



کابل - افغانستان

۵۰ هکتار ساحه

خدمات رياست کماثر تعمير

نقشه های مهترسي

د افغانستان اسلامي امارت



امارت اسلامي افغانستان
رياست عمومي اداره امور
معاونت مالي و اداري
رياست طرح و ديزاين امور ساجداني
امريت مهترسي

INDEX SHEET

PG N	FILE NAME	Sheet Name	Scale	PG N	FILE NAME	Sheet Name	Scale
1	COVER PAGE						
2	INDEX SHEET		1:75				
3	A-101 STONEWORK PLAN		1:75				
4	FLOOR PLAN		1:75				
5	A-103 ROOF PLAN		1:50				
6	A-201 ELEVATION A-A		1:50				
7	A-202 ELEVATION C-C		1:50				
8	A-203 ELEVATION D-D		1:50				
9	A-204 ELEVATION B-B		1:50				
10	A-301 SECTION 1-1		1:50				
11	A-302 SECTION 2-2		AS INDICATED				
12	A-303 SECTION 3-3 AND 4-4		AS INDICATED				
13	A-501 GRILL PLANS SECTION DETAILS METAL CLAMP DETAIL AND DETAIL 1-1, 2-2		AS INDICATED				
14	A-601 WINDOWS PLAN, ELEVATION SCHEDULE SECTION		AS INDICATED				
15	A-602 WINDOW(W) AND DOOR (D) PLAN, ELEVATION, SCHEDULE AND FRAME PLAN, JO DETALS		AS INDICATED				
16	A-603 DOOR PLAN, ELEVATION, SCHEDULE SECTION		AS INDICATED				
17	A-604 DOOR TYPICAL SECTION, CALLOUT(A, B) & METAL BOARD DETAIL		1:30				
18	A-801		AS INDICATED				
19	A-802		AS INDICATED				
20	A-803		AS INDICATED				
21	A-804		AS INDICATED				
22	A-805		AS INDICATED				



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ریاست طرح و تیز این امور ساختمانی
امارت اسلامی

Tel: 0202143082

Website: www.aop.gov.at

Designed by:	Obaidullah Wardak
Drawn by:	Obaidullah Wardak
Checked By: Head of Department :	Abdul Basir Rahimi
Approved by Vice Committee	Ph.D Hachmatullah Ahamd

No.	Submission Description	Date:
01	For Construction	14/03/04/15

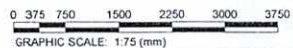
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Contract Date:	
Fiscal Year:	1403/1445
Drawn Code:	SDCBA
Paper Size:	A3
Print Date:	1403/04/05
Scale:	

SERVICES DIRECTORATE COMPLEX BUILDING AOP
KABUL PROVINCE , AFGHANISTAN

POWER PLANT
INDEX SHEET

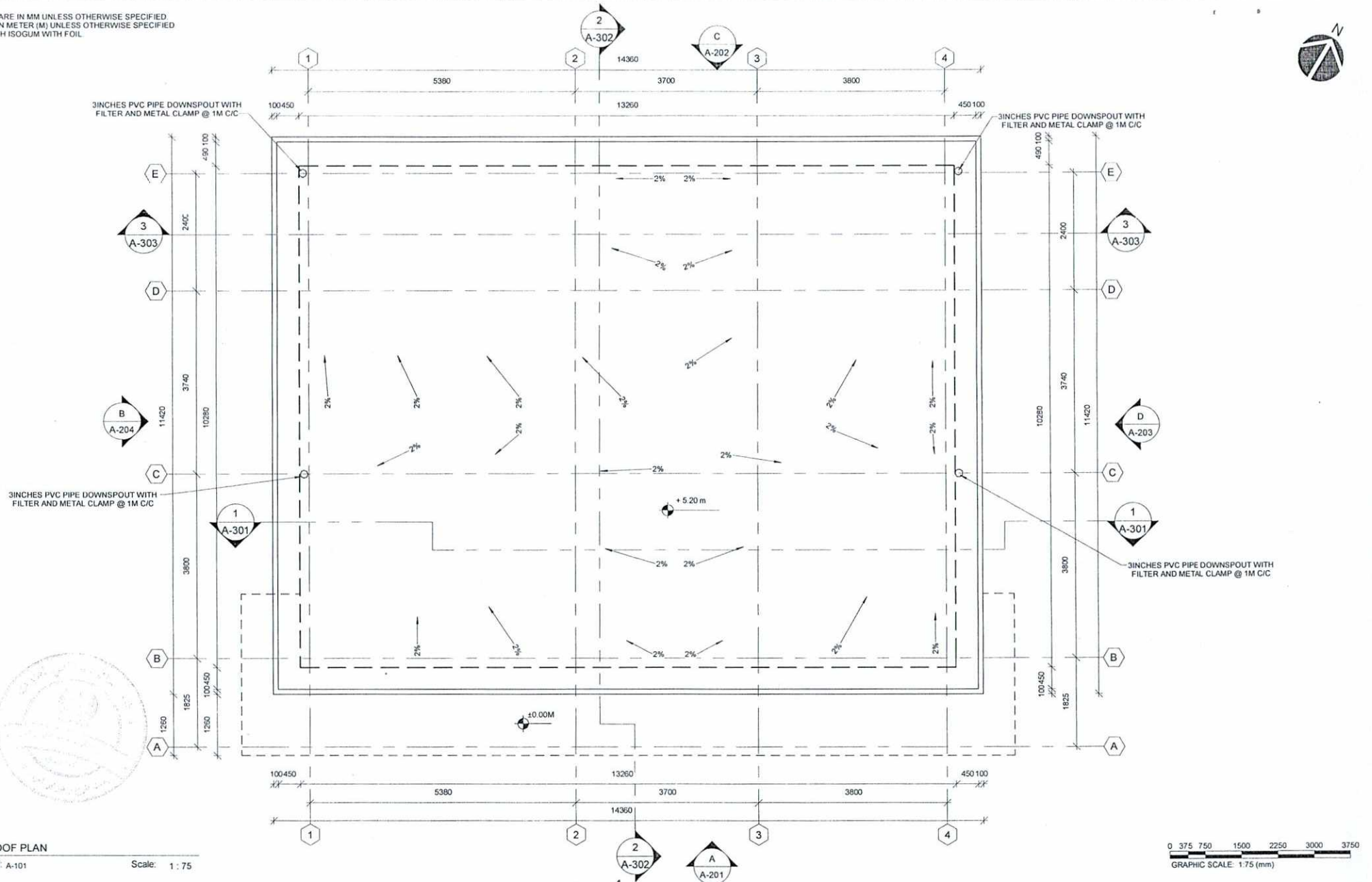
Sheet
Reference
Number

G-001



A-102

- GENERAL NOTE:
 1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED
 2. ALL LEVELS ARE IN METER (M) UNLESS OTHERWISE SPECIFIED
 3. ROOF COVER WITH ISOGUM WITH FOIL



1 ROOF PLAN
 A-103 Ref: A-101

Scale: 1:75

0 375 750 1500 2250 3000 3750
 GRAPHIC SCALE: 1:75 (mm)



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Designed by:	Obeidullah Wardak	No	Submission Description:	Date:
Drawn by:	Obeidullah Wardak	(01)	For Construction	1403/04/15
Checked By	Abdul Basir Rahimi			
Head of Department:				
Approved by	Ph.D Hashmatullah Atmar			
Visa Committee:				

Contract No:	
Contract Date:	
Fiscal Year:	1403/1445
Drawn Code:	SDCBA
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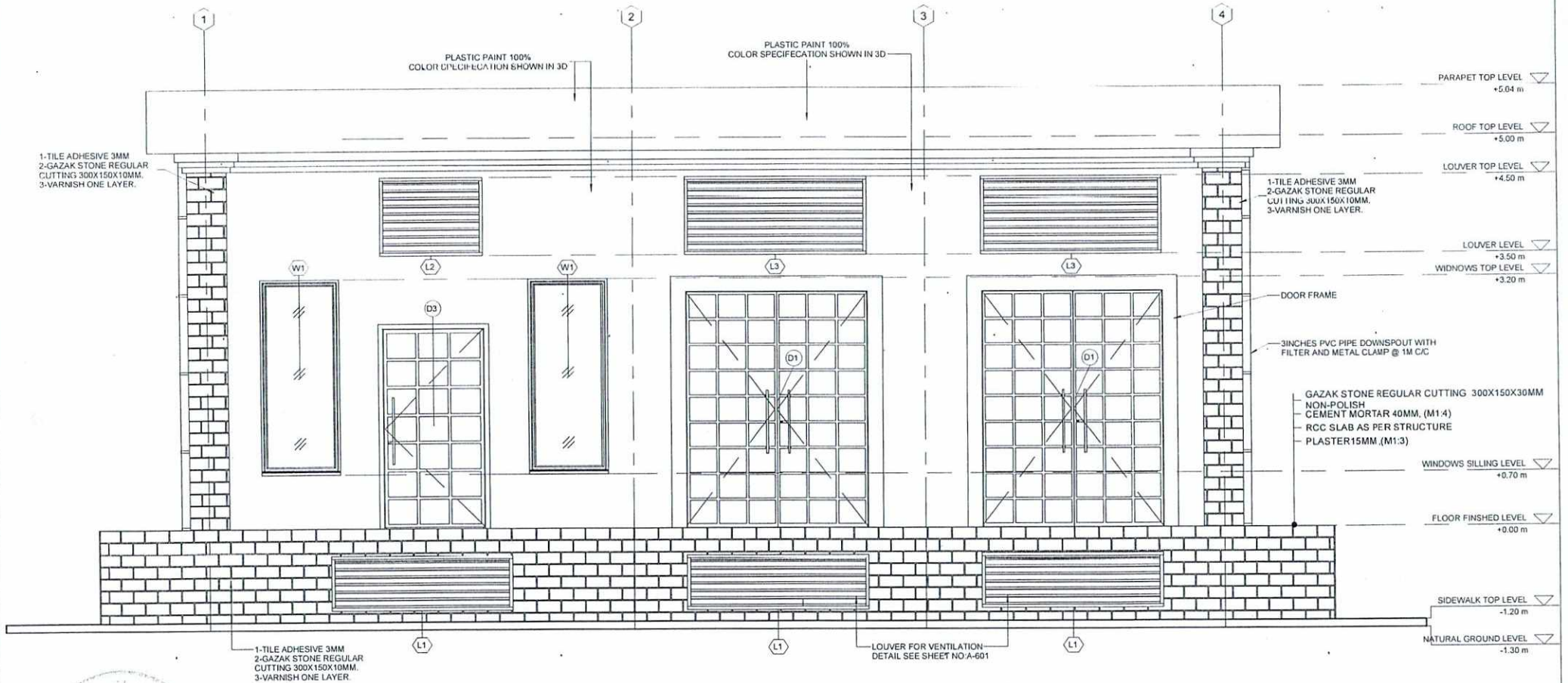
SERVICES DIRECTORATE COMPLEX BUILDING AOP
 KABUL PROVINCE, AFGHANISTAN

POWER PLANT
 ROOF PLAN

Sheet
 Reference
 Number

A-103

- GENERAL NOTE:
 1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
 2. ALL LEVELS ARE IN METER (M) UNLESS OTHERWISE SPECIFIED.
 3. GAZAK STONE SHOULD HAVE 15MM GROUT IN BETWEEN EACH TILE.
 4. GAZAK STONE WHEN USED IN ELVATION SHOULD BE POLISHED.



1 | ELEVATION A-A

A-201 | Ref. A-101

Scale: 1:50

0 250 500 1000 1500 2000 2500
 GRAPHIC SCALE: 1:50 (mm)



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 Approved by: Ph.D Hashmatullah Atmar
 Visa Committee:

No. (01)
 Submission Description: For Construction
 Date: 1403/04/15

Contract No:
 Contract Date:
 Fiscal Year: 1403/1445
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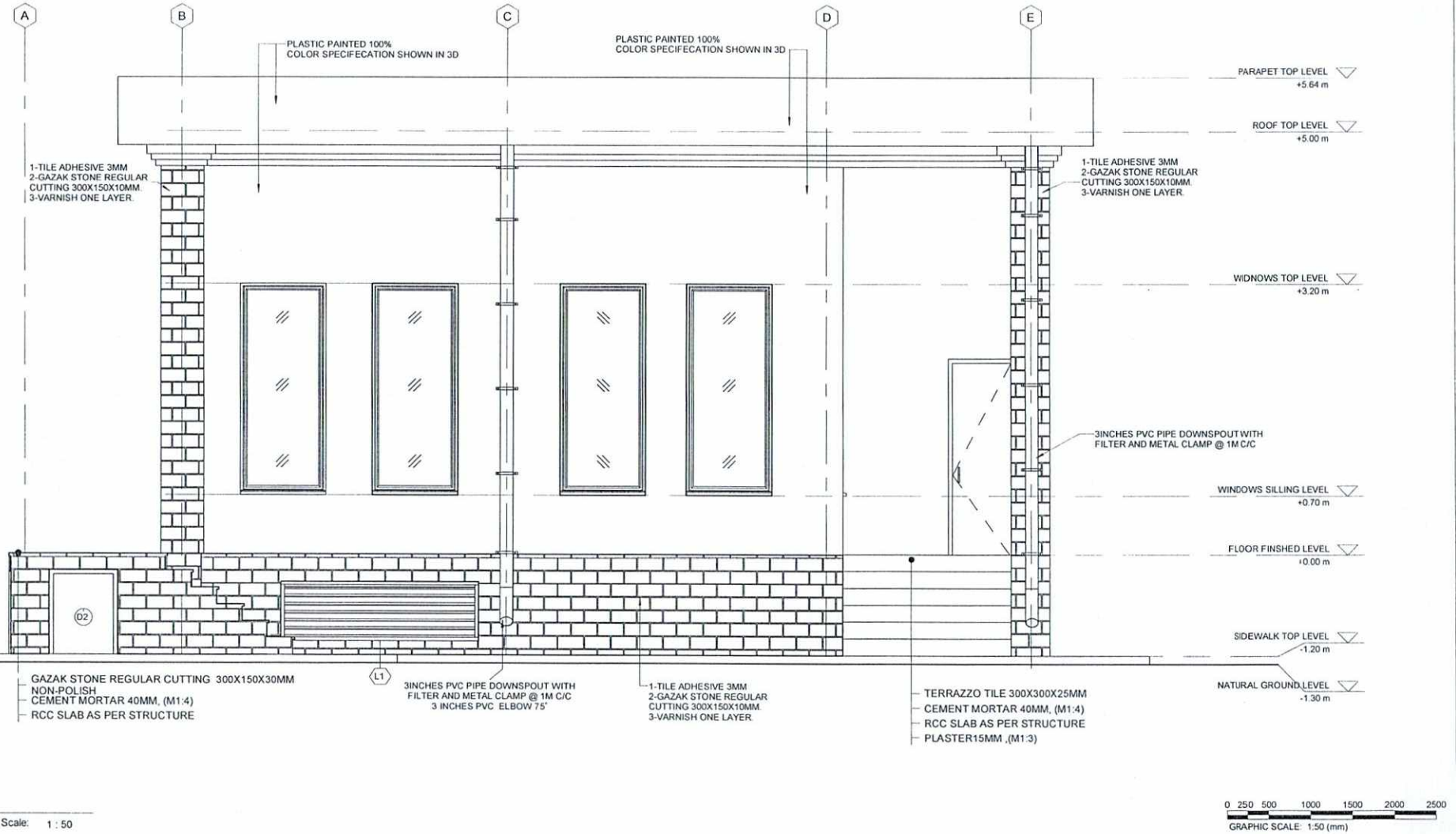
SERVICES DIRECTORATE COMPLEX BUILDING AOP
 KABUL PROVINCE, AFGHANISTAN

POWER PLANT
 ELEVATION A-A

Sheet
 Reference
 Number

A-201

- GENERAL NOTE:
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 3. GAZAK STONE SHOULD HAVE 15MM GROUT IN BETWEEN EACH TILE
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1 ELEVATION D-D
 A-203 Ref: A-101 Scale: 1:50



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Checked By:	Abdul Basir Rahimi			
Head of Department:				
Approved by:	Ph.D Hashmatullah Atmar			
Visa Committee:				

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Contract Date:	
Fiscal Year:	1403/1445
Drawn Code:	SDCBA
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Plot Date:	1403/04/09
Scale:	1:50

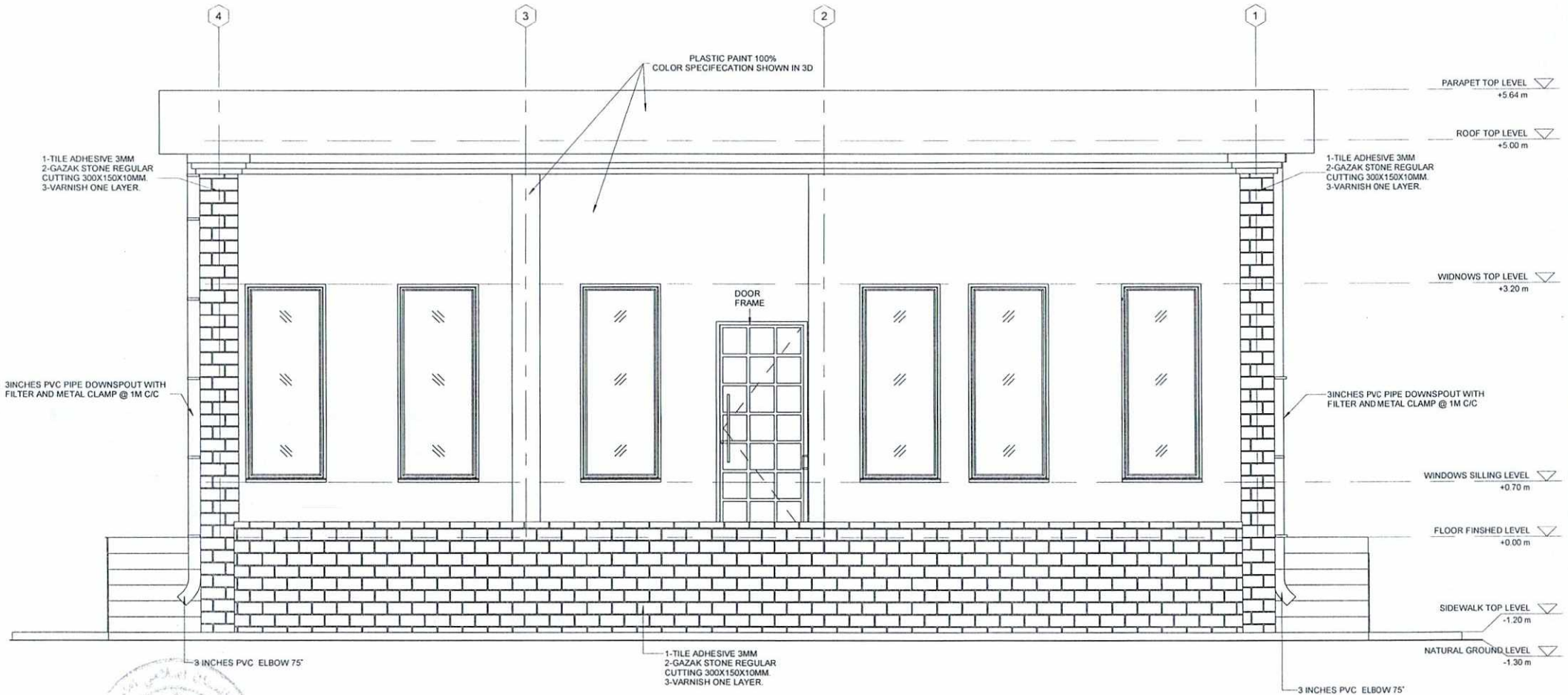
SERVICES DIRECTORATE COMPLEX BUILDING AOP
 KABUL PROVINCE, AFGHANISTAN

POWER PLANT
 ELEVATION D-D

Sheet
 Reference
 Number

A-203

- GENERAL NOTE:
 1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
 2. ALL LEVELS ARE IN METER (M) UNLESS OTHERWISE SPECIFIED.
 3. GAZAK STONE SHOULD HAVE 15MM GROUT IN BETWEEN EACH TILE.
 4. GAZAK STONE WHEN USED IN ELVATION SHOULD BE POLISHED.



1
 A-202 Ref A-101 Scale: 1:50

0 250 500 1000 1500 2000 2500
 GRAPHIC SCALE: 1:50 (mm)



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Approved by:	Ph.D Hashmatullah Altmar			
Visa Committee:				

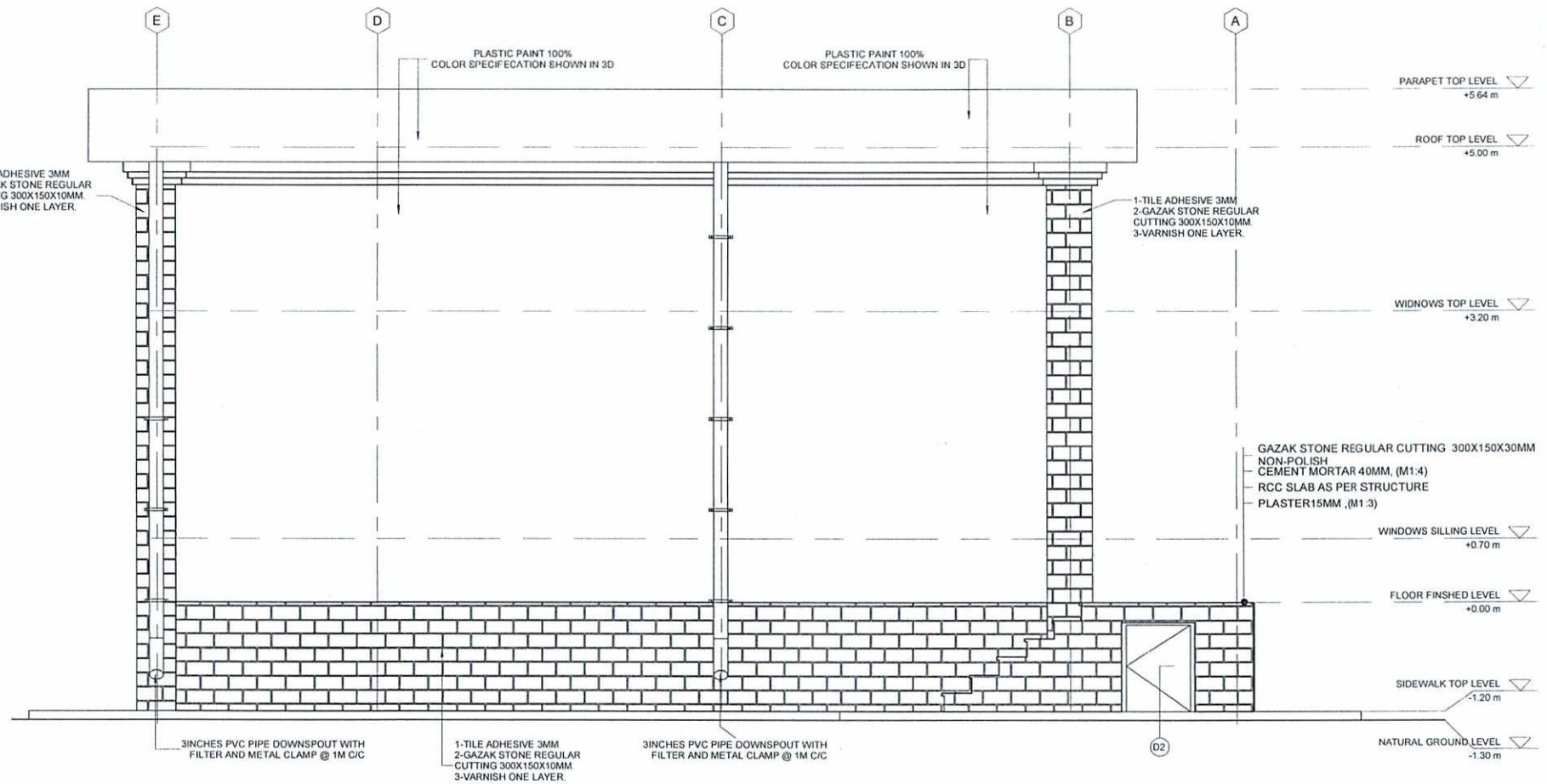
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Contract Date:	
Fiscal Year:	1403/1445
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Scale:	1:50

SERVICES DIRECTORATE COMPLEX BUILDING AOP
 KABUL PROVINCE, AFGHANISTAN

POWER PLANT
 ELEVATION C-C

Sheet
 Reference
 Number

A-202



1 ELVATION B-B
A-204 Ref. A-101 Scale: 1 : 50

0 250 500 1000 1500 2000 2500
GRAPHIC SCALE: 1:50 (mm)



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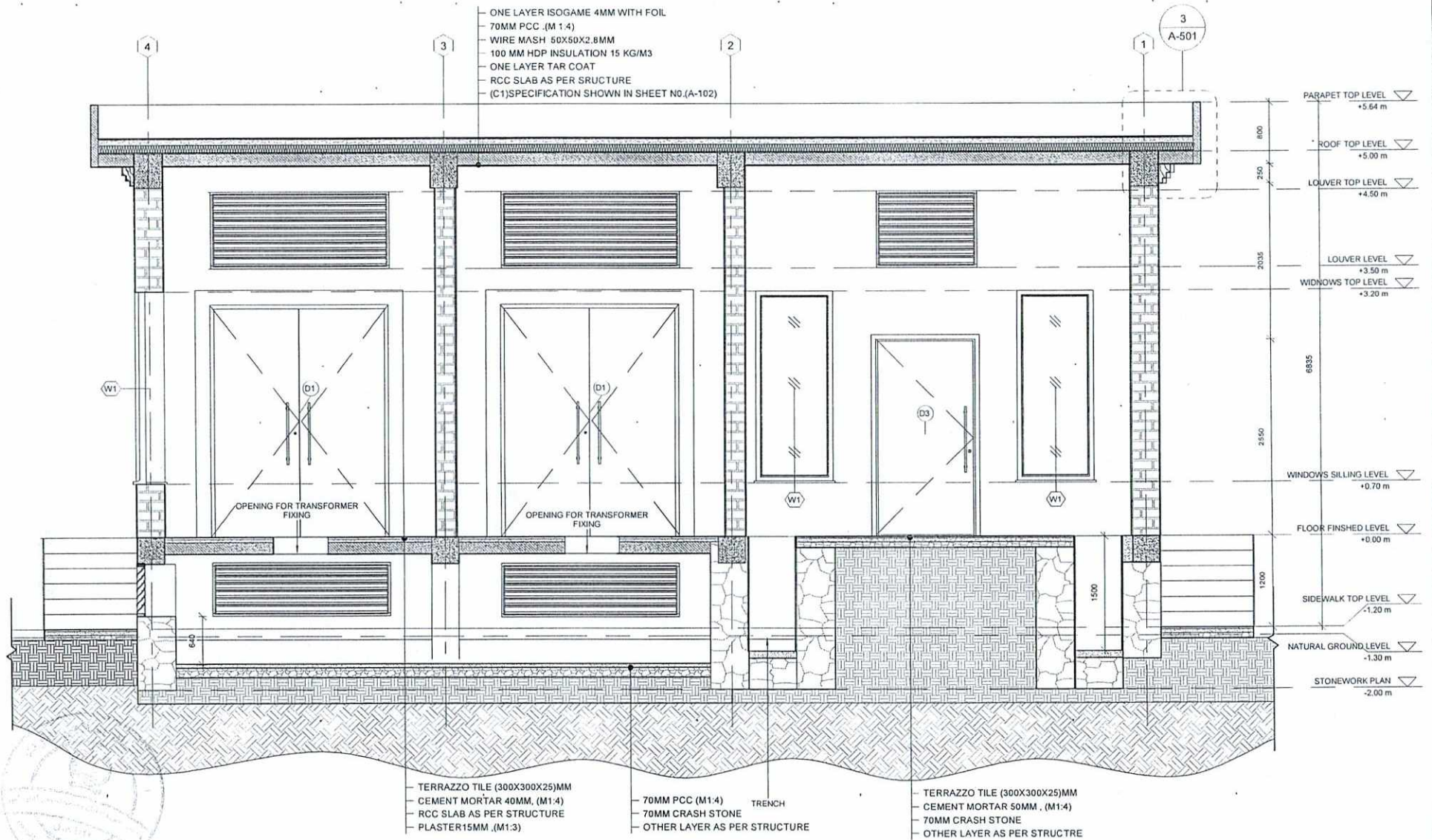
Designed by: Obaidullah Wardak
Drawn by: Obaidullah Wardak
Checked By: Abdul Basir Rahimi
Head of Department:
Approved by: Ph.D Hashmatullah Atmar
Visa Committee:

No. (01)
Submission Description: For Construction
Date: 1403/04/15

Contract No:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCBA
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1 : 50

SERVICES DIRECTORATE COMPLEX BUILDING AOP
KABUL PROVINCE , AFGHANISTAN
POWER PLANT
ELEVATION B-B

Sheet Reference Number
A-204



امارت اسلامی افغانستان
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Designed by: Obaidullah Wardak
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Checked By: Abdul Basir Rahimi
Approved by: Ph.D Hashmatullah Almar
Visa Committee:

No. 01
Submission Description: For Construction
Date: 1403/04/15

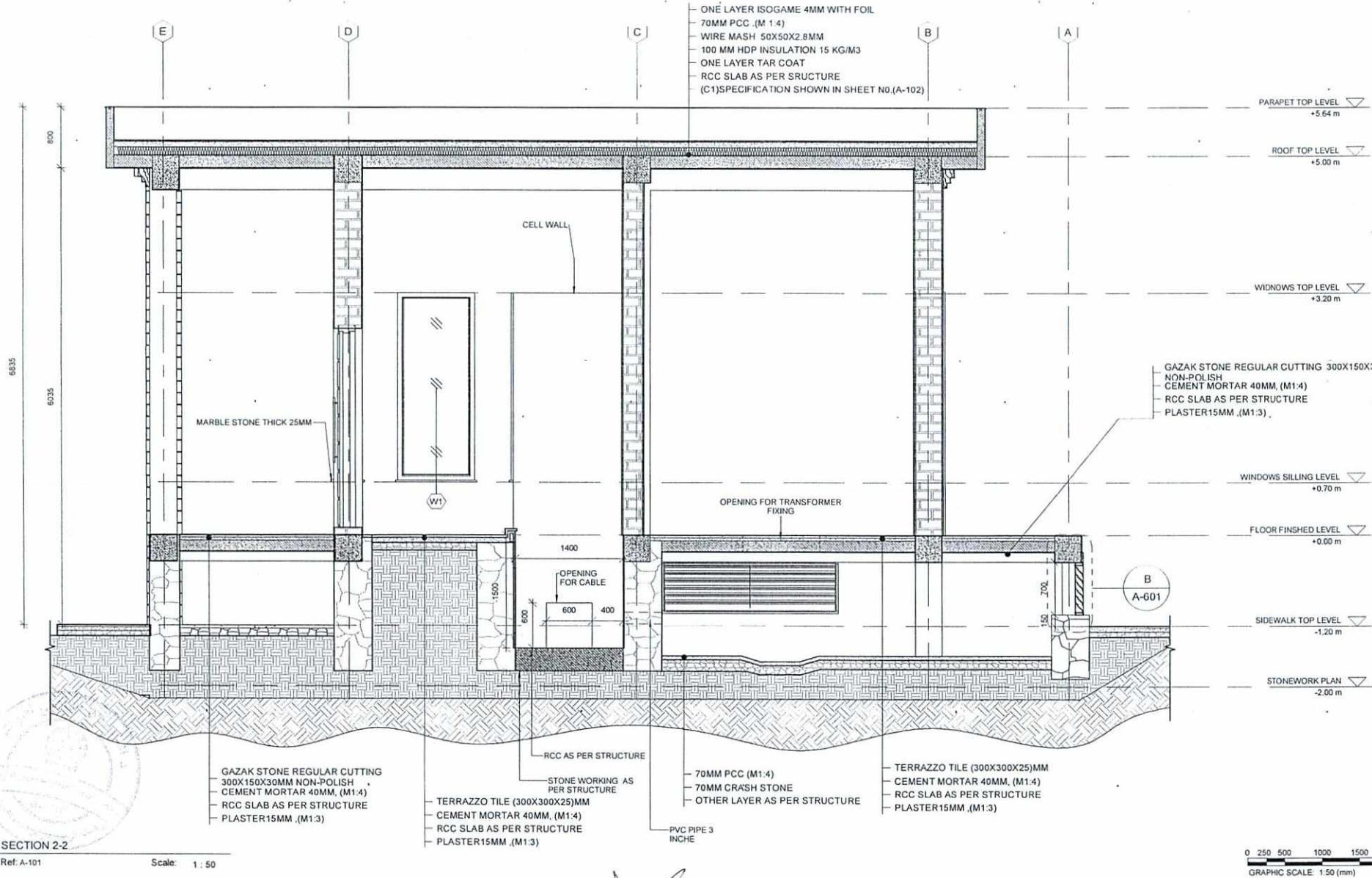
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Fiscal Year: SDCBA
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Scale: 1:50

SERVICES DIRECTORATE COMPLEX BUILDING AOP
KABUL PROVINCE, AFGHANISTAN

POWER PLANT
SECTION 1-1

Sheet
Reference
Number

A-301



1 SECTION 2-2
A-302 Ref. A-101 Scale: 1:50

0 250 500 1000 1500 2000 2500
GRAPHIC SCALE: 1:50 (mm)



