

ZIMBABWE DIGITAL BROADCASTING MIGRATION PROJECT

Detailed Design Drawings

Site ID:		Site Name:	NKAI
Latitude:	S: 20°20'6.86"	Longitude:	E: 30° 5'12.56"
Site type:	New Greenfield	Tower:	113m TV Tower

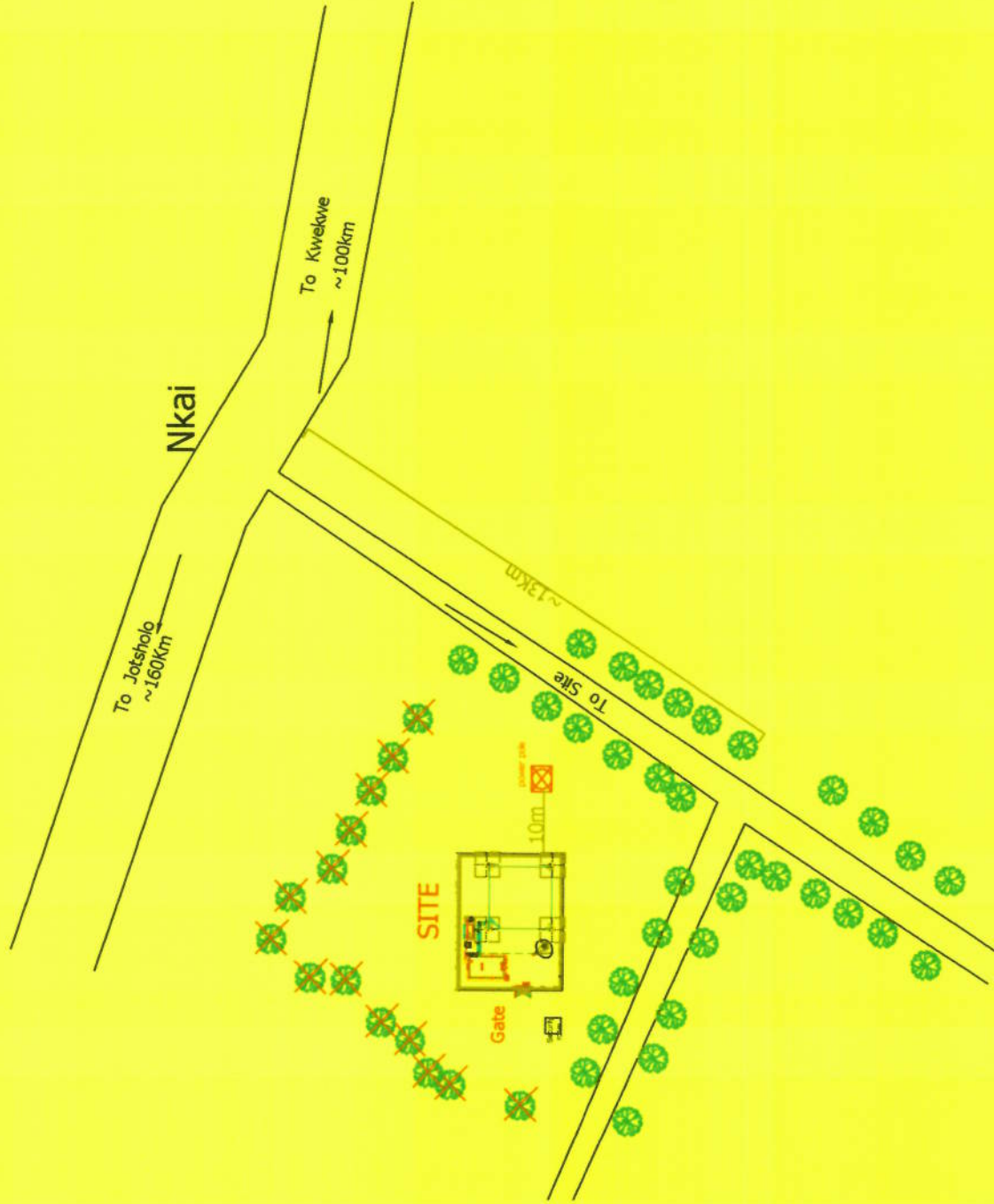


BROADCASTING AUTHORITY OF ZIMBABWE
1st FLOOR, MEDIA CENTRE
RAINBOW TOWERS GROUNDS
P.O. BOX 496, CAUSEWAY, HARARE
TEL: +263 4 797380/5

29-06-15

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NOTE :

1. Need customer to cut about 14 trees in the site location.
2. Toilet position is determined by the owner.

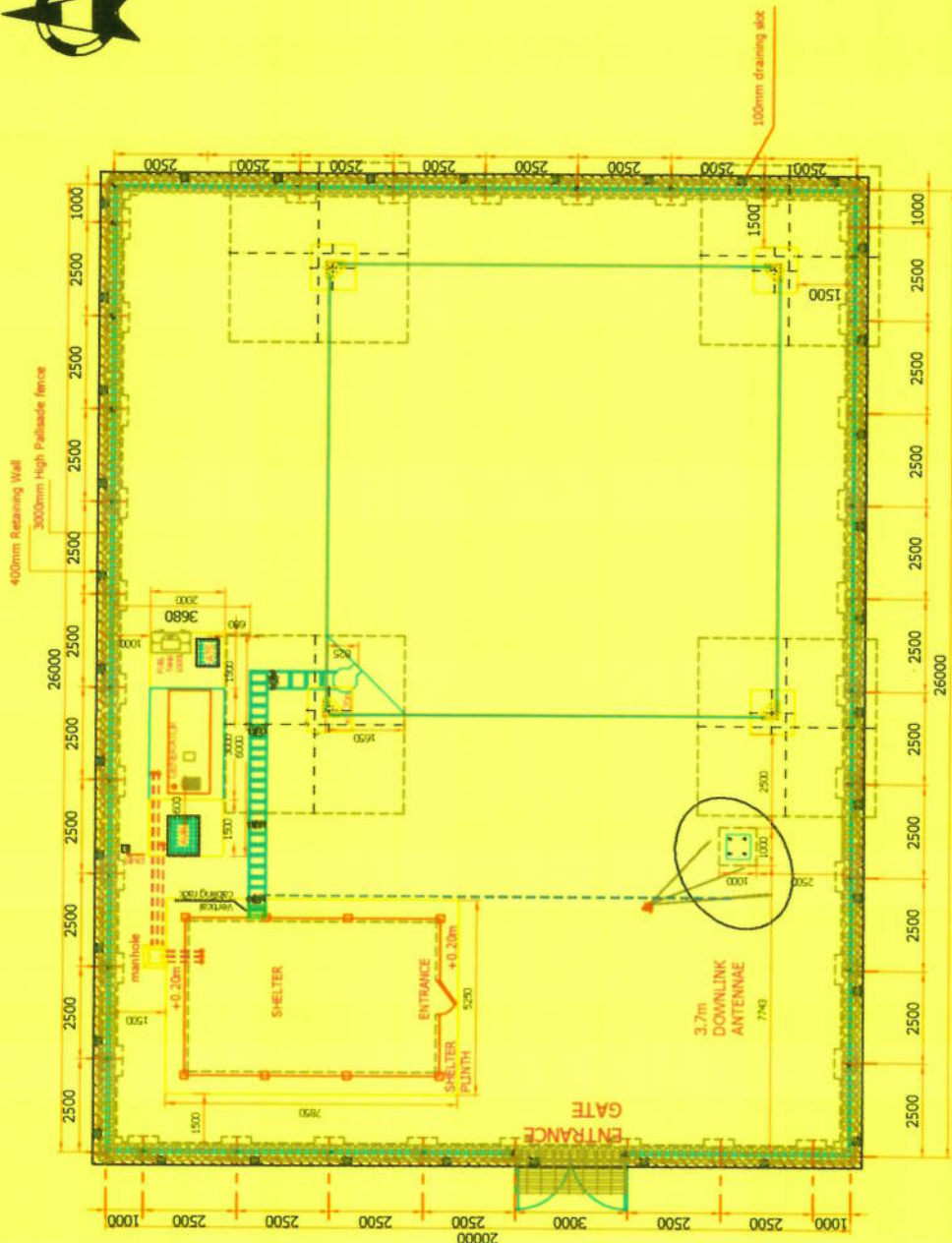
Legend:

-  Tree
-  Tree need to be cut down

SITE NAME: Nkai	
SITE ID:	
LAND ID :	
WBS:	
RFQ NO:	
PROJECT NUMBER:	
LATITUDE: S: 20°20'6.86"	
LONGITUDE: E: 30° 5'12.56"	
SURVEY DATE:	
RADIO ENGINEER:	
SUPERVISOR:	
DRAWN BY:	
DATE:	
	
<small>HUAWEI TECHNOLOGIES ZIMBABWE (PVT) LTD 130, MARIKOP ROAD, HARARE TEL: +263 4 79327 FAX: +263 4 79324</small>	
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HUAWEI	
DATE:	DATE: 2024-06-15
NO:	DESCRIPTION:
SCALE: N.T.S	ISSUE: 1
	DRAWING: A
	SHEET NO: 1
LOCALITY PLAN	

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 SOCIAL MEDIA CENTRE
 94Z
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 TEL: +263 4 79327
 FAX: +263 4 79324

True North



SITE LAYOUT

SCALE-1:100

Legend:

- Ø100mm PVC pipe
- (dashed red line) Ø110mm PVC pipe underground
- (dashed black line) Ø50mm PVC pipe underground
- Draining Slot

NOTE :

1. The Satellite dish should be facing north-west, the accurate orientation should be determined by the satellite manufacturer.
2. Cable should be laid through the reserved PVC pipe.
3. After the cable jointing completed, using silicone rubber sealing PVC pipe orifice to prevent inflow water.
4. The width of drainage channel should be 100mm.
5. All the edges to be chamfered at 25 mm.

