESIGNED BY:  
ENGR. ISMAEL YASIN WARSAME

DRAWN BY:  
ENGR. AHMED FARHAN FARAH

APPROVED BY:  
ENGR. ISMAEL YASIN WARSAME

DATE:  
12/12/2024

CLIENT:



DESIGN/DRAWN:  
NASRI CONSULTANCY FIRM  
BLOCK 5, BROTHERS BUILDING, 2ND FLOOR, SHEIKH OSMAN, BORAMA, AWDAL, SOMALILAND

DESCRIPTION:	BY:	DATE:
Gorayo-Cawl Hafir Dam	ENGR. AFF	12/12/2024

PROJECT NO:	SCALE:	SHEET SIZE:
N.C.F - PR# 0011	1:50	A1

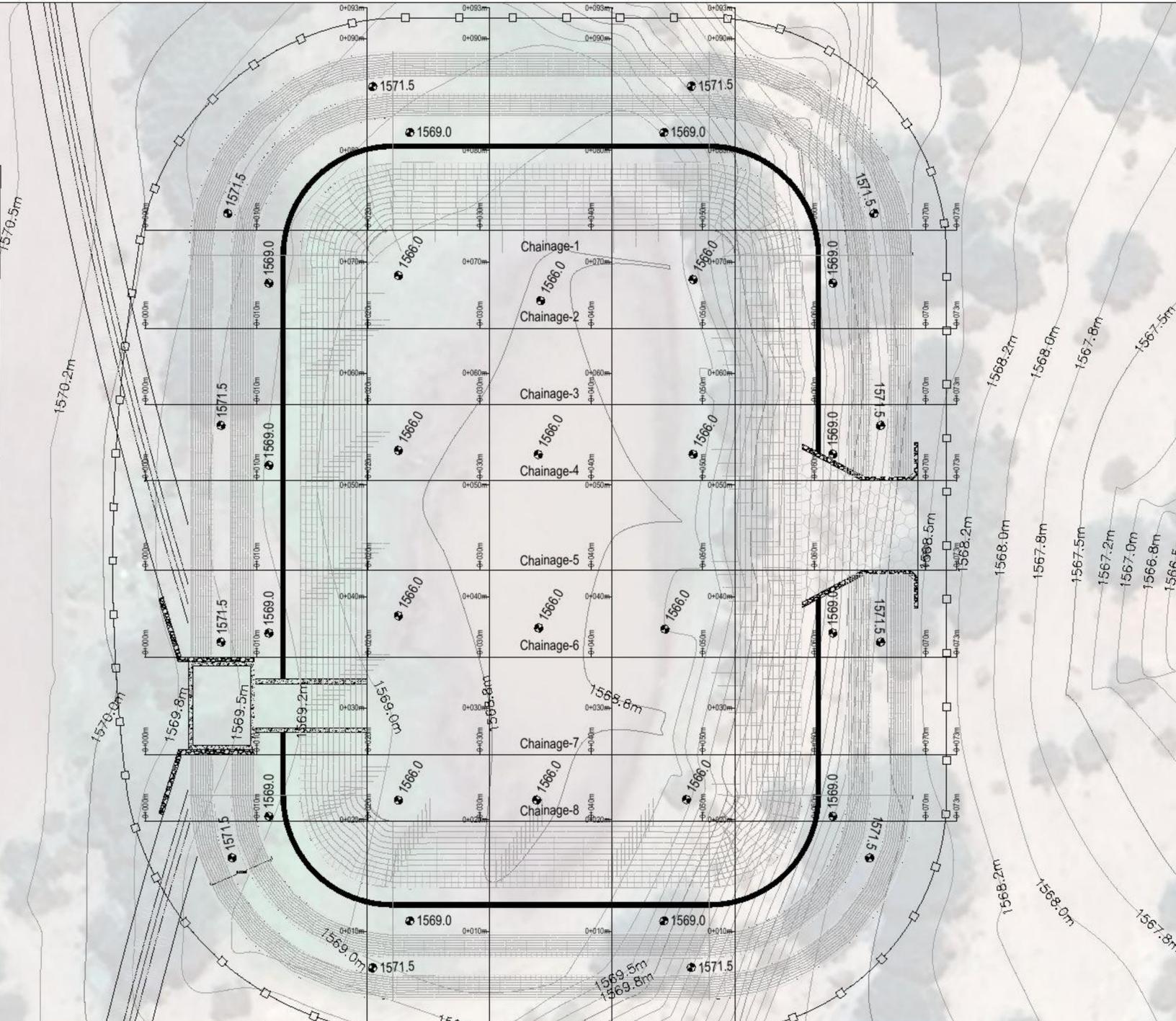
DRAWING NO:	SHEET NO:
C100	4

REVISION:
1

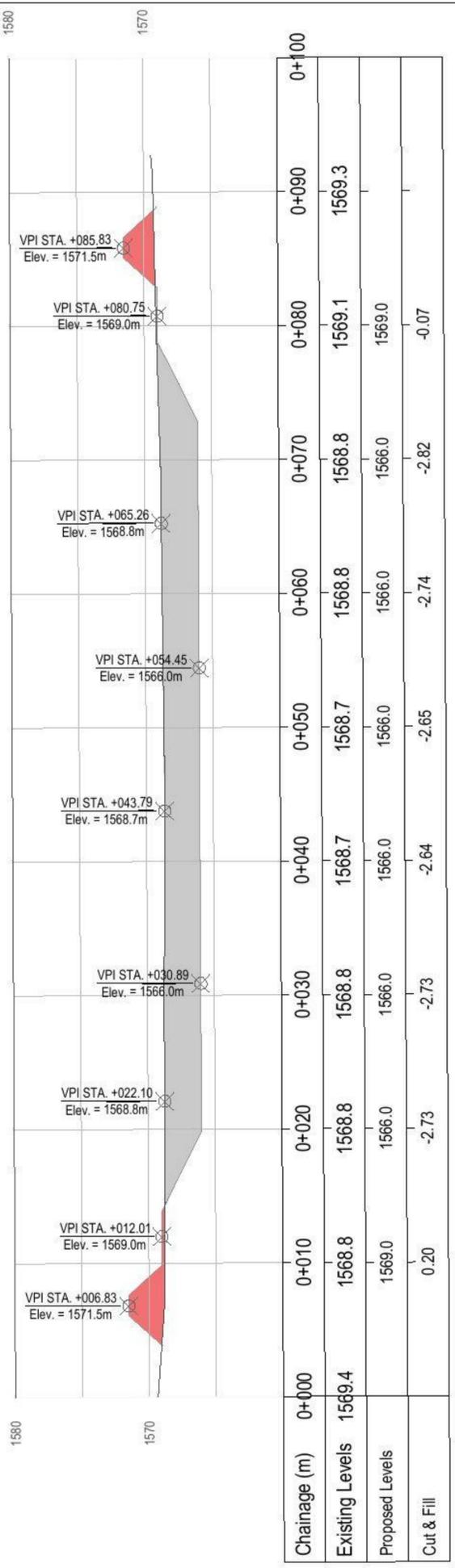
METERS



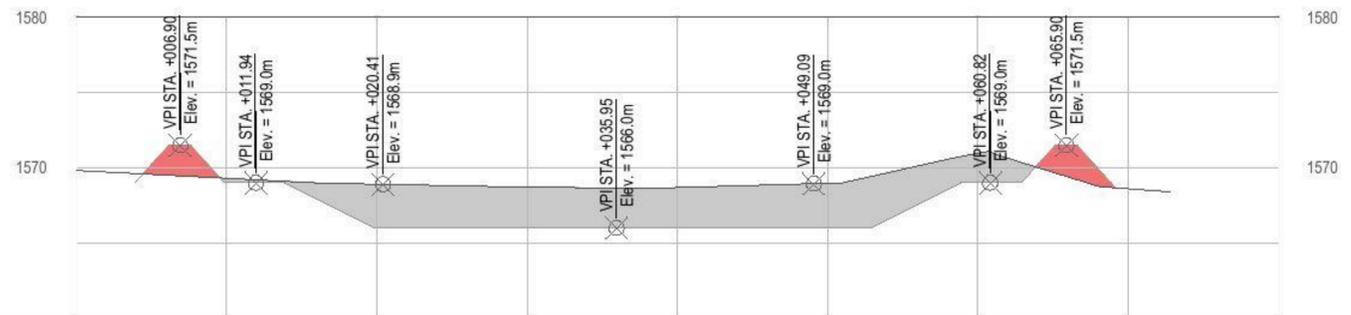
Bench Mark ID	Easting		Northing		Elevation
BM-1	305447.5548		1001717.486		1560.7702
<b>Bench Mark Coordinates</b>					



Profile View of Alignment-010  
 V Scale : 1000  
 H Scale : 1000  
 Exaggeration : 1



Profile View of Alignment-003  
 V Scale : 1000  
 H Scale : 1000  
 Exaggeration : 1



Chainage (m)	0+000	0+010	0+020	0+030	0+040	0+050	0+060	0+070	0+080
Existing Levels	1569.8	1569.3	1568.9	1568.7	1568.7	1569.0	1571.0	1568.6	1568.6
Proposed Levels	1569.0	1569.0	1566.0	1566.0	1566.0	1566.0	1569.0	1569.0	1569.0
Cut & Fill	-0.30	-2.90	-2.73	-2.68	-2.96	-1.97	-	-	-

**GENERAL NOTES**

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PROJECT NAME:  
 GORAYO-CAWL EARTH DAM FEASIBILITY STUDY

DRAWING TITLE:  
 PROPOSED BALEY WITH DIMENSIONS

DESIGNED BY: ENGR. ISMAEL YASIN WARSAME	DRAWN BY: ENGR. AHMED FARHAN FARAH
APPROVED BY:	DATE: 12/12/2024

CLIENT:



DESIGN/DRAWN:  
**NASRI CONSULTANCY FIRM**  
 BLOCK 5, BROTHERS BUILDING, 2ND FLOOR, SHEIKH OSMAN, BORAMA, AWDAL, SOMALILAND

DESCRIPTION:	BY:	DATE:
Gorayo-Cawl Hafir Dam	ENGR. AFF	12/12/2024

PROJECT NO: N.C.F - PR# 0011	SCALE: 1:50	SHEET SIZE: A1
DRAWING NO: C200	SHEET NO: 5	

REVISION:  
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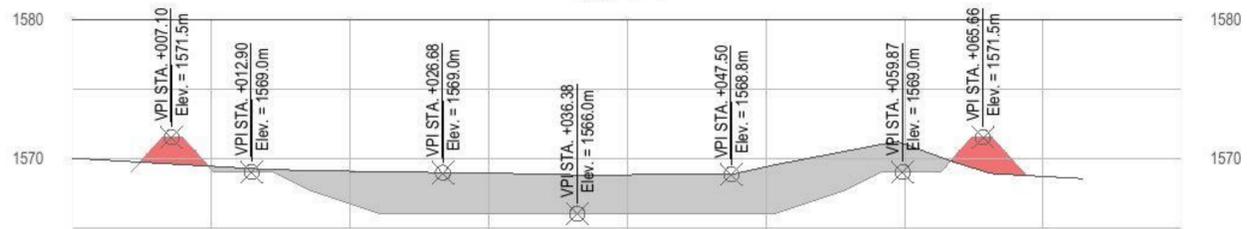
METERS

Profile View of Alignment-001

V Scale : 1000

H Scale : 1000

Exaggeration : 1



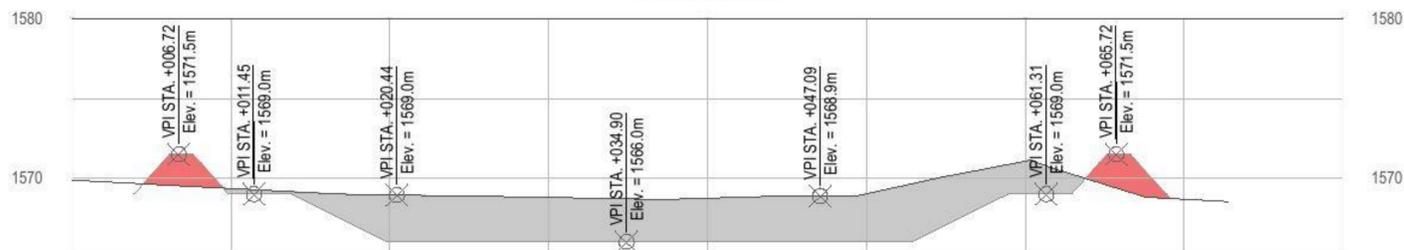
Chainage (m)	0+000	0+010	0+020	0+030	0+040	0+050	0+060	0+070	0+080
Existing Levels	1570.0	1569.4	1569.1	1568.9	1568.8	1569.4	1571.0	1568.7	
Proposed Levels		1569.2	1566.7	1566.0	1566.0	1566.0	1569.0		
Cut & Fill		-0.21	-2.32	-2.91	-2.78	-3.37	-2.02		