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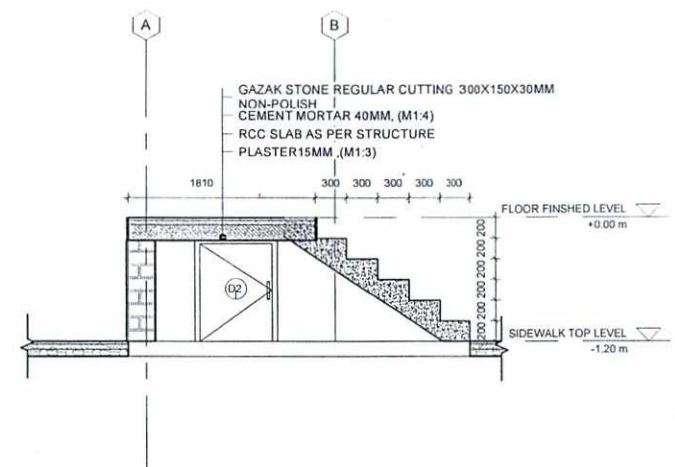
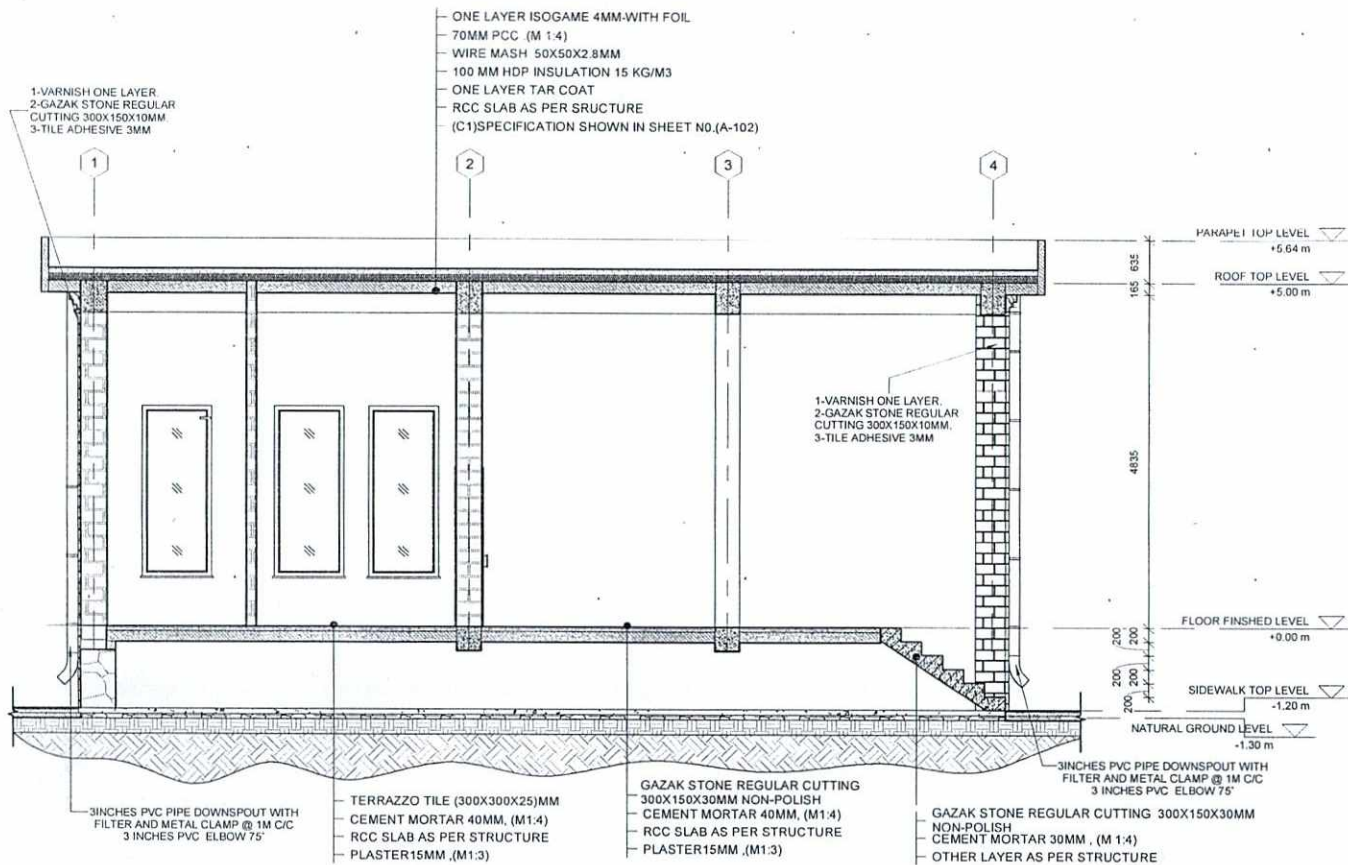
No. 01
Submission Description: For Construction
Date: 1403/04/15

Contract No.:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCBA
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1:50

SERVICES DIRECTORATE COMPLEX BUILDING AOP
KABUL PROVINCE, AFGHANISTAN

POWER PLANT
SECTION 2-2

Sheet
Reference
Number
A-302



1 SECTION 3-3
A-303 Ref: A-101 Scale: 1:75

2 SECTION 4-4
A-303 Ref: A-101 Scale: 1:50



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[Handwritten signature]

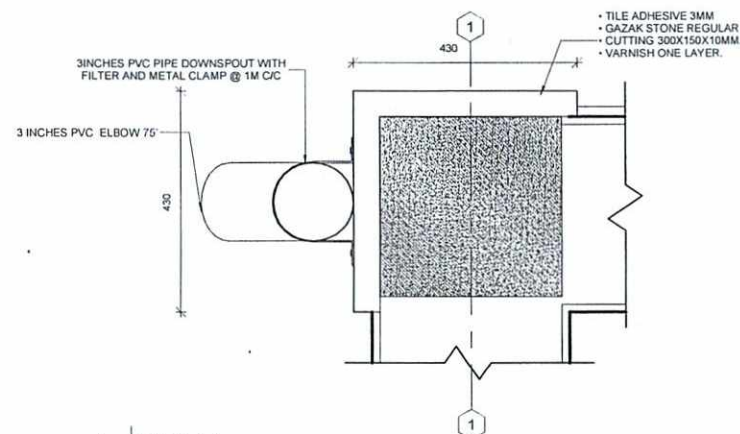
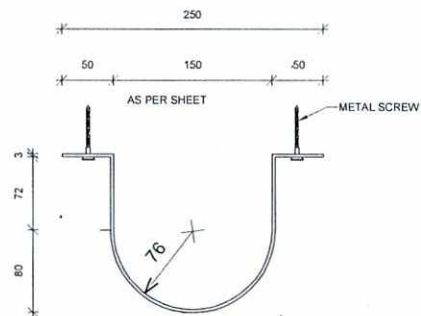
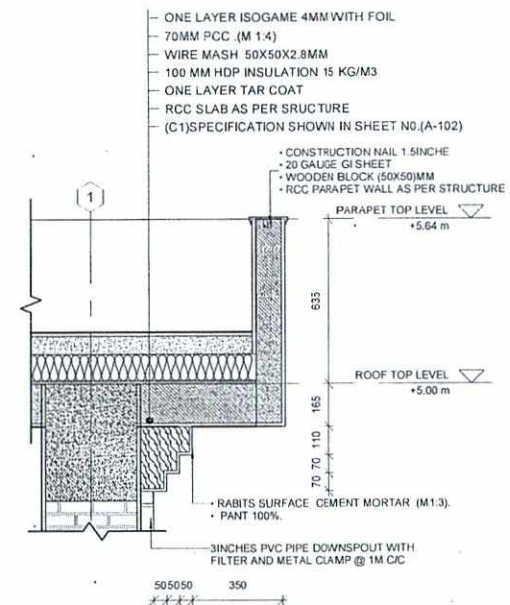
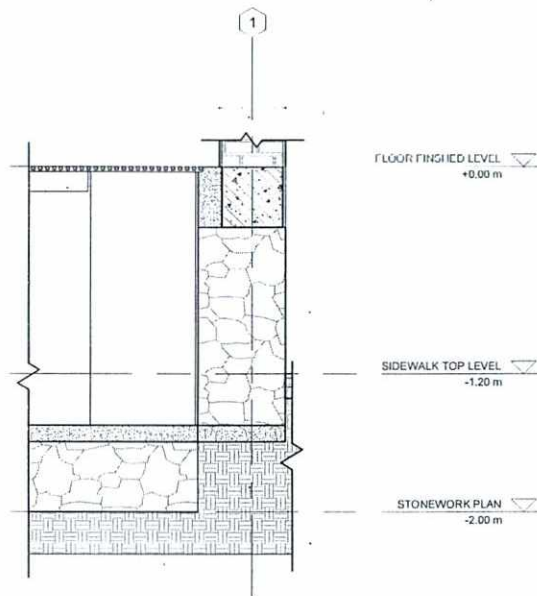
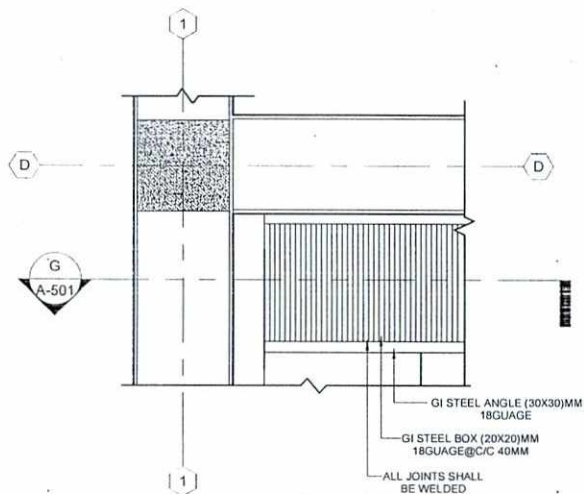
No.	Submission Description	Date
(01)	For Construction	1403/04/15

Contract No:	
Contract Date:	1403/1445
Fiscal Year:	SDCBA
Drawn Code:	A3
Paper Size:	1403/04/09
Plot Date:	Scale:
Scale:	As Indicated

SERVICES DIRECTORATE COMPLEX BUILDING AOP
KABUL PROVINCE, AFGHANISTAN

POWER PLANT
SECTION 3-3 AND 4-4

Sheet Reference Number
A-303



METAL CLAMP

Ref: A-201

Scale: 1:5

DETAIL 1-1

A-501 Ref: A-102

Scale: 1:10



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No.	Submission Description:	Date:
(01)	For Construction	1403/04/15

Contract No:	
Contract Date:	
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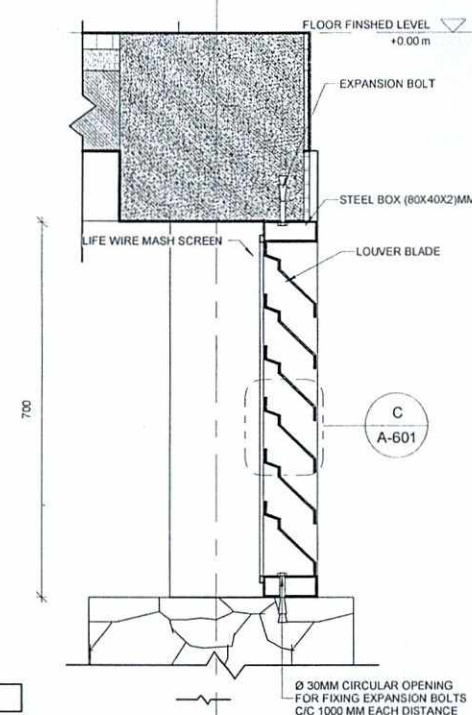
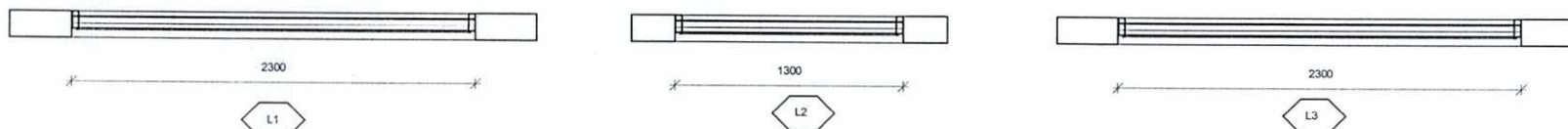
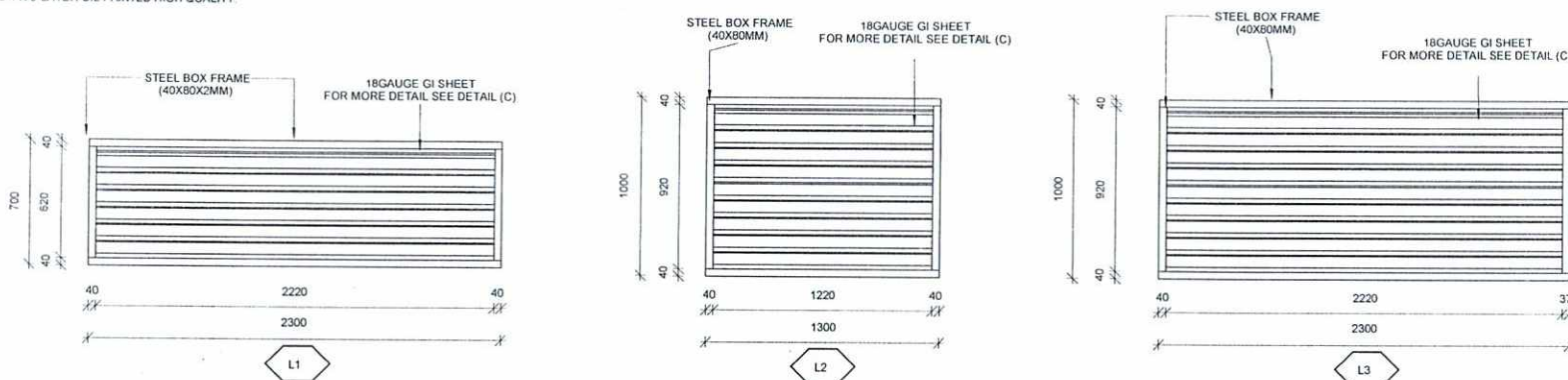
SERVICES DIRECTORATE COMPLEX BUILDING AOP
KABUL PROVINCE, AFGHANISTAN

POWER PLANT
GRILL PLAN&SECTION DETAILS, METAL CLAMP DETAIL AND
DETAIL 1-1,2-2

Sheet
Reference
Number

A-501

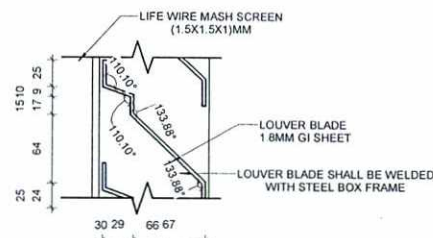
- GENERAL NOTE:
 1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED
 2. ALL LEVELS ARE IN METER (M) UNLESS OTHERWISE SPECIFIED
 3. ALL JOINTS SHALL BE WELDED
 4. STEEL BOX FINISHING
 a- ONE LAYER STAINLESS PAINTED HIGH QUALITY.
 b- TWO LAYER OIL PAINTED HIGH QUALITY.



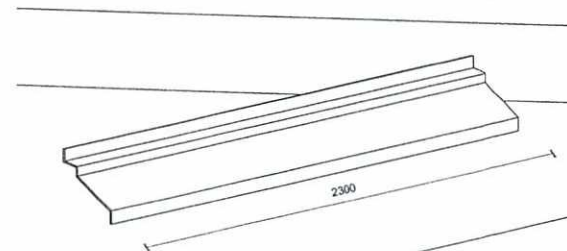
1 LOUVER TYPICAL SECTION (B)
 A-601 Ref: A-302 Scale: 1:10

LOUVER SCHEDULE AND SPECIFICATIONS

		Dimension		Opening System		Count	Material	
No	Tag	Width	Height	Type	No. Of Hinges		Frame	Blade
01	L1	2300	700	fixed		4	Steel box(80x40x2)MM	18 gauge GI sheet
02	L2	1300	1000	fixed		1	Steel box(80x40x2)MM	18 gauge GI sheet
03	L3	2300	1000	fixed		2	Steel box(80x40x2)MM	18 gauge GI sheet



2 LOUVER BLADE DETAIL (C)
 A-601 Ref: AS PER SHEET Scale: 1:5



3 BLADE 3D
 A-601 Ref: AS PER SHEET Scale: 1:50

0 250 500 1000 1500 2000 2500
 GRAPHIC SCALE: 1:50 (mm)



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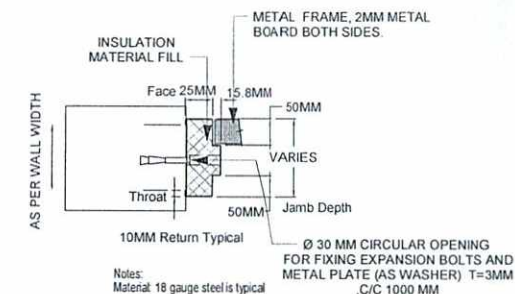
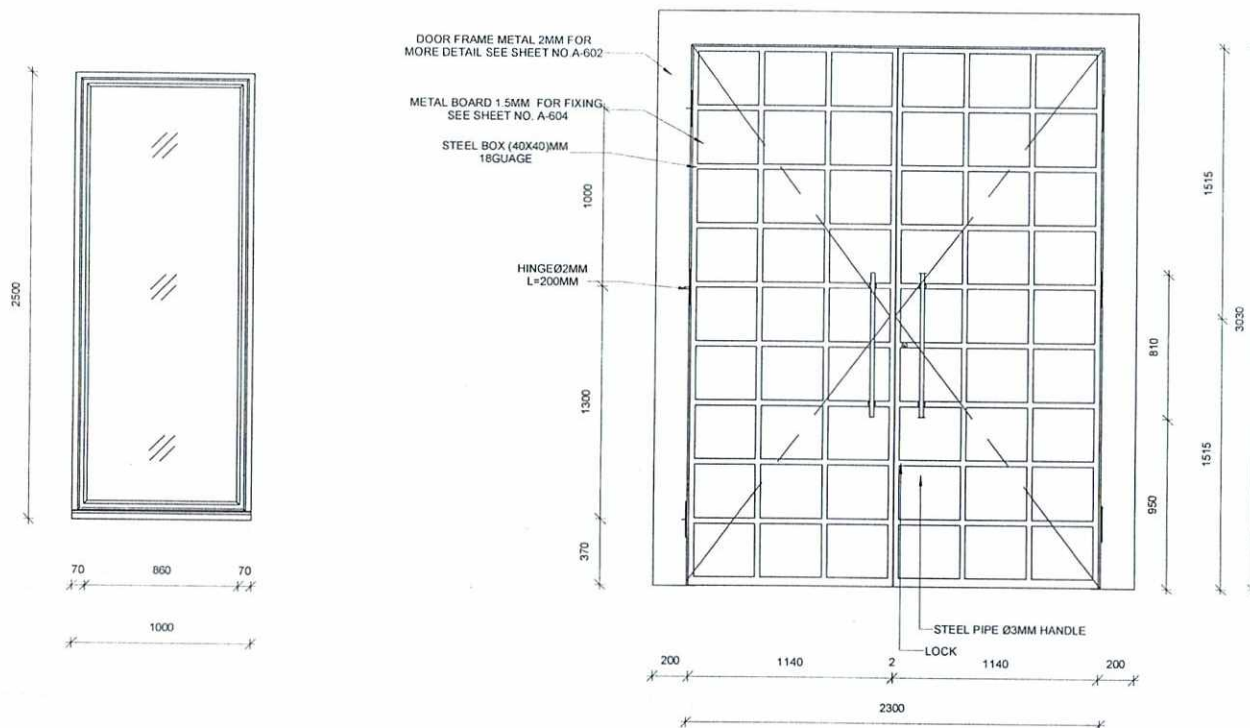
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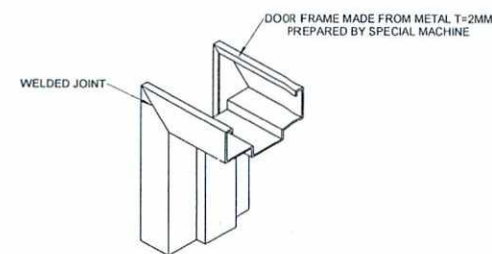
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 KABUL PROVINCE , AFGHANISTAN

POWER PLANT
 WINDOWS PLAN, ELEVATION, SCDEULEASECTION

Sheet
 Reference
 Number
 A-601



1 DOOR FRAME PLAN DETAIL
A-602 Ref: AS PER SHEET Scale: 1:10



2 DOOR FRAME 3D
A-602 Ref: AS PER SHEET Scale: 1:10

Window Schedule & Specification									
No	Tag	Dimensions		Opening System			Material		
		Width	Height	Type	No. Of Hinges	Count	Frame	Glazing	Sill
01	W1	1000	2500	Fixed		12	(7000) PVC	Double Glass 4mm, with 11mm Gap	Gazak Stone 420x1030x30mm

DOOR(D1) SCHEDULE									
NO	Type Mark	DIMENSIONS		Count	OPENING SYSTEM		MATERIAL		
		Width	Height		Type	NO OF HINGES	FRAME	PANEL	
01	D1	2300	3030	2	HINGE	6	METAL FRAME 2MM	METAL BAORD 15MM	



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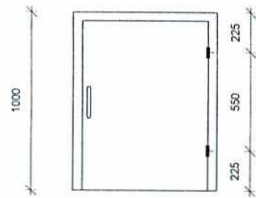
No. (01)
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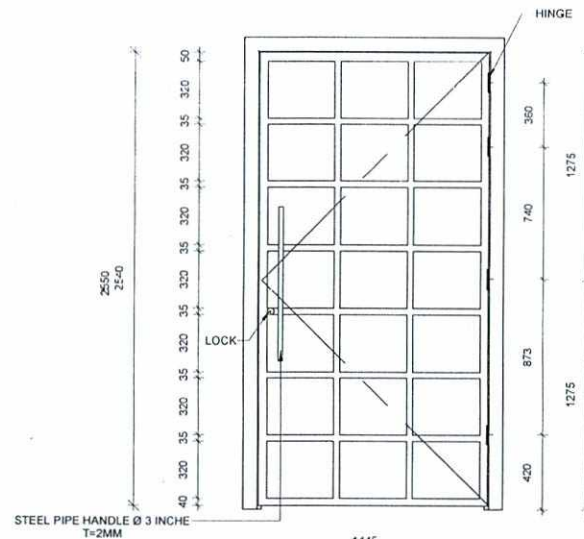
SERVICES DIRECTORATE COMPLEX BUILDING AOP
KABUL PROVINCE, AFGHANISTAN

POWER PLANT
WINDOW(W1) AND DOOR (D1) PLAN, ELEVATION, SCHEDULE
AND FRAME PLAN, 3D DETAILS

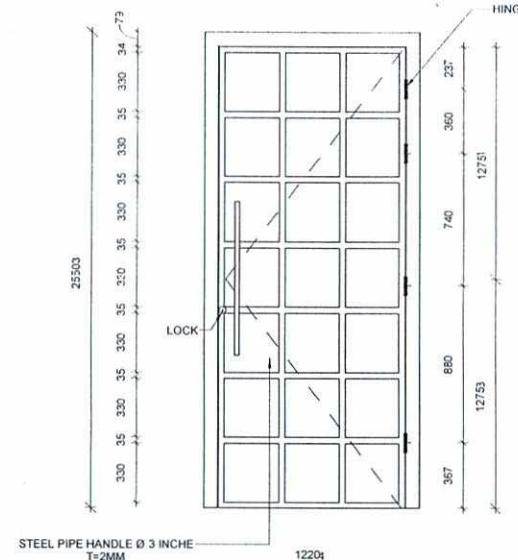
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Reference
Number
A-602



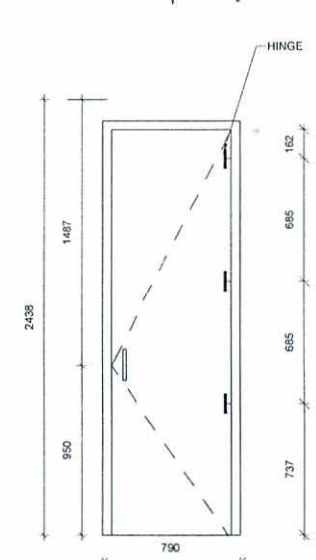
D2



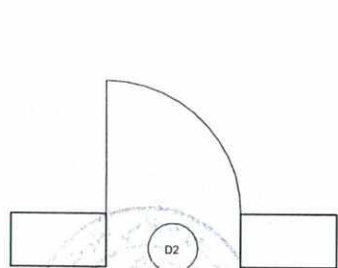
D3



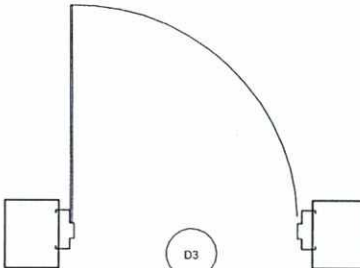
D4



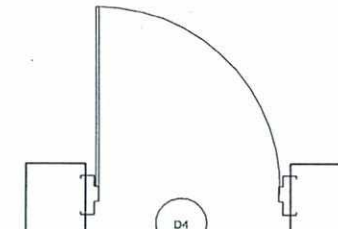
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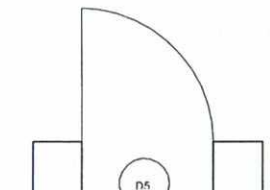
D2



D3



D4



D5

Door Schedule

NO	TAG	DIMENSIONS		Count	OPENING SYSTEM		MATERIAL	
		Width	Height		Type	NO. OF HINGES	FRAME	PANEL
01	D2	800	1000	3	HINGE	2	METAL FRAME 2MM	METAL BAORD 1.5MM
02	D3	1500	2550	1	HINGE	4	METAL FRAME 2MM	METAL BAORD 1.5MM
03	D4	1220	2550	1	HINGE	4	METAL FRAME 2MM	METAL BAORD 1.5MM
04	D5	750	2300	3	HINGE	3	PVC 8000	PVC

Grand total: 8

DOOR, PLAN, ELEVATION & SCHUDLE

Ref: A-101

Scale: 1 : 30



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معاونیت مالی و اداری
ریاست طرح و دیزاین امور ساختمانی
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Checked By: Abdul Basir Rahimi
Head of Department:
Approved by: Ph.D Hashmatullah Atmar
Visa Committee:

[Signature]

No. 01
Submission Description: For Construction
Date: 1403/04/15

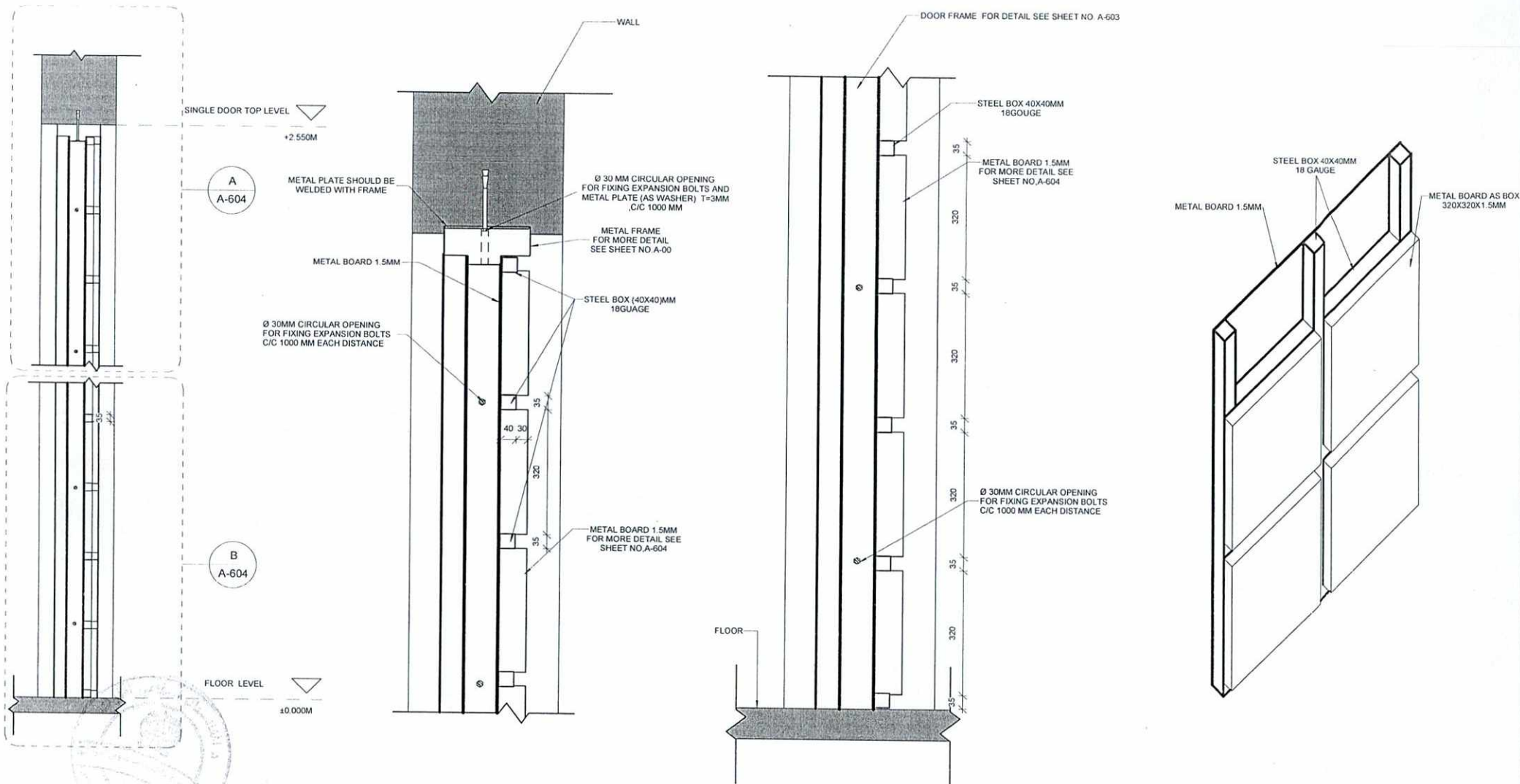
Contract No:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCBA
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1 : 30

SERVICES DIRECTORATE COMPLEX BUILDING AOP
KABUL PROVINCE, AFGHANISTAN

POWER PLANT
DOOR PLAN, ELEVATION, SCHEDULE & SECTION

Sheet
Reference
Number

A-603



1 DOOR TYPICAL SECTION
A-604 Ref. FOR TYPICAL DOOR Scale: 1 : 20

2 CALLOUT-A
A-604 Ref. AS PER SHEET Scale: 1 : 10

3 CALLOUT-B
A-604 Ref. AS PER SHEET Scale: 1 : 10

4 METAL BOARD DETAIL
A-604 Ref. AS PER SHEET Scale: 1 : 10



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No. (01)
Submission Description: For Construction
Date: 1403/04/15

Contract No:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCBA
Paper Size: A3
Plot Date: 1403/04/09
Scale: As indicated

SERVICES DIRECTORATE COMPLEX BUILDING AOP
KABUL PROVINCE , AFGHANISTAN

POWER PLANT
DOOR TYPICAL SECTION , CALLOUT(A,B) & METAL BOARD
DETAIL

Sheet
Reference
Number

A-604



د افغانستان اسلامي امارت

امارت اسلامی افغانستان

معاونیت مالی و اداری

ریاست طرح و دیزاین امور ساختمانی

نقشه‌های سترکچر

تعمیر کمپلکس ریاست خدمات

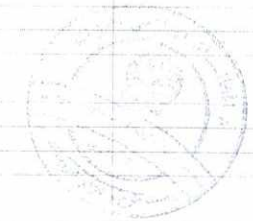
برج برق ساحه ۰۵.