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RFQ NO:

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LONGITUDE: E: 30° 5'12.56"

SURVEY DATE:
 RADIO ENGINEER:
 SUPERVISOR:
 DRAWN BY:
 DATE:



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 1st FLOOR, MEDIA CENTRE
 RAIMBEAU, HARBUR
 HARARE, ZIMBABWE
 Tel: +263 4 79327

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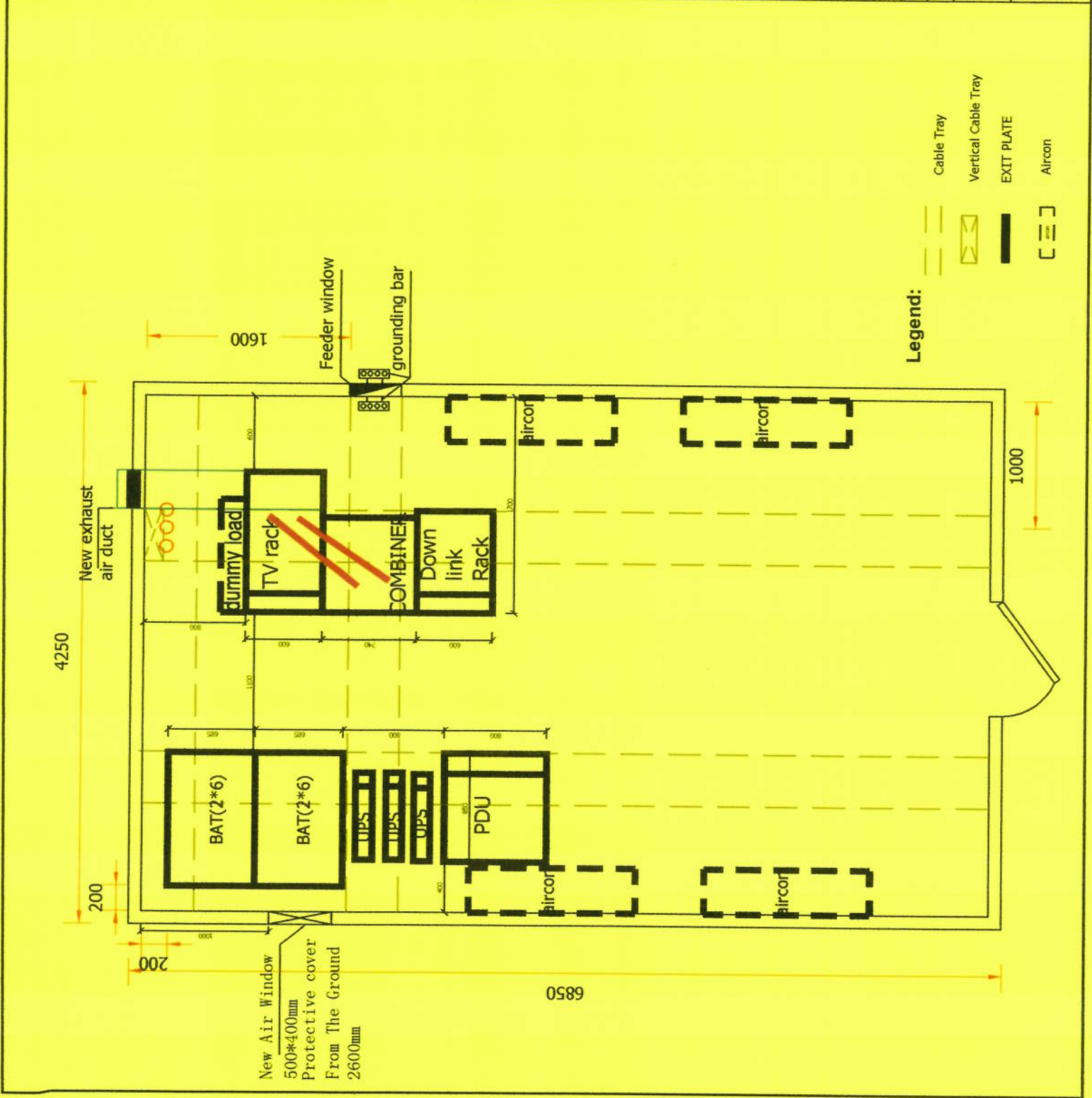
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 RAIMBEAU, HARBUR, HARARE
 HUAWEI
 DATE: PL DATE: 29-06-15
 NO: DATE: DESCRIPTION:

SCALE: N.T.S. ISSUE: 1 DRAWING: A SHEET NO: 2

SITE PLAN

SITE NAME:	NKAI
SITE ID:	
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RFQ NO:	
PROJECT NUMBER:	
LATITUDE:	S: 20°20'6.86"
LONGITUDE:	E: 30° 5'12.56"
SURVEY DATE:	
RADIO ENGINEER:	
SUPERVISOR:	
DRAWN BY:	
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HUAWEI BROADCASTING ZIMBABWE AUTHORITY OF ZIMBABWE DATE: <u>20/11/2018</u> NO: <u>0030</u> DATE: P: <u>0001</u> DESCRIPTION: <u>AUSEWAY, HARARE</u> TEL: <u>+263 4 79738015</u>	
SCALE:	ISSUE: 1
N.T.S	DRAWING: A
	SHEET NO: 3



SITE NAME: NKAI

SITE ID:

LAND ID:

WBS:

RFQ NO:

PROJECT NUMBER:

LATITUDE: S: 20°20'6.86"

LONGITUDE: E: 30° 5'12.56"

SURVEY DATE:
RADIO ENGINEER:
SUPERVISOR:
DRAWN BY:
DATE:



HUAWEI TECHNOLOGIES ZIMBABWE PRIVATE LTD
13th Floor, 25 UNK Towers, 3001
Harare Avenue, Harare, Zimbabwe
Tel: +263 4 793267
Fax: +263 4 792234

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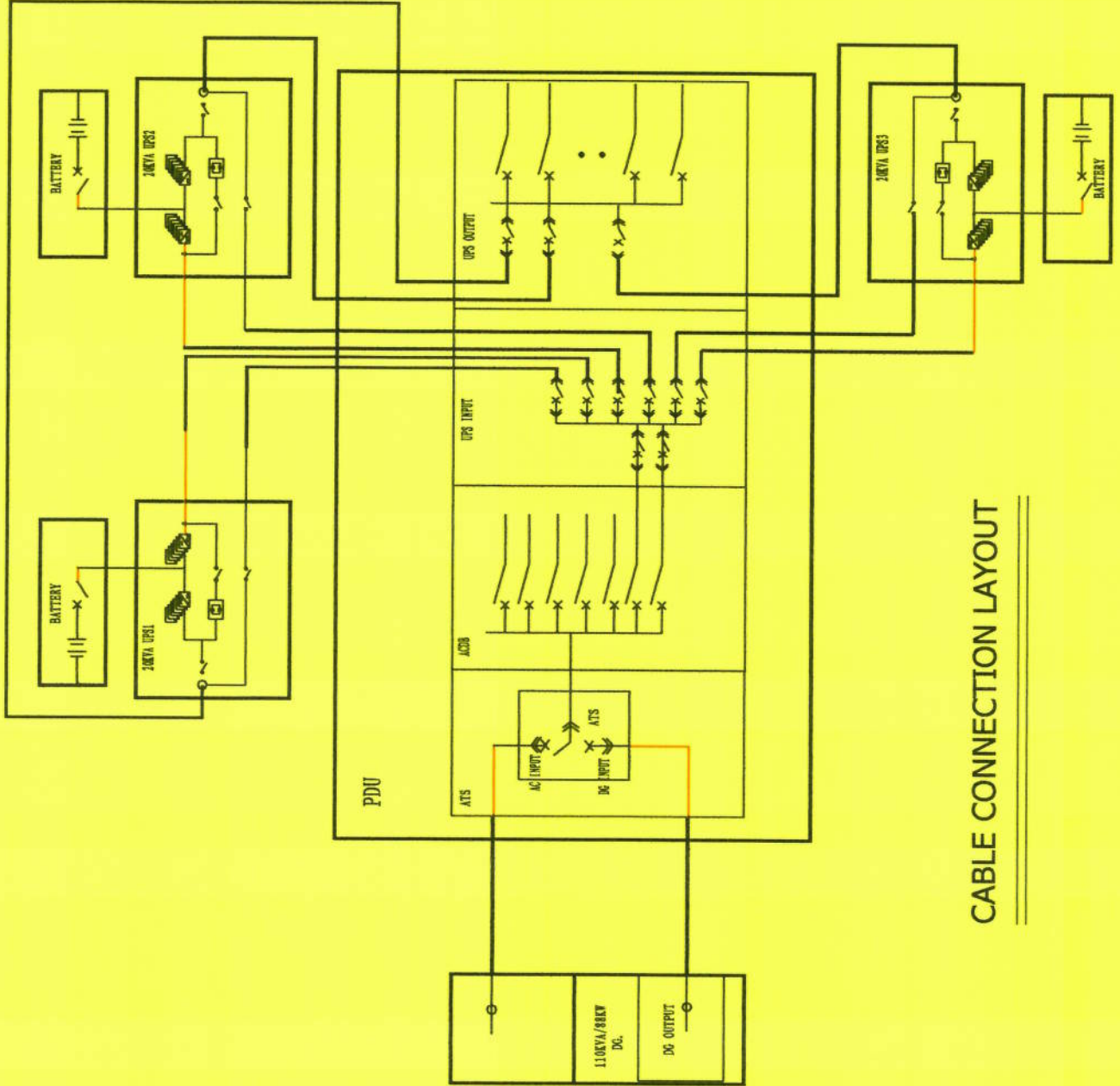
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HUAWEI ZIMBABWE AUTHORITY OF ZIMBABWE
DATE: 01/11/2015
NO: 01/11/2015
DESCRIPTION: CAUSEWAY HARARE