Profile View of Alignment-002

V Scale : 1000

H Scale : 1000

Exaggeration : 1



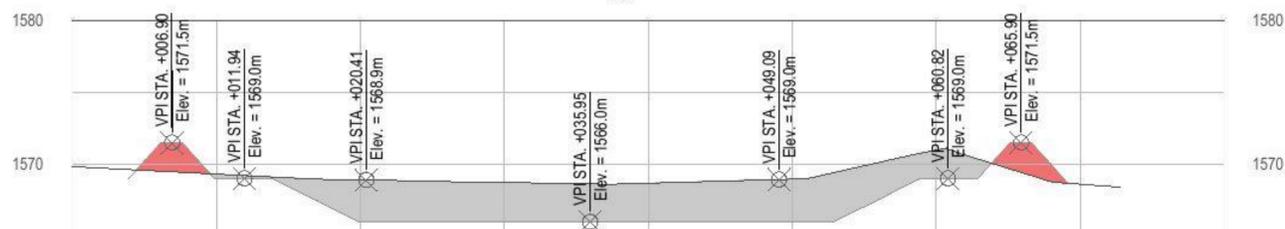
Chainage (m)	0+000	0+010	0+020	0+030	0+040	0+050	0+060	0+070	0+080
Existing Levels	1569.9	1569.4	1569.0	1568.8	1568.8	1569.0	1571.1	1568.7	
Proposed Levels		1569.0	1566.0	1566.0	1566.0	1566.0	1569.0		
Cut & Fill		-0.35	-2.95	-2.78	-2.74	-3.02	-2.06		

Profile View of Alignment-003

V Scale : 1000

H Scale : 1000

Exaggeration : 1



Chainage (m)	0+000	0+010	0+020	0+030	0+040	0+050	0+060	0+070	0+080
Existing Levels	1569.8	1569.3	1568.9	1568.7	1568.7	1569.0	1571.0	1568.6	
Proposed Levels		1569.0	1566.0	1566.0	1566.0	1566.0	1569.0		
Cut & Fill		-0.30	-2.90	-2.73	-2.68	-2.96	-1.97		

GENERAL NOTES

1-ALL DIMENSIONS AND LEVELS ARE SHOWN HEREIN ARE IN METERS UNLESS OTHERWISE NOTED.

2-FOLLOW DIMENSIONS INDICATED ON THE DRAWING.

3-THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER ENGINEERING DRAWINGS, SUCH AS STRUCTURAL & MEP DWGS.

4-ALL STRUCTURAL ELEMENTS SHOULD BE COORDINATED WITH STRUCTURAL DRAWINGS.

5-ALL MECHANICAL AND ELECTRICAL ELEMENTS AND REQUIREMENTS SHOULD BE COORDINATED WITH ELECTRO MECHANICAL DRAWINGS.

6-ALL DIMENSIONS ARE SHOWN HEREIN REFER TO MASONRY NOT TO FINISHING LEVELS.

7-All pipes inside the wall should be fully covered with concrete to avoid any damage

PROJECT NAME:

GORAYO-CAWL EARTH DAM FEASIBILITY STUDY

DRAWING TITLE:

PROPOSED BALEY EAST-WEST CROSS-SECTION PROFILES

DESIGNED BY:

DRAWN BY:

ENGR. AHMED FARHAN FARAH

APPROVED BY:

ENGR. ISMAEL YASIN WARSAME

DATE:

12/12/2024

CLIENT:



DESIGN/DRAWN:

NASRI CONSULTANCY FIRM

BLOCK 5, BROTHERS BUILDING, 2ND FLOOR, SHEIKH OSMAN, BORAMA, AWDAL, SOMALILAND

DESCRIPTION:	BY:	DATE:
Gorayo-Cawl Hafir Dam	ENGR. AFF	12/12/2024

PROJECT NO:	SCALE:	SHEET SIZE:
N.C.F - PR# 0011	1:50	A1

DRAWING NO:	SHEET NO:
C300	7

REVISION:
1

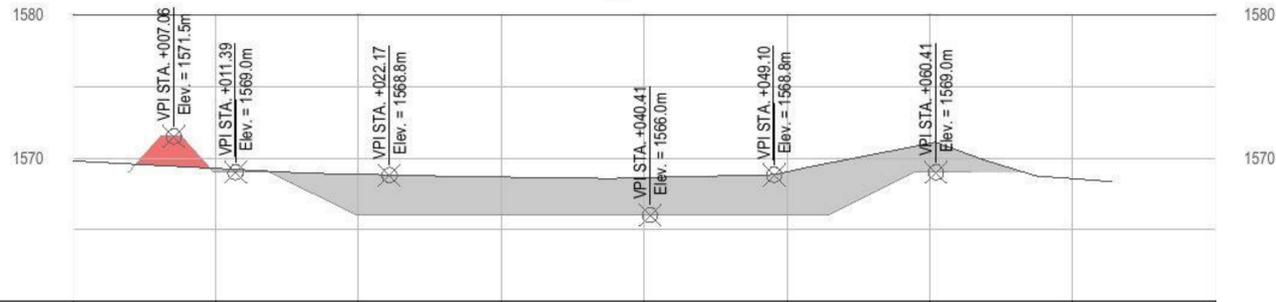
METERS
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Profile View of Alignment-004

V Scale : 1000

H Scale : 1000

Exaggeration : 1



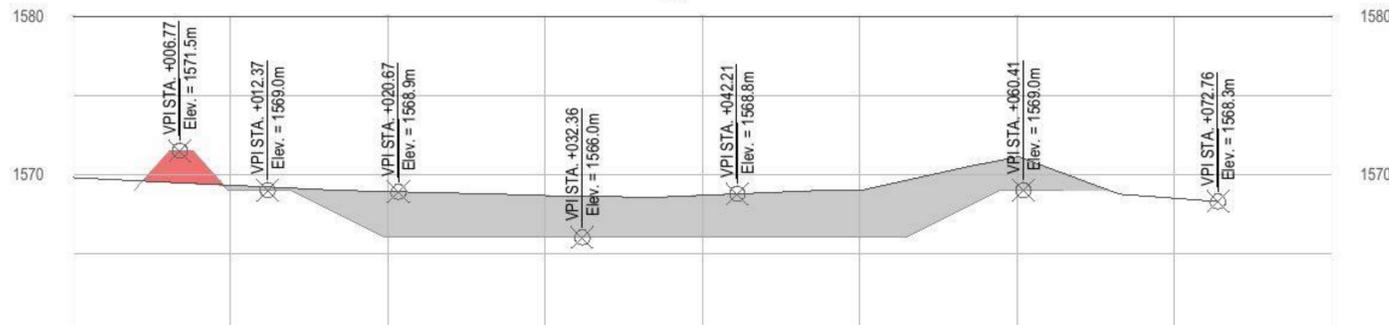
Chainage (m)	0+000	0+010	0+020	0+030	0+040	0+050	0+060	0+070	0+080
Existing Levels	1569.8	1569.3	1568.9	1568.7	1568.6	1569.0	1571.0	1568.6	
Proposed Levels		1569.0	1566.0	1566.0	1566.0	1566.0	1569.0		
Cut & Fill		-0.27	-2.85	-2.66	-2.62	-3.02	-2.03		

Profile View of Alignment-005

V Scale : 1000

H Scale : 1000

Exaggeration : 1



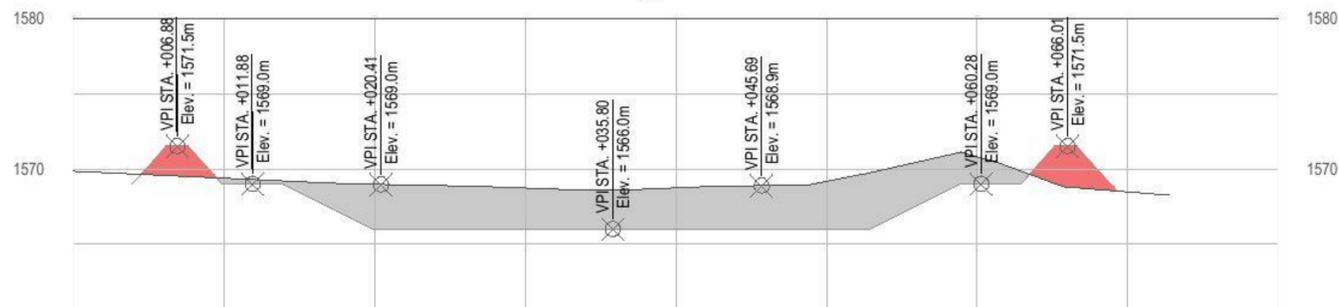
Chainage (m)	0+000	0+010	0+020	0+030	0+040	0+050	0+060	0+070	0+080
Existing Levels	1569.8	1569.3	1568.9	1568.7	1568.7	1569.0	1571.1	1568.5	
Proposed Levels		1569.0	1566.0	1566.0	1566.0	1566.0	1569.0		
Cut & Fill		-0.30	-2.90	-2.65	-2.67	-3.01	-2.10		

Profile View of Alignment-006

V Scale : 1000

H Scale : 1000

Exaggeration : 1



Chainage (m)	0+000	0+010	0+020	0+030	0+040	0+050	0+060	0+070	0+080
Existing Levels	1569.9	1569.4	1569.0	1568.7	1568.7	1569.2	1570.8	1568.5	
Proposed Levels		1569.0	1566.0	1566.0	1566.0	1566.0	1569.0		
Cut & Fill		-0.37	-2.97	-2.72	-2.73	-3.17	-1.81		

GENERAL NOTES

- 1-ALL DIMENSIONS AND LEVELS ARE SHOWN HEREIN ARE IN METERS UNLESS OTHERWISE NOTED.
- 2-FOLLOW DIMENSIONS INDICATED ON THE DRAWING.
- 3-THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER ENGINEERING DRAWINGS, SUCH AS STRUCTURAL & MEP DWGS.
- 4-ALL STRUCTURAL ELEMENTS SHOULD BE COORDINATED WITH STRUCTURAL DRAWINGS.
- 5-ALL MECHANICAL AND ELECTRICAL ELEMENTS AND REQUIREMENTS SHOULD BE COORDINATED WITH ELECTRO MECHANICAL DRAWINGS.
- 6-ALL DIMENSIONS ARE SHOWN HEREIN REFER TO MASONRY NOT TO FINISHING LEVELS.
- 7-All pipes inside the wall should be fully covered with concrete to avoid any damage

PROJECT NAME:  
GORAYO-CAWL EARTH DAM FEASIBILITY STUDY

DRAWING TITLE:  
PROPOSED BAILEY EAST-WEST CROSS-SECTION PROFILES

DESIGNED BY:

DRAWN BY:

ENGR. AHMED FARHAN FARAH

APPROVED BY:

DATE:

ENGR. ISMAEL YASIN WARSAME

12/12/2024

CLIENT:



DESIGN/DRAWN:

NASRI CONSULTANCY FIRM

BLOCK 5, BROTHERS BUILDING, 2ND FLOOR, SHEIKH OSMAN, BORAMA, AWDAL, SOMALILAND

DESCRIPTION:	BY:	DATE:
Gorayo-Cawl Hafir Dam	ENGR. AFF	12/12/2024

PROJECT NO: N.C.F - PR# 0011	SCALE: 1:50	SHEET SIZE: A1
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DRAWING NO: C300	SHEET NO: 8
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REVISION: 1	
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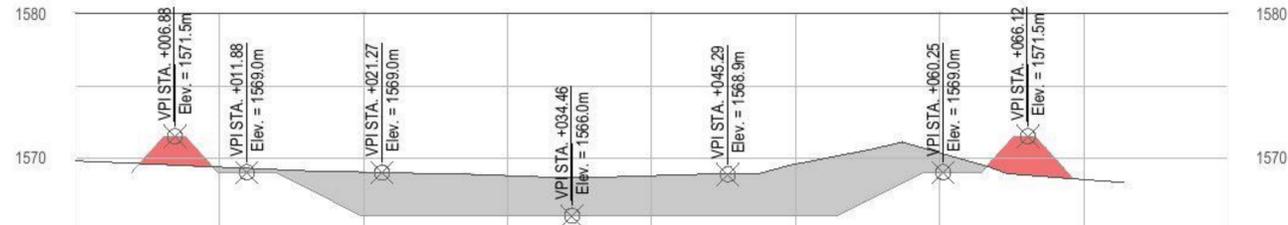
METERS	
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Profile View of Alignment-007