کابل-افغانستان



SHEET INDEX

SHEET No.	FILE NAME	DRAWING TITLES	SCALE	SHEET No.	FILE NAME	DRAWING TITLES	SCALE
		STRUCTURAL					
	COVER	COVER	NTS				
	G-001	SHEET INDEX	NTS				
	S-001	STRUCTURAL ABBREVIATION	NTS				
	S-002	STRUCTURAL GENERAL	NTS				
	S-101	FOUNDATION EXCAVATION PLAN	1:40				
	S-102	FOUNDATION AND COLUMN LAYOUT PLAN	1:40				
	S-103	BOT(X-DIRECTION)REINFORCEMENT FOUNDATION PLAN	1:40				
	S-104	TOP(X-DIRECTION)REINFORCEMENT FOUNDATION PLAN	1:40				
	S-105	BOT(Y-DIRECTION)REINFORCEMENT FOUNDATION PLAN	1:40				
	S-106	TOP(Y-DIRECTION)REINFORCEMENT FOUNDATION PLAN	1:40				
	S-107	STONE MASONRY PLAN	1:40				
	S-108	SLAB ON GRADE AND GRADE BEAM PLAN	1:40				
	S-109	BEAM PLAN	1:40				
	S-110	SLAB REINFORCEMENT PLAN	1:40				
	S-201	BEAM ELEVATION AND SECTION	1:40				
	S-202	BEAM ELEVATION	1:40				
	S-203	GRADE BEAM ELEVATION	1:40				
	S-301	EXCAVATION SECTION	1:30				
	S-302	FOUNDATION SECTION	1:40				
	S-303	FOUNDATION SECTION	1:20				
	S-304	FOUNDATION SECTION	1:20				
	S-305	COLUMN SECTION	1:20				



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No. Submission Description: Date:
(01) For Construction 1403/04/15
(02)
(03)
(04)
(05)

Contract No:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCB
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1:00

SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
SHEET INDEX

Sheet
Reference
Number

G-001

STRUCTURAL ABBREVIATIONS:

ACI	AMERICAN CONCRETE INSTITUTE	INV	INVERT
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	JT	JOINT
ADDL	ADDITIONAL	Kg	KILOGRAM
AL	ALUMINUM	Km	KILOMETER
ALT	ALTERNATE	kPa	KILOPASCAL
APPROX	APPROXIMATELY	L#	ANGLE (# INDICATES SIZE)
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	LLV	LONG LEG VERTICAL
ARCH	ARCHITECTURAL	M	METER
B	BOTTOM BAR	MAX	MAXIMUM
BLDG	BUILDING	MBM	METAL BUILDING
BOTT	BOTTOM		MANUFACTURER
CL	CENTER LINE	MECH	MECHANICAL
C/C	CENTER TO CENTER	MFG	MANUFACTURER
CFMRF	COLD FORM METAL ROOF FRAME	MID	MIDDLE
CFMF	COLD FORM METAL FRAME	MIN	MINIMUM
CFS	COLD FORMED STEEL	MISC	MISCELLANEOUS
CIP	CAST-IN-PLACE	MM	MILLIMETER
CIPL	CAST-IN-PLACE LINTEL	MPa	MEGAPASCAL
CJ	CONTROL JOINT	MTL	METAL
CLR	CLEAR	MWFRS	MAIN WIND FORCE
CMU	CONCRETE MASONRY UNIT		RESISTING SYSTEM
COEFF	COEFFICIENT	N	NEWTON
COL	COLUMN	N	NORTH
CONC	CONCRETE	N/A	NOT APPLICABLE
CONT	CONTINUOUS	Ø	SYMBOL FOR REBAR SIZE
CONN	CONNECTION	NTS	NOT TO SCALE
COORD	COORDINATE	O.C.	ON CENTER
CSJ	CONSTRUCTION JOINT	OPNG	OPENING
CTJ	CONTROL JOINT	PL	or PL PLATE
DIA	DIAMETER	P.C	PLAIN CONCRETE
DIAG	DIAGONAL	PL	PLATE
DIM	DIMENSION	P.L	PARAPET LEVEL
DN	DOWN	PRE-ENG	PRE-ENGINEERED
DTL	DETAIL	RB	RING BEAM
DWG	DRAWING	REINF	REINFORCED
DWL	DOWEL	REQ'D	REQUIRED
EA	EACH	SIM	SIMILAR
EF	EACH FACE	SPEC	SPECIFICATIONS
ELEC	ELECTRICAL	STD	STANDARD
ELEV	ELEVATION	STRUCT	STRUCTURAL
EMBED	EMBEDMENT	SW	SHEAR WALL
EQUIV	EQUIVALENT	S.O.G	SLAB ON GRADE
ETC	ET CETERA	T	TOP BAR
EW	EACH WAY	TI	TOP OF
EXP	EXPANSION	T/ELEV	TOP ELEVATION
EXT	EXTERIOR	T&B	TOP AND BOTTOM
F.G.L	FINISH GRADE LEVEL	THK	THICK
FTG	FOOTING	TYP	TYPICAL
GA	GAUGE	UFC	UNIFIED FACILITIES
HORIZ	HORIZONTAL	CRITERIA	
HRS	HOURS	UNO	UNLESS OTHERWISE
IBC	INTERNATIONAL BUILDING CODE	UON	UNLESS OTHERWISE NOTED
INFO	INFORMATION	VERT	VERTICAL
INT	INTERIOR	W	WIDTH
		WI	WITH

STRUCTURAL DESIGN CRITERIA

- 1- DESIGN AND CONSTRUCTION ARE IN ACCORDANCE WITH:
BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 318M-19
BUILDING CODE: IBC-2012
DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES: ASCE-7, 2016
STEEL CONSTRUCTION MANUAL, AISC 360-16
POST TENSION MANUAL, PTI, 2008
AFGHANISTAN BUILDING CODE 2012
- 2- UNLESS NOTED OTHERWISE, STRUCTURAL MEMBERS ARE DESIGNED TO RESIST THE FOLLOWING LOADS:
a) SUPERIMPOSED LOAD:
• DEAD LOADS
FINISHES (FOR RAISED FLOOR) 2.00 kN/m² (TO BE CONFIRMED BY CALCULATION)
FINISHES (FOR MAX. 10 Cm FLOOR FINISH) 2.00 kN/m²
FINISHES (FOR MAX. 20 Cm FLOOR FINISH) 4.00 kN/m²
SERVICES 0.50 kN/m²
PARTITION (FOR OFFICES AREAS) 2.00 kN/m²
PARTITION (FOR WET AREAS) 4.00 kN/m² (TO BE CONFIRMED BY CALCULATION)
ROOF (WATERPROOFING + SCREED) 5.00 kN/m²
• LIVE LOADS
OFFICES 2.50 kN/m²
PUBLIC ASSEMBLY AREAS 5.00 kN/m²
PRAYER HALLS 5.00 kN/m²
PARKING 3.00 kN/m²
RAMPS 5.00 kN/m²
STAIRS & 1ST FLOOR CORRIDORS 5.00 kN/m²
LIGHT STORAGE 6.00 kN/m²
OPERATING ROOMS, LABORATORIES 3.00 kN/m²
CORRIDORS ABOVE-FR&T FLOOR 4.00 kN/m²
MECHANICAL ROOMS 7.50 kN/m² (TO BE CONFIRMED FROM MECH.)
LANDSCAPING (SOIL DEPTH X 22 kN/m²)
ELECTRICAL ROOMS TO BE PROVIDED BY ELEC.
b) ENVIRONMENTAL LOADS:
• WIND LOADS
WIND PRESSURE LOADS CALCULATED AS PER ASCE-7-2010 - IBC 2012 & AFGHANISTAN CODE 2012 WITH FOLLOWING PARAMETERS:
BASIC WIND SPEED (3 SEC. GUST) & (MRI=50 YEARS) 41m/s
WIND SPEED 3 SECOND GUST (MRI=1700 YEAR) 53m/s
IMPORTANCE FACTOR=1.0
BUILDING AND STRUCTURAL CLASSIFICATION CATEGORY
EXPOSURE CATEGORY
TOPOGRAPHIC FACTOR KZT
• SEISMIC LOADS
EARTHQUAKE DESIGN DATA PER ASCE-7-2010, IBC 2012 & AFGHANISTAN CODE 2012 WITH FOLLOWING PARAMETERS:
OCCUPANCY CATEGORY II
SEISMIC IMPORTANCE FACTOR 1
SITE CLASS D
MAPPED SPECTRAL RESPONSE ACCELERATION S_s=1.13
MAPPED SPECTRAL RESPONSE ACCELERATION S₁=0.53
SPECTRAL RESPONSE COEFFICIENT SDS=0.7895
SPECTRAL RESPONSE COEFFICIENT SD1=0.6254
SEISMIC DESIGN CATEGORY R=8
RESPONSE MODIFICATION FACTOR R=8
BASIC SEISMIC RESISTING SYSTEM IS SPECIAL REINFORCED CONCRETE FRAMES
ANALYSIS PROCEDURE: DYNAMIC ANALYSIS
• THERMAL LOADS
THERMAL LOAD
DESIGN TEMPERATURE CHANGE ±30°C
REDUCE MODULUS OF CONCRETE ELASTICITY (SHRINKAGE ONLY) = 0.5

A-GENERAL NOTES

- 1-THIS PROJECT HAS BEEN DESIGNED FOR THE WEIGHTS AND MATERIALS INDICATED ON THE SHEETS AND FOR THE LIVE LOADS INDICATED IN THE DESIGN DATA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALL OBLIGABLE CONSTRUCTION LOADS AND TO PROVIDE PROPER DESIGN AND CONSTRUCTION OF FALSEWORK, FORMWORK, STAGING, BRACING, SHEETING AND SHORING, ETC.
- 2-COORDINATE THESE SHEETS WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND CIVIL SHEETS. ALL DIMENSIONS SHOWN ON THE SHEETS ARE MILLIMETERS UNLESS NOTED OTHERWISE.
- 3-THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL FLOOR AND ROOF OPENING SIZES AND LOCATIONS, EQUIPMENT PAD SIZES AND LOCATIONS, ANCHOR BOLT LAYOUTS, ETC WITH EQUIPMENT SELECTED. THE CONTRACTOR SHALL MAKE ANY REQUIRED MODIFICATIONS AT NO ADDITIONAL COST.
- 4-THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING SHEETS FOR SLEEVES, CURBS, INSERTS OR OPENINGS, ETC. NOT HEREIN INDICATED.
- 5-SLAB OPENINGS SMALLER THAN 250mm DIA TO BE CORE DRILLED IN FIELD UON. SEE MECHANICAL, ELECTRICAL AND PLUMBING SHEETS FOR LOCATIONS OF THESE OPENINGS.
- 6-WORK NOT INCLUDED ON THE SHEETS BUT IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING PLACES ELSEWHERE ON THE SHEETS SHALL BE REPEATED.
- 7-IN CASE OF CONFLICT BETWEEN THE NOTES, DETAILS AND SPECIFICATIONS THE MOST RIGID REQUIREMENTS SHALL GOVERN.
- 8-SEE ARCHITECTURAL SHEETS FOR LOCATIONS OF BRICK WALLS AND DRYWALL NON-LOAD BEARING PARTITIONS.
- 9-COORDINATE FINISHED FLOOR DATUM ELEVATION 0.0m WITH THE CIVIL SHEETS.

B-FOUNDATION NOTES:

- 1-FOUNDATION DESIGN IS BASED ON ASSUMED SOIL BEARING CAPACITY OF (100) kPa & MODULUS OF SUBGRADE K_s = (1.2) Kg/cm³
- 2-CONTRACTOR TO ENSURE APPROPRIATE SITE DRAINAGE IN ORDER TO MINIMIZE WATER INGRESS IN THE SUBSURFACE.
- 3-THE CONTRACTOR SHALL ENSURE, AND AT HIS OWN COST, THAT THE EXCAVATION WORKS FOR FOUNDATIONS AND GENERAL SITE GRADING ARE DONE USING SAFE SLOPES OR USING AN APPROPRIATE SUPPORT SYSTEM.
- 4-IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK THE SOIL AND ROCK CONDITIONS ON SITE DURING CONSTRUCTION AND TO ASCERTAIN THAT THE SOIL AT THE FOUNDATION LEVEL HAS AN ALLOWABLE BEARING CAPACITY OF NOT LESS THAN THE ASSUMED BEARING CAPACITY VALUE ABOVE AND TO CONSULT WITH THE ENGINEER IF OTHERWISE.
- 5-THE SOIL AT THE FOUNDATION LEVELS SHALL BE FREE OF DEBRIS, FILL MATERIAL, SOFT AND LOOSE SOIL POCKETS AND SHALL BE PROPERLY PREPARED AS PER THE PROJECT SPECIFICATIONS.
- 6-ALL BACKFILL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY UNLESS OTHERWISE STATED ON THE DRAWINGS.
- 7-THE CONTRACTOR SHALL NOT BACKFILL AGAINST WALL TO BE LATERALLY SUPPORTED BY A FLOOR SLAB UNLESS SUPPORT IS PROVIDED OR SLABS HAVE BEEN PLACED BACKFILL AGAINST CANTILEVER WALLS SHALL NOT BE PLACED UNTIL THE CONCRETE HAS GAINED ITS 28 DAY STRENGTH.
- 8-IF THE SOIL AT THE BOTTOM OF EXCAVATIONS ARE UNSUITABLE TO SUPPORT THE STRUCTURE, IT SHALL BE REMOVED TO AN ADEQUATE STRATUM AS DIRECTED BY THE ENGINEER AND REPLACED WITH MATERIAL IN ACCORDANCE WITH THE SPECIFICATIONS.
- 9-THE CONTRACTOR SHOULD REPORT TO THE ENGINEER WHEN GROUND WATER TABLE IS ENCOUNTERED FOR REVIEW AND REDESIGN.
- 10-THE CONTRACTOR TO CONFIRM THAT THE MATERIAL AT LEVEL OF FOOTING WILL MAINLY BE CONSISTING OF VERY DENSE SILTY SAND WITH GRAVEL, IF DURING EXCAVATION SUCH MATERIAL IS NOT ENCOUNTERED, CONTRACTOR SHALL INFORM THE ENGINEER IN ORDER TO REVIEW THE FOUNDATION DESIGN.

C-REINFORCED CONCRETE:

- 1-ALL CONCRETE SHALL BE NORMAL WEIGHT (N.W) AND SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH AS DESCRIBED IN DETAILS OF COLUMNS, WALL, BEAMS, SLABS AND FOUNDATION
- 2-NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE.
- 3-MIXING, TRANSPORTING AND PLACING OF CONCRETE SHALL CONFORM TO ACI 301M-05.
- 4-ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN CONCRETE INSTITUTE (ACI) 318M MANUAL (metric), "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", AND REQUIREMENTS OUTLINED IN THE CONTRACT SPECIFICATIONS. WHEN THERE IS A CONFLICT BETWEEN ACI AND THE SPECIFICATIONS, THE MORE STRINGENT SHALL GOVERN.
- 5-CHAMFER ALL EXPOSED EXTERNAL CORNERS OF CONCRETE WITH 20mm x45 DEGREE CHAMFER UON.
- 6-CONCRETE REINFORCEMENT BARS SHALL CONFORM TO ASTM A615M-96a, GRADE 420 MPa, REINFORCING BARS SHALL NOT BE TACK WELDED, WELDED, HEATED OR CUT, UNLESS INDICATED ON THE CONTRACT DOCUMENTS. ALL LAP SPICES SHALL BE CLASS "B" UON.
- 7-HORIZONTAL FOOTING AND HORIZONTAL WALL REINFORCEMENT SHALL BE CONTINUOUS AND SHALL HAVE 90 DEGREE BENDS AND EXTENSIONS, OR CORNER BARS OF EQUIVALENT SIZE LAPPED WITH A CLASS B TENSION SPLICE AT CORNERS AND INTERSECTIONS. TOP BAR CRITERIA SHALL APPLY IF 300mm OR MORE OF FRESH CONCRETE IS PLACED BELOW BAR.
- 8-SLABS-ON-GRADE SHALL HAVE CONSTRUCTION JOINTS OR CRACK CONTROL JOINTS AS SHOWN ON THE DRAWINGS. CONSTRUCTION JOINTS CAN BE USED AT CONTROL JOINT LOCATIONS AT CONTRACTORS OPTION. SEE SLAB PLANS & JOINT DETAILS FOR ADDITIONAL INFORMATION. FOR AREAS NOT SHOWN ON DWGS, THE MAXIMUM SPACING OF CONSTRUCTION/ CRACK CONTROL JOINTS SHALL BE 3000mm X 3000mm.
- 9-SEE SPECIFICATIONS FOR ALL WATERPROOFING/DAMP-PROOFING REQUIREMENT.
- 10-ALL CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED, AND SPACED IN FORMS AND SECURED IN PLACE IN ACCORDANCE WITH THE PROCEDURES AND REQUIREMENTS OUTLINED IN THE LATEST EDITION OF THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318M, AND THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315M, LATEST EDITION.
- 11-ALL DOWELS SHALL MATCH SIZE AND NUMBER OF MAIN REINFORCING, UNLESS NOTED OTHERWISE ON THE SHEETS.
- 12-ADDITIONAL BARS SHALL BE PROVIDED AROUND ALL FLOOR AND WALL OPENINGS AS SHOWN ON THE SHEETS.
- 13-SEE ARCHITECTURAL SHEETS FOR TYPE AND LOCATION OF ALL FLOOR FINISHES.
- 14-THE CONTRACTOR SHALL COORDINATE ADDITIONAL WALL/SLAB OPENINGS NOT SHOWN ON STRUCTURAL SHEETS. SEE MECHANICAL, ELECTRICAL, PLUMBING AND CIVIL SHEETS.
- 15-UNLESS NOTED OTHERWISE, ALL CURBS SHALL BE REINFORCED WITH AT LEAST (1) #12 CONTINUOUS AND #12 AT 300mm O.C. DOWELS TO STRUCTURE BELOW.
- 16-THE SUB-CONTRACTOR SHALL VERIFY ALL OPENINGS, PAD SIZES, AND ANCHOR BOLTS WITH EQUIPMENT SELECTED.
- 17-ALL REINFORCING INDICATED TO BE WELDED SHALL BE IN ACCORDANCE WITH ASTM A706M. "LOW ALLOY STEEL DEFORMED BARS FOR CONCRETE REINFORCEMENT". ANY INSTALLATIONS USING MANUFACTURER'S EQUIPMENT SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.
- 18-PROVIDE CONCRETE POUR STOPS OR FORMED AS REQUIRED FOR INSTALLATION OF ALL CONCRETE WORK.
- 19-REQUIREMENT FOR COLD WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH ACI 306-1.90 BASED ON ACI 318-08 SECTION 5.12
- 20-REQUIREMENT FOR HOT WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH ACI 305R-99 BASED ON ACI 318-08 SECTION 5.12.
- 21-MINIMUM CONCRETE COVER PROTECTION FOR REINFORCEMENT BARS SHALL BE AS LISTED BELOW: (SEE ACI 318-08, SECTION 7.7 FOR CONDITIONS NOT NOTED). DIMENSIONS FOR BAR PLACEMENT GIVEN IN SECTIONS AND DETAILS SHALL SUPERSEDE MINIMUM COVER REQUIREMENTS GIVEN HERE. DIMENSIONS ARE IN mm. PROVIDE STANDARD BAR CHAIRS AND SUPPORT BARS @1200mm MAXIMUM AS REQUIRED TO MAINTAIN CONCRETE PROTECTION SPECIFIED.

FOOTINGS (EARTH FORMED)	70
COLUMNS / PIERS (TO TIES)	40
GRADE BEAMS OR SLAB TURNED DOWN EDGES:	
TOP	40
BOTTOM (EARTH FORMED)	70
SIDES (EARTH FORMED)	70
SIDES (BOARD FORMED)	N16 BAR & SMALLER
	N18 TO N36 BAR
ELEVATED BEAMS & SLABS:	
BEAM TIES & STIRRUPS (NOT EXPOSED TO WEATHER)	40
BEAM TIES & STIRRUPS (EXPOSED TO WEATHER)	50
FLOOR SLABS (NOT EXPOSED TO WEATHER)	20
FLOOR SLABS (EXPOSED TO WEATHER)	
N18 & LARGER	50
N12 & SMALLER	40
ROOF SLAB BARS	25
SLABS ON GRADE	
NOT EXPOSED TO WEATHER (FROM TOP)	20
EXPOSED TO WEATHER (FROM TOP)	40
UTILITY TUNNEL WALLS, RETAINING WALLS AND SHEAR WALLS. (NO SURFACES SHALL BE EARTH FORMED)	
EARTH SIDE AND FRONT SIDE (EXPOSED TO WEATHER)	
N16 BAR AND SMALLER	40



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Head of Department:	
Approved by:	M.Musa Essazai
Visa Committee:	

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01	For Construction	1403/04/15
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SERVICES DIRECTORATE COMPLEX BUILDING
ADP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
GENERAL NOTE

Sheet
Reference
Number
S-001

D-DAMP PROOFING AND WATERPROOFING:

- 1-ALL EXTERIOR SURFACES OF SUBSTRUCTURAL CONCRETE SHALL BE PROTECTED BY A DAMP PROOFING COATS REFER TO SPECIFICATIONS.
 - 2-AN INTEGRAL WATERPROOFING ADMIXTURE SHALL BE ADDED TO THE CONCRETE OF THE WATER TANK FLOORS, WALLS AND COLUMNS
 - a- SIK-1 AS MANUFACTURED BY SIK-1, LTD. OR
 - b- R.I.W. CEMENT WATERPROOFING POWDER AS MANUFACTURED BY R.I.W. PROTECTIVE PRODUCTS, LTD. OR
 - c- AN APPROVED EQUIVALENT.
 - 3-WATER STOPS MUST BE FIXED IN ALL CONSTRUCTION JOINTS IN WATER RETAINING & STRUCTURES WHETHER SHOWN OR NOT SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS REGARDING THE INSTALLATION OF WATER BARS PRIOR TO COMMENCEMENT OF CONCRETING WORKS FOR ENGINEER'S APPROVAL.
 - 4-USE PREFABRICATED ANGLE AND INTERSECTION PIECES FOR PVC WATER-STOP.
 - 5-WATER STOPS SHALL BE SPICED AND WELDED IN ORDER TO INSURE A CONTINUOUS WATER BARRIER.
 - 6-AN APPROVED POLYETHYLENE SHEET 1000 GAUGE VAPOUR BARRIER SHALL BE LAID UNDER ALL SLABS ON GRADES.
- E-STEEL:
- 1-STEEL SHAPES AND STEEL PLATES SHALL CONFORM TO ASTM A572M OR 345, DESIGNED TO AISC 360-16 AND AISC GUIDES UNLESS NOTED OTHERWISE.
 - 2-SPICE CONNECTIONS ARE STANDARD AS PER AISC 360-16 STEEL CONSTRUCTION MANUAL.
 - 3-WHERE GROUTED SLEEVES TO FOUNDATION BOLTS ARE USED NO RELIANCE SHOULD BE PLACED ON THE GROUT TO RESIST HORIZONTAL SHEAR. THE CONTRACTOR'S DESIGN SHOULD ENSURE SUCH HORIZONTAL FORCES CAN BE TRANSMITTED BY EITHER BASE FRICTION OR DIRECTLY BY SETTING THE BASE PLATE INTO A SHALLOW POCKET, OR IN THE CASE OF HIGH SHEAR FORCES BY THE PROVISION OF A SHEAR KEY FIXED TO THE UNDERSIDE OF THE BASE PLATE.
 - 4-GROUT UNDER BASE PLATES IS TO BE NON-SHRINK AND HAVE A MINIMUM CHARACTERISTIC STRENGTH AT 28 DAYS OF 60 MPA.
 - 5-SHEAR STUDS SHALL BE 25mm Ø, 100mm LONG HEADED STUDS UNLESS NOTED OTHERWISE AND SHALL CONFIRM TO ASTM A108 WITH A MINIMUM ULTIMATE TENSILE STRENGTH OF 450 MPA. THE CONTRACTOR SHALL CARRY OUT PROCEDURE TRIALS OF STUD WELDING.
 - 6- WELDS SHALL BE MADE USING E70XX LOW HYDROGEN ELECTRODES U.N.O. SITE WELDING SHALL ONLY BE CARRIED OUT WITH THE PRIOR WRITTEN CONSENT OF THE ENGINEER AND AFTER SUBMISSION AND ACCEPTANCE OF FABRICATORS WELDING PROCEDURE. WELD TESTS INSPECTIONS PER AISC AND AWS D1.1.
 - 7- WELDING PROCEDURE AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF AWS D1.1-2010 STRUCTURAL STEEL WELDING CODE.
 - 8- NO CUTTING OR REMOVAL OF PLACED STEELWORK OR CONCRETE IS PERMITTED WITHOUT PRIOR ACCEPTANCE BY THE ENGINEER.
 - 9- FIRE PROTECTION TO STEELWORK IS GENERALLY PROVIDED BY CONCRETE ENCASEMENT TO BE IN ACCORDANCE WITH THE ARCHITECT'S SPECIFICATION.
 - 10- THE CONTRACTOR SHALL CLEARLY IDENTIFY THE LOCATION OF SITE CONNECTIONS ON THE FABRICATION DRAWINGS TOGETHER WITH DETAILS OF AND CALCULATIONS FOR THOSE CONNECTIONS.
 - 11- FOR FIRE RESISTANCE PERIODS, SHALL BE DESIGNED FOR MINIMUM 2.0 HRS FIRE RESISTANCE.
 - 12- THE CONTRACTOR SHALL ENSURE THAT THE SYSTEMS SELECTED FOR CORROSION PROTECTION AND FIRE PROTECTION ARE COMPATIBLE AND SHALL OBTAIN ACCEPTANCE BY THE ENGINEER PRIOR APPLICATION.
 - 13- WHERE COLD FORMED STEEL SECTIONS ARE SHOWN ON THE DRAWINGS, THE STEEL CONTRACTOR IS TO PROVIDE ALL NECESSARY STRUTS, ANTI SAG RODS, DIAGONAL TIES ETC, AS RECOMMENDED BY THE MANUFACTURER.

F-SPECIALTY ITEMS AND PRE-ENGINEERED ELEMENTS:

- 1-SPECIALTY ITEMS, PRE-ENGINEERED COMPONENTS, AND DESIGN/BUILD ELEMENTS ARE THOSE ITEMS WHICH ARE SPECIFIED IN THE CONSTRUCTION DOCUMENTS BUT REQUIRE THE DESIGN INPUT OF MANUFACTURER, SUPPLIER, AND OR INSTALLER TO BE SUBMITTED BY CONTRACTOR TO THE ENGINEER FOR COMMENTS AND / OR APPROVAL.
- 2-SPECIALTY ITEMS AND PRE-ENGINEERED COMPONENTS INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
 - a- STEEL TRUSSES.
 - b- STAIRS, GUARDRAILS & LANDSCAPING DETAILS.
 - c- EXTERIOR CURTAIN WALLS, CLADDING, AND GLAZING.
 - d- INTERIOR FACADE FRAMING.
 - e- SKYLIGHTS.
 - f- SUPPORT AND ANCHORAGE OF MECHANICAL, ELECTRICAL, AND PLUMBING EQUIPMENT AND COMPONENTS.
 - g- WINDOW WASHING EQUIPMENT SUPPORTS/BMU SUPPORT.
 - h- STEEL CRANE.
 - i- COLD FORMED STEEL STUDS.
- 3-THE ABOVE SHALL BE DESIGNED TAKING INTO CONSIDERATION THE CONCRETE AND MASONRY NOTES FOR MIX DESIGN, APPLICATION CODES, AND ANY DESIGN LOADS PROVIDED BY THE ENGINEER. IT SHOULD ALSO CONSIDER MANUFACTURER/SUPPLIER'S INSTALLATION MANUAL/ RECOMMENDATION.

G-CONSTRUCTION:

- 1-MASS CONCRETE:
 - THE CONTRACTOR SHALL IMPLEMENT ALL NECESSARY MEASURES TO MONITOR AND AVOID CRACKING IN FRESH HYDRATING CONCRETE ANY ADDITIONAL REINFORCEMENT IF NEEDED WILL BE AT THE CONTRACTOR'S OWN EXPENSE MAXIMUM ADIABATIC TEMPERATURE RISE SHALL BE EQUAL TO 25 CELSIUS
 - CONTRACTOR TO PROVIDE A LIST OF THESE MEASURES FOR ENGINEER APPROVAL.
 - 2-M.E.P. AND ARCH. COMPONENTS SUPPORT:
 - SEISMIC LATERAL BRACING, SUPPORT AND ANCHORAGE OF ARCH. COMPONENT AND MECHANICAL, ELECTRICAL AND PLUMBING EQUIPMENT AND COMPONENTS SHALL BE DESIGNED AS PER CHAPTER 13 OF ASCE-7-2010 BY SUB-CONTRACTOR ENGINEER AND REVIEW FOR APPROVAL BY DESIGN ENGINEER.
 - 3-CONSTRUCTION JOINTS:
 - CONTRACTOR TO SUBMIT POURS CONSTRUCTION JOINTS LOCATIONS AND CONSTRUCTION POURS SEQUENCE FOR STRUCTURAL ENGINEER APPROVAL. CONSTRUCTION JOINTS NOT SHOWN ON DRAWINGS SHALL BE APPROVED BY THE ENGINEER.
 - CONSTRUCTION JOINTS AT ANY SURFACE IN CONTACT WITH SOIL AND/OR WATER SHALL HAVE WATER STOP BAR (REFER TO SPECIFICATIONS).
 - AT ANY CONSTRUCTION JOINT THE CONTACT SURFACE BETWEEN THE OLD AND NEW CONCRETE SHALL BE ROUGHENED TO A FULL AMPLITUDE OF APPROXIMATELY 6mm. IF ADDITIONAL REINFORCEMENT AT CONTACT SURFACE IS REQUIRED BY THE ENGINEER, IT SHALL BE PROVIDED AT THE EXPENSE OF THE CONTRACTOR.
 - 4-FOR FLOOR FLATNESS AND LEVELNESS, REFER TO ARCHITECTURAL SPECIFICATIONS AND ACI 302.1R: "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION".
 - 5-CONTRACTOR IS RESPONSIBLE FOR TEMPORARY, PERMANENT, EXCAVATION, BACKFILL, SHORING, Dewatering, PROTECTION AND SIMILAR WHEN NEEDED.
- H-FIRE DESIGN:
- 1-FIRE DESIGN SHALL BE IN ACCORDANCE WITH BUILDING CONSTRUCTION AND SAFETY CODE(NFPA 5000).
 - 2-MINIMUM CONSTRUCTION REQUIREMENTS: ALL STRUCTURE MEMBERS SHALL BE DESIGNED FOR MINIMUM 2.0 HOURS BUILDING TYPE I(332).
 - 3-REFER TO FIRE SAFETY REPORT PROVIDED BY -DESIGN FIRE CONSULTANTS.

LAP SPICE LENGTHS OF DEFORMED BARS IN TENSION

f _c = 28 MPa	LAP SPICE	UNCOATED BARS			
		TOP BARS		OTHER BARS	
		CASE 1	CASE 2	CASE 1	CASE 2
Ø10 to Ø20	Class A	50 BAR DIA	74 BAR DIA	38 BAR DIA	57 BAR DIA
	Class B	64 BAR DIA	96 BAR DIA	50 BAR DIA	74 BAR DIA
Ø22 to Ø57	Class A	62 BAR DIA	93 BAR DIA	47 BAR DIA	71 BAR DIA
	Class B	80 BAR DIA	121 BAR DIA	62 BAR DIA	93 BAR DIA

NOTES:

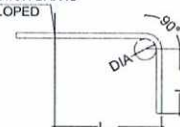
1. TABULATED TENSION DEVELOPMENT LENGTH VALUES ARE TAKEN FROM CRSI DESIGN HANDBOOK 2008 10TH ED.
2. TENSION DEVELOPMENT & TENSION LAP SPICE LENGTHS ARE EXPRESSED AS MULTIPLES OF BAR DIAMETERS.
3. TABULATED VALUES ARE BASED ON MINIMUM YIELD STRENGTH OF REINFORCEMENT, F_y, OF 420MPA.
4. CONCRETE IS NORMAL WEIGHT (2400KG/M³) AND 28 DAY COMPRESSIVE STRENGTH = 28MPA.
5. TABULATED VALUES FOR BEAMS & COLUMNS ARE BASED ON TRANSVERSE REINFORCEMENT AND CONCRETE COVER MEETING MINIMUM CODE REQUIREMENTS.
6. CASES 1 & 2, WHICH DEPEND ON THE TYPE OF STRUCTURAL MEMBER, CONCRETE COVER, AND CENTER-TO-CENTER SPACING OF THE BARS ARE DEFINED IN THE TABLE BELOW.
7. LAP SPICE LENGTHS (MINIMUM 300MM) ARE MULTIPLES OF TENSION DEVELOPMENT LENGTHS: CLASS A = 1.0(TENSION DEVELOPMENT LENGTH) & CLASS B = 1.3(TENSION DEVELOPMENT LENGTH)
8. TOP BARS ARE HORIZONTAL REINFORCEMENT WITH MORE THAN 300MM OF CONCRETE CAST BELOW THE BARS.
9. IT SHALL BE PERMISSIBLE TO CALCULATE WALL AND SLAB REINFORCEMENT TENSION DEVELOPMENT/SPICE LENGTHS IN ACCORDANCE WITH ACI 12.2.3 OR TABLE 5.3(B) OF ACI 2014 IN LIEU OF VALUES TABULATED ABOVE.

		CASE 1	CASE 2
		CONCRETE COVER AT LEAST 1 BAR DIA AND CENTER-TO-CENTER SPACING AT LEAST 2 BAR DIA	CONCRETE COVER LESS THAN 1 BAR DIA OR CENTER-TO-CENTER SPACING LESS THAN 2 BAR DIA
BEAMS, COLUMNS	CASE 1	CONCRETE COVER AT LEAST 1 BAR DIA AND CENTER-TO-CENTER SPACING AT LEAST 3 BAR DIA	CONCRETE COVER LESS THAN 1 BAR DIA OR CENTER-TO-CENTER SPACING LESS THAN 3 BAR DIA
	CASE 2	CONCRETE COVER LESS THAN 1 BAR DIA OR CENTER-TO-CENTER SPACING LESS THAN 3 BAR DIA	CONCRETE COVER LESS THAN 1 BAR DIA OR CENTER-TO-CENTER SPACING LESS THAN 3 BAR DIA

STANDARD HOOK GEOMETRY FOR DEVELOPMENT OF DEFORMED BARS IN TENSION PER (ACI 318-14)

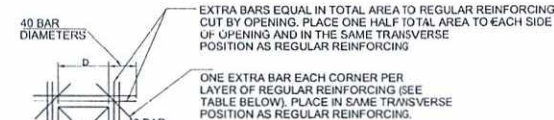
BAR DIA	BEND DIA	l _{ext}	l _{dh}
MM	MM	MM	MM
Ø10	60	120	190
Ø12	72	150	220
Ø14	85	170	260
Ø16	95	190	300
Ø18	110	220	340
Ø20	120	240	375
Ø22	130	265	410
Ø25	150	300	470
Ø28	170	340	520

POINT AT WHICH BAR IS DEVELOPED

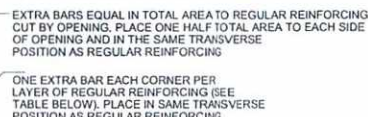
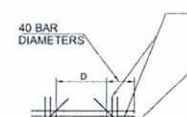


NOTES:

1. CONCRETE IS NORMAL WEIGHT CONCRETE.
2. BAR YIELD STRENGTH, F_y = 413 MPA
3. SIDE COVER REQUIREMENTS OF ACI SECT. 25.4.3.2 ARE ASSUMED TO NOT BE MET.
4. TIE OR STIRRUP REQUIREMENTS OF ACI SECT. 25.4.3.2 ARE ASSUMED TO NOT BE MET.
5. REDUCTION FOR EXCESS REINFORCEMENT IS NOT TAKEN.
6. HOOK DEVELOPMENT LENGTH IS VALID FOR 180° HOOKS ALSO.

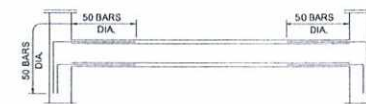


REINFORCING SCHEDULE			
THICKNESS OF CONCRETE	BAR SIZE	RECT OPG	CIRC OPG
< 300	D12	1200	D=300
300 TO 450	D18	1200	D=300
450 TO 600	D22	1500	D=300
> 600	D25	1800	D=450



REINFORCING SCHEDULE			
THICKNESS OF CONCRETE	BAR SIZE	RECT OPG	CIRC OPG
< 300	D12	1200	D=300
300 TO 450	D18	1200	D=300
450 TO 600	D22	1500	D=300
> 600	D25	1800	D=450

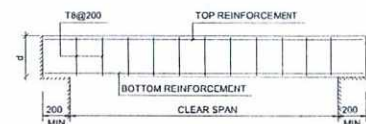
FOR OPENING LARGER THAN 500 IN DIAMETER OR DIAGONAL TYPICAL EXTRA REINFORCING AT OPENINGS IN WALLS AND SLABS



NOTE:

- FOR ALL SILLS AND LINTELS BETWEEN COLUMNS AND NOT SUPPORTED BY A WALL, PROVIDE DOWELS IN THE COLUMN OF SAME SIZE AND NUMBER AS THE REINFORCEMENT OF THE LINTEL OR SILL. THESE DOWELS SHALL EXTEND 50 BAR DIA. FROM THE FACE OF THE COLUMN AND SHALL BE EMBEDDED 50 BAR DIA. IN THE COLUMN.