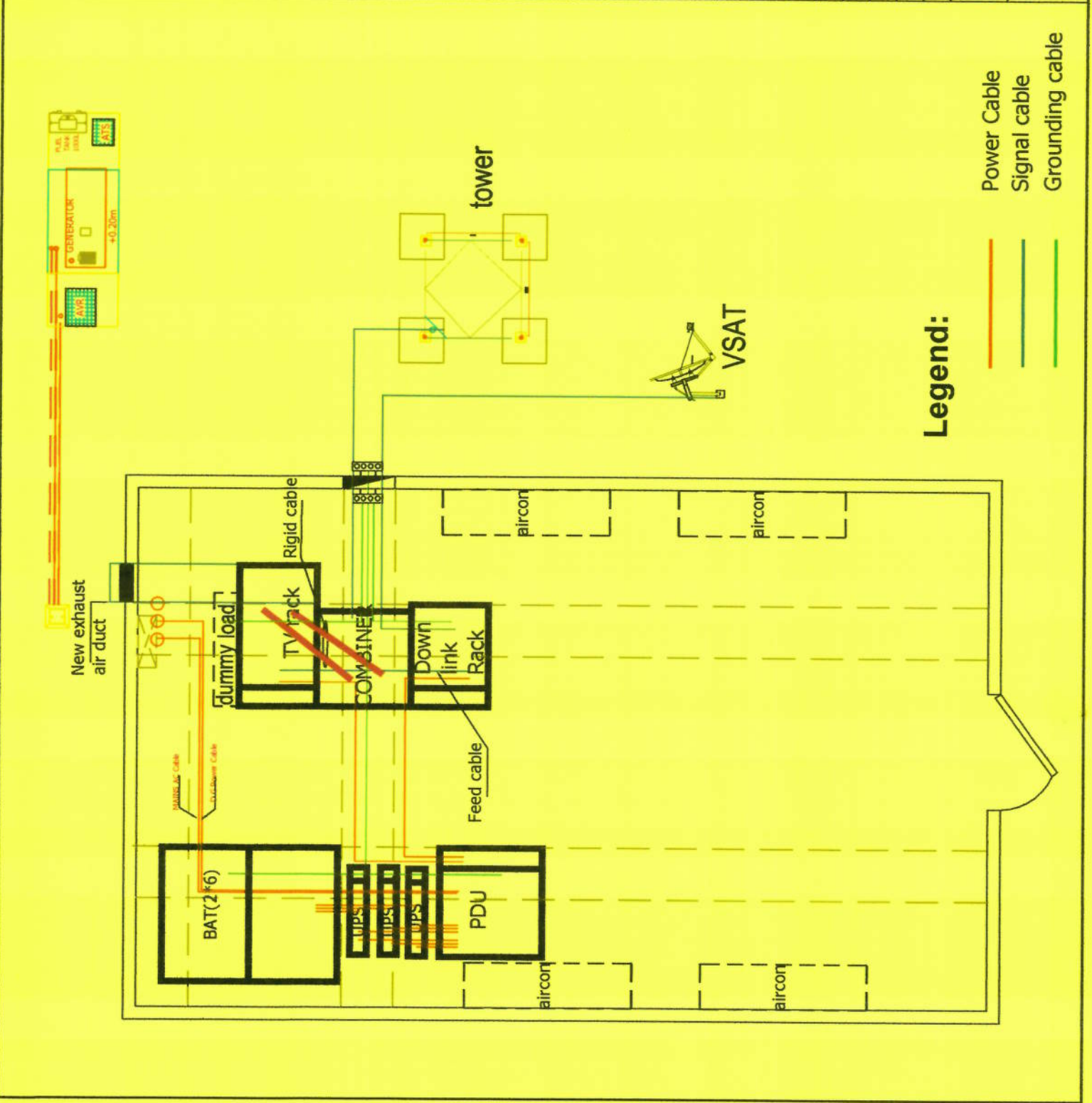
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DRAWING: A
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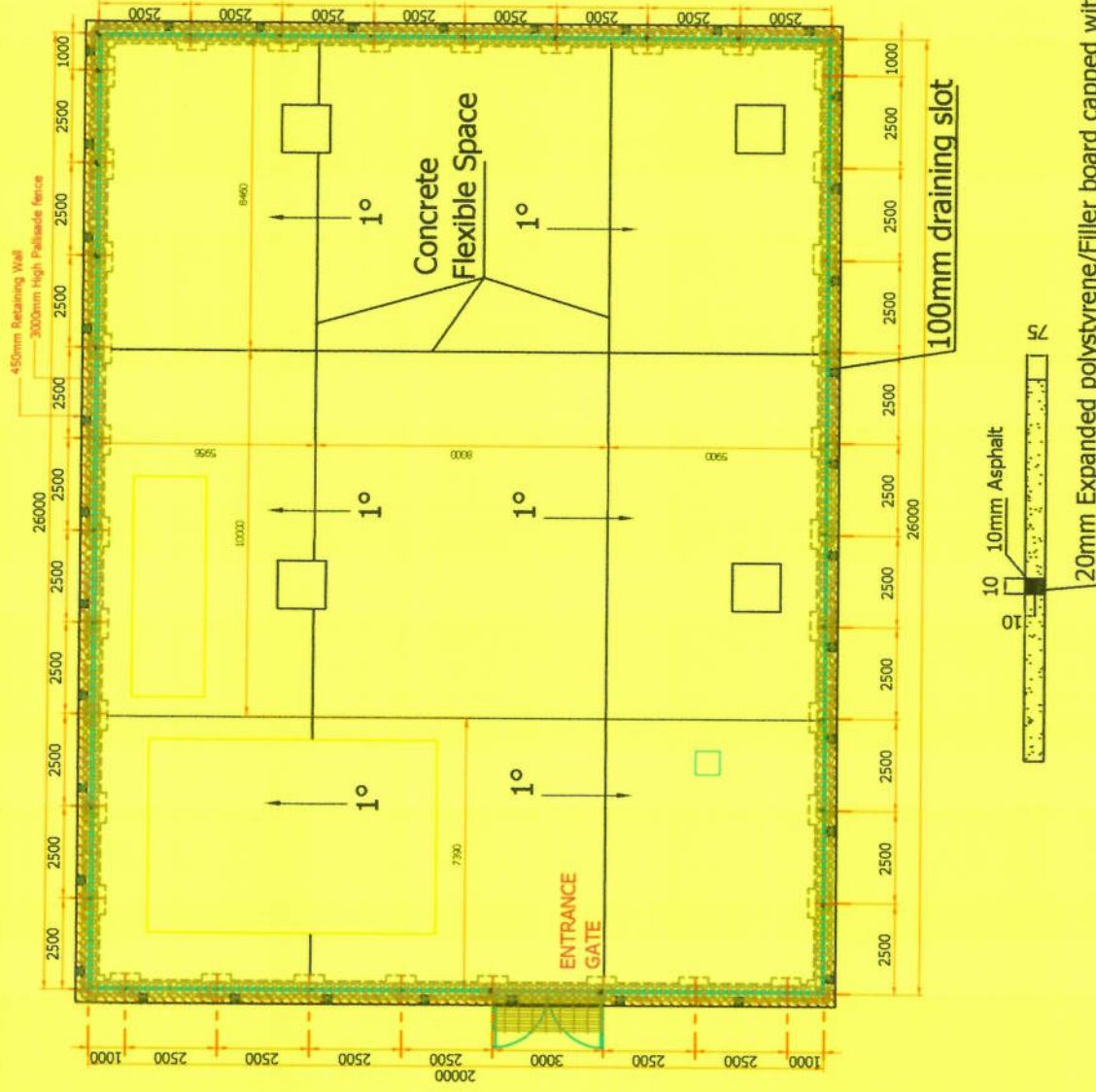
CABLE CONNECTION LAYOUT



CABLE CONNECTION LAYOUT

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LATITUDE: S: 20°20'6.86"	
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SURVEY DATE:	
RADIO ENGINEER:	
SUPERVISOR:	
DRAWN BY:	
DATE:	
	
	
<small>HUAWEI TECHNOLOGIES ZIMBABWE (PRIVATE) LTD 17th Floor, 28 Link Towers, 2nd Mile Harare, Harare, Zimbabwe Tel: +263 4 797377 Fax: +263 4 797377</small>	
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<small>BROADCASTING AUTHORITY OF ZIMBABWE FLOOD MEDIA CENTRE P.O. BOX 1000, HARARE, ZIMBABWE</small>	
DATE:	DATE:
NO:	DESCRIPTION:
SCALE: N.T.S	ISSUE: 1
	DRAWING: A
	SHEET NO: 5
SHELTER PLAN	





NOTE:

1. Pouring the ground floor of base station, the ground is divided into nine panel, leaving two 2cm expansion joints.
2. After the concreting, fill the joint with asphalt.
3. Base station floor tilt to the gate side of 1 degree, to ensure that there is no stagnant water in the station.

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SURVEY DATE:
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DATE:	DATE: 2023/05/05
NO:	DESCRIPTION: +263 4 7973 40/5
SCALE: N.T.S	ISSUE: 1
	DRAWING: A
	SHEET NO: 6

FENCE 1

SITE NAME: NKAI

SITE ID:

LAND ID :

WBS:

RFQ NO:

PROJECT NUMBER:

LATITUDE: S: 20°20'6.86"

LONGITUDE: E: 30° 5'12.56"

SURVEY DATE:
RADIO ENGINEER:
SUPERVISOR:
DRAWN BY:
DATE:



HUAWEI
HUAWEI TECHNOLOGIES ZIMBABWE PRIVATE LTD
10th Floor, Tower 2, Beit
Road, Harare, Zimbabwe
Tel: +263 4 791207
Fax: +263 4 792204

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3334
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10TH FLOOR, MEDIA CENTRE
BEIT ROAD, HARARE
ZIMBABWE
DATE: 23/05/2015
BY: [Signature]

DATE:

NO:

DATE:

DESCRIPTION:

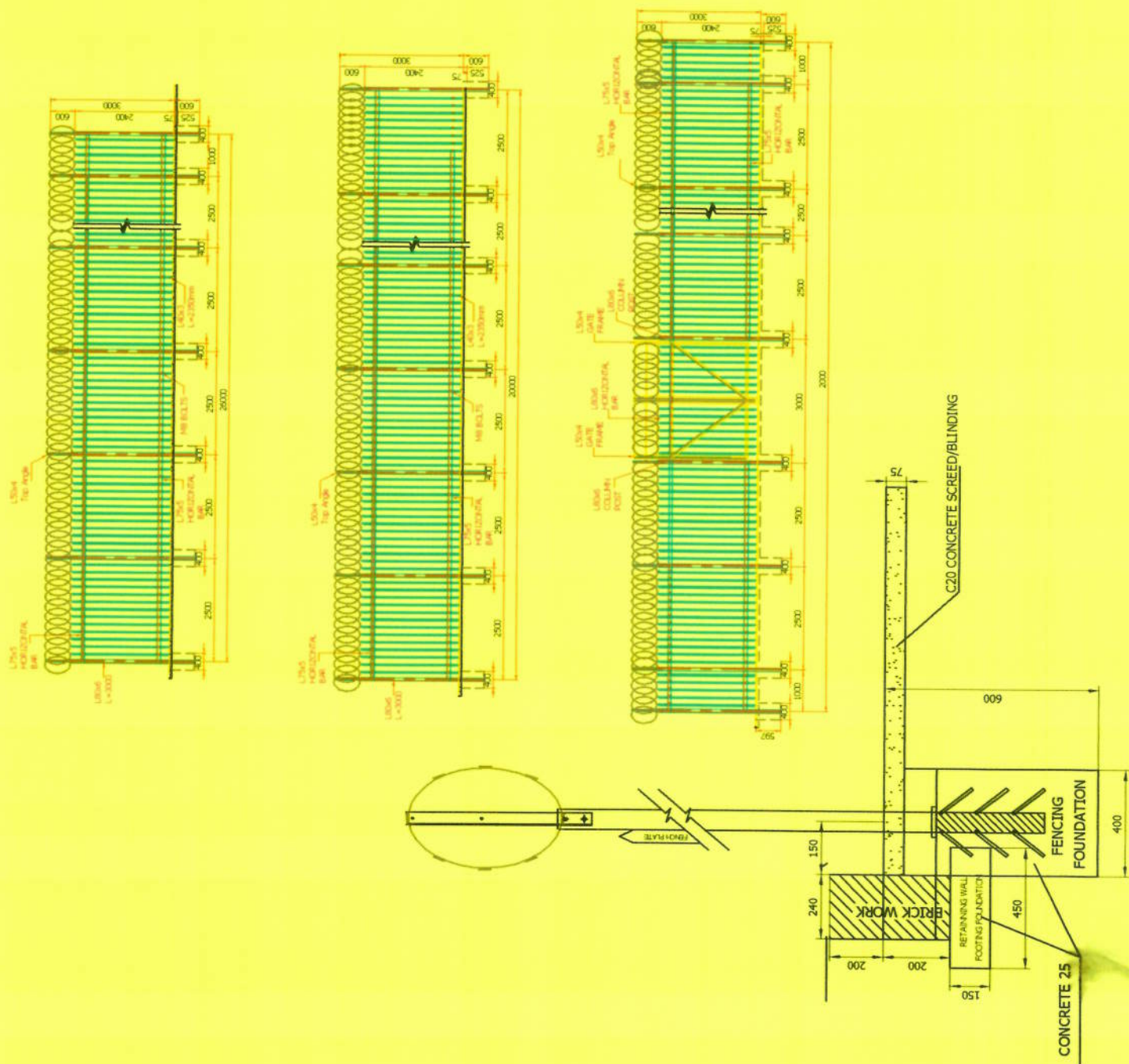
SCALE: N.T.S

ISSUE: 1

DRAWING: A

SHEET NO: 7

FENCE 2



SITE NAME:	NKAI
SITE ID:	
LAND ID:	
WBS:	
RFQ NO:	
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LATITUDE:	S: 20°20'6.86"
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SURVEY DATE:	
RADIO ENGINEER:	
SUPERVISOR:	
DRAWN BY:	
DATE:	



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 100, MASHANGA, HARARE, ZIMBABWE
 Tel: +263 4 792057
 Fax: +263 4 792058

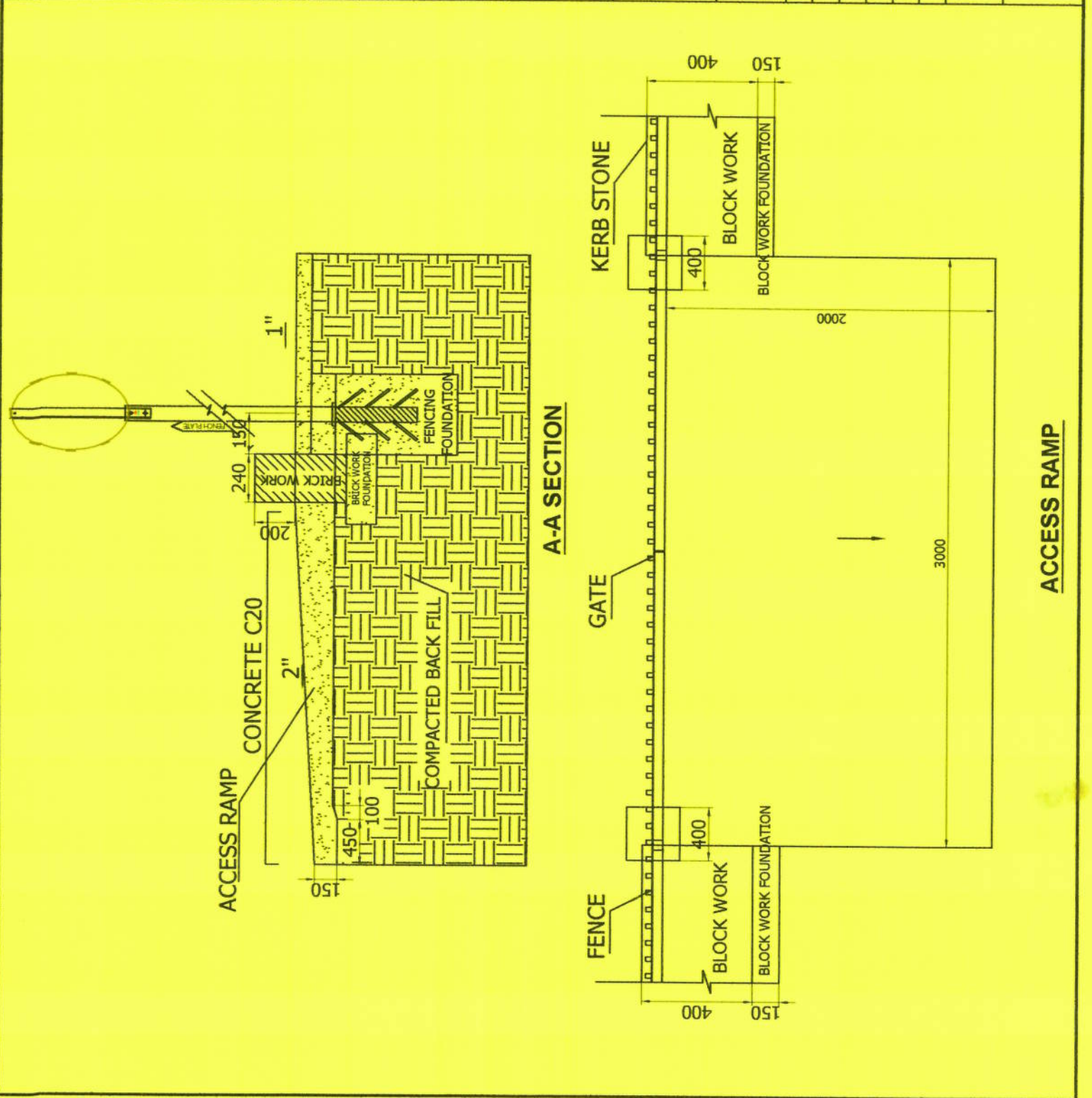
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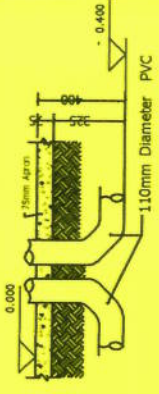
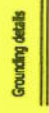
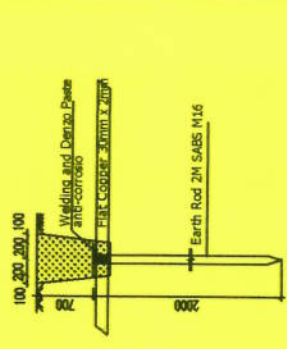
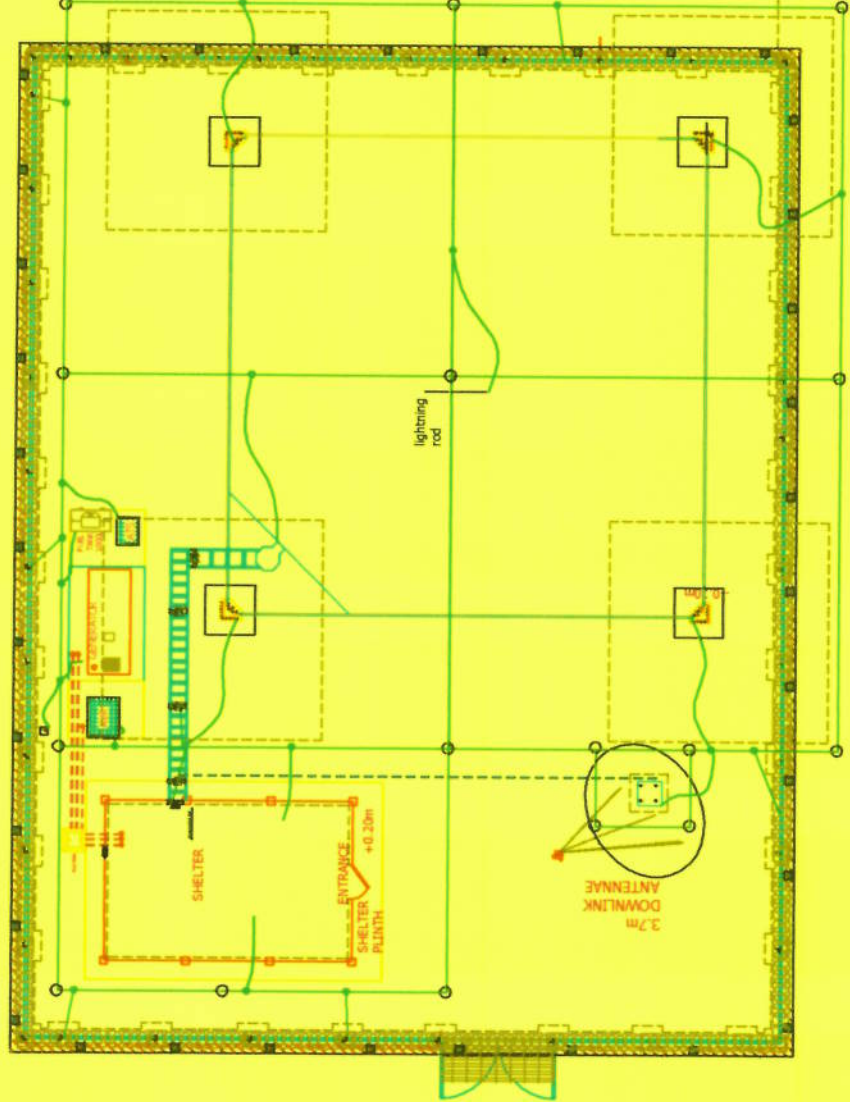
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N.T.S	1	A	8