V Scale : 1000

H Scale : 1000

Exaggeration : 1



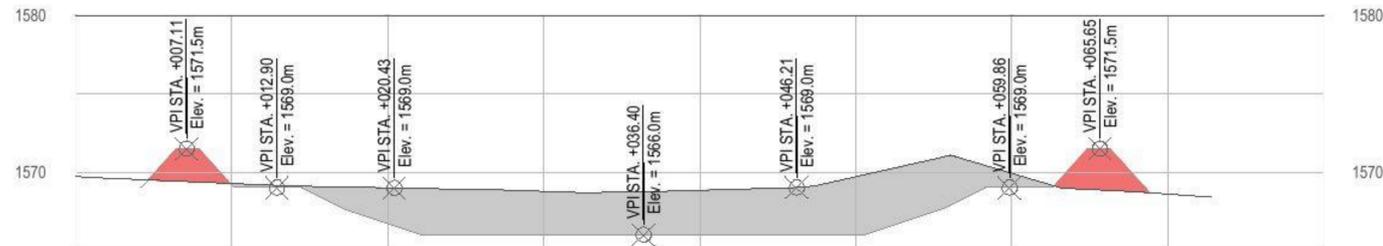
Chainage (m)	0+000	0+010	0+020	0+030	0+040	0+050	0+060	0+070	0+080
Existing Levels	1569.8	1569.4	1569.0	1568.8	1568.8	1569.6	1570.4	1568.5	
Proposed Levels		1569.0	1566.0	1566.0	1566.0	1566.0	1569.0		
Cut & Fill		-0.36	-3.02	-2.77	-2.76	-3.57	-1.35		

Profile View of Alignment-008

V Scale : 1000

H Scale : 1000

Exaggeration : 1



Chainage (m)	0+000	0+010	0+020	0+030	0+040	0+050	0+060	0+070	0+080
Existing Levels	1569.7	1569.3	1569.0	1568.8	1568.9	1569.7	1569.9	1568.6	
Proposed Levels		1569.2	1566.7	1566.0	1566.0	1566.0	1569.0		
Cut & Fill		-0.06	-2.27	-2.76	-2.84	-3.70	-0.93		

Profile View of Alignment-009

V Scale : 1000

H Scale : 1000

Exaggeration : 1



Chainage (m)	0+000	0+010	0+020	0+030	0+040	0+050	0+060	0+070	0+080	0+090	0+100
Existing Levels	1569.6	1569.0	1569.0	1569.0	1568.9	1568.9	1568.9	1569.0	1569.2	1569.5	
Proposed Levels		1569.2	1566.7	1566.0	1566.0	1566.0	1566.0	1566.0	1569.0		
Cut & Fill		0.25	-2.27	-3.02	-2.92	-2.84	-2.92	-2.99	-0.21		

GENERAL NOTES

1-ALL DIMENSIONS AND LEVELS ARE SHOWN HEREIN ARE IN METERS UNLESS OTHERWISE NOTED.

2-FOLLOW DIMENSIONS INDICATED ON THE DRAWING.

3-THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER ENGINEERING DRAWINGS, SUCH AS STRUCTURAL & MEP DWGS.

4-ALL STRUCTURAL ELEMENTS SHOULD BE COORDINATED WITH STRUCTURAL DRAWINGS.

5-ALL MECHANICAL AND ELECTRICAL ELEMENTS AND REQUIREMENTS SHOULD BE COORDINATED WITH ELECTRO MECHANICAL DRAWINGS.

6-ALL DIMENSIONS ARE SHOWN HEREIN REFER TO MASONRY NOT TO FINISHING LEVELS.

7-All pipes inside the wall should be fully covered with concrete to avoid any damage

PROJECT NAME:  
GORAYO-CAWL EARTH DAM FEASIBILITY STUDY

DRAWING TITLE:  
PROPOSED BALEY EAST-WEST CROSS-SECTION PROFILES

DESIGNED BY:  
DRAWN BY:  
ENGR. AHMED FARHAN FARAH

APPROVED BY:  
DATE:  
ENGR. ISMAEL YASIN WARSAME 12/12/2024



DESIGN/DRAWN:  
NASRI CONSULTANCY FIRM  
BLOCK 5, BROTHERS BUILDING, 2ND FLOOR, SHEIKH OSMAN, BORAMA, AWDAL, SOMALILAND

DESCRIPTION:	BY:	DATE:
Gorayo-Cawl Hafir Dam	ENGR. AFF	12/12/2024

PROJECT NO: N.C.F - PR# 0011	SCALE: 1:50	SHEET SIZE: A1
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DRAWING NO: C300	SHEET NO: 9
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REVISION: 1	
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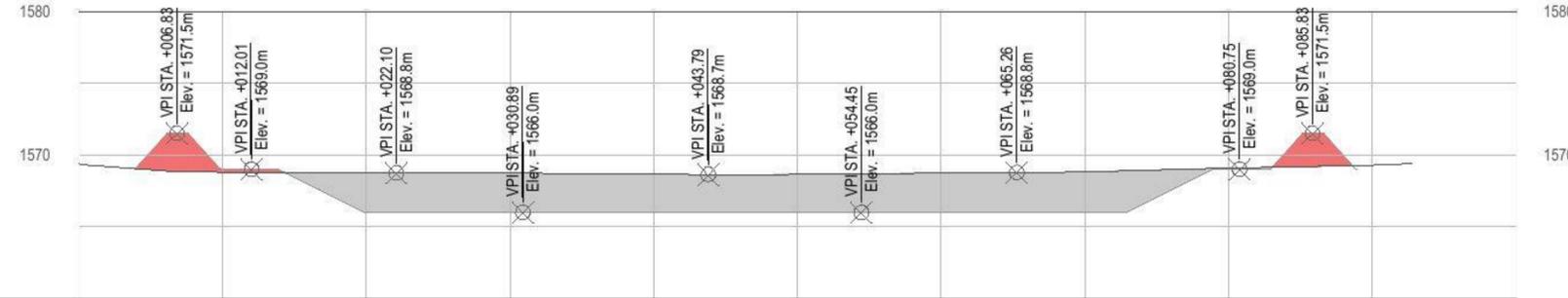
METERS	
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Profile View of Alignment-010

V Scale : 1000

H Scale : 1000

Exaggeration : 1



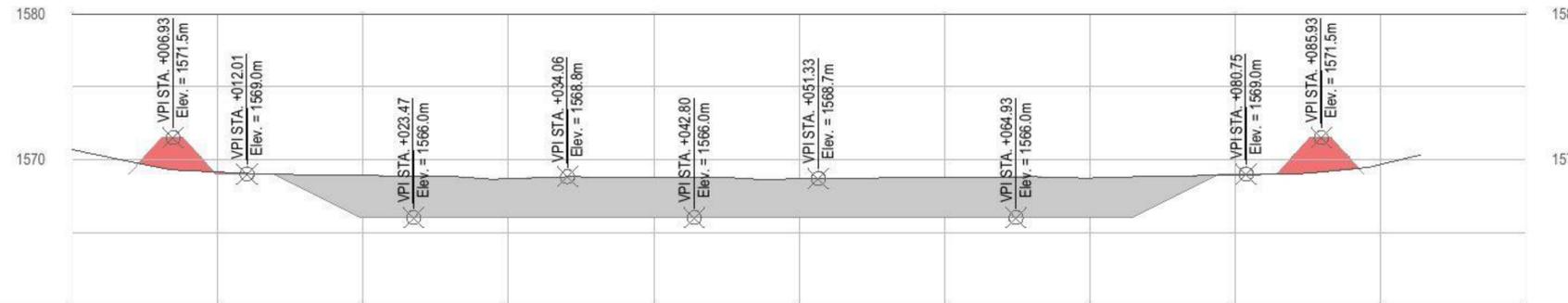
Chainage (m)	0+000	0+010	0+020	0+030	0+040	0+050	0+060	0+070	0+080	0+090	0+100
Existing Levels	1569.4	1568.8	1568.8	1568.8	1568.7	1568.7	1568.8	1568.8	1569.1	1569.3	
Proposed Levels		1569.0	1566.0	1566.0	1566.0	1566.0	1566.0	1566.0	1569.0		
Cut & Fill		0.20	-2.73	-2.73	-2.64	-2.65	-2.74	-2.82	-0.07		

Profile View of Alignment-011

V Scale : 1000

H Scale : 1000

Exaggeration : 1



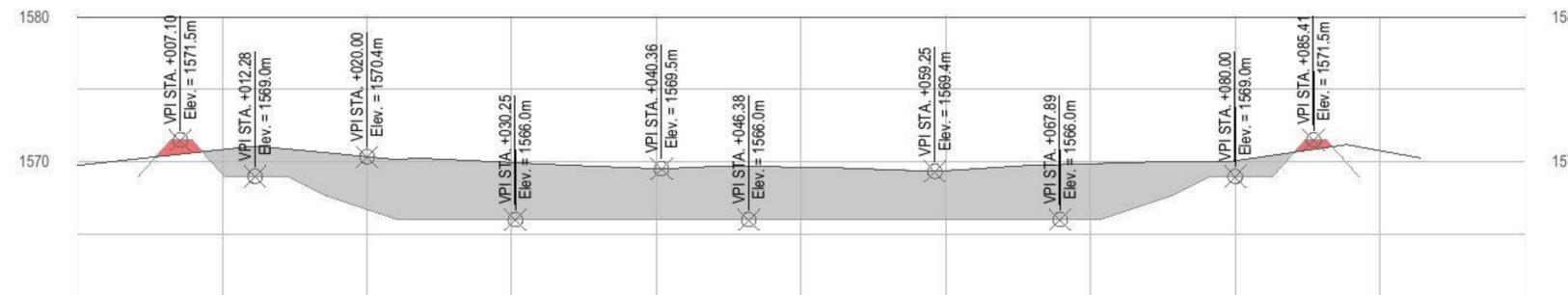
Chainage (m)	0+000	0+010	0+020	0+030	0+040	0+050	0+060	0+070	0+080	0+090	0+100
Existing Levels	1570.7	1569.1	1568.9	1568.7	1568.8	1568.7	1568.8	1568.7	1568.9	1569.7	
Proposed Levels		1569.0	1566.0	1566.0	1566.0	1566.0	1566.0	1566.0	1569.0		
Cut & Fill		-0.13	-2.89	-2.68	-2.76	-2.66	-2.76	-2.72	0.09		

Profile View of Alignment-012

V Scale : 1000

H Scale : 1000

Exaggeration : 1



Chainage (m)	0+000	0+010	0+020	0+030	0+040	0+050	0+060	0+070	0+080	0+090	0+100
Existing Levels	1569.8	1570.9	1570.4	1570.0	1569.5	1569.7	1569.4	1569.9	1570.1	1570.8	
Proposed Levels		1569.2	1566.7	1566.0	1566.0	1566.0	1566.0	1566.0	1569.0		
Cut & Fill		-1.64	-3.62	-3.95	-3.53	-3.64	-3.39	-3.87	-1.07		

GENERAL NOTES

1-ALL DIMENSIONS AND LEVELS ARE SHOWN HEREIN ARE IN METERS UNLESS OTHERWISE NOTED.

2-FOLLOW DIMENSIONS INDICATED ON THE DRAWING.

3-THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER ENGINEERING DRAWINGS, SUCH AS STRUCTURAL & MEP DWGS.

4-ALL STRUCTURAL ELEMENTS SHOULD BE COORDINATED WITH STRUCTURAL DRAWINGS.

5-ALL MECHANICAL AND ELECTRICAL ELEMENTS AND REQUIREMENTS SHOULD BE COORDINATED WITH ELECTRO MECHANICAL DRAWINGS.

6-ALL DIMENSIONS ARE SHOWN HEREIN REFER TO MASONRY NOT TO FINISHING LEVELS.