9 TYP. LINTEL DETAIL NTS



SCHEDULE OF LINTELS REINFORCEMENT

CLEAR SPAN (cm)	LINTEL WIDTH (cm)	b=10cm		b=15cm		b=20cm OR 25cm		b=40cm		DEPTH d
		TOP REINF.	BOTTOM REINF.	TOP REINF.	BOTTOM REINF.	TOP REINF.	BOTTOM REINF.	TOP REINF.	BOTTOM REINF.	
< 200		1T10	1T14	2T10	2T12	2T10	2T12	4T10	4T12	20
200-300		1T10	1T16	2T10	2T14	2T10	2T16	4T10	4T16	25
301-400		1T10	1T20	2T10	2T16	2T10	2T18	4T12	4T18	30
401-500		1T10	1T20	2T10	2T16	2T10	2T18	4T12	4T20	40
501-600		1T10	1T20	2T10	2T16	2T10	2T18	4T12	4T20	50
601-700		1T12	1T25	2T12	2T18 in 2 layers	2T12	2T25	4T12	4T25	60

OR PROVIDE CATHIC TYPE STEEL LINTELS OF DEPTH AND THICKNESS APPROPRIATE TO SPAN AND LOAD CARRIED.

SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE - AFGHANISTAN
POWER PLANT BUILDING

GENERAL NOTE:

Sheet
Reference
Number

S-002



امارت اسلامی افغانستان
ریاست عمومی ادارہ امور
معاونیت ملی و اداری

ریاست طرح و دبیران امور ساختمانی
امریت مهندسی

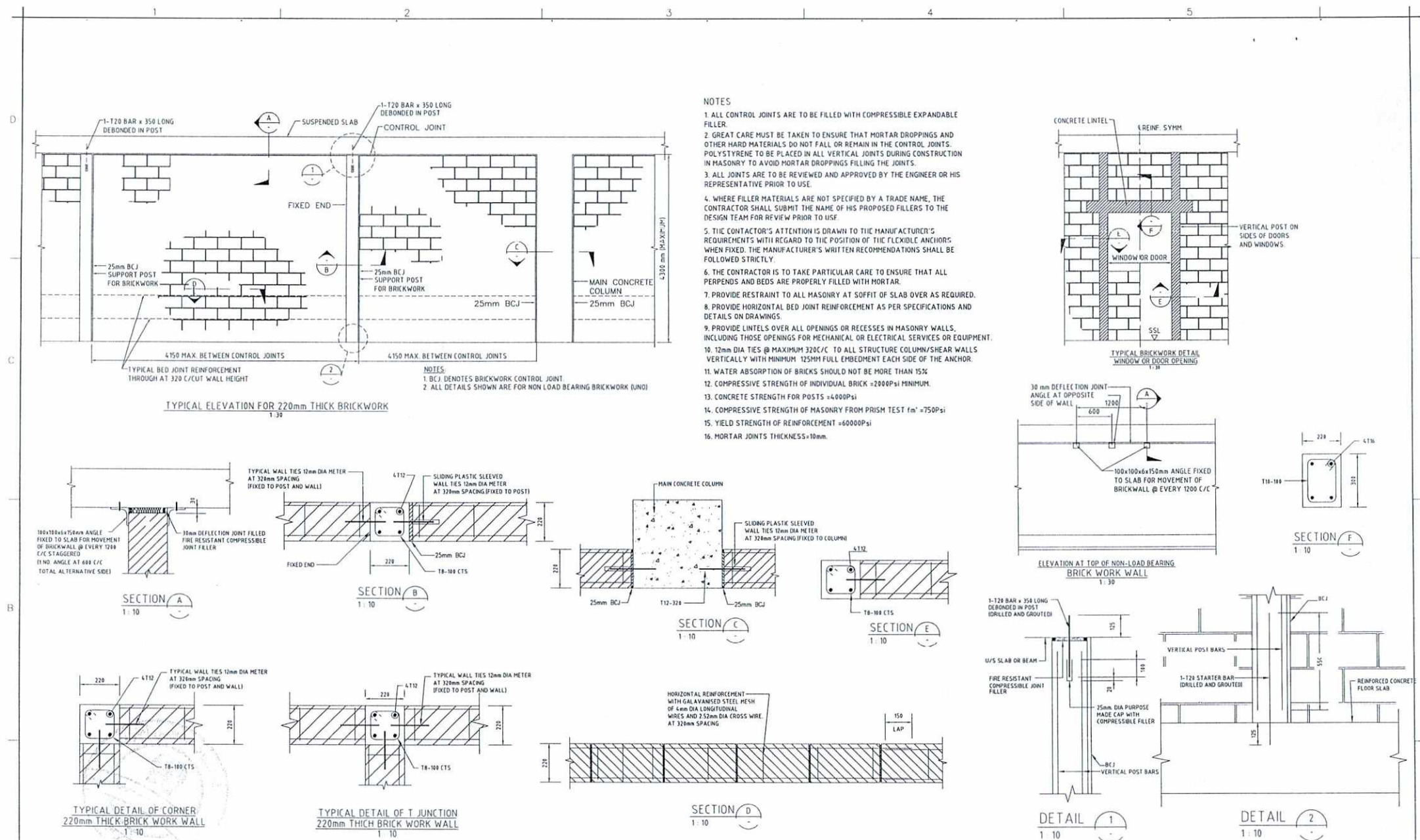
Tel: 0202143082 Website: www.aop.gov.af

Designed by: Mutasim Bilal Jarar
Drawn by: Mutasim Bilal Jarar
Checked By: Noorhuda Haqani
Approved by: M. Musa Essazai
Visa Committee:

No. (01) For Construction
(02)
(03)
(04)
(05)

Submission Description: 1403/04/15
Date:

Contract No:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCB
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1/00



امارت اسلامی افغانستان
رأست عمومی اداره امور
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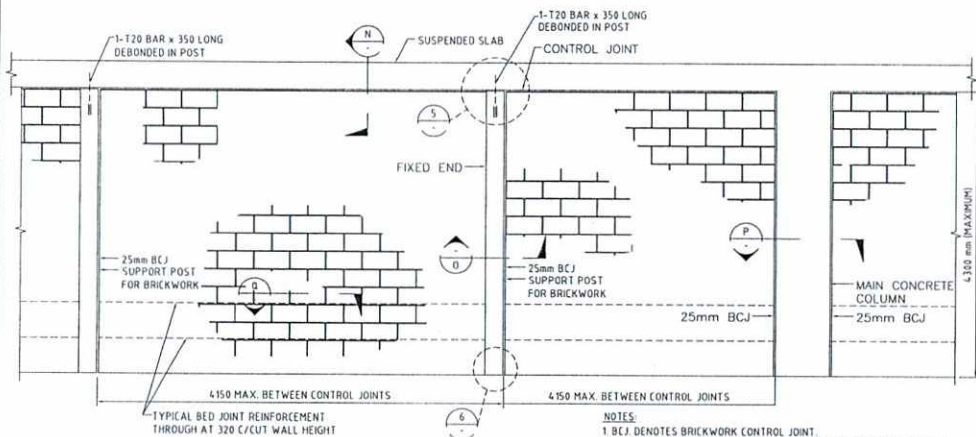
Designed by: Mutasim Billah Jarar
Drawn by: Mutasim Billah Jarar
Checked By: Noorhuda Haqani
Approved by: M. Musa Essazai

No. Submission Description: 01 For Construction
Date: 1403/04/15

Contract No:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCB
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1:00

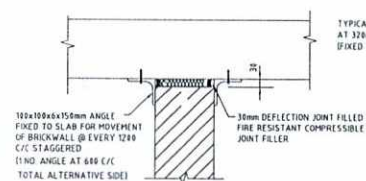
SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
330MM BRICK WORK DETAILS

Sheet Reference Number
S-003

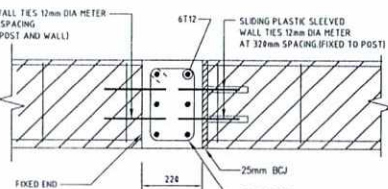


TYPICAL ELEVATION FOR 330mm THICK BRICKWORK
1:30

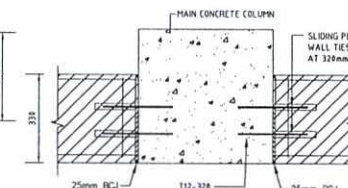
- NOTES:
1. BCJ DENOTES BRICKWORK CONTROL JOINT.
2. ALL DETAILS SHOWN ARE FOR NON LOAD BEARING BRICKWORK (UNO)



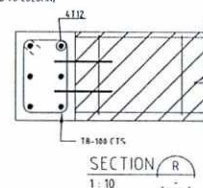
SECTION N
1:10



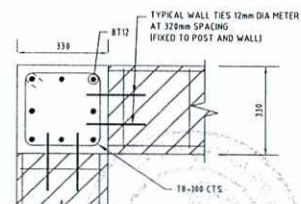
SECTION O
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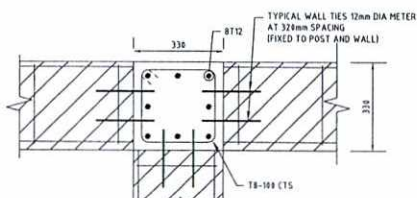
SECTION P
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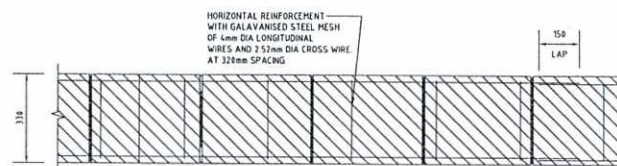
SECTION R
1:10



TYPICAL DETAIL OF CORNER
330mm THICK BRICK WORK WALL
1:10



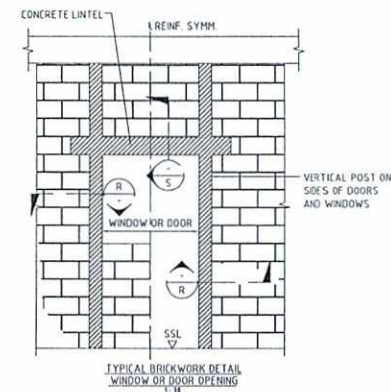
TYPICAL DETAIL OF T JUNCTION
330mm THICK BRICK WORK WALL
1:10



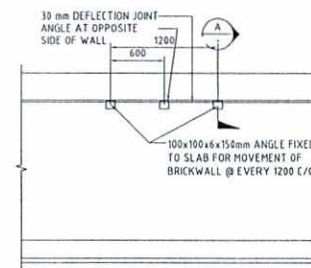
SECTION Q
1:10

NOTES

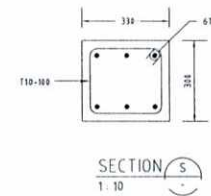
1. ALL CONTROL JOINTS ARE TO BE FILLED WITH COMPRESSIBLE EXPANDABLE FILLER.
2. GREAT CARE MUST BE TAKEN TO ENSURE THAT MORTAR DROPPINGS AND OTHER HARD MATERIALS DO NOT FALL OR REMAIN IN THE CONTROL JOINTS. POLYSTYRENE TO BE PLACED IN ALL VERTICAL JOINTS DURING CONSTRUCTION IN MASONRY TO AVOID MORTAR DROPPINGS FILLING THE JOINTS.
3. ALL JOINTS ARE TO BE REVIEWED AND APPROVED BY THE ENGINEER OR HIS REPRESENTATIVE PRIOR TO USE.
4. WHERE FILLER MATERIALS ARE NOT SPECIFIED BY A TRADE NAME, THE CONTRACTOR SHALL SUBMIT THE NAME OF HIS PROPOSED FILLERS TO THE DESIGN TEAM FOR REVIEW PRIOR TO USE.
5. THE CONTRACTOR'S ATTENTION IS DRAWN TO THE MANUFACTURER'S REQUIREMENTS WITH REGARD TO THE POSITION OF THE FLEXIBLE ANCHORS WHEN FIXED. THE MANUFACTURER'S WRITTEN RECOMMENDATIONS SHALL BE FOLLOWED STRICTLY.
6. THE CONTRACTOR IS TO TAKE PARTICULAR CARE TO ENSURE THAT ALL PERPENDS AND BEDS ARE PROPERLY FILLED WITH MORTAR.
7. PROVIDE RESTRAINT TO ALL MASONRY AT SOFFIT OF SLAB OVER AS REQUIRED.
8. PROVIDE HORIZONTAL BED JOINT REINFORCEMENT AS PER SPECIFICATIONS AND DETAILS ON DRAWINGS.
9. PROVIDE LINTELS OVER ALL OPENINGS OR RECESSES IN MASONRY WALLS, INCLUDING THOSE OPENINGS FOR MECHANICAL OR ELECTRICAL SERVICES OR EQUIPMENT.
10. 12mm DIA TIES @ MAXIMUM 320C/C TO ALL STRUCTURE COLUMN/SHEAR WALLS VERTICALLY WITH MINIMUM 125MM FULL EMBEDMENT EACH SIDE OF THE ANCHOR.
11. WATER ABSORPTION OF BRICKS SHOULD NOT BE MORE THAN 15%.
12. COMPRESSIVE STRENGTH OF INDIVIDUAL BRICK = 2000PSI MINIMUM.
13. CONCRETE STRENGTH FOR POSTS = 4000PSI.
14. COMPRESSIVE STRENGTH OF MASONRY FROM PRISM TEST $f_m = 750PSI$.
15. YIELD STRENGTH OF REINFORCEMENT = 60000PSI.
16. MORTAR JOINTS THICKNESS = 10mm.



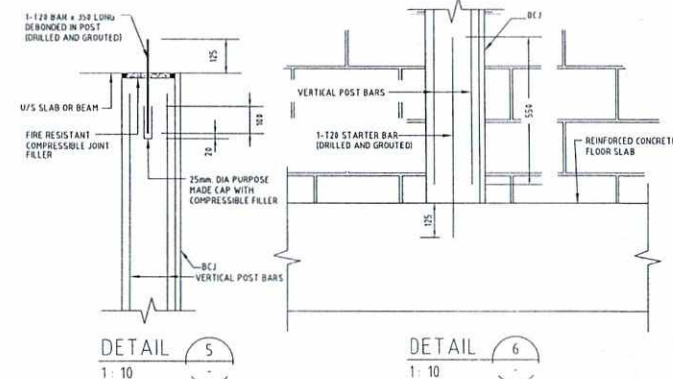
TYPICAL BRICKWORK DETAIL
WINDOW OR DOOR OPENING
1:1



ELEVATION AT TOP OF NON-LOAD BEARING
BRICK WORK WALL
1:30



SECTION S
1:10



DETAIL S
1:10

DETAIL 6
1:10



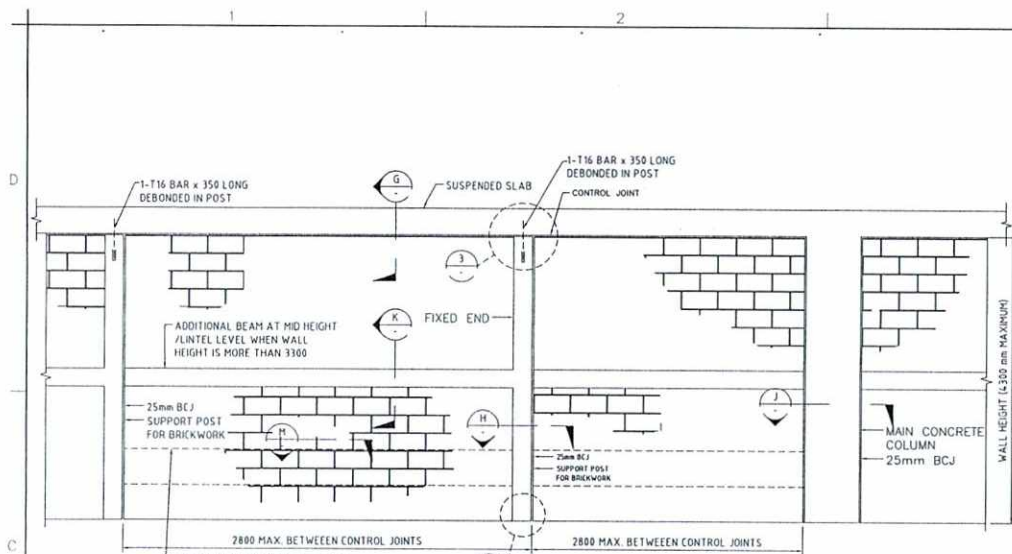
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ریاست عمومی اداره امور
معاونیت مالی و اداری
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آمریت مهندسی
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Designed by:	Mutasim Biliha Jarar	No.	Submission Description:	Date:
Drawn by:	Mutasim Biliha Jarar	(01)	For Construction	1403/04/15
Checked By:	Nooruhuda Haqani	(02)		
Head of Department:		(03)		
Approved by:	M.Musa Essazai	(04)		
Visa Committee:		(05)		

Contract No:	
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Fiscal Year:	1403/1445
Drawn Code:	SDCB
Paper Size:	A3
Plot Date:	1403/04/09
Scale:	1:00

SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
330MM BRICK WORK DETAILS

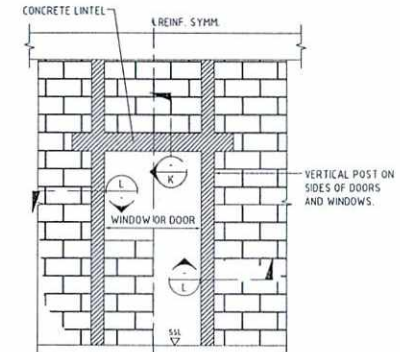
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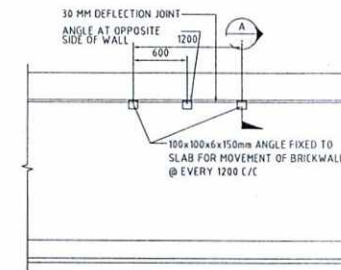
TYPICAL ELEVATION FOR 105mm THICK BRICKWORK
1:30

NOTES:
1. BCJ REMOTES BRICKWORK CONTROL JOINT.
2. ALL DETAILS SHOWN ARE FOR NON-LOAD BEARING BRICKWORK (UNO)

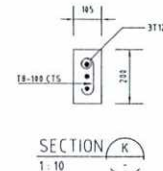
- NOTES
1. ALL CONTROL JOINTS ARE TO BE FILLED WITH COMPRESSIBLE EXPANDABLE FILLER.
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 12. COMPRESSIVE STRENGTH OF INDIVIDUAL BRICK = 2000psi MINIMUM.
 13. CONCRETE STRENGTH FOR POSTS = 4000psi
 14. COMPRESSIVE STRENGTH OF MASONRY FROM PRISM TEST $f_m = 7500psi$
 15. YIELD STRENGTH OF REINFORCEMENT = 600000psi
 16. MORTAR JOINTS THICKNESS = 10mm.



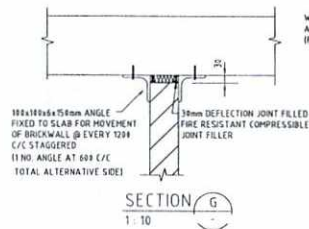
TYPICAL BRICKWORK DETAIL
WINDOW OR DOOR OPENING
1:30



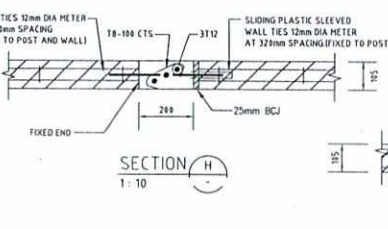
ELEVATION AT TOP OF NON-LOAD BEARING
BRICK WORK WALL
1:10



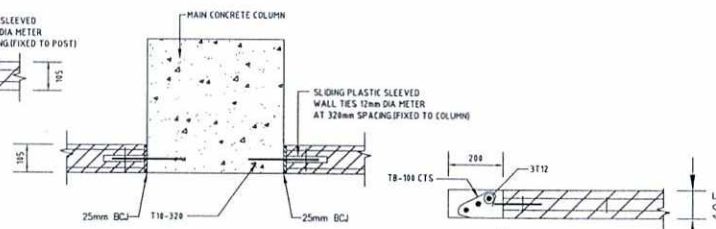
SECTION K
1:10



TYPICAL DETAIL OF CORNER
105mm THICK BRICK WORK WALL
1:10

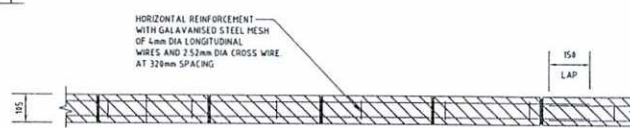


TYPICAL DETAIL OF T JUNCTION
105mm THICK BRICK WORK WALL
1:10

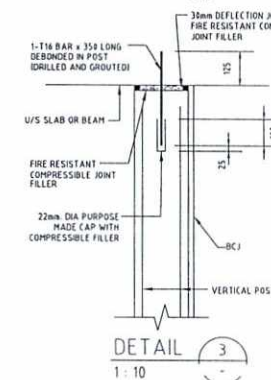


SECTION J
1:10

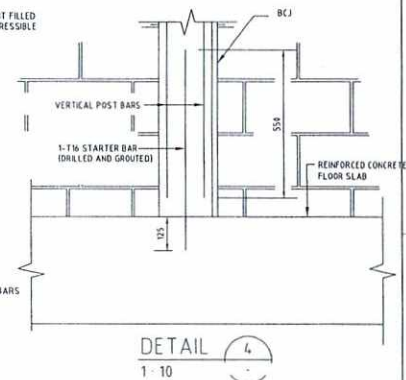
SECTION L
1:10



SECTION M
1:10



DETAIL 3
1:10



DETAIL 4
1:10



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امریت مهندسی
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Designed by: Mutasim Billah Jara
Drawn by: Mutasim Billah Jara
Checked By Head of Department: Noorhuda Haqani
Approved by Visa Committee: M.Musa Essazai

No.	Submission Description:	Date:
01	For Construction	1403/04/15
02		
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04		
05		

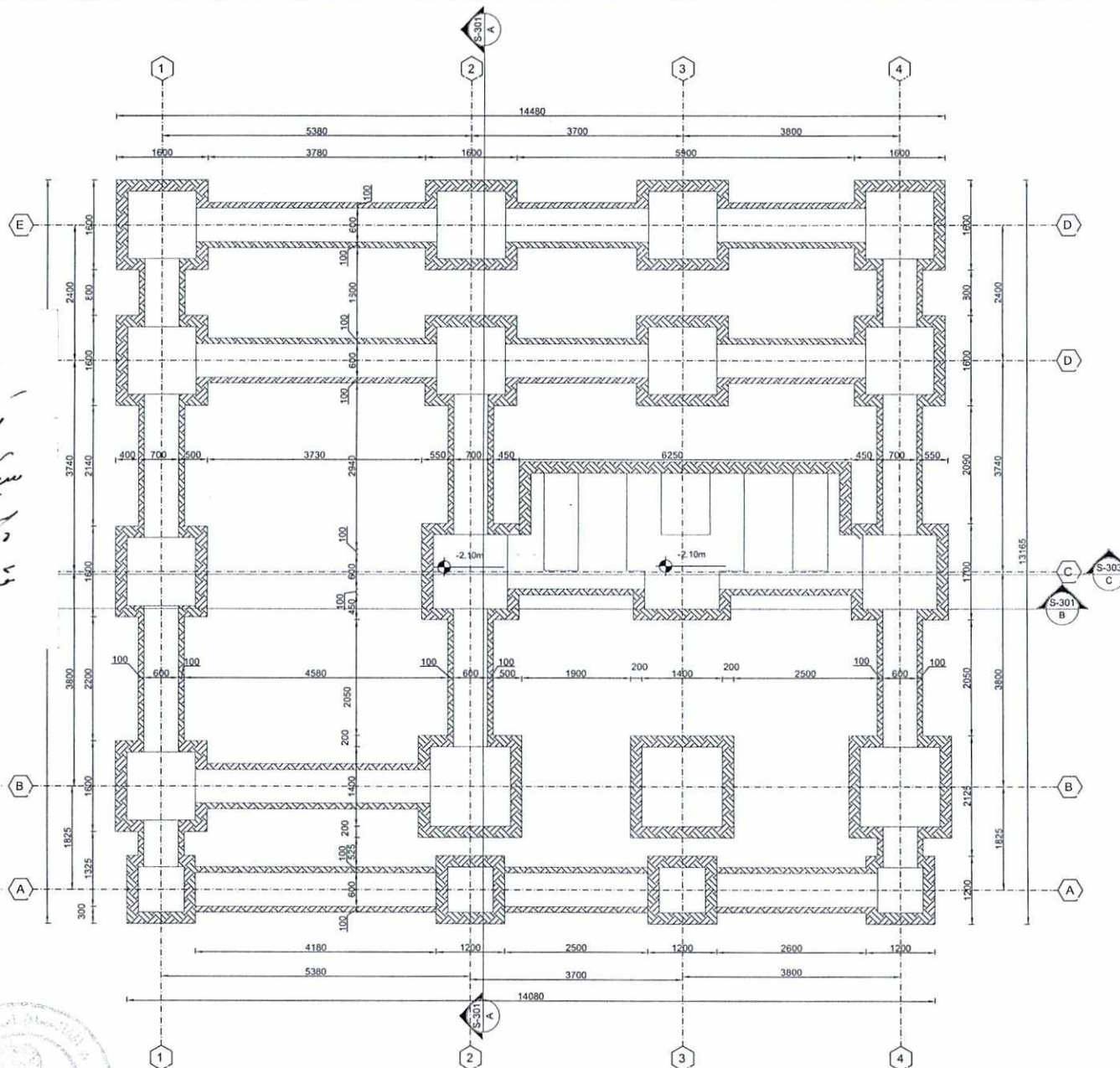
Contract No:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCB
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1:00

SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
330MM BRICK WORK DETAILS

Sheet Reference Number
S-004

سند سازه
 س-۱۰۱
 س-۱۰۲
 س-۱۰۳
 س-۱۰۴
 س-۱۰۵
 س-۱۰۶

در سطح زمین
 در سطح زیر زمین
 در سطح زیر زمین



01 | FOUNDATION EXCAVATION PLAN
S-101 REF: SCALE: 1/40



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Designed by: Mutasim Billah Jarar
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 Checked By: Nooruhuda Haqani
 Approved by: M. Musa Essazai
 Visa Committee:

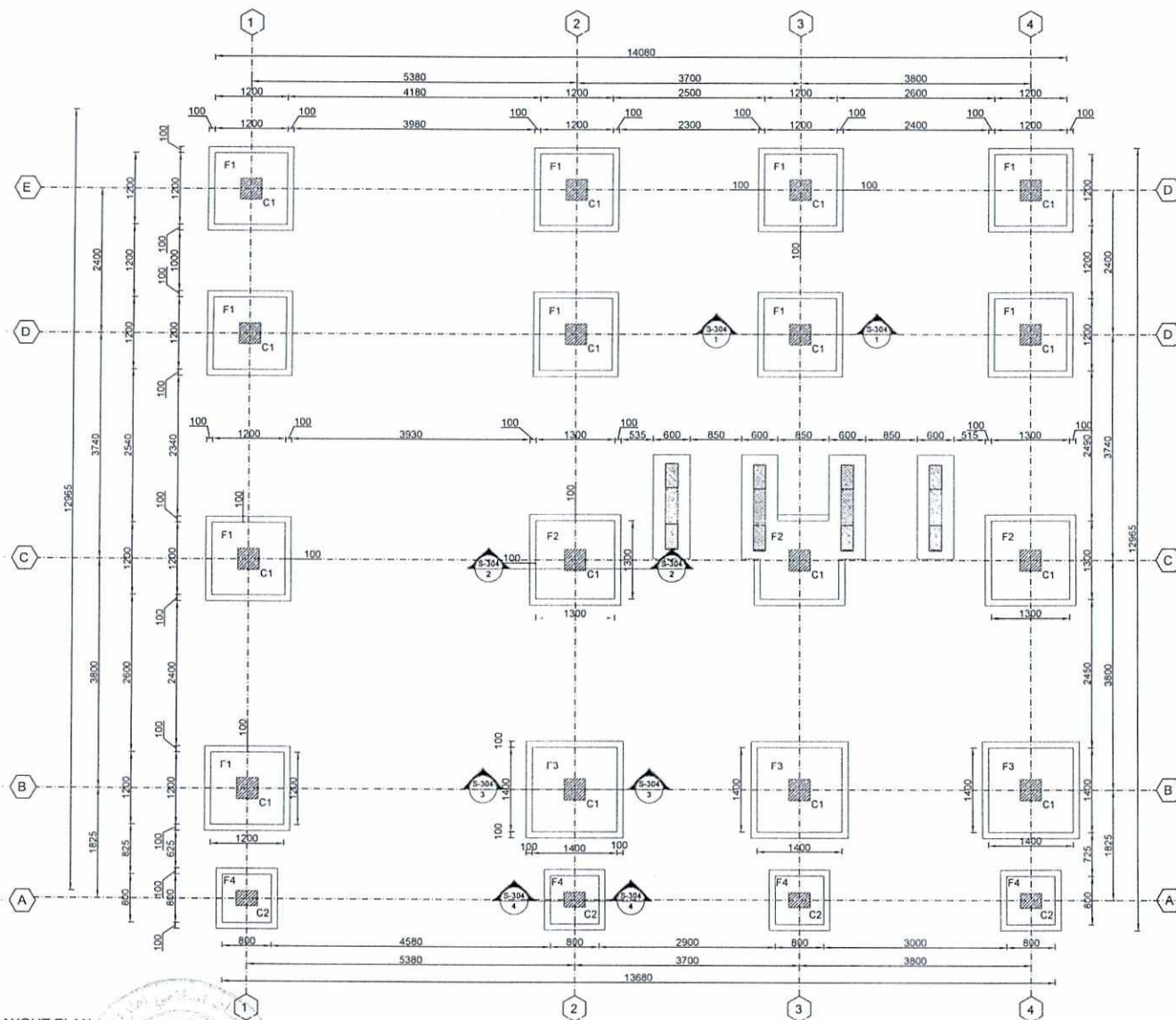
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No. Submission Description: Date: 1403/04/15
 (01) For Construction
 (02)
 (03)
 (04)
 (05)

Contract No:
 Contract Date:
 Fiscal Year: 1403/1445
 Drawn Code: SDCB
 Paper Size: A3
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 Scale: 1:00

SERVICES DIRECTORATE COMPLEX BUILDING
 AOP
 KABUL PROVINCE, AFGHANISTAN
 POWER PLANT BUILDING
 FOUNDATION EXCAVATION PLAN

Sheet Reference Number
 S-101



01 FOUNDATION AND COLUMN LAYOUT PLAN
S-102 REF: SCALE: 1:40

NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETER
UNLESS OTHERWISE NOTED.
2. GRADE OF REBAR = fy = 60 Ksi = 4180 Kg/cm²
3. GRADE OF REINFORCED CONC. = fc = 4000 psi
= 280 Kg/cm²



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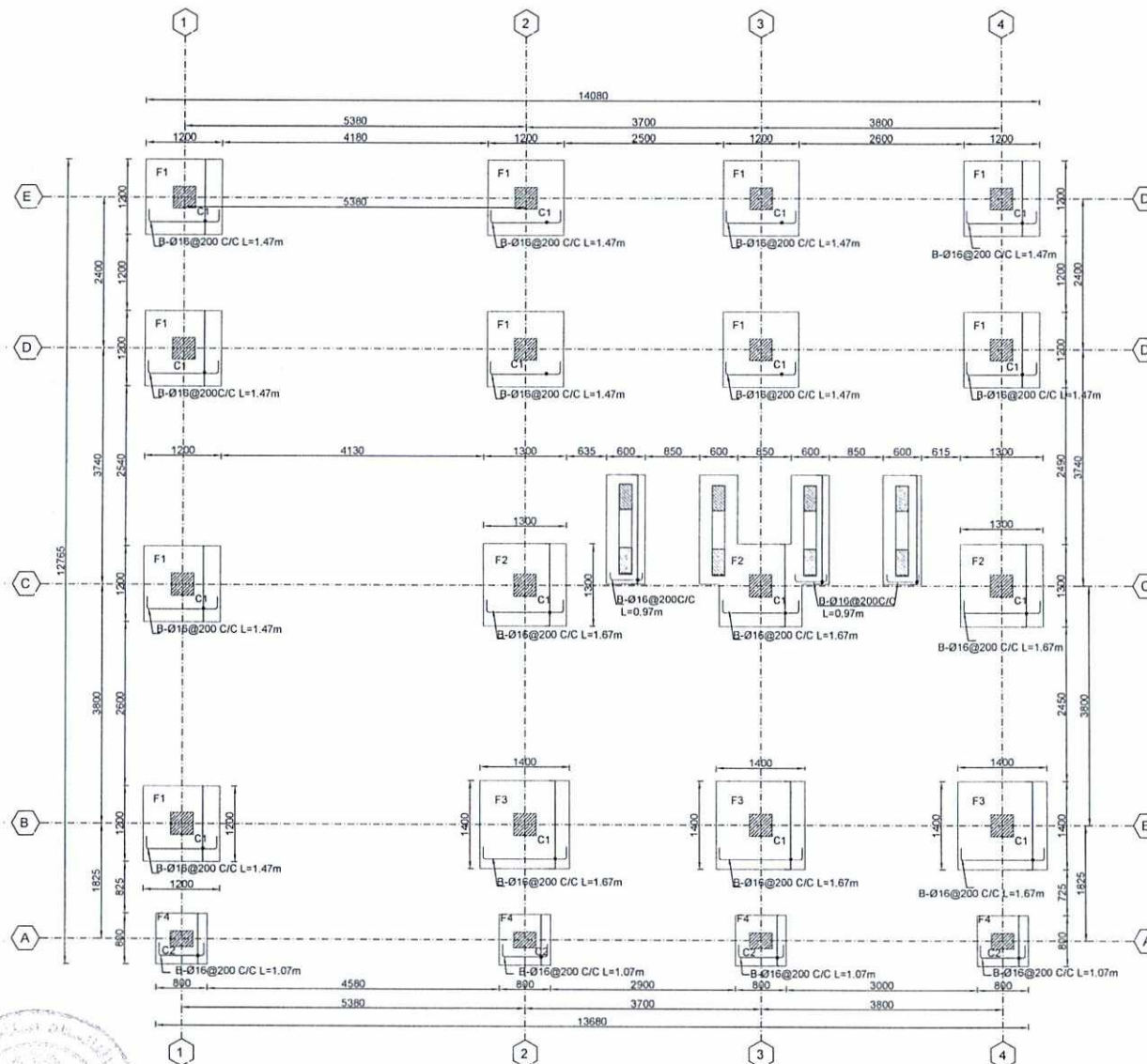
Designed by: Mutasim Billah Jarar
Drawn by: Mutasim Billah Jarar
Checked By: Noorhuda Haqani
Head of Department:
Approved by: M. Musa Essazai
Visa Committee:

No. Submission Description Date:
(01) For Construction 1403/04/15
(02)
(03)
(04)
(05)

Contract No:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCB
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1:00

SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
FOUNDATION AND COLUMN LAYOUT PLAN