ACCESS RAMP



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 100, MASHANGA, HARARE, ZIMBABWE
 Tel: +263 4 792057
 Fax: +263 4 792058



Detail A
1:25

Earthing Material List

30*2mm flat copper	200m
Earth Rod 2M SABS M16	16
Denzo Tape 50mm (10m Roll)	2
Denzo Paste	2
Bolts Brass M10 X 30mm	32
Nuts Brass M10	32
Washer Brass M10	32
Earthing binding kit (welding powder)	1

Legend:

- Joining Point
- ϕ 16mmx2000mm earth rods
- 30*2mm flat copper (earthing ring)
- 30*2mm flat copper (joining ring)

NOTE :

1. Earthing resistance must be less than 10 ohms.
2. Connect lightning rod to tower handy.
3. All the materials above are just as the reference. The actual material list should be based on BOQ.
4. One ring of 30*2mm flat copper installed at minimum 80cm depth around the tower foundation, linked to the grounding rods at each corner.
5. All the equipments and fence should be connected to the nearest earthing point.

SITE NAME: NKAI

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SURVEY DATE:

RADIO ENGINEER:

SUPERVISOR:

DRAWN BY:

DATE:



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DATE:

DATE:

NO:

DESCRIPTION:

SCALE:

ISSUE:

DRAWING:

N.T.S

1

A

SHEET NO:

9

EARTHING

SITE NAME: NKA1

SITE ID:

LAND ID:

WBS:

RFQ NO:

PROJECT NUMBER:

LATITUDE: S: 20°20'6.86"

LONGITUDE: E: 30° 5'12.56"

SURVEY DATE:

RADIO ENGINEER:

SUPERVISOR:

DRAWN BY:

DATE:



HUAWEI TECHNOLOGIES ZIMBABWE PRIVATE LTD
 HUAWEI BUILDING, HARARE, ZIMBABWE
 Harare, Zimbabwe, 01001
 Tel : +263 4 793297
 Fax : +263 4 792304

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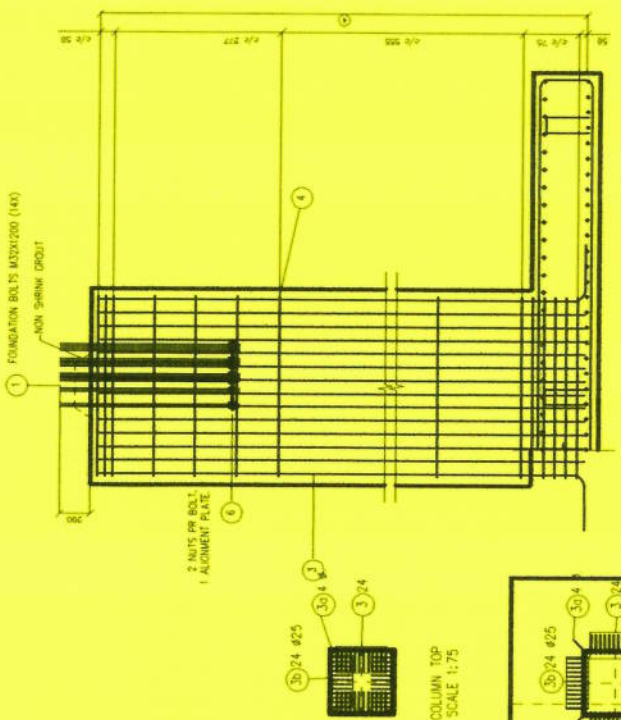
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BROADCASTING AUTHORITY OF ZIMBABWE
 10 FLOUR MEDIA CENTRE
 RAISON D'AZ
 HARARE
 DATE: 24.08.2015
 F. DATE: 24.08.2015

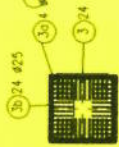
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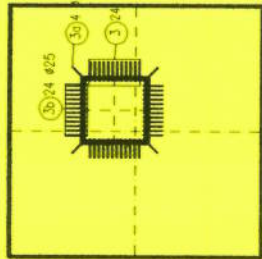
TOWER FOUNDATION 2



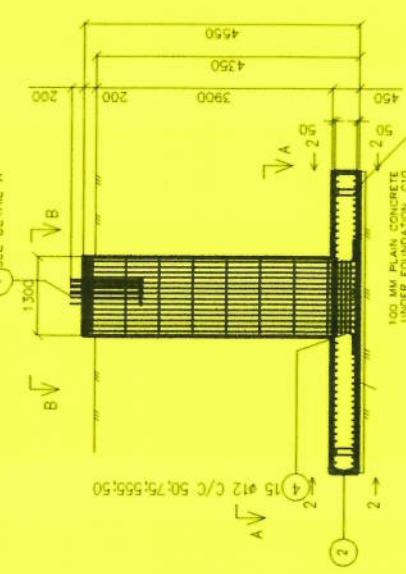
DETAIL A SCALE 1:10



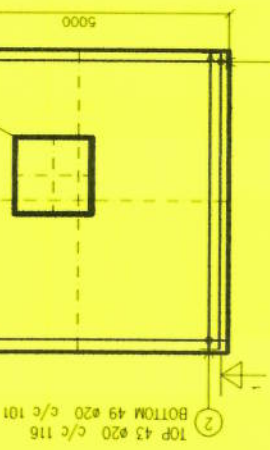
COLUMN TOP SCALE 1:75



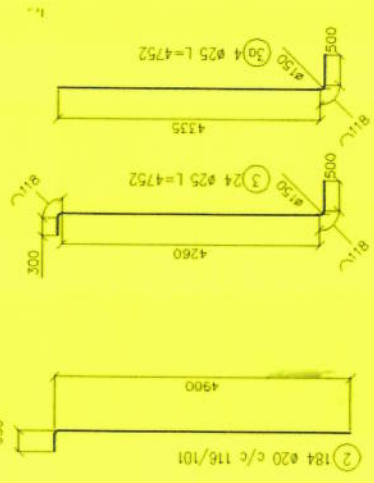
DETAIL C SCALE 1:75



SECTION 1 - 1 SCALE 1:75



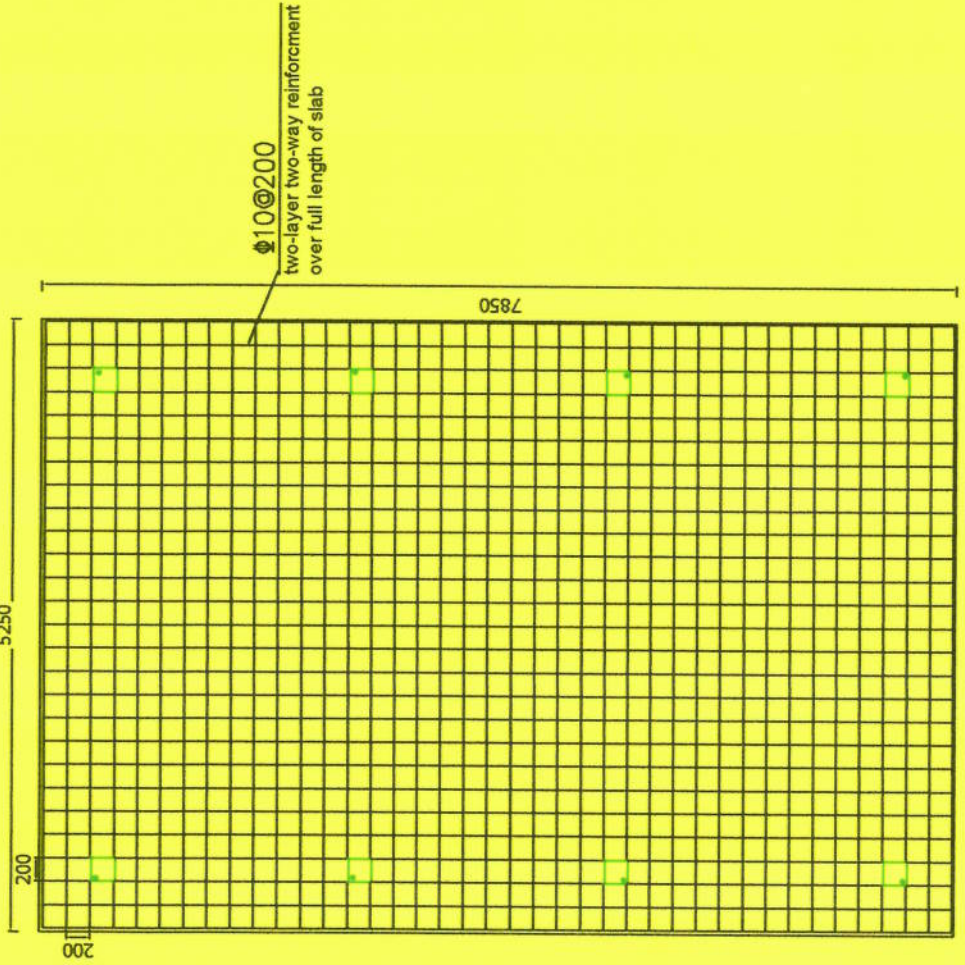
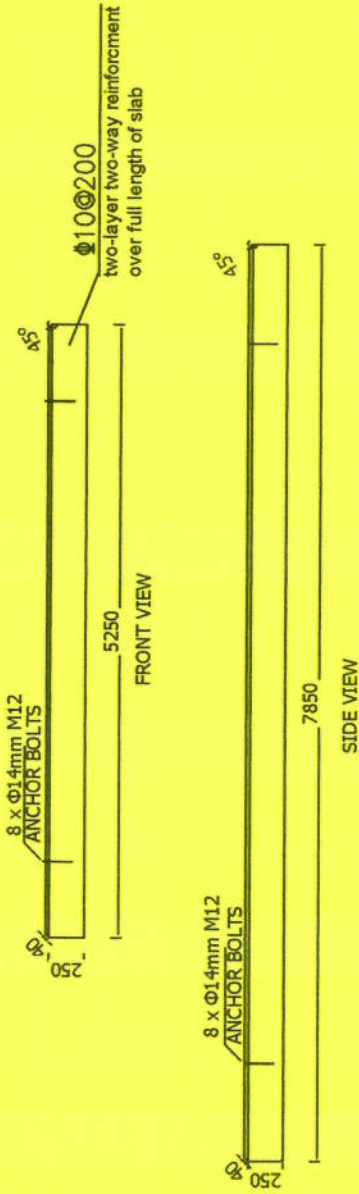
VIEW A - A SCALE 1:75