7-All pipes inside the wall should be fully covered with concrete to avoid any damage

PROJECT NAME:  
GORAYO-CAWL EARTH DAM FEASIBILITY STUDY

DRAWING TITLE:  
PROPOSED BALEY EAST-WEST CROSS-SECTION PROFILES

DESIGNED BY:

DRAWN BY:

ENGR. AHMED FARHAN FARAH

APPROVED BY:

DATE:

ENGR. ISMAEL YASIN WARSAME

12/12/2024

CLIENT:



DESIGN/DRAWN:

NASRI CONSULTANCY FIRM

BLOCK 5, BROTHERS BUILDING, 2ND FLOOR, SHEIKH OSMAN, BORAMA, AWDAL, SOMALILAND

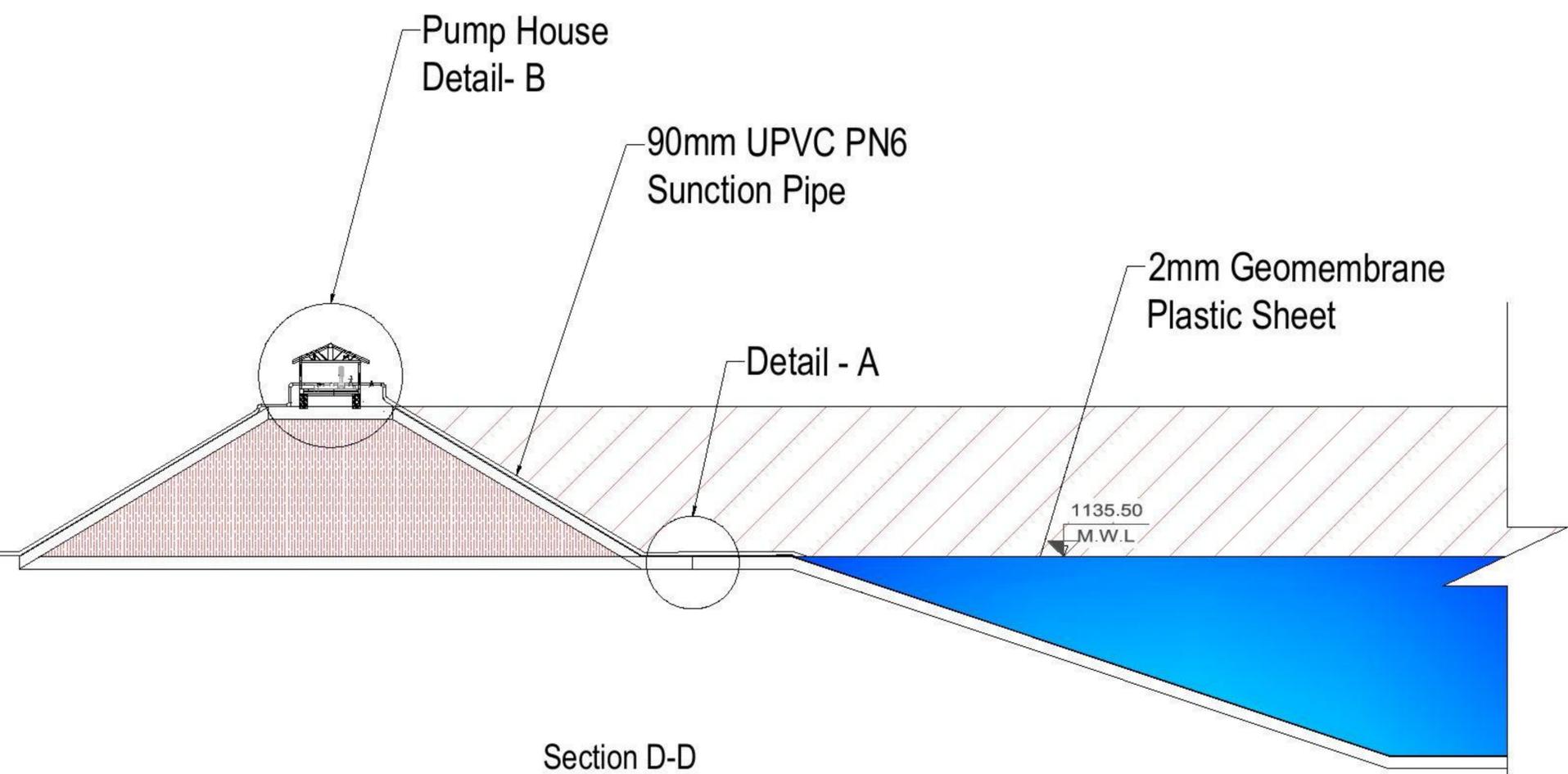
DESCRIPTION:	BY:	DATE:
Gorayo-Cawl Hafir Dam	ENGR. AFF	12/12/2024

PROJECT NO: N.C.F - PR# 0011	SCALE: 1:50	SHEET SIZE: A1
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DRAWING NO: C300	SHEET NO: 10
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REVISION: 1	
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METERS	
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- GENERAL NOTES
- 1-ALL DIMENSIONS AND LEVELS ARE SHOWN HEREIN ARE IN METERS UNLESS OTHERWISE NOTED.
  - 2-FOLLOW DIMENSIONS INDICATED ON THE DRAWING.
  - 3-THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER ENGINEERING DRAWINGS, SUCH AS STRUCTURAL & MEP DWGS.
  - 4-ALL STRUCTURAL ELEMENTS SHOULD BE COORDINATED WITH STRUCTURAL DRAWINGS.
  - 5-ALL MECHANICAL AND ELECTRICAL ELEMENTS AND REQUIREMENTS SHOULD BE COORDINATED WITH ELECTRO MECHANICAL DRAWINGS.
  - 6-ALL DIMENSIONS ARE SHOWN HEREIN REFER TO MASONRY NOT TO FINISHING LEVELS.
  - 7-All pipes inside the wall should be fully covered with concrete to avoid any damage

PROJECT NAME:  
DACARBUDHUQ EARTH DAM FEASIBILITY STUDY

DRAWING TITLE:  
GEOMEMBRANE AND SOIL EROSION CONTROL WALL

DESIGNED BY:  
DRAWN BY:  
ENGR. AHMED FARHAN FARAH

APPROVED BY:  
ENGR. AHMED JAMAC BARRE  
DATE:  
4/17/2024

CLIENT:



DESIGN/DRAWN:  
NASRI CONSULTANCY FIRM  
BLOCK 5, BROTHERS BUILDING, 2ND FLOOR, SHEIKH OSMAN, BORAMA, AWDAL, SOMALILAND

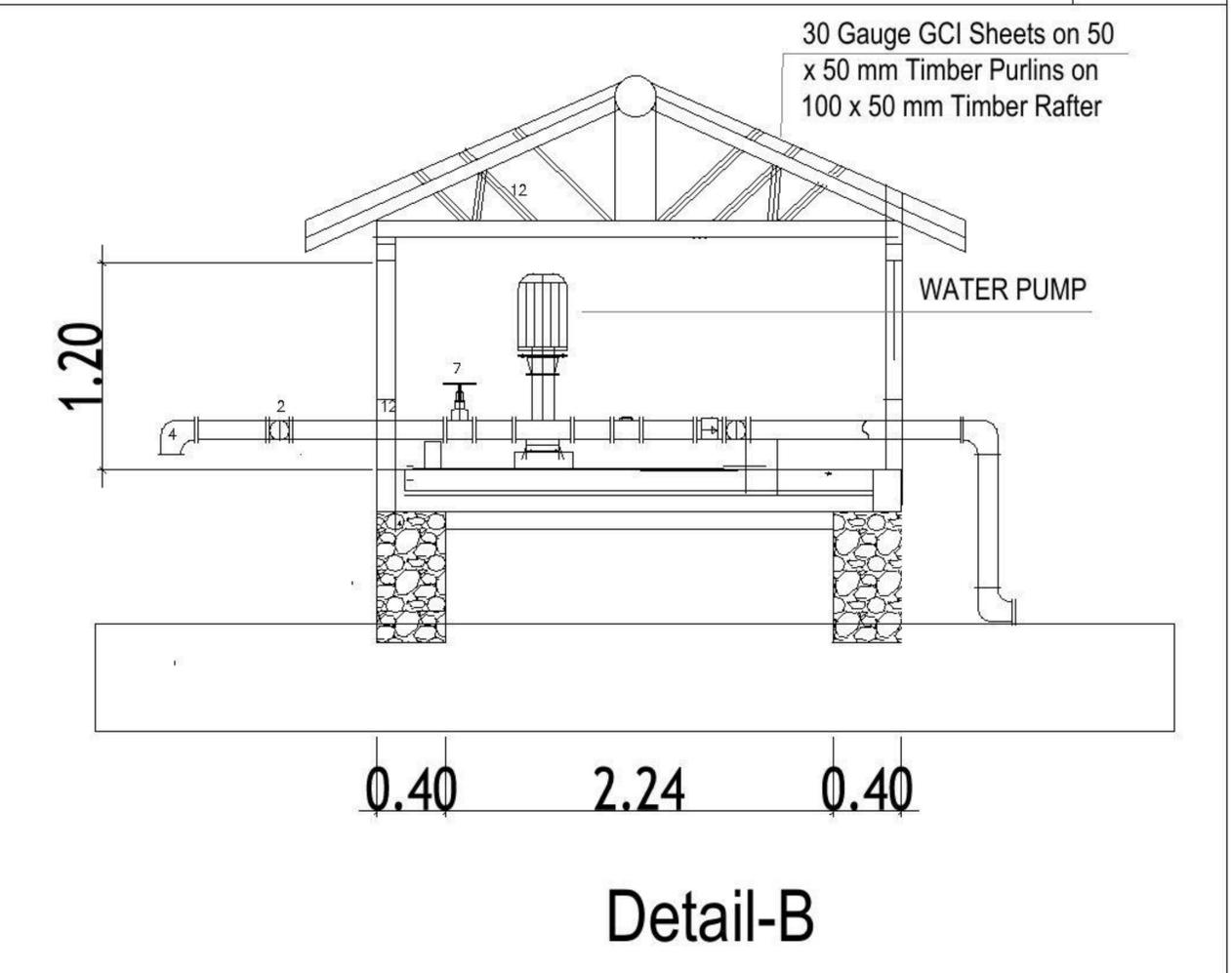
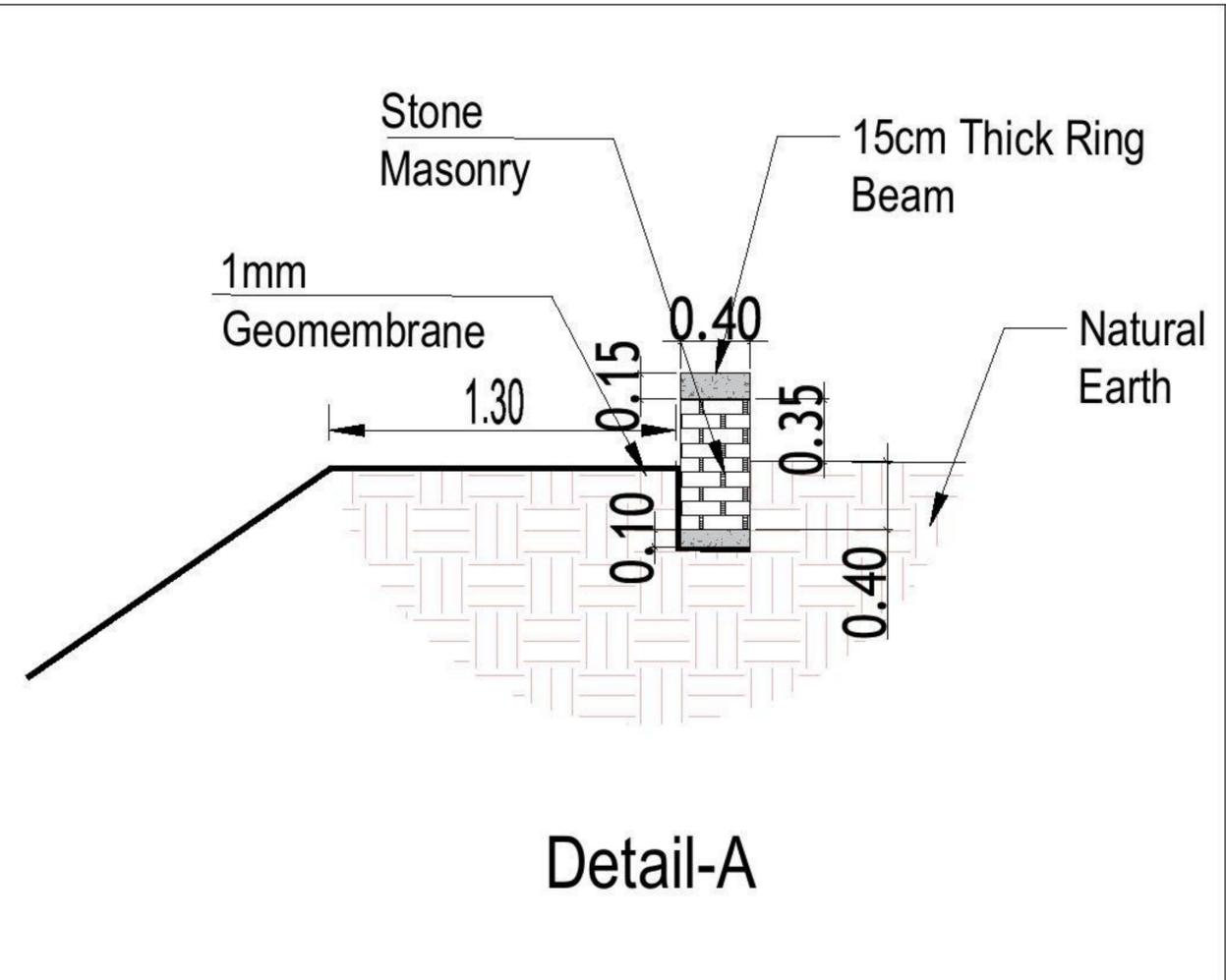
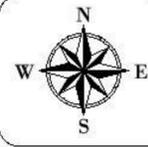
DESCRIPTION:	BY:	DATE:
Dacar-Budhuq Hafir Dam	ENGR. AFF	4/17/2024