Sheet
Reference
Number
S-102



01 | BOT-(X-DIRECTION) REINFORCEMENT FOUNDATION PLAN
S-1051 REF: SCALE: 1:40

- NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE NOTED.
 2. GRADE OF REBAR = $f_y = 60 \text{ Ksi} = 4180 \text{ Kg/cm}^2$
 3. GRADE OF REINFORCED CONC. = $f'_c = 4000 \text{ psi} = 280 \text{ Kg/cm}^2$



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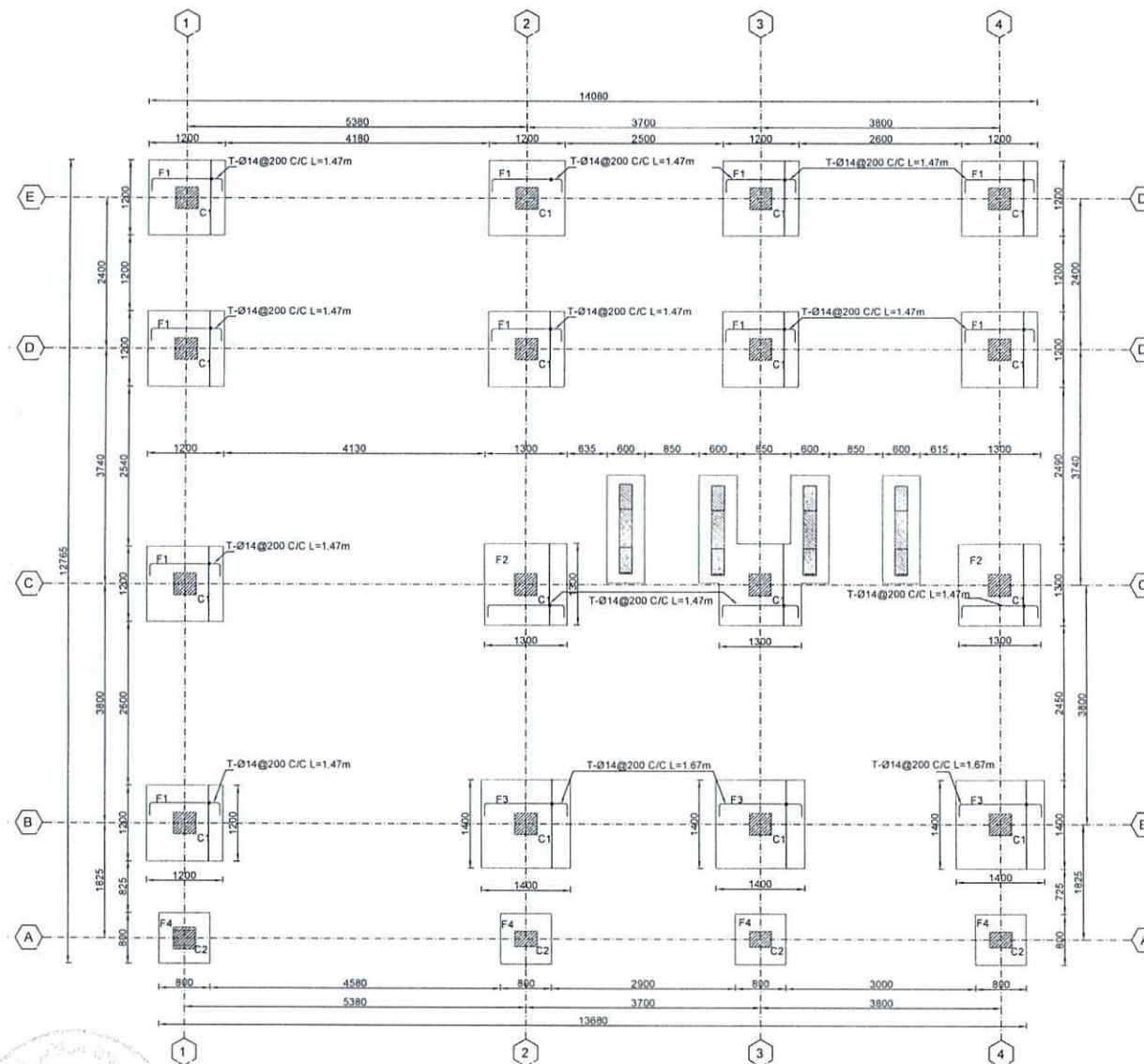
Tel: 0202143082 Website: www.aop.gov.af

Designed by: Mutasim Billah Jarar
Drawn by: Mutasim Billah Jarar
Checked By: Noorhuda Haqani
Head of Department:
Approved by: M. Musa Essazai
Visa Committee:

No. (01) Submission Description: For Construction
Date: 1403/04/15
Contract No:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCB
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1:00

SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
BOT-(X-DIRECTION) REINFORCEMENT FOUNDATION PLAN

Sheet
Reference
Number
S-103



01 | TOP(X-DIRECTION) REINFORCEMENT FOUNDATION PLAN
S-1041 REF: SCALE: 1/40



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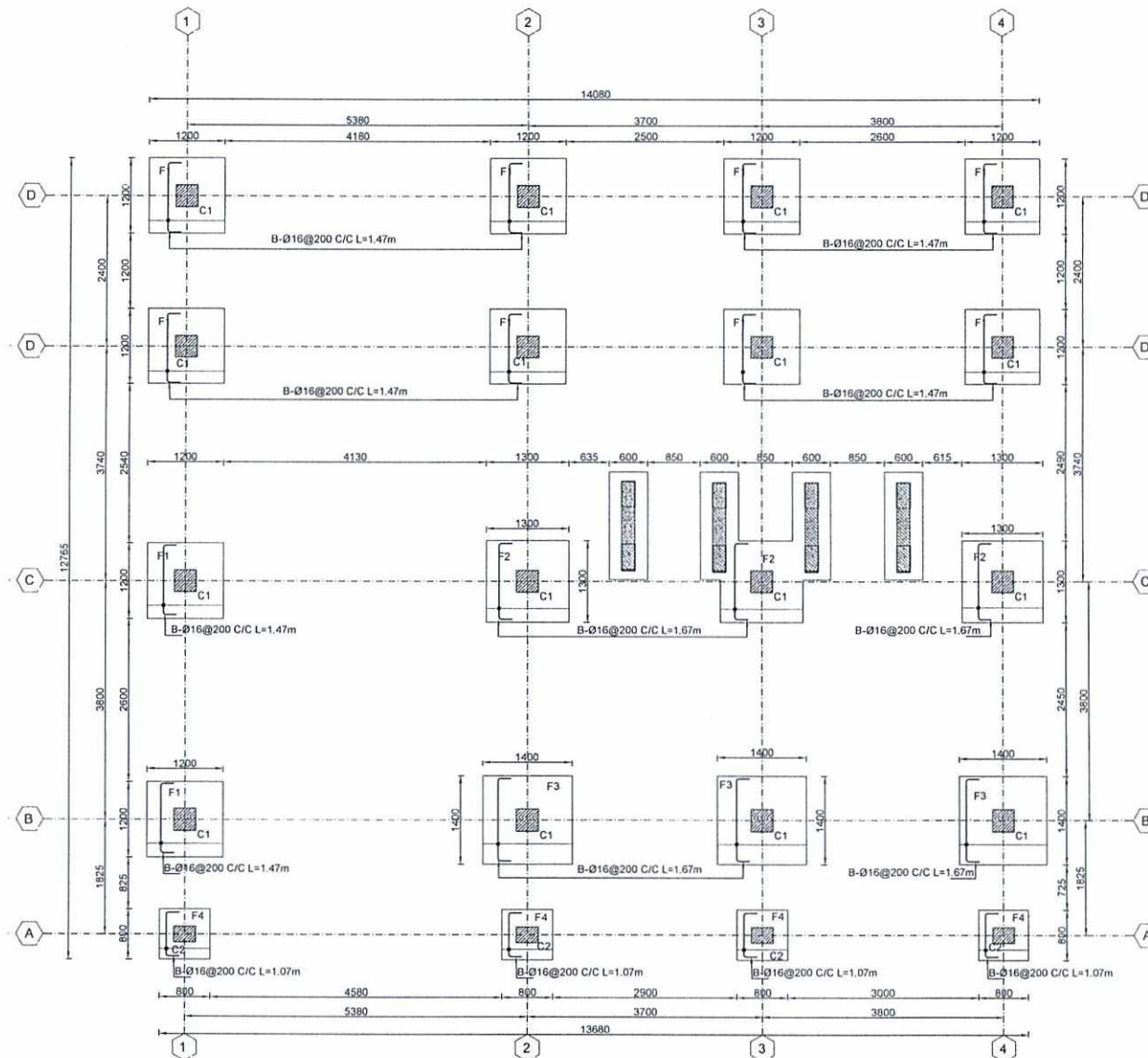
Designed by: Mutasim Billah Jarar
Drawn by: Mutasim Billah Jarar
Checked By: Nooruhuda Haqani
Approved by: M. Musa Essazai
Visa Committee:

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Description: For Construction
Date: 1403/04/15

Contract No:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCB
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1:00

SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
TOP(X-DIRECTION) REINFORCEMENT FOUNDATION PLAN

Sheet
Reference
Number
S-104



01 | BOT-(Y-DIRECTION) REINFORCEMENT FOUNDATION PLAN
S-105 REF SCALE: 1:40

- NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE NOTED.
 2. GRADE OF REBAR = $f_y = 60 \text{ Ksi} = 4180 \text{ Kg/cm}^2$
 3. GRADE OF REINFORCED CONC. = $f'_c = 4000 \text{ psi} = 280 \text{ Kg/cm}^2$



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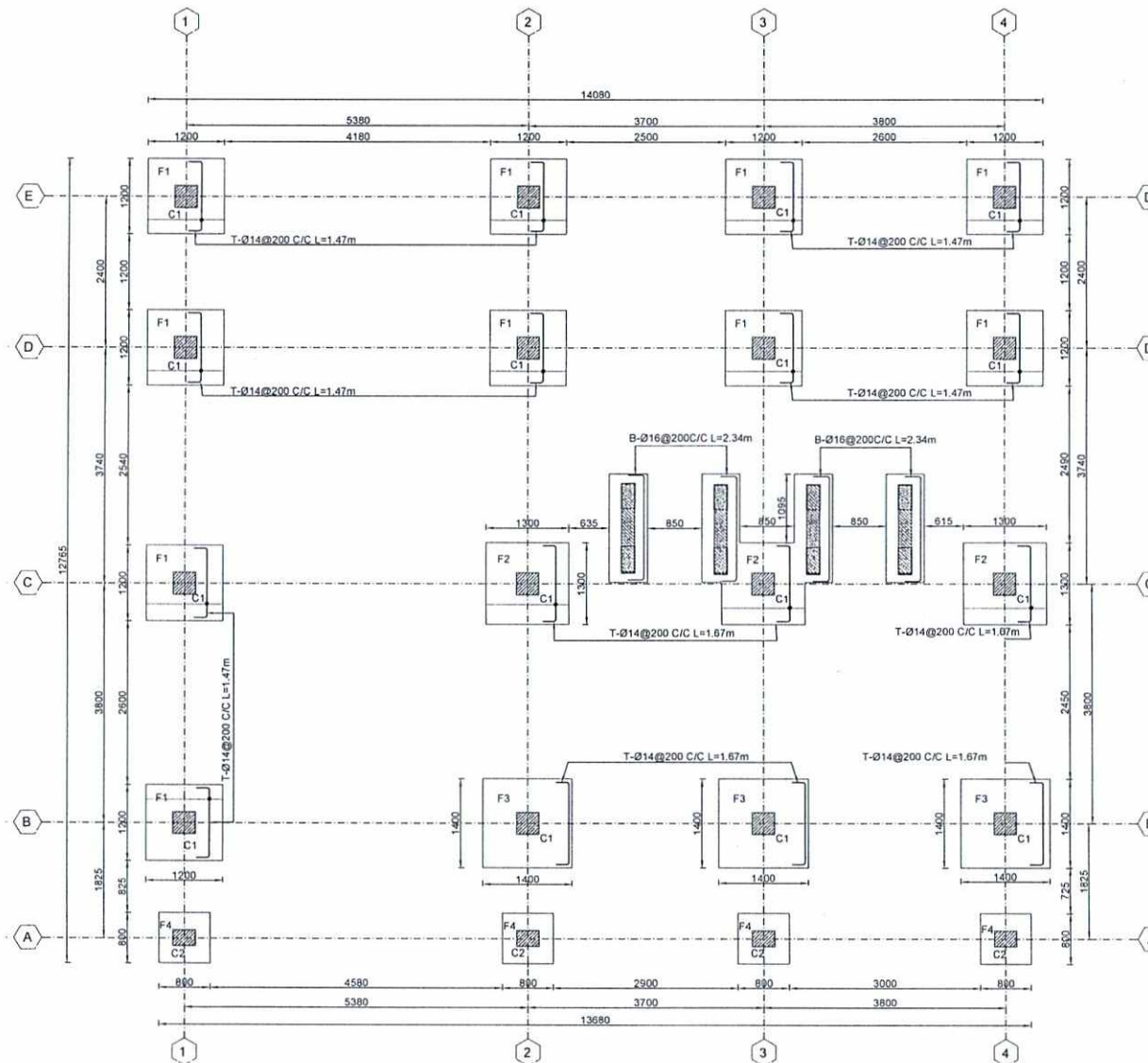
Designed by:	Mutasim Bilal Jarar
Drawn by:	Mutasim Bilal Jarar
Checked By:	Noorhuda Haqani
Head of Department:	
Approved by:	M. Musa Essazi
Visa Committee:	
No.	01
Submission Description:	For Construction
Date:	1403/04/15

Contract No:	
Contract Date:	
Fiscal Year:	1403/1445
Drawn Code:	SDCB
Paper Size:	A3
Plot Date:	1403/04/09
Scale:	1:40

SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
BOT-(Y-DIRECTION) REINFORCEMENT FOUNDATION PLAN

Sheet
Reference
Number

S-105



01 | TOP-(Y-DIRECTION) REINFORCEMENT FOUNDATION PLAN
S-106 REF: SCALE: 1:40

NOTE :
1. ALL DIMENSIONS ARE IN MILLIMETER
UNLESS OTHERWISE NOTED.
2. GRADE OF REBAR = fy= 60 Ksi = 4180 Kg/cm²
3. GRADE OF REINFORCED CONC. = fc' = 4000 psi
= 280 Kg/cm²



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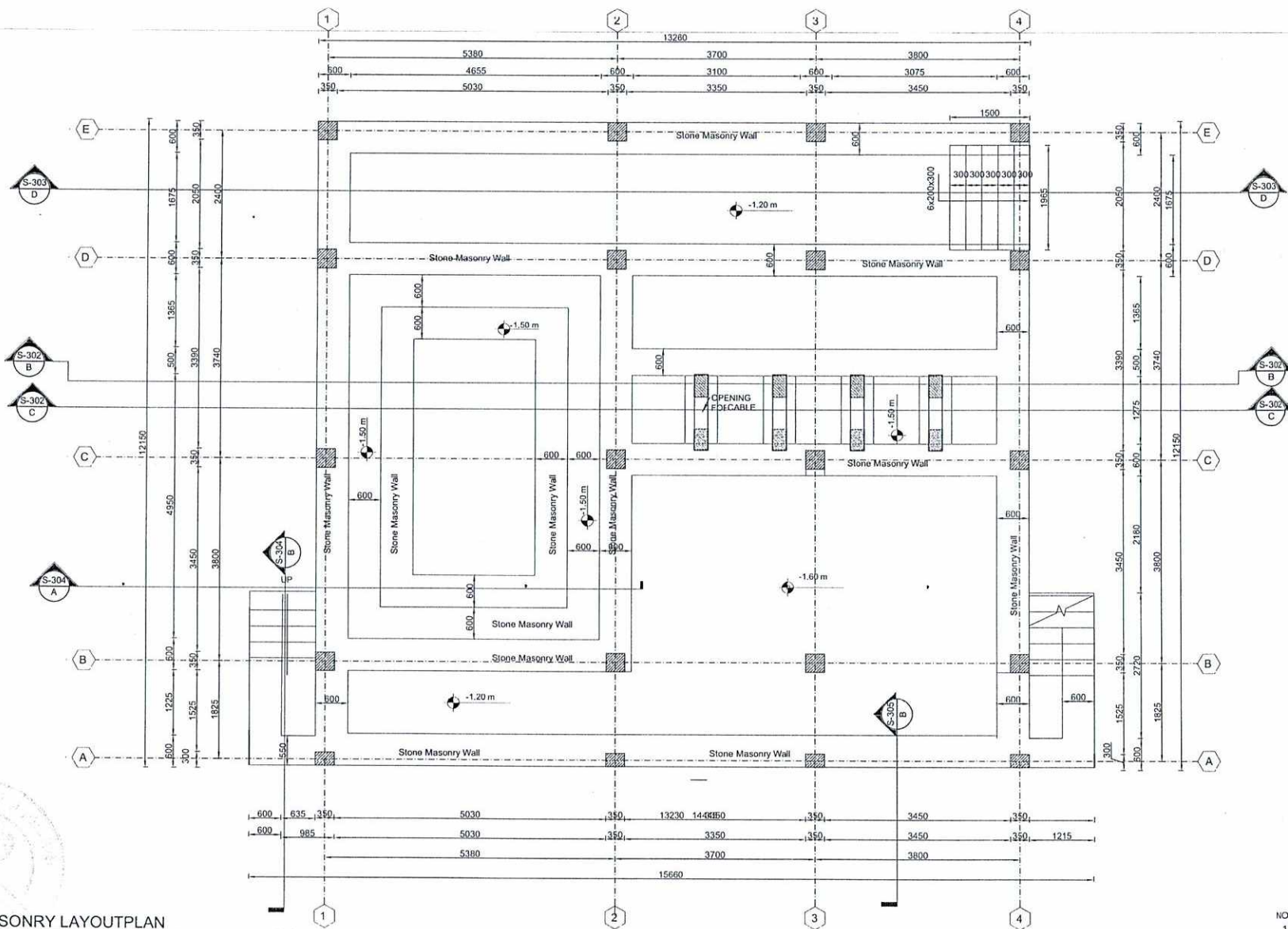
Designed by: Mutasim Billah Jarar
Drawn by: Mutasim Billah Jarar
Checked By: Nooruhuda Hagani
Head of Department:
Approved by: M. Musa Essazai
Visa Committee:

Submission Description: 01 For Construction
Date: 1403/04/15

Contract No:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCB
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1:40

SERVICES DIRECTORATE COMPLEX BUILDING
ACP
KABUL PROVINCE , AFGHANISTAN
POWER PLANT BUILDING
TOP-(Y-DIRECTION) REINFORCEMENT FOUNDATION PLAN

Sheet Reference Number
S-106



01 | STONEMASONRY LAYOUT PLAN
S-107 | REF: SCALE: 1:40

NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE NOTED.
2. GRADE OF REBAR = fy = 60 Ksi = 4180 Kg/cm²
3. GRADE OF REINFORCED CONC. = f'c = 4000 psi = 280 Kg/cm²



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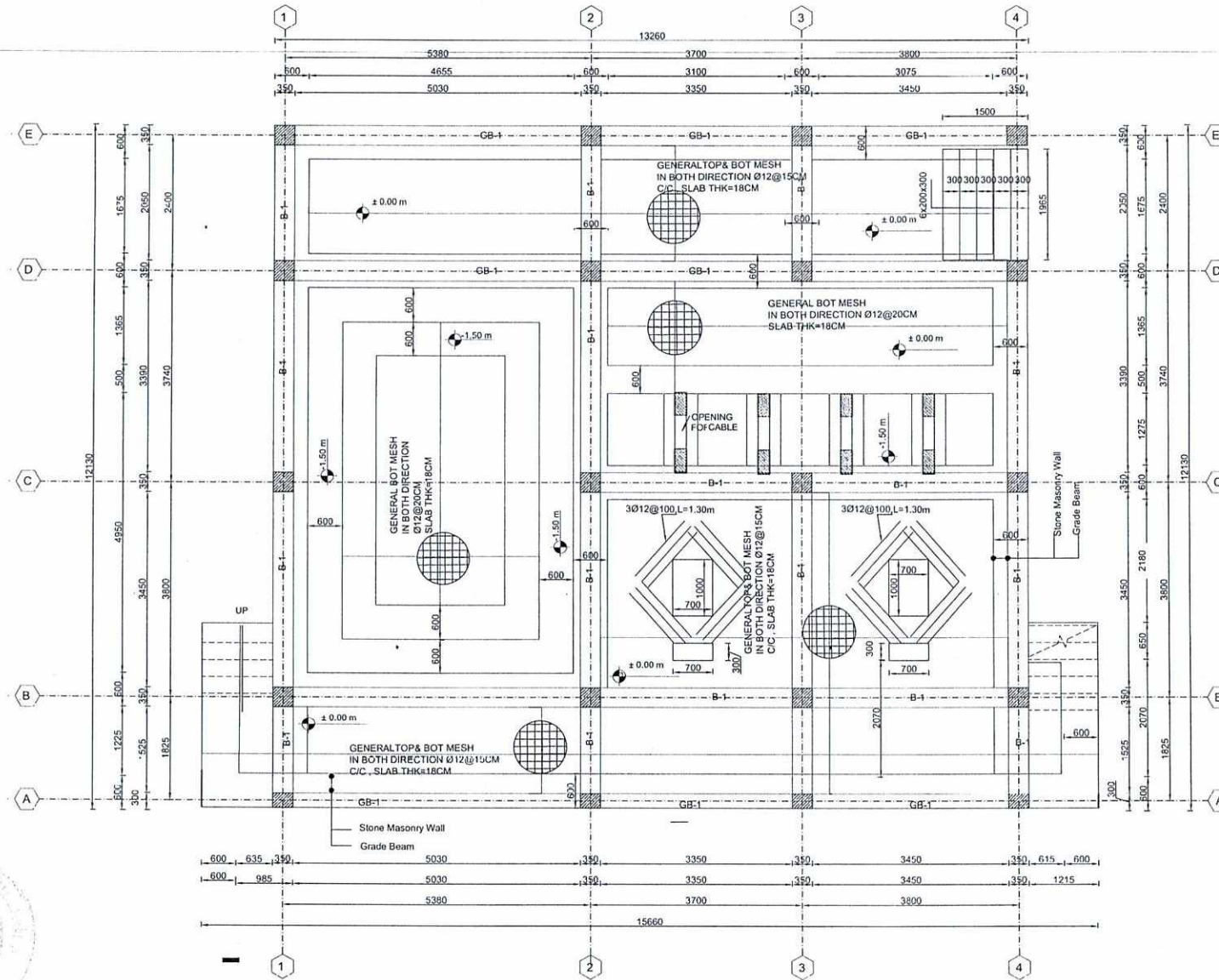
Designed by: Mutasim Billah Jarar
Drawn by: Mutasim Billah Jarar
Checked By: Noorulhuda Haqani
Head of Department:
Approved by: M. Musa Essazai
Visa Committee:

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(01) For Construction 1403/04/15
(02)
(03)
(04)
(05)

Contract No:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCB
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1:00

SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
STONEMASONRY LAYOUT PLAN

Sheet Reference Number
S-107



01 | SLAB ON GRADE AND GRADE BEAM PLAN
S-108 | REF: SCALE: 1/40

NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE NOTED.
2. GRADE OF REBAR = $f_y = 60 \text{ Ksi} = 4180 \text{ Kg/cm}^2$
3. GRADE OF REINFORCED CONC. = $f'_c = 4000 \text{ psi} = 280 \text{ Kg/cm}^2$



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Checked By: Noorhuda Haqani
Approved by: M. Musa Essazai
Visa Committee:

Submission Description: For Construction
Date: 1403/04/15

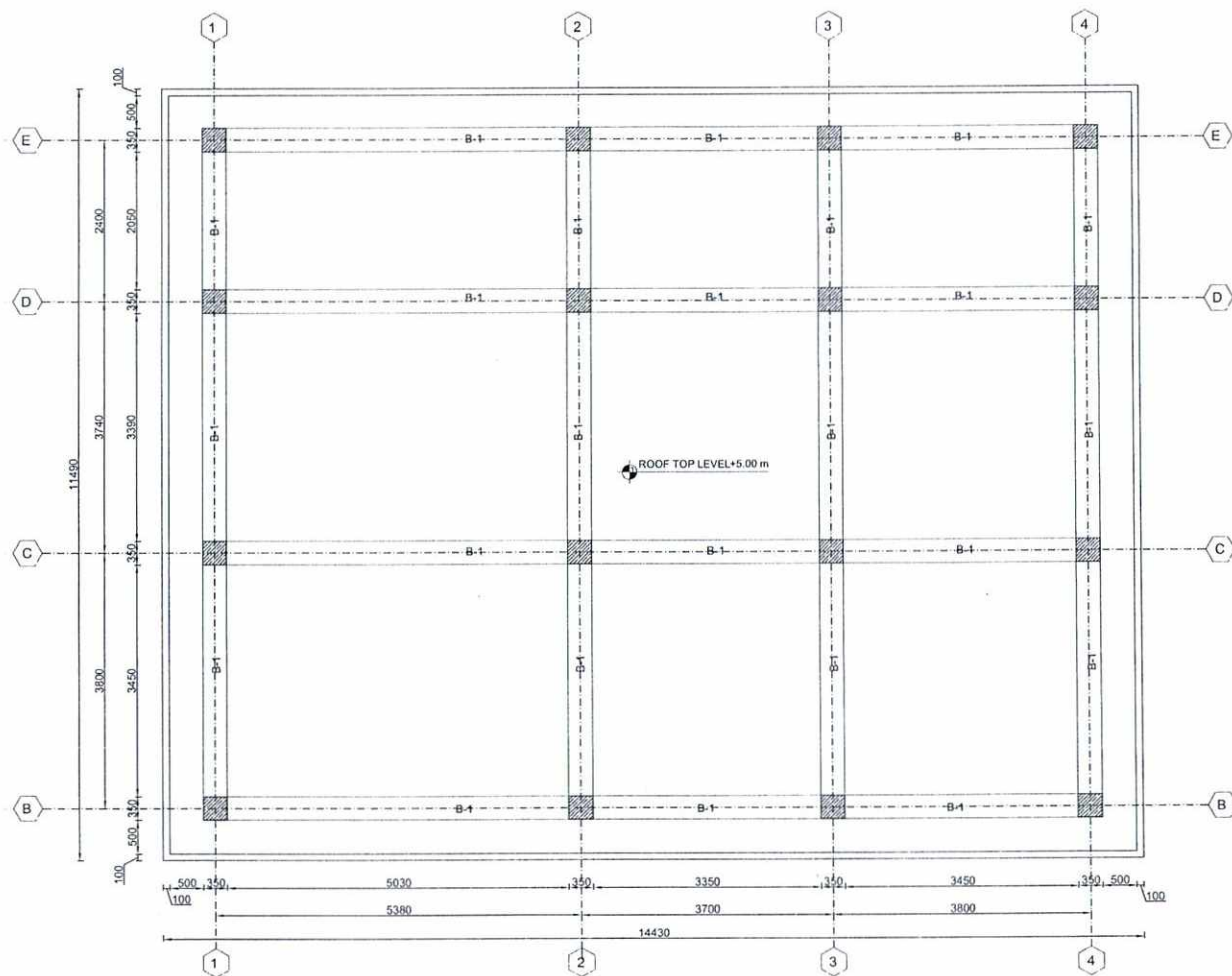
Contract No:
Contract Date: 1403/1445
Fiscal Year: SDCB
Drawn Code: A3
Paper Size: 1403/04/09
Scale: 1:00

SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING

SLAB ON GRADE AND GRADE BEAM PLAN

Sheet
Reference
Number

S-108



- NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE NOTED.
 2. GRADE OF REBAR = fy = 60 Ksi = 4180 Kg/cm²
 3. GRADE OF REINFORCED CONC. = f'c = 4000 psi = 280 Kg/cm²



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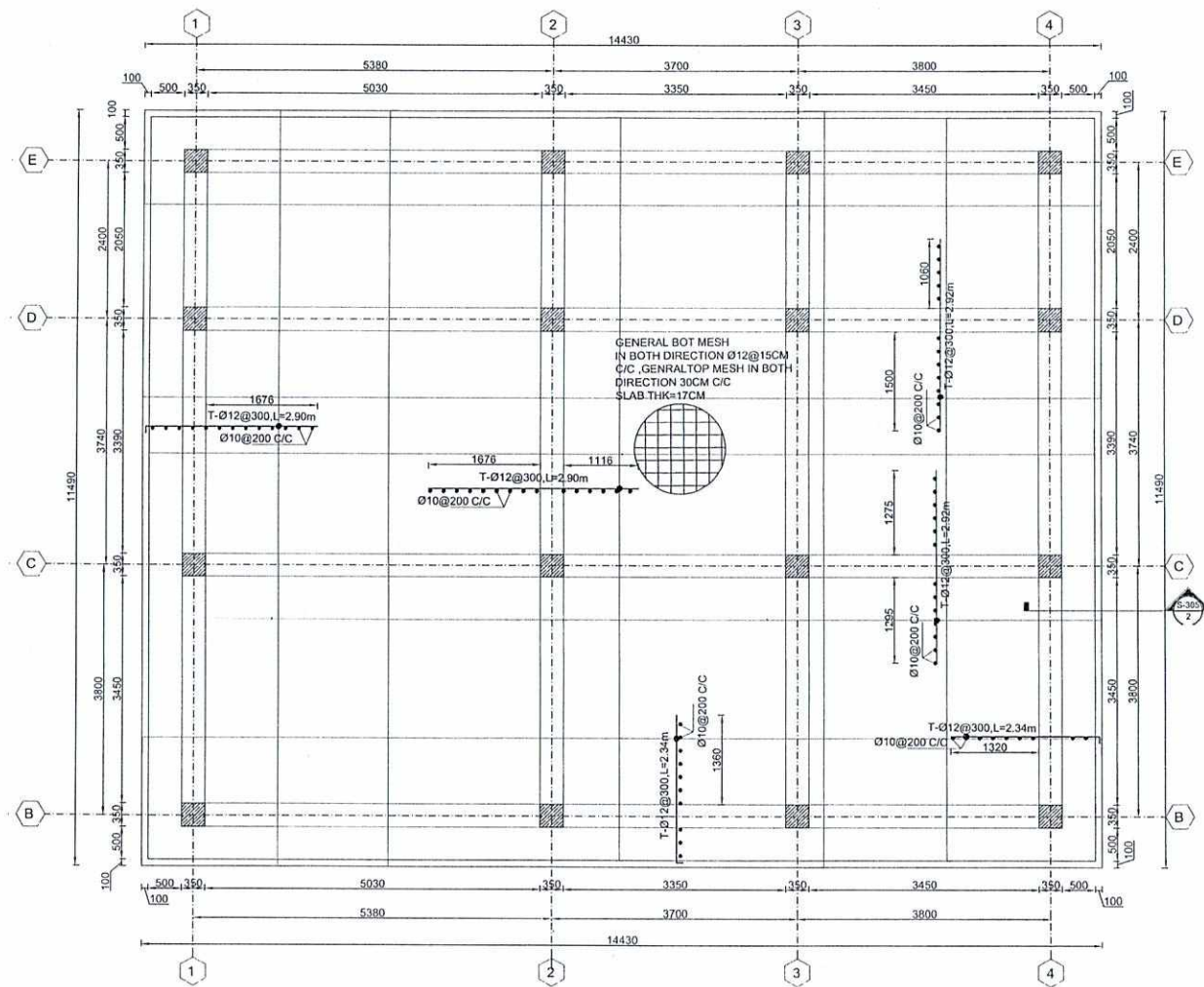
No. Submission Description
(01) For Construction
(02)
(03)
(04)
(05)

Date: 1403/04/15

Contract No:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCB
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1:00

SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
BEAM PLAN

Sheet Reference Number
S-109



01 | SLAB RIENFORCEMENT PLAN
S-109 | REF: SCALE: 1:40

- NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE NOTED.
 2. GRADE OF REBAR = fy= 60 Ksi = 4180 Kg/cm²
 3. GRADE OF REINFORCED CONC. = fc' = 4000 psi = 280 Kg/cm²



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Checked By: Noorhuda Haqani
Approved by: M.Musa Essazai
Visa Committee:

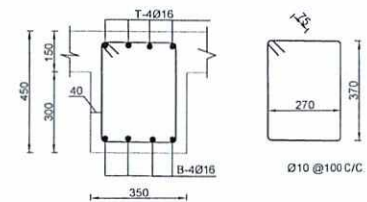
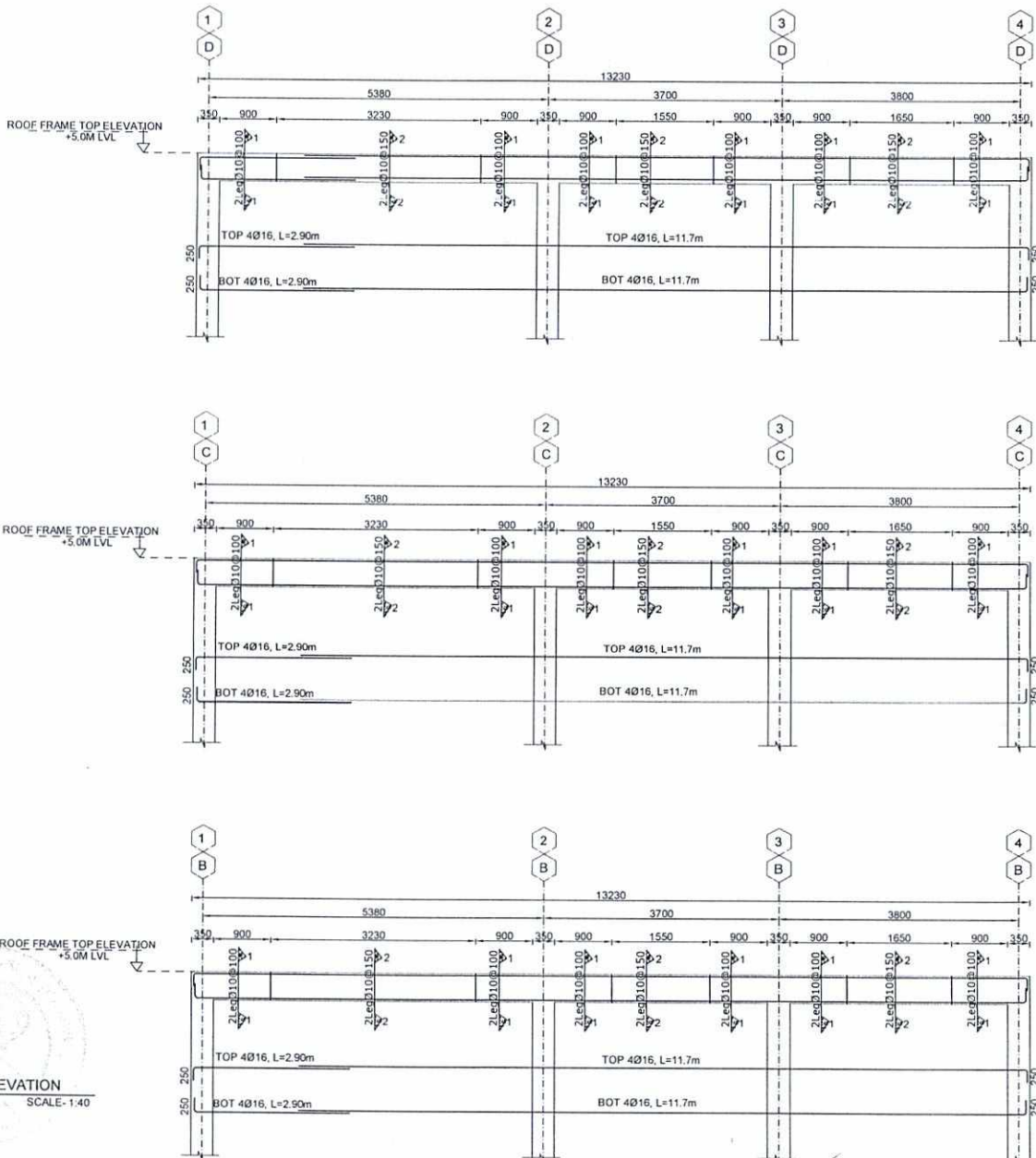
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No. (01)
Submission Description: For Construction
Date: 1403/04/15