DETAIL B SCALE 1:75

POS TYPE	TOTAL POS	TOTAL DIA (mm)	LENGTH (m)	TOTAL LENGTH (m)	TOTAL WEIGHT (kg)	TOTAL LENGTH (m)	Manufacturing Sketch (mm)
2	-	73.6	5.25	9529.2	3864	4500	
3	-	96	5.296	1959.1	508.42	4410	
3a	-	16	4.921	303.4	78.74	4410	
3b	-	96	5.271	1949.9	508.01	4385	
4	-	64	5.0	284.1	320	1800	
5	NS-00	100	1.282	79.0	128.2	1800	
6	ALIGNMENT PLATE	4	NA	NA	NA	NA	

SPRINGS AND TIE BARS



SITE NAME: NKAI

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 SUPERVISOR:
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 17th Floor, 28 UN Towers, 3001
 Mayo Avenue, Harare, Zimbabwe
 Tel: +263 4 792527
 Fax: +263 4 792534

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DATE:

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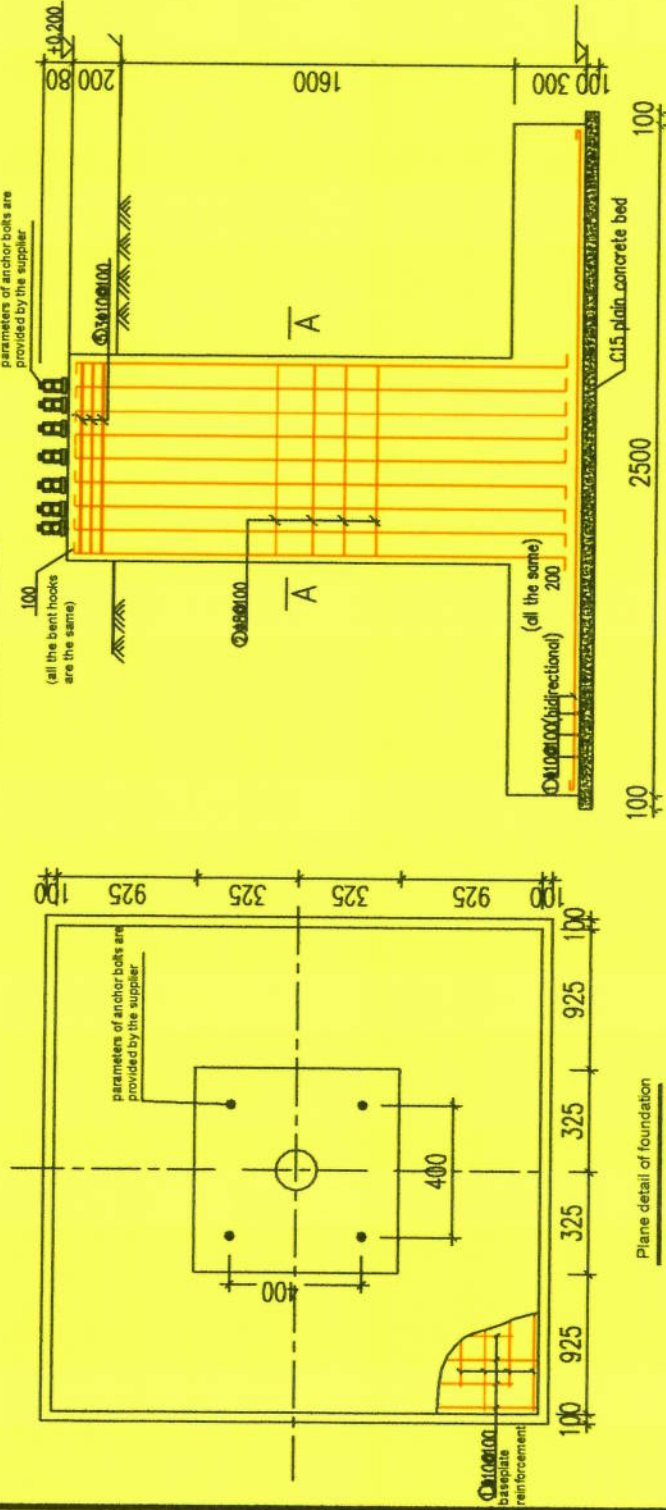
ISSUE:
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DRAWING:
A

SHEET NO:
12

SHELTER PLINTH

Downlink Dish Foundation Details Layout



Section detail of foundation

BAR BENDING SCHEDULE FOR THE DOWNLINK FOUNDATION									
Bar code	Shape	Bar Mark	Bar Size	Number	Members	Total Bar Length(mm)	Total Length(m)	Kg/m	Total Weight(kg)
01		01	Y-10	26	2	52	2600	0.62	83.28
02		02	Y-8	17	1	17	1200	0.39	8.04
03		03	Y-16	12	1	12	2430	1.58	46.01
04		04	Y-8	17	2	34	730	0.39	9.78
05		05	Y-10	3	1	3	1200	0.62	2.22
Total Uplink Foundation Weight in kg									149.33

Technical Requirement for The Foundation:

- The foundation is concrete class C25 which is 1:1:2
- Concrete volumes are: RCC Class C25 - 2.6355m³
PCC Class C15 - 0.729 m³
- Excavated volume - 16.038 m³
- Backfill volumes - 12.6735 m³

- The top of tower foundation can also be post-cast by reserving a thickness of 300mm, which is cast using a higher grade of micro-expansion concrete after the locating plate is leveled and the installation of the iron tower is finished.
- Make terrace within the range of 1m around the tower foundation to prevent rainwater permeation, the terrace practice: cast 40 thick C20 concrete and vibrocompact it, pave 80 thick broken stones or broken bricks and pour M2.5 mixed mortar, spread plain soil and tamp it, make slope of 2% around the terrace.
- The bearing course of foundation base is sand course, it is needed to well make slope protection during the excavation, and well manage construction organization and safety measures.
- The foundation base concrete adopts C25 concrete.

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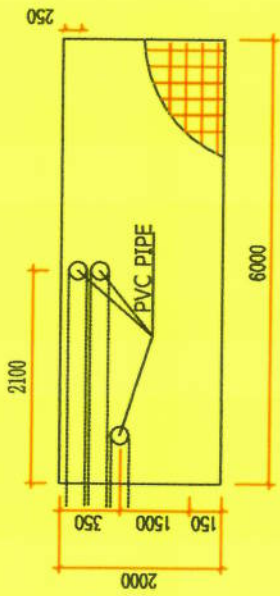
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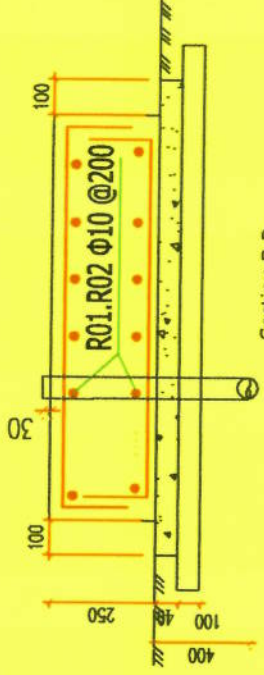
HUAWEI
DATE: 2024-06-15
NO: 2024-06-15
DESCRIPTION: ZIMBABWE BROADCASTING AUTHORITY OF ZIMBABWE
RAJESH KANUNJIA CENTRE
HARARE
Tel: +263 4 7973983

SCALE: N.T.S
ISSUE: 1
DRAWING: A
SHEET NO: 14

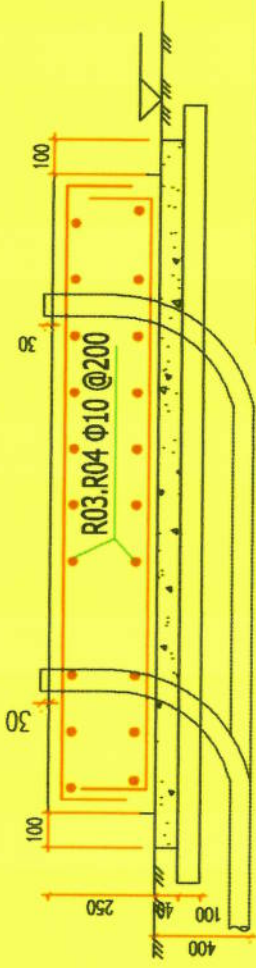
Downlink Dish Foundation Details Layout



TOP VIEW



Section B-B



Section A-A

Volume of reinforced concrete	3.0 m ³
Backfilling	0.41 m ³
Blinding Concrete	0.5456m ³

Reinforcement grade	SHAPE	QUANTITY	LENGTH (m)	WEIGHT (KG)	TOTAL WEIGHT (KG)
Φ10	5910	11	65	40	154.2
Φ10	5910	11	65	40	
Φ10	1910	30	57.5	35.5	
Φ10	1910	30	57.5	35.5	
Φ10	300 230 300 230 300	5	6.8	4.2	

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 12th Floor, 28 Jubilee Tower, Beit
 Road, Harare, Zimbabwe
 TEL: +263 4 793207
 FAX: +263 4 793208

SCALE: N.T.S
 ISSUE: 1
 DRAWING: A
 SHEET NO: 15

D.G PLINTH

- Notes:
- This project is the foundation of newly built outdoor 110KVA/88KW box type D.G set, the weight is about 1.6 tons. ;
 - The ±0.000 of this project is the elevation of natural ground on the site. Site positioning is determined during the construction. Except for the elevations expressed in m, all the dimensions as shown on the drawing are expressed in mm. ;
 - The foundation concrete adopts C20, the thickness of concrete protective layer is 40 ;
 - Pay attention to the facilities like underground pipelines, ditches, etc. during the foundation excavation, if there is any abnormal phenomenon, immediately notify relevant department to study and solve it;
 - Perform rust-proofing and corrosion resistance treatment of the welded area of the grounding grid.
 - All the edges to be chamfered at 25 mm .