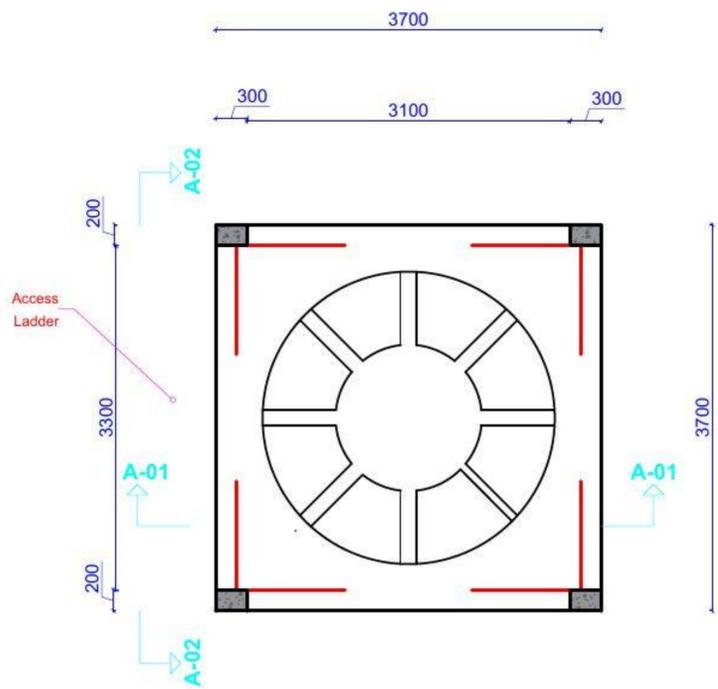
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N.C.F - PR# 0010  
SCALE:  
1:50  
SHEET SIZE:  
A1

DRAWING NO:  
S102  
SHEET NO:  
17

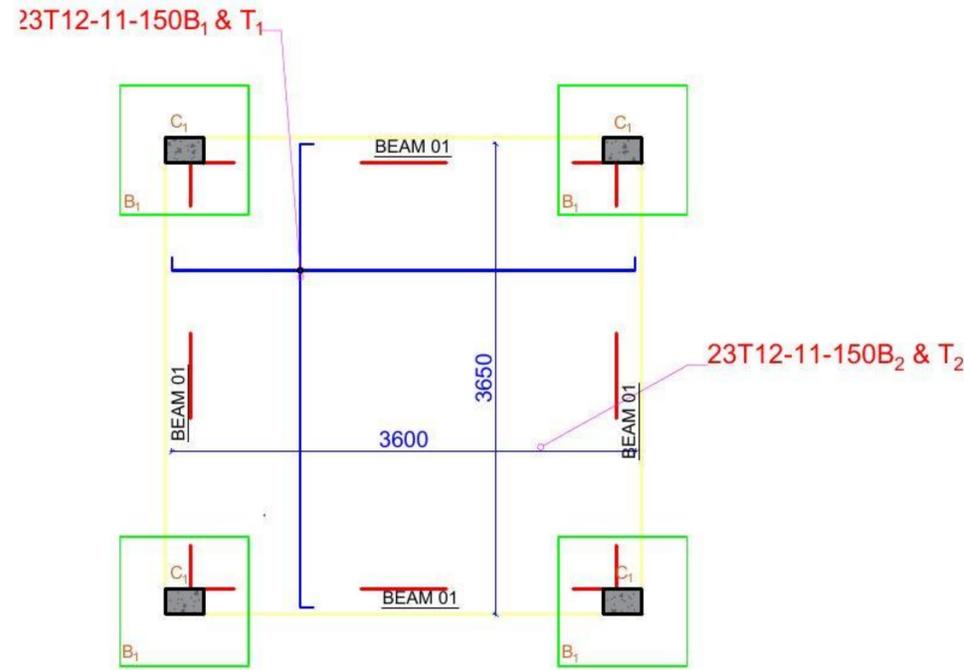
REVISION:  
1

METERS

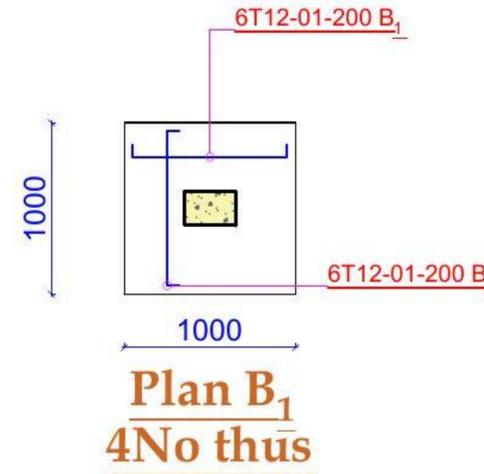




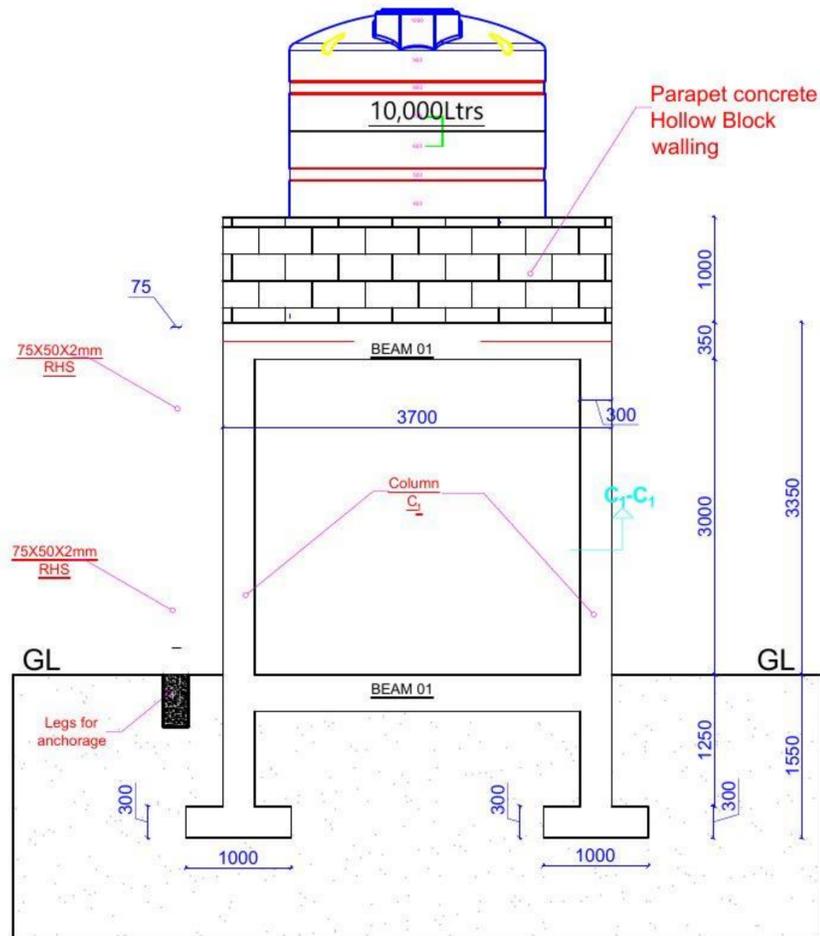
**Plan Elevated Water tank**



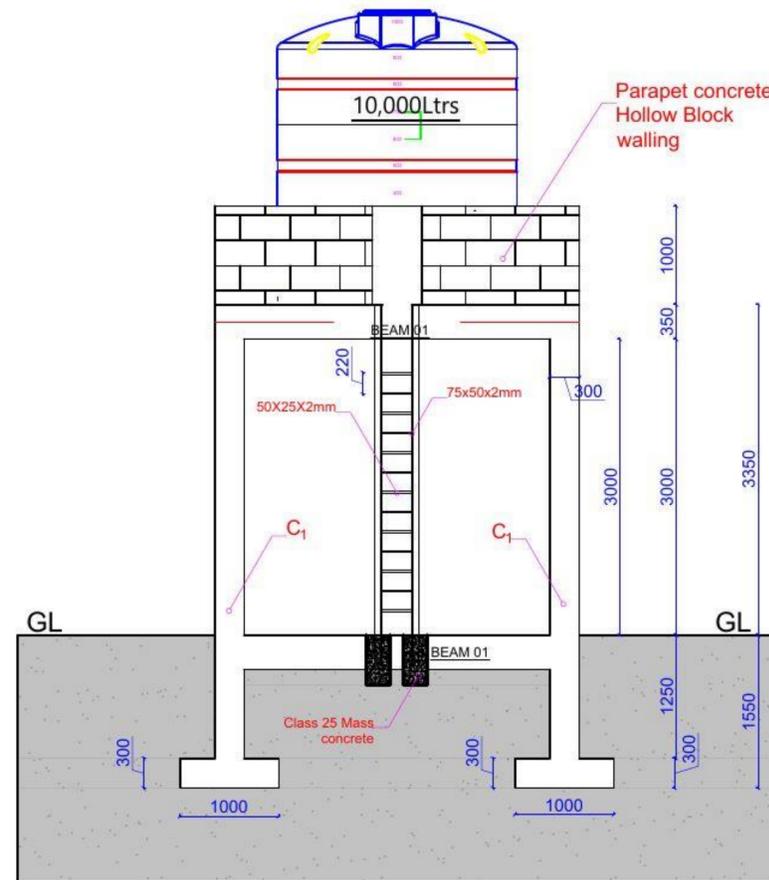
**Top Slab RC Details**



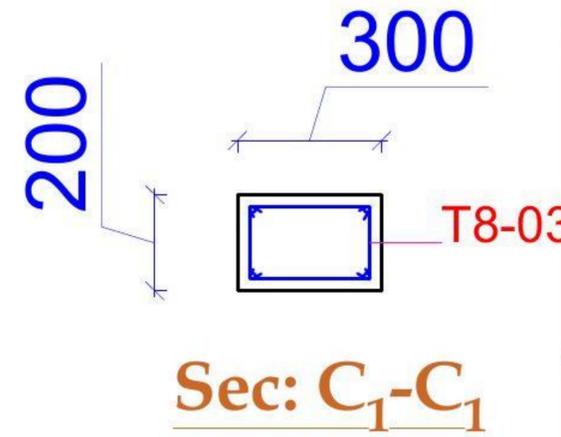
**Plan B<sub>1</sub>  
4No thus**



**Elevation: A-01**



**Elevation: A-02**



**Sec: C<sub>1</sub>-C<sub>1</sub>**

**GENERAL NOTES**

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED
2. PROGRAMME METHOD OF CONSTRUCTION AND SETTING OUT OF WORK TO BE APPROVED BY ENGINEER BEFORE COMMENCEMENT OF WORK.
3. **DESIGN CODES**
  - DESIGN CODES B.S. 8007, B.S. 8110, BS 5950-1
4. **CONCRETE WORK**
  - CEMENT TO BE ORDINARY PORTLAND TO B.S 12
  - WATER IN CONCRETE MIX TO BE B.S 3148
  - CONCRETE AGGREGATE TO COMPLY WITH B.S 882
  - CONCRETE CLASS TO BE AS FOLLOWS :-  
MASS CONCRETE FILL AND BLINDING MIX CLASS 15  
REINFORCED CONCRETE TO BE CLASS 25/20