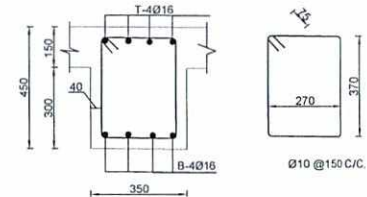
Contract No:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCB
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1:00

SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
SLAB RIENFORCEMENT PLAN

Sheet Reference Number
S-110



02 | BEAM SECTION(1-1)
S-201 REF: SCALE: 1:10



03 | BEAM SECTION(2-2)
S-201 REF: SCALE: 1:10

- NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE NOTED.
 2. GRADE OF REBAR = $f_y = 60 \text{ Ksi} = 4180 \text{ Kg/cm}^2$
 3. GRADE OF REINFORCED CONC. = $f'_c = 4000 \text{ psi} = 280 \text{ Kg/cm}^2$

01 | BEAM ELEVATION
S-201 REF: SCALE: 1:40



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Checked By: Noorulhuda Haqani
Approved by: M. Musa Essazai
Visa Committee:

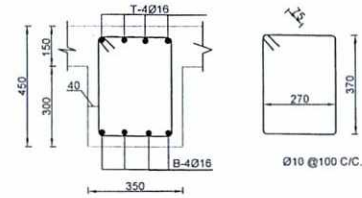
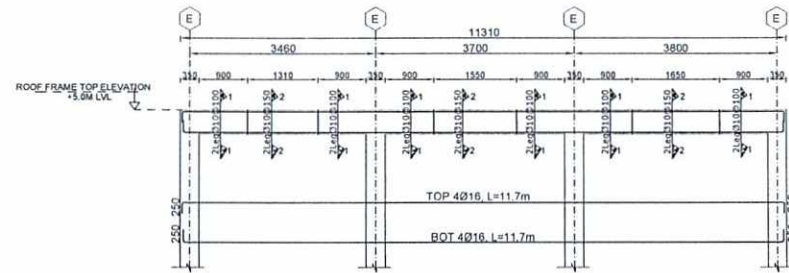
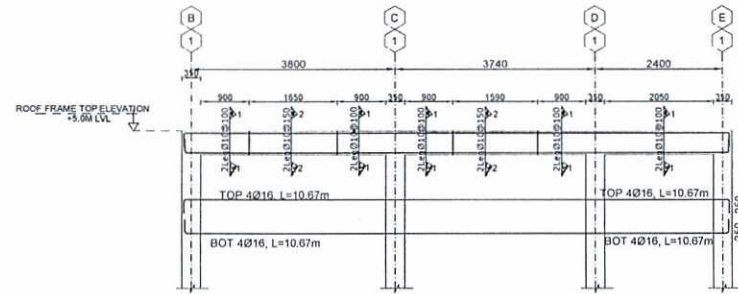
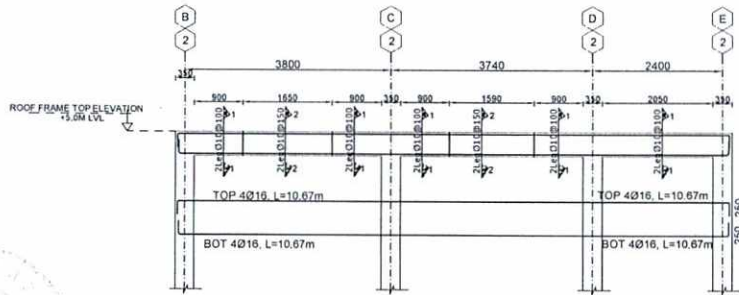
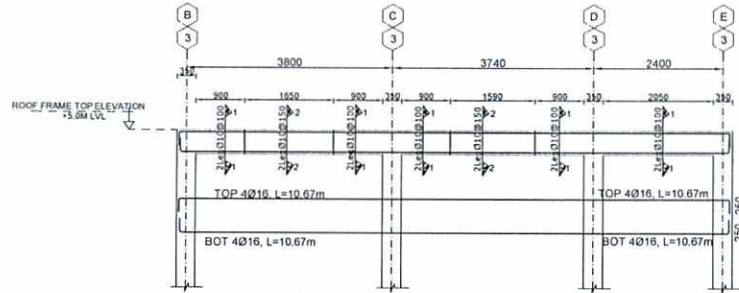
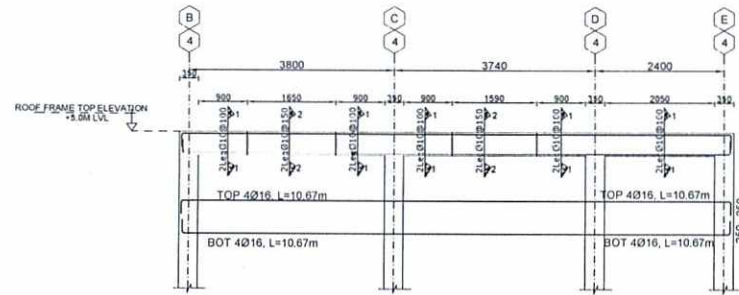
(Signature)

No.	Submission Description	Date
01	For Construction	1403/04/15
02		
03		
04		
05		

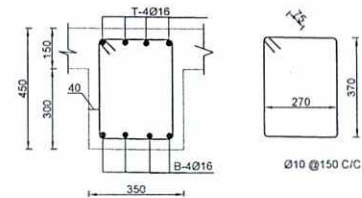
Contract No:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCB
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1:00

SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
BEAM ELEVATION AND SECTION

Sheet
Reference
Number
S-201



02 | BEAM SECTION
S-202 | REF: SCALE: 1:10



03 | BEAM SECTION
S-202 | REF: SCALE: 1:10

NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETER
UNLESS OTHERWISE NOTED.
2. GRADE OF REBAR = $f_y = 60 \text{ Ksi} = 4180 \text{ Kg/cm}^2$
3. GRADE OF REINFORCED CONC. = $f'_c = 4000 \text{ psi} = 280 \text{ Kg/cm}^2$

01 | BEAM ELEVATION
S-202 | REF: SCALE: 1:50



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Checked By: Noorhuda Haqani
Approved by: M. Musa Essauzi
Visa Committee:

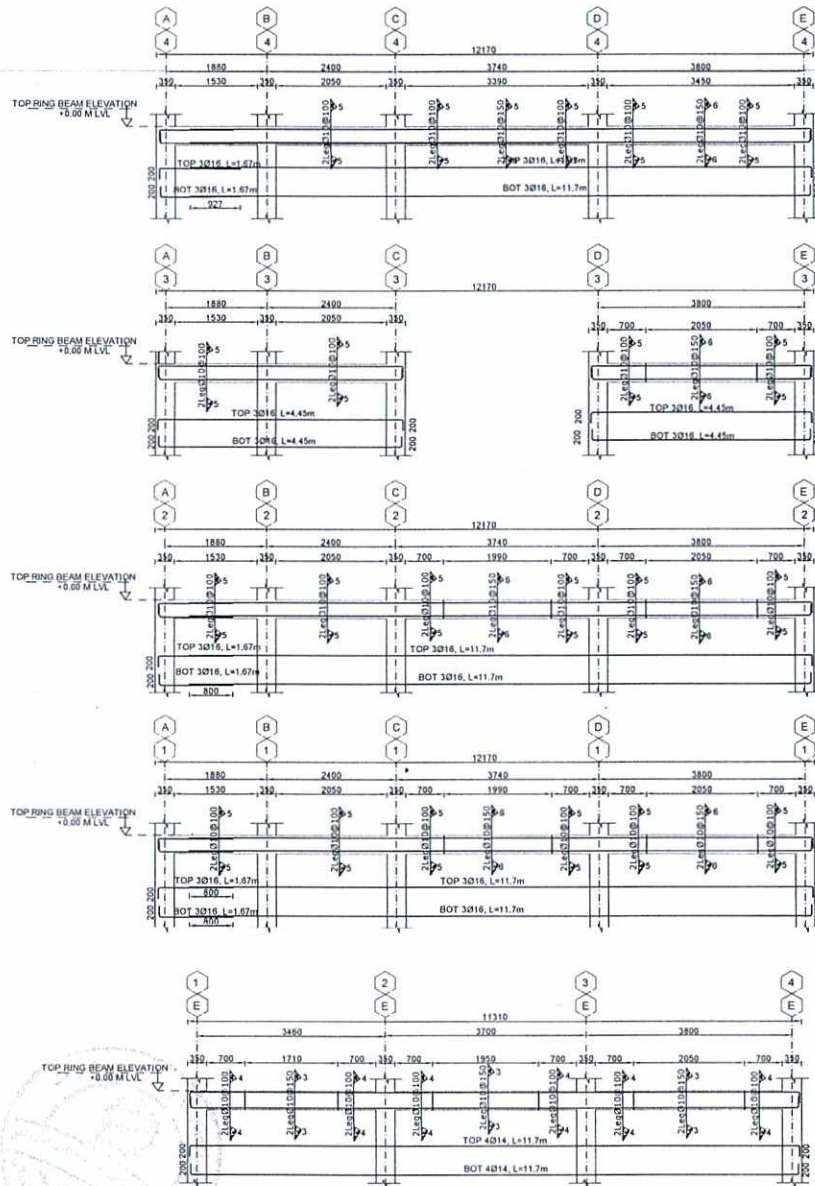
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No. Submission Description Date:
(01) For Construction 1403/04/15
(02)
(03)
(04)
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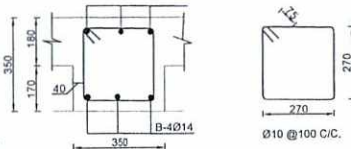
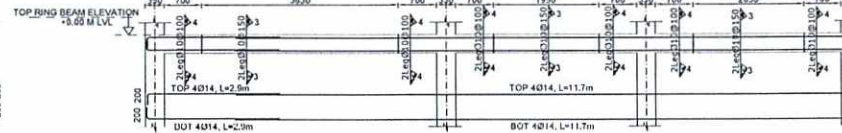
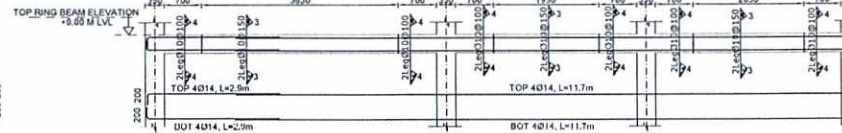
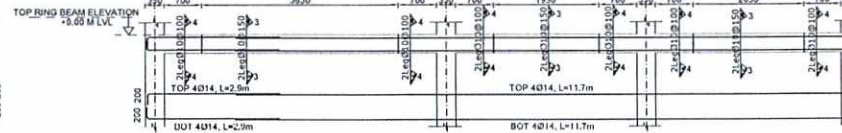
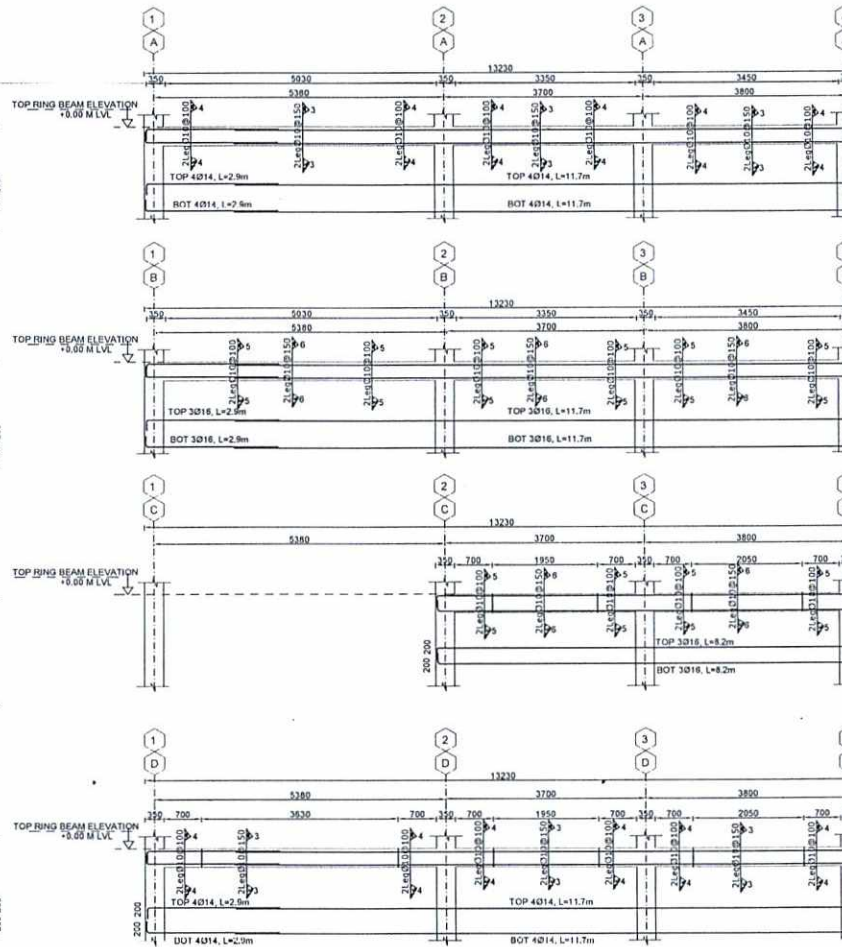
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SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
BEAM ELEVATION AND SECTION

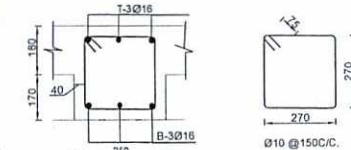
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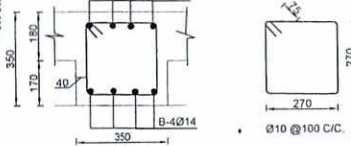
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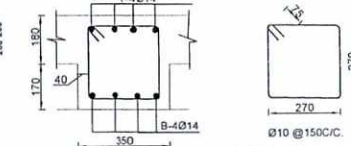
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03 | GRADE BEAM SECTION (6-6)
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04 | GRADE BEAM SECTION (4-4)
S-2031 REF. SCALE: 1:10



05 | GRADE BEAM SECTION (3-3)
S-2031 REF. SCALE: 1:10

- NOTE :
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE NOTED.
 2. GRADE OF REBAR = $f_y = 60 \text{ Ksi} = 4180 \text{ Kg/cm}^2$
 3. GRADE OF REINFORCED CONC. = $f_c = 4000 \text{ psi} = 280 \text{ Kg/cm}^2$



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Approved by: M Musa Essazi

Signature of M. Musa Essazi

No. (01) For Construction
Date: 1403/04/15

Contract No.
Contract Date: 1403/1445
Fiscal Year: SDCB
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Plot Date: 1403/04/09
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AOP
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POWER PLANT BUILDING
GRADE BEAM ELEVATION

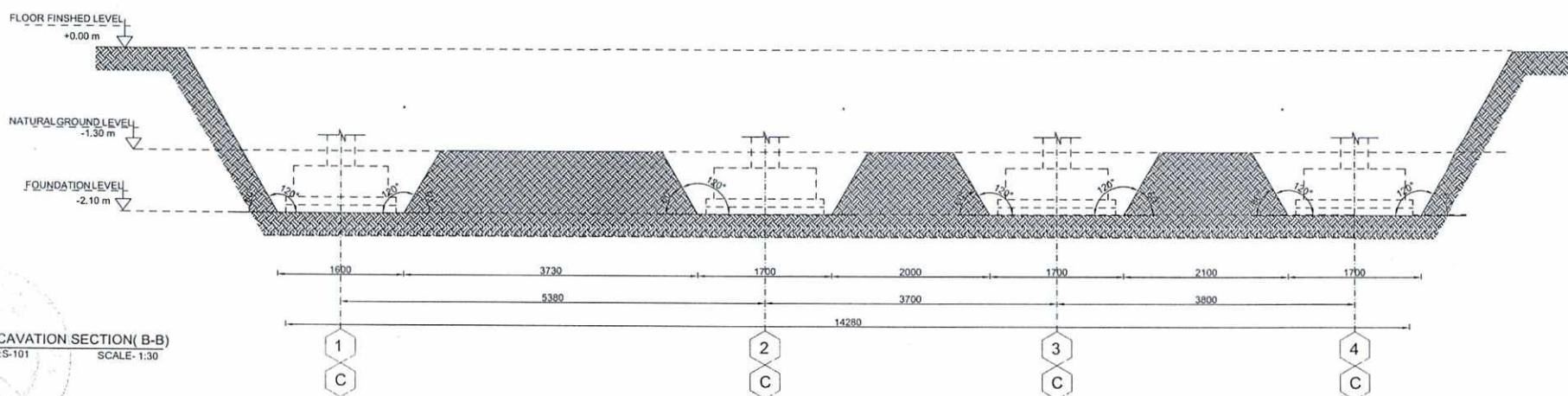
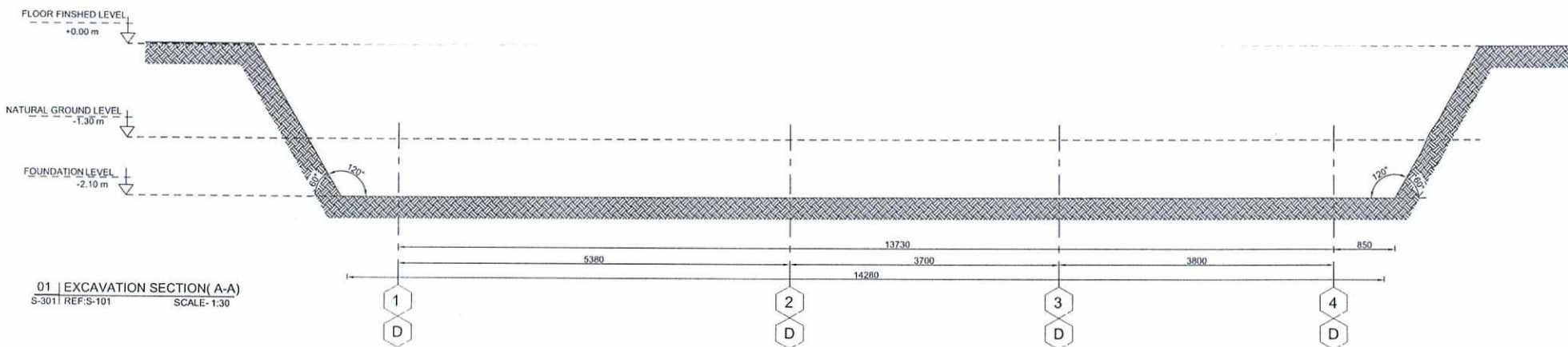
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Reference
Number
S-203

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Checked By: Noorulhuda Haqani
Approved by: M. Musa Essazai

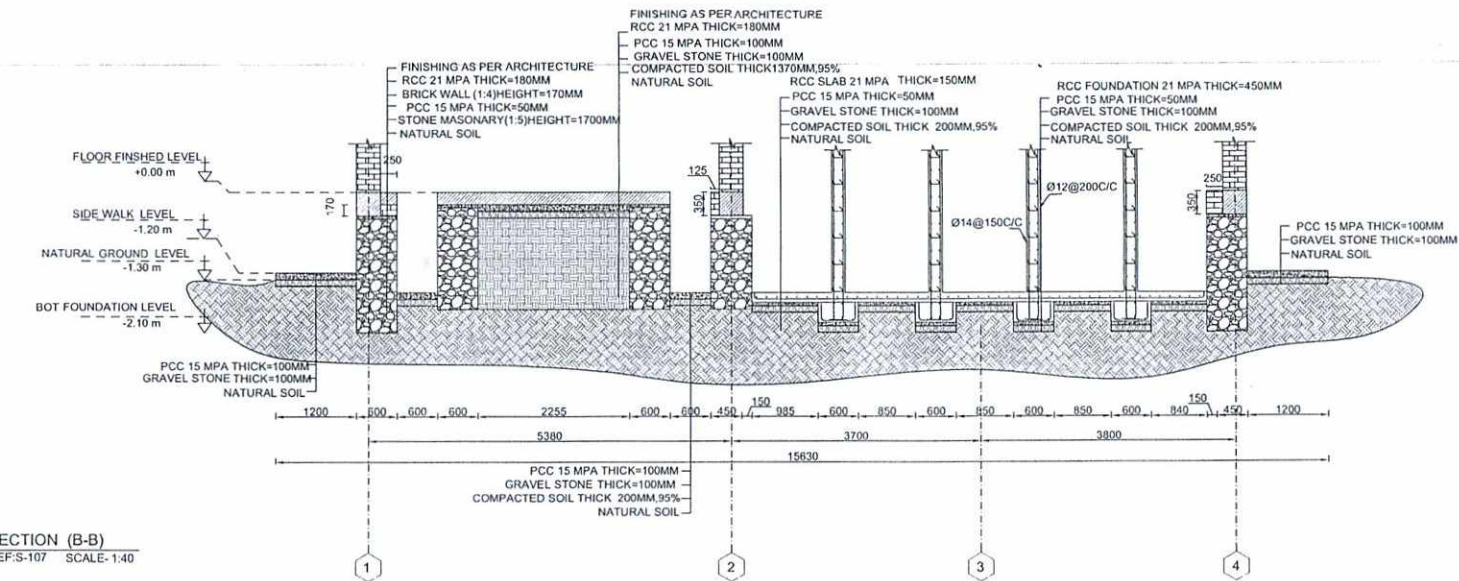
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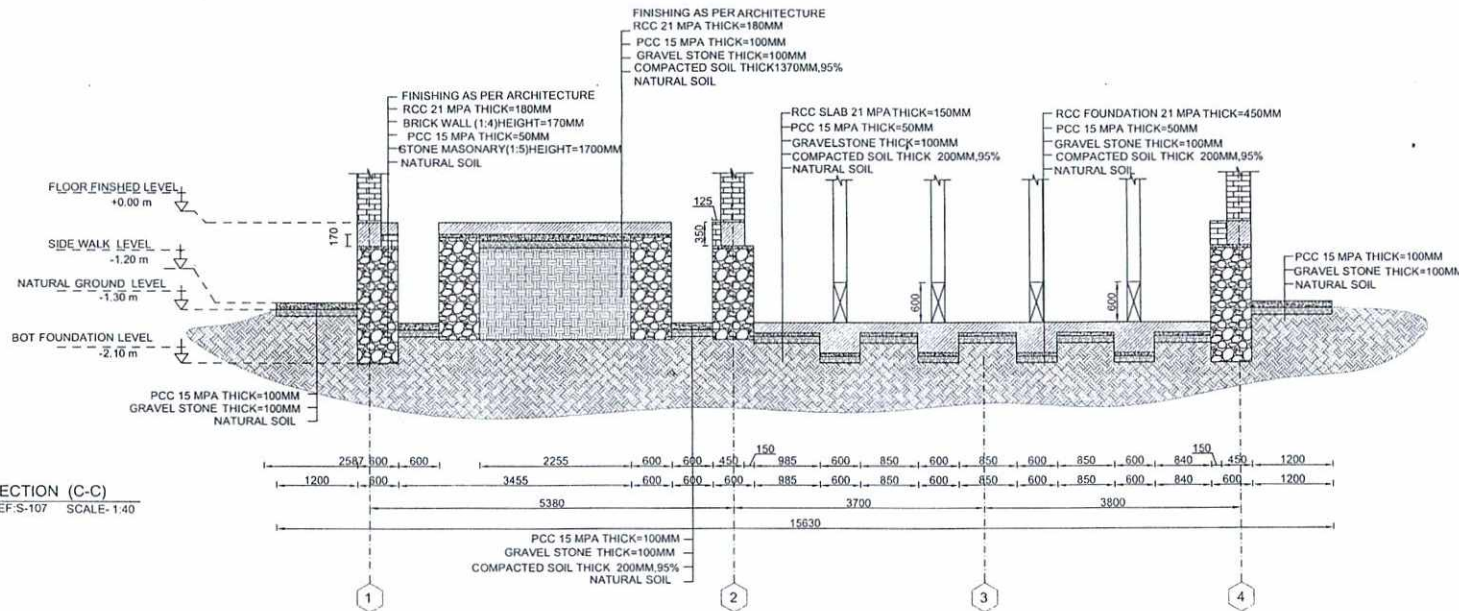
SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
EXCAVATION SECTIONS

Sheet Reference Number
S-301

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S-302 | REF: S-107 SCALE: 1:40



02 | SECTION (C-C)
S-302 | REF: S-107 SCALE: 1:40



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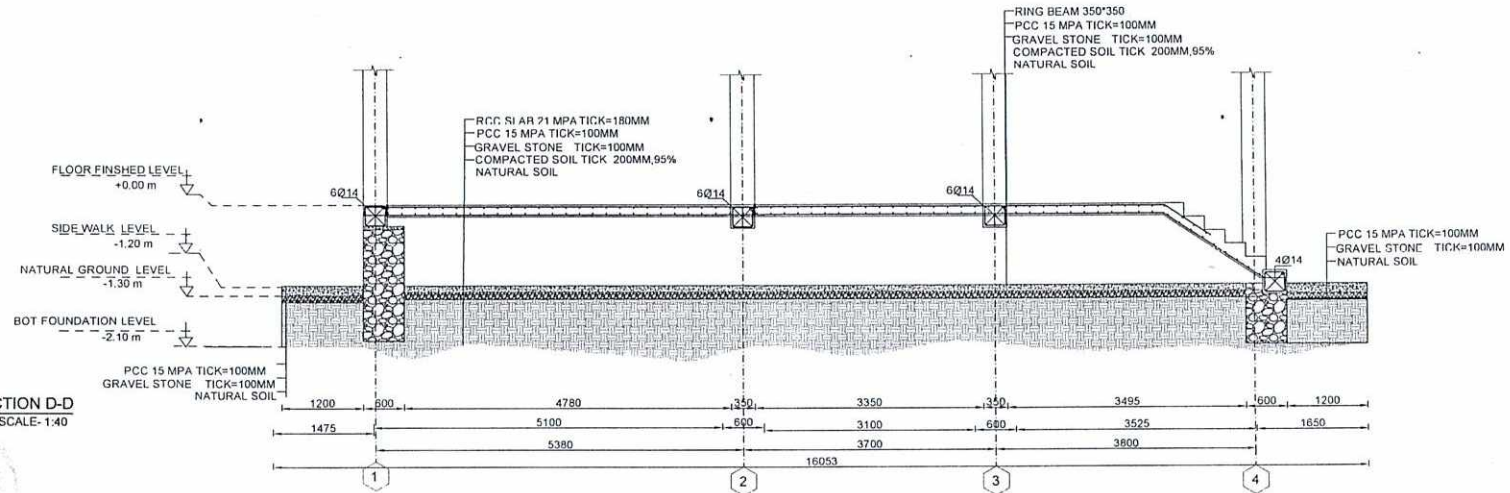
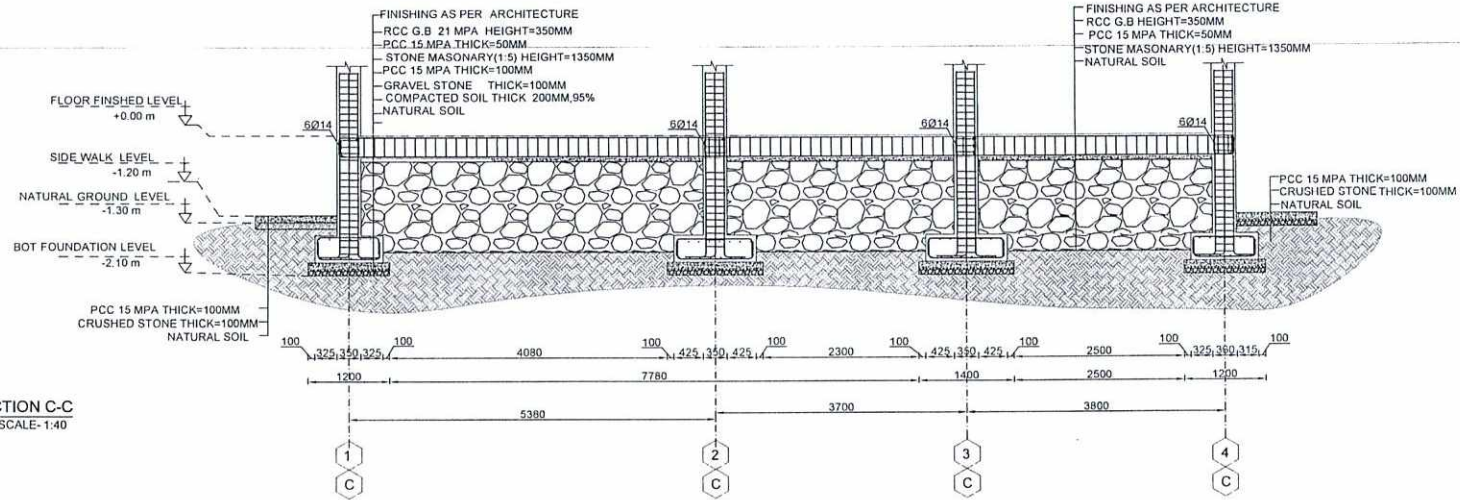
Designed by: Mutasim Billah Jarar
Drawn by: Mutasim Billah Jarar
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Head of Department:
Approved by: M.Musa Essazai
Visa Committee:

No. Submission Description: Date:
(01) For Construction 1403/04/15
(02)
(03)
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Contract No:
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Drawn Code: SDCB
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1:00

SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
SECTIONS

Sheet Reference Number
S-302



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No. Submission Description Date

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(02)

(03)

(04)

(05)

Contract No

Contract Date:

Fiscal Year: 1403/1445

Drawn Code: SDCB

Paper Size: A3

Plot Date: 1403/04/09

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SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
FOUNDATION SECTION C-C