SITE NAME: NKAI

SITE ID:

LAND ID :

WBS:

RFQ NO:

PROJECT NUMBER:

LATITUDE: S: 20°20'6.96"

LONGITUDE: E: 30° 5'12.56"

SURVEY DATE:
RADIO ENGINEER:
SUPERVISOR:
DRAWN BY:
DATE:



HUAWEI TECHNOLOGIES (ZIMBABWE) LTD
Plot 10, Industrial Estate
Maple Avenue, Harare, Zimbabwe
Tel: +263 4 793587
Fax: +263 4 793204

DRAWINGS MUST NOT BE
SCALED. ONLY FIGURED DIMENSIONS
TO BE USED. DIMENSIONS TO BE
VERIFIED ON SITE BEFORE
COMMENCEMENT OF WORK.

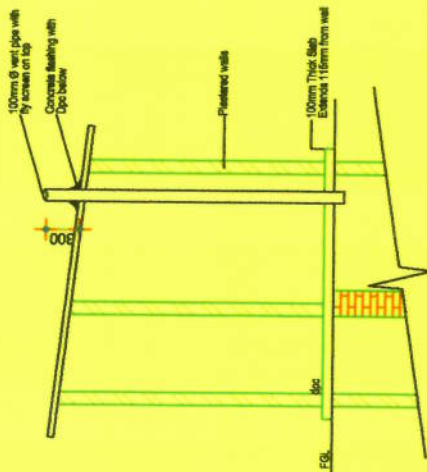
APPROVED

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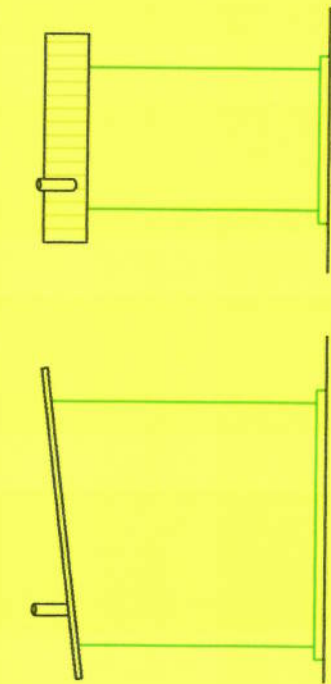
HUAWEI BROADCASTING AUTHORITY OF ZIMBABWE
P.O. BOX 10, INDUSTRIAL ESTATE
MAPLE AVENUE, HARARE
ZIMBABWE
DATE: _____
NO: _____ DATE: _____
F-DESCRIPTION: CAUTIONARY DRAWING

SCALE: N.T.S
ISSUE: 1
DRAWING: A
SHEET NO: 16

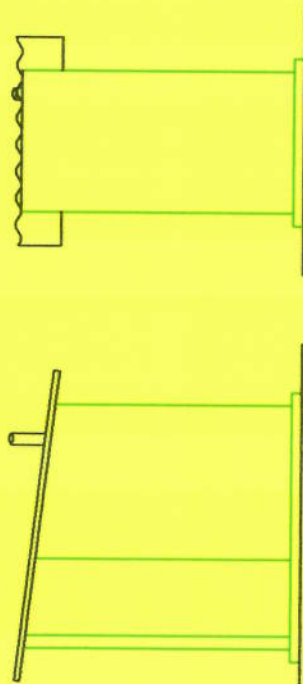
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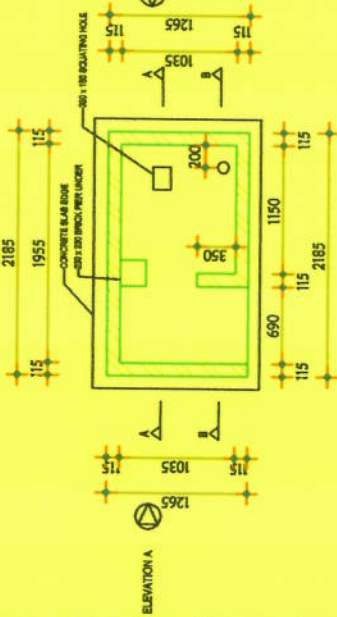
SECTION B-B



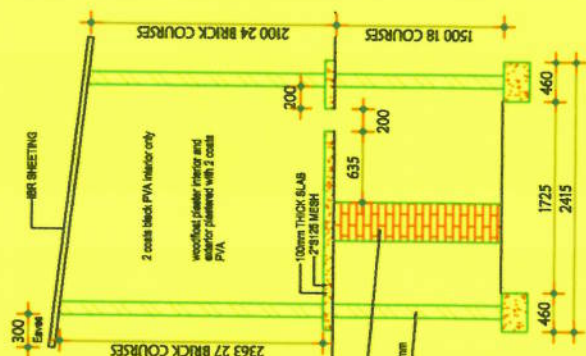
ELEVATION A



ELEVATION B



FLOOR PLAN



SECTION A-A

Specifications
Roof Pitch 7.5°
I.B.R sheeting on 50 x 152 timber rafters tied
led into at least 5 courses of brickwork

WALLS
Walls to be constructed from standard common
bricks throughout. Brickforce at every fifth
course above gpc and in every 4 consecutive
courses immediately below roof level. All sand used
for mortar to be free of organic matter.
15mm interior and exterior woodfost, plaster for
painting PVA

FLOORS
20mm trowel finish granio floor screed on 100 grade
25 concrete slab (mesh reinforced)
course above gpc and in every 4 consecutive
courses above gpc

FOUNDATION
See drawing. Depth of foundation to be determined
on site. Base of all excavations are to be trimmed
before concreting. 400 x 250mm dp grade 20
concrete strip footings centered on walls

SITE NAME: NKAI

SITE ID:

LAND ID :

WBS:

RFQ NO:

PROJECT NUMBER:

LATITUDE: S: 20°20'6.86"

LONGITUDE: E: 30° 5'12.56"

SURVEY DATE:
RADIO ENGINEER:
SUPERVISOR:
DRAWN BY:
DATE:



HUAWEI TECHNOLOGIES ZIMBABWE (PVT) LTD
12th Floor, 28 UK Towers, 3007,
Maple Avenue, Harare, Zimbabwe
Tel: +263 4 79320
Fax: +263 4 79324

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COMMENCEMENT OF WORK.

APPROVED

HUAWEI

APPROVED

CUSTOMER

DATE:

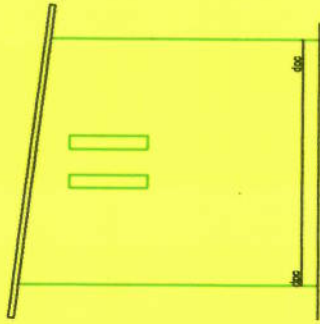
DATE:

NO:

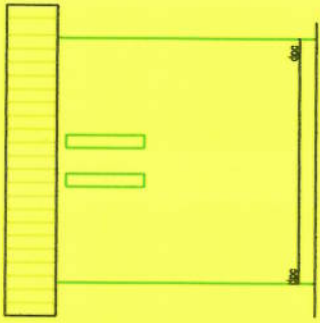
DESCRIPTION:

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ISSUE: 1
DRAWING: A
SHEET NO: 17

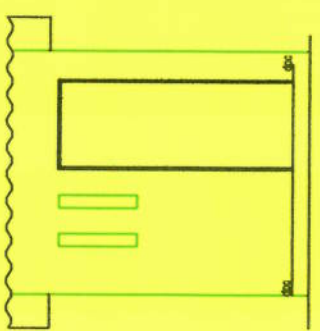
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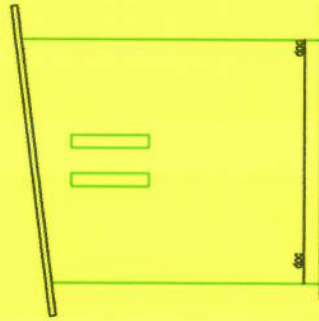
SIDE 2