**CLEINT:**

**FUNDIG:**

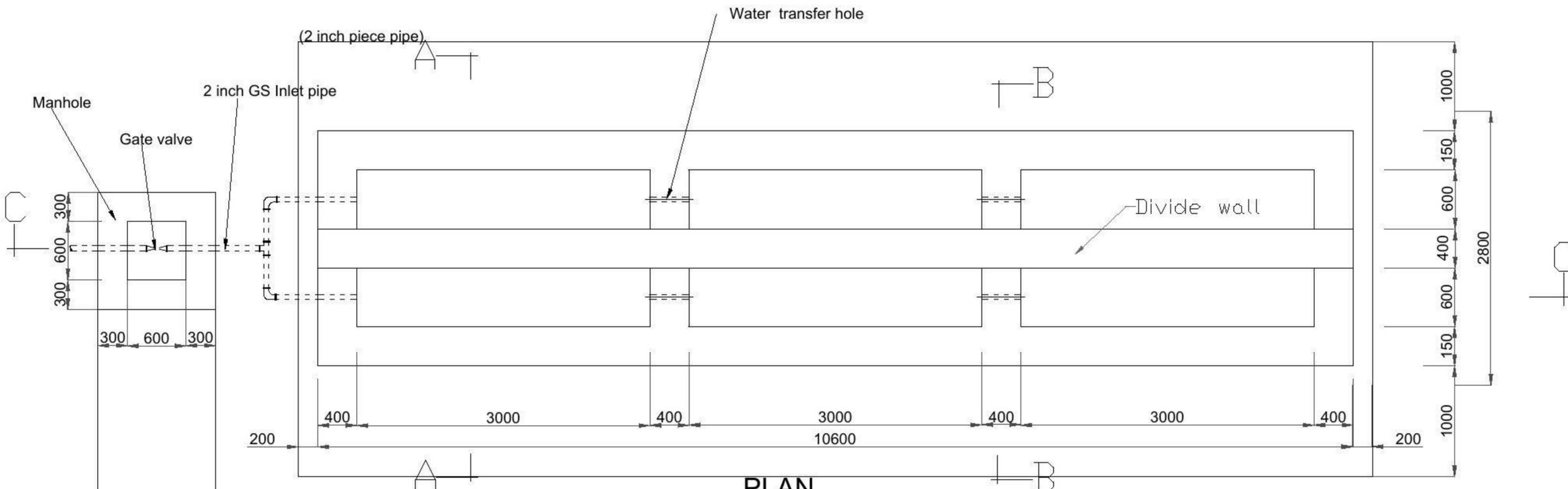
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**DRAWING TITEL :**

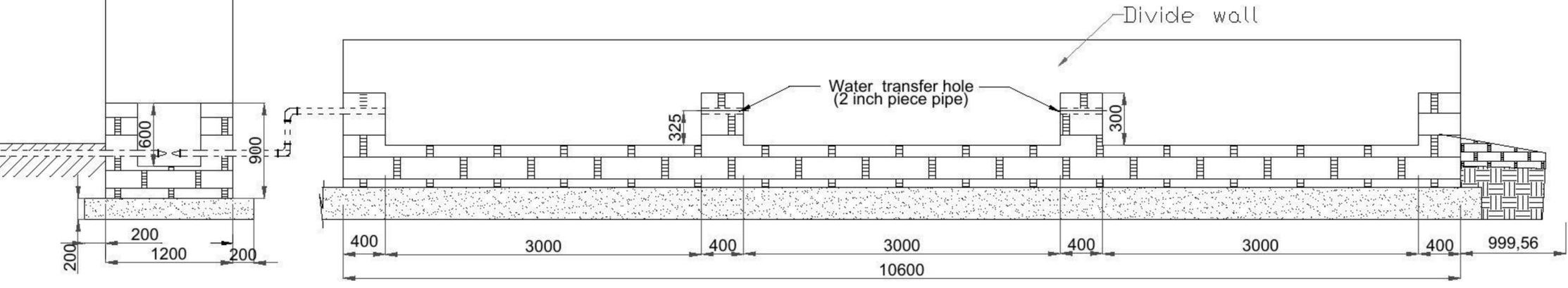
Tank 10cum Fiberglass E.W.T

**DESIGNED BY :**

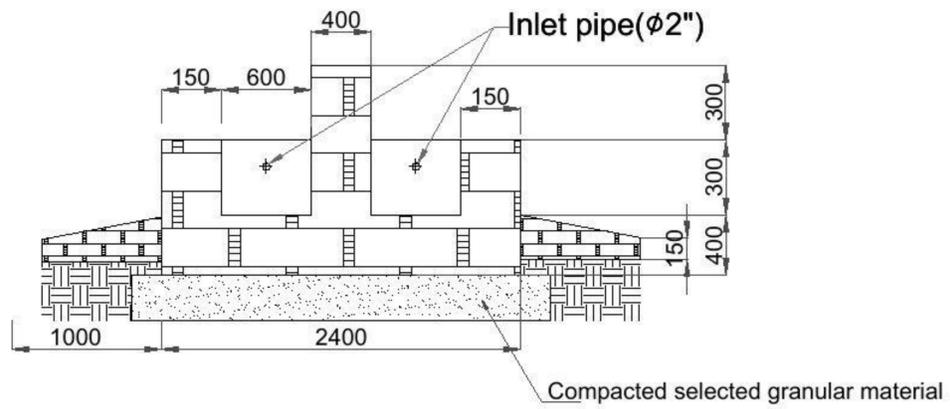
**CHECKED & APPROVED BY :**



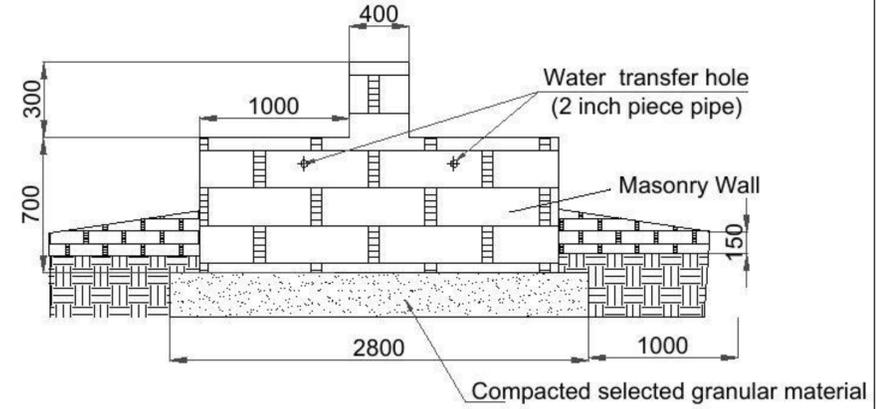
**PLAN**  
SCALE 1:50



**SECTION C-C**



**SECTION A-A**



**SECTION B-B**

**GOAT TROUGH**

- GENERAL NOTES**
- 1-ALL DIMENSIONS AND LEVELS ARE SHOWN HEREIN ARE IN METERS UNLESS OTHERWISE NOTED.
  - 2-FOLLOW DIMENSIONS INDICATED ON THE DRAWING.
  - 3-THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER ENGINEERING DRAWINGS, SUCH AS STRUCTURAL & MEP DWGS.
  - 4-ALL STRUCTURAL ELEMENTS SHOULD BE COORDINATED WITH STRUCTURAL DRAWINGS.
  - 5-ALL MECHANICAL AND ELECTRICAL ELEMENTS AND REQUIREMENTS SHOULD BE COORDINATED WITH ELECTRO MECHANICAL DRAWINGS.
  - 6-ALL DIMENSIONS ARE SHOWN HEREIN REFER TO MASONRY NOT TO FINISHING LEVELS.
  - 7-All pipes inside the wall should be fully covered with concrete to avoid any damage

PROJECT NAME:  
DACARBUDHUQ EARTH DAM FEASIBILITY STUDY

DRAWING TITLE:  
GOAT TROUGH

DESIGNED BY:  
ENGR. AHMED FARHAN FARAH

APPROVED BY:  
ENGR. AHMED JAMAC BARRE

DATE:  
4/17/2024



DESIGN/DRAWN:  
NASRI CONSULTANCY FIRM  
BLOCK 5, BROTHERS BUILDING, 2ND FLOOR, SHEIKH OSMAN, BORAMA, AWDAL, SOMALILAND

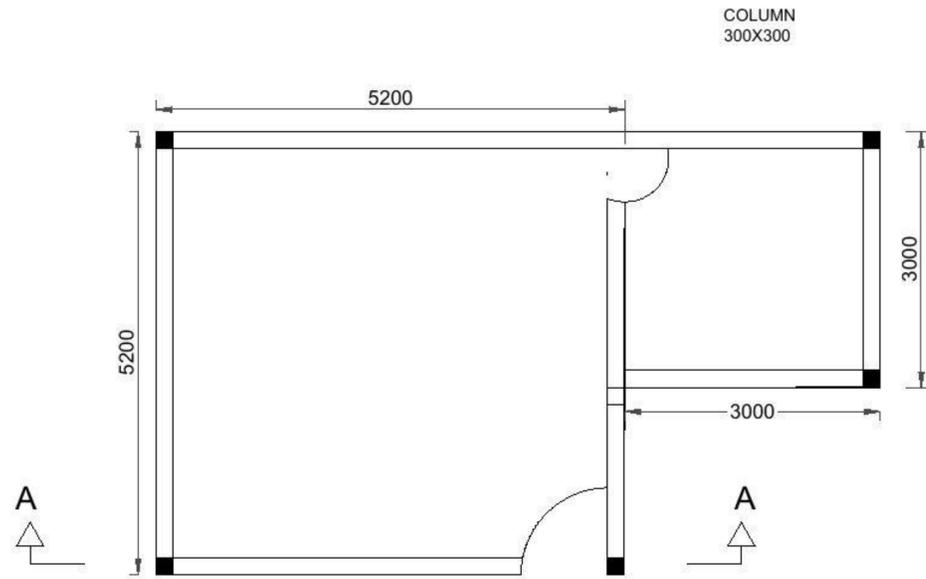
DESCRIPTION:	BY:	DATE:
Dacar-Budhuq Halfir Dam	ENGR. AFF	4/17/2024

PROJECT NO:	SCALE:	SHEET SIZE:
N.C.F - PR# 0010	1:50	A1

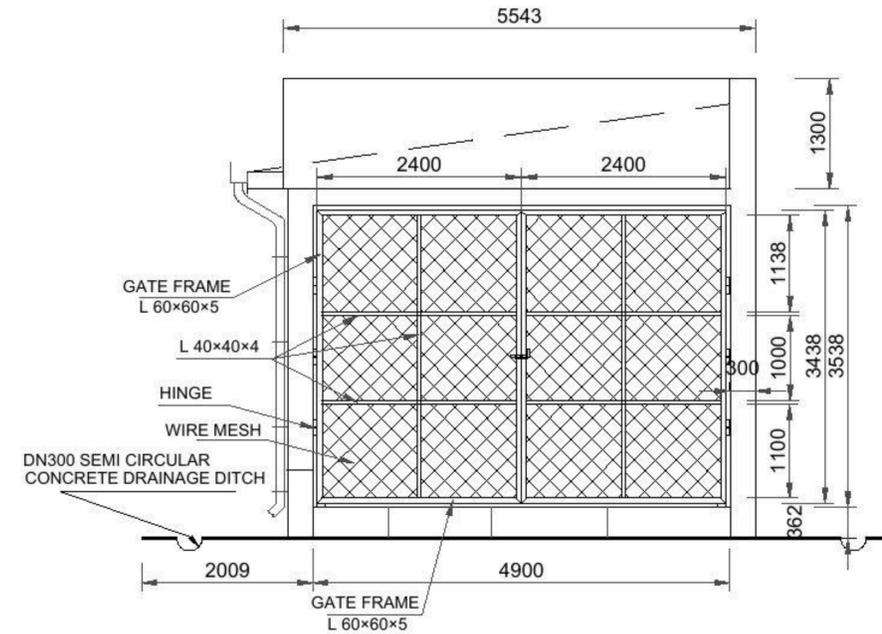
DRAWING NO:	SHEET NO:
S108	27

REVISION:
1

METERS



FLOOR PLAN  
SCALE 1:100



FRONT ELEVATION  
SCALE 1:100

GENERAL NOTES

- 1-ALL DIMENSIONS AND LEVELS ARE SHOWN HEREIN ARE IN METERS UNLESS OTHERWISE NOTED.
- 2-FOLLOW DIMENSIONS INDICATED ON THE DRAWING.
- 3-THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER ENGINEERING DRAWINGS, SUCH AS STRUCTURAL & MEP DWGS.
- 4-ALL STRUCTURAL ELEMENTS SHOULD BE COORDINATED WITH STRUCTURAL DRAWINGS.
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- 6-ALL DIMENSIONS ARE SHOWN HEREIN REFER TO MASONRY NOT TO FINISHING LEVELS.
- 7-All pipes inside the wall should be fully covered with concrete to avoid any damage