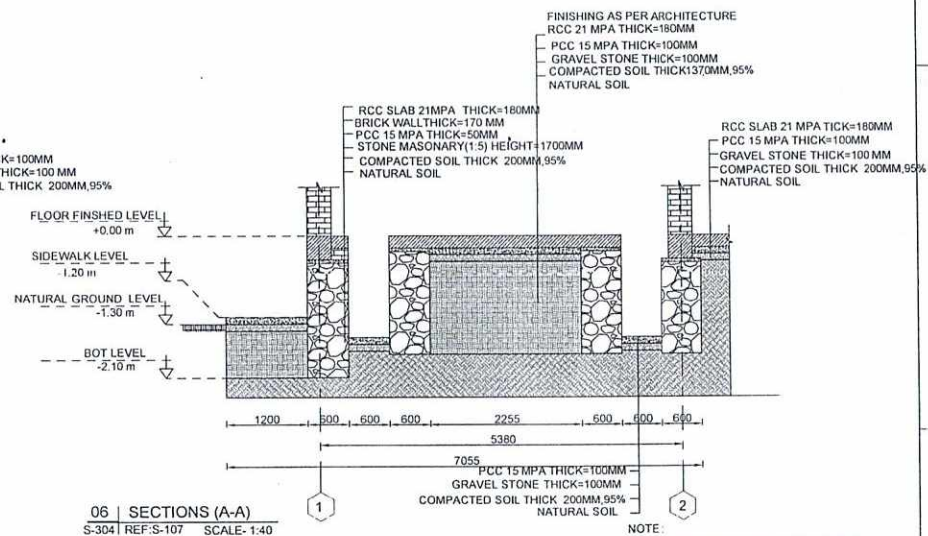
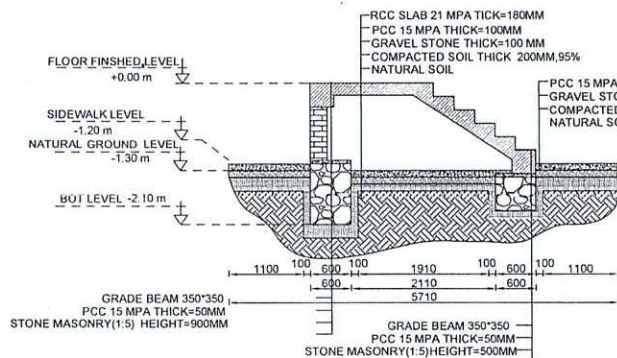
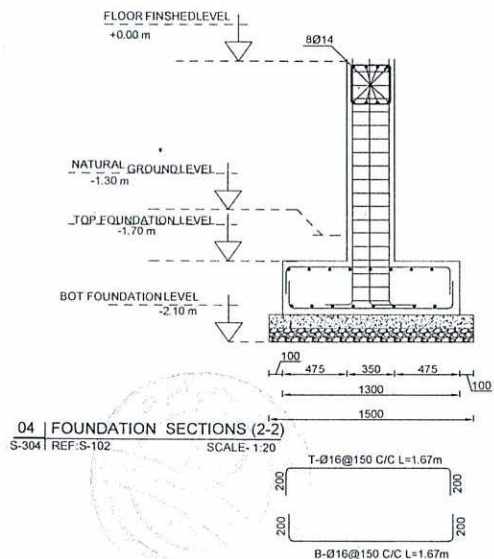
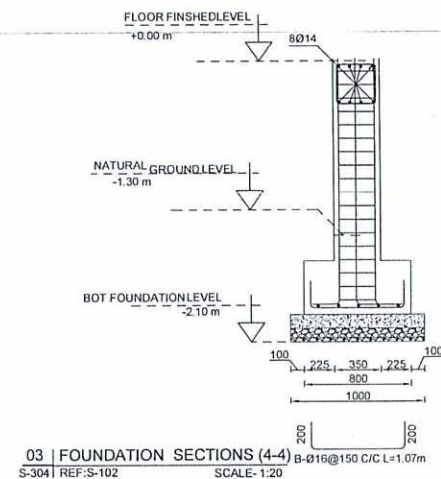
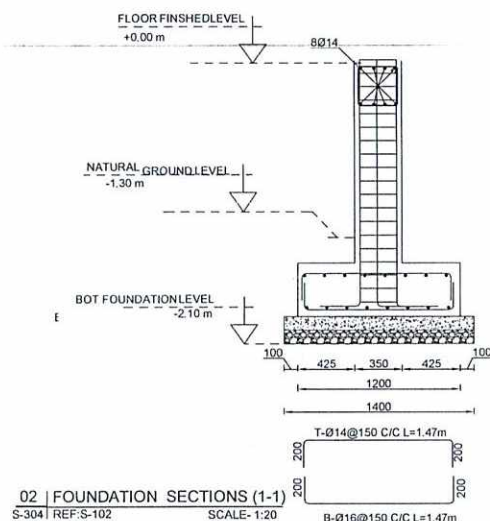
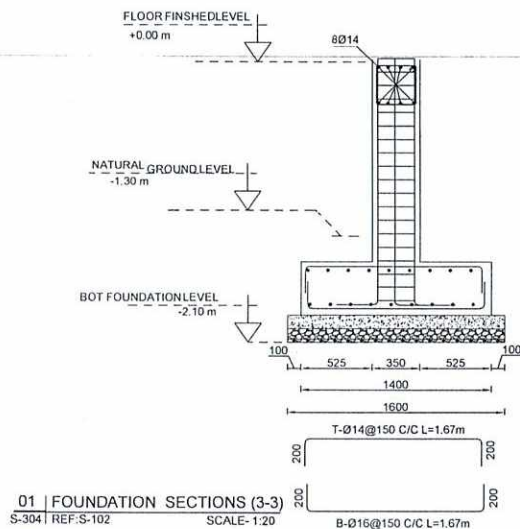
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- NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE NOTED.
 2. GRADE OF REBAR = fy = 60 Ksi = 4180 Kg/cm²
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No. Submission Description Date
(01) For Construction 1403/04/15
(02)
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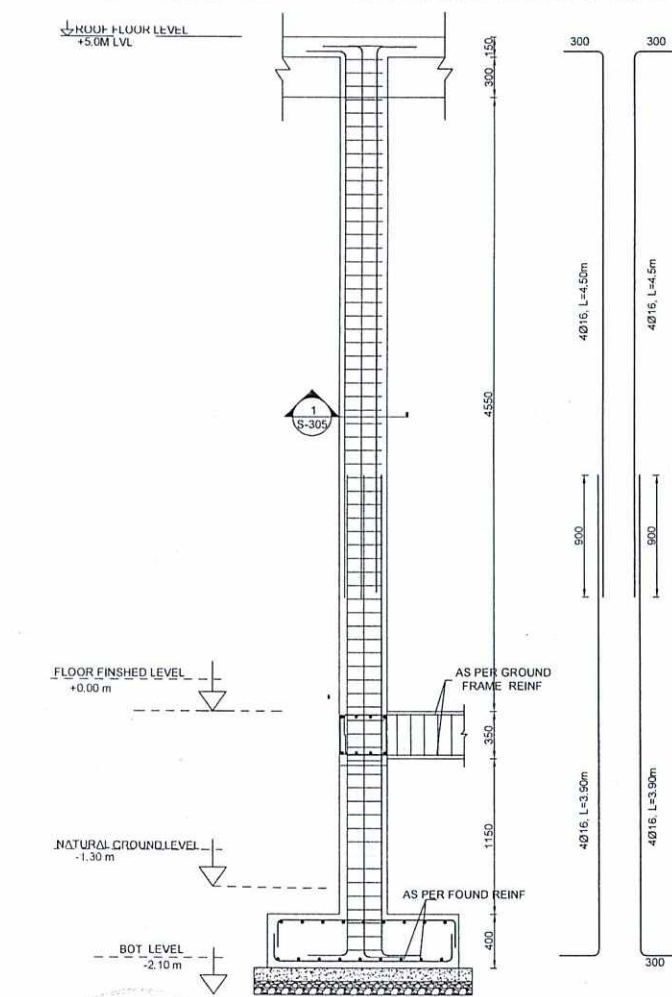
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Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCB
Paper Size: A3
Plot Date: 1403/04/09
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SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
FOUNDATION SECTIONS

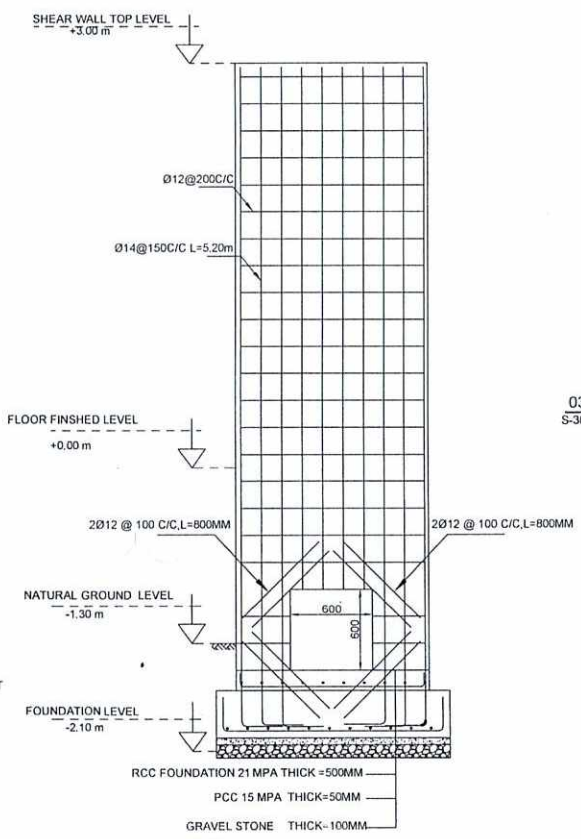
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S-304

D
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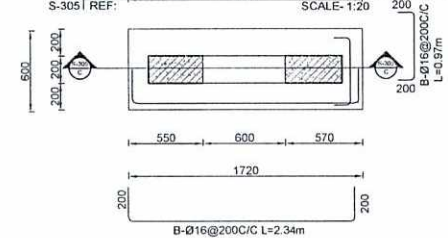
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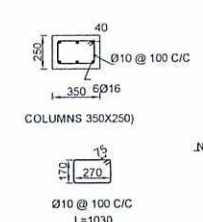
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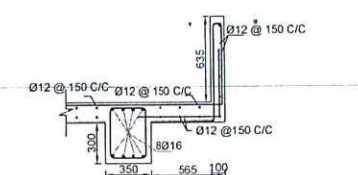
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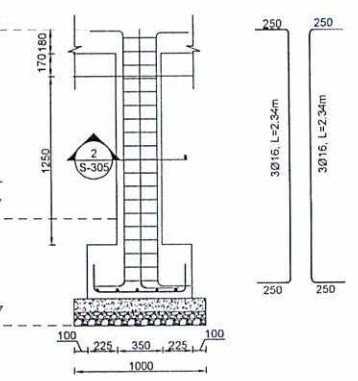
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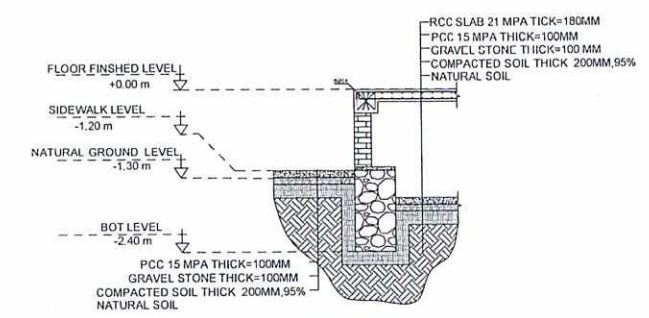
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05 | PARAPET WALL REINFORCEMENT DETAILS
S-305 | REF: SCALE: 1:20



06 | COLUMN REINFORCEMENT DETAILS (C2)
S-305 | REF: SCALE: 1:20



05 | SECTION (B-B)
S-305 | REF: S-107 SCALE: 1:40



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(01) For Construction 1403/04/15
(02)
(03)
(04)
(05)

Contract No:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCB
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1:00

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AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
COLUMN ELEVATION AND SECTION

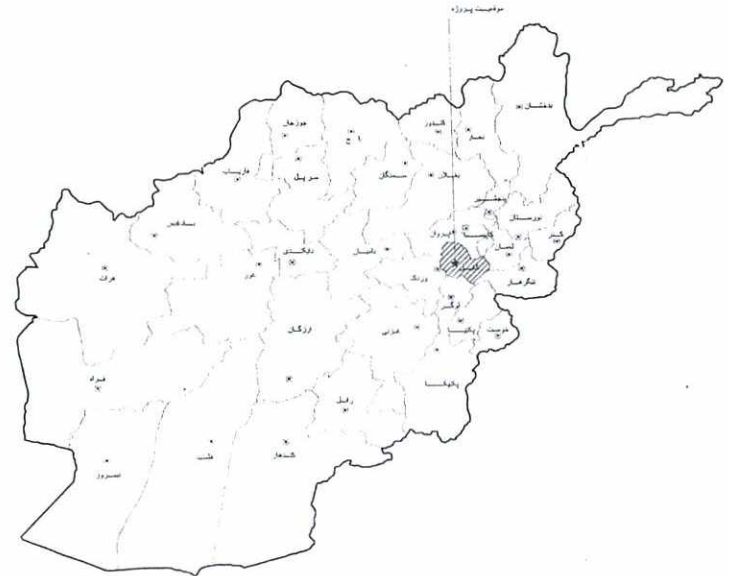
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S-305



د افغانستان اسلامي امارت

امارت اسلامی افغانستان
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آمریت برق

نقشه های برق
تعمیر کمپلکس ریاست خدمات
برج برق ساحه ۰۵
کابل - افغانستان



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01	INDEX
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امارت اسلامی افغانستان
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معاونت مالی و اداری
ریاست طرح و دبیران امور ساختمان
امریت برق

رہائست عمومی ادارہ امور

معاونیت مالی و اداری

ریاست طرح و دیزاین امور ساختمانی

• امریت ہرق

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Checked By Head of Department	Summer Gull
Approved by Visa Committee.	Jawed Hamad

Drawn by: Noor Ahmad

Checked By	Summer Gull
Head of Department	

Approved by Visa Committee:	Jawed Hammad
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No.	Submission Description	Date:
01	For Construction	1403/04/15
02		
03		
04		
05		

Contract No.	
Contract Date	
Fiscal Year	1403/1445
Drawn Code:	SDCB
Paper Size:	A3
Plot Date	1403/04/09
Scale:	1:300

Contract Date	
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SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN

POWER PLANT BUILDING
INDEX

AOP
KABUL PROVINCE, AFGHANISTAN

POWER PLANT BUILDING
INDEX

Sheet
Reference
Number
G-001

GENERAL NOTES:

ELECTRICAL NOTES

- ALL WIRES SHALL BE INSTALLED INSIDE PVC CONDUITS SCHEDULE 40 CONCEALED IN WALLS, FLOOR AND CEILINGS, UNLESS OTHERWISE SPECIFIED.
- EMERGENCY LIGHTS AND EXIT LIGHTS SHALL BE CONNECTED TO THE UN-SWITCHED PORTION OF THE AREA LIGHTING BRANCH CIRCUIT.
- ALL WORKS, AND INSTALLATIONS RELATED TO THE ELECTRICAL SYSTEMS SHALL BE DONE IN COORDINATION WITH THE PROJECT ELECTRICAL ENGINEER.
- ALL ELECTRICAL DEVICES AND EQUIPMENT TO BE PROVIDED SHALL BE 220/380V, 50 Hz.
- ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL LOCAL CODES HAVING JURISDICTION. ALL EQUIPMENT, DEVICES, AND MATERIAL SHALL BE IEC REQUIREMENT MANUFACTURED.
- ELECTRICAL PLANS ARE DIAGRAMMATIC. DO NOT SCALE DRAWINGS.
- SEE REFLECTED CEILING PLAN FOR EXACT LOCATION OF LIGHT FIXTURES.
- LIGHTING FIXTURES INSTALLED IN SUSPENDED CEILINGS SHALL BE SUPPORTED DIRECTLY FROM THE BUILDING STRUCTURE.
- ALL EMPTY CONDUIT RUNS IN EXCESS OF 80 CM. SHALL BE PROVIDED WITH A PULL WIRE OF FISH TAPE/CORD.
- OPENINGS IN EXISTING BUILDING STRUCTURE FOR PASSAGE OF CONDUITS/CABLES SHALL NOT BE CUT UNTIL THE CONTRACTOR HAS ASKED FOR AND RECEIVED WRITTEN APPROVAL FROM THE ARCHITECT.
- THE LIGHTING FIXTURES SHALL BE FURNISHED AND INSTALLED COMPLETELY WITH ALL ACCESSORIES (INCLUDING LAMPS) BY THE ELECTRICAL CONTRACTOR.
- CONDUCTORS SHALL BE INSTALLED CONTINUOUS BETWEEN DEVICES, WITH SPLICES LOCATED ONLY IN JUNCTION BOXES OR IN CABINETS. CONDUCTORS SHALL BE OF SUFFICIENT LENGTH TO REACH THE FARTHEST TERMINAL IN PANELS.
- PROVIDE AN UPDATED TYPE WRITTEN PANEL DIRECTORY IN EACH PANEL AFTER COMPLETION OF WORK.
- PROVIDE CORD AND PLUG TO ALL ELECTRIC WATER HEATER AND TO PROVIDE RECEPTACLE TO MATCH THE SUPPLIED CORD AND PLUG.
- COLOR CODES FOR THE PROJECT WILL BE IEC AND MUST BE COMPLIED WITH IN ELECTRICITY INSTALLATION.
- MATERIAL AND EQUIPMENT INSTALLED UNDER THIS CONTRACT SHALL BE FOR THE APPROPRIATE APPLICATION AND INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- MAJOR COMPONENTS OF EQUIPMENTS SHALL HAVE THE MANUFACTURER'S NAME, ADDRESS, TYPE OR STYLE, VOLTAGE AND CURRENT RATING, AND CATALOG NUMBER ON A NON-CORROSIVE AND NON HEAT SENSITIVE PLATE, SECURELY ATTACHED TO THE EQUIPMENT. ALL EQUIPMENT DELIVERED AND PLACED IN STORAGE, PRIOR TO INSTALLATION, SHALL BE PROTECTED FROM THE WEATHER, HUMIDITY AND TEMPERATURE VARIATION, DIRT AND DUST, AND ANY OTHER CONTAMINANTS. ALL EQUIPMENT SHALL BE IN NEW CONDITION, UNDAMAGED AND UNUSED.
- THE PHRASE "PB-XX-M" ON CIRCUITS IN ELECTRICAL DRAWINGS SPECIFY THAT :
 - m :THE NUMBER OF THE CIRCUIT.
 - PB-XX :NUMBER OF THE PANEL/DISTRIBUTION BOARD THAT THE CIRCUIT IS ORIGINATE FROM.

EQUIPMENT SPECIFICATIONS

WIRING DEVICES

- MOUNTING HEIGHT OF SWITCHES 1200mm AFF UNLESS OTHERWISE NOTED.
- MOUNTING HEIGHT OF RECEPTACLES AND TELEPHONE/DATA OUTLETS 450mm AFF UNLESS OTHERWISE NOTED.
- MOUNTING HEIGHT OF TELEPHONE TERMINAL CABINET (COM) 1800mm FROM THE TOP OF CABINET TO FLOOR.
- MOUNTING HEIGHT OF ELECTRICAL PANELS 1800mm A.F.F. TO THE TOP OF THE PANEL.
- DATA CABLE SHALL BE CAT 6, 4 PAIRS AND TELEPHONE CABLE CAT 5, 4 PAIRS.
- FOR EXACT LOCATION OF MECHANICAL EQUIPMENT REFER TO MECHANICAL DESIGN DRAWINGS.
- THE GROUNDING RESISTANCE SHALL BE NO HIGHER THAN 25 OHMS, EXCEPT IN THE GENERATOR, UPS AND EQUIPMENT ROOM SHALL BE 5 OHMS MEASURED MIN OF 48 HRS AFTER RAINFALL, ADDITIONAL RODS SHOULD BE USED TO ACHIEVED THE REQUIRED RESISTANCE.
- ALL EXTERNAL ELECTRICAL PVC CONDUIT ARE UNDER GROUND MIN AT 800mm.
- ALL PANEL BOARDS SHALL BE RATED FOR A MINIMUM 25 KAIC UNLESS OTHERWISE NOTED ON THE DRAWING.
- SOCKETS (WATER PROOF) SHALL BE MOUNTED AT 1200mm AFF IN ALL WET/DUMP AREAS AND CONNECTED TO RCD CIRCUIT BREAKER, THE TRIP SETTING OF THE RCD CIRCUIT BREAKER SHALL BE 10mA OR LESS.
- UNDER GROUND DISTRIBUTION SYSTEM WILL USE SCHEDULE 40 PVC CONDUIT UNDER ROADWAYS AND HIGH TRAFFIC AREAS ENCASE IN CONCRETE.
- ALL DIRECT BURIED PVC CONDUIT SHOULD BE SCHEDULE 80.

RACEWAY

- MINIMUM SIZE OF THE CONDUIT SHALL BE 20MM PVC, SCHEDULE 40 AND ALL INTERNAL WIRING SHOULD BE CONCEALED.
- PROVIDE FLEXIBLE CONDUIT FOR MOTOR CONNECTIONS, AND FOR OTHER ELECTRICAL EQUIPMENT CONDITIONS, WHERE SUBJECT TO MOVEMENT AND VIBRATION 1800MM MAXIMUM LENGTH. PROVIDE LIQUID TIGHT FLEXIBLE CONDUIT FOR CONNECTION OF MOTOR AND FOR OTHER ELECTRICAL EQUIPMENT WHERE SUBJECT TO MOVEMENT AND VIBRATION, WHERE SUBJECT TO ONE OR MORE OF THE FOLLOWING CONDITIONS, UNLESS NOTED OTHERWISE:
 - MOIST AND HUMID ATMOSPHERE WHERE CONDENSATE CAN BE EXPECTED TO ACCUMULATE.
 - CORROSIVE ATMOSPHERE.
 - SUBJECT TO DRIPPING OIL, GREASE OR WATER.
- ALL METAL CONDUITS SHALL BE GROUNDED PER NEC. CONDUITS ENTERING THE OUTLET BOXES, PANEL CABINETS ETC. MUST BE FITTED WITH A DOUBLE LOCKNUT AND BUSHING.

WIRES AND CABLES

- ALL WIRE AND CABLE SHALL BE COPPER WITH THHN/THWN INSULATION AND ALL WIRE SIZES ARE BASED ON COPPER CONDUCTORS WITH 75°C INSULATION UNLESS INDICATED OTHERWISE. ALL CONNECTORS, LUGS, ETC. SHALL BE LISTED FOR 75°C.
- CONDUCTORS INSTALLED UNDERGROUND OR IN THE WET LOCATIONS SHALL BE SUITABLE FOR WET LOCATIONS PER NEC.
- ALL WIRE SHALL BE SINGLE CORE.
- MINIMUM SIZE OF CONDUCTOR SHALL BE 2.5 SQ.MM.
- CONDUCTOR 4 SQ.MM AND SMALLER SHALL BE SOLID, CONDUCTOR 6 SQ.MM AND LARGER SHALL BE STRANDED.

PANEL BOARDS:

- PANELBOARD BUSBARS SHALL BE COPPER.
- PANEL BOARD ENCLOSURES: PROVIDE GALVANIZED SHEET CABINET, CODE - GAUGE, GUTTERS, PROVIDE FRONTS WITH ADJUSTABLE TRIM CLAMPS, AND DOORS WITH CONCEALED PIANO DOOR HINGES AND DOOR SWINGS AS INDICATED. EQUIPMENT WITH INTERIOR CIRCUIT-DIRECTORY FRAME AND CARD WITH CLEAR PLASTIC COVERING. PROVIDE BAKED GRAY ENAMEL FINISH OVER A RUST INHIBITOR COATING. DESIGN ENCLOSURES FOR RECESSED MOUNTING. PROVIDE ENCLOSURES WHICH ARE FABRICATED BY SAME MANUFACTURES AS PANEL BOARDS WHICH MATE AND MATCH PROPERLY WITH PANEL BOARD TO BE ENCLOSED.
- CABINETS FOR DISTRIBUTION PANELS SHALL HAVE 6 cm OF GUTTER SPACE ON ALL SIDES AROUND PANEL BOARDS AND LIGHTING PANELS HAVE A MINIMUM OF 5 cm ON ALL SIDES AROUND PANEL BOARD.
- ALL PANEL BOARDS SHALL BE EQUIPPED WITH COMMON KEY LOCKS. PROVIDE MINIMUM OF ONE KEY PER PANEL PLUS (6) SPARES.
- NEW PANEL BOARDS SHALL BE AS INDICATED ON THE DRAWINGS, MOLDED CASE CIRCUIT BREAKERS AND COPPER BUS BARS. CIRCUIT BREAKERS AND INTERIORS SHALL BE OF THE SAME MANUFACTURER. THE PANEL BOARD SHALL COMPLY WITH ALL APPLICABLE STANDARDS.

ELECTRICAL BOXES AND FITTINGS

- ALL BOXES AND FITTINGS SHALL BE PLASTIC BOXES.
- JUNCTION AND PULL BOXES: PROVIDE PLASTIC JUNCTION AND PULL BOXES.
- PROVIDE WEATHERPROOF OUTLETS FOR INTERIOR AND EXTERIOR LOCATIONS EXPOSED TO WEATHER OR MOISTURE.

FIRE ALARM NOTES

- PROVIDE FIRE ALARM SYSTEM ON DESIGN-BUILD DRAWING.
- ALL DEVICES AND EQUIPMENT FOR THIS SYSTEM SHALL CONFORM TO THE APPLICABLE SECTIONS OF NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 72 AND 90A.
- THE INSTALLATION SHALL BE IN ACCORDANCE WITH ALL REQUIREMENTS OF NFPA 72, THE NATIONAL ELECTRICAL CODE (NEC), AND AED REQUIREMENTS.
- UPON COMPLETION, THE SYSTEM SHALL BE THOROUGHLY TESTED BY THE CONTRACTOR TO ASSURE PROPER INTERFACING OF ALL COMPONENTS.
- ALL WIRING FOR THE FIRE DETECTION AND ALARM SYSTEM SHALL BE RUN IN CONDUIT BY THE CONTRACTOR. ALL FIRE ALARM JUNCTION BOX COVERS SHALL BE PAINTED RED BY THE CONTRACTOR OR STENCILED FOR DISTINCT IDENTIFICATION. ALL CONDUIT, DEVICE MOUNTING BOXES, JUNCTION BOXES, AND PANELS SHALL BE SECURELY FASTENED BY THE CONTRACTOR WITH APPROPRIATE FITTINGS TO INSURE A POSITIVE GROUND THROUGHOUT THE ENTIRE SYSTEM.
- ALL CONNECTIONS TO PANELS, DEVICES, AND DETECTORS SHALL BE MADE WITH CRIMP TYPE SPADE TERMINAL CONNECTORS. SPLICES IN STATION CIRCUITS SHALL BE MADE ONLY IN JUNCTION BOXES AND SHALL BE CRIMP CONNECTED.
- ALL WIRING SHALL BE CHECKED AND TESTED BY THE CONTRACTOR TO INSURE THE SYSTEM IS FREE FROM GROUNDS, OPENS, AND SHORTS.



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No.	Submission Description:	Date:
(01)	For Construction	1403/04/15
(02)		
(03)		
(04)		
(05)		

Contract No	
Contract Date:	
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SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
GENERAL NOTES

Sheet
Reference
Number
EG-500

LEGENDS

LIGHT FIXTURE SCHEDULE:		
FIXTURE SYMBOLS	DESCRIPTION	MODULE
	36 WATTS, 600X800MM SURFACE MOUNTED LED LIGHTING FIXTURE, DIFFUSER COVER, COLOR TEMPERATURE (K*) IS 4000, 220-240 V, 50-60Hz.	PAMIR MODERN LIGHTING FIXTURES, CODE:PL11U22E06C, LED TYPE:2835SMD OR EQUIVALENT TYPE
	14 WATT WATER PROOF LED LIGHTING FIXTURE, 220-240 V, 50-60Hz TEMPERATURE (K*) IS 4000.	PAMIR MODERN LIGHTING FIXTURES, CODE:EAL12L15C, TYPE:2835SMD OR EQUIVALENT TYPE
	47 WATT WATER PROOF LED LIGHTING FIXTURE, 220-240 V, 50-60Hz TEMPERATURE (K*) IS 4000.	PAMIR MODERN LIGHTING FIXTURES, CODE:EAL15C04C, TYPE:2835SMD OR EQUIVALENT TYPE

SWITCHES:

S	SINGLE POLE SWITCH, 220V, 50Hz, 10A, MOUNTED AT 1200mm AFF
S _{WP}	SINGLE POLE WATER PROOF SWITCH, 220V, 50Hz, 10A, MOUNTED AT 1200mm AFF

LEGENDS

RECEPTACLES:

	SINGLE RECEPTACLE
	SINGLE RECEPTACLE WATER PROOF
	DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE WATER PROOF

GROUNDING AND LIGHTNING:

	GROUNDING ROD 3m, Ø20mm
	ELECTRODE GROUNDING CONDUCTOR
	BONDING

PANEL BOARD

	MAIN DISTRIBUTION PANEL (MDP)
	SUB DISTRIBUTION PANEL (SDP)
	PANEL BOARD (PB)
	KILOWATT METER
	VOLT METER
	AMPERE METER

IEC WIRE COLORS (60227)				
GROUND	NEUTRAL	PHASE A	PHASE B	PHASE C
YEL/GRN	BLUE	BROWN	BLACK	GRAY

ABBREVIATIONS:

A	- AMPERE
ATS	- AUTOMATIC TRANSFER SWITCH
AFF	- ABOVE FINISH FLOOR
A.F.F.L	- ABOVE FINISH FLOOR LEVEL
CU	- COPPER
E.H	- ELECTRICAL HANDHOLE
C.H	- COMMUNICATION HANDHOLE
EMM	- ELECTRIC MEDIUM VOLTAGE MANHOLE
Ø, DIA	- DIAMETER
EF	- EXHAUST FAN
EMT	- ELECTRIC METALLIC TUBING
EWH	- ELECTRICAL WATER HEATER
FACP	- FIRE ALARM CONTROL PANEL
ELEC	- ELECTRICAL
MV	- MEDIUM VOLTAGE
GRS	- GALVANIZED RIGID STEEL
HZ	- HERTZ
JB	- JOINT BOX
MECH	- MECHANICAL
mm	- MILLIMETER
MDP	- MAIN DISTRIBUTION PANEL
MAX	- MAXIMUM
M	- METER
N.F.D.S	- NON FUSED DISCONNECT SWITCH
STLF	- SINGLE TUBE(1 LAMP 36W) LIGHTING FIXTURE
SDP	- SUB DISTRIBUTION PANEL
PB	- PANEL BOARD
PMT	- PAD MOUNTED TRANSFORMER
RSC	- RIGID STEEL CONDUIT
PVC	- POLYVINYL CHLORIDE
RM	- ROOM
SF	- SUPPLY FAN
S.U	- SPLIT UNIT
TRANS	- TRANSFORMER
TTC	- TELEPHONE TERMINAL CABINET
TYP	- TYPICAL
TV	- TELEVISION
U.O.N	- UNLESS OTHERWISE NOTED
V	- VOLT
W	- WATT
WP	- WEATHER/WATER PROOF
PC	- PHOTOCCELL

01 GENERAL NOTES AND SYMBOLS



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Scale: NTS

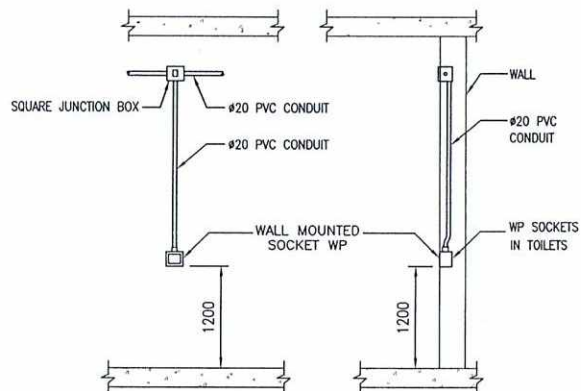
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POWER PLANT BUILDING
GENERAL NOTES AND
SYMBOLS

Sheet
Reference
Number
EG-501

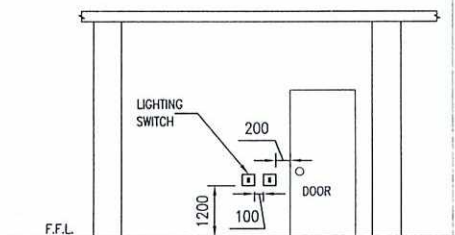
GENERAL NOTES:

- ALL DIMENSIONS ARE IN MILLIMETER.
- ALL CONCEALED CONDUITS ARE PVC TYPE.

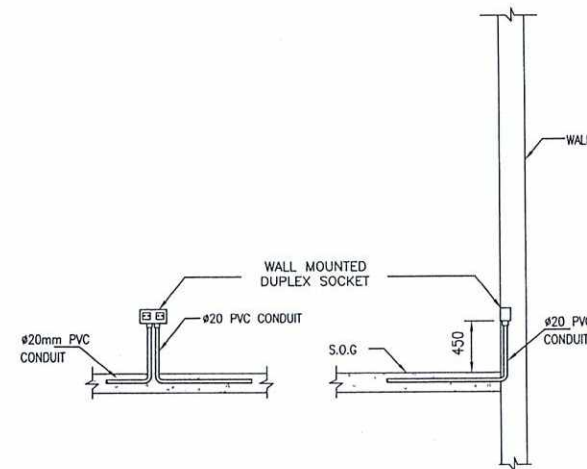
NOTE: LOCATION OF THE CONDUIT FEEDING THE FIRST SWITCH SHALL BE 100mm FROM THE DOOR OPENING.



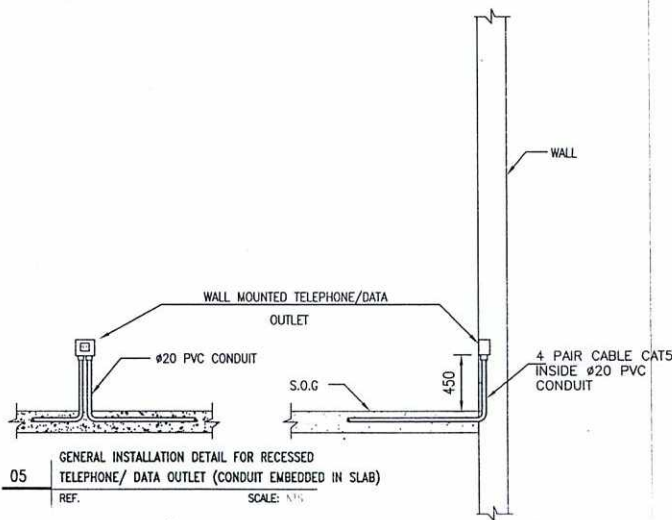
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RECESSED MOUNTED SOCKET IN TOILETS
REF. SCALE: NTS



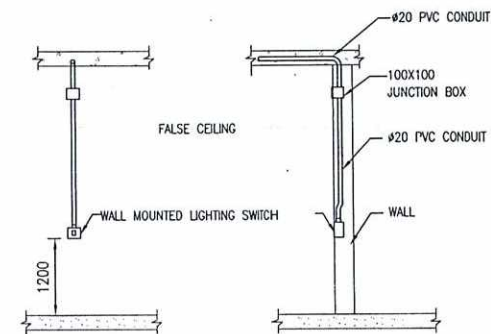
02 SWITCH MOUNTING DETAILS
REF. SCALE: NTS



03 GENERAL INSTALLATION DETAIL FOR RECESSED
SOCKET (CONDUIT EMBEDDED IN SLAB)
REF. SCALE: NTS



05 GENERAL INSTALLATION DETAIL FOR RECESSED
TELEPHONE/ DATA OUTLET (CONDUIT EMBEDDED IN SLAB)
REF. SCALE: NTS



06 GENERAL INSTALLATION DETAIL FOR
LIGHT SWITCH (CONCEALED CONDUIT)
REF. SCALE: NTS



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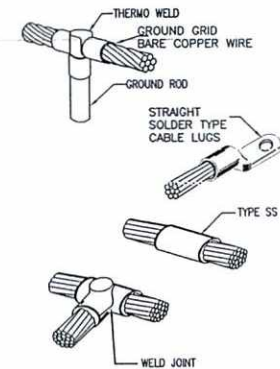
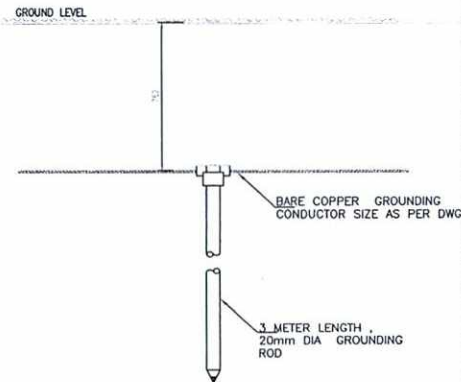
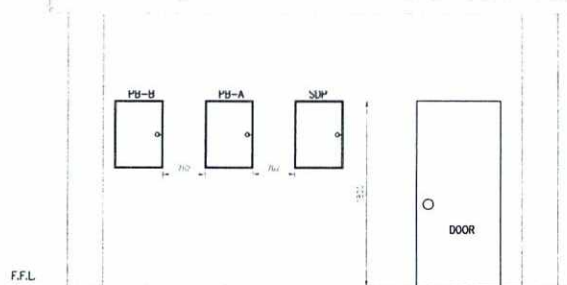
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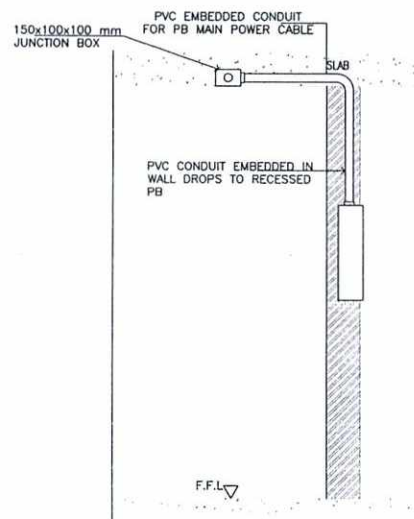
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SERVICES DIRECTORATE COMPLEX BUILDING
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KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
TYPICAL OUTLETS AND SWITCHES
MOUNTING DETAILS

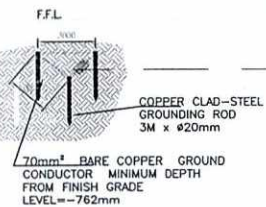
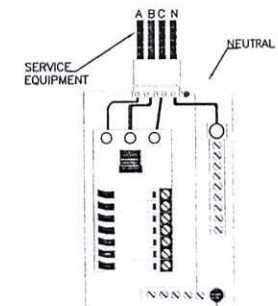
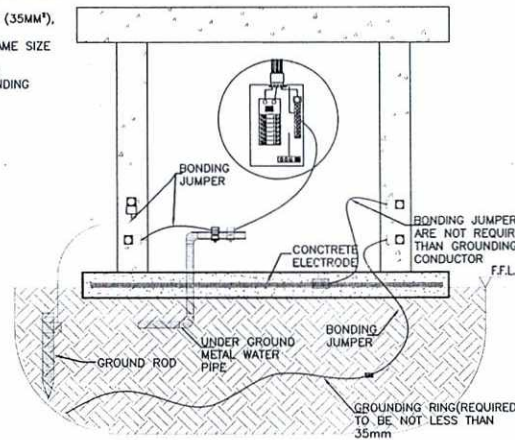
Sheet
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01 | PANEL MOUNTING DETAILS
REF. SCALE: NTS



1. A GROUNDING ELECTRODE SYSTEM THAT USES THE METAL FRAME OF A BUILDING, A GROUND RING, A CONCRETE-ENCASED ELECTRODE, A METAL UNDERGROUND WATER PIPE, AND A GROUND ROD.
2. BONDING JUMPER FOR GROUND RING SHALL BE (35MM²), BURIED AT DEPTH OF (762MM).
3. OTHER BONDING JUMPERS SHALL HAVE THE SAME SIZE OF THE GROUND CONDUCTOR FOR MDP.
4. THIS DETAIL IS ONLY FOR MAIN DISTRIBUTION BOARDS, SUB PANELS DOES NOT NEED MAIN BONDING JUMPER.