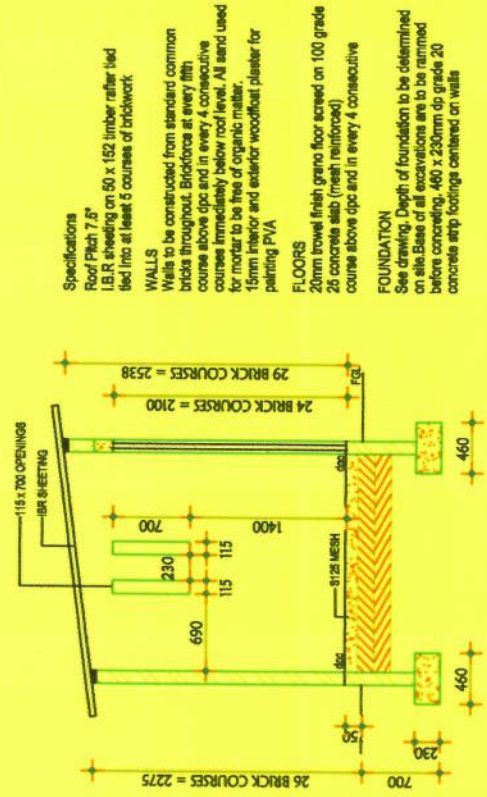
REAR ELEVATION



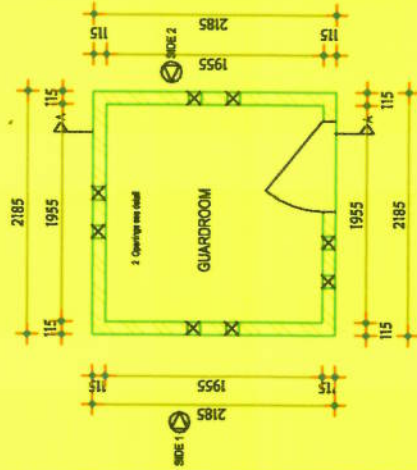
FRONT ELEVATION



SIDE 1



SIDE 2



FLOOR PLAN

Specifications
Roof Pitch 7.8°
I.B.R. sheeting on 50 x 152 timber rafters tied
led into at least 6 courses of brickwork
WALLS
Walls to be constructed from standard common
bricks throughout. Brickwork at every fifth
course above gpc and in every 4 consecutive
courses immediately below roof level. All sand used
for mortar to be free of organic matter.
15mm interior and exterior woodfloat plaster for
painting PVA
FLOORS
20mm brovel finish grano floor screed on 100 grade
26 concrete slab (mesh reinforced)
course above gpc and in every 4 consecutive
FOUNDATION
See drawing. Depth of foundation to be determined
on site. Base of all excavations are to be rammed
before concreting. 400 x 230mm dip grade 20
concrete strip footings centered on walls

ROAD TRANSPORT AUTHORITY OF ZIMBABWE
CENTRE
100 HARARE
HARARE
DESCRIPTION: 4263 4 797330/5

SITE NAME: NKAI

SITE ID:

LAND ID :

WBS:

RFQ NO:

PROJECT NUMBER:

LATITUDE: S: 20°20'6.86"

LONGITUDE: E: 30° 5'12.56"

SURVEY DATE:
RADIO ENGINEER:
SUPERVISOR:
DRAWN BY:
DATE:



HUAWEI TECHNOLOGIES ZIMBABWE PRIVATE LTD
121, 123 & 125 TOWNERS ROAD
MIDWAY, HARARE, ZIMBABWE
TEL: +263 4 792827
FAX: +263 4 792824

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COMMENCEMENT OF WORK.

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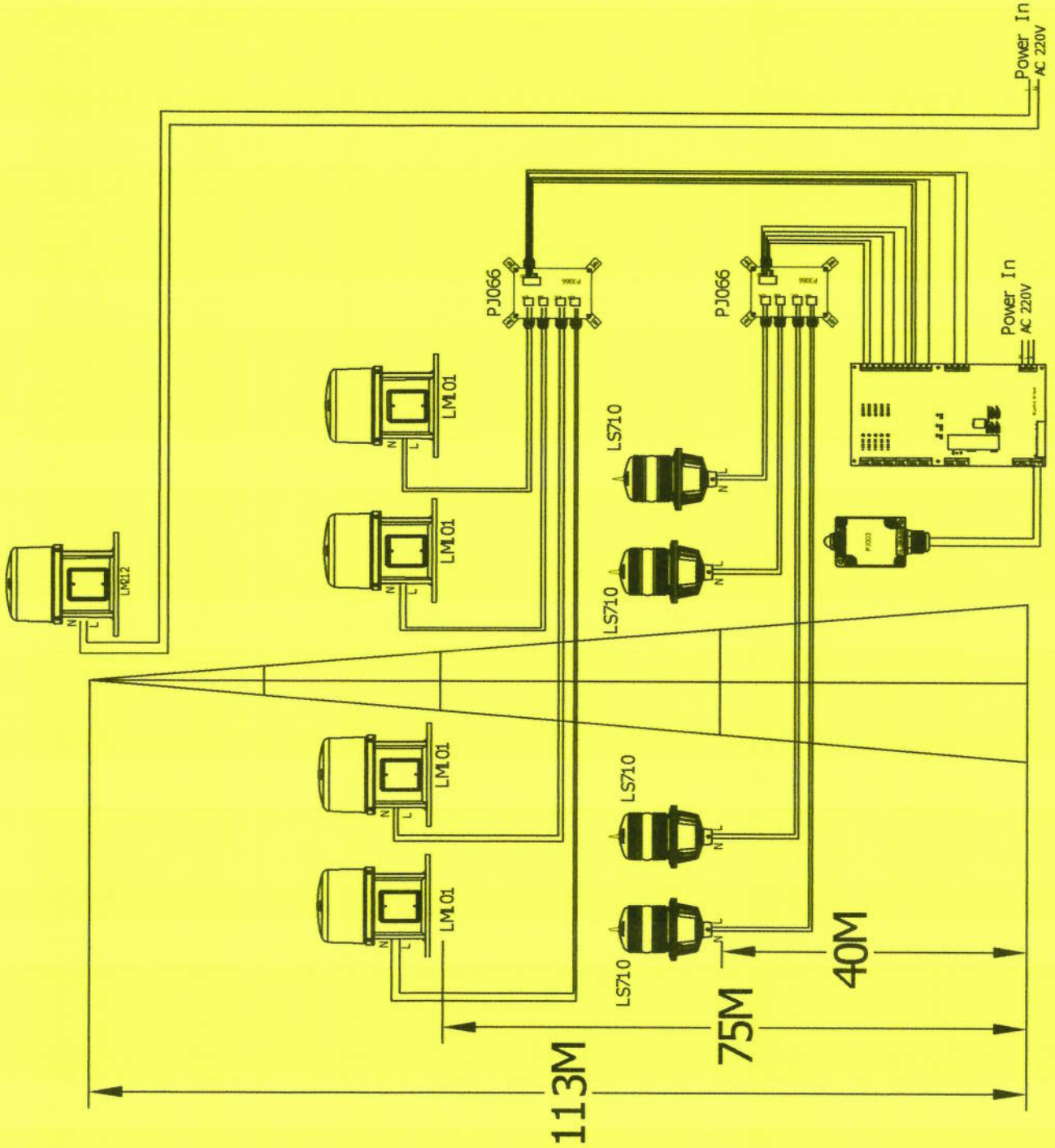
CUSTOMER

DATE: DATE: 08/11/2018

NO: DATE: DESCRIPTION: PROJECT: NKAI

SCALE: N.T.S
ISSUE: 1
DRAWING: A
SHEET NO: 18

4 Leg Wiring Diagram



SITE NAME: NKAI

SITE ID:

LAND ID :

WBS:

RFQ NO:

PROJECT NUMBER:

LATITUDE: S: 20°20'6.86"

LONGITUDE: E: 30° 5'12.56"

SURVEY DATE:
 RADIO ENGINEER:
 SUPERVISOR:
 DRAWN BY:
 DATE:



DRAWINGS MUST NOT BE
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 COMMENCEMENT OF WORK.

APPROVED

BROADCASTING AUTHORITY OF ZIMBABWE

HUAWEI

DATE: P. DATEX 2024/07/25

NO: DATE: DESCRIPTION:

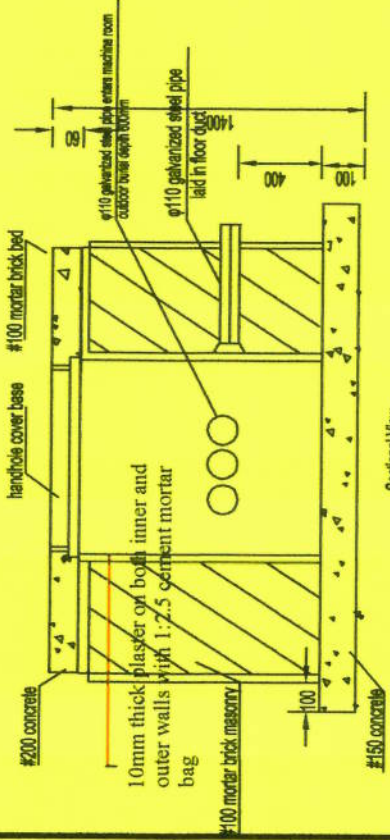
1st FLOOR MEDIA CENTRE

RAIMBEAU MARKET HARARE ZIMBABWE

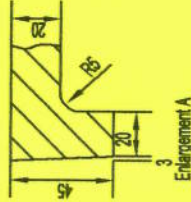
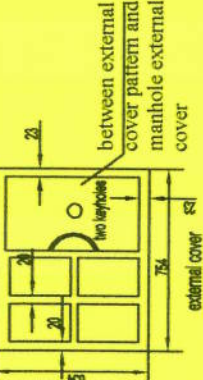
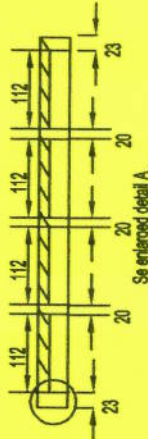
TEL: +263 4 777 5005

SCALE: N.T.S
 ISSUE: 1
 DRAWING: A
 SHEET NO: 19

The Structure Of Manhole



Sectional View

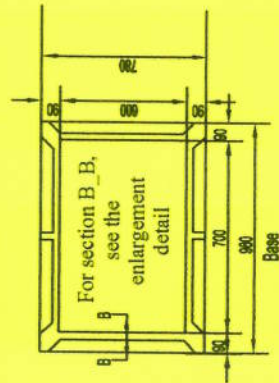


Enlargement A

B_B Enlargement

Reference table of main materials

SN	Name	Unit	Q'ty
1	external cover of small handhole	Set	1
2	#100 machine made brick	Per 151	151
3	#425 cement	kg	71
4	medium sand	kg	317
5	#1 coarse	kg	225



For section B_B, see the enlargement detail

Notes: Processing technical requirements are described as follows:

- All S
- Cast corner radius R3-R5
- Material HT15-32

- Notes:
- The small handhole is used for upward laying of buried cable or entry into the office.
 - The earth excavation volume is about 1.2 cubic meters and the construction requires 3.43 man-days (of which 0.43 man-day for earth excavation and 3 man-days for masonry).
 - The quota is calculated according to 0.6m excavation, for example, 0.1m increase or decrease, then 24 pieces of bricks and 5kg cement shall be increased or decreased.