PROJECT NAME:  
DACARBUDHUQ EARTH DAM FEASIBILITY STUDY

DRAWING TITLE:  
GUARD ROOM

DESIGNED BY:

DRAWN BY:  
ENGR. AHMED FARHAN FARAH

APPROVED BY:  
ENGR. AHMED JAMAC BARRE

DATE:  
4/17/2024

CLIENT:



DESIGN/DRAWN:

NASRI CONSULTANCY FIRM  
BLOCK 5, BROTHERS BUILDING, 2ND FLOOR, SHEIKH OSMAN, BORAMA, AWDAL, SOMALILAND

DESCRIPTION:	BY:	DATE:
Dacar-Budhuq Hafir Dam	ENGR. AFF	4/17/2024

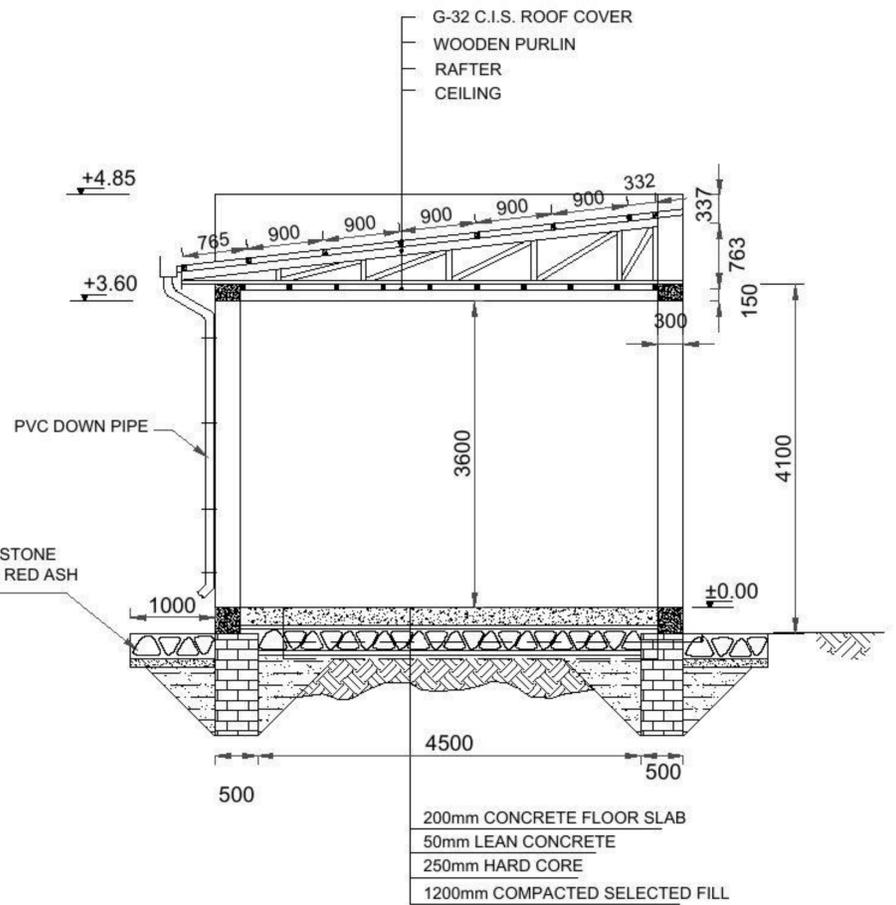
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N.C.F - PR# 0010	1:50	A1

DRAWING NO:	SHEET NO:
S109	28

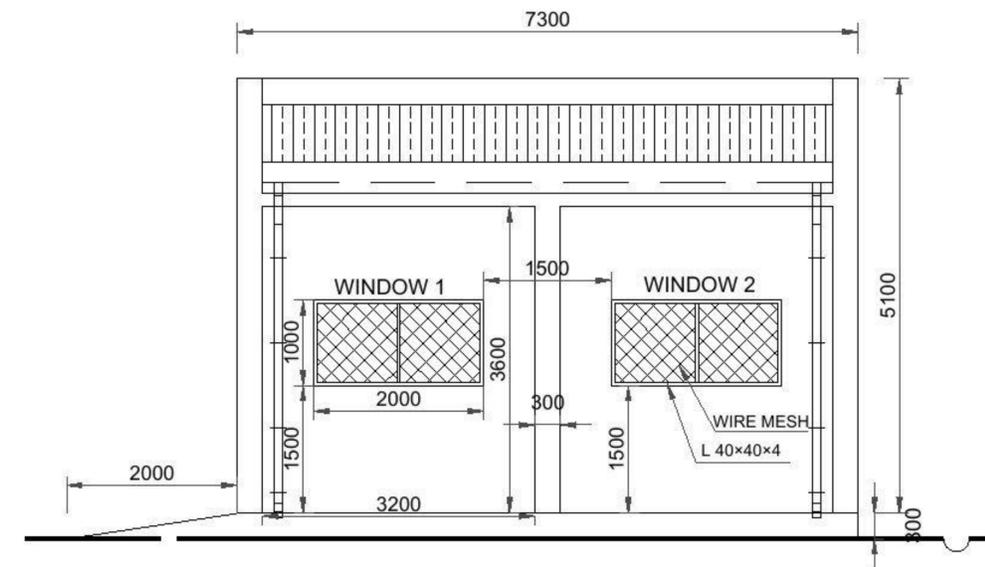
REVISION:
1



METERS



SECTION A-A  
SCALE 1:100



LEFT SIDE ELEVATION  
SCALE 1:100

- 200mm CONCRETE FLOOR SLAB
- 50mm LEAN CONCRETE
- 250mm HARD CORE
- 1200mm COMPACTED SELECTED FILL

GENERAL NOTES

- 1-ALL DIMENSIONS AND LEVELS ARE SHOWN HEREIN ARE IN METERS UNLESS OTHERWISE NOTED.
- 2-FOLLOW DIMENSIONS INDICATED ON THE DRAWING.
- 3-THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER ENGINEERING DRAWINGS, SUCH AS STRUCTURAL & MEP DWGS.
- 4-ALL STRUCTURAL ELEMENTS SHOULD BE COORDINATED WITH STRUCTURAL DRAWINGS.
- 5-ALL MECHANICAL AND ELECTRICAL ELEMENTS AND REQUIREMENTS SHOULD BE COORDINATED WITH ELECTRO MECHANICAL DRAWINGS.
- 6-ALL DIMENSIONS ARE SHOWN HEREIN REFER TO MASONRY NOT TO FINISHING LEVELS.
- 7-All pipes inside the wall should be fully covered with concrete to avoid any damage

PROJECT NAME:  
DACARBUDHUQ EARTH DAM FEASIBILITY STUDY

DRAWING TITLE:  
WATER POINT

DESIGNED BY:

DRAWN BY:  
ENGR. AHMED FARHAN FARAH

APPROVED BY:  
ENGR. AHMED JAMAC BARRE

DATE:  
4/17/2024

CLIENT:



DESIGN/DRAWN:

NASRI CONSULTANCY FIRM  
BLOCK 5, BROTHERS BUILDING, 2ND FLOOR, SHEIKH OSMAN, BORAMA, AWDAL, SOMALILAND

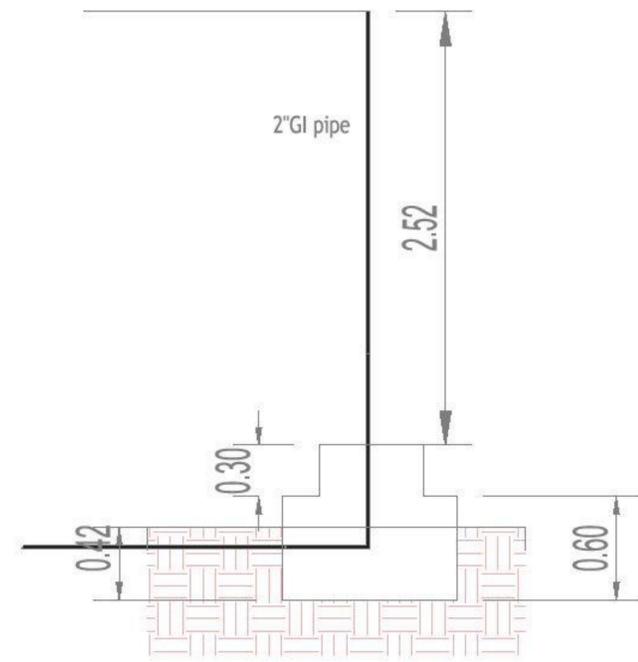
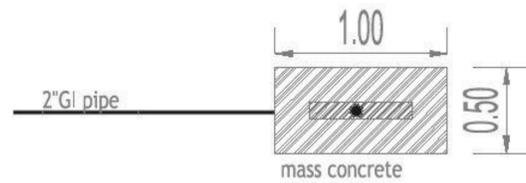
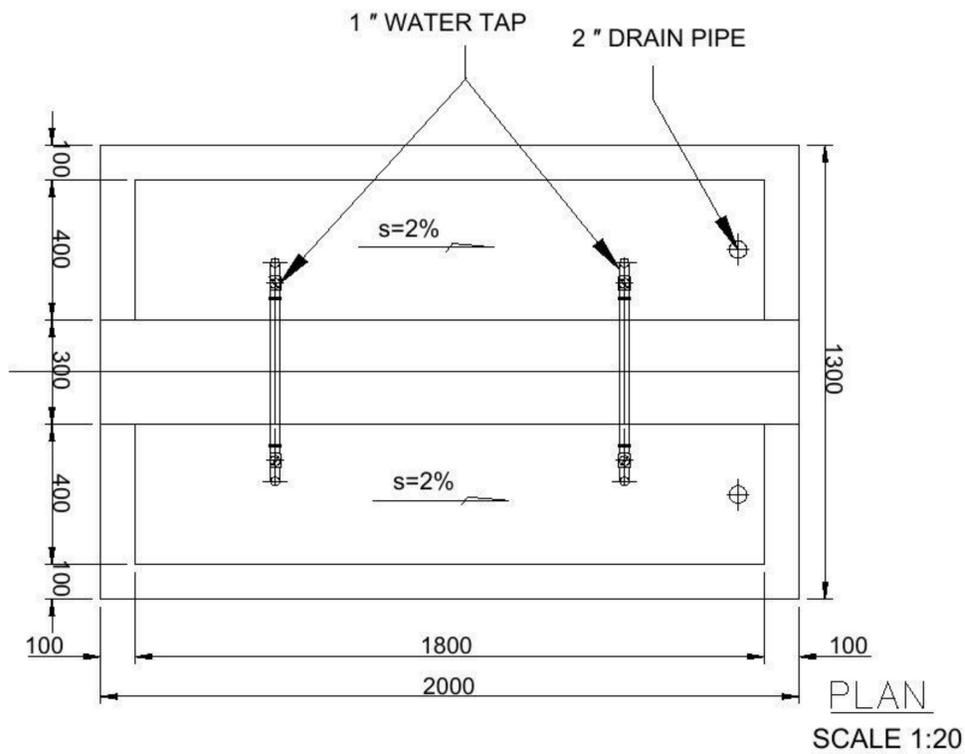
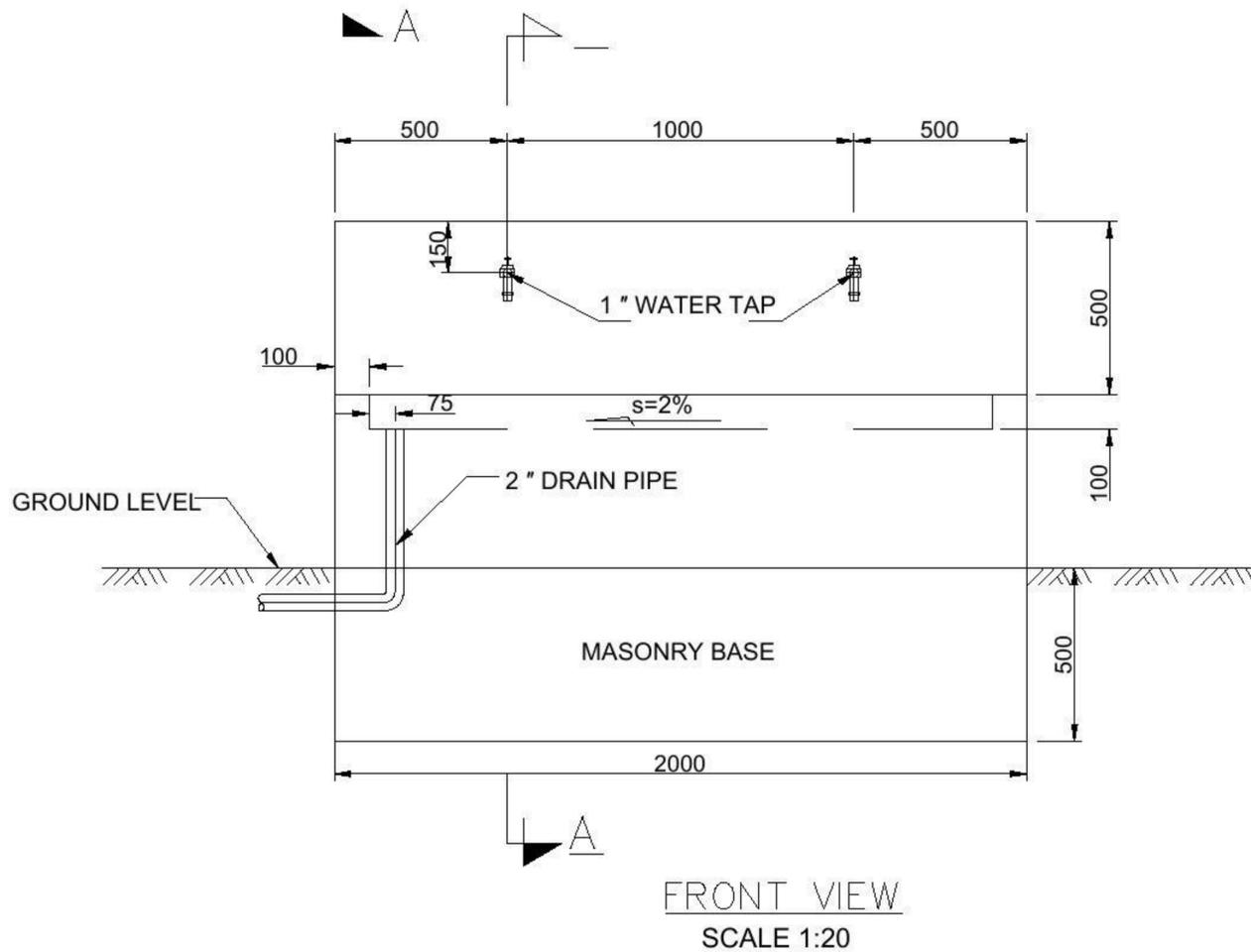
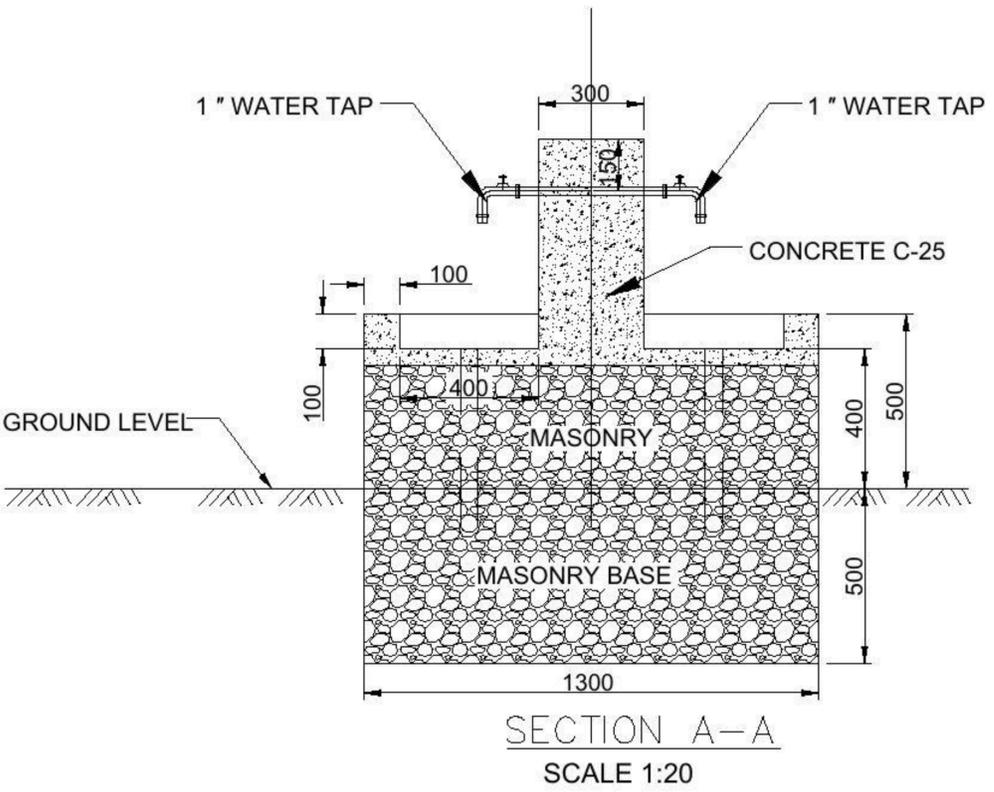
DESCRIPTION:	BY:	DATE:
Dacar-Budhuq Hafir Dam	ENGR. AFF	4/17/2024