03 | TYPICAL STRUCTURAL BONDING DETAIL
REF. SCALE: NTS

02 | PANEL MOUNTING DETAILS
REF. SCALE: NTS



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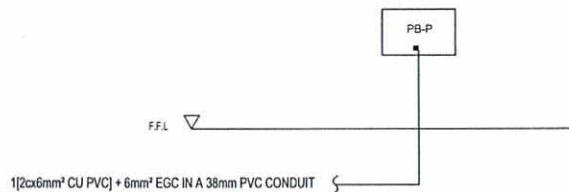
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POWER PLANT BUILDING
PANEL INSTALLATION &
GROUNDING DETAILS

Sheet
Reference
Number
EC-503

PB-P						
RECESSED MOUNTED NEMA-1				FEED FROM MDP-01		
220 VOLTS, 1 PHASE, 3 WIRE				PANEL NAME PB-P		
50 Hz PANEL BOARD				LOCATION: POWER PLANT BUILDING		
WIRE & CONDUIT	GRN WIRE	DESCRIPTION	LOAD-VA	AMP	POLE	CKT
2(1Cx2.5mm ²) Ø20mm	2.5mm ²	LIGHTING	483	16	1	1
2(1Cx2.5mm ²) Ø20mm	2.5mm ²	LIGHTING	368	16	1	2
2(1Cx4mm ²) Ø20mm	4mm ²	RECEPTACLES	720	20	1	3
2(1Cx4mm ²) Ø20mm	4mm ²	RECEPTACLES	900	20	1	4
-	-	SPARE		20	1	5
		SPACE				6
						7
						8
						9
						10
						11
						12
TOTAL CONNECTED LOAD			2.47	kVA		
TOTAL DEMAND LOAD			2.33	kVA		
25% FUTURE LOAD			0.58	kVA		
TOTAL DEMAND LOAD + 25% FUTURE LOAD			2.91	kVA		
TOTAL CURRENT			13.23	Amp		
CIRCUIT BREAKER RATING			16.54	Amp		
STANDARD CIRCUIT BREAK SIZE			25	Amp		



01 PANEL SCHEDULE
REV.

SCALE: 1:100



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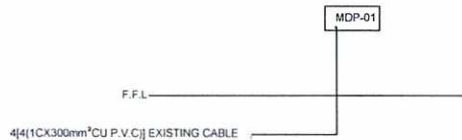
No. Submission Description: 01 For Construction
Date: 1403/04/15

Contract No.
Contract Date:
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Drawn Code: SDCB
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Scale: 1:100

SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
PANEL SCHEDULE

Sheet
Reference
Number
PP-E-601

MDP-01																		
1000 AMP MAIN BREAKER																		
FEED FROM: TRANSFORMER STATION																		
MOUNTED: SURFACE MOUNTED NEMA-1 ENCLOSURE																		
LOCATION: ELECTRICAL ROOM																		
WIRE & CONDUIT	GND WIRE	DESCRIPTION	A	B	C	AMP	POLE	CKT	A	B	C	CKT	POLE	AMP	A	B	C	DESCRIPTION
380V / 220 VOLTS, 3 PHASE, 5 WIRE																		
50Hz PANEL BOARD																		
25 KAIC FOR 0.5 SEC																		
1(4Cx95mm ²) EXISTING	EXISTING	پاسل بورد تعمیر روایط غله	0	0	0	400 (EXISTING)	3	3				4	3	250 (EXISTING)	0	0	0	پاسل بورد تعمیر خروایط
								5				6						
								7				8			0			
1(4Cx50mm ²) EXISTING	EXISTING	پاسل بورد چک دوم	0	0	0	400 (EXISTING)	3	9				10	3	250 (EXISTING)	0	0	0	پاسل بورد تفکک تیسل
								11				12						
								13				14						
1(4Cx50mm ²) EXISTING	EXISTING	پاسل بورد چک روزه	0	0	0	250 (EXISTING)	3	15				16	3	400				SPARE
								17				18						
								19				20						
1(4Cx6mm ²) EXISTING	EXISTING	پاسل بورد گدوم	0	0	0	250 (EXISTING)	3	21				22	3	250				SPARE
								23				24						
1(2Cx6mm ²) Ø38mm	6mm ²	پاسل بورد داتلی بروج برق	2565			25	1	25				26						
								27				28						
								29				30						
								31				32						
								33				34						
								35				36						
								37				38						
								39				40						
								41				42						
SUB - TOTAL			2565.00	0	0.00										0.00	0.00	0	SUB - TOTAL
TOTAL PHASE A			2565.00	VA														
TOTAL PHASE B			0.00	VA														
TOTAL PHASE C			0.00	VA														
TOTAL CONNECTED LOAD			2.57	KVA														
TOTAL DEMAND LOAD			0.00	KVA														
25% FUTURE LOAD			0.00	KVA														
TOTAL DEMAND+25% FUTURE LOAD			0.00	KVA														
TOTAL CURRENT			0.00	Amp														
CIRCUIT BREAKER RATING			0.00	Amp														
STANDARD CIRCUIT BREAKER			1000	Amp														



نوت
ظرفیت بریکر های تعمیرات موجوده به اساس سینگل لاین دیاگرام ایکه از طرف
ریاست حفظ و مرافقت رسماً ارسال گردیده بود در نظر گرفته شده.

01 PANEL SCHEDULE
REF. SCALE: 1:250



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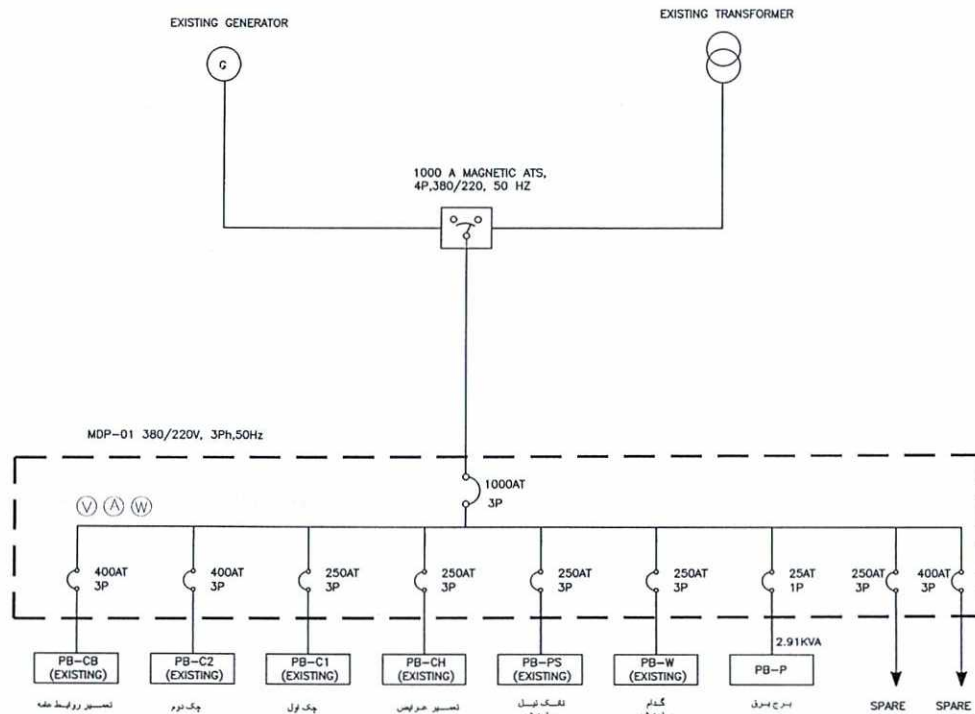
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SERVICES DIRECTORATE COMPLEX BUILDING
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POWER PLANT BUILDING
PANEL SCHEDULE

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01 SINGLE LINE DIAGRAM
REV. SCALE: NTS



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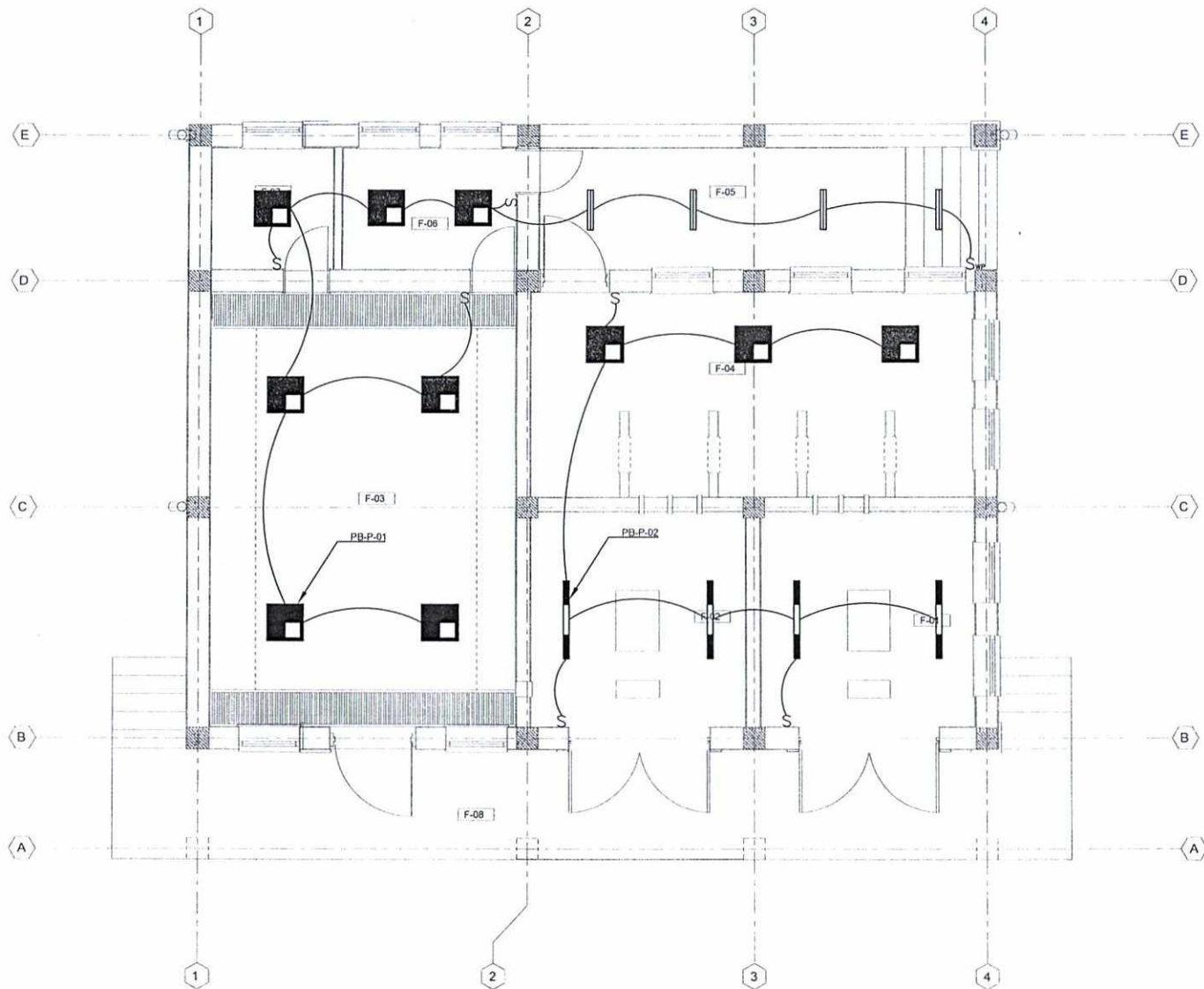
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SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
SINGLE LINE DIAGRAM

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Number
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01 LIGHTING PLAN
SCALE: 1/75



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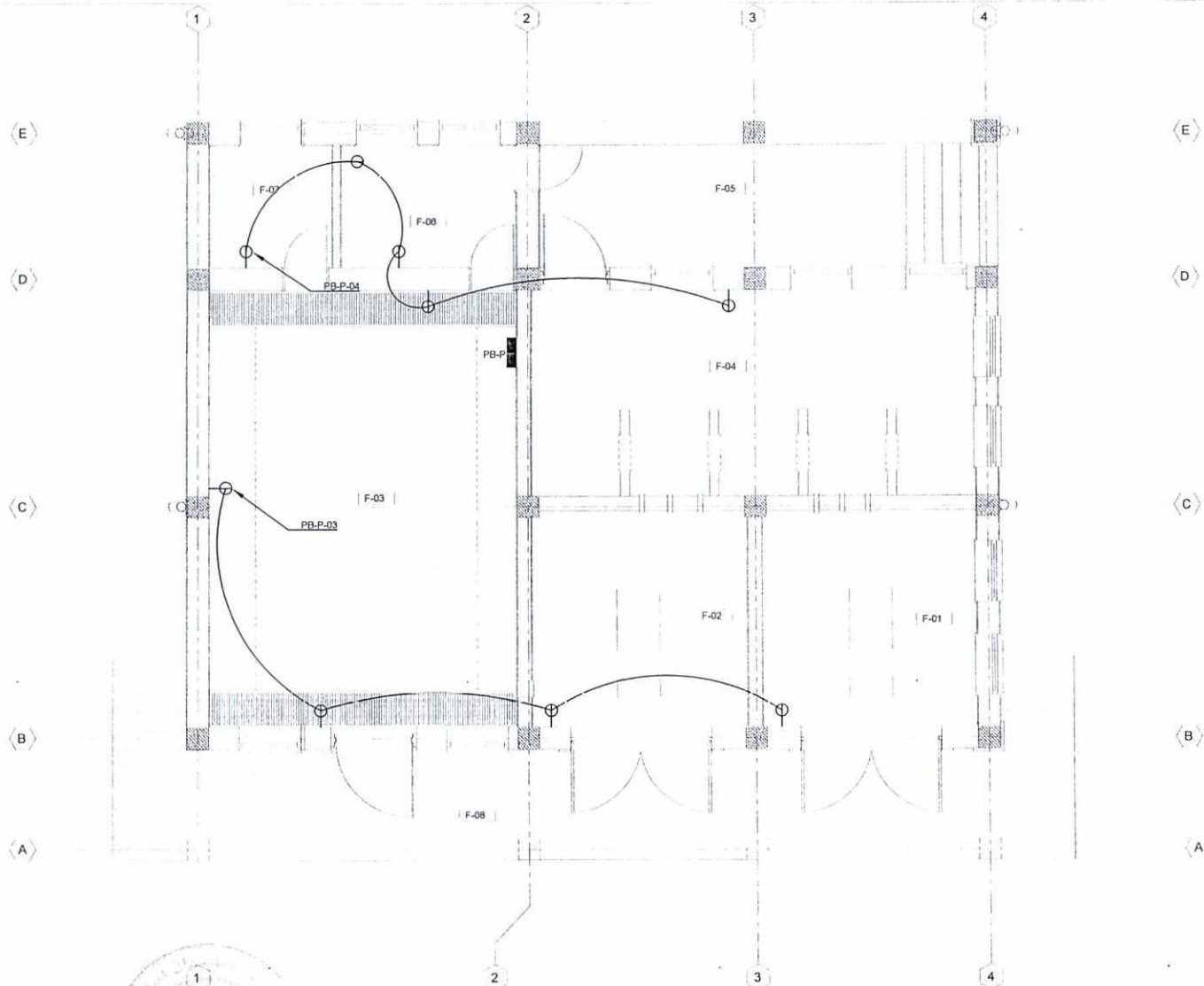
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SERVICES DIRECTORATE COMPLEX BUILDING
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KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
LIGHTING PLAN

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01 POWER PLAN
SCALE: 1:75



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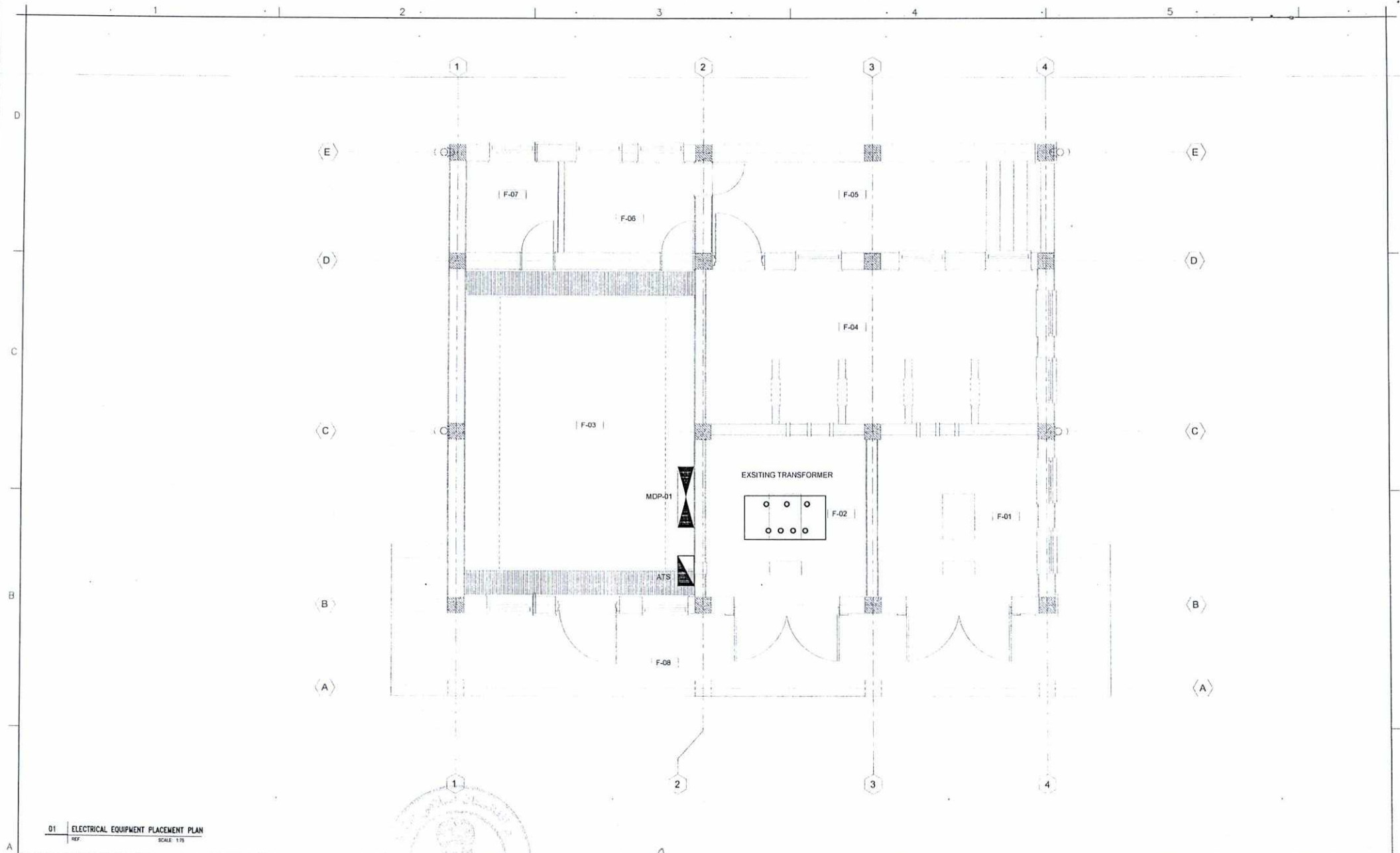
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POWER PLANT BUILDING
POWER PLAN

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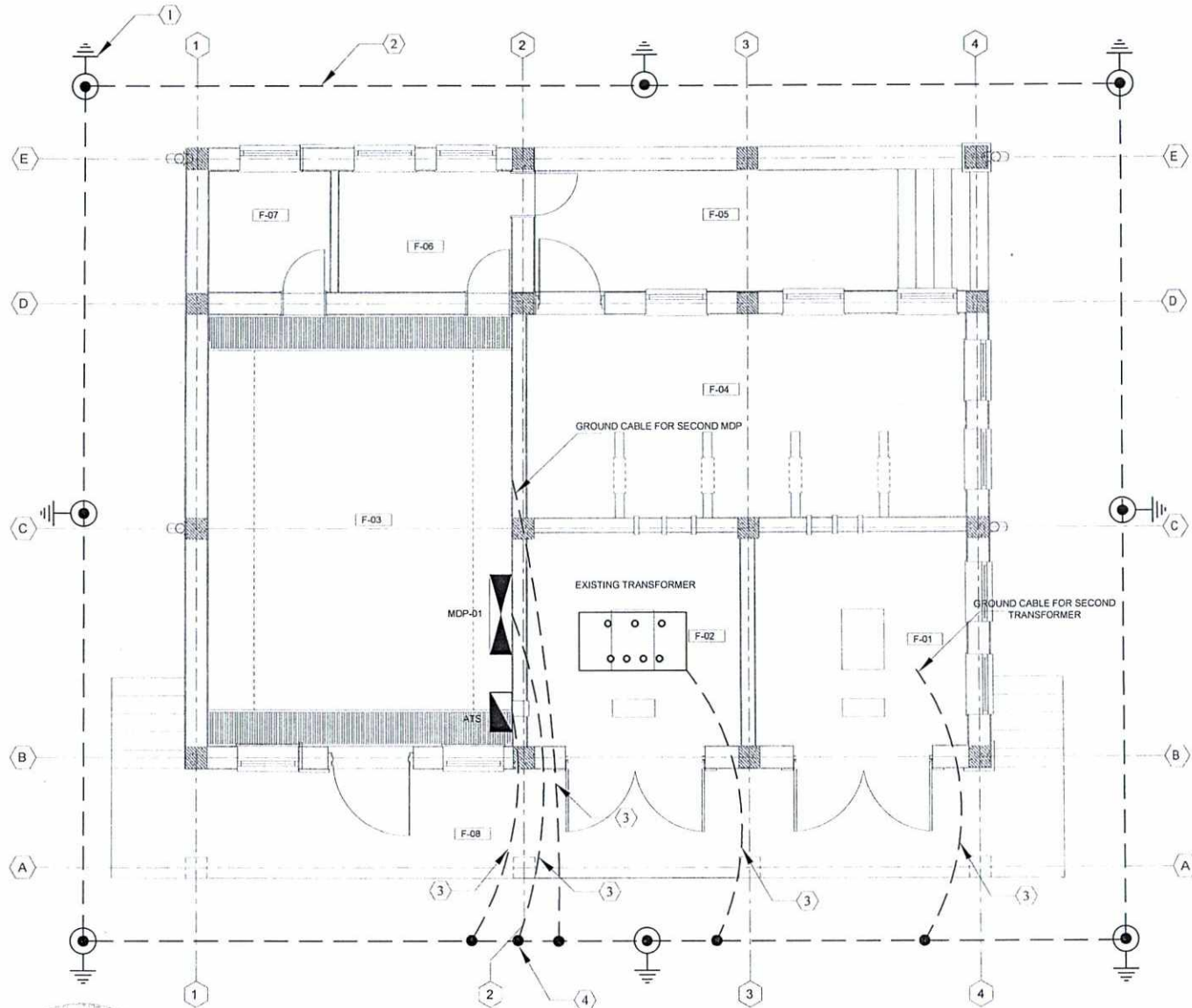
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POWER PLANT BUILDING
ELECTRICAL EQUIPMENT PLACEMENT PLAN

Sheet
Reference
Number
PP-E-103

GENERAL NOTES:

- (1) $\varnothing=20\text{mm}$ L=3000mm GROUNDING ELECTRODE
- (2) 70mm^2 CU BARE GROUNDING CONDUCTOR
- (3) 95mm^2 CU BARE GROUNDING CONDUCTOR
- (4) EXOTHERMICALLY WELD JUNCTION FOR GROUNDING



01 GROUNDING PLAN
SCALE: 1:75



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معاونت ملی و اداری
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No.	Submission Description	Date
01	For Construction	1403/04/15
02		
03		
04		
05		

Contract No:
Contract Date:
Fiscal Year: 1403/1445
Drawn Code: SDCB
Paper Size: A3
Plot Date: 1403/04/09
Scale: 1:75

SERVICES DIRECTORATE COMPLEX BUILDING
AOP
KABUL PROVINCE, AFGHANISTAN
POWER PLANT BUILDING
GROUNDING PLAN

Sheet
Reference
Number
PP-E-104



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آمریت میخانیک و آبرسانی

نقشه های میخانیک

تعمیر کمپلکس ریاست خدمات

برج برق ساحه ۰.۵

کابل — افغانستان



[illegible]

Designed by:	FARZAD DAWOODZAI
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Approved by Visa Committee:	M.AMIR

No	Submission Description:	Date:
01	For Construction	1403/04/15
02		
03		
04		
05		

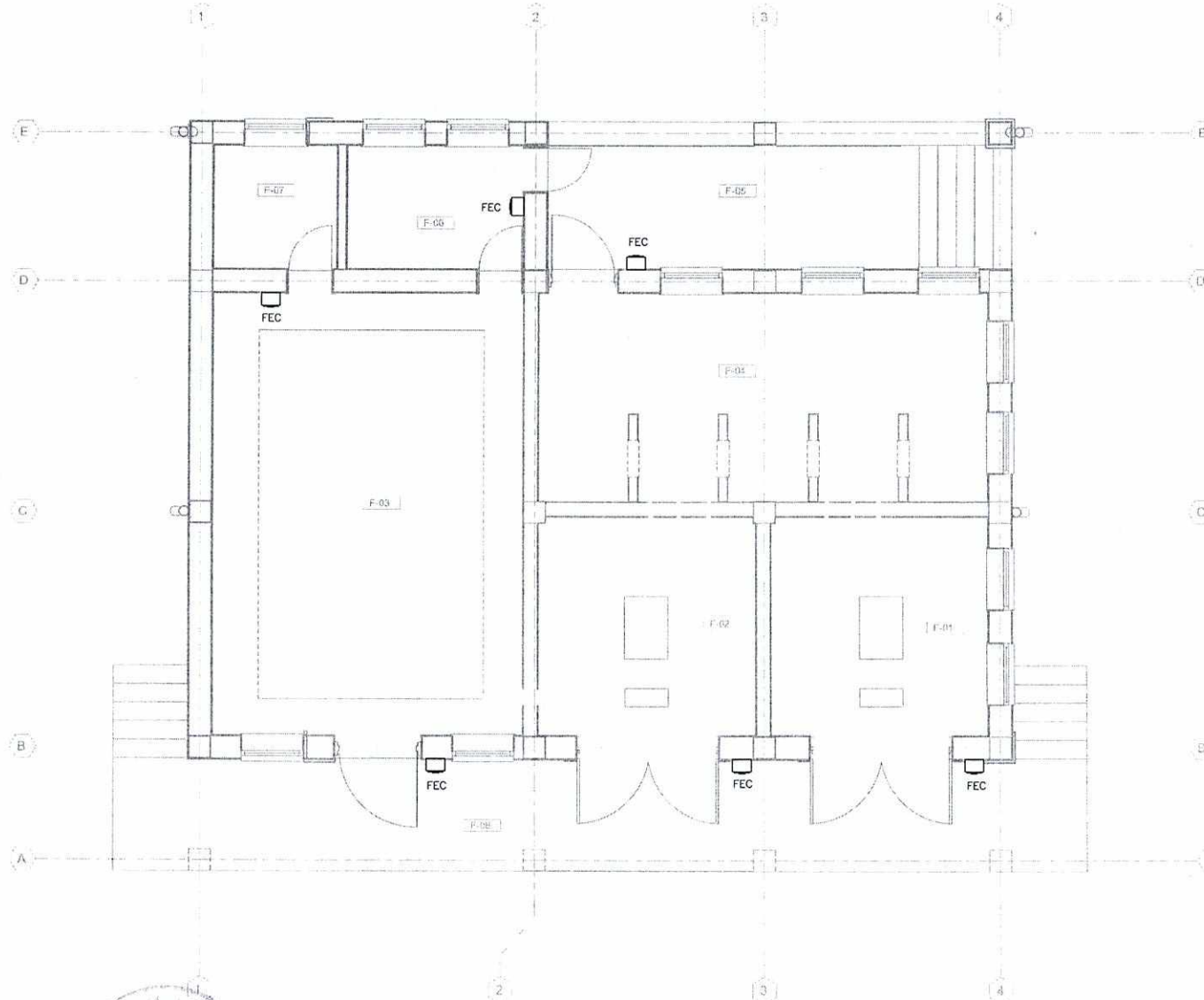
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Fiscal Year:	1403/1445
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Paper Size:	A3
Plot Date:	1403/04/09
Scale:	NTS

SERVICES DIRECTORATE COMPLEX BUILDING
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POWER PLANT BUILDING

INDEX SHEET

Sheet
Reference
Number
G-001



01 FIRE EXTINGUISHER PLAN
PP-M101 REF. SCALE: 1:75

0 0.375 0.75 1.5 2.25 3.0 3.75
GRAPHIC SCALE: 1:75 (M)



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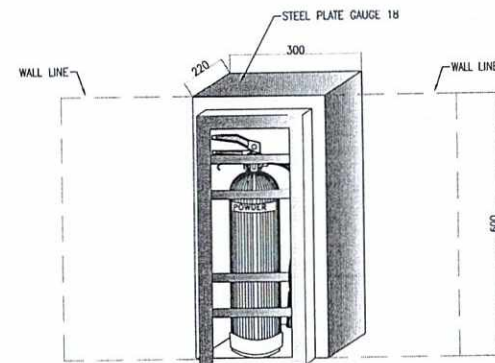
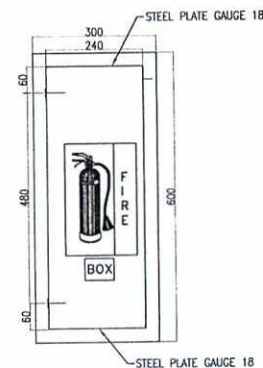
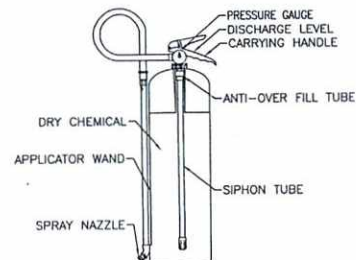
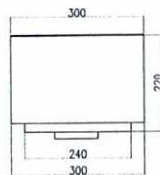
No. Submission Description: Date:
(01) For Construction 1403/04/15
(02)
(03)
(04)
(05)

Contract No:
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SERVICES DIRECTORATE COMPLEX BUILDING
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POWER PLANT BUILDING
FIRE EXTINGUISHER PLAN

Sheet
Reference
Number
PP-M101

NOTE:
FIRE EXTINGUISHER SHALL BE INSTALLED 1.5 M ABOVE THE FINISHING FLOOR



01 FIRE EXTINGUISHER BOX TOP VIEW
PP-M501 REF. SCALE: NTS

02 FIRE EXTINGUISHER CYLINDER DETAIL
PP-M501 REF. SCALE: NTS

03 FIRE EXTINGUISHER FRONT VIEW
PP-M501 REF. SCALE: NTS

04 FIRE EXTINGUISHER BOX DETAIL
PP-M501 REF. SCALE: NTS

FIRE EXTINGUISHER (FE)									
TYPE	DIAMETER (mm)	HEIGHT (mm)	CAPACITY (kg)	APPROXIMATE FULL WEIGHT (kg)	WORKING TEMPERATURE RANGE	WORKING PRESSURE(bar)	TEST PRESSURE(bar)	APPROXIMATE DISCHARGE RANGE(m)	FIRE CLASS
STORED PRESSURE TYPE	178	587	9	13.1	-20 to +60 C	12	25	6-7.5	C

05 FIRE EXTINGUISHER SCHEDULE
PP-M501 REF. SCALE: NTS

ABBREVIATION



:- FIRE EXTINGUISHER CABINET (FEC)



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SERVICES DIRECTORATE COMPLEX BUILDING
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POWER PLANT BUILDING
FIRE EXTINGUISHER DETAILS

Sheet
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