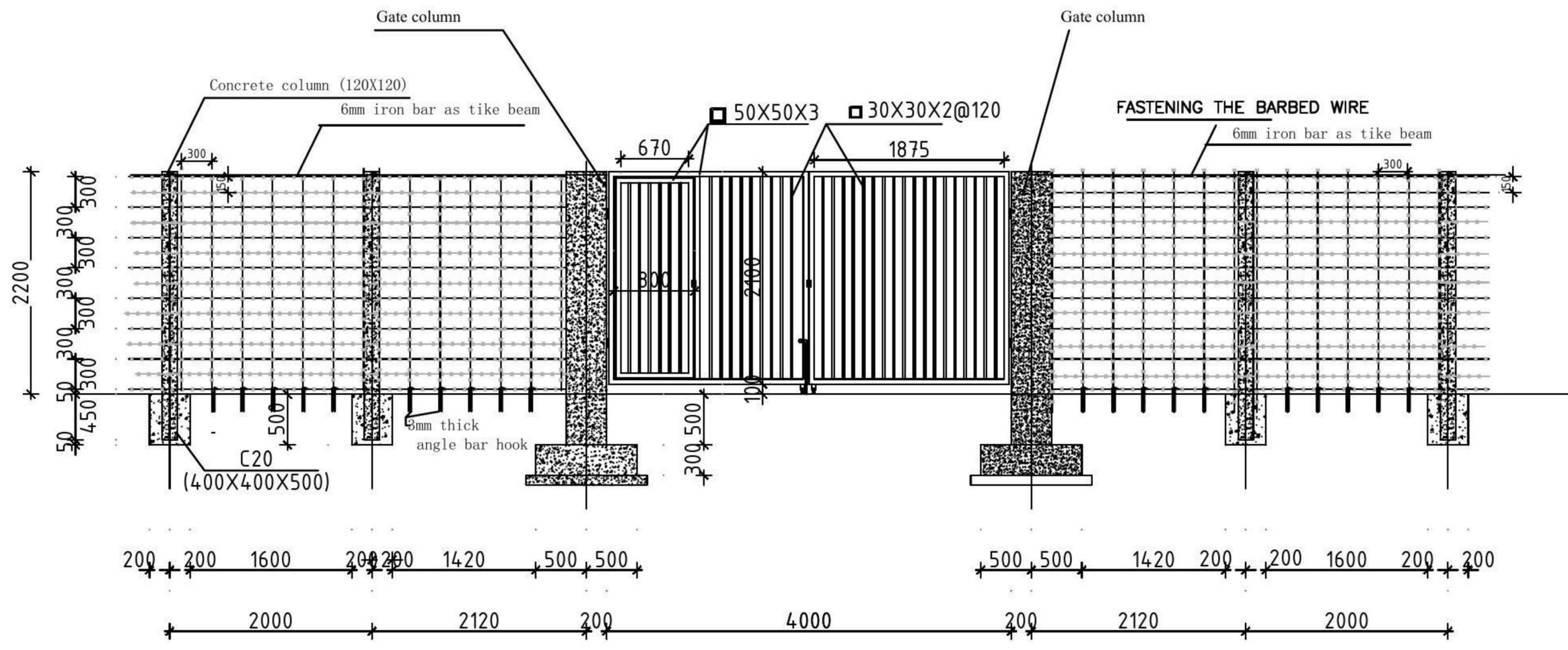
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DRAWING NO:	SHEET NO:
S110	29

REVISION:
1

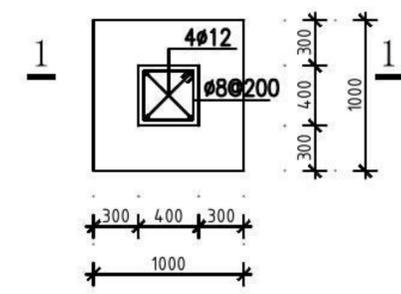
METERS



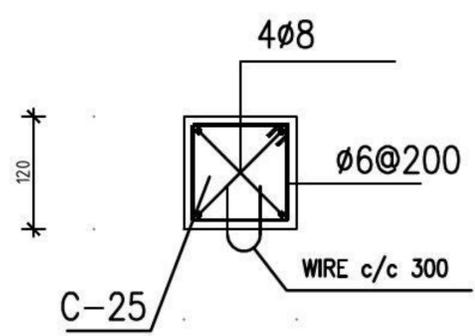


# GATE ELIVATION

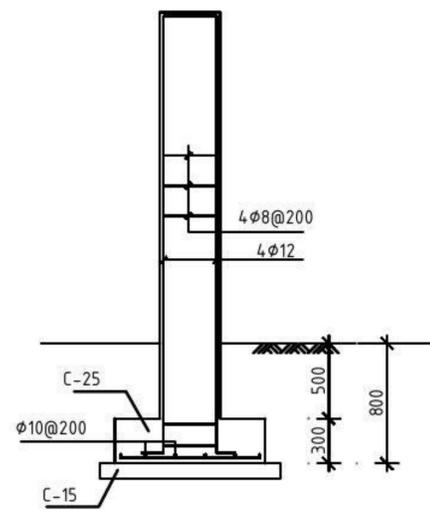
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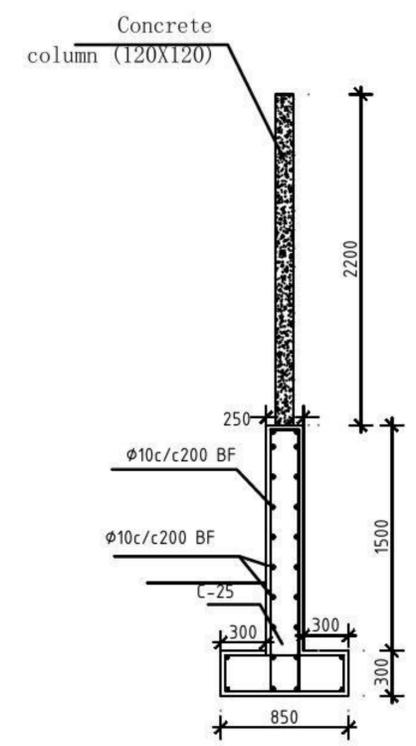
Concrete Footing  
SCALE 1:50



Concrete column  
SCALE 1:50



SECTION 1-1  
SCALE 1:50



Retaining Wall  
SCALE 1:50

## GENERAL NOTES

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- 4-ALL STRUCTURAL ELEMENTS SHOULD BE COORDINATED WITH STRUCTURAL DRAWINGS.
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- 7-All pipes inside the wall should be fully covered with concrete to avoid any damage

PROJECT NAME:  
DACARBUDHUQ EARTH DAM FEASIBILITY STUDY

DRAWING TITLE:  
FENCE

DESIGNED BY:  
ENGR. AHMED FARHAN FARAH

APPROVED BY:  
ENGR. AHMED JAMAC BARRE

DATE:  
4/17/2024

CLIENT:



DESIGN/DRAWN:  
NASRI CONSULTANCY FIRM  
BLOCK 5, BROTHERS BUILDING, 2ND FLOOR, SHEIKH OSMAN, BORAMA, AWDAL, SOMALILAND

DESCRIPTION:	BY:	DATE:
Dacar-Budhuq Hafir Dam	ENGR. AFF	4/17/2024

PROJECT NO:	SCALE:	SHEET SIZE:
N.C.F - PR# 0010	1:50	A1

DRAWING NO:	SHEET NO:
S113	32

REVISION:
1

METERS